OBE IN ACTION

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9803033

My [redacted] garden

What do you think?

Researcher: How old are you?
Learner: Seven years old.
Researcher: What is this picture all about?
Learner: About, ummh, about water.
Researcher: What is happening to the water?
Learner: It's coming up to the sky.
Researcher: What makes it come up to the sky?
Learner: The sun.
Researcher: What does the sun do to the water?
Learner: The sun is going to change it to be the rain
Researcher: Explain how that happens.
Learner: The sun take the water to put it up in the, these clouds (pointing to the clouds in the picture), and the clouds come to be black, and the clouds rains, and it started to rain.
Researcher: Where does the rain go?
Learner: To the river.
Researcher: Why do we call it a water cycle?
Learner: It is round and it is not stopping.

(Extract from classroom transcript for school B)

This research was done

As part fulfillment for a

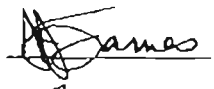
Masters in Science Education

At **UDW**

JANUARY 2000

DECLARATION

I declare that this research was done by me, ANGELA ANTIONETTE JAMES.

Signature: 

Date: 30 January 2020

DEDICATION

I dedicate this research to my
late father, Edward Russon.
Your life is my inspiration and strength.

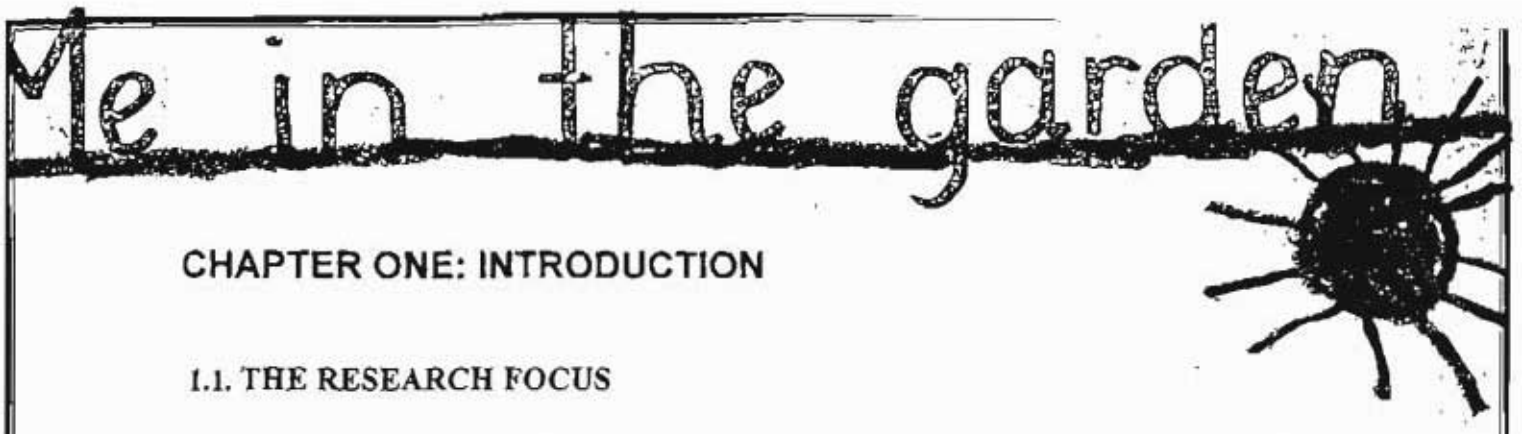
Dedication, perseverance, courage
and achievement against all odds.
(And to pay for it with your life,
because of the colour of your skin.)

ACKNOWLEDGEMENTS

I wish to thank the following:

- My husband, Gavin and children – Lisa, Grant, Ryan and Alex (COMET baby), for their love, patience, care, support and 'computer person'.
- My mother for her unfailing motivation, trust, care and presence.
- My sister, Ursula, her husband Keith and family for their support and care.
- My sisters, Emily and Sharon and my brothers, Roland and Jeremy and their families for their interest and support.
- My mother and father in-law for their support and care.
- Renuka Vithal, for being the spark and flame in darkness, care, support and interest.
- Alan Pillay, for the care.
- Rehana, for the motivation, support and interest.
- 'COMET' Masters Science group, especially Erika and Radhan, for the care, communal and social development.
- Grade 1 educators, learners and management of schools A, B and C, for taking the challenge and accepting the foreign presence.
- Colleagues at work, for their interest and care.
- Famida and Melissa, college students, for their support.
- To the printers and photocopiers.
- People who were indirectly involved.

CONTENTS



CHAPTER ONE: INTRODUCTION

1.1. THE RESEARCH FOCUS

The National Department of Education saw Outcomes-based Education (OBE), as critical to transformation in education; but OBE has been implemented in highly variable and unequal resource contexts. The issue in question is how did educators and learners, in the different resource contexts, engage the new curriculum?

The purpose of this study was to explore how Grade 1 educators and learners, from different resource contexts, engaged with a Science focus in an OBE learning programme and to explain the way educators and learners differed in the process of such engagement.

1.2. CRITICAL QUESTIONS

1. How do Grade 1 educators, from different resource contexts engage with a Science focus in an OBE learning programme?
2. How do Grade 1 learners, from different resource contexts engage with a Science focus in an OBE learning programme?
3. What explains the way educators and learners, in their different resource contexts, differ in their engagement with a Science focus in an OBE learning programme?

1.3. RATIONALE

The Government of National Unity, the new government in South Africa, came into power in 1994, with the ANC (African National Congress) at the helm. The ANC was the

political force and they had to fulfill promises that they had made to the electorate, in terms of: education for all, a different education system, the right to vote etc. To fulfil these promises the government introduced a number of reform initiatives. With regard to education, three national reform initiatives, which focused on schools, were introduced. The first was to remove 'racially offensive and outdated content' (Jansen, 1998), from the curriculum, while the second introduced continuous assessment into schools (Lucen et al., 1998). The third curriculum reform initiative has been referred to as Outcomes-based Education (OBE).

This change in the education system would 'demand of educators a different way of working and it would demand of learners a different way of learning' (Bengu, 1997). Can educators deal with this different way of working? A response to this was the following observations made of Grade 1 educators during 1998, the year of implementation:

a. Educators experienced confusion, insecurity and frustration (James. A. 1998);
b. Educators experienced resistance to the implementation, "This OBE is unrelated to what I am doing. (COMET Masters students, 1998).

In addition to responding to change, educators were expected to implement OBE in highly variable and unequal contexts. These highly variable and unequal contexts included the human and physical resources that were found at schools. According to Jansen (1998), OBE as a curriculum innovation has not taken adequate account of the resource status of schools and classrooms in South Africa. This was seen, in that at the beginning of 1998, Grade 1 teachers were having difficulties with interpreting the number of thick policy documents that the Education department had given to them. More than this, teachers received varying levels of exposure to OBE workshops, which were held to prepare teachers for the new curriculum, with the result that some teachers felt very incompetent and insecure to facilitate OBE. Teachers were left with a number of questions/problems concerning the new curriculum: How would they develop Learning Programmes, which took into account the specific outcomes for the various Learning Areas for the Foundation Phase (Numeracy, Communication and Life-skills)? How would they integrate the Learning areas/ Learning programmes? What part of the Life-

skills Learning Programme should be Science? With all this, teachers were still expected to be curriculum developers. Teachers also found themselves in varying physical resource contexts, where some schools were fully equipped and others barely had an infrastructure. It is important therefore, to understand how teachers and learners engaged the new curriculum in these different resource contexts. Of particular interest are the Grade 1 teachers and learners who have had just one year of the new curriculum, since its implementation in 1998.

I have observed Junior Primary (Foundation Phase) educators, during practical teaching sessions with college students, working in different resource contexts. The various resource contexts ranged from well-equipped classrooms to minimally resourced classrooms. In these different resource contexts, I have observed the educators engaging with Learning Programmes. As the Life-skills Learning Programme has Natural Science integrated in it, I was particularly interested to observe science in the Life-skills programmes, designed by the Junior Primary educators. Also, I was interested in the way that the Junior Primary educators differed in their engagement with the learning programmes that were developed by the educators themselves. Furthermore, as I observed learners during Life-skills learning experiences, I listened to the variety of comments that they made and questions that they asked. This prompted me to question the role/position of an educator in working with a science focus in an OBE Learning Programme. Do educators, in different resource contexts, have different reasons for engaging with a science focus in an OBE learning programme in different ways and how does this impact on the learners?

1.4. THE IMPORTANCE OF THE RESEARCH

The findings from this research will be useful to educators who have an interest in improving their engagement with learning programmes, in the contexts in which they find themselves (educators). In the light of this, educators could question the source and availability of resources required for teaching and learning. They could also look at the

requirements for planning learning programmes, which integrate science effectively. Educators could also question the extent to which their understanding and their attitude to the new curriculum could impact on their implementation of the curriculum.

Teacher education/preparation institutions may also use the findings from this research to involve pre-service and in-service educators to develop effective learning programmes that integrate aspects of science, to ensure that the learners may develop science knowledge, skills and an interest in and for science. Also educators may be alerted to the different resource contexts that Grade 1 educators experience, and how the Grade 1 educators function in their different resource contexts.

National and regional policymakers who design policies for educators and learners in the classroom, may use the research findings to inform the policies that they make with regard to implementing new curricula in variously resourced schools. Policymakers need to take account of the resources that are present at all schools, and how this will impact on the implementation of a new curriculum. A question that can be asked here is, can the curriculum be successfully implemented in an under-resourced school? Policymakers need to consider what policies about the resourcing of schools, for OBE implementation, should be in place. The findings from the research could get policymakers involved in developing policy for:

- INSET, to ensure that educators engage with curriculum development projects.
- PRESET, to ensure that teacher education/preparation colleges do provide curriculum development programmes to student teachers so that they can be effective in developing learning programmes.

Advisers and Learning area committees may also use the research findings to provide appropriate support and In-service workshops for educators, so that they can work under the changed conditions, implement effective learning programmes and use developed materials effectively.

Learning material developers may also use this research finding to inform them of the necessity for taking various resource contexts into account when designing Learning Programmes.

The finding of this research may also be used internationally to extend the theory of change and the theory of how teachers engage with, a Science focus in an OBE Learning Programme, under different resource contexts.

1.5. A BRIEF REVIEW OF LITERATURE IN THE FIELD

This literature review highlights aspects in the research literature that are strongly linked to the research.

The literature on research in curriculum change addresses the meaning, reasons and management of this change in both, developed and developing countries. What is significant is that the meaning for curriculum change is viewed as a change in the policy and practice of teaching and learning, for both developed countries (Fullan, 1982; Naisbitt, 1984) and developing countries (Brand, 1988; Christie, 1997, 1999).

The reasons for curriculum change differed for various countries and this difference was not related to the developed or developing state of the country i.e. developing countries did not all give the same reason for curriculum change. Even in a particular country, developed or developing, different reasons were given for curriculum change by government and critics. In South Africa, the reasons ranged from economic. to political.

Research on the way in which curricula are implemented addresses both policy (Christie, 1997; Baxen and Soudien, 1999) and practice (Fullan, 1982; Jansen, 1999; Pahad, 1999) aspects. Research on the policy aspect focuses on the types of policies developed and the impact of these policies on the education system at the macro and microscopic level. The macroscopic level is concerned with preparation and guidelines for change, while the

microscopic level is concerned with, amongst other things, the educators ('change agents'), learners, school management and school resources. Research on the practice aspects focuses on the educator's and learner's engagement with the new curriculum (Fullan, 1982; Pahad, 1999); the resource contexts of schools (Naidoo and Lewin, 1996; Jansen, 1999; Wilson, 1999).

Literature on how educators experience change and the capacity for teachers to change in developed countries is extensive, but minimal in developing countries. Research literature on developing countries does not give clear insights into: the way teachers think about change; what happens to teachers during the change process and how teachers try to either fulfil the expectations of the new curriculum or resist the changes of the new curriculum.

In South Africa, many teachers are expected to deal with the implementation of the new curriculum and also the lack/absence or poor distribution of resources at their schools. According to Lewin (1993), resource issues are critical when implementing a new curriculum. Many South African schools are under-resourced and even the infrastructure in some cases is bad, while some schools are highly resourced with good infrastructure. It is within this context that South African teachers, presently, Grade 1 and Grade 2 teachers, are expected to implement the new curriculum, working under strained conditions. The presence/lack of resources 'play a large part in determining the balance of advantage between different educational development strategies and place different boundaries around what is possible and sustainable' (Lewin, K. 1993). So, the way in which teachers engage with learning programmes is constrained by the availability of resources. The research literature that is in place is based on how teachers implement OBE in varied resource contexts. (Jansen, J. 1998).

The literature on research in curriculum change does not address (1) the failure/abandonment/modification of the intended curriculum change; (2) how to sustain the implementation of a curriculum and (3) how to deal with problems faced by educators at grassroots level, in different resource contexts.

What is not addressed in the literature is how teachers and learners, in variable resource contexts, engage with an OBE Learning Programme and more specifically one, which has a Science focus.

1.6. METHODOLOGY

The research methodology can be described as a curriculum impact analysis i.e.; I worked with nine Grade 1 educators, from three different resource contexts. I did a case study of two Grade 1 classrooms in one school, one Grade 1 classroom in the second school and all the learners and teachers in the third school. The three schools, each having a particular resource context, were selected from the Durban North region, within the province of Kwa-Zulu Natal. Each school was distinguished on the basis of available resources, both physical e.g. type of infra-structure and human resource base e.g. qualifications of teaching staff.

The three school types were:

1. A well-resourced school with excellent infrastructure – School A, which had a white staff and a racially mixed learner group;
2. A moderately resourced school with reasonable infrastructure – School B, which had a racially mixed staff and only African learners;
3. A school with minimal infrastructure and minimal resources – School C, which had an African staff and only African learners.

All Grade 1 educators from each school were expected to engage with a learning programme linked to the phase organiser – Environment and the programme organiser – 'Me in the Garden'. The educators were expected to engage with this learning programme by planning and presenting and reflecting on the planning and presentation of the learning programme. The educators had to develop a learning programme, which had to take into account the specific outcomes for the Natural Science learning area.

One/two/five Grade 1 educators from each school, engaged (planned, presented and reflected) with the learning programme to his/her Grade 1 learners for a period of 5 consecutive days. I observed the Grade 1 educators presenting the learning programme to the learners during the month of March 1999.

1.7. DATA ANALYSIS STRATEGY

The analysis of quantitative data was done using a variety of descriptive statistics. The descriptive statistics, including frequency counts, were used to summarise and describe the data. As statistical analysis does not give meaning to behaviours observed, an analysis of qualitative data was integrated.

The analysis of qualitative data was done by looking for patterns, through creating categories, from available texts. The qualitative data was used to support the results of the qualitative data.

1.8. VALIDATION

To strengthen the validity of the research, there was triangulation of the methods utilised and the sources of the data were recorded through audiocassettes. The research used more than one method of data collection. In addition, the data was collected from a number of different sources. Also, qualitative and quantitative analysis of the data was done.

Further, the validity of the research was enhanced by:

1. Using a pilot study and junior primary educator colleagues to refine the observation schedule;

2. Asking respondent educators to evaluate the transcripts of the post-observation interview, for accuracy.

1.9. LIMITATIONS OF THE STUDY

A limitation of this research study was that the sample was limited, as it only involved nine educators and the contexts did not capture the broad range of Grade 1-implementation contexts in South Africa.

Extended, long-term observations would have been ideal, but it was not possible given the limits of time and resources.

Under-resourced schools, currently in South Africa are found in Black Township and rural areas. Mother tongue (Zulu) is the medium of instruction. As I cannot speak Zulu, an interpreter was used. As a result interpretations of transcripts could be different from what was intended.

The presence of the researcher was also a limitation, in that learners and educators behaviours could be influenced by the presence of the educator.

1.10. THE RESEARCH PLAN

The second chapter of this research will focus on some of the relevant literature in this field. The literature review will examine curriculum change, the impact of curriculum change on a macro and micro level.

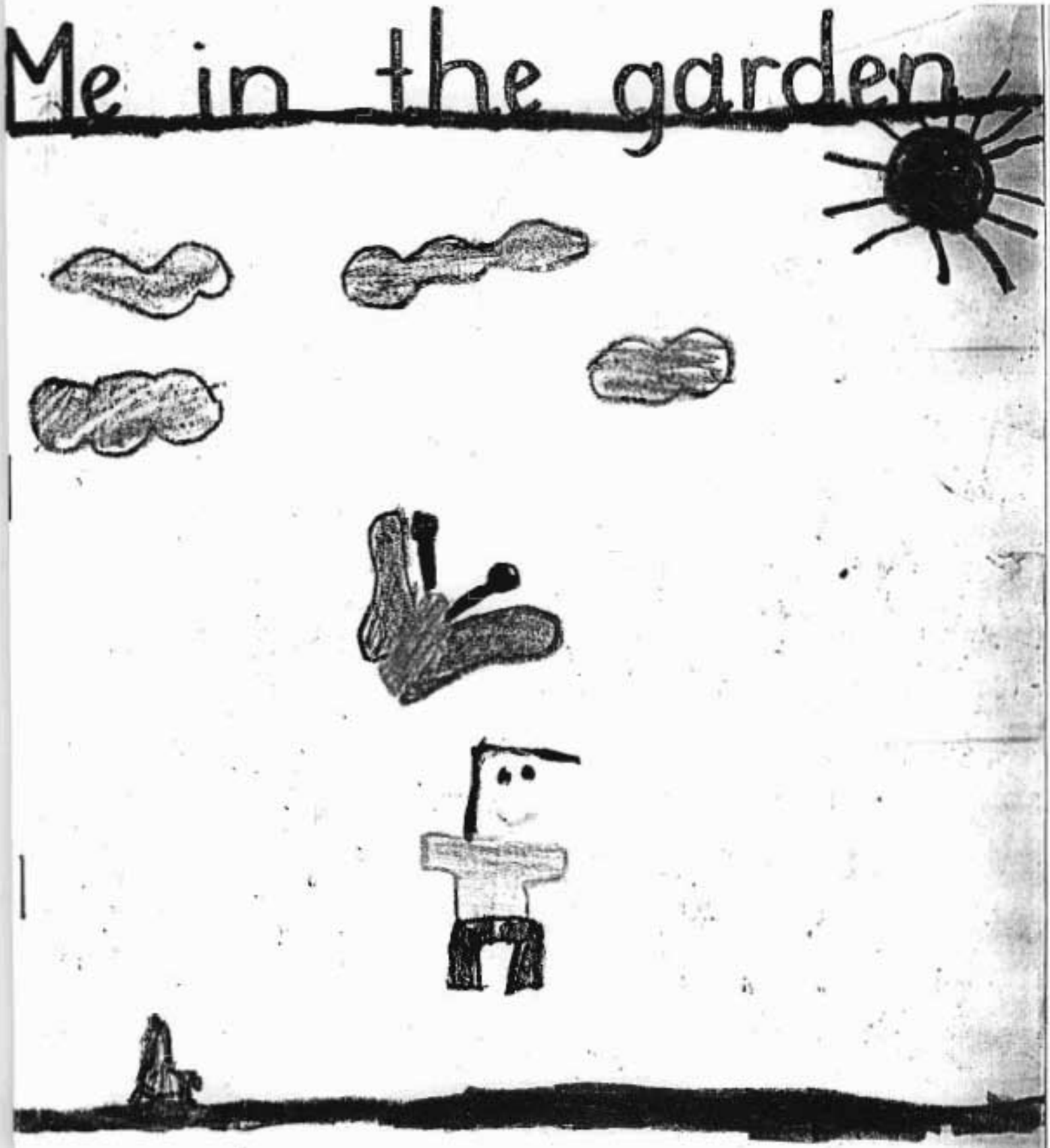
Chapter three provides a description of the research methodology. In this chapter the researcher outlines reasons for the type of research conducted, the sample chosen, the

choice of research instruments, methods of data collection and other relevant details with respect to the study.

Chapter four is a descriptive interpretive report of the three case studies. The observation schedule, educator interviews etc. were analysed to provide the data for the case studies. Chapter five is an analytical synthesis of the trends that were observed from each case study. Comparative analysis was done.

The final chapter of the research will identify findings and conclusions to the study. The critical questions are examined in the light of the conclusions and findings. Possible reasons for the findings are suggested together with recommendations and implications for future research.

Me in the garden



CHAPTER 2

This chapter is organised into three sections:

Section I, which is concerned with literature on curriculum research;

Section II, which is concerned with the theoretical framework;

Section III, which is concerned with the conceptual framework.

Section I – Literature on curriculum research

Introduction

There is extensive literature on research in curriculum change in both developed countries (Fullan, 1982; Naisbitt, 1984; Leithwood, 1987; Fullan and Stiegelbauer, 1991) and in developing countries (Calloids, et al, 1992; Lewin, 1993; Naidoo and Lewin, 1996; Jansen, 1998, 1999; Brand, 1998; Christie, 1997, 1999). The literature on research in both developed and developing countries looks at: giving meaning to what is curriculum change; the reasons for curriculum change; the way in which the changed curriculum is introduced; how it is managed and at its impact on the education system both at a macro and micro level. I will now present a brief analysis of the literature on research for each of the previously mentioned curriculum change aspects.

Change and curriculum change

Change in the Oxford dictionary (1964) is defined as an alteration or a substitution of one for another. Change can be viewed as a process where the existing, in some cases old, is replaced by different, in some cases new, structures. Change can take place in the global community, the country, around the schools in the community and in the schools. Change does not take place in a vacuum, i.e. it is in response to something, for example change in educational systems could be in response to changes in the country and global community. To keep abreast with change in the global community and the country, educational systems have to adapt by introducing a new curriculum (includes the

knowledge, skills, values and attitudes that inform teaching and learning, and how these are taught and assessed), which is constantly developing. This change in curriculum and development in some countries could include the initiation of radical reform in education, in order to adapt to this changing world.

The literature on research in a developing country, South Africa, addresses the changes that have taken place since the transformation of the government in 1994. The changes that have taken place were concerned with the introduction of three national reform initiatives, which focused on schools. The first was to remove 'racially offensive and outdated content' (Jansen, 1998), from the curriculum, while the second introduced continuous assessment into schools (Lucen et al., 1998). The third curriculum reform initiative has been referred to as outcomes-based education (OBE). These curriculum changes are viewed by this research as a radical move from the old education system which catered for passive learners, was driven by examinations, often entailed learning parrot-fashion, and was characterized by a syllabus that was content-based to an education system that catered for active learners, is driven by outcomes and continuous assessment, entails learning which involves thinking and creativity and is characterized by the development of learning programmes that integrate learning areas. All this suggests major changes in all spheres of the management and the delivery of education in South Africa. In the current South African climate, educators are expected to implement OBE without all the requirements in place. Are all these changes possible or will a window dressing activity take place? According to Savage, M (1998):

> Curriculum change should be incremental, participatory and focused on human development. Change must be systemic, reflect classroom realities and be sustainable.

Has this been evident in curriculum change in South Africa? I argue that this is not the case as only a few individuals at grassroots level (teachers) were involved in developing the curriculum. The majority of the teachers were not directly involved. They received a minimal training period as an introduction to the implementation of OBE and thick policy

documents that were not educator friendly, they were difficult to work with. This research views curriculum change in South Africa as partially participatory and non-systemic.

Reasons for curriculum change

The reasons for curriculum change as discussed in the literature of both developed and developing countries range from economic (Mahomed, 1999); to social (Fullan, 1982); and to political (Jansen, 1998). The reasons for curriculum change in South Africa is seen in the following quote by Parkyn, 1994:

> Outcomes-based education was an attempt to react and adjust to this changing world;

and a quote from a Departmental document:

> 'A prosperous, truly united, democratic and internationally competitive country with literate, creative and critical citizens leading productive, self-fulfilled lives in a country free of violence, discrimination and prejudice' (Departmental Document, 1997).

In education therefore, curriculum change is associated with the incessant striving towards the provision of better quality education for learners so that they can meet the demands of the world in current and future years. The demands currently in South Africa are concerned with globalisation and the development of skilled, productive citizens to meet the demands of globalisation. Can the change in the education system be expected to fulfill these demands in the context of the South African situation? The literature questions this by raising the issues of the lack of resources in schools, fully qualified educators (human resources), a lack of a culture of teaching and learning and apathy to any education reform.

The quote made in departmental documents (given on page 13) gave the impression that the main reason for curriculum change in South Africa was economic. This economic reason also addressed the issues of globalisation, where the development of South African citizens to be productive and to make a contribution to the South African economy, were presented by the government as the main driving forces for the change. This economic impression was also evident in the OBE literature produced by the Education Department, where the Department saw the introduction of OBE as:

> 'Facilitating human resources development and potentially contributing to a vibrant economy' (The NCDC, 1996 in Jansen, 1998).

The economic impression, where citizens were to contribute to a vibrant economy does not give clear guidelines on how this was to take place. The terminology used was not qualified and the goals were not descriptively interpreted. I therefore question how curriculum change in South Africa, taking into account the many varied variables that operate in the delivery of education, for example, under-resourced schools, lack of schools, unqualified educators, could impact on the economy of South Africa. Van Wyk, N. (1998) questions if all the changes are really necessary and are they really going to benefit'. This is more strongly and directly argued by Jansen, J. (1999). He argues that there is not a shred of evidence in almost eighty years of curriculum change literature to suggest that altering the curriculum of schools leads to, or is associated with changes in national economies.

I argue that the impression given was also a social one, where the development of human resources to be productive and truly united, was stated. This development of human resources was a phrase that was evident in all departmental OBE documents and banded about by various education departmental officials. What I question is what does the development of human resources mean in the context of curriculum change in South Africa, taking into account the varied variables, examples mentioned above and how was curriculum change going to take place? What was not evident in the literature was, who are the human resources and just how would they be made to be productive? I argue that

the human resources would be inclusive of teachers and learners in schools. How would teachers and learners be made to be more productive especially considering the constraints that many teachers and learners are faced with? Besides experiencing a lack of resources, the sheer responsibility of some teachers to work with excessively large numbers of learners is mentally, physically and socially taxing.

The heart loaded feelings that this curriculum change instilled in many citizens and the acceptance of the curriculum change by many citizens was significant. Can you question the reason for curriculum change when it was for the good of all citizens? Are we to assume that the government is concerned with the mass population developing and also the development of the economy?

I argue that the main reason for curriculum change was political, where all citizens were to have an education where the curriculum was according to Jansen, J (1998):

'Purged of racially offensive and outdated content' (Jansen, 1998).

If this is the main reason for curriculum change, then the focus on what is happening at grassroots level, in the classroom, will be minimal, and this would not be considered to be of prime importance in the implementation of OBE in Grade 1. The availability of resources in the classrooms, including qualified competent and confident educators, would not be looked at directly, rectified and developed and this would obviously impact on the implementation of OBE in Grade 1 classrooms.

Introduction, management and impact of changed curriculum

Research literature on the way in which curricular are introduced are addressed by Berry, (1995); Dlugosh, et al (1995); Brand (1998); Christie, (1997, 1999); Jansen (1998, 1999), and Fullan (1982) and Jansen and Christie, (1999). The literature focuses on the implementation of a curriculum (outcomes-based approach), the policy initiatives that are put into place and how this impacts on the education system.

The implementation of OBE cannot be a once-off happening. It is a process, which will take years to put into effective operation. The scheme presented in figure 3.1. below shows the interplay of the principal processes, influences and actors involved in delivering the curriculum.

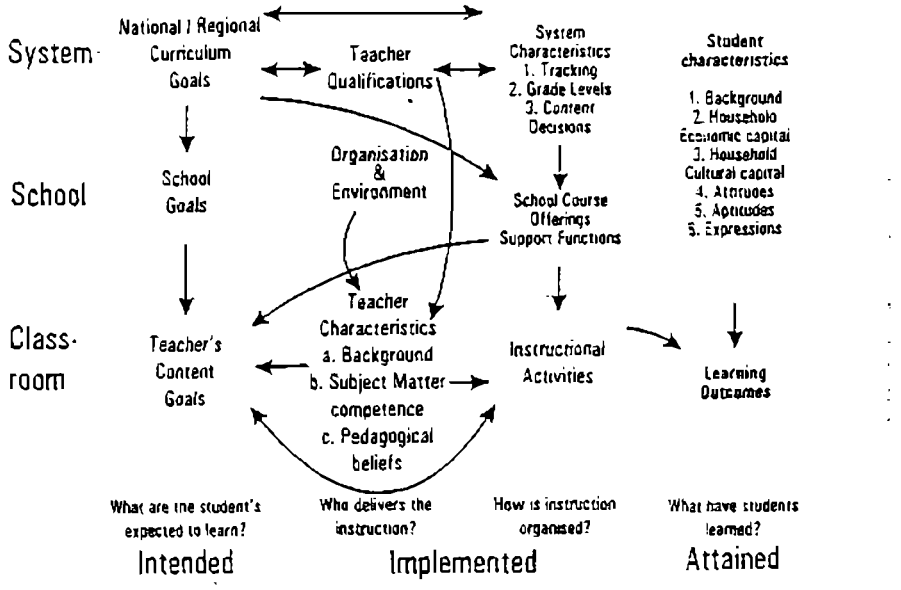


Figure 2.1. Outline of the curriculum process (Taylor, N. 1999).

The implementation of a curriculum is a process in which the system, whole school with its staff, management, learners and the whole community should grow together and develop in the pursuit of excellence (Pretorius F. 1998). This growing together suggests an easy process. This is not the case as schools produce social turmoil by maintaining dominant beliefs, values and interests, (Leistyna et al, 1996), the lack/presence of resources, level of the culture of teaching and learning etc. all have an impact on the process. So, implementing a changed curriculum, impacts on the education system both macro- and microscopically.

The macroscopic impact of a changed curriculum is addressed at both national and regional levels, where preparation and guidelines for change are clearly given and critical statements are made about governments incompetence to bring about change amongst themselves. So, the management of change is under severe criticism. What is not discussed is how the changed curriculum can be sustained and how problems can be dealt with in varied resource contexts of the schools.

In South Africa, very little research literature on curriculum change was available at the beginning of 1998. With the implementation of OBE in Grade 1 classrooms at the beginning of 1998, a number of research initiatives were in place.

With the publication of 'Changing Curriculum' in 1999, a lot of research literature on outcomes-based education in South Africa was available. The research literature addressed policy initiatives, practice and implications of OBE and it was concerned with tracing the consequences for teaching and learning in different resource contexts.

Jansen (1998) looked at the reasons why the introduction of the new curriculum will fail, looking particularly at OBE as a behaviouristic approach which atomised learning and the lack of resources that was prevalent in many South African schools. He does not provide solutions or present a way forward that is possible in the South African situation. Christie (1997), looked at the way implementation policy was developed and she questioned the workings of policymakers. This was presented as constructive criticisms to OBE implementation in January 1998.

Jansen (1999) presented a history of OBE in South Africa, which looked at curriculum initiatives and the various role-players over the period of time from the 1990s' to 1998. This clearly outlines the discussion that took place by various OBE role-players, and the various policies that were developed.

Andre Kraak (1999) described ideological and philosophical assumptions governing OBE, where OBE was seen as a conservative technology bathed in a popular education

discourse, Peoples education. He addresses the 'restoration of respect for the professional role played by teachers in the learning and assessment process' (Kraak, A. 1999), but he does not mention the impact that the lack of resources would have on the implementation of OBE.

Cliff Malcolm (1999) presented a critical analysis of the model of OBE in operation in South Africa and compared it to the models adopted by Australia and the United States of America. He argues that it in not enough to say that 'creative teachers in a creatively managed school will do creative things in spite of the system'. He states that government policy; theoretical models, management and support systems must help all teachers to do creative things. This research addresses the issue of support of teachers by looking at the collaborative support provided by colleagues and the support provided by the management of the school. Cliff Malcolm does not discuss how the issue of under-resourced schools should be addressed. What he does mention is evident in the following quote:

> Teachers, 'have a low knowledge base (in relation to what is required) ...and the system is woefully under-resourced' (Malcolm, C. 1999).

Baxen, J. and Soudien, C. (1999) present an argument that in the agenda of the OBE process is a presumption of the reform process as benign and innocent, and a counter argument that the reforms are partial and profoundly one-sided. They do not address the issue of under-resourced schools, but they do highlight the criticism made by Jansen 'that teachers and schools are in distress about how they are to implement the proposals' (Baxen, J. and Soudien, C. 1999).

Haroon Mahomed (1999) addressed the implementation of OBE in South Africa, which he calls OBET. He looks at the emphasis in on accountability, equity, positivity, mix of central and local responsibility and competence, changed roles and responsibilities of teachers, learners, and communities and on the significance of what is being learned and he argues that OBET is the answer for South Africa. He does raise concerns about the

lack of resources and the limitation of financial and human resources, but he does not offer any solutions for it, only stating that we need to 'tap into international experience and potential for assisting us in addressing our particularly deep and complex educational problems' (Mahomed, H. 1999).

Mahomed Rasool (1999) argues that, 'Curriculum 2005 makes ample provision for a balanced curriculum', by looking at the role of teachers and learners, and the introduction of learning areas. He does not address the under-resourced situation that is faced by many Black schools, especially in the rural areas.

There is South African research literature on OBE inside the classroom which, looks at how Grade 1 teachers implement OBE in varied resource contexts (Jansen, J. 1999). Other research addresses the three pillars of curriculum transformation, i.e. curriculum development, educator development and the development, selection and supply of learning materials (Potenza, E. and Monyokolo, M. 1999); and outcomes-based assessment in practice (Pahad, M, 1999). Each research addresses a particular aspect about OBE implementation. Each research gives no sound suggestions of what could be done differently with each particular aspect, in variable resource contexts.

On a microscopic level, curriculum impacts look at what happens to: the 'change agents' (teachers/educators/facilitators); learners; the school and the availability of different resources for the effective implementation of the curriculum, evident in figure 2.2 below:

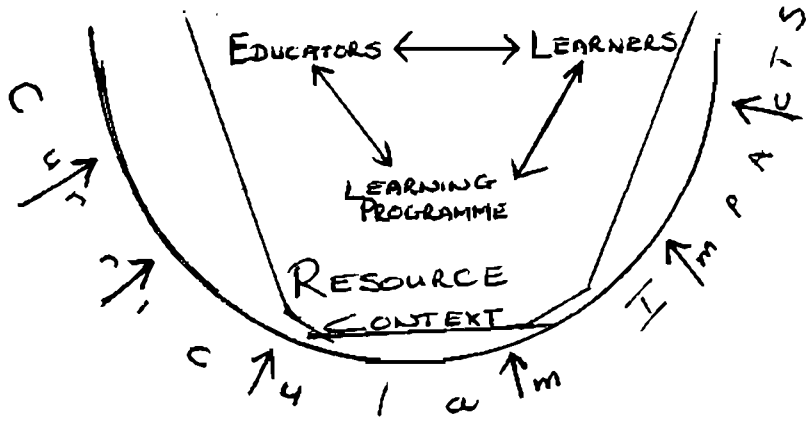


Figure 2.2. Curriculum impacts on a microscopic level. (Dev James, A.).

In particular, in South Africa, it does not give a detailed account of the reality in the schools and classrooms with regard to the resources available for teaching and learning as evident in the following quote:

> OBE as a curriculum innovation has not taken adequate account of the resource status of schools, particularly classrooms in South Africa (Jansen, J. 1999),

and the capacity of the teachers to change and implement the change and what the general environment of the school is. More than this, school management organisation is also looked at in terms of how it is or is not developed to meet with the challenges and demands of a new curriculum. With the introduction of Curriculum 2005 with OBE methodology by the National Department of Education, in South African schools, systemic changes were planned, but were ineffectively introduced and managed by the Education Departmental. With this result, change in the South African classrooms has brought about confusion, frustration, anxiety and uncertainty (James, A. 1998) in Grade 1 teachers and amongst teachers in higher grades, who are still to experience the change in the future years.

There is literature that addresses suggestions for how the management can change for them to be effective and successful in the implementation of the new curriculum. Dlugosh et al (1995) stated that 'schools need to be substantially reorganised' for outcomes-based education to be successful. Berry (1995) supports Dlugosh et al by stating, 'organisational reform is needed to be able to effect successful curriculum reform'. Pretorius, F. (1998) suggests a number of changes that are needed in school management. Some of these changes are concerned with the grouping of learners according to achievement rather than age or ability; operational principles of expanded opportunity and design down; assessment/data-driven management information system; teachers working together as teams and informed and committed communities.

Educators and changed curriculum

Literature on how educators experience change and the capacity for teachers to change in developed countries is extensive, but minimal in developing countries. Research literature in developing countries does not give clear insights into: the way teachers think about change; what happens to teachers during the change process and how teachers try to either fulfil the expectations of the new curriculum or resist the changes of the new curriculum.

Educators are expected to prepare learners for the global market, develop their national cultures and identities by implementing the new curriculum. In order for educators to implement the new curriculum they have to experience change, e.g. change in their beliefs about learning and learners, their way of teaching and assessing. Besides these changes that educators are expected to undergo, there is also 'the sheer cumulative impact of multiple, complex, non-negotiable innovations on teachers time, energy, motivation, opportunities to reflect and their very capacity to cope', (Hargreaves, 1996). These are evident in large class groups and under or poorly resourced schools that teachers presently in South Africa are faced with and also expected to implement the new curriculum.

According to Savage, M (1998),

> Teachers have a key role to play in making curriculum decisions and they should be empowered through participation in the change process.

This key role of teachers was not played out in South Africa and Jansen, J (1998), supports this in the following quote:

> Small elite of teachers, often expert and white, have driven the Learning Area Committees and other structures, in which OBE has been developed. Teachers continue

to be defined as implementers.

Teachers in South Africa were disempowered before the implementation of the new curriculum even took place. Grade 1 teachers were faced with a new language, OBE language, and policy documents that were difficult for them to understand, trained for four days and expected to implement the new curriculum in Grade 1. Teachers were uncertain of what was expected of them (James, A. 1998). According to Hargreaves, A. (1996):

> Uncertainty can lead to reduction of risk, safety in teaching methods. .... If the changes facing teachers seem confusing and disconnected, this is often because of what is driving them, the context from which they spring is unclear.

This and the disempowering of teachers were detrimental to them developing confidence and competence to implement the new curriculum. This research addresses the competence and confidence of Grade 1 teachers, in different resource contexts, in the implementation of a learning programme. According to Jansen, J. (1999):

> 'Teachers understand and implement OBE in very different ways within and across different resource contexts'.

Teachers may not be committed to the implementation of the new curriculum as their belief systems are at variance with the intended curriculum. Hewson et al (1987) pointed out that the way teachers' implement a curriculum is influenced by what they believe and think about content and students. Cronin-Jones (1991) pointed out that if teachers' beliefs were ignored, then the implemented curriculum would probably differ from the intended curriculum.

Teaching is a process-oriented action. The way, in which teaching occurs in the school, is important for the development of teachers, learners, the community and the curriculum.

This development is possible if teachers are resourceful, consider the nature of the material being taught, use a variety of teaching and learning strategies, resources etc. to better accommodate student differences. So, for curriculum implementation to be successful, effective teaching and learning strategies need to be used by educators during the teaching and learning process. This entails the use of groupwork, investigatory methods, role-play, music and storytelling. These are some of the, 'African teaching and learning strategies that could be brought into the classroom' (Jegede, O. 1998), especially in South African classrooms. According to Jegede, O. (1998):

> Instruction is at the heart of implementing a curriculum. However well designed, if the content of a curriculum is not effectively communicated, efforts to build the curriculum remain ineffectual.

For educators to implement the content of the curriculum effectively, it is essential that all educators are extensively developed and trained in the workings of the new curriculum. For this to happen, the use of a rigid structure or framework for all educators is not suitable. Curriculum development should be flexible in structure to suit the needs of diverse groups of educators. What curriculum development does not address is the assumption that all teachers are creative and effective and these teachers can function effectively within their specific school contexts. This research questions this aspect, as teachers are so different in their professional qualifications, experiences, abilities and level of confidence and competence to implement the new curriculum. According to Fabiano, E. (1998)

> Effective learning is possible if all schools are provided with appropriately trained teachers.

Research literature should address the curriculum training aspect of educators extensively and match this to the educator level of effectiveness in implementing the new curriculum.

Research literature in developing countries also addresses the environment of teachers. According to Savage, M. (1998):

> Teachers can only change in environments that permit change and the environment of schools is a complexity of many interrelated factors.....

Grade 1 teachers school environment influences the change that the educator will experience and put into action during the implementation of the curriculum. The environment of South African teachers has not been researched in terms of what is the most suitable environment within which teachers can implement OBE?

With the implementation of OBE teachers are expected to use a new assessment framework. Assessment is continuous and student assessment in which the students' performance is monitored is very important. In the assessment process the educator plays an important role of discussing and making decisions with the learners about what to assess and how assessment will take place, giving feedback to learners and discussing with learners where greater improvement could take place. This places an added burden on educators who are not equipped to understand the policy documents and are experiencing problems with implementing the curriculum.

There is no research on how Grade 1 educators engage with a Science focus in an OBE learning programme, not even just with an OBE learning programme.

Learners and changed curriculum

Research on learners and a changed curriculum addresses the role of learners in the learning process, the influence of language, culture and the learners past experience in the development of knowledge. According to Savage, M. (1998):

> The most important resource of all is the learners.

This research looks at teachers and learners in a particular resource context engaging with a learning programme. So a discussion on learners in the learning process is necessary. The new curriculum views learners as, ' active participants in the learning process and having to take responsibility for their own learning', (Departmental Document, 1997). This view of learners can be understood from the following view, if learners have an opportunity to take charge of their own learning, follow their interests and work with others they become committed to the learning process. According to Savage, M. (1998):

> Any encounter with phenomena rapidly leads to puzzlement and understanding is layered. Our active experiences lead to feelings of confidence, self-empowerment and a knowledge that one, rather than external factors is in control of one's learning.

Harold Gonthie, quoted by Savage, M. (1998), extends this:

> When children are provided opportunities to be involved they are great achievers?

Learners, when provided with opportunities during active teaching and cooperative learning, can 'restructure ideas through negotiated meaning', (Driver, 1988). Glaser, quoted by Jegede, O. (1998) states that:

> Cognitive activity is inseparable from its cultural milieu.

The Grade 1 learners engaging with the learning programme will use their existing knowledge, which is influenced by cultural beliefs and values, to make meaning of the new knowledge. According to Jegede, O. (1998):

> the knowledge base for schooling should draw from

> traditional and current beliefs and the learners context should be included.

This research addresses the Grade 1 learners engaging with a science focus in an OBE learning programme. In outcomes-based education learners are expected to develop knowledge, skills and attitudes. This is no different to science learning where learners are viewed as 'constructors of knowledge' (Driver, 1988), the development and use of science process skills and the development of positive attitudes.

Learners in Grade 1 learn through the medium of their first language. In some instances in South Africa, learners learn through the medium of their second language, where parents have chosen to send their children to schools other than the first language school. An assumption that most parents are using is that the 'other school' is more highly resourced and their children will receive a good education at the other school. What is not considered is that:

> Language minority learners often failed to develop high levels of academic skills, because their initial instruction is unrelated to their prior out of school experience (Chetty, R. 1999).

Jegede (1998) also addressed this, when he looked at the 'knowledge base of learners'. In the Foundation phase learners are instructed in their mother tongue. Some learners, by choice receive instruction in their second language, as mentioned above, and they could experience difficulties with learning, as evident in the quote above. But, learning is not only concerned with learning a language; it is also concerned with learning through the medium of a language. Learning is complex as it includes the learning environment that learners are exposed to, the resources (materials) that they interact with, the teaching and learning strategies that they engage with, social dynamics that operate amongst learners and learners and learner and educator. the cultural backgrounds of the learners and the educator/s and the medium of instruction.

Resources and changed curriculum

There is literature on teaching and resources both in developed and developing countries. Research literature addresses the importance of resources for effective teaching and learning. Many teachers in South Africa are expected to deal with the introduction of the new curriculum and also the lack/absence or poor distribution of resources at their schools. According to Lewin (1993):

> Resource issues are critical when implementing a new curriculum.

Many South African schools are under-resourced and even the infrastructure in some cases is bad, while some schools are highly resourced with good infrastructure. It is within this context that South African teachers, presently, Grade 1 and Grade 2 teachers, are expected to implement the new curriculum, working under strained conditions. When looking at resources, the availability of water, power and telephones is an issue that needs to be addressed. According to Wilson, D. (1999):

> there is ongoing debate on the role that water, power and telephones play in education. Whilst no firm conclusions have been drawn, it is fair to say that other less tangible factors such as the culture of teaching and learning, educator motivation and community support are deemed to be as important, if not more so in determining school performance.

So when resources are discussed it is important that what is meant by resources is carefully explained. According to Wilson, D. (1999) if the basic resources are present at a school it cannot be concluded that this would determine the school performance, the way the school operates. This research addresses the resource issue by looking at the range of resources, from physical to financial resources, and it looks at how teachers in their different resource contexts engage with a learning programme.

The presence/lack of resources, according to Lewin, K. (1993):

> 'plays a large part in determining the balance of advantage between different educational development strategies and place different boundaries around what is possible and sustainable' (Lewin, K. 1993).

So, the way in which teachers engage with learning programmes is constrained by the availability of resources. Can it therefore be said that the structure of and the manner of an educator's engagement with a learning programme are better in highly resourced schools?

There is South African literature on how the resource issue of the schools is being addressed. A school register of needs was compiled by a collaborative research between the Education Foundation, Human Science Research Council and the Research Institute for Education Planning. This register of needs was concerned with the resource conditions at schools and the poverty of the local community. This reference to the school community is important as a community supports the school. So, in addressing the resource base of a school, the resource base of the school community should also be looked at as this impacts on what happens at the school. This is eloquently expressed in the following statement, 'The school is a reflection of the community' (Grade 1 educator). The resource base of the school, especially human in terms of learners, financial and parent and community is determined by who is the community.

"What is the socio-economic status of the community?" and how can parents be involved, in supporting the school in educating their children?" are two of the questions that can be asked at this point. Many schools in low socio-economic communities I would expect would get very little financial support and personal support from parents and the school fees would be low to accommodate the learners from the community. I say many, as in some communities the parents have been involved in building the school. This is like a vicious circle where the school fees are low at schools, minimal or in some cases no improvements are made to the school and no money can be spent on purchasing materials

for the learners. It is like a major survival game. I question the level and the quality of education in these settings. To compound the issue there is also a lack of parental support and this is evident in the following statement made by Pretorius, F. (1998), and 'one of the critical issues in educational provision in many communities in South Africa is the lack of actual parental participation in education'. There are a number of reasons for why there is a lack of parental participation but there is no research literature on the reasons for the lack of parental support in varied school contexts. I say this, as this lack of parental support is not inherent with only low socio-economic status schools.

What is not addressed in the literature is how teachers and learners, in variable resource contexts, engage with an OBE Learning Programme and more specifically, one, which has a Science focus.

Environmental education, science education and changed curriculum

Research literature on Environmental Education and Science Education informed the varied strategies and activities that teachers might use in the field. If the programme organiser given to teachers, was 'Me in the garden' and the teachers were expected to engage with a Science focus in an OBE learning programme, then the educators interpretation and understanding of Environmental Education and Science Education would impact on their engagement with the learning programme?

Section II – Theoretical framework

The theories that are used in this research are learning theory, critical pedagogy, critical interpretive theory; feminist theory and grounded theory.

Learning theory

Learning theory addresses the role of the educator and learner; the view that the educators have of the learners and learning and what takes place during the teaching and learning

process. The powerful aspect in learning theory is knowledge and the production of this knowledge. Is knowledge owned and produced by educators, or is knowledge developed (constructed) by learners, using their (learners) past experiences? Further questions can be asked about the inter-relationship between learners past experiences and current knowledge that they are developing. This research investigates the role of teachers and learners in the teaching and learning process; the view those teachers have of the learners and learning, in terms of the production of knowledge; the learners' development of knowledge, skills and attitudes.

Constructivist learning theory is used to give meaning to the role of the educator and the learner, where the 'educator is seen as a facilitator and the learners as active participants in the teaching and learning process' (Scott, P. et al 1986). If an educator plays a facilitator's role, then questions about what the educator brings to the classroom need to be asked. Questions about the strategies that educators use, their understanding of their learners and the learners knowledge and skills are pertinent to giving meaning to what really takes place between facilitator and learners. The interaction between facilitator and learners is based on the resourcefulness of the facilitator. This research investigates this resourceful aspect of the educator and the relationship between this resourcefulness and the educators' engagement with a learning programme. Does having a large knowledge base about phenomena lead to an extensive engagement with a learning programme? To what extent is the educators' engagement with the learning programme determined by the educators'understanding, feelings and ideas about such an engagement?

A constructivist view of learning sees learners in the classroom as 'active participants' (Scott, P. et al 1986), who come to the classroom with ideas about natural phenomena. In the teaching and learning process learners are the focuses when looking at learner centered learning, as advocated by constructivist view. Inherent in this, is that learners are viewed as constructors of knowledge (Driver, 1988), developing meaning and therefore taking responsibility for their own learning. Linked to this view, learners irrespective of their age, use their existing understanding to make sense of new experiences. This

research looks at the learners' development of knowledge while engaging with a learning programme

Learning science involves learners adopting new ideas and in modifying or rejecting their pre-existing ideas, developing new knowledge. This can be done in a social setting where learners can test their understanding against other learners' ideas. This they do by talking about their ideas, arguing to defend them or accepting that someone else's ideas make more sense than their own. This research addresses the knowledge developed and the process of knowledge development that learners are exposed to.

Critical pedagogy

Critical pedagogy is used to address the hidden agenda, of curriculum change and the new curriculum. Questions about the reasons for a new curriculum, who the curriculum was designed for and the choice of curriculum are asked. In answering some of these questions, the economic reasons given for the introduction of a new curriculum does not recognize the individuality of citizens and their personal experiences. This leads on to the thinking that all citizens will benefit from the curriculum. What is not answered is how all the citizens can benefit when many are so disadvantaged, i.e. excluded?

Critical pedagogy questions the introduction of outcomes- based education, which is seen as the vehicle for citizens and the country to experience social change. This is challenged in the light of the restricted vision that this statement has. What is meant by social change and is one meaning and process for social change inclusive of all citizens?

Critical pedagogy 'challenges us to recognize, engage and critique any existing undemocratic social practices and institutional structures that produce and sustain inequalities and oppressive social identities' (Leistyna, P et al 1996). The inequalities that are in question in many South African schools are resources, for example, physical, human and teaching and learning.

The great disparity between highly resourced and under-resourced schools and the impact of this on the education of all learners in South Africa is challenged. How can all learners develop knowledge, skills and attitudes when they are exposed to such different resource contexts?

The physical resources are being addressed by the register of needs survey and an action plan is being developed. In this action plan, the question of basic resources for the effective implementation of the curriculum should be addressed.

The resourcefulness of teachers, within their respective resource contexts is challenged. Issues that are challenged: are all teachers resourceful in implementing the new curriculum, especially in under-resourced contexts; can educators bridge the gap between policy and practice? Critical pedagogy questions these external expectations of teachers in implementing the new curriculum.

Critical pedagogy is used to question the conception of teaching and learning. It questions how learners come to have knowledge, types of knowledge that the teachers planned in the science focussed learning programmes, and presented to the learners. According to Leistyna, P. et al (1996) 'critical pedagogy questions whose values, interpretations and goals constitute the foundations of public education'. In what way did the implementation of a new curriculum impact on the teachers beliefs, way of teaching and how did this impact on the way in which the teachers engaged with the learning programme. Another question that could be asked is: "Did the teachers knowledge of science influence what would be planned and presented in the learning programmes?" Together with physical and teaching and learning resources, educators also work with human resources, the learners.

In this engagement between educator and learners knowledge development takes place. Critical pedagogy questions how knowledge is imposed on the greater society and it also questions the social construction of knowledge, where values and interaction across differences are looked at. Inherent in this is that the educator should not silence learners

and place their identities on trial, but 'both teachers and students can better make sense of their world and engage and thus interact as participants, where they are concerned with the production of their own ideas (Leistyna, P. 1996). More than this, the 'cultural silence that exists in most classrooms' (Chavanu, 1995), should be addressed. Learners during their engagement with the learning programme are expected to share ideas, knowledge and their experiences. This is only possible if the learners are viewed as participants in the learning process and they do not feel threatened.

Critical pedagogy is used to inform social action with regard to the curriculum, in terms of the implementation of OBE, resourceful teachers and the engagement with a learning programme in a particular resource context. Questions about educators deciding on the types of activities for learning programmes, are those linked to resources; and what can educators do within their resource contexts are addressed. If OBE is to reform education then the practice-rhetoric gap in curricular and instructional events and policies (Gay, G. 1995), should be bridged.

Critical interpretive theory

Critical interpretive theory focuses on transformation and change as evidence by the work of Paulo Freire. Transformation and change in the education system in South Africa has taken place, where a new curriculum was introduced in 1998. This research investigates the implementation of OBE in varied resource contexts and it questions the nature of this implementation, by interpreting resources.

Teachers are resources. This research investigates the transformation and change that Grade 1 educators experienced when they were expected to implement the curriculum. This was used to question and provide interpretations for the way in which the Grade 1 educators and learners in different resourced contexts, engaged with a science focus in an OBE learning programme. If teachers are expected to be curriculum developers, developing learning programmes, what preparation and experience have they been exposed to? Educators may have all the experience but the insight into what is expected

investigating teachers, the feelings, ideas, action and understanding that they had for planning, presenting and making future considerations for a science focused OBE learning programme needed to be interpreted to give meaning to the process of change that the educators experienced. This process of change would also reflect the educators 'actual' or 'real' knowledge and understanding of science concepts, processes and skills. This knowledge should also be questioned and interpreted to give meaning to science in the learning programme.

Learners are also resources. The learners' engagement with the learning programme was looked at in terms of the learners' enjoyment for activities and their development of science knowledge, science skills and science attitudes and values.

Feminist theory

This theory is used to give meaning to the personal experiences of teachers and learners who engaged with a learning programme. These personal experiences are the feelings that educators and learners experienced when they engaged with the learning programme. The feelings of educators are considered and the link between these feelings, ideas and actions that educators have are addressed.

Grounded theory

This research will also be developing grounded theory in practice as there is no theory about the way Grade 1 educators and learners engage with a science focus in an OBE learning programme. There is also no theory about such engagement across variable resource contexts.

Section III – Conceptual framework

The conceptual frameworks of this research are evident in literature about curriculum change in both developed and developing countries, where different perspectives of curriculum change are addressed.

The concept of curriculum change can have a subjective and objective meaning. The subjective meaning of curriculum change deals with the 'subjective reality of teachers' (Fullan, 1982). This subjective reality of teachers looks at the situation of teachers, the impact of change on teachers; the teacher's room for change and fighting or ignorance of the imposed change. The objective meaning of curriculum change deals with the multidimensional aspects of that change. So, change can be seen as change in people' beliefs about how a curriculum activity should be implemented or it can be seen as a change in policy imposed from outside (a person). For this research change that teachers experience will be looked at in terms of the implementation of the policy in practice. This change incorporates both views of change.

Both the objective and subjective meanings of curricular change cannot ignore the issue of change in practice. This change in practice is concerned with new or revised materials; new teaching approaches; and the possible alteration of beliefs. According to Fullan (1982), all three aspects of change are necessary because together they represent the means of achieving a particular educational goal or sets of goals. In this research the educators feelings, ideas and action that is carried out is all questioned in terms of how educators understand the change (policy) and how s/he implements the change (practice) within his/her particular teaching and learning contexts. A number of variables are addressed here: who is the educator? what are the teachers' feelings about confidence and competence in dealing with the new curriculum? and how do the educators implement the new curriculum? What impact do teachers' feelings and understandings about the curriculum have on the teachers' implementation of the new curriculum?

Terms to be looked at and discussed are engagement of teachers, engagement of learners, resources and a science focus in an OBE learning programme.

The educators' engagement with a learning programme addresses the planning, presentation and future consideration for planning and presentation of a learning programme (Fig 2.3. on page 40). Grade one educators were expected to plan for a science focus in an OBE learning programme and during such planning critical engagement aspects like feelings, ideas, action and understanding that educators have are looked at and questioned. During the presentation of the learning programme the feelings, ideas and action of educators and their view of learners is addressed. Educators, when they plan and present activities, they reflect on what they have done, on how it was done and at how this would affect their future actions. These aspects lead to crucial future considerations that educators make themselves about what they need to do, so as to develop the process and to develop personally as well.

The learners' interaction with and interpretation of resources, development of knowledge, skills and attitudes is addressed by their engagement with a learning programme, (Fig. 2.3. on page 40).

Resources are inclusive of human, physical and teaching and learning resources. Grade 1 educators and learners are viewed as human resources. The resources used during the teaching and learning process, e.g. books, plants, worksheets, are integral to the teaching and learning process. Physical resources are inclusive of the structural state and the facilities of the learning site (school).

OBE Learning programmes provide guidance for teaching and learning within an outcomes-based framework. A typical learning programme will contain a guiding framework, which includes the phase, the phase organiser, programme organiser, specific outcomes and critical outcomes; activities and assessment guidelines. In this research Grade 1 teachers engaging with learning programmes is the focus. The learning programmes that Grade 1 educators engage with are called Foundation phase learning

programmes and they are concerned with Literacy, Numeracy and Life Skills, illustrated below:

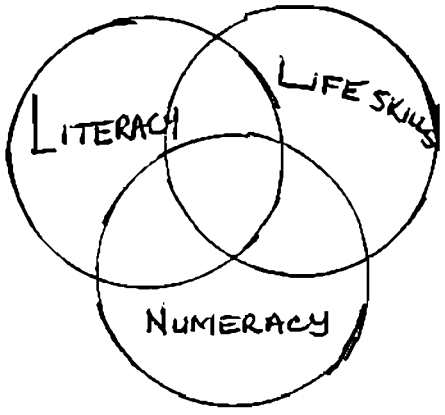


Figure 2.3. Foundation Phase Learning Programmes

Foundation phase educators at school are expected to develop school - based learning programmes. These should be designed within the Curriculum 2005 learning programme framework, given on page 39.

At local school level, learning programmes should be contextualised to cater for the learners' needs available resources and the local environment. In this way educators and learners can respond to local environmental issues and they can take action.

The critical and specific outcomes indicate that the teaching and learning processes are not only content driven, but involve a wide range of different teaching and learning activities and processes. Examples of critical outcomes are: learners communicate in different ways; think critically and creatively; make responsible decisions; Examples of the specific outcomes are - require learners to address issues, demonstrate respect for others, make and negotiate meaning and understanding, use process skills to investigate phenomena.

EVALUATIVE COMMENTS (how did the learning programme work?)

RESOURCE & CONTACTS

ENVIRO FACTS
SWAP WATER AUDIT KIT
LOCAL NURSERY
SHARE – NET
TEL 0332 202931

LEARNING PROGRAMME IDEAS

LEARNING PROGRAMME : LIFE SKILLS
PHASE : INTERMEDIATE
PHASE ORGANISER : ENVIRONMENT
PROGRAMME ORGANISER : WATER USE - WATER WASTAGE

CRITICAL OUTCOMES:

CO 1 – IDENTIFY + SOLVE PROBLEMS
CO 2– WORK WITH OTHERS IN A TEAM
CO 4 – COLLECT, ORGANISE + ANALYSE INFO
CO 6– USE SCIENCE + TECHNOLOGY TO ADDRESS ENVIRONMENTAL PROBLEMS

SPECIFIC OUTCOMES:

NS 5 – USE SCIENTIFIC KNOWLEDGE + SKILLS TO SUPPORT RESPONSIBLE DECISION MAKING
MLMM 5 – MEASURE WITH COMPETENCE AND CONFIDENCE IN A VARIETY OF CONTEXTS
HSS 4 – MAKE SOUND JUDGEMENTS ABOUT THE MANAGEMENT, UTILISATION AND DEVELOPMENT OF RESOURCES

ACTIVITIES (possible teaching and learning processes)	ACTIVITY OUTCOMES (what the learner should be able to do)
SEED GERMINATION: LEARNERS TO BRING THEIR OWN SEEDS, AND SET UP A CONTROL WHERE SEEDS AR NOT WATERED, AND AN EXPERIMENT WHERE SEEDS ARE WATERED. EACH LEARNER TO FILL IN A RECORD SHEET OVER 3 WEEKS.	The learners will be able to ..... MAKE COMPARISONS BETWEEN EXPERIMENT AND CONTROL AND WILL BE ABLE TO MAKE PREDICTIONS ABOUT THE VALUE OF WATER BASED ON THE EXPERIMENT.
LEAKING TAP: LEARNERS TO WORK IN GROUPS AND MEASURE WATER WASTAGE BY PLACING A BUCKET UNDER A LEAKING TAP. RECORD AMOUNTS OF WATER WASTED PER DAY USING TABLES OR GRAPHS. DEVELOP A PLAN OF ACTION TO SAVE WATER IN THE SCHOOL.	The learners will be able to .... MEASURE ACCURATELY AND DRAW GRAPHS SHOWING WATER WASTED DAILY FROM LEAKING TAP. PRESENT A PLAN OF ACTION TO SAVE WATER AT SCHOOL.
	The learners will be able to .....

PERFORMANCE INDICATORS & ASSESSMENT CRITERIA (what evidence will be collected)	ASSESSMENT STATEGY (how the assessment will be done)
This will be evident when the learner ..... • RECORD THEIR COMPARISONS AND PREDICTIONS IN THE EXPERIMENT. • INDICATE WHY WATER IS AN IMPORTANT RESOURCE FOR LIVING.	EVALUATE RECORDS KEPT BY LEARNERS DURING THE EXPERIMENT. EVALUATE CONCLUSION & PREDICTIONS MADE ABOUT WATER
This will be evident when learners..... DRAW GRAPHS WHICH ACCURATELY INDICATE WATER WASTED PER DAY OR WEEK DESCRIBE REALISTIC STEPS FOR SAVING WATER AT SCHOOL	EVALUATE GRAPHS IN WORKBOOKS LISTEN TO GROUP PRESENTATIONS (perhaps include peer assessment too)
This will be evident when learners.....	

Taken from Lotz, H. et al (1998) – Supporting curriculum2005.

The following is a pictorial representation of the trichotomy between Grade 1 educators, Grade 1 learners and the learning programme, within a resource context.

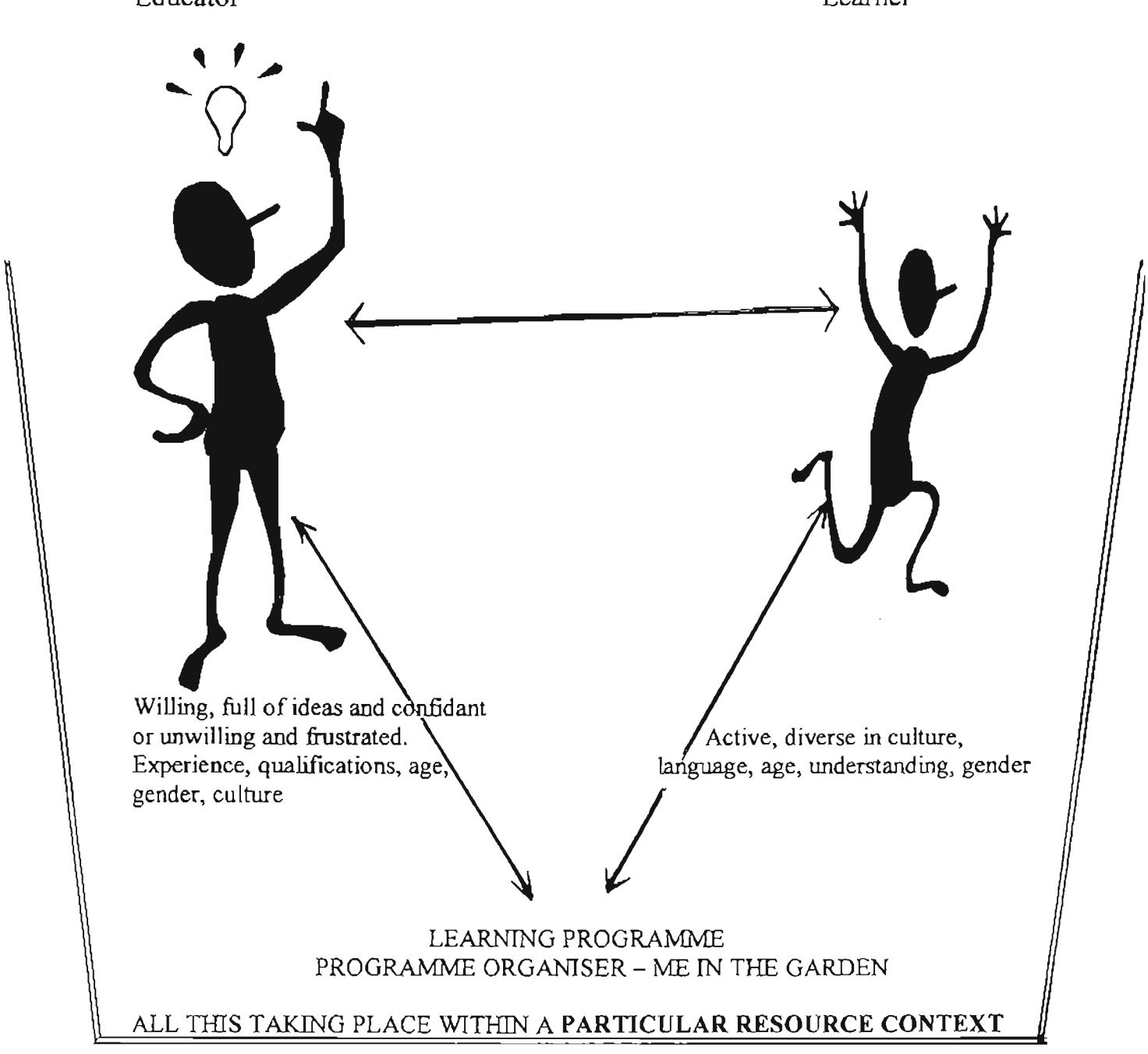


Fig.2.4. Educators and learners engagement with a Science focus in an OBE Learning programme. (developed James, A.).

CHAPTER 3
RESEARCH METHODOLOGY

3.1. INTRODUCTION

This study was conducted in the province of KwaZulu Natal, in the North Durban region. This region was chosen as it was accessible to the researcher and all three different resourced primary schools could be found in this region.

The unit of analysis in this study was the Grade 1 classroom. The study consisted of two components: (1) an impact assessment and (2) detailed case studies of Grade 1 classrooms.

Both qualitative and quantitative methods of analysis were used in this research. The quantitative data was gathered by means of questionnaires and the qualitative data by interviews, participant observation and reflective diaries. Merriam (1988) provided a reason for combining qualitative and quantitative methods:

> 'This is in fact a form of triangulation that enhances the validity of one's study.' (Merriam, 1988)

Critical Questions

The methodology that was used, was to provide answers for the following questions:

1. How do Grade 1 educators, from different resource contexts engage with a Science focus in an OBE learning programme?
2. How do Grade 1 learners, from different resource contexts engage with a Science focus in an OBE learning programme?
3. What explains the way educators and learners, in their different resource contexts, differ in their engagement with a Science focus in an OBE learning programme?

The discussion in this chapter is presented in two sections:

Section 1, which is concerned with data collection and

Section 2, which is concerned with data analysis.

Section 1- Data collection

The discussion in this section is based on the following four questions:

1. What did I do during the research to obtain data, which could be used to answer my research questions?
2. How did I conduct the research?
3. Why did I conduct the research in the way I did? and
4. What are the limitations of the research methodology used?

I will respond to each of the above-mentioned questions by providing a factual story of my encounters during the research. I will present the factual story in three parts:

a. Decisions, decisions;
b. Setting the scene, and
c. Action.

3.2. DECISIONS, DECISIONS

The decisions that I had to make were concerned with: (1) deciding on which schools to use; (2) when to conduct the research; (3) what research data collection techniques to use, including what instruments to use and (4) what the structure of my research instruments should be.

3.2.1 Choice of schools

The decision, about which schools to use, was based on the research questions which stated that three differently resourced schools, that had Grade 1 teachers and learners, had to be investigated.

The different resource contexts of each school was distinguished on the basis of a sliding scale of available resources (Jansen, 1998). The different resource contexts can be explained by the following: one school should be well resourced, the other moderately resourced and the other should be minimally resourced.

When I was deciding on which schools fitted into the three different resource categories, I took the history of South Africa into account. I grouped the historically White schools (ex – model C) schools into the well-resourced category. The so-called Indian and Coloured school into the moderately resourced category and the so-called Black Township schools into the minimally resourced category. So, the three different resourced schools that I was to use for the research would be:

1) one Ex-model C school;
2) one so called 'Indian/Coloured school' [1]
3) one so called Black township school.

3.2.2. Timing of research

The decision about when to conduct the research was based on the following factors:

a) During the second year of the Grade one teachers' implementation of OBE;
b) When the schools and teachers are more settled during the first term;
c) To provide planning time for the Grade one teachers, to plan for the programme organiser – Me in the garden;
d) Grade one teachers are given time to get to know their learners;
e) Grade one learners are familiar with one another.

So, the time frame that I decided to follow was:

a) to make the initial telephonic contact with schools by the end of January;
b) to meet with Grade 1 teachers and Principles/Head of Department by the 2nd week in February, and

[1] This was changed as the schools approached were not willing to be part of the research. A school that did not fit the 'Indian/Coloured' category was selected as the teachers were interested and it did fit the resource context, moderately resourced.

c) to conduct my research during the 2nd, 3rd and 4th week of March, spending one week at each of the three schools chosen in the school sample.

3.2.3. Research data collection techniques

The decision about what research data collection techniques to use was informed by the research questions.

3.2.3.1. Research instruments (Appendix A)

The decision about what research instruments to use were based on the collection of data on (1) the resource context of schools; (2) engagement of Grade 1 educators and learners with a Science focused OBE learning programme. I therefore decided to use the following research instruments:

1. A questionnaire profile of the school.
2. A questionnaire profile of the Grade 1 teachers.
3. A questionnaire profile of the Grade 1 learners.
4. Classroom profile
5. Observation schedule.
6. Researcher observation notes
7. A post-observation interview with Grade 1 educators
8. Educator – documentation analysis
9. Learner – documentation analysis
10. Educators' reflective diary
11. Researchers' reflective diary
12. Post-session learner interview
13. Principals' telephonic interview.

Other data sources: photographic records, analysis of teacher and learner transcripts.

A plan of the research instruments and their use is provided in table 3.1. on page 48. The research instruments included both quantitative and qualitative methods of data collection. The quantitative data were gathered by means of questionnaires, the

observation schedule and reflective diaries, and the qualitative data by interviews and participant observation.

As stated in the introduction to the chapter, Merriam (1988) provided a reason for combining qualitative and quantitative methods and Cohen & Manion (1980) supported this by stating that:

> Triangulation techniques in the Social Sciences attempt to map out and explain more fully the richness and complexity of human behaviour by studying it from more than one standpoint and in so doing, by making use of both quantitative and qualitative data.

When I was deciding on the structure of the research instruments I used the research questions as the basic guide to the data that would be required to answer the research questions.

The school profile was designed to collect data on the resources available at the school, both physical and human. So, data on the resource context of the school had to be collected to give clarity to what was meant by a well-resourced, moderately resourced and under-resourced school.

The teacher profile was designed to collect data about the Grade 1 teacher's pre-service and in-service training and experience with relation to the implementation of OBE and the development of curriculum materials. The learner profile was developed to collect data on the Grade one learners, about their age, home language and their pre-school exposure. The decision to use a questionnaire was 'motivated by a need to collect routine data' (Guba, E. 1978).

The observation schedule that I developed was adapted from an English Language Educational Trust (ELET) research observations schedule which, was designed and

developed by Improving Educational Quality (IEQ). The components on the observation schedule reflect the educator indicators and learner indicators of OBE methodology, e.g. educator/teacher indicators are: use of a variety of teaching strategies; use of materials by educator/teacher to enhance learning; educator questioning skills. Examples of learner indicators are use of materials by learners; learners ask questions and opportunities for learners. I used the basic format of the observation schedule where ratings were given to each component of an indicator. Each component was rated along a continuum of "1" to "4", where "1" was for a least acceptable behaviour and "4" for the most acceptable behaviour. I modified the structure and language of the indicators on the observation schedule to match my research questions. The indicators were used to describe OBE 'in action'. The observation schedule was used to collect data on how the Grade 1 teachers and learners engaged with the Science focused OBE learning programme. Observation of the Grade 1 teachers' use of teaching and learning strategies, materials, language and the role of the teacher was made. Observation of the Grade 1 learners' use of materials, learner arrangement, learner activity and learners' use of language was to be observed.

The main principle governing the choice of questions for the semi-structured interview was that the information (data) to be collected should be objective and as free from interviewer bias and prejudice as possible. Leedy (1993) and Cohen and Manion (1994) mention that interviews are capable of eliciting information from participants which are usually not readily available, like perceptions, beliefs, values, knowledge, norms, fears, desires and attitudes. The Grade 1 teachers' responses to the questions should be a true reflection of their feelings, ideas and difficulties that they experienced while engaging with the materials. Also, a clear picture of the Grade 1 teachers understanding of an OBE Learning programme that had a Science focus should be presented. This was possible as the semi-structed interview gives the 'flexibility and freedom of asking immediate follow up questions' (Cohen and Manion, 1985). To gain maximum benefits from the interview, I tape-recorded with permission the entire discussion, which allowed for an efficient and versatile way of retaining the original communication. Since I was going to conduct all the interviews with the teachers, the question of variation of interviewees is not a problem.

Grade 1-teacher(s) documents – planning documents for the programme organiser – Me in the garden was collected from the teachers after their week of observation. The planning document(s) was/were to have all the learning experiences for the programme. These planning documents would give further insight into how teachers engage with OBE-based learning programme and also the teachers understanding of what is meant by A Science focus in an OBE –based learning programme.

A copy of Grade 1 learners' work, which reflects their engagement with OBE –based learning programme, was to be collected and analysed.

A copy of the Grade 1 teachers' reflective diary, where the teacher recorded critical incidents, was collected. The educator entered reflections of the day at the end of each day in the diary. This data was used to enhance the teachers' perception of a Science focus in an OBE learning programme.

A copy of the researchers' diary, where the researcher recorded critical incidents, was to be collected. This data was used to provide further clarity to what was observed during the research period.

A collection of learners' responses during an audio-recorded semi-structured interview gave further insight into the learners' experiences during the presentation of the programme.

The data was collected using inputs of various perspectives. So, triangulation within a method was planned for.

Table 3.1. Plan of research instruments

INSTRUMENT	PURPOSE	UNIT OF ANALYSIS	FREQUENCY	ADMINISTER
1. School profile	General profile of school	School	1	Principal
2. Educator profile	Qualifications, experience and training	Grade 1 teachers	1	Teachers
3. Learner profile	Home background and experiences	Grade 1 learners	1	Educator
4. Observation Schedule	Observation of engagement with OBE-science material	Class	5	Researcher
5. Educator interview	Feelings, ideas and actions of Grade 1 educator	Educator	1	Researcher
6. Educator documentation analysis	Preparation and planning of unit	Educator	1	Researcher
7.Learner documentation analysis	Learner engagement with materials	Learner	1	Researcher
8.Educator reflective diary	Record critical incidents/moments	Educator	1	Educator
9. Research reflective diary	Record critical incidents/moments	Researchers	1	Researcher
10. Post-session learner interview	Feelings and behaviour of learners	Learners	1	Researcher
11. Telephonic interview	Financial and community resources	School	1	Researcher

The instruments were administered at the three different schools:

1. School A – highly resourced school;
2. School B – moderately resourced school;
3. School C – under-resourced school.

3.2.3.2. The case study method

The main purpose of qualitative research (including case studies) is to understand the meaning of an experience and the engagement of educators and learners.

Using the case study method complemented and strengthened the questionnaires as it incorporated various data sources, for example, observations, interviews, reflective diaries, educator documentation analysis. This process increased the validity of my case study:

> 'A case study is the observation of an individual unit, a child, a class, a clique or a community. It is undertaken to probe deeply and analyse intensely the multifarious phenomena which constitutes the life cycle of the individual unit so that generalisations can be made about the population to which the unit belongs' (Cohen & Manion, 1989).

The case study was concerned with the way educators engaged with a learning programme and how this engagement was determined by the resource context of the school. This case study would highlight any tension that may exist between policy and practice. According to Merriam (1988):

> 'An ethnographic case study then, is more than an intensive holistic description and analysis of a social unit or phenomenon. It is a sociocultural analysis of the unit of study. Concern with the cultural context is what sets this type of study apart from other qualitative research.' (Merriam, 1988)

The case study method concerns itself with the natural context in which the research is conducted. According to Yin (1981), 'a case study is an empirical inquiry that investigates a contemporary phenomenon within a real life context.'

3.3. SETTING THE SCENE

At schools A, B and C I met with the teachers and principal/head of department during the month of January to present the research proposal to them. The discussion was based on:

a. what I expected from the school, principal, teachers and learners;
b. what my activity/role at the school would be;
c. when, during the month of March, could I conduct my research;
d. the duration of the research in terms of how many school days and how many hours each day;
e. the learning experiences would be tape recorded using a tape recorder;
f. questioning the teachers on their interpretation of the programme organiser - Me in the garden and providing them with a basic example of what could be looked at i.e. shapes, colours and types of plants in the garden.

At school A arrangements were made for me to conduct the research in the third week of March. I was to be at the school from approximately 8.30am to 12.15 pm. I was going to spend 3 and ¾ hours at the school for five days. No structured timetable was going to be followed, as all learning areas were going to be integrated.

At school C arrangements were made for me to conduct the research in the second week of March. I was to be at the school from 9.00am to 12.00pm. I was going to spend 3 hours at the school, for five days.

At school B arrangements were made for me to conduct the research in the fourth week of March. I was to spend approximately 1 hour at the school, for five days. The 1-hour allocated was the Life-skills period in the timetable, when science would be taught.

3.4. ACTION

School - C

I arrived at the school on the first day of the 2nd week of March, fully equipped to conduct my research. The Grade 1 teachers and learners were all out in the school garden. I then asked for details as to what was being done. A teacher mentioned that they had not planned for the programme – Me in the garden, as they had not met to discuss it and they had no time. I still stood, observed and recorded my observations. After 5 minutes of observing I told the teachers that they were doing activities related to the programme organiser – Me in the garden.

Table 3.2. below, is a plan of my visit to school C. A detailed account of the visit is presented in case study C, in chapter 4.

Table 3.2. - Plan of visit to School C

Day 1	**Day 2**	**Day 3**	**Day 4**	**Day 5**
Observed 220 learners and two educators	No observations	Observed 215 learners and five educators	No observations	Observed 218 learners and educators (minimal)
Tea break				Tea break
Observed 1 educator and her learners	Educators attended an OBE planning workshop	Observed 1 educator and her learners	Educators attended a COLT launch No school	Teacher interview

School - A

I arrived at the school on the 1st day of the third week of March. The two Grades 1 teachers were ready to start with the programme, both teachers were willing to be part of

the research. The two teachers had planned for the programme organiser together and it took them approximately a week to plan the programme. Both teachers stated that they would differ in the way they were going to implement the programme. I was particularly interested in this, so I therefore decided to observe teacher one for two days (day 1 and 2) and teacher 2 for 3 days (day 3, 4 and 5). I asked each teacher to keep a reflective diary for the five days, (week) of the research. A detailed account of my observations is provided in chapter 4, case study A.

Table 3.3. Plan of visit to School A

Day 1	Day 2	Day 3	Day 4	Day 5
Teacher1 and learners Observed from 9.00am – 12.10pm	Teacher 1 and learners Observed from 9.00am - 12.10pm	Educator 2 and learners and gardener observed	Teacher 2 and learners and music teacher observed	Teacher 1 & 2 and all learners observed, then Teacher 2 and her learners observed Teacher interview

School - B

I arrived at the school on the 1st day of the fourth week of March. One grade 1 teacher and her learners were to work with me for the research duration of one-week. A detailed account of my action and observations is presented in chapter 4, case study B.

Table 3.4. – Plan of visit to School B

Day 1	Day 2	Day 3	Day 4	Day 5
Observed teacher and learners for 3 hours	Observed teacher and learners for 3 hours	Observed teacher and learners for 3 hours	Observed teacher and learners for 3 hours	Observed teacher and learners for 3 hours

Table 3.5. – Data collected at the three schools.

Research Instrument and other	Name of school A	C	B
School profile	1	1	1
Teacher profile	2 (one for each)	5 (one for each)	2 (one for each)
Learner profile	2	5	1
Classroom/garden Resource profile	1	1	1
Plan of classroom	1	1	1
Timetable for Grade 1	1	1	1
Observation schedule	9	4	5
Teachers observed	2	5 / 2	1
Teacher interview	1 (group)	1 (group)	1 (group)
Teacher documents - Planning	1 from each teacher-2	1 (group)	1 (group), teacher with other Grade 1 educator
Learner documents and notes	*	*	*
Teacher diary	2 (individual)	Group	1
Research diary	1	1	1
Post-session learner Interview	*	*	*
Tape recordings (hrs) of proceedings	13	7	8
Telephonic interview	1	1	1

Note - * denotes that copies are with researcher.

Section 2 – Data analysis

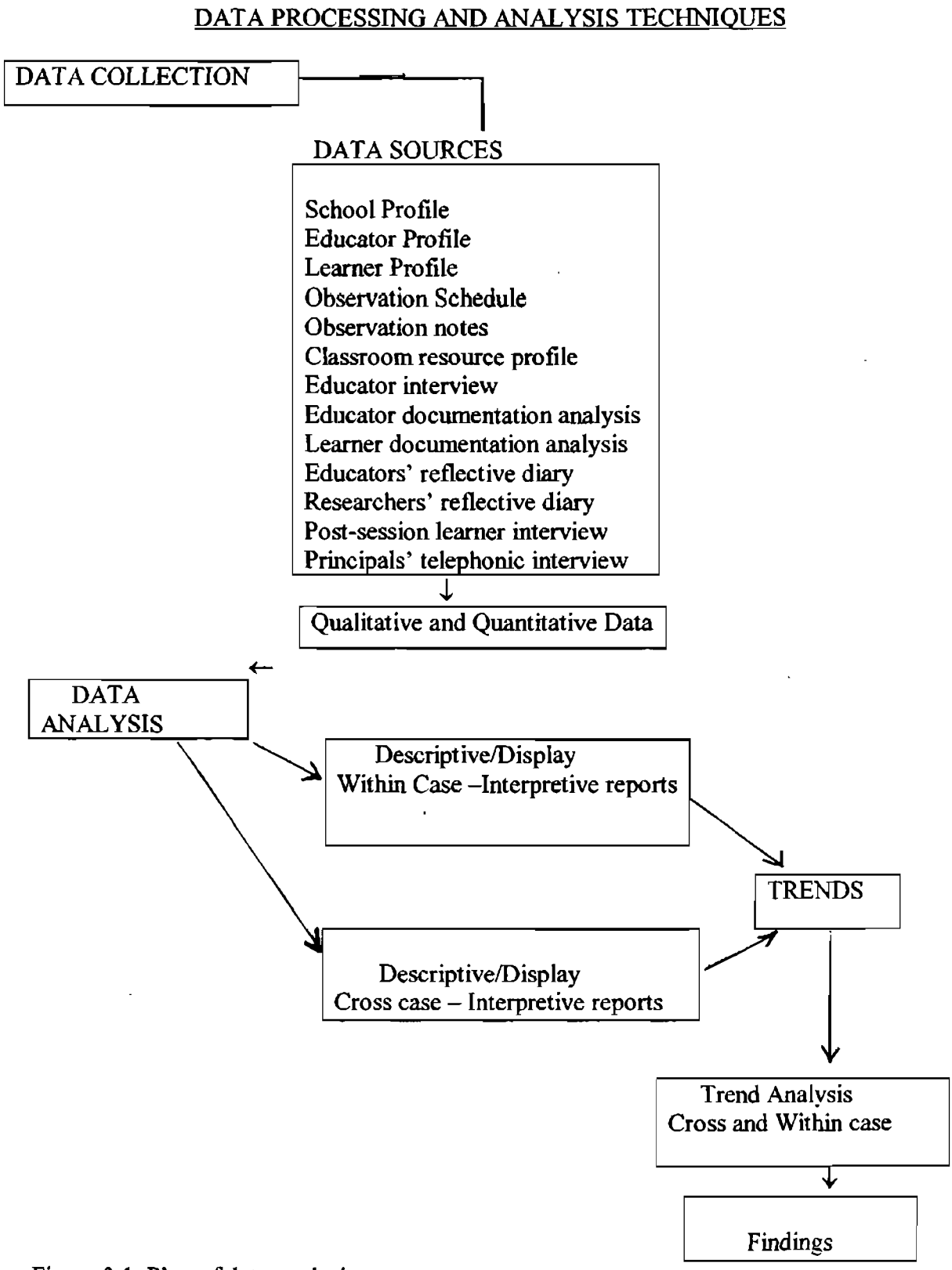


Figure 3.1. Plan of data analysis

In analysing the data, descriptive/display within case interpretive reports (case studies) of schools A, B and C were presented. Each case study was reported according to a particular framework (see appendix A.2.), where section 1 was concerned with the resource context of the learning site (school) and section 2 was concerned with the educators' and learners' engagement with a learning programme.

In section and 1 and 2, of the case studies, quantitative methods of analyses are integrated. After analysing the data for each case study, trends were constructed.

Descriptive/display cross-case interpretive reports, where a comparison of the three case studies was made on the basis of trends that were observed, for each case study. A detailed cross-case analysis is presented in chapter 5.

Me in the garden.

CHAPTER 4

CASE STUDIES

CASE STUDY – SCHOOL A A BUSY OBE

This case study was conducted in two classrooms, with two Grade 1 educators. Each educator and their learners engaged with the learning programme.

Historical context of the learning site

Learning site A operates the Foundation phase and it is located in the North Durban district. Before 1991, the learning site catered for white learners only and it had a white staff complement and the school serviced an exclusively white residential area. In 1991 the learning site became a Model C school and learners from different race groups attended. With the abandonment of The Group Areas Act in 1994, many different race groups moved into the residential area surrounding the school.

There were African, White, Coloured and Indian learners attending the learning site. The majority of the learners lived in the area, but some came from other residential areas and townships e.g. Effingham Heights, Greenwood Park, Avoca, Phoenix and Kwa Mashu.

School Profile

Learning site A operated the Foundation phase, ranging from Grade 1 to Grade 3. The total number of grades was 6. There were a total of one hundred and eighty nine learners and seven educators including the principal. The medium of instruction at the school was English.

The resource context

Category 1 - The **building/infrastructure** category

The structural state of the building was good in that the school was in good condition, no repairs were needed at all. The general outlook of the school buildings was clean and neat.

Category 2 – **Facilities**

Basic facilities like electricity and running water were present and in very good condition. Communication facilities present were a telephone, a fax machine, a photocopier, which were in good condition and a computer, typewriter and an intercom which were in a very good condition. Other facilities present within the building were a staffroom and a storeroom, each in good condition, a library that was in a very good condition. Other facilities in the grounds of the school were a sportsfield, a swimming pool and a garden all in good condition.

Category 3 – **Human resources**

a. 1.The number of personnel at the school

The total number of human resources at the school was one hundred and ninety six. Of this total there was ten qualified teaching staff (5 %) and one hundred and eighty nine learners (95 %) (see graph 1at the end of case study A). The total numbers of staff that were teaching the various grades at this school was six (60%). The number of staff who did not have grades assigned to them but were responsible for the management of the school, one principal (10 %) and staff responsible for swimming, remedial and music was three (30%).

2. Educator qualifications and experience

The teacher qualifications at this school ranged from M 3 to M 5 (see graph 2 at end of case study A). 100% of the educators' are Junior Primary trained. One educator has a Special Education Diploma and two have a Pre-primary Diploma. Some teachers (Grade

1 and Grade 2 teachers) and the principal have experienced curriculum development with regard to OBE training, which was provided by the Education Department.

The years of teaching experience of the teachers at this school ranged from zero to twenty five.years. More than half of the total number of teachers had more than twenty years of service, this school had an old teaching staff.

3. Race of educators

All (100%) of the teachers were white.

4. Educator to learner ratio

The teacher to learner ratio ranged from the lowest range, which was 31:1 in grade 3 to the highest range, which is 32:1 in grades 1 and 2. The educator to learner ratio in each grade is represented in table 4.1. below:

Table A 4.1. Educator to learner ratio in each grade

Grade 1	Grade 2	Grade 3
32:1	32:1	31:1

The mean teacher to learner ratio for this school is 32:1.

Graph (see at the end of case study A – graph 3)

b. Grade 1 educators and learners

b. 1. Who are the Grade 1 educators?

b. 1.1. Teaching experience

There were 2 Grade 1 educators, both females. Both teachers were white. Educator Rose was 35-39 years old and she has had seventeen and a half years teaching experience, fourteen and half of which were spent teaching Grade 1 at this school. Educator Sue was more than 46 years old and she has had twenty five years of teaching experience, three of which were spent teaching Grade 1 at this school. Both educators taught Grade 1 at this

school in 1998, when OBE was implemented and they also taught Grade 1 during the data collection period. For this research, educator Rose and educator Sue planned the learning programme together and each presented the learning programme to their respective classes.

b. 1.2. Qualifications

Both educators had academic and professional qualifications. Educator Rose had an M 3 qualification and educator Sue had an M 5 qualification. Educator Rose obtained her qualification from a teacher college of education, while educator Sue obtained her qualification from a local college of education and a university. Both teachers were not involved in studying, at that time.

b. 1.3. Feelings about facilitating OBE Life Skills

Both educators' feelings about facilitating in relation to OBE Life Skills were similar. Both educators felt confident and competent to facilitate OBE Life Skills. This matched the high level of confidence and competence they rated of themselves. What was significant was that both educators' feelings and ratings were the same. Another significant point was that educator Rose stated that she was not confident with working with all the outcomes and the assessment criteria, while educator Sue stated that she did not feel confident with Curriculum 2005 specific outcomes.

b. 1.4. Feelings about OBE training

Both educators felt that they did not need more OBE training, this could be linked to the negative response that they both gave for the question – Do you value highly the OBE Life Skills training that you received? Both educators had attended a five-day basic OBE and Curriculum 2005 training course run by the education department, which they both said they found confusing.

b. 1.5. Involvement in curriculum development

The Grade 1 educators' involvement in curriculum development with regard to OBE was looked at from the perspective of their involvement in OBE material development. Both

educators had been implementing OBE for a year and what was significant was that both educators stated that they were not involved in curriculum development. Could this be that the educators themselves do not see themselves as being involved in curriculum development or do not see themselves as curriculum developers and they do not understand the extent of curriculum development, or even what it entails?

b.2. Who are the Grade 1 learners?

b. 2.1. Number and gender

The total number of learners in grade 1, Educator Rose' class, was thirty-two. Sixteen (50%) learners were boys and sixteen (50%) learners were girls. The total number of the learners in educator Sue' class was thirty-one. Fifteen (48%) learners were boys and sixteen (52%) were girls.

b. 2.2. Age of learners

The learners in educator Rose' and Sue' class ranged in age from 5years old to seven years old. In educator Rose' class five (16%) learners were five years old, twenty five (78%) learners were six years old and two (6%) learners were seven years old. In educator Sue' class eleven (35%) learners were five years old, eighteen (58%) learners were six years old and two (7%) learners were seven years old (Pie graph – age of learners, graphs 6 and 7).

b. 2.3. Language of learners

The learners were taught in the medium of English, which was a first language for, twenty-eight (88%) learners in educator Rose' class and twenty-six (84%) learners in educator Sue' class. In educator Rose' class there were four (13%) English second language learners, one (3%) was Afrikaans first language and three (9%) were Zulu first language. In educator Sue' class there were five (16%) English second language learners, one (3%) was Portuguese first language and four (13%) were Zulu first language.

b. 2.4. Racial composition

At this learning site there were mixed racial groupings of learners. In educator Rose' class there were four (12%) African learners, thirteen (41%) White learners, one (3%) Coloured learner. and fourteen (44%) Indian learners. In educator Sue' class there were five (16%) African learners, six (19%) White learners, four (13%) Coloured learners and sixteen (52%) Indian learners. At this learning site there was also mixed cultural groupings (See graph 8 and 9 at the end of case study A).

b. 2.5. Pre-school experience

All (100%) of the Grade 1 learners had attended a pre-school, either a registered school or a private 'crèche'. So, it can be assumed that one hundred percent of the learners were prepared for the demands of Grade one and also that the basic drawing and writing ability of these learners had been developed, at pre-school. All the learners had attended an English medium pre-school.

Category 4 - **Materials**

The first concrete category was the book category. This category included a garden booklet compiled by the Grade 1 educators, writing books and readers for Literacy, Me in the Garden. There were twenty-one readers used during this period. Examples of readers were: Come into the garden, Rod Campbell, Ginn 360 level 1, book 4 Home; Book 5 Lad and Book 6 Ben; Little books- Butterfly, In the garden; Sunshine books- The weather chart, Up in a tree, Water, On the ground, Spider and The nest. (Appendix B – List of Readers). The worksheet category included all the worksheets that were stapled together to form a garden booklet, a gardening sequencing worksheet and a cutting and pasting design technology worksheet.(Appendix B – Learner Garden Booklet). The garden and gardening implements category included the actual school garden, the garden shed in the school grounds with all the gardening equipment, pot plants, learners box gardens, compost box, seeds and seed trays, slips of plants placed in 2 liter bottles, rocks, spades, a lawnmower, a rake, a gardening fork and a watering can. The chalkboard category included words written on the chalkboard, letters from the alphabet written on the

chalkboard, symbols indicating the grouping of learners and points awarded for neatness and activities completed. The chart category consisted of a range of charts depicting gardening aspects that were pinned on the back classroom board and on the windows. The music cassette category included music cassettes with approximately 12 pieces of music, some the learners just listened to while they worked and some were integrated during the sessions. The activity instruments category included pencils, glue, scissors, colouring pencils, including rollups and Koki pens (learners brought these to school from home), although the educator did have some resources like crayons available for the learners to use, school shoes/feet for measuring shadows, rulers, building blocks, leaves and seed pods. The other category included a sorting tray, a dog and a kennel, vegetables for making a salad and a salad bowl, crossword puzzles and a shackland (informal dwelling) setup, an overhead projector and transparencies of the external structure of a plant and a fieldtrip to the Japanese Gardens.

In the abstract category, the poetry that was used was 'The Seed', 'Little rain,' 'My shadow' and 'Mud'. The story category had stories about 'animals in the garden,' and learners had to retell extracts of the story. The drama category included the learners dramatising catching their shadows; shake, shake, shake; planting seeds in their garden; growth of a plant and 2 little dikkie birds.

A descriptive –interpretive discussion of how these materials were integrated during the presentation of the programme organiser will be detailed in section 2 on engagement with the programme organiser.

Category 5 – **Resources to teach OBE**

The OBE materials that the school had for the Grade 1 educators to refer to when implementing OBE were Policy documents for the Foundation phase, which gave basic guidelines on what the different learning areas for the Foundation phase are. Educators also had and Life Skills programmes with Teachers guides and Illustrative Learning packages were also in the schools possession.

Category 6 – **Classroom resources for Grade 1 learners.**

The following is a plan of educator Rose' classroom:

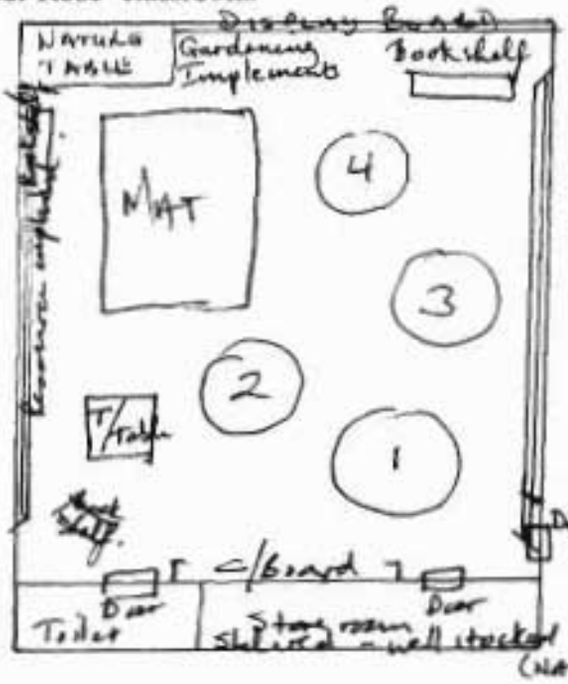
Learner groups

① 3 White (2 boys ; 1 girl)
4 Indian (2b ; 2g)
1 African (1b)

② 3 White (2b ; 1g)
2 African (2g)
3 Indian (2b ; 1g)

③ 3 White (1b | 2g)
5 Indian (3b | 2g)

④ 1 African (1b)
3 White (2b ; 1g)
1 Coloured (1g)
3 Indian (2b | 1g)



- Ceiling fans
- Posters and children drawings on display boards and below windows
- Intercom from classroom to office
- Windows
- Plants (pot) on window sills

(Not drawn to scale)

The following is a plan of educator Sue' classroom:

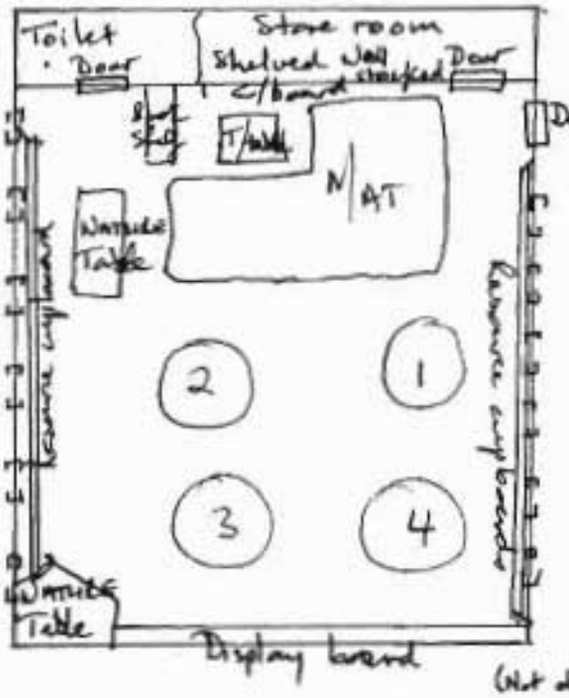
① 7 learners

② 8 learners

③ 8 learners

④ 8 learners

Mixed groupings



- Ceiling fans
- Posters and children drawings on display boards and below windows
- Intercom from classroom to office
- Windows
- Plants (pot) on window sills.

(Not drawn to scale)

The general layout of the classroom is such that learners' desks are grouped to accommodate 8 learners in a group. The desks are spaciously arranged and each learner has a chair to sit on and a desk to work at. There is even space in the front of the classroom for the learners to all sit on the mat when for example, listening to a story. The teacher has her own desk and chair, which are strategically situated, on the side of the classroom.

The lighting and ventilation in the classrooms was good. The classrooms, including the walls and windows were clean and neat. The chalkboard in both classrooms was positioned in the front of the classroom. There was a large display board at the back of the classroom with charts and learners work displayed. There was a large garden interactive centre set up at the back of each classroom. The walls and windows were 'busy' with garden linked charts and displays. The classroom was set up like a garden.

Category 7 – **Community resources**

Parents were involved in all activities at the school. Parents served on the school governing board were involved with fundraising activities, they provided after-care for the learners, transport for fieldtrips, finances beyond school-fees and they provided materials for their children's class/school projects.

Category 8 – **Financial resources**

This school is rated as a Section 21 school. This means that the education department did the upkeep of the school. This school does not receive a subsidy from the education department. The department only pays five teachers salaries, two teachers are employed by the governing body.

The school-fees are R2 600 per annum. The school purchases teaching and learning materials e.g. games, books from the school budget.

B. 2. ENGAGEMENT WITH THE LEARNING PROGRAMME.

SECTION 1 - PLANNING

1.1. Timetable arrangement

I observed every day from approximately 8.30 am to 12.10pm. This was decided as the educators were going to integrate science into the learning areas, an integrated learning programme, integrating the three learning areas in the Foundation phase, was being planned. There were no specific time slots given for when Natural Science (Science) would be presented within the learning programme.

1.2. educator aspects

Educator Rose' and Sue' feelings, ideas and action during the planning of the learning programme are presented as descriptors in table A. 4.2. below.

Educator Aspects	Planning Time period	Descriptors Educator Rose	Educator Sue
Feelings	Initial interview	Apprehensive	Blank
	Before presenting the learning programme	Apprehensive	Positive
Ideas about activities	Before presenting	Narrow ---- Broad	Limited --- Wide
Action	Aspects	Learners	Resourceful
	Difficulties	Bogged	Apply
	Restrictions	Time	Time

Table A 4.2. Educator descriptors for planning the science focused learning programme

A descriptive interpretive report of each of the descriptors and also for the understanding category is presented on the next page.

(i) Feelings

(a). Initial interview

Educator Rose and her colleague were both excited to be part of the research, but educator Rose was apprehensive:

> I did not understand what you wanted us to do. (educator Rose)

I claim that the educators' lack of understanding impacted on the educators' feelings. I question how this would impact on the educators' engagement with the learning programme?

Educator Sue felt on the 'blank' as stated in the following:

> On the blank initially, ----oops (laughing) what do we do, --my garden, we can do ....

This was significant as the programme organiser, me in the garden, that was given to the educator was one that she had not worked with before. So the blank feeling was associated with not understanding what could be done for this programme organiser.

(b) Before presenting

Educator Rose had felt apprehensive before she presented the first learning experience, on the first day. According to her this was due to the uncertainty that she had of the learners' reaction/response to the learning programme:

> 'They do not really talk much about the garden' (educator Rose)

As this was a new programme organiser, the educator did not understand what the learners' response to the programme would be.

Educator Sue felt positive, as she and educator Rose had prepared the learning experience together. These positive feelings were also due to the fact that educator Sue understood what she was going to do with the learners on that first day.

The researcher claims that for educators to implement a new curriculum, being able to understand what you are doing impacts on the educators feelings and this is important for the educators, learners and the curriculum.

(ii) Ideas

When the programme organiser was first presented to the educators, educator Rose stated:

> My first idea was to use five senses, which ---oh no we did not really bring it in so much.

Educator Sue stated:

> We have a mind set and we do growing which covers gardening ...this is not our usual mind set.

The educators were trying to link their understanding of the programme organiser with past experiences, as this served as their support at the time. What was significant was the statement made by educator Sue, 'educators have a mind set' for what could be included in a programme. I claim that this influenced the educator's ideas' of what could be included in the learning programme.

The ideas that the educators had after planning the programme were extensive and this is evident from comments made by educator Rose:

> We have done growing before but we did not broaden on it---
> we tend to look only at the growth of a plant---- but now
> I realise what different things I can do with it---- classification.

When educators are uncertain about what to do (which ideas to use), this limits the ideas that they have. But once the educators had developed an understanding of what was expected of them, they had a range of ideas, they were not limited. This can be linked to the discussion on feelings above, where the question of the link between feeling uncertain and understanding was posed. The educators were now sure about what they had planned for the learning programme and this influenced the range of ideas that they had.

(iii) Action

(a) Aspects

When planning this learning programme the teachers had a number of aspects to take into account. These were:

1. learners – age, capability to read, write, cut and paste and work independently;
2. type of activities – those that did not demand too much reading and writing, too much independent work, those that were child-centred;
3. Resources - 'to use what we had in and around the school and what we could bring from home and what the learners could bring from home.' (educator Sue).

What is significant is that the learners, activities and resources are the central aspects that were taken into account when the learning programme was planned. This was central to planning for the old curriculum. Planning with the new curriculum looks at the critical outcomes and the specific outcomes for the learning areas, then the content and activities that the learners need to complete in order for them to achieve the outcomes. The availability of resources influenced the choice of activities for the learners.

(b) Difficulties

The educators experienced difficulties with the specific outcomes. Educator Rose stated:

> We were sure about what we were going to do, but we kept getting bogged down by planning... just getting to write it down... you have to start with the SO's ...you do not want to start going through all the SO's.

Educator Sue stated:

> SO's. The SO, if this is the thing that we should cover then we would apply it.

Both educators experienced difficulties when they worked with the specific outcomes. This is significant as both educators stated that they did not feel confident when working with the specific outcomes. This difficulty was also evident from the amount of time that the educator took to plan the learning programme.

No mention was made of resources and timetabling considerations.

(c) Restrictions

The restrictions that the educators had experienced were linked to time. The educators felt that planning for a five-day period was too short and trying to condense all the planned activities into five days was a great restriction.

(iv) Understanding

The educators' understanding of an OBE-based Science learning programme was:

> 'Experimenting...(silence)... collecting themselves, finding the materials'. (educator Rose)
>
> 'Resources on hand,... you do not need a laboratory...

resources are out there in the garden,

'We planned Science things... I wanted to show the children how a flower in green paint... and it sucks up...and talk about veins...(educator Sue)

It is evident from this that the educator had a clear idea of what OBE methodology entailed, where learners were active (engaged in the process), responsible for their own learning and activities are hands on. This is also linked to Science teaching and learning where learners were engaged with hands-on activities, which had an experimental nature, where learners developed science knowledge and process skills. Learners were engaged in discussion in-group settings and they communicated their ideas with their own groups.

The educators' understanding of what they saw as Natural Science in the learning programme was that all the learning experiences, that they had planned had a Natural Science element in it, 'everything concerned with the garden is Natural Science' e.g. 'learners chasing their shadows', (educator Sue).

The educators planned to develop the learners' understanding and ability of the following science concepts, processes and skills i.e. garden; plant; shadow; conservation; plant and seed growth; classification; experimentation; observing, asking questions, recording and classifying. The educators saw these concepts, processes and skills as the focus in the Life Skills learning programme.

1.2.b. learners and learning

1.2.b.1.Completion of tasks within a specified time

Evidence of this in educator Rose and Sue' planning was not found. But, evidence of this in their presentation was found. A detailed discussion of this will be presented in section 2, presentation of the learning programme.

1.2.b.2. Educators' understanding of the ability of learners in the class group

When planning a learning programme an educator has to have an understanding of learners, e.g. their ability to use language, communicate; their ability to count etc. Educator Sue and Rose considered the learners' capabilities to read, write and work independently. Educator Rose stated that:

> At this time of the year, the learners are not capable, not that capable of doing certain things ....they cannot read and write that much... (educator Rose – educator interview)

> They are not mature enough or responsible enough yet .... (educator Sue – educator interview)

The educators had preconceived ideas of what the learners could do at that time of the year. What was significant was that these preconceived ideas had an impact on the educators' engagement with the learning programme, as the educators considered this when they planned the learning programme.

The learners were organised into different groups, slow, average and fast groups – educator's reflective diary. When the educators planned they considered the capabilities of the learner group as a whole and during the presentation they considered the capabilities of the different learner groups e.g. slower workers. Further discussion of this will be presented in section 2, presentation of the learning programme.

1.2.c. Understanding of planning requirements

1.2. c. (i) specific outcomes

Educator Rose and Sue did not feel confident when they worked with the specific outcomes. They stated that this was the difficulty that they had experienced when they planned the learning programme.

The specific outcomes written in the learning programme (Appendix B) had clear structure, but they lacked the context part, which explained how the learners would achieve the outcomes.

The specific outcomes included in the learning programmes included those for the following learning areas: (1) Numeracy; (2) Literacy and (3) Life Skills.

Educator Rose and Sue did not start planning with the outcomes in mind, but they did consider the learners, activities and the resources that were available to them and their learners. The educators matched the outcomes to the activities and this is evident from the following:

> For one activity there were 3 / 4 outcomes (educator Rose)
> We had to read a lot to see if the outcomes were applicable (educator Sue)

I claim that the educators are aware of what specific outcomes are, are using them appropriately but their planning does not start with the specific outcomes, but activities.

1.2.c. (ii) Learning experience format was not observed because the planning was presented in terms of the learning areas, specific outcomes, activities and performance indicators. (See Appendix B – Learning programmes).

1.2.d. (iii) Educator Sue and Rose considered the learner's age and capability; types of activities and the resources that the educators and the learners had available to them, when they planned the learning programmes.
Educator Rose and Sue only had one year's experience of planning learning programmes. They had planned learning programmes for three learning areas. According to Departmental Policy documents (1997), learning programmes should have critical outcomes, specific outcomes, assessment criteria, performance indicators, suggested learning activities and notional time (is not teaching time, it is a guide for weighting).

The learning programmes planned by educator Rose and Sue had specific outcomes, assessment criteria, and performance indicators and suggested learning activities, but critical outcomes and notional time were not indicated. Does this mean that the educators do not know how to work with critical outcomes and notional time or they were not aware of their inclusion? What is significant is that educator Sue's planning was planned for each day. Included in this planning were the three learning areas; Numeracy, Literacy and Life Skills, but notional time was not included. I claim that the educators did consider notional time as three learning areas were planned for each day, but the notional time was not written in. Critical outcomes did not reflect in any educator planning documents. I question this, as the critical outcomes are the 'backdrop of OBE' (Departmental Policy documents, 1997).

What do the learning programmes look like?

The Learning programmes were planned for the programme organiser, 'Me in the Garden'. Educator Sue and Rose planned the learning programme together but they recorded their planning separately. For this learning site there are two sets of planning documents (Appendix B – Educator planning documents).

What is significant about these planning documents is that educator Rose' planning consisted of Literacy, Numeracy and Life Skills, three learning areas in the learning programme. This planning did not indicate what would happen on a daily basis, it indicated what would be done for the duration of five days. Educator Sue, planned a learning programme that included the three learning areas and it clearly indicated what would be done for each learning area on each day. The type of planning format used by educator Rose focused on medium term planning where the phase organiser, programme organiser, three learning areas, activities and content were included, but critical outcomes and the use of a planning grid were absent. Educator Sue' planning focused on a short term planning where daily activities were included but notional time, strategies and grouping of learners were not indicated.

I claim that the educators understood some of the planning requirements for planning a learning programme but crucial features were missing i.e. critical outcomes and notional time. In educator Rose' case, the absence of notional time was probably as she used medium term planning. In educator Sue' case as she was using a short term planning format, notional time, strategies and grouping of learners should definitely have been included.

1.2. d. Collaborative planning with colleague and support from school management
The two Grade 1 educators planned the learning programme together. This collaborative relationship is evidenced in the following:

> You find that in the pre-primary and primary possession of material, ideas does not take place. I suppose with us you have to work together (educator Rose)

> We learn from each other, sharing ideas. It would be foreign for us not to say here is a good worksheet... it does not seem worthwhile if you just hold on to it. (educator Rose)

This working together as stated was good for the educators as they could share ideas, materials and also be supportive of each other, when they experienced misunderstandings with the expectations of the new curriculum.

Educator Rose and educator Sue spent a lot of time together planning the programme, including working together at school, on a Sunday. Both teachers were integrally involved in the planning of the learning programme. They spent approximately 15 hours together. At no time did educator Rose or Sue plan any piece of the learning programme alone. For educators to ensure that they can work in a collaborative manner, time for planning effective learning programmes is required.

In my opinion, this collaborative relationship is very important when educators are exposed to change and are expected to deal with change.

What is also important is the support of the principal. At this learning site the principal is very supportive of the educators. Educator Rose, educator Sue and the principal attended OBE workshops together. This was done so that there could be a supportive environment provided at the school and also so that the principal could develop an understanding of the role of management in assisting the teachers

At this school, the Grade 1 and 2 educators and the principal were exposed to OBE and had a basic understanding of the workings of OBE.

SECTION 2 – THE PRESENTATION OF THE LEARNING PROGRAMME.

2.1. Learning programme presentation (Observation sessions).

A brief descriptive interpretive report of the learning programme presented over the 5 days is presented below.

Day 1 - Session 1 - Activity in the classroom and garden.
Educator Rose worked with her group of thirty-two learners. All the learners were asked to sit on the mat. The educator used a question and answer strategy to get the learners to observe what was on the garden nature table. The learners in making observations were also asked to make comparisons and predictions about the growth of a rose given to the educator and a chrysanthemum plant. Learners were responsive and they made good observations, comparisons and predictions. During this session the educator and the learners spelt the words of objects that they had observed on the nature table, e.g. rake, spade, rocks, birds. By the end of this there was a long list of words written on the chalkboard. Educator Rose then gave each learner a garden booklet. Learners were asked

to write their names on it and to draw an appropriate drawing for the cover. Learners completed their drawings and they shared this with their peers and the educator walked around observing the drawings and making comments about them. Learners were then told that they were going out to the garden to count the number of trees, flowers, rocks and gates (Appendix B – Learner workbook, page 1). The learners were excited and each learner completed the activity and then compared the number counted with the number that their group members had counted, Learners then entered their numbers on the worksheet. Back in the classroom each group was asked to state how many trees, flowers, Rocks and gates they had counted. Discussion about the number counted took place between the educator and her learners. Learners' misunderstanding of what a plant and a flower were was evident at this point. The educator explained to the learners the difference between plant and flower. At this point re-learning could have taken place where learners could have pointed out what they meant by flower or plant. Then information about what structures a plant had could be given to learners and they could then make a decision about which structure is really a plant and which a flower. Educators needed to capitalise on these learning moments to make learning more meaningful and constructive for the learners.

Learners were then given clear instructions about the activity that they were going to do the next day, building a box garden. They were asked to bring structures from home, e.g. 2 liter bottles and boxes.

During this session the educator and her learners used the following structures: a chalkboard and chalk, and a range of items placed on the nature table, including a lawnmower. These were the items that the learners observed, named and described what they were used for in the garden.

The educator stated that this activity, the first one, was done to focus the learners on the garden and for the learners to develop meaning for the word garden. What is significant is that the garden outside the classroom was well developed and learners could be introduced to a garden by actually experiencing a 'real' garden.

Day 1 – Session 2 – Colouring in and Seed growing

Learners were seated according to the class-seating plan shown in section 1 – classroom resources for Grade 1 learners. Learners were asked to colour in the tree, flower, rock and gate on page 1, workbook. Learners sat in a group but they worked (coloured in their pictures) as individuals, chatted while they worked. During this time the educator reinforced the difference between a flower and a plant by questioning learners about the structure of the flower that they coloured in. What was significant is that the learners coloured the centre of the flower yellow and the educator asked them why they did this and a few learners responded by stating that it was pollen. This can lead to a misunderstanding later on for the learners because pollen is not always found in the centre of a flower but also in other positions, and this should have been extended at this time. While learners coloured in their trees, the educator questioned them about the purpose of trees. Learners were all eager to respond and they gave a range of appropriate responses, which should have been challenged. The educator then stopped the learners told them to put their books away and to sit on the mat.

The educator then demonstrated a seed growing activity and she used a question and answer strategy to get the learners to name the structures that were to be used for the demonstration, state number of seeds used and to describe the shape and colour of the seeds that were removed from the seed packet. What was significant at this point is that a learner compared the seeds to ones that she knew about, connected to cultural diet. seeds that she ate. This was a significant learning moment but it was passed. The educator and learners engaged in discussion about the steps that should be followed when the seeds were planted.

The educator and the learners then did a writing activity using g words found in a reader that had garden aspects in it. The educator wrote all the words on the chalkboard and the learners copied it into their writing books.

The last activity for the day was an art activity where the learners had to cut and paste a house and its fence around it on a large sheet of paper. Learners listened to music and

chatted while they worked individually. One learners' drawing was shown to the class group.

During this session the educator and her learners used the following structures: learners workbook, writing books, chalkboard, crayons, colouring pencils, roll-ups, house worksheet, sheets of paper to glue the house on to and glue to paste the house to the sheet of paper. They also used seeds and the seed tray for the growing (germination) of seeds; 4 musical items; drama of two dikkie birds.

> There was so much stimulation, so much available and learners were enthusiastic and eager, every moment was filled with activity, but to what extent were learners challenged and involved in the construction of knowledge? (Researchers reflective diary –day 1)

Day 2 – Session 1 – Box garden and sorting graph activity.

The observation session started off with each learner constructing a box garden. Some learners had constructed their gardens at home and they were just neatening up their boxes, while others started constructing their gardens from scratch. The learners eagerly did the activity and they showed their emotions and completed gardens to their peers, the educator and myself (the researcher). The learners questioned one another about what they had in their gardens without being prompted to do so. When all the learners had completed their gardens, the educator asked the learners to push their gardens to the center of the table. The educator then told the learners that they were going to look at the gardens after break (during session 2). An opportunity to assess the learners when they were so involved with their gardens was missed.

The educator called one group of eight learners (green group) to the mat, while the other learners sat at their tables and coloured the tree in their workbooks, page2. These learners chatted while they worked. The educator told the green group that they were going to

group things (leaves, stones and flowers) that were found in the garden, a sorting activity. The learners in the group worked together, they discussed the problem and they worked on solving it together. A sorting tray was placed in front of the learners and each learner had to sort an item, until all the items (things) had been sorted. The learners were then given a large blocked sheet of paper. On this sheet, the learners had to draw a graph. The educator introduced the learners to the word, 'graph' and the learners were shown how to work out the axes for the graph. The learners then individually coloured in the number of blocks to represent the number of each item. The members of the group looked on and helped any learner that was not doing it properly, did not know where to stop colouring in. The graph (Appendix B – Learners' graph) was completed and placed on the chalkboard for the blue group to observe. The educator asked the learners questions about the graph and they responded appropriately.

During this session the educator and the learners used the following structures: boxes (containers); soil; plants and slips or branches that were planted in the soil; watering cans and water; blocked paper for the graph; crayons to colour in the graph; things from the garden – leaves; stones and flowers (to be sorted); a sorting tray; chalkboard to pin the graph on; worksheet page 2.

Day 2 – Session 2 – Box garden show, graphing, literacy (sounds) and bean seed germination

This session started off with the learners having placed their gardens in front of them, showed their gardens to the educator Sue' Grade 1 learners. The learners walked eagerly past educator Rose' Grade 1 learners and they questioned them and pointed out things that they observed in the box gardens. The learners were very keen to show their gardens to their peers. Educator Sue and her learners made comments about how different the box gardens were and commented on how good they were. She and her learners then thanked the Grade 1's and she left with her learners. Educator Rose then thanked the learners for their input and the effort that they and their parents took, making the box gardens. An

informal assessment took place here but a more learner involved assessment with constructive feedback to each learner was lacking.

Educator Rose then asked one group (red group) of eight learners to go to the front and to sit on the mat. She then instructed the rest of the learners to complete the maze activity on page 3 in the learners workbook.(Appendix B – Learners' workbook). The educator worked through the graphing activity with the group of eight learners, in a similar way to that that was done with the green group.

The next activity was a literacy activity, where learners chorussed the sounds for different letters. Learners then gave words that began with a 'P', linked to the garden, e.g. pumpkin, potatoes.

The next activity was a bean seed planting activity where the educator and the learners investigated the requirements for growing bean seeds. Learners were prepared for this activity by the educator reading a book entitled 'Seed book' and she introduced new terms e.g. radicle. The educator with the help of some learners planted bean seeds in cotton wool for all the groups and this was then placed on each groups' table. It was to be left on the table for the duration of the week. Learners were expected to observe it on a daily basis.

The last activity was the completion of the art (house) activity from the first day. The educator asked the learners to draw trees, birds and insects in the garden.of the house.

During this session the educator and her learners used the following structures: box gardens; worksheet, page 3; blocked paper; crayons; chalkboard; bean seeds. cotton wool, water and a base.

I question the number of activities that were done and the reasons for including all of them.

So much activity, some seem disjointed i.e. planting on

day 1 and day 2 , no connection made between the two.
so many activities- what is the link, sequence of presentation.
(Researchers' reflective diary – day 2).

Day 3 – Session 1 – Box garden and planting seeds with the gardener in the garden

On this day I observed educator Sue and her Grade 1 learners. The observation session started off with the learners organising their box gardens and showing them off to their peers. During this time learners who had completed their gardens coloured in the cover of the book – Me in the garden. Once all the learners had completed constructing their box garden, the educator called them all to the mat. At the mat the learners feelings and knowledge about the box garden construction was assessed. The learners questioned and responded very openly and readily, without been prompted by the educator. The educator then prepared the learners for the planting activity that was to take place in the garden, by reading and discussing a storybook with the learners and questioning them about the story, their experience of planting seeds. A wonderful assessment session well placed and managed.

The educator then prepared the learners for the planting session in the garden, with the gardener. The preparation centered on the meaning of seeds, types of seeds. seed observation of various seed structures and requirements for seed growth. The educator and the learners then went out to the garden to observe the garden shed and gardening implements. Learners were then questioned about an appropriate place to make a garden. The educator and her learners then returned to the classroom. The educator then organised a group of eight learners to go to the garden to plant seeds with the gardener on a rotation basis, while the other learners worked in their workbooks, working with worksheet, things I use in the garden, page 12 (Appendix B – Learners' workbook). These learner groups were re-organized, the roles were changed for the group members e.g. the monitors/groupleaders were changed. Each learner that went out to the garden was expected to plant approximately six seeds. The gardener gave them clear instructions and he helped each learner to make a furrow and to plant each seed. What was significant

during this time is that the Zulu-speaking learners dominated the scene, they spoke to the gardener in Zulu and they shared what they and the other learners were doing very freely. On the whole all the learners were eager to plant their seeds and they shared their experiences with the gardener and me freely. They also asked a number of relevant questions e.g. how deep must this bean seed be? By tea break only some of the learners had experienced planting in the garden.

During this session the educator and the learners used the following structures: box garden; crayons; seeds for planting in the garden with the gardener; garden; garden shed and gardening implements; and worksheet, page 12.

Day 3 – Session 2 – Planting, Worksheet, Graphing and Worksheet, Salad making.
After tea break, some learner groups went to plant, while the others continued with their garden worksheet. Once all the learners had planted seeds in the garden, they were prepared for the next activity. One group of eight learners was called to the mat and the other learners worked on the worksheet page 5 (Appendix B – Learners workbook). Here, the learners were expected to make butterfly wings the same. This I viewed as very important in the learning of science, as there is always confusion amongst learners about the difference between same and similar. The learners on the mat did a graphing activity. Each learner made his/her own block graph in the learners' workbook, using pieces of coloured paper to represent the number of items (Appendix B- Learners workbook 2). What was significant at this point was that this graphing activity was done very differently to the way educator Rose and her learners did the graphing activity. Here, each learner was involved in the discussion and the sorting of the things from the garden, where each learner had a turn to place an item in a sorting tray. The educator and the learners then made use of building blocks to illustrate how to represent the numbers of items in a graph. Each learner then made his/her own block graph in the learners' workbook, using pieces of coloured paper to represent the number of items for the different things (Appendix B- Learners workbook 2). The completed graphs were used to assess the learners understanding of knowledge of a graph and the development of the

graphing skill. Different groups were called to the mat to complete the graphing activity. While this was been done, the other learners continued working with another worksheet, page 12 (Appendix B – Learners workbook). Learners were given a time period to complete all their activities. The activities completed were linked and learner development was constructively managed. The next activity just seemed out of place. The educator demonstrated how a salad is made using things from the garden, e.g. carrots, tomatoes, lettuce. This activity should have been done once the learners had planted seeds in the garden, so that the link between the seed planted and the product obtained from the garden that can be used and how it can be used could be made and developed for the learners. To end the session the educator gave the learners a copy of a letter about the picnic they were going to on Friday, to be given to their parents.

During this session, the educator and her learners used the following structures: seeds; garden; worksheet, page 5; building blocks; sorting tray; sorting things (seeds, flowers, leaves and insects); blocks of coloured paper; learners' workbook; worksheet, page 12.

> Wonderful experience, gardener teaching the learners how to plant. So much activity, learners busy all the time, greater learner sharing and assessment should take place (Educators' reflective diary – day 3).

Day 4 – Session 1 – Reading; Music; Shadow discovery and measurement.

The observation session started off with a reading session, where different groups were given different level readers. What was significant is that every reader was linked to the garden. Learners were then prepared for the next activity, which was singing with the music educator. All the learners sang songs linked to the garden e.g. I love the sun, planting a sunflower. This was a good experience for the learners, it was linked to the former days activity, planting in the garden. An opportunity to assess the learner's experiences after the music session was missed as the learners on returning to the class were prepared for the shadow activity.

The shadow activity started off with a poem entitled ' My Shadow'. The learners were questioned about their understanding of the word shadow. The educator and the learners then experienced their shadows by observing them and trying to catch them in the garden. What was significant at this point was the challenging questions that the educator asked the learners about how shadows are formed and the position of a shadow in relation to the sun at different times of the day. This was good preparation for the activity.

One group of learners (blue group) was left out in the garden with the researcher, to measure their shadows and the other three groups returned to the classroom to work with worksheet, page 7 (Appendix B – Learners workbook). Learners worked in-groups of two measuring the length of their shadow. A learner measured his/her partners' shadow, using his/her feet, and then recorded the measurement. Learners did not have a opportunity to share their experiences.

During this session, the educator and her learners used the following structures: readers, music cassettes and a piano; poem – My Shadow; chalk, pieces of paper, learners' feet and pencils for the shadow measuring activity; and worksheet, page 7.

Day 4 – Session 2 – Puppy viewing, compost box, plant observation and shadow measuring.

This session started off with the educator showing a puppy to the learners. A discussion about the importance and types of dogs took place. Learners' shared their knowledge and asked questions freely. The puppy was then put away and the next activity started. The educator took out a compost box and a discussion about what to put in the compost box ensued. Links were made to the compost that the learners observed in the garden, day 3 session 1. Learners developed an understanding of what is used to make compost.

The next activity started off with the educator showing the learners 4 flowers and asking them to name, describe the structure and the uses of flowers. Learners and the educator then focused on a pot plant that had dry soil. Learners were questioned about the state of

the plant in the pot plant and this was linked to their own feelings, e.g. does the plant look happy? The educator then directed the learners to the plant drawing in their workbooks, page 9 (Appendix B – Learners workbook). Learner groups had to share ideas about why plants have roots. Learners then had to compare the flowers that were coloured in and to discuss the importance of flowers. This use of materials and sequencing was good for learners to develop a clear understanding of the structure and importance of flowers and plants. Parts of the plant were discussed. Learners were then asked to observe the pot plant and to compare how it looked now, after being watered half an hour before, to what it looked like before. The blue group was sent out to measure the length of their shadows again and to compare this length to the first measured length.

The whole class was now taken out to the garden to observe their shadows and to compare their shadows to what they looked like before (in the morning). Learners shared their experiences about the length of their shadows.

During this session, the educator and her learners used the following structures: puppy; compost box with peels, grass cuttings; pot plant, watering can and water; learner workbooks; flowers; OHP and transparency of a plant; shadows and learners feet.

> What an interesting day. The inclusion of music, drama, shadow chasing and measuring- great. There is minimal time for all the activities, what a busy OBE. In-depth workings and appreciation of it should be explored (Educators' reflective diary – day 4).

Day 5 – Session 1 – Fieldtrip to the local garden.

The observation session started with the educator discussing good behaviour and preparing the learners for the fieldtrip. Ten parents arrived with their vehicles to transport the learners to the local garden. At the gardens the learners and parents were told about the activity to be carried out. Learners were grouped with parents as group leaders. Learners were free, excited and eager to participate, observe structures in the garden. The fieldtrip ended after one and half-hours.

Day 5 – Session 2 – Feedback from the garden, Conservation.

Upon return to the school and the classroom, learners were seated in the groups and they each had an opportunity to share what they liked about the fieldtrip with their group members. What were not shared were the interesting items that the learners collected in the gardens. Instead learners were asked to sort the interesting items that they picked up in the gardens, into groups Learners were then asked to draw what they saw at the gardens at the back of their workbooks (Appendix B – Learners workbook 2 – back page). The last activity for the day was the comparison of a shackland model with what the learners observed at the gardens. Learners were questioned about the importance of gardens. Learners were then given time to choose a book to read.

> What a wonderful experience for the learners, educators and the parents. A hive of activity and sharing of experiences (Educators reflective diary- day 5).

2.2.a. Grade 1 Educators

Educator Aspects	**Presentation Time periods**	**Descrip Educator Rose**	**Tors Educator Sue**
Feelings	After presenting the Programme for one day	Pleasantly surprised	Pleased
	After presenting the programme for a week	Tired	Excited
Ideas	After presenting the programme for a week	Extensive	Extensive
Action	Aspects	Time	Time
	Difficulties	Large groups	Large groups
	Restrictions	Time duration	Time duration

Table A. 4.3. Descriptors for Educators Rose and Sue for presentation of the learning programme

(i) Feelings

(a) After presenting the programme for one day

Educator Rose was pleasantly surprised by the learners wealth of knowledge as evidenced in the following:

> I was pleasantly surprised by the amount of knowledge they knew.... Some of these children really seemed to know a lot more than I expected (Educator interview – transcripts).

What was significant was that educator was surprised by the learners' knowledge and the educator planned the learning programme taking into account the learners knowledge? There definitely was a mismatch between what the educators understanding of the learners' knowledge was and the learners' actual knowledge.

I claim that educators underestimate the capability of the learners and this can have an impact on what activities they decided to include in the learning programme.

Educator Rose also stated that she was very tired after the days activities She stated that :

> OBE lessons require a great deal of input from educator (Educator Rose reflective diary – day 1)

Educator Sue was pleased after the first day as it started off on a positive note and the outcomes were 'engaged in' (educator Sue reflective diary) successfully and the learners were enthusiastic about the activities.

Both educators planned the learning programme together but their feelings after presenting the learning programme for a day were different and there were different reasons for this difference. This indicates that a learning programme even though planned together is experienced differently.

(b) After presenting for a week

Educator Rose stated that she felt tired from all the activities and the type of teaching e.g. from doing so much practically, while Educator Sue stated that it was exciting and meaningful.

(ii) Ideas

The ideas that educator Rose and Sue had after presenting the learning programme were extensive. They could present the programme for 6 weeks, not only 1 week.

(iii) Action

(a) Aspects

The aspect that educator Rose and Sue took into account when they presented the learning programme was concerned with the amount of time that they had available to present the activities for each day.

(b) Difficulties

The difficulties that the educators experienced was the management of the learner groups, especially when learner groups worked in different areas i.e. in the classroom and in the garden. Educator Rose stated that:

> The only problem with this programme is that you need extra help... with big classes... I know this is not as big as other schools... too big for me to work on my own (educator Rose – educator interview transcripts).

Educator Sue stated that:

> I was a bit disorganised at first...sorting the learner

Groups (educator Sue – educator interview transcripts).

The educators stated that the management of learner groups would be better if parents were also involved as parent helpers.

I claim that for a learning programme to be successfully presented, the educators should be competent in the management of learner groups.

(c) Restrictions

The educators experienced restrictions with the time duration, one week to present the learning programme.

2.2.b. Learners and learning

2.2.b.1. Completion of tasks

Educators at times had (a) a particular time frame for the learners to complete tasks and (b) catered for the learners different paces.

(a) This is evident in the following for a particular time frame:

Educator Sue stated:

> the picture of the house took much longer than I anticipated (educator Sue – educators reflective diary)

Educator Rose stated:

> Activities took longer than expected (educator Rose –educators reflective diary)

Extract from researcher' observation notes:

Learners given a time period to complete activities (researcher observation notes

(b) The educators catered for the different learner paces as evidenced by the following:

Extract from the educator interview:

Researcher – Why do you think that what you did do was less than what you planned?

Educator Rose – The speed of children, you do not know...

Extract from researchers observation notes:

Learners were told that they can complete the activity the next day – Day 1, session 1;

Learners are allowed to do other activities if they have completed all their work.. Crossword puzzle – Day 4, session 2.

2.2.b.2. Preparation of learners for a task

The educators prepared learners for a task by explaining what the learners had to do for the activity, but they did not state the activity outcomes, neither did they describe how the learners were going to be assessed.

This was evident in the following:

The educator got the learners to sit on the mat and she asked them to look around them and to state what they saw – researchers' observation notes;

Educator Rose – Tonight you are going home, you have to bring things for your I want you to bring a box, a shoebox or a meat tray... we will make a play-play garden tomorrow. (Transcripts – classroom, day 1, educator Rose).

2.2.b.3. Educators knowledge of the ability of learners

The educators felt that they were knowledgeable about the ability of the learners. They stated that they were:

> pre-primary trained and they were open-minded...
> used to open-ended expectations... we see the
> whole child (educator Rose and Sue – educator interview).

But I claim that educator Rose was not that knowledgeable about the learners as evidenced in the following:

Educator - I want to ask you a question, I wonder if you can answer it (educator Rose-transcripts – classroom);

Amazed at how well the learners responded to the lessons...showed interest and knowledge of plants exceeded my expectations (educator Rose – reflective diary);

The educators were knowledgeable about the learners' ability to read, write and do numeracy, but educator Rose was not knowledgeable about the learners' knowledge about gardens and their interest in gardens. This was also clearly evident from the statement that educator Rose made in the section 2.2.a. Educator aspects – feelings on page 90.

2.2.b.4. Preparation of learners for the learning programme

The educators prepared the learners for the learning programme a few days before they started the learning programme by speaking about it :

> When I spoke to them about it, a week before we started
> (educator Rose, educator interview)

and they got the learners to do an activity, where they were going to make observations during the duration of the programme, as evidenced in the following:

Learners were asked to bring in a coke bottle and a plant slip was placed in it for learners to observe growing from a slip – researchers observation notes, day 1.

And for the first activity that the learners did on the first day:

Good, learners understanding of what is found in a garden was questioned – researchers reflective diary.

2.2.C. Time management

The educators had planned a full learning programme with a range of different activities. Every minute of time was used productively and effectively. A busy atmosphere reigned in the classroom. At times it felt like the learners were rushed to complete activities.

The educators had filled the programme with activities and they wanted to complete as many activities as possible. Many of the activities that were planned were not presented during the week and the educators decided to carry on presenting the learning programme for the next two weeks.

Evidence for the rushed time management is presented below:

I battled to complete reading today, not enough time in the day – Educator Rose reflective diary;
I was able to do reading but there was no time for writing today – Educator Sue in reflective diary;
Another busy day – and lessons learnt on my part. I expect too much to be accomplished in a day – Educator Sue in reflective diary;

2.2. D Use of teaching and learning strategies (See graph 10 at the end of case study A)
The educators used a variety of teaching and learning strategies for 100% of the period.
I claim that the strategies were learner-centered and that the educators had a good understanding of what learner-centered learning experiences were.

2.2. E The educators use of resources

When looking at how the availability of resources impacted on the strategies that the educators used the range of resources needs to be looked at.

I claim that these strategies would not have been possible if the educators did not have the resources at their disposal/ available to them. I claim that the teaching and learning strategies are resource dependent.

What is important is that the educators had a full understanding of what resources they required and how to use the resources at their disposal.

I claim that the way educators used resources in the classroom was influenced by their knowledge and assumptions about resources available to them and to learners both inside and outside the classroom.

2.3. Grade 1 learners

(i) Learners feelings about activities

Learners enjoyed the activities and this was evidenced in the following extracts:

Worked enthusiastically, were interested and eager to participate (researchers' reflective diary).

Learners were responsive and enjoyed the activities, they participated and they brought so much from home (educator Rose and Sue – educator interview)

Learner - I enjoyed making my garden, see the stones in the garden;

Learner - The trip to the gardens was nice, we saw fish and we collected cones

Learner – Please let me plant some more seeds, I like doing it. (learner interview)

(ii) Understanding of the content (knowledge)

During the presentation of the learning programme, learners understanding and misunderstanding of science concepts and processes were looked at. Examples are presented below:

a. Garden - For the garden activity on day 1 learners described a garden in terms of what they had observed in the classroom. and what they did not observe (using their past experience):

Learner transcripts (See appendix B)

Learners saw the garden as a place where animals and flowers, rocks and sand was found. What is significant is that the learners did not say plants neither did they say insects or birds.

I claim that learners defined the term garden using their past experiences and the observation of concrete structures.

b. Requirements for planting seeds

I claim that the learners could name the requirements for seed growth, but the reasons for the requirements are not understood.

Note : the term germination was not used.

c. Use of the word flower and plant (activity 1 in learners' book – appendix B).

Learners used these terms interchangeably. (Learner transcripts – appendix B).

Educators reflective diary:

Activity on counting flowers, rocks etc.. revealed that some learners were unsure of what a flower and plant are – counted plants not flowers.

I claim that this is unacceptable when learning science because the structure and functions of plants and flowers are so different. At this early stage it is important that learners learn to use the correct terminology.

d. Classification and graphing

Learners developed knowledge about how to classify items from the garden and how to record this in the form of a graph.

Educators Rose' reflective diary:

Learners learnt a lot about how to group items from the garden. The learners now understand how to do a bar graph. I was impressed by the way the learners understood 'most', least and same from the graph

Educator Sue' reflective diary:
The children understood the concept of sorting and classifying and I soon had seven groups.....

e. Vegetative reproduction (asexual)
Learners were observing a rose flower and a geranium plant – transcription (learner transcripts – appendix B).

I claim that learners do not understand how a radicle (root) develops from a seed and they do not understand that only some plants exhibit vegetative reproduction.

f. The role of the sun in making shadows
Learners standing outside in the sun – transcripts (appendix B)

I claim that some learners were aware of what caused shadows, and what shadows did, but some did not.

g. Conservation (Learner transcripts – appendix B)
I claim that the learners understand the significance of having a public garden.

(iii) Activities and skills that the learners used.
a. Making observations and predictions:
Evidence from transcripts (appendix B)

b. Measuring shadows (early and mid morning), recording measurements and making conclusions.

Evidence from transcripts (appendix B)

Learner put his first foot down and counted two. Educators reflective diary – It was interesting to watch how some children forgot to count their first foot when they stepped.

Learners after measuring their shadows the second time (later in the day) concluded that their shadows were in a different position and they were shorter.

I claim that learners could mark off the shadow length, but they experienced problems with measuring the shadow length, using their feet. Learners made appropriate conclusions.

c. classifying seeds and fruit

Evidence from transcripts (appendix B)

Educators reflective diary:

Learners sorted the seeds and fruits. It was rewarding to see them doing it

d. developing graphing skills (See learners book – Appendix B)

Teachers' reflective diary – I was impressed by the way the learners decided to do the graph; the block graphs were developed well.

e. planting seeds

(Learner transcripts – appendix B)

Learners planted seeds and they developed skills of planting different types of seeds according to the type of seeds used.

f. communicating verbally

Educator – discuss with you friend what you liked about the Gardens we visited

I claim that the learners developed a range of skills but the extent of the development is questionable, as learners were not assessed on this, except for d and f above. Also, for

some of the skills not all the learners were exposed to them during the course of the observation period, measuring shadows, only 1 group experienced this.

2.4. Assessment

Learners were assessed when they demonstrated what they had learnt. The types of assessment used were informal and formal where the following assessment methods were used: observation and comment; self/peer assessment; and performance assessment. Learners were assessed at different time periods

Assessment criteria were clearly indicated in the planned learning programme, but the assessment was not always done in action (during the presentation).

Feedback to some parents took place on the 5th day of the programme, fieldtrip to the gardens. I claim that the educator presented a learning programme where assessment was an integral part of the programme, it was not like a salad dressing, on top of a salad.

No record of the learners assessment was completed during the observation period.

SECTION 3: FUTURE CONSIDERATIONS

The educator's future considerations were concerned with:

(i) the changes ;

Educator Rose and educator Sue stated that, in reflecting on what they had planned and presented in the past five days, they would change what they had planned and presented by cutting out some activities and restructuring the programme. The educators, while working with the various activities decided what could be excluded and what should be extended, as evidenced in the following:

As we done things we have been open to gosh, this can

be perhaps changed (educator Sue – educator interview)

I claim that the educators were open to changing what they had planned and presented in the learning programme and this would have to be considered as the educators planned so many activities that they did not even present. The educators preparedness to change what they had done is a good growth process, especially when working with (implementing) a new curriculum.

(ii) planning and presenting a learning programme;

The educators stated that what they had done in the past five days had made them think differently about planning a learning programme. They stated that they would look at spending less time planning the learning programme, especially planning for C 2005. Planning for C2005 was an immense task. This comment showed that the educators spent a lot of time planning and this can be linked to their lack of confidence in working with specific outcomes and also the basic planning that was expected.

The educators stated that what they had done in the past five days had made them think differently when presenting a learning programme. They would work at the same pace, working with more 'hands on' activities, as the learners enjoyed this and they were keen to do the activities.

(iii) future aspects

The educators stated that in the future when planning and presenting a learning programme, they would definitely consider more meaningful 'hands on' activities, practical activities, where the learners would be expected to bring more things from home and they would be expected to participate more. The educators also stated that they would maintain the level of the parents' involvement.

I claim that the educators' use of parents enriched the learning programme presentation.

Trends for school A

1 a) Educators

- Educators did not view themselves as curriculum developers and curriculum implementers.

- Educators' feelings and rating of confidence and competence matched, but educators did not feel confident in working with specific outcomes.

- Having policy documents and facilities and resources and attending workshops did not make the teachers feel more competent and confident, it is working 'hands on' with the policy documents, specific outcomes and developing the learning programme that developed the teachers' confidence and competence.

b) Educators - Planning the learning programme

- The educators understanding of how the learning programmes should be integrated impacted on the educators planning of the learning programmes and their decisions about when to present the science focused learning programme

- In planning the learning programme, the educators lack of understanding of e.g. specific outcomes and what is required of them (the educators), impacted on their feelings, ideas and actions

- The educators understanding of: a) science focus in an OBE learning programme b) Natural Science; c) learners and learning; d) planning requirements impacted on their planning of the learning programme.

- The educators knowledge and assumptions of the availability of resources e.g. materials (resources) and community resources to the educators and learners

influenced the teaching and learning strategies e.g. music – singing songs about the garden; fieldtrip; project – box garden, and also the activities that were planned

- Collaborative planning, where both teachers were integrally involved in the planning took place over a long period of time. Management provided school support and the principal attended OBE workshops

c) Educators - Presenting the learning programme

- Educator personality – friendly and conducive to encouraging learners to participate

- Interaction of teachers and learners – an open and relaxed interaction

- The educators understanding of how the learning programmes should be integrated impacted on how the educators presented the learning programmes and their decisions about when to present the science focused learning programme

- Educators' feelings differed but their ideas and action were similar and this impacted on the educators' presentation of the learning programme

- The educators differed for certain aspects of learners and learning e.g. educator Rose there was a mismatch between her pre-conceived ideas of what learners can do and what learners actually did, during the presentation.

- The educators' knowledge and assumptions of the availability of resources to teachers and learners impacted on their presentation of the learning programme, e.g. the teaching and learning strategies and the choice of learner activities.

- The educators understanding of what resources to use and how to use them during the presentation of the learning programme impacted on the educators' presentation of the learning programme

- The educators planned activities together but they differed in some instances e.g. graphing activity (Appendix B learner books and graph sheets) in the presentation of the activities

- The educators time management had an impact on their presentation of the learning programme

- The educators understanding of assessment had an impact on the assessment of the learners during the presentation of the learning programme

d) Educators - future considerations

The educators' experience of planning and presenting the learning programme impacted on their future considerations for how they would change, plan and present the programme.

2 Learners

- All learners had experienced an English medium pre-primary school and had developed basic writing, reading and drawing skills

- Learners were responsive and they shared their ideas freely and openly

- Learners developed knowledge of gardens, shadows etc. and they had a misunderstanding of plants and flowers

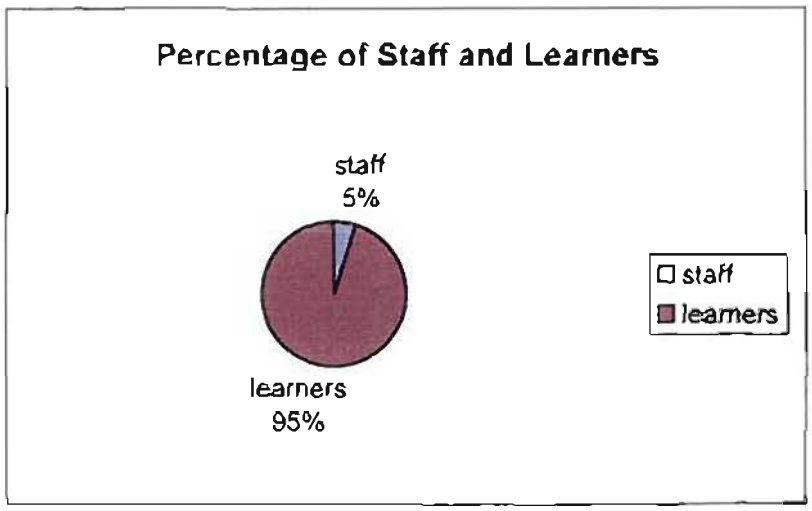
- Learners' experiences impacted on their development of knowledge

- Learners were given equal opportunity to participate during the presentation of the learning programme.

Graphs Case Study A

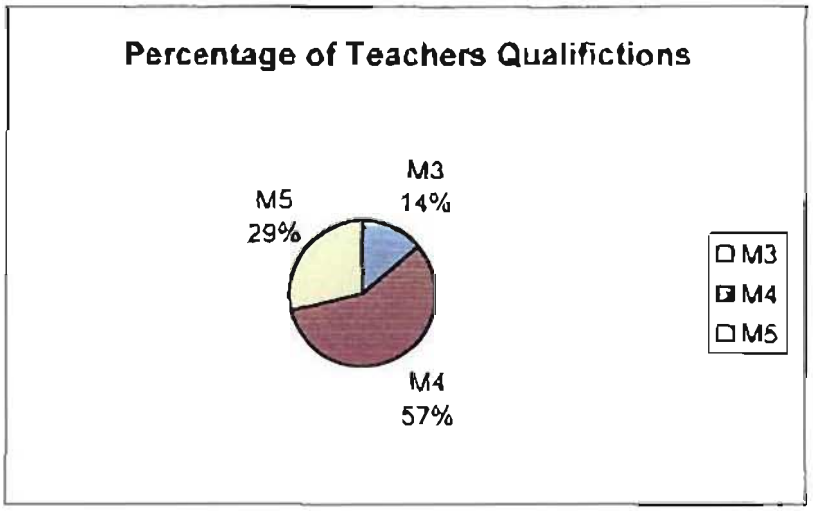
staff	5%
learners	95%

1



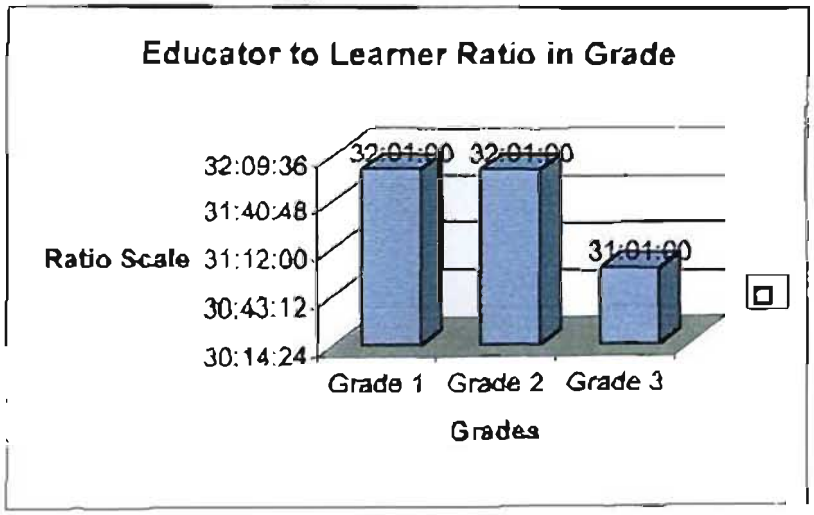
M3	14%
M4	57%
M5	29%

2



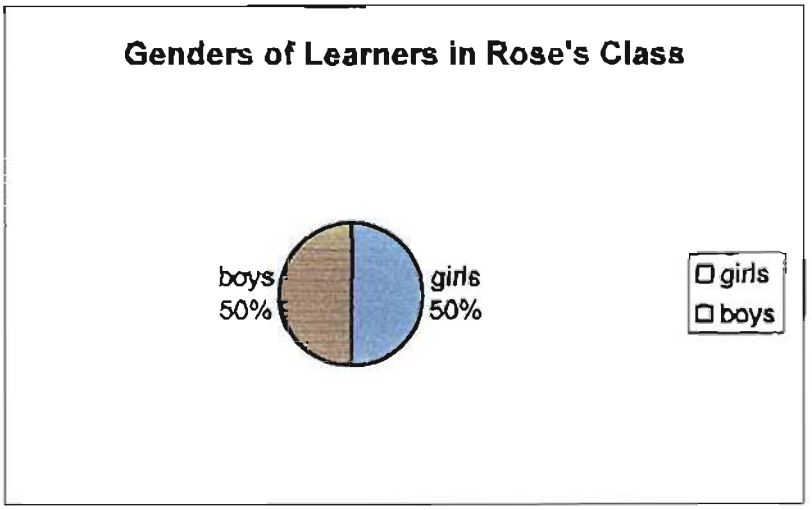
Grade 1	32:01:00
Grade 2	32:01:00
Grade 3	31:01:00

3



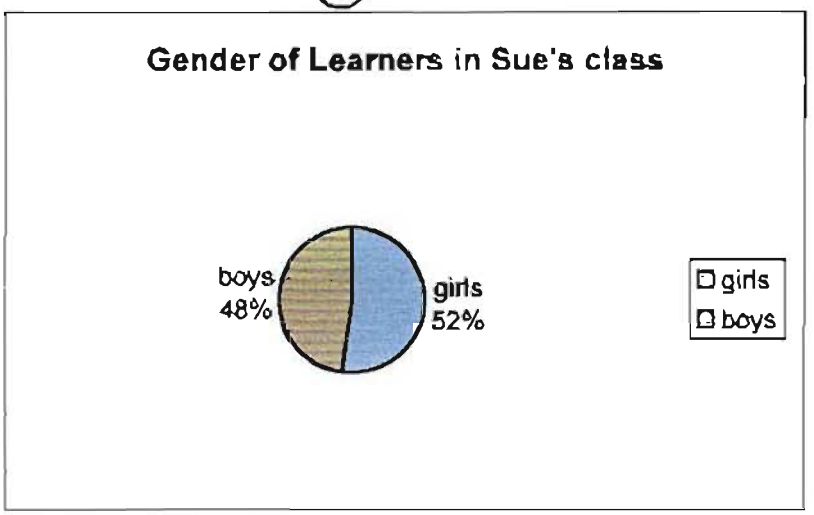
girls	50%
boys	50%

(4)



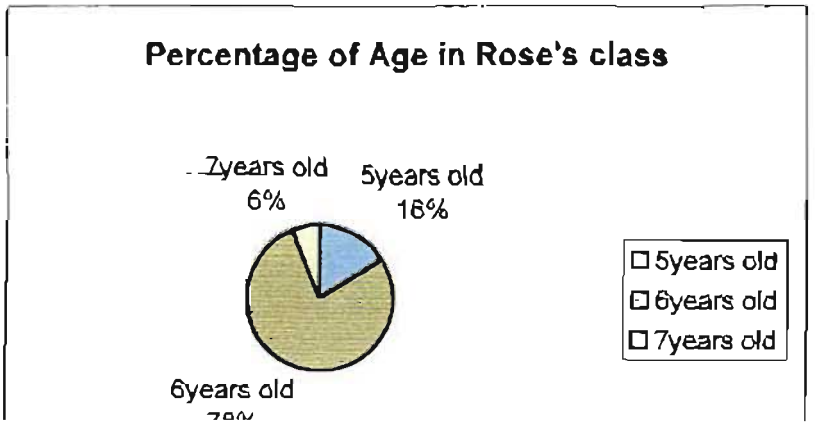
girls	52%
boys	48%

(5)



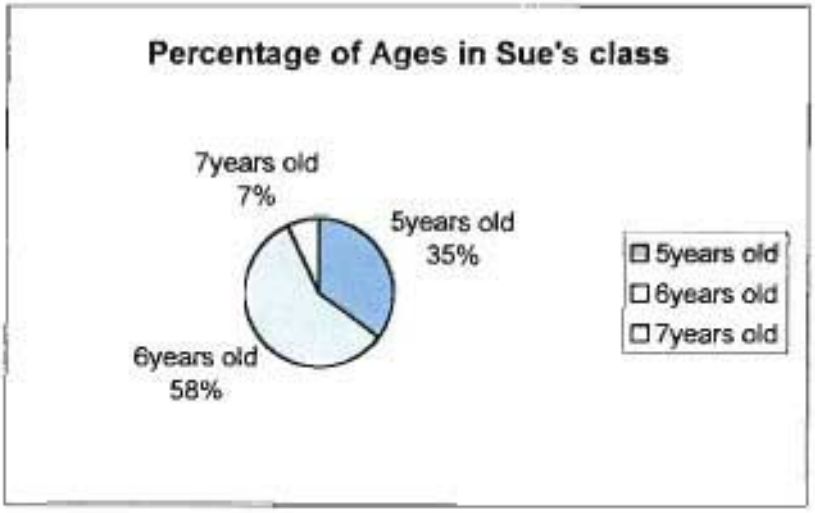
5years old	16%
6years old	78%
7years old	6%

(6)



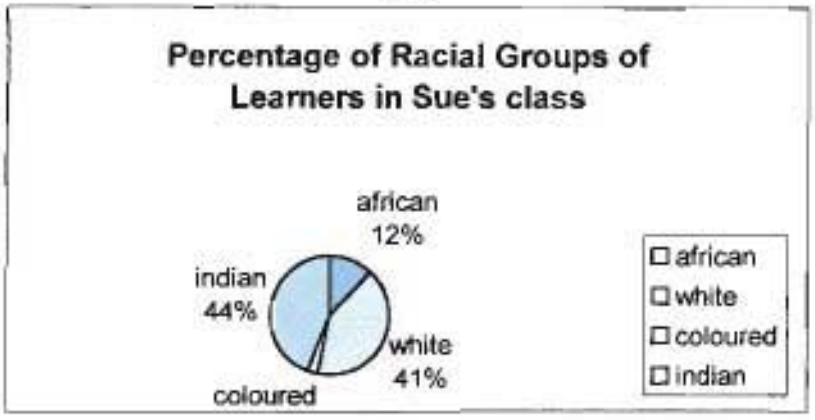
5years old	35%
6years old	58%
7years old	7%

(7)



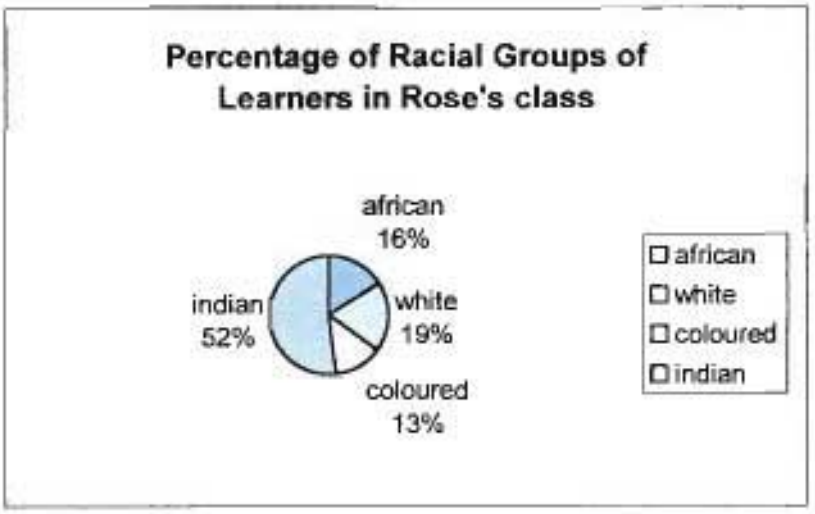
african	12%
white	41%
coloured	3%
indian	44%

(8)



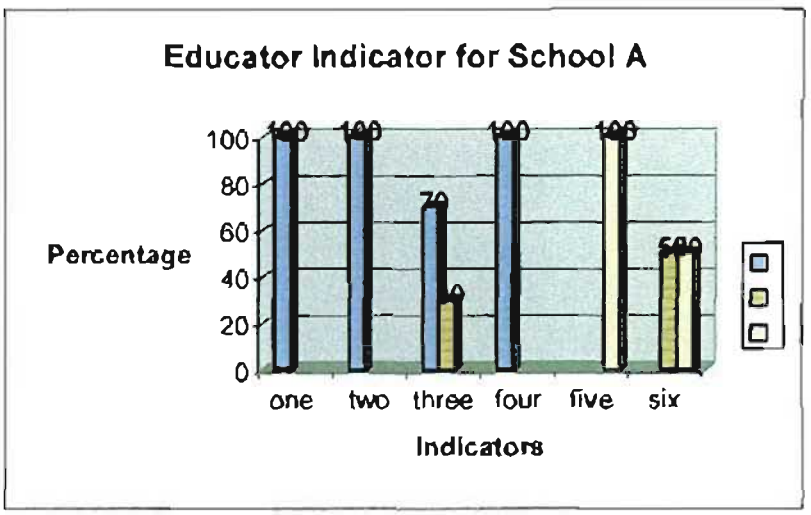
african	16%
white	19%
coloured	13%
indian	52%

(9)



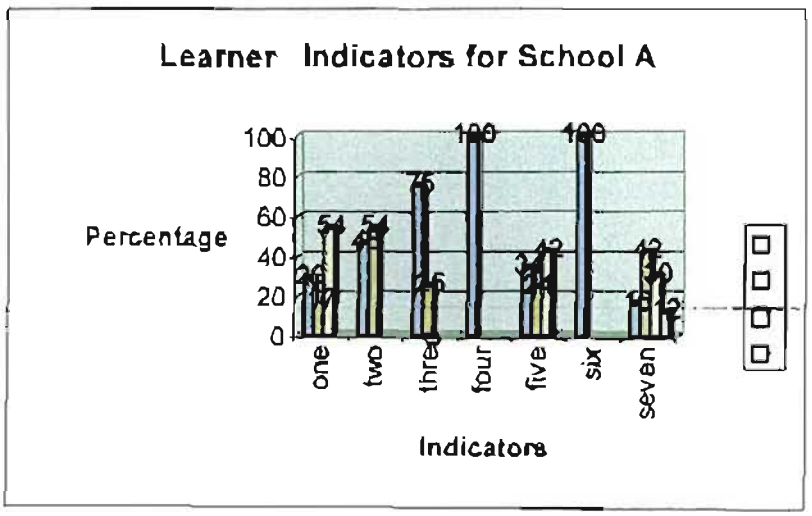
one	100			
two	100			
three	70	30		
four	100			
five			100	
six		50	50	

(10)



one	29	17	54		
two	46	54			
thre	75	25			
four	100				
five	34	24	42		
six	100				
seven	16	42	30	12	

(11)



CASE STUDY – SCHOOL B A SYSTEMIC OBE

This case study was conducted in one classroom with one Grade 1 educator and her learners.

Historical context of the school

School B is a Primary school in the North Durban district. Before 1992, the school catered for white learners only and it had a white staff complement. The school serviced an exclusively white residential area. In 1992 the school was reopened as a Model D school, to learners of all race groups. Only Black learners applied and were accepted to attend the school. Since 1992, Black learners have attended the school and there has been a racially mixed staff complement.

School Profile

School B is a primary school, ranging from Grade 1 to Grade 7. The number of grades at the school was 19 and there was 1 senior special class and 1 junior special class, so the total number of grades was 21. There was a total of seven hundred and ninety learners and twenty-seven teachers. The medium of instruction at this school was English.

B. 1. THE RESOURCE CONTEXT

Category 1 -The **building/infrastructure** category

School Bs' structural state of its building was fairly good in that some classrooms needed minor repairs. The general outlook of all the school buildings was clean and neat.

Category 2 – **Facilities**

Basic facilities like electricity and running water were present at this school. Communication facilities present were a telephone, in good condition, a fax machine, in poor condition, a photocopier, in good condition and a computer, in good condition. Other facilities present within the building were a staffroom and a storeroom, each in good condition and a library that was in a very good condition. Other facilities in the

grounds of the school were a sportsfield, a swimming pool and a garden, all in good condition.

Category 3 – **Human resources**

a. 1. The number of personnel at the school

The total number of human resources at the school was eight hundred and seventeen. Of this total there were 27 qualified teaching staff (3,4 %) and seven hundred and ninety learners (96,6 %). (See graph b 1 at the end of case study).

2. Educator qualifications and experience

The teacher qualifications at this school ranged from M 4 to M 6. (Graph 2 at the end of case study B). Three teachers at this school have specialist training in English medium teaching. Some teachers (Grade 1 and Grade 2) have experienced curriculum development with regard to OBE training which was provided by the Education Department. The school has also been involved in providing workshops and teachers courses with regard to curriculum development.

The years of teaching experience of the teachers at this school ranged from zero to thirty years. More than half of the total number of teachers had less than ten years of service, this school had young teaching staff.

3. Race of educators

The racial composition of the staff reflected our rainbow nation. Eleven (41%) of the staff were African, eleven (41%) of the staff were White, two (7,4%) were Coloured and three (11 %) were Indian. (Graph 3)

4. Educator to learner ratio

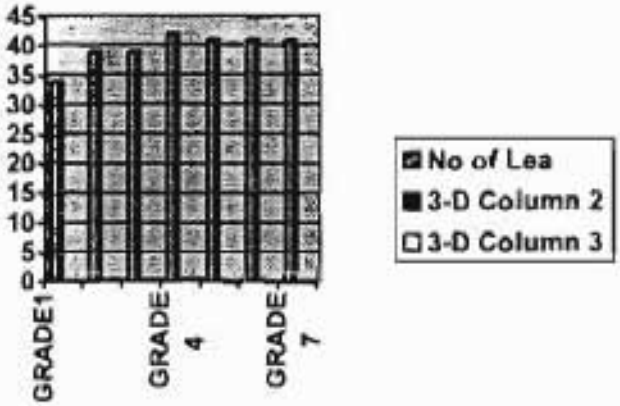
The teacher to learner ratio ranged from the lowest range, which was 34:1 in grade 1 to the highest range, which is 42:1 in grade 4. The educator to learner ratio in each grade is represented in table B. 4.1. on page 109.

Table B 4.1. Educator to learner ratio in each grade

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7
34:1	39:1	39:1	42:1	41:1	41:1	41:1

The mean teacher to learner ratio for this school was 39:1.

Graph B.4.1. Represents the number of learners per grade



b. Grade 1 educators and learners

b. 1. Who are the Grade 1 educators?

b. 1.1. Teaching experience

There were 2 Grade 1 educators, both females. One teacher was African and the other was White. Educator Pat, the African teacher is 30-34 years old and she has had eight years teaching experience, three of which were spent facilitating Grade 1 at this school. Educator Lin, the White teacher is 26-29 years old and she has had five years teaching experience, of which one was spent facilitating Grade 1. Both educators taught Grade 1 at this school in 1998, when OBE was implemented. They also taught Grade 1 during the data collection period. For this research, educator Pat and educator Lin planned the learning programme together, but only educator Pat presented the programme.

b. 1.2. Educator qualifications

Both educators have academic and professional qualifications and they both have an M4, qualification. They are two of the total of twenty-two teachers (84 %) at the school, who have an M-4 qualification. Teacher Pat obtained her qualification from a teacher college of education and from a university, while teacher Lin obtained her qualification from a local college of education. Both teachers were not involved in studying, at that time.

b. 1.3. Feelings about facilitating OBE Life Skills

Both educators' feelings about facilitating in relation to OBE Life Skills differed. Educator Pat was not sure about her feelings concerning how confident and how competent she was to facilitate OBE Life Skills, but she rated her level of confidence and her level of competence to facilitate OBE Life Skills as moderate. This showed a mismatch between her feelings and how she rated herself to teach OBE Life Skills. Educator Lin was confident but not sure about how competent she was to facilitate OBE Life Skills. When comparing this to how she rated her level of confidence and competence to facilitate OBE Life Skills, she rated herself high on confidence and moderate on competence.

b. 1.4. Feelings about OBE training

Both educators were not sure if they valued highly the training in OBE Life Skills that they had received. Both educators had attended a five-day basic OBE and Curriculum 2005 training course run by the education department, which they both said they found useful. Educator Pat also visited a local school to observe OBE Life Skills learning experiences. In total both educators received 11 days training and then they were expected to implement the new curriculum.

b. 1.5. Involvement in curriculum development

The Grade 1 educators' involvement in curriculum development with regard to OBE was looked at from the perspective of their involvement in OBE material development. Educator Pat stated that she was involved, in a group setting, in developing a Grade 3

Literacy resource for a publishing company. Educator Lin stated that she was not involved in curriculum development.

b.2. Who are the Grade 1 learners?

b. 2.1. Number and gender

The total number of learners in grade 1, Educator Pats' class, were 33. Twenty-three (70%) learners were boys and ten (30%) learners were girls (See graph b 4).

b. 2.2. Age of learners

The learners ranged in age from 5years old to seven years old. Eight (24%) learners are five years old, twenty (61%) of the learners are six years old and five (15%) of the learners are seven years old (See graph b 5).

b. 2.3. Language of learners

The learners were taught in the medium of English, which was their second language. Thirty-two (97%) learners had Zulu as a home language and one learner (3%) had Xhosa as a home language (See graph b 6). For many learners, their English had been developed in pre-school but because they did not speak English at home it was weak.

b. 2.4. Racial composition

At this learning site all the learners were African, so thirty-three (100%) of the Grade 1 learners were African.

b. 2.5. Pre-school experience

Thirty-one (94 %) learners had attended a pre-school and only three (6 %) of the learners had not attended pre-school. So, it can be assumed that 94 % of the learners were prepared for the demands of Grade one and also that the basic drawing and writing ability of these learners had been developed. These basic skills were taught at pre-school. If the learners attended an English medium pre-school, then their use of English was also

developed. One of the main reasons that parents sent their children to this school was because the parents wanted their children to learn English.

Category 4 - **Materials**

The first concrete category was the book category. This category included a Life Skills activity book for Grade 1, a garden booklet compiled by the Grade 1 teacher from various references (see Appendix C), Windows English book – spot the difference garden worksheet; number and a variety of magazines. The worksheet category included a garden worksheet with pictures of gardening implements that the learners had to match and a sheet of A4 paper on which the learners had to make a picture of a garden from individual picture cuttings from a magazine, learners drawings of themselves in the garden and learners drawings of 4/5/6/ animals. The garden and gardening implements category included the actual school garden, different areas of it, a pot plant, a spade and a watering can. The chalkboard category included words written on the chalkboard, letters from the alphabet written on the chalkboard, a drawing of the water cycle and a drawing of a garden scene drawn by the teacher on the chalkboard. The chart category consisted of one chart with the picture of an A for apple (see appendix C) and a chart with garden animals (see appendix C). The music cassette category included music cassettes with the following pieces of music on it: we are going to plant our seeds in our garden; '1,2,3,4,5 little pumpkins growing in the garden'. The activity instruments category included pencils, glue, scissors, colouring pencils (learners brought these to school from home), although the educator did have some resources like crayons available for the learners to use. The other category included a kettle with boiling water, a mirror, tin caps used as counters, number cards and a broom.

In the abstract category, the poetry that was used was 'I look in the mirror'. The story category had the story about 'drip the drop' and learners had to retell extracts of the story. The drama category included the learners dramatising the water cycle, the movement of a spider and using 'a make belief' camera. The game used, a quiz, involved the learners

responding to questions posed by the educator and the educator keeping score on the chalkboard.

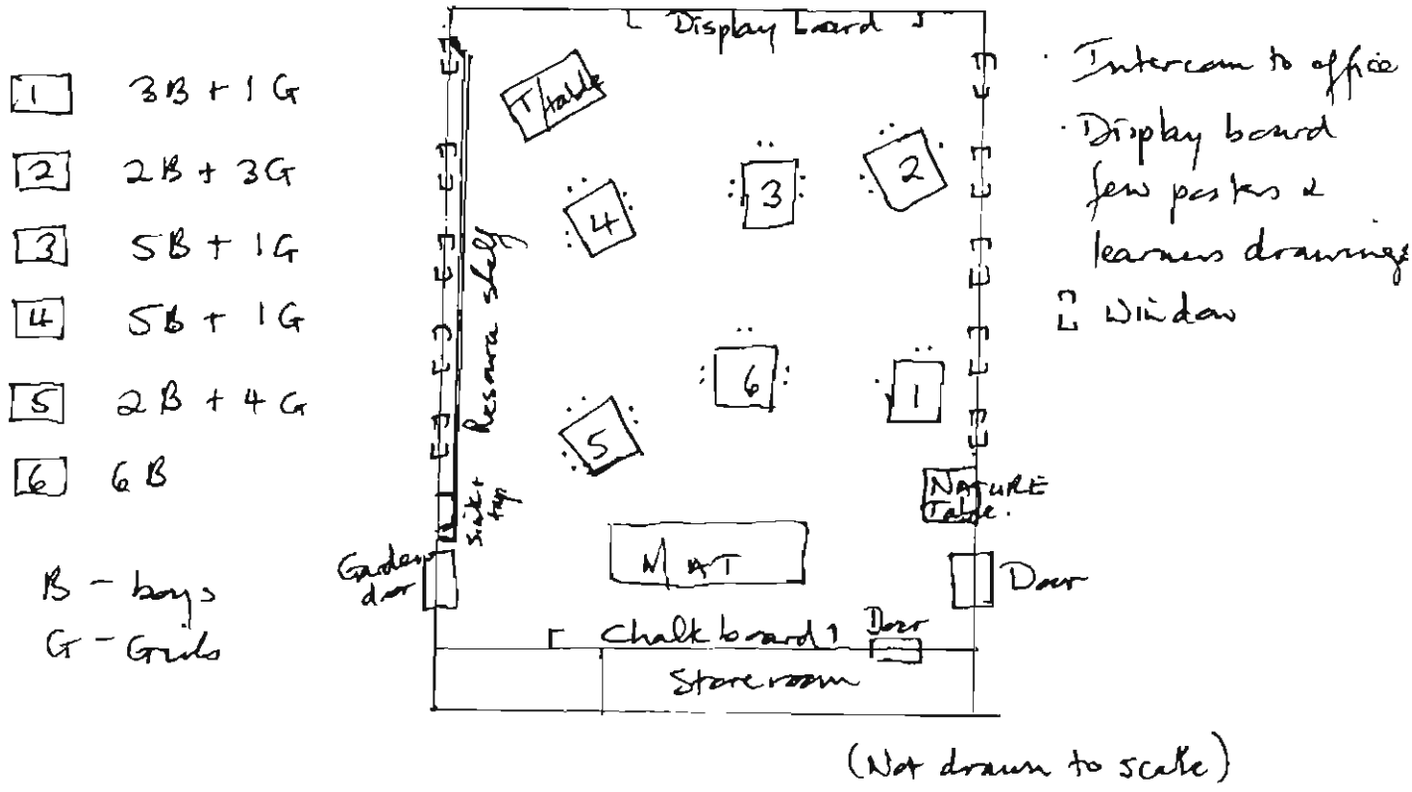
A detailed descriptive –interpretive discussion of how these materials were integrated during the presentation of the programme organiser will be detailed in section 2 on engagement with the programme organiser.

Category 5 – **Resources to teach OBE**

The OBE materials that the school had for the Grade 1 educators to refer to when implementing OBE were Policy documents for the Foundation phase, which gave basic guidelines on what the different learning areas for the Foundation phase are. Educators also had and Life Skills programmes with Teachers guides and Illustrative Learning packages are also in the schools possession.

Category 6 – **School resources for Grade 1 learners.**

The following is a plan of the classroom:



The general layout of the classroom was such that learners' desks were grouped to accommodate 6 learners in a group. The desks were spaciously arranged and each learner had a chair to sit on and a desk to work at. There was space in the front of the classroom for the learners to all sit on the mat. The teacher had her own desk and chair, which were strategically situated, at the back of the classroom.

The lighting and ventilation in the classroom were good. The classroom, including the walls and windows were clean and neat. The chalkboard was positioned in the front of the classroom. There was a large display board at the back of the classroom with charts and learners work displayed. There was also a portable display board positioned near the chalkboard, where the teacher positioned charts, pictures etc.

Category 7 – **Community resources**

Parents were involved in fund raising activities at the school and they sent materials for projects to the school.

Category 8 – **Financial resources**

This school is rated as a Section 20 school. This means that the upkeep of the school had to be done by the school itself. This school does not receive a subsidy from the education department. The department only pays teachers salaries

The schoolfees at this school were R1 100.

B. 2. ENGAGEMENT WITH THE LEARNING PROGRAMME.

SECTION 1 - PLANNING

1.1. Timetable arrangement

The plan was for the researcher to observe the 'Life-skills' sessions, as this was the time when the teacher dealt with Science

The timetable arrangements for the Life Skills learning area are presented in table B 4.2. below.

Table B. 4.2. GRADE 1 Timetable

	School Periods – Time									
Days of the week	½ hour 7.45	½ hour 8.15	½ hour 8.45	½ hour 9.15	½ hour 9.45	½ hour 10.15	½ hour 10.45	½ hour 11.15	½ hour 11.45	½ hour 12.15
Tuesday	Writing	R/R	Phonics	Phys (RES	Ed EARCH	BREAK	Num	Eracy	Phon	Ics
Wednesday	Assembly	Music	Writ	Num	Eracy	BREAK	Zu	Lu (RES	Gram EARCH	Mar
Thursday	Writing	Num	Eracy	Zu (RES	Lu EARCH	BREAK	Read Ze Zu	Lu	Life	Skills
Friday	Writing	R/R Read	Ing	Num (RES	Eracy EARCH	BREAK	Story	Life Skills	Desig Tech	n and nolog
Monday	Writing	Num	Eracy	Life (RES	Skills EARCH		Read room	R E	Art	Art

The learning programme was also presented during the other sessions in the timetable, for example, in art, numeracy and language, literacy and communication, but I did not observe all these sessions.

I claim that Science learning is organized in slots of time

1.2. educator aspects

Educator Pat and Lins' feelings, ideas and action during the planning of the learning programme is presented as descriptors in table B 4.3.below.

Educator Aspects	**Planning Time period**	**Descriptors**
Feelings	Initial interview	Excited and apprehensive
	Before presenting the learning programme	Confident
Ideas about activities	Before presenting	Many with a Natural Science slant
Action	Aspects	Timetable
	Difficulties	None
	Restrictions	None

Table B. 4.3. – Educator planning descriptors

A descriptive interpretive report of each of the descriptors and also for the understanding category is presented below.

(i) Feelings

(a). Initial interview

Educator Pat and Lin were both excited to be part of the research, but they were a little apprehensive. This apprehensive feeling was due to them being unsure about what would be expected of them. This insecurity could also be linked to their feelings about how competent they were to teach OBE Life Skills

(b) before presenting

Educator Pat had felt confident, before she presented the first learning experience, on the first day. According to her, this confidence was due to the learning experience being well planned/prepared. Is this the general trend with other educators? Can confidence be linked to good preparation? Is this the norm when a new curriculum is implemented? Is there a cyclic effect: if a person feels confident to teach because s/he is well prepared will

this lead to good learning experiences and will this in turn lead to a further confidence boost?

I claim that for educators to implement a new curriculum, being confident to implement is important for the educators, learners and the curriculum.

(ii) Ideas

When the programme organiser was first presented to the educators, they had many

'Ideas of the learning areas as possible with a Natural Science slant'

The ideas that the educators had after planning the programme were extensive and the educators knew what to teach and also what was expected of them. It is not surprising that the educators also stated that:

'We felt better because we knew what to teach and what was expected of us' (educator interview).

This can be linked to the discussion in feelings above, where the question of the link between confidence and preparation is posed. Does feeling better mean more confident of or does it give educators more security in terms of what they understand, is expected of them.

(iii) Action

(a) Aspects

The aspects that the teachers had to consider were the timetable requirements in terms of reading, swimming and the normal weekly activities. The other major aspect that the educators had to consider was:

Are we planning the right thing?

This again gives light to the insecurities that teachers feel when they are planning a learning programme. The teachers did not experience any difficulties or restrictions when they planned the learning programme. No mention was made of a lack of resources and even a lack of ideas and preparation on the part of the teachers, just uncertainties about whether they were planning what was expected.

(iv) Understanding

The educators' understanding of a science focus in an OBE-based learning programme was:

> 'they should have hands-on activities, experimental and learner friendly, where learners are given an opportunity to discover for themselves in a controlled way'.

It is evident from this that the educators had a clear idea of what OBE methodology entailed.

The educators' understanding of what they saw as Natural Science in the learning programme was that all the learning experiences, that they had planned had a Natural Science element in it and that they were 'hands-on' and the learners discovered for themselves.

Further discussion of the educators understanding will be presented in section 2, engagement with the learning programme.

1.2.b. learners and learning

1.2.b.1.Completion of tasks within a specified time

Teacher Pat and Lin planned activities that the learners would complete in a time slot that they expected. On day 1, activity 1 in the garden was planned for 10 minutes. This was evident in the educators reflective diary where she stated:

'It was longer than the10 minutes which was planned.'

This will be discussed more fully in section 2 on the presentation of the learning programme.

1.2.b.2. Educators' understanding of the ability of various learners in the class group
This was not evident in the planning.

1.2. c. Understanding of planning requirements

1.2.c. (i) specific outcomes,

The educators felt confident when they worked with the specific outcomes. They did not experience any difficulties with the outcomes when they were planning the learning programme.

The specific outcomes written in the learning programme had the same structure as the specific outcomes given in the departmental documents for all the learning areas.

I claim that the educators are aware of what specific outcomes are, they are confident in working with them, they understand them and they planned with specific outcomes in mind.

1.2.c. (ii) Learning experience format was not observed because the planning was presented in terms of the specific outcomes from the various learning areas. This is presented in a table under the sub-heading Learning programme, on page 120.

1.2.c. (iii) Educators Pat and Lin considered whom the learners are and what resources they had at their disposal.

What does the learning programme look like?

The Learning programme was planned with the programme organiser in mind: 'Me in the Garden'. The educators planned the learning programme for five days. The following table is a plan of the learning programme:

Table B 4.4. Learning programme

DAY 1	DAY 2	DAY 3	DAY 4	DAY 5
LLC- SO1; SO4;SO6	LLC SO1; SO4	LLC SO1; SO4	LLC SO1; SO4	LLC SO1; SO4;SO6
MLMMS SO7;SO8	MLMMS	MLMMS	MLMMS SO7; SO8	
NS	NS SO4	NS SO2	NS	
AC	AC	AC	AC	AC SO1
	LO SO5; SO7			

Key

LLC – Literacy, Language and Communication Learning area

MLMMS – Mathematical Literacy, Mathematics and Mathematical Sciences

NS – Natural Science

LO – Life Orientation

AC – Arts and Culture

SO- Specific outcomes

The learning programme had LLC, MLMMS, NS, LO and AC integrated. The extent of the integration looks loaded in LLC as evidenced from the range of specific outcomes included in the programme for this learning area. Assessment criteria were not stated.

Can one assume that assessment was not planned and therefore will not be carried out during the presentation of the programme? I think that if the educators have not fitted

assessment criteria in, this does not mean that assessment will not take place. In many instances educators are aware of what they want to do but they do not record this.

1.2.d. Collaborative planning with colleague and support from school management

The two Grade 1 educators planned the learning programme together, even though only one Grade 1 educator presented it to her class. This I found to be quite unexpected, because I expected educator Pat to plan it on her own. According to educator Pat:

> 'We always work together, planning sections of work. Even the Head of department helps as well'.

In my opinion, this collaborative relationship is very important when educators are exposed to change and are expected to deal with change.

What is also important is the support of the head of department and the principal. At this learning site the head of department is very supportive of the educators.

The educators had a wealth of knowledge about OBE and support from the school management. The school management i.e. the head of department was informed about the theory and practice of OBE, which are spelt out in the South African Curriculum 2005 departmental documents. The principal was also supportive of the educators. She was informed about the philosophy of OBE; its workings; implementation and she had personally been involved with curriculum development and resource development.

At this school the educators and all their colleagues, facilitating the other grades, were exposed to and were dealing with all the aspects of OBE. They presented OBE - based learning experiences; used assessment strategies etc.

I claim that OBE is definitely not foreign to the facilitators and learners at this school, it is not a 'germ' to any member of staff. With this backdrop and the availability of resources, the educators could implement the new curriculum.

SECTION 2 – THE PRESENTATION OF THE LEARNING PROGRAMME.

1.1. Learning programme presentation (Observation sessions).

Day 1 - Activity in the garden.

The educator divided the learners into 2 groups of 17 each, with boys and girls mixed in each group. The educator told the learners that they were going to work in the garden. One group of 17 learners, boys and girls went with the educator and the other group went with me. The learners were given an observation activity to do (Appendix C). Each group was given 10 minutes to complete the activity. The activity took approximately 20 minutes to complete. The educator and the learners then returned to the classroom where learners discussed amongst themselves what they saw in the garden in an informal manner. During this session the educator and the learners used a worksheet with focus questions on the garden (Appendix C).

The educator stated that this activity was planned for learners to focus on the garden.

I claim that this was a sensory experience for the learners, judging from the types of questions given in the activity. I claim that it was also to give learners a basic understanding of what a garden is i.e. what is found in a garden. The learners' understanding is clearly evident in the transcripts from day 1 garden activity (Appendix C). What was very interesting from this activity was that learners described the garden in terms of what they could see. Because they did not observe or their observations were not directed by the structured questions in the worksheet to animals, not one learner stated that animals are found in a garden.

I claim that learners will develop understanding of various aspects by observing concrete structures and will give meaning to those aspects by means of the concrete structures observed.

Day 2 - Sentence making and planting activities

The activity started with the educator asking the learners to make sentences of what they had seen in the garden the day before. During this activity learners observed pages from a Life Skills reference. All the learners had their own reference book to read from.

I claim that this aspect is important because the educator could include this type of activity, as the resources were available to the learners.

The planting activity centered on the planting of a plant, the requirements for planting, things that plants need to grow and conservation of plants.

During this session the educator and the learners used a Life-Skills book, drama, poetry, music, colouring pencils, a drawing of a garden setting on the chalkboard, planting implements, the garden, a pot plant and a worksheet on what plants need to grow.

What was interesting during this session was the language development that was taking place, where the educator encouraged the learners to make complete sentences in English instead of giving one-word responses. I claim that this language development is important during Science teaching as this leads to a greater understanding of science concepts as well.

The educator likened the processes that take place in a plant to what happens to learners. Plants need to breathe likened to how we breathe in and out and plants need food, if they do not eat then they will go hungry, like what would happen to us if we did not eat.

I claim that while the educator is trying to make these processes meaningful to the learners, this is also a development of misunderstandings of science processes in learners. This misunderstanding extends right to tertiary level in some instances.
Further discussion of this will be given in the section on the development of learners' understanding of science.

Day 3 – Water cycle

The educator and the learners started the session with a poem – I look in the mirror. The educator then read a story about drip the drop and during the reading the learners were asked a number of questions and the educator and the learners dramatised behaviours that

the drop experienced. Learners were then expected to repeat the story, naming the processes and describing what took place during the water cycle.

The educator then demonstrated the water cycle to the learners using a kettle filled with water and a mirror. Learners were expected to observe the demonstration and to respond to questions asked and to relate the demonstration to the story.

During this session a worksheet with a drawing of a water cycle, colouring pencils, a kettle filled with water, a mirror and the chalkboard were used.

The story of drip the drop was presented correctly in terms of the sequence and the processes stated. The term evaporation was introduced but condensation and precipitation were not mentioned at all although the processes were described. The 3 phases of water were clearly given and the effect of heat and cold on a phase of water was discussed in the story. The cyclic nature of the water cycle was discussed and learners made circles in the air.

Linking the cyclic nature of the water cycle to a circle I claim is not appropriate, as there are a number of changes that occur during the water cycle and the water cycle is recurring with water from a number of sources and various types of precipitation. The circle gives a limited perspective of the water cycle.

The demonstration of the water cycle was linked to the actual water cycle very well, in that the heat of the sun was likened to the heat of the kettle linked to electricity. Although the learners did not understand the conversions of energy that take place from electrical energy to heat energy, but the basic source of heat was identified.
I claim that the educator would not have exposed the learners to the story of drip the drop if the educator was not resourceful and knowledgeable about the existence of this story and also how to relate with this story. Another aspect to be considered is that the educator was in possession of the book with the story – Drip the drop.

The claims above are also related to the demonstration of the water cycle, in that the educators understanding of the water cycle process and also how to demonstrate it to her learners, the availability of the demonstration structures made it possible for this learning experience to be presented. If these resources were not available would the learners have experienced the demonstration of the water cycle?

Day 4 – Play photographic shooting

For this session the learners were taken out into the garden. Learners were told that they were to stand in a position where they could be play photographed and then they had to draw what they would expect in the photograph.

This was an interesting activity in that learners had to observe the garden, describe what would be in the photograph and then to draw themselves in position in relation to the trees etc. in the garden. The learners had to judge what would be in the picture in relation to the distance from which the play photograph was taken. Learners observed and listened to their peers describing what they would draw in their photograph. Learners developed depth perception and focussed

During this session the resources used were the garden, crayons, sheets of paper, magazines, scissors, glue, pencils, play photography, the educator and the learners.
The teacher gave pencils to learners that did not have pencils.

I claim that learners developed great observation and recording skills as details of what they expected in the photograph were to be recorded in the form of a drawing. This is an involved skill for learners to develop.
I claim that the educator was resourceful, innovative and creative in the type of activity given to the learners. Instead of exposing learners to just observing a section of a garden and asking them to draw what they observed, the element of photography and imagery was also included. I claim that the educator is aware of how to challenge the learners and also how to make learning experiences relevant for the learners.

Day 5 – An animal and garden experience

On this day the educator divided the class into two groups. One group of ten learners was told to sit on the mat and the other group of twenty-four learners were paired and given a worksheet based on the garden. The learners had to observe what was missing in the drawings and then to draw in the missing items. The educator gave the large group instructions on what they had to do, gave them time to question and then facilitated at intervals when the group on the mat was busy. The group of learners on the mat completed an integrated Numeracy, Art and Natural Science activity where they had to draw e.g. ten ants taking into account the actual structure of an ant' body.

I claim that this session was integrated in terms of the Learning areas – Numeracy and Life –Skills. This integration was well managed by the educator and the learners.

2.2.a. Grade 1 Educators

Educator Aspects	Presentation Time periods	Descriptors
Feelings	After presenting the Programme for one day	Good, learning experiences were successful
	After presenting the programme for a week	Exhausted, very little time
Ideas	After presenting the programme for a week	Knew what to teach
Action	Aspects	Learners behaviour 'erratic'
	Difficulties	None
	Restrictions	None

Table B 4.5. Descriptors for Educator Pat for Presentation of the learning programme

(i) Feelings

(a) After presenting for one day

Educator Pat felt pleased, as the learning experience was successful. The learners were responsive and she presented all what she had planned.

(b) After presenting for a week

Educator Pat felt exhausted after she had presented the learning programme to the learners for a week. What was significant was that she felt exhausted, from being observed and also she felt stressed that she did not have enough time:

'To do other things that needed to be done'.

This exhaustion was not caused by the learners' behaviour, but by the fact that she was being observed and she could not complete all the everyday activities, for example, learners reading activity (not part of observation). Could it be that facilitating according to OBE requirements was exhausting because of what was expected by the teacher/facilitator: educator Pat was facilitating and also assessing the learners during the presentation.

(ii) Ideas

The ideas that Educator Pat had after presenting the Learning programme was that it can be extended beyond 5 days because it was so vast, there was so much that she could have included. The other idea was that this programme organiser – 'Me in the garden' - would be the programme organiser for the next term, the second term.

(iii) Action

(a) Aspects

The aspect that educator Pat took into account when she presented the learning programme was concerned with if she was on the right track.

(b) Difficulties

The difficulties that teacher Pat experienced was with the learners' behaviour. She stated that:

'Children's behaviour is erratic'

The possible explanations given for this was because of the presence of the researcher and also because of late observation sessions and bad weather (on one day). This comment was made generally in the interview but only for day two in the reflective diary. Was this really a general difficulty that the educator experienced or was it a once off occurrence? During the research period learners were responsive, attentive and they discussed their activities in a group setting, so this could also be a reason for the learners' behaviour.

(c) Restrictions

Educator Pat did not feel restricted in any way. She presented the learning experiences, as she normally would do. Could this be an indication of the effect of the extent of varied teaching and learning resources or was this a good indication of the ability and the competence of the teacher in presenting an OBE learning programme of both?

2.2.b. Learners and learning

(i) Completion of tasks

Educator at times had a particular time frame for the completion of tasks by learners, and at other times she catered for the different paces.

This is evident in the following: (a) Particular time frame

Educator Pat stated that the garden activity for day should take 10 minutes. The educator and the learners went out to the garden and they took '20 minutes to complete the activity'. (Researchers' reflective diary).

Day 5

E – Come on ... you are very slow, too slow, how many things do you have now?

(b) Catered for learner paces

Different groups worked at different paces. (Session 2 - researchers' diary)

Learners worked on completing activities- pace of learners taken into account....

Learners given time to complete. (Session 3 - researchers' diary)

2.2.b.2. Preparation of learners for a task.

Educator Pat at the beginning of an activity would explain to the learners what would be expected of them. She encouraged learners to question if they did not understand as evidenced in the following:

Mam, I do not understand explain again

Or she would question the learners before they started an activity.

2.2.b.3. Educators' knowledge of the ability of various learners in the class group

Educator Pat was aware of the learners ability as she checked on certain individuals more often than on other individuals. She facilitated certain groups of learners more.

2.2.b.4. Preparation of learners for the learning programme

Educator Pat prepared the learners for the learning programme by giving them the garden activity on the first day and expecting them (the learners) to develop a meaning for the term garden.

2.2.C. Time management

90% of the time, time was managed effectively. Learners were given an activity to complete, discussion of the activity took place and assessment of the activity was done formally or informally. 10% of the time a rushed time management was evident, on day 1 - garden activity and day 5 - drawing activity.

2.2. D. Use of teaching and learning strategies (See graph 7 at the end of case study)
The educator used a variety of teaching and learning strategies for 80% of the period while for 20% of the time the educator used 1 or 2 methods that involved learners.
I claim that the strategies used were learner-centered and that the educator had a good understanding of what learner-centered learning experiences are.

2.2. E. The educators use of resources
The educator used more than 2 kinds of materials to enhance learning during every observation session. The range of materials is vast as evidenced in the data presented on the types of materials that were used in section A, materials (resource) category.

I claim that the educator was not restricted in any way by resources. Resources that she required for teaching and learning were available to her. What is important is that the educator had a full understanding of how to use the resources at her disposal.
I claim that the way educators use resources in the classroom is influenced by their knowledge and assumptions about resources available to learners both inside and outside the classroom.

I claim that the educator is resourceful and creative in the use of a variety of Science focused materials to enhance learning.

2.3. Grade 1 learners
(i) Learners feelings about activities
Learners enjoyed the activities and this is evidenced in the:
Research diary – worked enthusiastically
Transcript – Educator interview –Q 12 - learners were responsive and enjoyed the activities

(ii) Understanding of the content (knowledge), processes and skills.

During the presentation of the learning programme, learners understanding and misunderstanding of science concepts and processes were looked at.

a. Garden - For the garden activity on day 1 learners described a garden in terms of what they had observed, – has trees, grass. Learners did not include animals in what is found in a garden. Learners observed birds in the sky and these were not linked to the garden probably because they were not seen in the garden itself.

Garden – the meaning of garden was taken to mean the place where plants/flowers grow.

b. Water cycle – this is evident from the transcripts and the drawings coloured in by the learners (Appendix C – Learner transcripts - water cycle)

Learners could describe the water cycle in their own words and they developed meaning for the process –evaporation. They worked out the effect of heating and cooling on water, even though the phases of water were not explained to them before the learning experience.

c. Use of the word flower and plant

Learners used these terms interchangeably.

L – flowers were damaged (learners standing in the garden – means plants).

I claim that this is unacceptable when learning science because the structure and functions of plants and flowers are so different. At this early stage it is important that learners learn to use the correct terminology.

c. Planting (Learner transcripts – appendix C)

Learners developed a basic understanding of requirements for planting.

The understanding of how to plant was developed. The importance of digging a hole, inserting the plant and putting the soil back and then watering the plant was realised.

d. Conservation (Learner transcripts – appendix C)

Learners were exposed to the importance of caring for plants.

I claim that if learners are to be active managers of resources in the natural world, then this knowledge development should start at an early stage.

(iii) Activities and skills that the learners used.

Observing –

Learners observed the 'things' in the school garden, by smelling, feeling and stating the colours of the different 'things'

Learners observed the demonstration on the water cycle.

This skill was developed and this was evident from the responses that the learners gave.

Classifying (Learner transcripts – appendix C)

Learners named different types of gardens on the basis of what grew in the gardens.

Planting - learners measured the plant to see if it could fit into the hole

Research diary – when planting the fern plant the learner group that were given this role, dug the hole, and measured the plant in the hole to see if it would fit, replaced the soil and then watered the plant.

Recording (Appendix C – learners work)

Each learner drew a picture of her/himself in the garden, concentrating on what background would be in the picture (photograph).

Learners developed this skill but learners differed with respect to the level of recording.

2.4. Assessment

Assessment was observed in every session, but the types and the duration of assessment varied from session to session as can be observed from the evidence presented.

-Res diary talk to your friend about the thing you are going to colour

-On day 1 learners were given stars when they shared their experiences and asked questions

Learners were rewarded with sweets and stars for tidy tables

-Res diary - children who completed were sent to sit on the mat and to compare what they had done and to check it. Children willingly checked drawings

-Res diary - 20 learners went to the educator to have their work checked and signed.

Educator transcripts – check if your neighbour has the numbers in the block, if they do not have it, mam, he/she has not done it. Learner checked partners work.

-Educ d - group, individual, pair assessment

-Ed diary - Feedback was lovely and they could assess good things and bad things

I claim that the educator presented a learning programme where assessment was an integral part of the programme, it was not like a salad dressing, on top of the salad. Varied forms of assessment were used, even peer assessment.

SECTION 3: FUTURE CONSIDERATIONS

The educator's future considerations were concerned with:

(i) the changes ;

Educator Pat stated that she would not change what was planned and presented for the learning programme.

(ii) planning and presenting a learning programme;

The educators stated that what she had done in the past five days did not make her think differently about planning a learning programme, i.e. they would use the same planning framework as that used for the learning programme – Me in my garden.

The educator stated that what she had done in the past 5 days did not make her think differently about presenting a learning programme, for example she would work at the same pace.

(iii) future aspects

The educator stated that she would, in future, when planning and presenting a learning programme, consider including many more practical activities in the learning programme.

Trends

1 a) Educators

- Educators did not view themselves as curriculum developers and curriculum implementers. Educator Pat viewed herself as a curriculum developer as she had developed resource materials for a publishing company

- Educators' feelings and rating of confidence and competence to facilitate OBE Life Skills did not match. They did not experience problems with any aspect of OBE policies with regard to the planning and presentation of the learning programme

b) Educators – Planning the learning programme

- The educators understanding of how the learning programmes should be integrated impacted on how the educators planned the learning programmes and their decisions about when to present the science focused learning programme

- In planning the learning programme the educators had to consider the timetable and this impacted on how they planned the learning programme

- The educators understanding of: a) science focus in an OBE learning programme; b) Natural Science; c) learners and learning; d) science concepts, processes and skills and d) planning requirements impacted on their planning of the learning programme

- The educators knowledge and assumptions of the availability of resources e.g. materials to the educators and learners influenced the teaching and learning strategies and also the activities that were planned

- Collaborative planning, where both teachers were integrally involved in the planning took place. Management and all the colleagues at school provided support.

c) Educators – Presenting the learning programme

- Educators personality – friendly and conducive to encouraging learners to participate

- Interaction of teachers and learners – a relaxed interaction

- The educators understanding of how the learning programmes should be integrated impacted on how the educators presented the learning programmes and their decisions about when to present the science focused learning programme

- The educator did not experience any difficulties or restrictions with presenting the learning programme with regard to OBE policy expectations, but she did question if she was doing the right thing

- The educator did not express having any pre-conceived ideas of what learners could do during the presentation, but learners pace of work was restricted at times

- The educators' knowledge and assumptions of the availability of resources to teachers and learners impacted on their presentation of the learning programme, e.g. the teaching and learning strategies and the choice of learner activities.

- The educators understanding of what resources to use and how to use them during the presentation of the learning programme impacted on the educators' presentation of the learning programme

- The educator had time for the inclusion and completion of all learning experiences for the learning programme

- The educators understanding of assessment had an impact on the assessment of the learners during the presentation of the learning programme. Assessment was an integral part of every session, although it was not indicated in the planning.

d) Educators – future considerations

- The educators' experience of planning and presenting the learning programme impacted on her future considerations for the types of activities she would include in the learning programme

2 Learners

- 94% of the learners had experienced pre-primary

- All Grade 1 learners were encouraged to speak in English in a supportive environment. Some learners experienced language difficulties

- Learners were responsive, some shared their ideas, responded to questions asked and also asked questions

- Learners developed knowledge of gardens, water cycle, planting etc. and they had a misunderstanding of flowers and plants

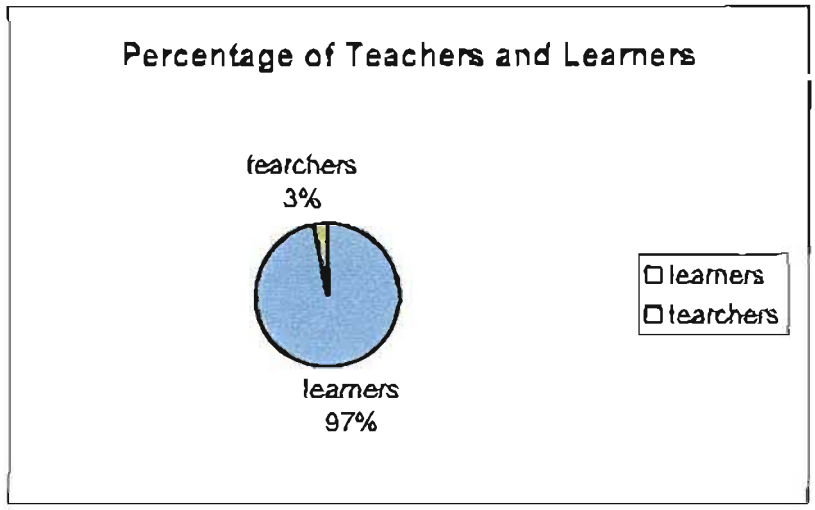
- Learners' experiences impacted on their development of knowledge

- Learners were given equal opportunity to participate during the presentation of the learning programme

Case Study 8

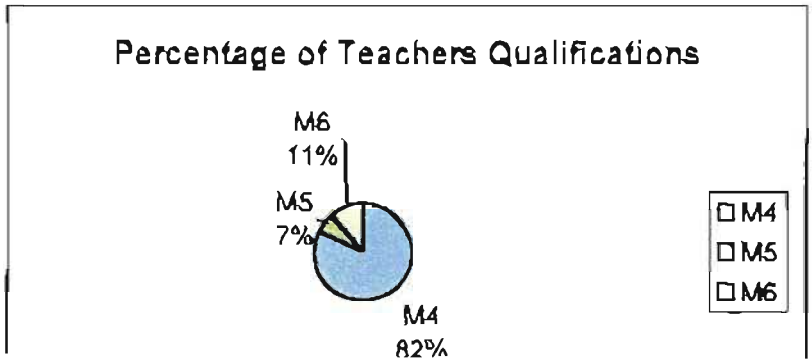
learners	97%
tearchers	3%

(1)



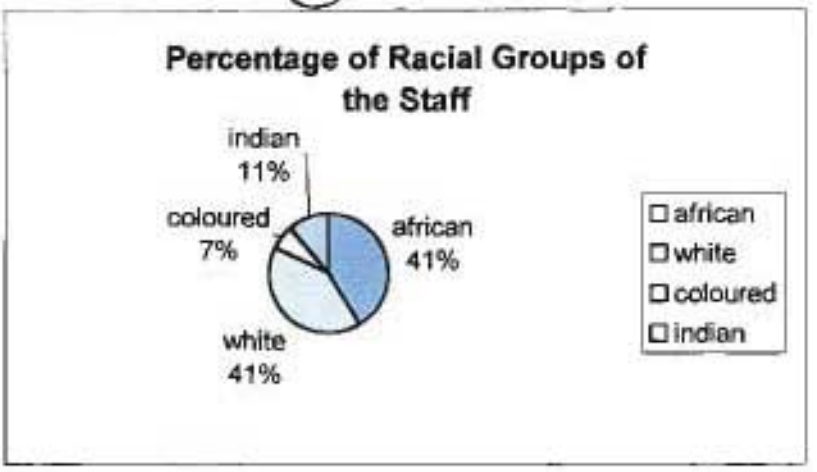
M4	82%
M5	7%
M6	11%

(2)



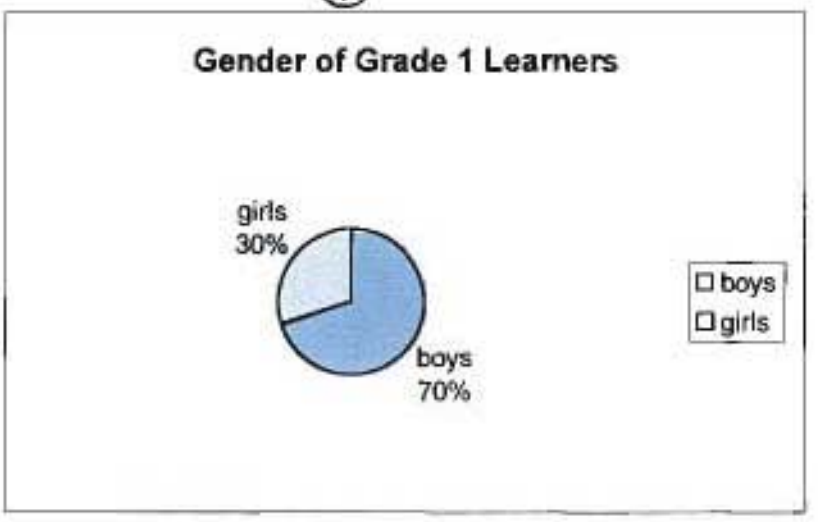
african	41%
white	41%
coloured	7%
indian	11%

(3)



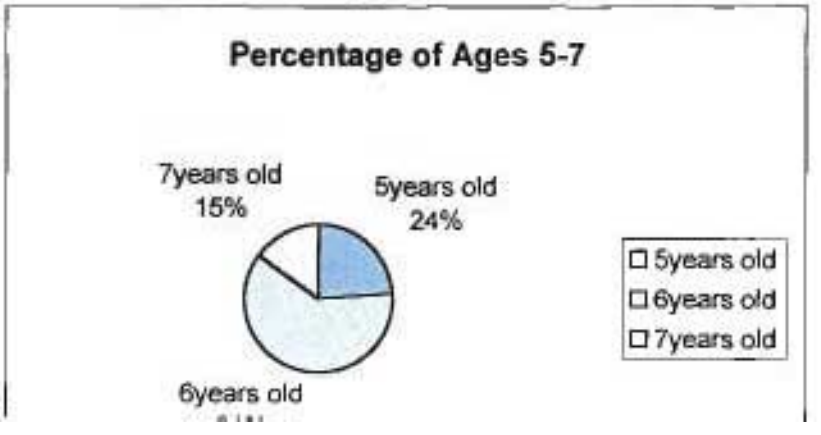
boys	70%
girls	30%

(4)



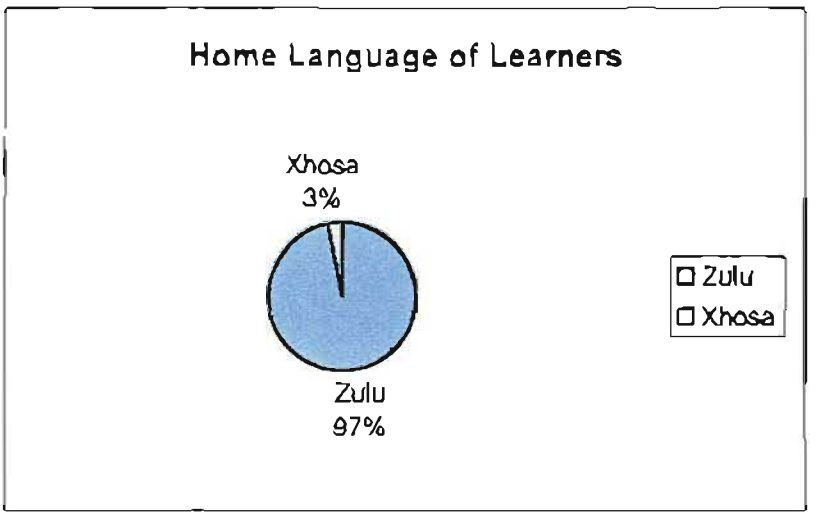
5years old	24%
6years old	61%
7years old	15%

(5)



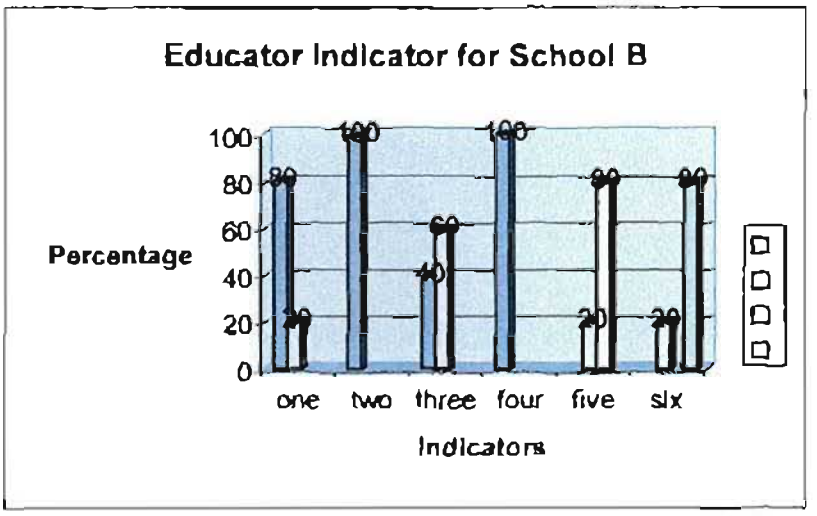
(6)

Xhosa	3%
Zulu	97%



one	80	20			
two	100				
three	40	60			
four	100				
five		20	80		
six		20		80	

(7)



CASE-STUDY - SCHOOL C OBE EN MASS

This case study was conducted with all grade 1 teachers and learners, during the morning session, (before tea break) for three days and with 2 different grade 1 teachers with their learners on two separate days, in the morning session, (after tea break).

Historical context of the school

School C is a primary school in the North Durban district. This school has been in existence for fifteen years. This school caters for the learners living in its immediate vicinity in the Inanda area, a township area in Kwa-Zulu Natal. This is a Black Township area and only Black learners and teachers attend the school.

School Profile

Learning site C operates the Foundation, Intermediate and 1 year of the Senior phase, ranging from Grade 1 to Grade 7. The total number of grades was 25. There were a total of one thousand, one hundred and fifty learners and twenty-five teachers. The medium of instruction at the school was Zulu.

A. 1. THE RESOURCE CATEGORY

Category 1 - The **building/infrastructure** category

The structural state of the building was not in a good condition; most of the classrooms needed major repairs. The general outlook of the school buildings was moderately clean and untidy.

Category 2 – **Facilities**

Basic facilities like electricity and running water were present at this school and they were in good condition. Communication facilities present were a telephone and a

typewriter, all in good condition. Other facilities present within the building were a classroom within the administration block, which also served as a staffroom and a storeroom. The other facility in the grounds of the school is a garden, which is in poor condition.

The school building occupies most of the land that it is situated on. There are two small playgrounds that have very little groundcover on them and a sports field is absent.

Category 3 – **Human resources**

a. 1. The number of personnel at the school

The total number of human resources at this school was one thousand, one hundred and seventy six. Of this total there were twenty-six (2%) qualified teaching staff and one thousand, one hundred and fifty (98 %) learners. The total numbers of staff that were teaching the various grades at this school was twenty five (96 %) and the number of staff who did not have grades assigned to them but was responsible for the management of the school, one principal (4%). (Graph 1)

2. Educator qualifications and experience

The teacher qualifications at this school ranged from below M 3 to M 5. Four (15%) teachers had a qualification lower than M 3. Twenty (77%) educators had an M 3 qualification, one (4%) had an M 4 qualification and one (4%) teacher had an M 5 qualification. There are educators at this school who had a Management Diploma, a Remedial Diploma and a Librarianship Diploma. Some teachers (Grade 1 and Grade 2 teachers) have experienced curriculum development with regard to OBE training which was provided by the Education Department. (Graph 2)

The years of teaching experience of the teachers at this school ranged from zero to thirty years.

3. Race of educators

All (100%) of the teachers were black.

4. Educator to learner ratio

The teacher to learner ratio ranged from the lowest range, which was 39:1 in Grade 2 to the highest range, which was 53:1 in Grade 4. The educator to learner ratio in each grade is represented in table C. 4.1. below:

Table C. 4.1. Learner to educator ratio in each grade

Grades	1	2	3	4	5	6	7
Learner to educator ratio	48:1	39:1	44:1	53:1	49:1	41:1	41:1

The mean learner to educator ratio for this school was 45:1.

Graph (See c 3 at the end of case study)

b. Grade 1 educators and learners

b. 1. Who are the Grade 1 educators?

1.1. Teaching experience

There were 5 Grade 1 educators, all females. Educator Beauty was 40 – 45years old and she has had nineteen years teaching experience, thirteen of which were spent teaching Grade 1 at this school. Educator Evangeline was 35 to 39 years old and she had seventeen years teaching experience, one of which was spent teaching Grade 1 at this school. Educator Happiness and Nancy were 35 to 39 years old, had six years teaching experience all of which were spent teaching Grade 1 at this school. Educator Maude was 25 to 29 years old and she had 2 years teaching experience all of which were spent teaching Grade 1 at this school. All the educators except educator Evangeline taught Grade 1 at this school in 1998, when OBE was implemented and they, including educator Evangeline also taught Grade 1 during the data collection period

1.2. Qualifications

All the educators, except educator Beauty had academic and professional qualifications. Educator Beauty had an M 2 qualification from a university. Educator Evangeline, Nancy, Happiness and Maude had an M 3 qualification from a local college of education. Educators' Beauty, Evangeline, Happiness and Nancy were involved in studying, at that time.

1.3. Feelings about facilitating OBE Life Skills

Educator Beauty, Happiness and Evangeline' feelings about facilitating in relation to OBE Life Skills were similar, they were not sure if they felt confident but they did feel competent to facilitate OBE Life Skills. Educator Nancy and Maude had similar feelings, they were not sure if they felt confident and competent in the teaching of OBE Life Skills. All the educators, except educator Happiness rated their level of confidence and competence as moderate. Educator Happiness rated her level of confidence as moderate and her level of competence as high. Is it possible for educators to be uncertain of their competence and/or confidence to facilitate OBE Life Skills and to rate their level of competence and confidence as moderate, surely this was a mismatch in their description of their feelings and ratings. Can you rate something that you are not sure of? What was significant was that educators who were uncertain about their confidence to facilitate OBE Life Skills felt competent in the teaching of it. Surely there is a mismatch here as well. Can a person feel competent if there is uncertainty of his/her confidence? Can it be said that the educators would be competent in engaging with an OBE learning programme? Can it also be said that the educators would be good support structures for each other, when engaging with the learning programme?

1.4. Feelings about OBE training

All the educators felt that they needed more OBE training. All the educators, except educator Happiness valued the OBE training, that they received, highly. What is significant is that educator Happiness felt competent and rated herself high on her competence to teach OBE Life Skills and she did not value the OBE training highly, but she did find it useful. All the educators stated that they found the training useful.

1.5. Involvement in curriculum development

All the educators stated that they were not involved in curriculum development.

b.2. Who are the Grade 1 learners?

2.1. Number and gender

The total number of learners in Grade 1 was two hundred and twenty three. Of this total there were one hundred and sixteen (52%) boys and one hundred and seven (48%) girls. Educator Happiness had forty-four learners, twenty-two (50%) girls and twenty-two (50%) boys. Educator Maude had forty-four learners, twenty (45%) girls and twenty-four (55%) boys (See graph C5).

2.2. Age of learners

The learners in Grade 1 ranged in age from six years old to nine years old. There were one hundred and thirty three (60%) six-year-olds, forty-two (19%) seven-year-olds, twenty-six (11%) eight-year-olds and twenty-two (10%) nine-year-olds (See graph C6).

2.3. Language of learners

The Grade 1 learners were taught in the medium of Zulu, which was a first language for two hundred and thirteen (95 %) learners. Eight (4,1 %) learners were Xhosa first language and two (0.9%) learners were Sotho first language - See graph C 7

2.4. Racial composition

At this learning site all the learners were African and there were mixed cultural groupings, i.e. Zulu, Xhosa and Sotho.

2.5. Pre-school experience

One hundred and five (47 %) of the Grade 1 learners had attended a pre-school. One hundred and six (48 %) learners did not attend a pre-school and twelve (5 %) learners were repeating Grade 1. See graph C 8

Category 4 - **Materials**

The first concrete category was the book category - no books were used. The worksheet category – no worksheets were used. The garden and gardening implements category included the actual school garden, plants, rocks, spades, a rake, a gardening fork, a hoe and a watering can. The chalkboard category included words written on the chalkboard, letters from the alphabet written on the chalkboard. The chart category consisted of charts of fruit and vegetables, some with numbers included, (used on day 3) with the large group of learners and educator Maude. The activity instruments category included pencils, sheets of A 4 paper; glue, scissors, crayons (supplied by the education department to the school – learners had to share), learners themselves used to make shapes – square, circle and triangle.

In the abstract category, no poetry was used. The story category, no stories were used. The drama category included the learners dramatising the shape of the letter 's' and the movement of a snake; doing a dance to 'tamatie sau'.

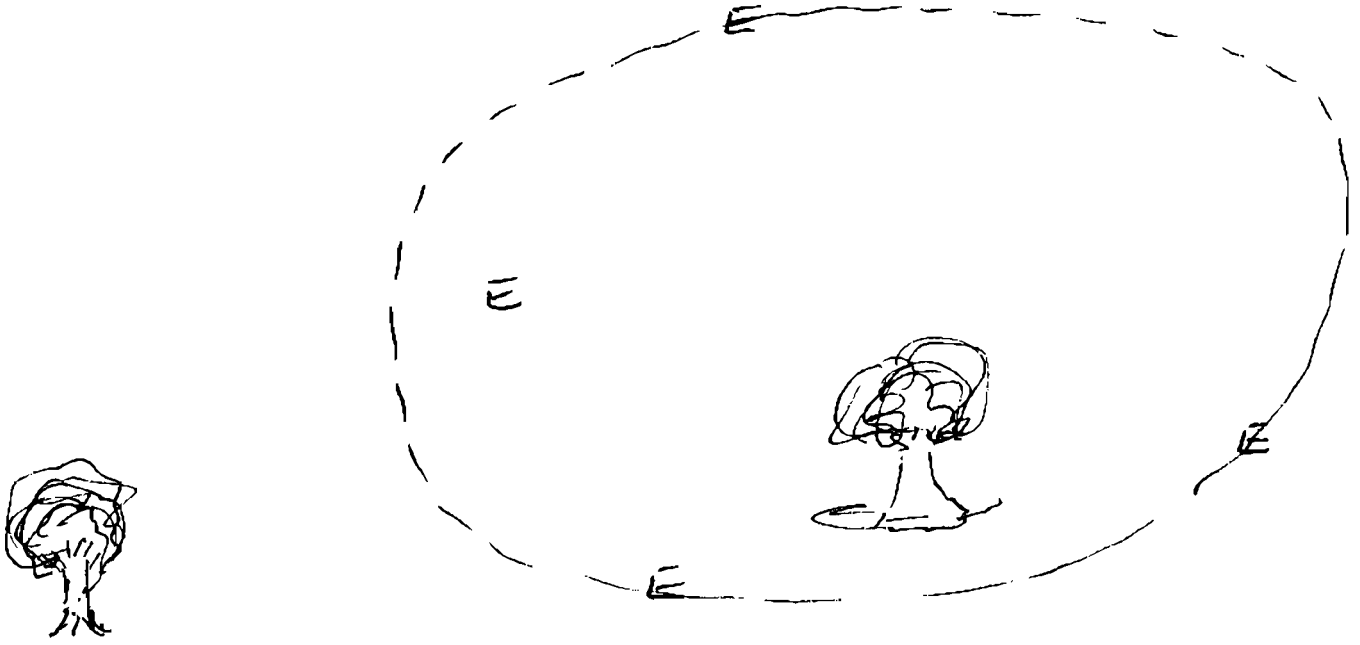
A descriptive –interpretive discussion of how these materials were integrated during the presentation of the programme organiser will be detailed in section 2 on engagement with the programme organiser.

Category 5 – **Resources to teach OBE**

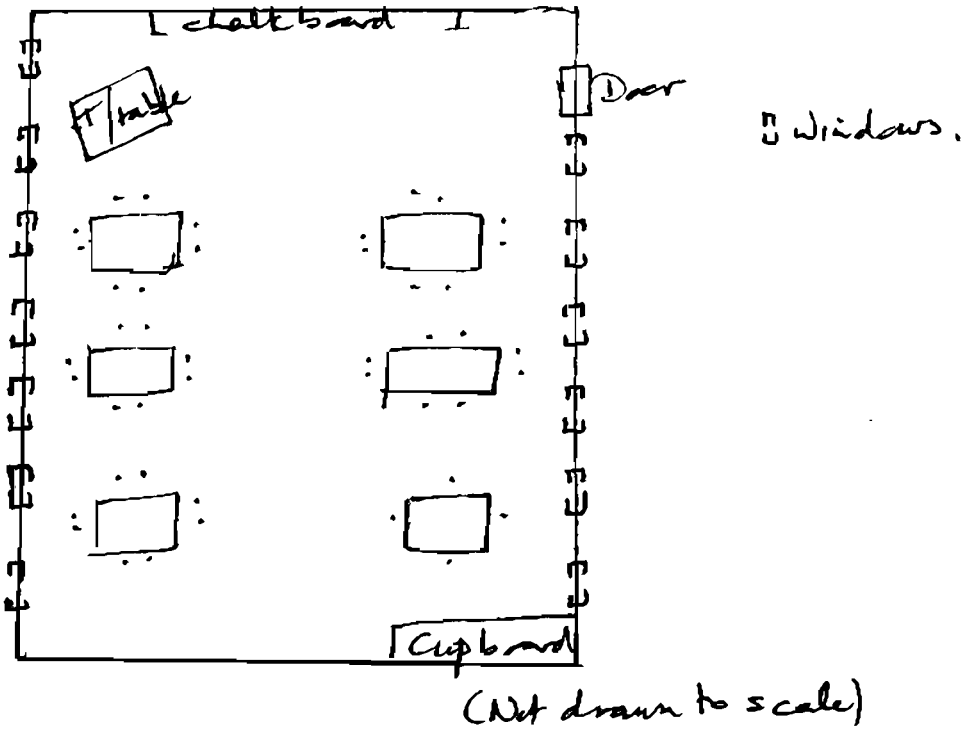
The OBE materials that the school had for the Grade 1 educators to refer to when implementing OBE were Policy documents for the Foundation phase

Category 6 – **Garden and Classroom resources for Grade 1 learners.**

The following is a plan of the Grade 1 learners in the garden:



The following is a plan of a classroom:



The general layout of the classrooms was such that learners' desks were grouped to accommodate 8 learners in a group. The desks were spaciously arranged and each learner had a chair to sit on and a desk to work at. There was a small space in the front of the classroom for the teachers' desk and chair.

The lighting and ventilation in the classrooms was good. The classrooms, including the walls and windows were moderately clean and dusty. The chalkboard in both classrooms was positioned in the front of the classroom. There were 6/7 posters of learners' work and a timetable displayed on the walls.

Category 7 – **Community resources**

Parents visited the school when there was a problem with their children. The parents were not involved in the management of the school and they were not capable of providing many resources for the learners to use.

Category 8 – **Financial resources**

This school did not receive a subsidy from the education department. The department paid the teachers salaries and supplied the school with stationery.

The school-fees were R80.00 per annum.

B. 2. ENGAGEMENT WITH THE LEARNING PROGRAMME.

SECTION 1 - PLANNING

1.1. Timetable arrangement

I observed from approximately 9.00 am to 12.00pm. I decided to do this, as the educators did not respond when I asked them: 'When, during each day would be the most appropriate time for me to observe you?'

1.2. educator aspects

The educators' feelings, ideas and action during the planning of the learning programme are presented as descriptors in table C. 4.2. below:

Educator Aspects	**Planning Time period**	**Descriptors**
Feelings	Initial interview	Scared
	Before presenting the learning programme	Uncertain
Ideas about activities	Before presenting	Different places
Action	Aspects	Equipment
	Difficulties	Shortage
	Restrictions	Resources

Table C 4.2. Educator descriptors for the planning of the learning programme

A descriptive interpretive report of each of the descriptors and also for the understanding category is presented below.

(i) Feelings

(a) Initial interview

The educators suggested that they would all plan the learning programme together, but educator Maude would present the learning programme. This suggestion was made, as the educators felt scared that they would not be able to do it. But, what was significant is that educator Happiness stated:

> We took it as a challenge, that maybe we will erh, erh, erh, know at the end of this research if we are able to teach OBE or we need someone else to help us (Educator Happiness – educator interview).

(b) Before presenting

The educators stated that they felt uncertain about what they were going to do and how they were going to do it. This uncertainty for educator Nancy was due to:

> I did not know how to mix the learning programmes
> (Educator Nancy – educator interview)

This illustrates the fact that the educator did not understand how the learning programmes were supposed to be mixed (integrated). How did this impact on the educators' presentation of the learning programme?

The researcher claims that for educators to implement a new curriculum, educators' lack of understanding of what is expected impacts on the educators' feelings.

(ii) Ideas

The ideas that the educators had varied, educator Evangeline stated:

> I thought that it was above their level, the level of development, it was above them.
> (Educator Evangeline – educator interview)

Educator Evangelines' idea was only concerned with the learners' capabilities, i.e. that the learners would not be capable of doing the learning programme - Me in the garden. She was not concerned with activities that could be included in the programme as her colleagues were (see educator Nancy below).

The idea that educator Nancy had when they discussed the programme was to take the learners to different places, i.e. market, farm and a nursery. The educators planning could not be used to check this, as they had not recorded their planning before they presented the learning programme.

The ideas that the educators had after planning the programme were not shared during the interview. This was possibly, as the educators had not planned a full learning programme before they had presented it.

I claim that when the educators felt uncertain about what to do, this limited the ideas that they had and the action that they were supposed to carry out.

(iii) Action

(a) Aspects

The educators considered what equipment they would need and where the site of learning would be, i.e. in the classroom or the garden.

(b) Difficulties

The difficulties that the educators had experienced were that they had to borrow equipment from the school neighbours, had a shortage of tools and there were no seeds.

(c) Restrictions

The restrictions that the educators had experienced were linked to teaching resources. The resources e.g. gardening tools and seeds that the educators needed for presentation of the learning programme.

(iv) Understanding

The educators' understanding of an OBE-based Science learning programme was:

> 'Learners would be able to plant something (vegetables)
> ...(Silence)... outcomes based .. learners can do..... can investigate
> ..... can investigate and do
> (Educators Nancy, Happiness, Evangeline – educator interview)

It was evident from this that the educators were not sure about what they were saying that was why they spoke hesitantly and they supported one another when they spoke. Their idea of what OBE methodology entailed was limited to what learners can do where skills are looked at and the learners knowledge and attitudes are disregarded. The science was seen in terms of the activities that the learners did, plant, investigate and do.

The educators' understanding of what they saw as Natural Science in the learning programme was that:

> Maybe from what we did this week.... I think if we can take the specific outcome ..... I can think that the children from this week they know that they will not be able to have something because they bought it, but they can do it themselves ---- like erh, erh, the compost. (Educator Happiness – educator interview)

The educators linked Natural Science to the garden, e.g. activities done in the garden.

1.2.b. learners and learning

1.2.b.1.Completion of tasks within a specified time

Evidence of this in the educators post-planning was not found. But, evidence of this in their presentation was found. A detailed discussion of this will be presented in section 2, presentation of the learning programme.

1.2.b.2. Educators' understanding of the ability of learners in the class group

Evidence of the educator Evangeline' understanding of the ability of learners was:

> When we were given that topic –Me in the garden,
> I thought that it was above their level.....
> (Educator Evangeline – educator interview)

Educator Evangeline had a pre-conceived idea of what the learners were capable of.

1.2.c. Understanding of planning requirements

This data was obtained from the **post-planned** learning programme.

1.2. c. (i)specific outcomes,

The educators had not planned any specific outcomes before they presented the learning programme. So, I will discuss this using the **post-planned** specific outcomes.

The specific outcomes written in the learning programme (Appendix D – Learning programme) were structured, but they lacked the context part, which explained how the learners would achieve the outcomes. Furthermore some specific outcomes were not linked to the learning areas mentioned (Appendix D - Life Skills: Natural Sciences (NS) and Economic and Management Sciences (EMS)). There were no specific outcomes for EMS; and some activities are not linked to the specific outcomes (Life Skills – Natural Science specific outcome: to distinguish between vegetable garden and flower garden, there was no activity for the learners to achieve this outcome. The specific outcomes concentrated on skill and attitude development and to a minimal extent knowledge development.

I claim that the educators experienced problems with understanding the specific outcomes and working with them.

The specific outcomes included in the learning programmes included those for the following learning areas: (1) Numeracy; (2) Literacy and (3) Life Skills.

The educators did not start planning with the outcomes in mind, bearing in mind that this was a post planned learning programme.

I claim that the educators are aware of what specific outcomes are, but they require assistance in structuring the specific outcomes; working with the specific outcomes in

deciding on which ones to use for the different learning areas and planning activities that are linked to the specific outcomes.

1.2.c. (ii) Learning experience format was not observed because the planning was presented in terms of the learning programme, specific outcomes, assessment criteria, activities, resources and comments (See Appendix D – Learning programmes).

1.2.c. (iii) The learning programme was post planned by the educators. It had specific outcomes, assessment criteria, suggested learning activities (which were incomplete), resources and a comment column (with no comments at all). Critical outcomes, performance indicators and notional time were not indicated. Does this mean that the educators did not know how to work with critical outcomes, performance indicators and notional time or were they not aware of their inclusion? What is significant is that one plan was presented for the five educators.

What do the learning programmes look like? (Appendix D – Learning programme)
The Learning programmes were planned with the programme organiser in mind: 'Me in the Garden'. The educators' post planned the learning programme for the actual sessions where the learners worked in large groups. There was no planning for the sessions after tea (individual educators with their group of learners).

The planning did not indicate what would happen on a daily basis, it indicated what had been done for three days that the educators worked with the learners.

The type of planning format used by the educators focused on medium term planning where the phase organiser, programme organiser, three learning areas, activities and content were included, but critical outcomes and the use of a planning grid were absent. What is significant is that the educators called the planning short term planning, but it was medium term planning. For short term planning notional time, critical outcomes, specific outcomes teaching and learning strategies and grouping of learners are required, and these were not indicated in the educators planning.

I claim that the educators understood some of the planning requirements for planning a learning programme but crucial features were missing i.e. critical outcomes, performance indicators and notional time. In the educator' case, the absence of notional time was probably as they used medium term planning (according to researcher). The educators on their planning stated that it was short term planning, so notional time should have been included

1.2. d. Collaborative planning with colleague and support from school management
The Grade 1 educators' pre planned (in discussion) and post planned (in discussion) the learning programme together. One educator recorded the learning programme.

At this learning site there was on the spot planning (discussion), just before the activity and also during the activity. I view this as collaborative support.

In my opinion, a constructive collaborative relationship, is one where each educator plays a role. This is very important when educators are exposed to change and are expected to deal with change. At this learning site two individuals dominated the collaborative support, while the others either observed or made short comments. When educators have to delve into new areas, knowing that colleagues can provide support, is strong growth development. At this learning site the educators required support in developing skills on how they could work together in a collaborative manner, planning learning programmes.

What was significant at this learning site was the collaborative support during the presentation of the learning programme. Further discussion of this will given in section 2 – presentation of the learning programme.

The principal stated:

'I am happy that you have come. You can help the teachers.

The principal, herself was looking for support with the tasks that were expected of her. I question how much support she could actually provide to the teachers

SECTION 2 – THE PRESENTATION OF THE LEARNING PROGRAMME.

2.1. Learning programme presentation (Observation sessions).

A brief descriptive interpretive report of the learning programme presented over the 3 days is presented below.

Day 1 - Session 1 - Activity in the garden. (9.00am – 10.35am)
On arrival at the school, I observed two hundred and twenty Grade 1 learners and five Grades 1 teachers sitting in the garden. One educator was talking to the learners, using a question and answer strategy, and the other four teachers were observing and monitoring the learners. I questioned the educators about what they were doing. The educators stated that they were not prepared for the learning programme. I stated that they should carry on doing what they were doing and I stood and observed them. I observed them for approximately ten minutes and I then told them that they were doing - Me in the garden. The teachers were very surprised and they then continued with what they were doing.

While the educator, (educator Nancy), asked the learners questions about what they saw in the garden. She organised twenty learners, (ten boys and ten girls) to observe what the gardener was doing in the garden. The group returned and three members of the group shared their observations with the large group.

The educator then sent a group of fifteen learners, sit in the shade, under a tree. The educator then spoke about the sun and shade and the importance of trees, in terms of providing shade and making a garden beautiful. During this time the educator spoke in English and Zulu.

For the next activity, which continued from the former, the learners were asked to observe and to name the colours and count the different flowers in the garden. What was significant was that the educator questioned one learner out of a group of over two hundred learners. During this time the educator and learners named the flower colours in Zulu and English.

The educator, with the assistance of the other educators, selected twenty-five boys to collect big stones and to place them in a circle in the middle of the garden. The other learners observed. The educator then told the learners to collect dirt from the garden and to place the dirt in the circle. The educator then questioned the learners about why they should pick up dirt. This then led to working with the letter s. The next educator, Happiness took over and she demonstrated the sound, shape and movement of s. The learners observed and did the activity. Learners then gave names of objects beginning with the letter s. After this the learners were given chalk and asked to write s on the concrete wall.

Teachers then met and discussed what they were going to do.

The resources used during this time were chalk, dirt in the garden, stones, flowering plants, trees and the gardener.

Day 1 – Session 2 – In the classroom. (11.05am – 12.15pm)
I observed educator Happiness working with her group of learners in the classroom for approximately one hour. The time given above is what is on the timetable for this session.

The learners were seated in-groups of eight and each group had a particular name e.g. April, grapes. oranges. The educator gave each group a magazine and an A3 sheet of paper. She told each group that they had to cut out pictures of things that were found in a garden. Learners either tore the pictures out of they used a pair of scissors. Some learners

had their own scissors. Some learners while working, made decisions about what they should cut out of the magazine and the others observed. When they had completed, a learner from two groups had to stand up and show the class group what their group had done. (Appendix D – Learners posters).

Day 3- Session 1 – Activity in the garden (9.00am – 10.35am)
The large group (215) of Grade 1 learners and five teachers had made a large circle in the garden. They moved around in the circle and they dramatised movements for the songs that they sung. This continued for approximately 20 minutes in the hot sun.

Educator Evangeline then told the learners to sit in a large group. She used the question and answer strategy to elicit learners understanding of fruit and vegetables. About four learners were asked and the educator voiced their responses loudly so that everybody could hear what was said. When naming fruit and vegetables the educator also stated the English name for the various fruit and vegetables named.

A chart (A 3) with the letter a. An apple was presented to the large group of learners. Learners used this chart to name fruit and vegetables that started with an a. The educator called eight learners and asked them to stand in front of the large group, each holding a chart (Appendix D – sample copy of charts). While the learners observed the charts, the educator questioned the learners about the group (fruit or vegetable) that each item on the chart belonged to. The educator selected one learner to place all the learners carrying fruit posters in one group and all the learners carrying vegetable posters in another group. The educator then assessed the learners' activity by asking the large group of learners if it was correct. Another learner worked with the charts that had mixed fruit and vegetables. All the learners were then expected to count the number of fruit, vegetables and a mixed group of fruit and vegetables.

A group of learners, each holding a garden implement was asked to stand in front of the group, with the garden implement. One learner at a time was asked to point out the garden implement that the teachers called out. When a learner matched the name of a

garden implement to the garden implement, the educator demonstrated how the garden implement could be used.

The large group of learners was now split into two groups – boys and girls. The girls were told to sit and the boys were asked to collect dirt. This dirt was to be thrown into a pit for composting. All the learners now gathered around the pit and there was much pushing and shoving. Not many learners were paying attention to what was being presented. Girls only, were told to observe the compost and the boys were told to sit and wait. No activity was done with the boys. What was significant was that the Grade 1 learners entertained themselves by making an improvised toy using a flower and a strand of grass called 'ummaround'. While all this was going on about six boys were digging a hole for a compost heap. When the boys had completed digging the hole every learner was instructed to pick up dirt and to place it in the compost heap
This whole session lacked organisation and structure. It would be appropriate to say that educators had barely planned for this session.

Day 3 – Session 2 – In the classroom. (11.05am – 12.15pm)
This session began with the educator questioning the learners about different types of fruit and vegetables. The fruit and vegetable charts that were used earlier in the garden were used in the classroom (only one set of charts). The educator wrote the names of the fruit and vegetables in Zulu on the board and the learners spelt each word and chorused each word.

In the classroom the learners sat in-groups of 6/8, but they worked individually. Learners were given a sheet of paper and crayons to share, and each group of learners were asked to draw a particular fruit or vegetable, e.g. orange, pineapple etc (Appendix D – Learners drawings). The learners used the rest of the session to draw a fruit or vegetable. The educator walked around ticking and signing each drawing. When the bell went it was the end of the session. What was significant was that the learners in the other classrooms did not draw a fruit or vegetable, as there was only one set of charts. The other learners cut the letter s from magazines.

Day 5 – session 1 - in the garden (9.20am – 10.35 am)

The session started with a large circle of learners and teachers singing the same songs and doing the same drama, as for day 3. Learners were shoving, pushing and falling all over. Teachers did not seem to notice this at first. Two teachers then got sticks and they walked around waving the sticks. Suddenly there was a change in activity. The learners were told that they were going to play catch. One educator ran forward and the large group of learners chased her. At 9.45am teachers stood together to decide what to do next. In this time the learners did their own activities. The teachers and learners continued with the games and music. At approximately 10.00am the learners were placed into one large group. An educator asked that volunteers be grouped together to make shapes, e.g. circle, square, rectangle. The learners in the large group were asked to name the shapes that they could observe. The educator then started questioning the learners about different types of seeds. The educator held up a carrot seed packet for the learners to observe, but the learners did not observe any carrot seeds. Learners were questioned by the educator about the shape that different seeds are planted in, e.g. onions in a straight line. So, shapes were linked to a seed planting activity. The bell went and it was the end of the session.

A second session was not observed on this day as a learner had died and all the teachers went to pay respect to the mother and to pray. All this time the learners were left to play.

2.2.a. Grade 1 Educators

Educator Aspects	Presentation Time periods	Descriptors	
Feelings	After presenting the Programme for one day	Shocked	
	After presenting the programme for a week	Shocked	
Ideas	After presenting the programme for a week	Extended	
Action	Aspects	Resources	
	Difficulties	Shortage	
	Restrictions	Resources	

Table C. 4.3. Descriptors for Educators at school C.

(i) Feelings

(a) After presenting the programme for one day

The educators were shocked for a number of reasons. These included the following:

1.Change in learning experience as evidenced by the following:

> 'We can prepare a lesson, but when you are on it you can realise it can change itself and the pupils can change the lesson too, and the environment, the thing that we are talking about can change the lesson

2. Mixing of learning programmes as evidenced by the following:

> 'What I realised that day is that I did not know how to mix all the learning programmes, but it happened, it umh, umh, I saw it when it was happening.

3. The children got to know things not the way the educators 'planned'

'All I wanted the children to know, they knew it
not the way I was expecting it'.

This shows that the educators were exposed to working constructively with OBE at their learning site. This was possible because of the intervention of the researcher. The researcher affirmed the educators about what they were doing.

The uncertain feelings that the educators had when they planned the learning programme were understood in the light of them not having worked properly, with support and guidance from OBE trainers at their learning site.

(b) after presenting the programme for three days (week)

The educators shared exactly the same feelings as for one day. The educators did not share feelings of being tired. This I can understand from the fact that they only presented for three days and there was a sort of team teaching that had taken place for the major part of each day. One educator did not work with her group of learners for approximately four hours, every day for five days.

The educators also stated that they now felt more confident to teach using OBE methodology as evidenced in the following:

To me this was a new page of my teaching career.....
.....I was so scared to be observed trying to teach
with this new way (OBE) ..... now I have confidence
(Educator Nancy – educator interview)

What was significant was that educator Nancy stated that she was scared just before she presented the learning programme and she was not sure if she felt competent and confident to teach OBE Life Skills. She now felt confident as a result of her experience.

I claim that for teachers to develop confidence for teaching OBE Life Skills. they should engage with learning programmes at their learning site with the resources that they have, with the support of departmental officials.

(ii) Ideas

The ideas that the educators had after presenting the learning programme was that it was extensive and they could present the programme for 3 weeks, not only 1 week.
The educators stated:

> We can do more, make gardens, different gardens, vegetable gardens, lawns, erh, erh seed beds (educator interview).

These ideas only came as a result of these educators experiencing the learning programme. I claim that not all teachers are creative and innovative, but each educator as a result of experiencing a phenomenon and being affirmed, they can be creative and innovative. Creativity and innovation do not come 'de novo' especially for educators who are scared to implement the new curriculum and uncertain of the expectations of the new curriculum. It is unfortunate that in South Africa, many teachers, especially teachers in the township areas, experience much of this.

(iii) Action

(a) Aspects

The aspect that the educators took into account when they presented the learning programme was concerned with resources. The educators stated:

> We talk about fruit and vegetables .....
> we are not well resourced, we could not bring
> the real things...
> (Educator interview)

What was significant was that the educators bought seeds and paper. They used their own money and they were expected to do the same if they needed fruit and vegetable samples for the learning experiences.

(b) Difficulties

The difficulties that the educators experienced were concerned with (1) the lack of resources (garden tools) at the school, (2) the break in the presentation and (3) controlling the large group of learners.

The educators did the following to resolve the difficulties: (1) borrowed a few resources from the school neighbours. This still posed a difficulty as there was a shortage of resources (garden tools) for the large group of learners to work with; (2) had to go back, to repeat sections of work, before presenting the days activities.

(c) Restrictions

The restrictions that the educators experienced were concerned with resources. The educators stated that the schoolyard and teaching resources restricted them. They stated that the schoolyard was too small and they did not have a place to work freely. This can be accepted in this case, if one educator is working with two hundred and twenty three learners and the other educators are either observing or participating. The educators did not consider grouping learners into smaller groups and each educator working with small groups in different sections of the garden.

The other restriction was teaching resources. They only had a few garden tools, one set of fruit and vegetable charts for the large group of learners.

2.2.b. Learners and learning

2.2.b.1. Completion of tasks

This was not considered at this learning site. When the educator/s presented, the activity ended when the bell rang. Learners were given tasks and when the time was up judged from the ringing bell for break time, the learners had to hand in their work. At this learning site learners were given, for example, one activity to complete in approximately one hour, the activity is stretched over a period of time.

2.2.b.2. Preparation of learners for a task

The educators gave instructions for the activity, to the learners. In some instances they stated what the learners had to do for the activity, and in others learners just had to follow what the educators did. The educators did not state the activity outcomes; neither did they describe how the learners were going to be assessed.

Evidence of this was seen in the following:

Educator told each group what they had to do and she gave each group a sheet of paper (Classroom observation – researcher observation notes);

Educator asked learners to put their hands up and learner did this (classroom observation – researcher observation notes)

2.2.b.3. Educators knowledge of the ability of learners

The educators felt that they were knowledgeable about the ability of the learners.

Educator Evangeline stated that the programme organiser –Me in the garden would be too difficult for the learners, as discussed above in educator aspects.

I claim that the educators were not knowledgeable about the learners as evidenced in the following:

> We did not know in Grade 1 we can talk about tape measures, all that, but erh from this lesson (Programme organiser) you gave us, we know we can teach them a lot of things that they used to. ..... it is them that told us we did not tell them... ..... now we know there are many things that they know... we did not (educator interview);

Before I used to underestimate the thinking of Grade 1 learners but this topic was an eye-opener to me (educator Nancy – reflective diary);

I have experienced that the Grade 1 pupils can do things for themselves.... They know different... (Educator Beauty – reflective diary);

I did not realize that pupils know everything, they only need to be guided..... They know how to group the fruits and vegetables correctly (educator Evangeline – reflective diary); Pupils can discover on their own and we as teachers let them explore and discover... .....they have knowledge, they are not empty vessels.. (Educator Happiness – reflective diary).

I claim that the educators at this learning site were not knowledgeable about their learners capabilities when they presented the learning programme.

2.2.b.4. Preparation of learners for the learning programme

The educators did not prepare the learners for the learning programme at all. If the educators were not properly prepared, how could they prepare the learners?

2.2. C. Time management

When the educators gave the learners activities, they did not consider the time aspect. The activity ended when the bell rang. Learners were given the minimal amount of work to do in a time period. The educators only experienced problems with time when they did not present the learning programme on day 2 and 4 and for an hour on day 5. Nothing is rushed, everything is done in a laizze-faire fashion and time is not the essence.

2.2. D. Use of teaching and learning strategies (Graph 9.)

The educators used 2 methods that involved learners for 100% of the period. They used the following strategies: narrative, question and answer and groupwork. The first two strategies were used extensively.

When looking at how the availability of resources impacted on the strategies that the educators used, the following evidence needs to be considered: the garden question and

answer activity on day 1, group construction of a compost heap using garden implements on day 3; the drawing of fruits and vegetables on day 3. For all these, various resources were used. I claim that strategies used were limited by the resources that were available and also by the educators understanding of what strategies could be used. I claim that the teaching and learning strategies are resource dependent.

2.2. E The educators use of resources

The educators used 2 kinds and more than 2 kinds of materials to enhance learning. The range of materials used was limited as evidenced in the data presented on the types of materials that were used in section A, materials (resource) category.

The availability and the choice of materials (resources) in and around the school that the educators and the learners could use for the presentation of the learning programme were aspects and restrictions that needed to be considered by the educators when they presented the learning programme.

Resources did restrict the educators in the presentation of the learning programme. I claim that resources restricted the educators. Resources that they required for teaching and learning were not available to them.

I claim that the way educators use resources in the classroom is influenced by their knowledge and assumptions about resources available to them and to learners both inside and outside the classroom.

2.3. Grade 1 learners

(i) Learners feelings about activities

Learners enjoyed the activities and this was evidenced in the following extracts:

Learners were so excited, so excited...

They were active, they enjoyed... they participated (educator interview)

enthusiastically, were interested and eager to participate (researchers' reflective diary).

(ii) Understanding of the content (knowledge)

During the presentation of the learning programme, learners understanding and misunderstanding of science concepts and processes were looked at. Examples will be used to highlight this.

(Note: at this school learners did not voice their ideas, knowledge openly and freely. The learners only responded to the questions that were asked by the educator and the researcher. The educator spoke incessantly, without giving the learners an opportunity to engage in the learning process.

I claim that learners were treated as empty vessels, when they were in the large group settings.).

a. Conservation

Evidence from transcripts:

Educator – Pick up all the dirt and put it here. Pick up the leaves and paper as well

Which leaves do you pick up and why?

Learners (chorusing) – The dry leaves, the dry leaves

Researcher – Why do you pick up the dry leaves?

Learner – We do it so it will be clean

I claim that learners' understanding of conservation is partially developed. Leaves are picked up to make the place clean, but the essential principles of conservation are not addressed, where leaves decompose and return nutrients to the soil.

b. Importance of trees

The importance of trees, in terms of how they help us, was only seen in terms of it giving shade. The other importances of trees were not addressed.
I claim that as trees provide shade this is important for learners who walk to school. So relevant knowledge was addressed.

c. Importance of water for plants

The educator talked about there being no rain. She stated that if the plants were exposed to the sun over a long period of time the sun would burn them. Learners just responded by saying water.

(iii) Activities and skills that the learners used.

It is difficult for me to state that learners developed skills, as there was little that they did in terms of skills. The one skill that some learners developed was to make a compost heap (those that did and those that observed the activity). I cannot say that the learners developed the skill of classifying as only two learners out of two hundred and twenty were asked to place fruit pictures together and vegetable pictures together.
Minimal skill development took place, for a handful of learners.
I claim that educators desperately need to plan and prepare for learning experiences extensively and the need to reorganize the teaching and learning process that happens at this school.

2.4. Assessment

The forms of assessment used were informal and minimal.

I cannot state that the educators when working with the large group of learners were assessing them. I can say that the educators questioned the learners and the learners responded to the questions.

On day 1 session 4 learners displayed their work. This can be taken as assessment but the educator did not assess the learners for this. On day 3 session 2, the educator ticked and dated the learners work. Should this be taken as assessment? I do not accept this as assessment as it was a routine activity done by the educator with minimal or no discussion with the learners.

The educators completed no record of assessment. The educators' post planned for assessment in the learning programme.

Assessment was not seen in action.

SECTION 3: FUTURE CONSIDERATIONS

The educator's future considerations were concerned with:

(i) the changes

The educators, on reflecting on what they had planned and presented in the past three days stated that they would change what they had planned and presented by extending the programme, by adding more and doing the programme for three weeks and not one.

I claim that the educators were open to changing what they had planned and presented in the learning programme and this would have to be considered as the educators' post planned and presented very few activities. The educators preparedness to change what they had done is a good growth process, especially when working with (implementing) a new curriculum.

(ii) planning and presenting a learning programme

The educators stated that what they had done in the past three days had made them think differently about planning a learning programme. They stated that if they had more

resources they would be able to do a number of different activities; and they would think differently about what learners can do.

(iii) future aspects

The educators stated that in the future when they are planning and presenting a learning programme, they would definitely consider the grouping of learners, working with smaller groups of learners

Trends for school C

1 a) Educators

- Educators did not view themselves as curriculum developers and curriculum implementers

- Educators' feelings and rating of confidence and competence to facilitate OBE Life Skills did not match.

b) Educators – Planning the learning programme

- The educators' lack of understanding of how the learning programme should be integrated impacted on how the educators planned for the learning programme

- In planning the learning programme, the educators' lack of understanding of OBE policy in practice impacted on their feelings, ideas and action

- The educators planned the learning programme on a piecemeal basis – day by day, by discussing what they would do. A written partial learning programme was post planned

- The educators understanding of science focus in an OBE learning programme and Natural Science influenced their decisions about what to include in the learning programme.

- The educators' knowledge of: a) ability of learners in the class group; b) science concepts, processes and skills and c) planning requirements impacted on their discussion plan of the learning programme. All this, and the actual teaching experience impacted on what was planned in the written plan

- The educators' knowledge and assumptions of resources available to the learners and teachers influenced the teaching and learning strategies and learner activities

- Collaborative planning was viewed as planning where one or two teachers dominated the discussion and the other three added in a few words

- Minimal or no support was given to the teachers from management when they were planning the learning programmes

c) Educators – Presenting the learning programme

- Educator personality – friendly, domineering and strict (waving sticks at times)

- Interaction of teachers and learners – restricted, limited to educator behaviour in front of teachers but unrestricted behind the teachers (when not in the teachers view)

- The educators understanding of how to integrate learning programmes was developed while presenting the learning programme – Me in the garden, to the learners in the garden

- The educators were unanimous about how shocked they were with the learners' responses

- Educators had pre-conceived ideas of what the learners were capable of. These ideas did not match what they experienced with the learners during the presentation

- Educators experienced how to present a learning programme and by being affirmed in the process developed greater understanding, confidence and competence

- The excessive large group (+ 220 learners) teaching took place as teachers wanted the learners to get exactly the same information

- The educators understanding of teaching and learning strategies influenced the types of teaching and learning strategies used during the presentation. Educators attempted to use OBE methodology but slipped into their comfort zone of teacher tell and question and answer strategy

- The lack of or minimal presence of resources and use of resources impacted on the educators ' presentation of the learning programme

- The educators understanding of what resources to use and how to use them during the presentation of the learning programme impacted on the educators' presentation of the learning programme

- The educators time management had an impact on the assessment of the learners during the presentation of the learning programme

- The educators understanding of assessment had an impact on the assessment of the learners during the presentation of the learning programme

d) Educators – future considerations

The educators' experience of planning and presenting the learning programme impacted on their future consideration for how they would change the programme plan and present it differently. This is possible if there are more resources, consideration for what learners can do is made and they grouping of learner are considered.

2 Learners

- Learners' had minimal voice – learners' noise is minimal, freedom of speech is restricted to learners responding to questions and minimal communication to their friends

- 47% of the learners had attended pre-primary school, so the learners were all at different levels of development for basic writing, drawing and reading skills.

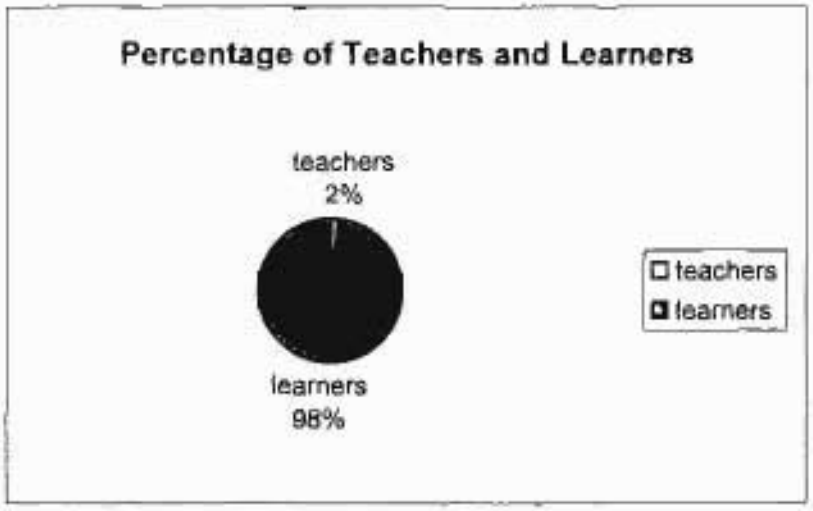
- Learners developed knowledge of classification of fruit and vegetables according to layman's understanding and not biological groupings

- Learners' experiences impacted on their development of knowledge

- Learners were not given equal opportunity to participate during the presentation of the learning programme

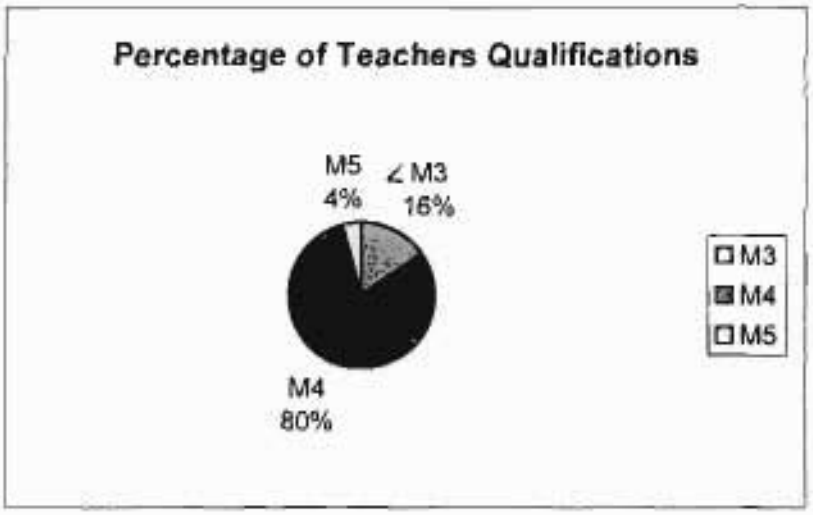
teachers	2%
learners	98%

(1)



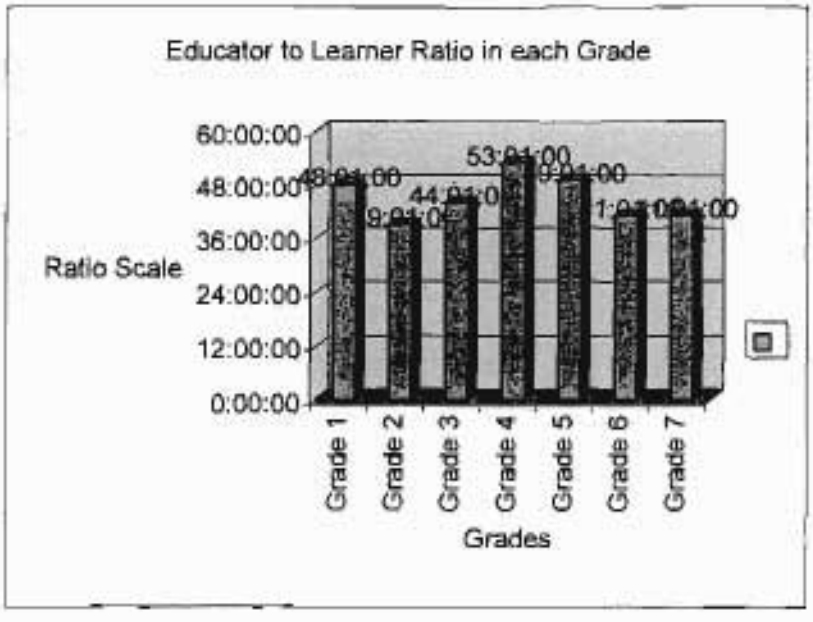
∠ M3	15%
M4	77%
M5	4%

(2)



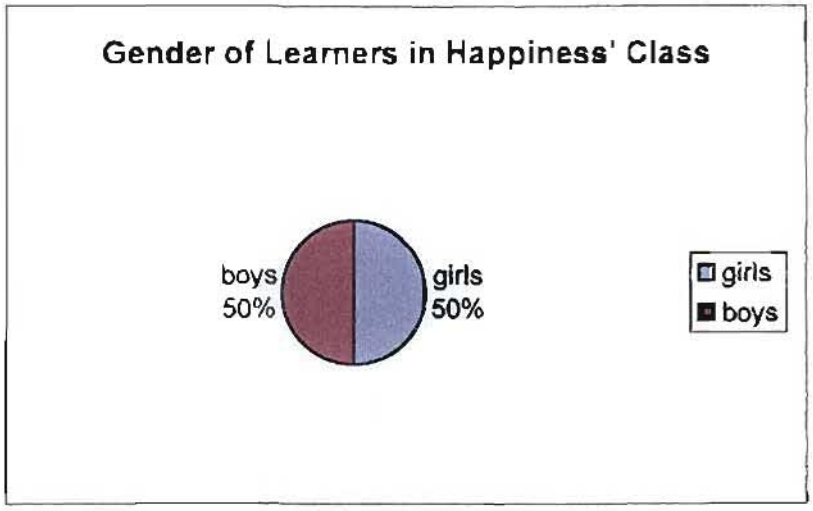
Grade 1	48:01:00
Grade 2	39:01:00
Grade 3	44:01:00
Grade 4	53:01:00
Grade 5	49:01:00
Grade 6	41:01:00
Grade 7	41:01:00

(3)



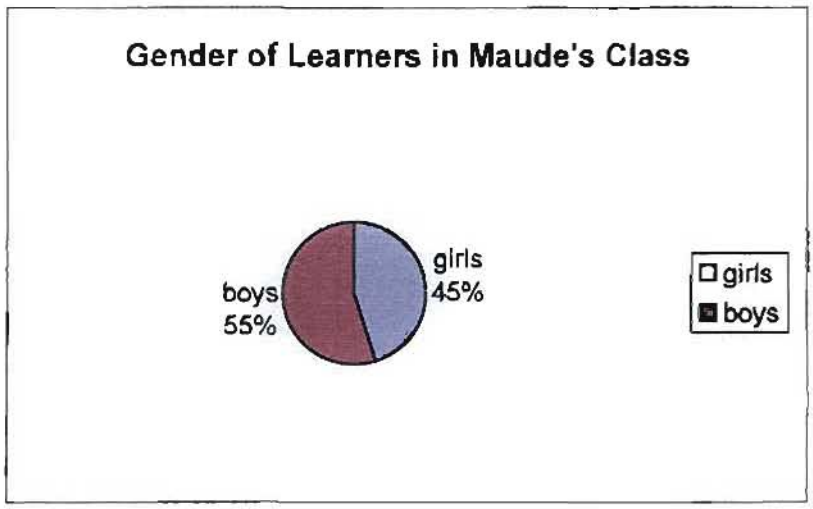
girls	50%
boys	50%

④



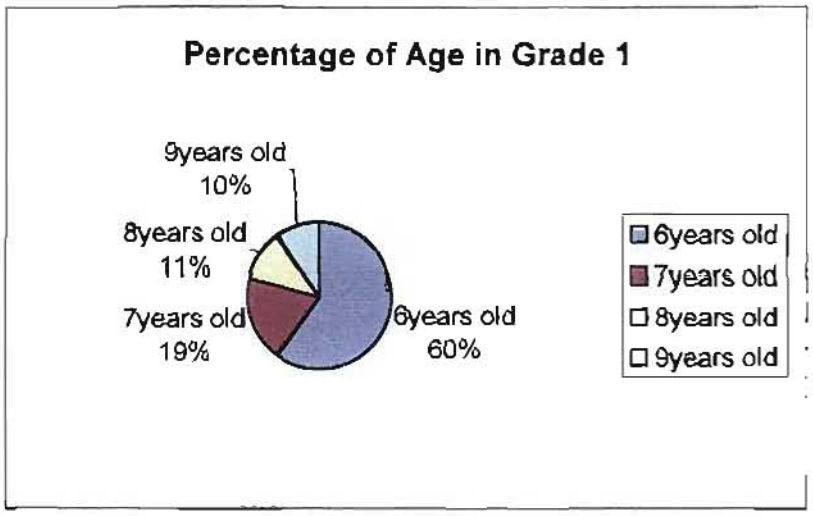
girls	45%
boys	55%

⑤



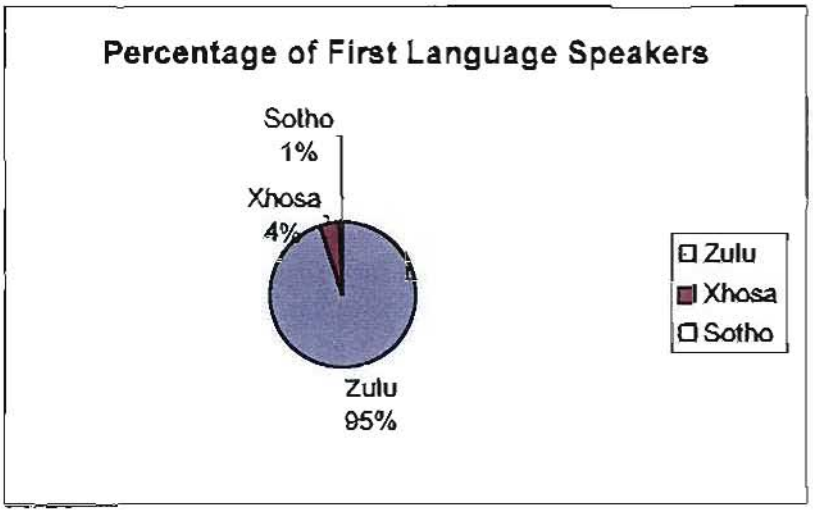
6years old	60%
7years old	19%
8years old	11%
9years old	10%

⑥



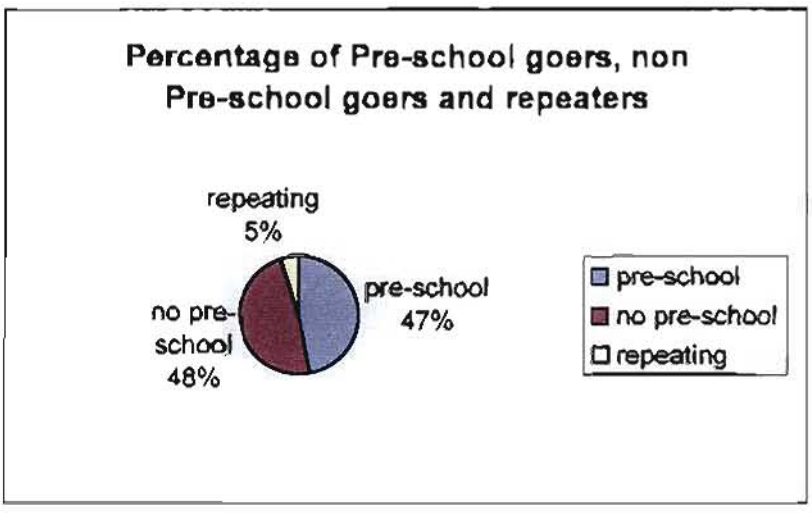
Zulu	95%
Xhosa	4.10%
Sotho	0.90%

(7)



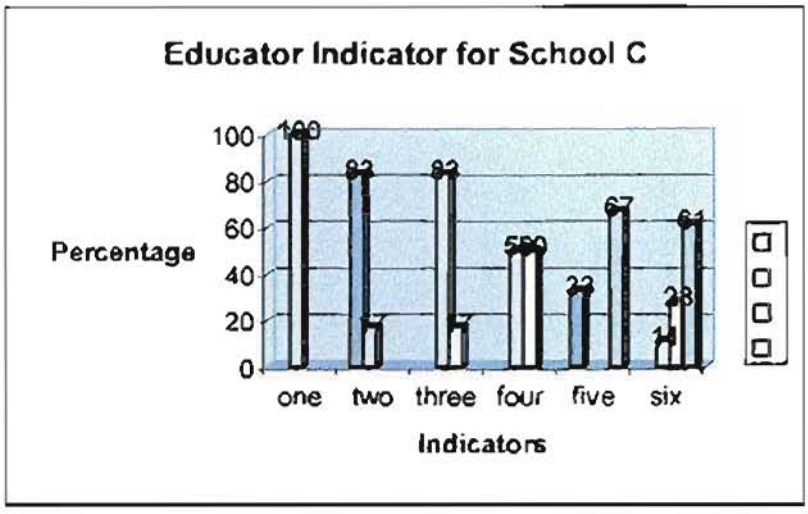
pre-school	47%
no pre-sch	48%
repeating	5%

(8)



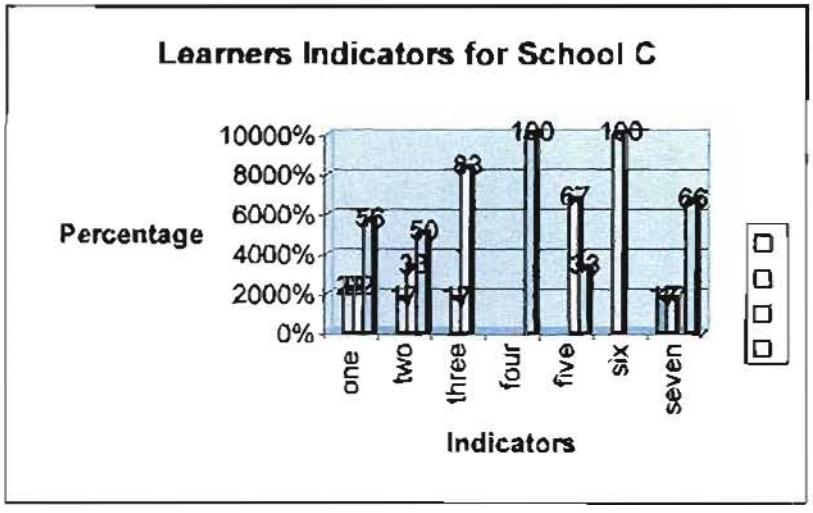
four		50	50	
five	33			67
six		11	28	61

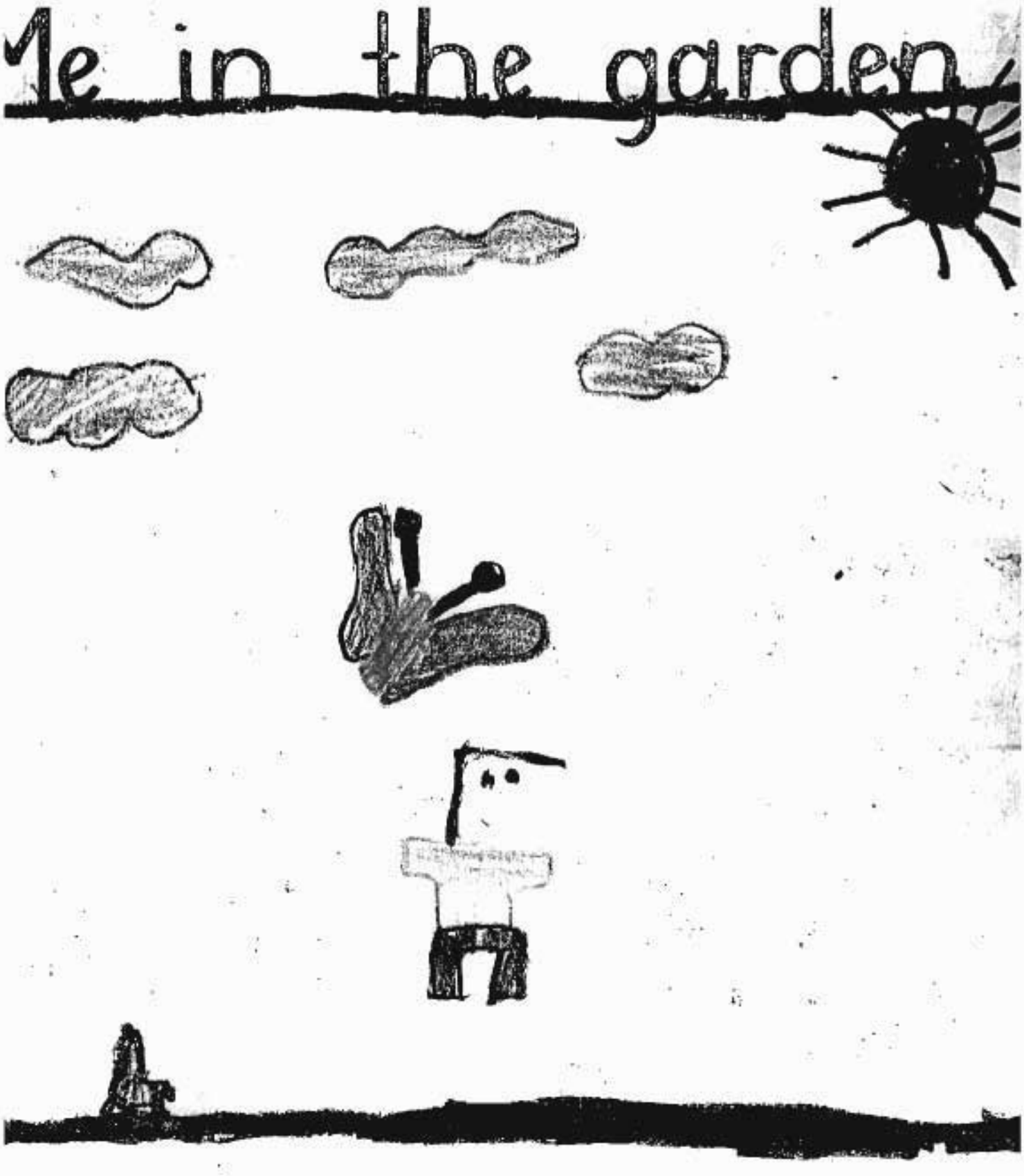
(9)



one		22	22	56
two		17	33	50
three		17	83	
four				100
five			67	33
six		100		
seven	17	17		66

(10)




Me in the garden

CHAPTER 5

SYNTHESIS

CROSS CASE ANALYSIS

A cross case analysis was done, to answer the research questions. The data from each case study is presented in categories.

5. 1. The resource context of the schools

The resource context of each school was compared according to the resource categories that I had decided on, e.g. building, facilities, parents and community and financial. The resource context data for each school was entered in table 5.1. on pages 172 - 174. This was done to respond to the section in each research question which, looks at the different resource contexts of each school.

Resource categories	School A		School B		School C	
1. Building	Good condition, no repairs needed. Buildings clean and neat		Fairly good, some Classrooms need minor Repairs Buildings clean and neat		Not a good condition most of the classrooms need major repairs Buildings moderately Clean and untidy	
2. Facilities **a. Basic**	Electricity and running Water – very good Condition		Electricity and running water – good condition		Electricity and running Water – good condition	
b. Communication	**Type** Computer Fax machine Intercom Photo copier Telephone Typewriter	**Condition** Very good Good Very good Good Good Very good	**Type** Computer Fax machine Intercom Photo copier Telephone -	**Condition** Good Good Good Poor Good	**Type** - - - - - - Telephone Typewriter	**Condition** Good Good
c. Other facilities within building	**Type** Library Staffroom Storeroom	**Condition** Very good Good Good	**Type** Library Staffroom Storeroom	**Condition** Very good Good Good	**Type** None Staffroom Cum class Room Storeroom	**Condition** Poor Poor
d. Other facilities in the grounds	**Type** Garden Sportsfield Swimming Pool	**Condition** Good Good Good	**Type** Garden Sportsfield Swimming Pool	**Condition** Good Good Good	**Type** Garden - -	**Condition** Poor

3. Human Resources **a. Percentage ratio Total number of educators to total no. of learners**	5% : 95%	3,4%: 96,6%	2% : 98%
b. (i) Educator qualifications **(ii) Grade 1 educators**	M 3 to M 5 Educator Rose – M 3 Educator Sue – M 5	M 4 to M 6 Educator Pat – M 4 Educator Lin – M 4	M 2 to M 5 Ed Beauty – M 2 Ed Evangeline, Nancy, Maude and Happiness - M 3
c. (I) Educators years of teaching experience **(ii)Grade 1 educators**	Zero to twenty five Educator Rose Seventeen and a half Educator Sue Twenty five	Zero to thirty Educator Pat – Eight years Educator Lin – Five years	Zero to thirty Ed Beauty – nineteen Ed Evangeline – seventeen; Ed Nancy and Happ Six; Ed Maude – two
d. (i) Mean educator to learner ratio for grades **(ii) Educator to learner ratio – Grade 1**	1: 32 1: 32	1: 39 1 : 34	1 : 45 1: 48
e. Race of Grade 1 educators	100% White	50% White: 50% Black	100% Black
f. Race of Grade 1 learners	14% African; 30% White; 8% Coloured; 48% Indian.	100 % African	100% African
g. Age of learners	5 – 7 years old	5 – 7 years old	6 – 9 years old
h. Language of Grade 1 Learners	84% English; 10% Zulu; 3% Afrikaans; 3% Portuguese	97% Zulu; 3% Xhosa	95% Zulu; 4,1% Xhosa; 0,9% Sotho
i. Pre-primary Experience of Learners	100% attended Pre-primary	94 % attended; 6% did not	100% did not attend
4. Materials **a. Book**	Materials from all the Categories were Available and they	Materials from all Categories were available and they	Materials from book. worksheet. poetry And story categories

b. Worksheet **c. Garden and Gardening Implements** **d. Chalkboard** **e. Chart** **f. Music** **g. Activity Instruments** **h. Other category** **i. Poetry** **j. Drama** **k. Story**	Were used A wide range and large Number of materials; Learners extensively Equipped	were used A range and number of Materials; Learners had basic materials - scissors, pencil and crayons	Were not available And they were not Used. Note – gardening Implements were Borrowed from Neighbours; No music cassettes And tape-recorder Available; Activity instruments- Minimal; Other category – Minimal
5. Resources to Teach OBE	OBE Policy Documents Life Skills programmes- Teachers guides and Illustrative learning Packages	OBE Policy Documents Life Skills programmes- Teachers guides and Illustrative learning Packages	OBE Policy Documents
6. Classroom Resources	Maximum	Moderate	Minimal
7. Community Resources`	Parents maximally Involved in School and learner Activities	Parents involved in learners activities	Parents not involved
8. Financial Resources	No subsidy from gov; Paid teachers salaries; Governing body pays 2 teachers salaries; R 2 600/annum – school Fees	No subsidy from gov; Paid teachers salaries; R 1 100/annum – school Fees	Gov. provided Crayons. paid teachers Salaries; R 80. 00/annum – School fees

Table 5.1. – Resource context of schools A, B and C.

The schools differed according to the following:

(a) The **state of the buildings** of the well resourced school was in a good condition and the minimally resourced school was not in a good condition;

(b) All schools had the **basic facility**, i.e. electricity and water, but they differed with respect to the type and condition of communication facilities, facilities within the building and outside the building. School A had the full quota of communication facilities while school C only had the bare essentials like a telephone and a typewriter. What was significant was that schools A and B both had a library in very good condition, while School C did not even have a library room. All the schools had a garden. but school C's garden was in a poor condition compared to the good condition of school A and B's garden.

(c) All three schools differed with respect to the **percentage of educators to learners**, the educator to learner ratio and the Grade 1 educator to learner ratio, with the lowest

ratio at school A to the highest ratio at school B.

(d) The **Grade 1-educator qualifications** varied from school to school, but school C had educators with the lowest qualification – M 2. The average for the total number of years of educator qualification was 4 for school A and B and 2,8 for school C.

(e) The **Grade 1 educator to learner ratio** varied from school to school with the lowest at school A, 1:32 and the highest ratio at school C, 1:48.

(f) The **number and type of materials** that were available and used by the educators at each school varied greatly. It is clearly evident that at school A, an extensive range of materials were available and were used during the presentation of the learning programme. At school C a limited range of materials were available and were used during the presentation of the learning programme.

(g) The **resources to teach OBE**, where school A and B had OBE Policy documents and Life Skills programmes with a teacher's guide and an illustrative learning package. School C only had OBE Policy documents.

(h) **Classroom resources**, where the classrooms at school A were neat, well equipped with a desk and chair for each learner and the educator. It also had well planned nature tables, reading corners, with charts, models and learners work displayed.. School C had the bare essentials in the classroom, i.e. desks and chairs for the learners and educator and 4/5 drawings (learners work) displayed on the wall.

(i) **Community resources** where the parents were maximally and integrally involved in the management and the teaching and learning process at school A. At school B parents were moderately involved in teaching and learning process. At school C parents were minimally/not involved in the teaching and learning process at the school.

(j) **Financial resources,** where school fees at school A were 2,4 times higher that school B and 32,5 times higher than school C. School B's school fees were 13.8 times higher than C. School A could purchase teaching and learning resources and employ two teachers. School C could barely pay for its electricity and phone bill.

Trend

A well resourced school had a good infrastructure and all the facilities, including a well resourced library. It had qualified teachers and a low educator to learner ratio. It was well resourced in terms of teaching and learning materials, policy documents and classroom resources. Community (parent) involvement and financial resources were good. A moderately resourced school differed from the other schools in terms of the state of the building, the types of communication facilities, human resources, materials available, community and financial resources, but it had a well resourced library. A minimally resourced school was similar to all, in terms of basic facilities.

5. 2. Grade 1 teachers

The data from the three case studies about the Grade 1 teachers is presented and analysed in categories.

5. 2. 1. Feelings and ratings for facilitating in relation to OBE Life Skills.

Schools	Confident		Competence	
	Feeling	Rating	Feeling	Rating
School A	Yes	High	Yes	High
School B	Not sure/yes	Moderate/high	Not sure	Moderate
School C	Not sure	Moderate	Yes/not sure	Moderate/high

Table 5.2.Teachers confidence and competence for facilitating OBE Life Skills at schools A, B and C.

When comparing the teachers' feelings of confidence from all three schools, the teachers at school A felt confident, teachers at school B felt confident/not sure and the teachers at school C were unsure about their feelings of confidence. This comparison differed to the teachers' feelings of competence across all three schools. The teachers at school A felt competent, while the teachers at school B were not sure if they were competent and some of the teachers at school C felt competent, while the others were not sure of their competence.

The teachers at school A felt confidant and rated themselves high on their level of confidence to facilitate OBE, but they did not feel confident with working with the specific outcomes and the assessment criteria. The teachers at school B were not sure/felt confident and rated themselves as moderate/high on their level of confidence to facilitate OBE. Teachers at school C were not sure if they felt confident and they rated themselves as moderate on their level of confidence to facilitate OBE Life Skills.

When matching the educators' feelings of confidence to their ratings, it was evident that there was a match between the two for teachers at school A and a mismatch between the two for teachers at schools B and C.

The teachers at school A felt competent and rated themselves high on their competence to facilitate OBE Life Skills. The teachers at school B were not sure if they were competent and they rated themselves as moderate for their level of competence to facilitate OBE Life Skills. While the teachers at school C felt competent or not sure and they rated themselves as moderate/high for their level of competence to facilitate OBE Life Skills. When matching the educators' feelings of competence to their ratings, it was evident that there was a match between the two for teachers at school A and a mismatch between the two for teachers at schools B and C.

Trend

- Teachers at the well resourced school felt confident and competent to facilitate OBE Life Skills, while teachers at the moderately resourced school were sure/not sure of their confidence and competence to facilitate OBE Life Skills. Teachers from the minimally resourced school were not sure of their confidence but were sure/not sure of their competence to facilitate OBE Life Skills.
- There was a match between teachers' feelings of confidence and competence to their level of rating, for teachers at well-resourced schools. There was a mismatch between teachers' feelings of confidence and competence to their level of rating for teachers at moderately and minimally resourced schools.

5.2.2. Preparation for OBE Life Skills implementation

Schools	In-service courses	Value of training	Need for more OBE training
School A	5 day for OBE implementation 1 day planning	No No	No
School B	5 day for OBE implementation 1 day planning	Not sure Not sure	Not sure/yes
School C	5 day for OBE implementation 1 day planning	Yes/no Yes/no	Yes/no

Table 5.4. Grade 1 educators preparation and value of preparation for OBE implementation at schools A, B and C.

Teachers from all three schools received the same training courses. It was a five-day implementation and a one-day planning. The teachers differed in the way they valued the OBE training and their need for more OBE training. Teachers at the well-resourced school were confused and did not find the training useful and did not feel the need for more OBE training. Teachers at the moderately resourced schools were not sure if they valued highly the OBE training, and one educator (educator Pat) was not sure if she needed more OBE training. The other educator felt that she needed more OBE training. At the minimally resourced school all the teachers, except one valued highly the OBE training and they all stated that they needed more OBE training

Trend
Grade 1 teachers' value of OBE training and their need for more OBE training differed within and across different resource contexts.

5.2.3. Involvement in curriculum development

Schools	Involvement in curriculum development - development of OBE materials
School A	No
School B	Yes educator Pat, no educator Lin
School C	No

Table 5.5. Grade 1 educators involvement in curriculum development at schools A, B and C.

The Grade 1 educators' involvement in curriculum development with regard to OBE was looked at from the perspective of their involvement in OBE material development. Only educator Pat had acknowledged that she had developed OBE materials, this was for a publishing company. What was significant was that all the educators were involved in implementing OBE in Grade 1 in 1998, and they all did not link the materials that they had developed during that year to curriculum development. Could this be that the educators themselves did not see themselves as being involved in curriculum development or did not see themselves as curriculum developers and they did not understand the extent of curriculum development, or even what it entailed?

Trend

Grade 1 teachers within and across resource contexts did not see themselves as curriculum developers. One educator viewed herself as a curriculum developer as she had developed A resource for a publishing company.

5.2.4. Engagement with a science focused learning programme

5.2.4.1. Planning

a. Timetable arrangement (organisational) resource

School	Timetable arrangement	Made by
School A	During the course of the day, every day	Educators
School B	During Life Skills sessions, every day	Educators and head of department
School C	During the course of the day, every day	Researcher

Table 5.6. Timetable arrangement planned for the presentation of science in the learning programme.

At the initial interview with the Grade 1 educators, planning arrangements were made with the educators to determine the organisation of science in a science focused learning programme. The educators at school A decided to integrate science into the learning areas and planned three learning programmes, i.e. Language and Communication, Literacy and Life Skills, which had science integrated. The learning programmes were presented from 8.30am to 12.15pm every day for five days. The educators at school B decided to integrate science into a learning programme that had Language and Literacy, Mathematics and Life Skills integrated. At school B the educator presented science during the Life Skills session on the timetable, for one hour every day for five days. At school C the educators had not planned on how and when they were going to present science. I told them that I would observe them every day from 9.00am to 12. 00pm, every day for five days, for approximately three hours per day.

Trend

Educators across the well and moderately resource contexts differed in the planning of the organisation of when the science focused learning programme would be presented. The educators at the minimally resourced school had not planned on when and how the science focused learning programme would be presented.

b. educator aspects

(i) The educator feelings, ideas and action for planning the Science focused learning programme are presented in table 5.7. below:

Educator Aspects	**Planning Time period**	**Descriptors**		
		School A	**School B**	**School C**
Feelings	Initial interview	Apprehensive-Rose Excited and blank – Foster	Excited and Apprehensive	Scared
	Before presenting the learning Programme	Apprehensive	Confident	Uncertain
Ideas about activities	Before presenting The learning Programme	Narrow—broad Limited –wide	Many with a Natural Science Slant	Different places Learners' Capability
Action	Aspects	Learners and Resourceful	Timetable	Equipment
	Difficulties	Bogged, apply	None	Shortage
	Restrictions	Time	None	Resources

Table 5.7. Educator feelings, ideas and action for planning the Science focused learning programme

a. Feelings

Grade 1 educators, from different resourced contexts, except educator Foster experienced a common feeling during the initial interview, which was one of fear. For all educators this fear was attributed to their lack of understanding (being unsure) of what was expected of them in planning learning programme/s for the programme organiser – Me in the garden. The programme organiser presented to the educators was one that they had not planned and presented before (it was new to them). This feeling of fear could also be linked to the educators' feelings of confidence and competence to facilitate OBE Life Skills, where educators, except one, at school C were not sure of their confidence and competence to facilitate OBE Life Skills. The educators at school B were not sure/yes of their confidence and not sure of their competence o facilitate OBE Life Skills. The educators at school A's fear cannot be linked to their competence and confidence to facilitate OBE Life Skills, as they felt confident and competent.

The educators feelings just before presenting the learning programme varied across the resource contexts where educators at school A were apprehensive about how the learners would respond. The educator at school B was confident as she had prepared and she understood what she was going to present. The educators at school C were uncertain as they had not planned a learning programme for five days, they had only discussed what they were going to present on the first day.

Trend
Educators feelings of uncertainty about presenting the learning programme can be linked To their lack of understanding

b. Ideas

The educators, across the resource contexts, varied according to the ideas for activities, that they had before they presented the learning programme. These ideas could be placed into two categories: number of ideas and type of ideas. At school A educators fell into the number category where they experienced development as they had limited ideas before planning the programme, but as they planned and completed the planning of the programme their ideas had increased. Educators at school B and C fell into the type of ideas where educator Pat at school B had many ideas with a natural science slant. Educators at school C were concerned with ideas of learner capabilities (clearly a misunderstanding of the question asked, although learner capabilities can be linked to activities) and of taking the learners to different places.

Trend
Educators' ideas for activities when planning a science focused learning programme could be placed into two categories, viz. the number and type of activities. Educators at the well resourced school fell into the number category, while educators at moderately and minimally resourced school fell into the type of activities category.

c. Action

The educators across the different resource contexts differed according to the planning action. The planning action can be categorised into two categories: organisational and human resources; and facilities and materials (teaching and learning). Educators at school A and B were concerned with organisational and human resources where they looked at. e.g. the learners capabilities, them (the educators) being able to use what was in their environment, using the specific outcomes and time. The educators at school C were concerned with the lack of, condition and size of facilities and the lack of and shortage of teaching and learning materials that were required for planning the learning programme (note- post planning, refer to case study school C).

Trend
Educators from well and moderately resourced resourced schools, when planning the science focussed OBE learning programme considered organisational and human resources, while educators at the minimally resourced school considered facilities and teaching and learning materials.

(ii) Understanding

The educators' **understanding of a science focused OBE-based learning programme** was be categorised into three categories: (1) science process skills that the learners could develop; (2) knowledge that the learners could develop and (3) the facilities required for teaching science. The educators at school A exhibited all three categories. The educator at school B exhibited the first and second category, while the educators at school C exhibited the first category.

It was evident, that the educators had a clear idea of what OBE methodology entailed, where learners are active (engaged in the process), responsible for their own learning and activities are hands on. This is also linked to Science teaching and learning where learners are engaged with hands-on activities, which had an experimental nature, learners had to investigate and discover for themselves. The educators at schools A and B were also concerned with the development of knowledge. None of the educators spoke about science attitudes and values. A science focus in an OBE learning programme would

address the development of knowledge, skills and attitudes and values. I claim that the educators at school C need to develop a full understanding of what a science focus in a learning programme is.

Trend
Educators across different resource contexts differed in their understanding of a science focused OBE learning programme

The **educators' understanding of what they saw as Natural Science in the learning programme** can be placed in three categories: (1) what it consisted of; i.e. had a natural science element; (2) what it was concerned with, i.e. the garden and (3) the type of activities, i.e. planting seeds. The educators at school A understood it in terms of (1), (2) and (3). The educator at school B understood it in terms of (1) and (3) and the educators at school understood it in terms of (3).

Trend
Educators across different resource contexts differed in their understanding of what they saw as Natural Science in the learning programme

(iii) View of learners

The Grade 1 teachers view of learners in terms of: completion of tasks within a specified time; educators understanding of the ability of learners in the class is expressed as descriptors in table 5.8. below:

School	**View of**	**Learners**
	Completion of tasks within a specified time	**Educators understanding of the ability of learners – class**
A	No evidence in planning	Pre-conceived: read, write and Work independently
B	Activity planned for 10 minutes	No evidence in planning
C	No evidence in planning	Pre-conceived: what learners are capable of

Table 5.8. Educators' view of learners

a. The educators at school A and C did not have any evidence of planning activities that had a specified time limit to them. The educator at school B planned activities with time limits linked to them. This was done as science was presented during a specified time period, within the Life Skills session of 1 hour. The principle of OBE, learners learn at their own pace is not in action at school B.

Trend
The educators at the well- and minimally resourced schools did not have evidence of planning activities with time limits. The educator at school B planned activities with time limits. This is linked to the time organisation of the learning programme.

b. The educators understanding of the ability of learners in the class were similar for educators from schools A and C where they had pre-conceived ideas of what the learners were capable of, while educator Pat from school B did not have pre-conceived ideas. This could be linked to educator Pats experience with curriculum development where she was exposed to developing teaching and learning materials for learners.

Trend
Educators who had experienced curriculum development did not have pre-conceived ideas of what learners were capable of.

(iv) Understanding of planning requirements

a. Specific outcomes

Educators at school A did not feel confident when they worked with the specific outcomes and they experienced problems with understanding and working with the specific outcomes for the learning areas. Educators at school B felt confident when they worked with the specific outcomes and they did not experience any problems with understanding and working with the specific outcomes for the learning areas. Educators at school C (post planning) did not feel confident when they worked with the specific outcomes and they experienced problems with understanding and working with the outcomes.

The specific outcomes that were planned by educators at school A had clear structure, but they lacked the context part. The specific activities were linked to the activities that were planned. The educators did not start planning with the outcomes in mind, they started with the activities. The educators at school B did not write out the specific outcomes but used their codes, e.g. N S SO 2, in the planning. The specific outcomes that they used were linked to the activities that they planned. The educators started planning from the outcomes. The educators at school C planned specific outcomes that lacked the context part and the specific outcomes were not linked to the activities planned. The educators did not start planning from the outcomes.

Trend
Grade 1 educators across different resource contexts understood and worked with specific outcomes, in planning a learning, programme differently. Educators at school A and C experienced problems with the specific outcomes. School A, experienced problem with linking outcomes to activities. School C, experienced problems with linking outcomes to Learning areas and to activities.

b. Learning experience format

Learning experience planning format was not observed for all three schools as the teachers planned using mid/ short term planning frameworks.

c. Learning programme

(i) Integration

Educators at school A planned for the programme organiser- Me in the garden by developing three learning programmes as for the Foundation phase (Departmental document, 1997), i.e. Numeracy, Literacy and Life Skills. Each educator used a different format in the planning (appendix B – Learning programme), where one educator planned a leaning programme that integrated the three learning areas and the other educator planned three learning programmes that were integrated by the given programme organiser – Me in the garden. Educators at school B planned a learning programme that integrated the three learning areas, i.e. Numeracy, Literacy and Life Skills (appendix C – Learning programme). Educators at school C post planned a

learning programme that integrated three learning programmes, i.e. Numeracy, Literacy and Life Skills (appendix D – Learning programme)

Trend

- Grade 1 educators across different resource contexts planned learning programme/s that Included Numeracy, Literacy and Life Skills.
- The format of the planning, displayed integration of the learning areas in some cases and in other cases, integration of learning pogrammes. This varied within and across resource contexts.

(ii) Format

The learning programmes developed by the educators had to comply with the requirements as laid down by the Education department, where the learning programmes should have critical outcomes, specific outcomes, assessment criteria, performance indicators (Departmental document, 1997). According to Media in education trust (1999), medium term planning should be used when developing a programme organiser and it could incorporate relevant outcomes from all eight learning areas. Educators would also be expected to follow short term planning where learner activities are indicated, notional time is planned, teaching and learning strategies are indicated and assessment criteria are clearly indicated.

Educators at school A used both short and medium term planning, where educator Rose used medium term planning and educator Sue used short term planning. For both sets of planning critical outcomes were not included. I claim that the educators were not aware that critical outcomes should be included. Educators at school B used medium term planning and critical outcomes were not included in the planning. Were educators not aware that they had to include the critical outcomes. At school C the educators post planned and they called it short term planning. They used mid-term planning format Critical outcomes were not included in their planning.

Trend
• Educators within and across different resource contexts used different planning formats with regard to short and medium term planning and all educators did not include critical outcomes in their planning. • Educators were confused with the short and medium term planning requirements

(v) Collaborative planning and support

The educators at school A and B planned together and received support from management, while educators at school C did not all plan together and did not receive support.

Trend
The educators at the schools differed with respect to the extent of collaboration and support provided at the school

5.3.4.2. Presentation of science focus in an OBE learning programme

a. The presentation of the learning programme

There were great differences in the learning programme/s that were presented by the educators at the three differently resourced schools as:

- The types of activities that the educators decided on, that were done by the learners for the learners to develop the planned specific outcomes. were different;
- The range of activities were different;
- The range of materials used ranged from excessive at the well resourced school to minimal or absence at the minimally resourced school
- The level of busyness of learners and educators during the presentation of the learning programme varied from busy at the well resourced school to a more relaxed atmosphere at the minimally resourced school;
- The teaching and learning strategies varied across the resource contexts, where the educators at the well and moderately resourced schools used a variety of strategies including creative and innovative strategies. The teachers at the minimally resourced

school used mainly educator tell and question and answer strrategies with minimal creative and innovative strategies;

- The management of time, where the educators at, the well-resourced school had a very full programme, the moderately resourced school managed with the time limits and the minimally resourced school did not really consider the management of time, as the ringing bell managed their time.

b. the educator aspects

(i) The educators *feelings, ideas and action* for presenting the science focused learning programme are presented in table 5.9 below:

Educator Aspects	Presentation Time period	Descriptors		
		School A	School B	School C
Feelings	After presenting the programme for one day	Pleasantly Surprised, Pleased	Good	Shocked
	After presenting the programme for a week	Tired, Excited	Exhausted, Very little time	Shocked
Ideas	After presenting the Programme for a week	Extensive	Knew what to teach (note – planned for programme organiser for second term)	Extended
Action	Aspects	Time	Learners behaviour erratic	Resources
	Difficulties	Large groups	None	Shortage
	Restrictions	Time duration	None	Resources

Table 5.9. Educators' feeling, ideas and action for presentation of the learning programme

a. Feelings (after presenting for one day)

Grade 1 educators, from different resourced contexts, school A and C, expressed a remarked reaction (pleasantly surprised, shocked) to the learners' response to the learning programme. Educator Pat, at school B felt good as the learning experiences were successful and educator Sue at school A felt pleased as the learners responded well

Trend
Educators within, for school A, and across different resource contexts, experienced different feelings after presenting the learning programme for one day

Feelings (after presenting for a week)

Grade 1 educators from different resourced contexts, school A and B, expressed similar feelings of tiredness, after presenting the learning programme for a week. Educators at school C expressed feelings of shock. This was very different to that of the other educators. Educators at school C did not mention tiredness at all. This can be linked to them only presenting the learning programme for two and a half days in all, the team teaching and the laizze-faire presentation.

Trend
Educators at well and moderately resourced schools expressed feelings of exhaustion, while educators at the minimally resourced school expressed feelings of shock, after presenting the learning programme for one week.

b. Ideas

Grade 1 educators across different resourced contexts expressed the view that they could present the learning programme for more than a week, as they now had so many ideas of what they could do and how they could present the ideas. At school A educators were going to continue presenting the learning programme for two more weeks, while educators at school B were planning to present the programme organiser for the next term (the second term). At school C educators had not planned to present the learning programme for any other period

Trend
Educators across different resourced contexts had a lot of ideas for the learning programme.

c. Action

The educators across different resourced contexts experienced different aspects, restrictions and difficulties when they presented the learning programme. Educators at the well-resourced school A were concerned with time (the lack of it – only a week to present the learning programme) and management of learner groups (in the garden and the classroom), while educators at school C were concerned with the lack or shortage of resources. Educator Pat at school B was only concerned with the learners' behaviour.

Trend
Resources did not restrict educators at well and moderately resourced schools, but they did restrict educators at minimally resourced school, during the presentation of the learning programme.

(ii) Learners and learning

Learners and Learning aspects	Descriptors		
	School A	School B	School C
a. Completion of tasks	Fixed time; Not fixed	Fixed time; Not fixed	Determined by the Bell
b. Preparation of learners for a task	Prepared – no Specific outcomes and no assessment discussion	Prepared – no Specific outcomes and no assessment discussion	Prepared at times – No specific Outcomes and no Assessment discussion
c. Educators knowledge of the ability of learners	Knowledgeable, but....	Knowledgeable	Knowledgeable, But...
d. Preparation of Learners for the Learning programme	Prepared	Prepared	Not prepared

Table 5.10 – Teachers' views of learners and learning.

The educators at schools A and B at times had time frames for the completion of tasks and at other times the educators catered for the learners different paces. The educators at school C did not consider time.

Trend
Educators across the different resource contexts differed with respect to their views of learners and learning, where educators from minimally resourced schools did not provide time organization for the completion of tasks and did not prepare learners for the learning programme. Educators at school A and C both claimed that they were knowledgeable about the learners ability, but they were surprised, shocked by the learners science knowledge

(iii) *Understanding of science concepts, processes, skills and values*

All educators had an understanding of science concepts, processes, skills and values, but educators at the minimally resourced school lacked conceptual detail.

(iv) *Time management*

Educators across the different resource contexts managed their time differently. Educators at school A presented a number of activities and the programme was full, a busy atmosphere reigned in the classroom. Educator Pat at school B managed the Life Skills sessions effectively for 70% of the time. Educators at school C did not manage their time, the bell managed their time for them.

Trend
Educators at minimally resourced schools did not manage their time

(v) *Assessment*

Educators at schools A and B used both formal and informal methods of assessment, while the educators at school C used informal methods of assessment.

At school A, assessment was not evident in every session, but at school B different forms of assessment was integrated into every session. At school C assessment was only evident in one session.

At all schools I did not observe the teachers completing a record of assessment.

At school A and C assessment was part of school A's planning, but there was a mismatch between the assessments planned and what was actually done. At school B some aspects of assessment were not planned and assessment was done during the presentation of the learning programme.

(vi) *Future considerations*

Trend
Educators across the resource contexts differed with respect to the future considerations where educator Pat was going to make minor changes and educators from schools A and C were going to make major changes

5.4. Grade 1 learners

a. Learners

Learners from the different resourced contexts differed with respect to:

- their pre-primary experiences
- medium of instruction and their first language
- racial composition
- cultural groupings
- learning materials that they personally possessed
- the way they responded to the learning programme

b.

(i) Learners feelings about activities

Learners across the different resourced contexts were all excited and enjoyed the presentation of the learning programme

(ii) Understanding of the knowledge, processes and skills

Learners at the different resourced schools developed an understanding of different aspects of knowledge e.g. School A classification and how to draw graphs and school B describing the water cycle, school C classification of fruit and vegetables.

The range and volume of science knowledge presented for the three schools varied where school C had a small range and minimal volume.

Detailed conceptual knowledge was not developed in school C learners, e.g. what is the structure of a plant.

Learners at school A and B experienced problems with a misunderstanding where the term flower was used instead of plant.

Across all schools the learners were exposed to development of values, but the activities carried out by each school for the learners to develop values varied.

(iii) Activities and skills that the learners developed

Learners' exposure and development of skills varied across the resource contexts. The range and the level of development of activities by learners, varied from developing basic science skills to developing challenging science skills. Educators at schools A and B exposed their learners to develop challenging science skills. Educators at school C exposed their learners to basic science skills e.g. observing and classifying and they provided guidance and assistance, while discussing it.

Tracking of trends from the cross case analysis and the within case analysis

Trend descriptors	Within-case analysis Page numbers	Cross – case analysis Page numbers
a. Well, moderately Minimally-resourced schools	100; 134; 167	176
b.1. educators feelings of confidence and competence	100; 134; 167	177
b.2. educators did not view themselves as curriculum developers	100; 134; 167	179
c. Planning – educators 1. Organisation of science focused Learning programme	100; 134; 167	180
c.2. Uncertainty linked to lack of understanding – impact on feelings, ideas and action	100; 134; 167	182
c.3. Action – resource considerations	100; 135; 168	183
c.4. Understanding of science focused OBE learning programme	100; 134; 168	184
c.5. Understanding of Natural Science	100; 134; 168	184
c. 6. View of learners	100; 134; 168	185
c.7. Understanding of science concepts, processes and skills	100; 134; 168	184
c.8. Understanding of planning	100; 134; 168	186; 187; 188

CHAPTER 6

This chapter is organised in three sections:
Section 1 – Findings and Recommendations;
Section 2 – Suggestions for future research and
Section 3 – Conclusions.

SECTION 1

FINDINGS AND RECOMMENDATIONS

The major findings and recommendations for this research are presented and discussed below:

- *The implementation of a curriculum and the success of its implementation is determined by the provision of resources*

The provision of resources at a school is pertinent for the implementation of the curriculum. This provision should be at a base (certain) limit, beyond which no school should have to go. Every school should have a good infrastructure, basic facilities and a library, basic teaching and learning resources, operating finance and appropriately trained teachers. The conditions at the school should be suitable for both learners and teachers.

This varied resource context of South African schools is a legacy from the past, but this legacy should not take us to the future and the rights of learners to education should also be addressed.

I recommend that the department conduct a full needs survey of all departmental schools, to determine which schools do not meet the resource baseline. A list of schools and the resource categories that they fall into should be published and action should be taken. This action would demand of the department to provide baseline resources and the

community and local businesses should be encouraged to adopt a school. This adoption of a school could be in terms of what the community and the local businesses could develop (not provide) at the school. The school could look at what it could develop for the community and the local businesses. A developing partnership could be started.
For this to be successful, it would require commitment and assurances from the department and astute departmental officials, about the use of the school and its facilities by the community. This would have to be flexible depending on the school and community context.

- *The ethos of the school and the culture of teaching and learning at the school determine the successful implementation of the curriculum.*

The ethos of a school is concerned with what happens at a school and how it happens.
If there is no culture of teaching and learning at a school, how can curriculum implementation take place? The current efforts of the government to develop a culture of teaching and learning was evident by Grade 1 educators at school C attending a COLT launch in their area. These efforts are also extended by the governments' action on defaulting teachers. All this does address the ethos of the school but each school varies with respect to the factors that impact on its ethos. As stated, by a Grade 1 educator (school C), the school is a reflection of the community. If there is crime and vandalism in a community, this will obviously impact on what happens at the school. Another effect is evident in the following example, there was news of a death of a learner from school C, and no teaching and learning took place at the school for approximately 1,5 hours and learners were given an extended break, with no teachers present on duty.

The level of teaching and learning and the intensity of it varied from school to school. At the minimally resourced school, minimal intensity (small ripples) was in place, while at the highly resourced school, there was maximum intensity (tidal wave). Here teachers and learners were challenged and busy throughout the period, there was a 'working atmosphere'.

I recommend that schools should be taken to task in terms of the ethos that reigns at the school. Where there is a bad ethos at a school and this is further compounded by community influences, it is the responsibility of the education and welfare department, teachers, learners and the community to take concerted action. The action decided on should come from task teams that are set up by the groups mentioned above. The goals of these task teams should be concerned with developing a working and 'shining' ethos at the school.

- *The commitment of teachers and the support given through the management of the school and the officials of the department must be sufficient for schools to be able to implement C2005 successfully.*

The commitment of educators to teaching and learning and their motivation for the process impacts on the implementation of the curriculum. Where teachers are generally not committed to teaching, their work effort and interest are minimal. How will these teachers function under 'change ' conditions, where more is expected of them? The more committed teachers are, the greater is the element for 'change'. This commitment of teachers, particularly in the minimally resourced school is lacking. The observation of two hundred and twenty learners being taught by one educator, while the others 'observed' is surely a sign of a lack of commitment. Further evidence of this lack of commitment is stated above (death of a learner).

I recommend that the process of appointing teachers to teaching posts should address the committed behaviour and nature of an educator. Educators who are not committed should be weeded out of the system. This is but one way of doing it, by not appointing them.

The support from the management of the school should be such that management is fully aware of the new curriculum and the expectations of this curriculum. Management should address their role in terms of questioning how they can support the teachers at the school. At the highly and moderately resourced schools, management was informed about OBE

and they were involved in supporting the teachers in implementing the curriculum. At the minimally resourced school, management was seeking support for the role that they had to perform. I then questioned the support that this management could provide to the teachers. Teachers at this school did not receive curriculum implementation and development support from the management, they were expected to function amongst themselves.

The support provided by the department can be likened to a car running on the smell of a petrol cloth. The department provided workshops (pertol cloth), the same one to all educators (the same car) and they expected all the educators (cars) to implement the new curriculum (to drive). What the department did not address was the issue of different educators, different school contexts, different learners and the impact of a 'once-off 4/5 day implementation workshop with educators.

The support provided by the department was minimal, but high expectations with regard to the implementation of the curriculum were expected.

I am aware that there currently are departmental workshops for management of schools on administration and finance. Could the department have run workshops with school management and their staff (Grade 1) before the implementation of OBE, so that all people at the school were informed a year before the implementation.

There is a lack of knowledge about OBE and its implementation and uncertainties at minimally resourced schools and uncertainties at highly resourced schools. Task groups should be set up to address the needs of schools with regard to OBE implementation, on a one on one basis. This should be done as all schools, management, teachers and learners are different and they will have different needs. The department may view this as an expense, but money well spent will show a good investment (the learners). Also, the issue of the education department running workshops and the impact of these workshops is highly problematic. To quote from an educator, from the highly resourced school, ' It is not workshops. like the one we went to...it was very sort of..... we had to do a lesson and

share it..... that does not really ... it is just on the surface... I think you really have to do what we have done .... (in terms of the research).

I recommend that the involvement of teachers in implementing the curriculum, at their learning sites, with the support of departmental officials should be addressed. This can be done if the presence of departmental officials at the school is viewed as developmental (constructive) and not 'threatening'. In this set up, teachers should be affirmed, as this would serve as a spark for greater educator motivation, interest and action.

- *Educators' feelings about the new curriculum impacts on their implementation of the curriculum. Teachers, across resource contexts, feel feelings of fear/ insecurity.*

Educators feelings of competence, confidence, fear and insecurity of what is expected of them and them questioning if they are doing the right thing is the reality that teachers, across resource contexts, are faced with. The challenge of implementing a new curriculum places huge demands on teachers' feelings.

Teachers at the highly and moderately resourced schools expressed feelings of confidence and competence to implement the curriculum, but, they also expressed feelings of fear and insecurity about what they were 'doing.' Teachers at the minimally resourced school were not sure of their feelings of confidence and were sure/not sure of their feelings of competence and they also expressed feelings of insecurity. This is clearly expressed in the following quote by an educator from school C, 'We will know at the end of the week if we can teach OBE or we need someone to help us.'

To problematise this further, the feelings of insecurity that teachers had operated on different levels. The one level was concerned with educators questioning whether their practice constituted OBE, and the other was concerned with educators questioning if their practice of planning a learning programme was 'right'. These varying levels can be

explained by the fact that educator Pat from schools B 'experienced' OBE at the school (OBE implemented in all grades, 1- 7).

It is in 'doing' that teachers will develop greater feelings of confidence, competence and security. To allay all these feelings of insecurity, it is apparent that teachers' feelings of confidence and competence should be developed with actual practical activities. This in turn will impact positively on their feelings of insecurity that they experience. This has great implications for the manner in which the curriculum and its implementation are introduced to teachers. Working sessions with direct hands-on activities where educators grapple with implementation aspects (action) is the way forward, not mass workshops where the individual needs and contexts of educators are not addressed.

- *Educators' view of their role in the change process impacts on their implementation of the curriculum.*

The thrust of teachers being viewed as 'change agents' does not have much force if teachers themselves do not view themselves as curriculum developers and 'change' agents. The huge force that teachers are in the 'change' process was played down to the point where teachers viewed themselves as deliverers of 'change'. This can be linked to the absence of participation of teachers in the curriculum policy and development process. And also, to the lack of educator participation in analysing if OBE could be implemented at their schools (Jansen, J, 1999), taking into account the resource context of the school.

If teachers view themselves as 'change agents', then they will question the role they play, the decisions that they make and the activities that they carry out more fully. Teachers, in many instances are functioning at a surface level and not a meta-level, where questions about the significance of what they do are asked. This was clearly evident at the minimally resourced school where teachers just 'did'. It was observed to a lesser extent at the highly resourced school and to a minimal extent at the moderately resourced school.

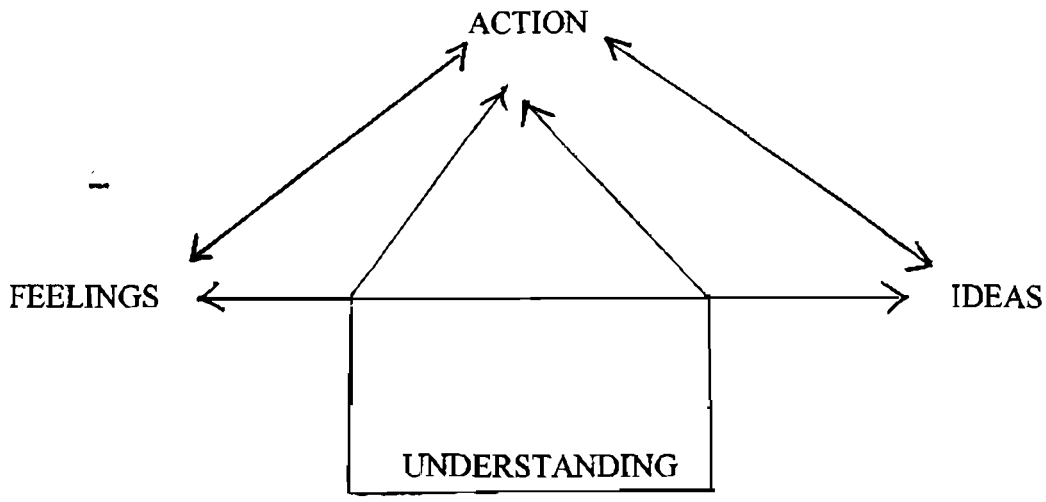
This variance in functioning can be attributed to the educators' view of themselves as curriculum developers and the experience that is linked to this view.

I recommend that the education department should boost the image and involvement of teachers in the 'change' process. They should also make this transparent by stating the important role that educators have to play and are playing in the 'change' process. Educators should be given recognition for their participation

- *Educators understanding about the expectations of the curriculum impacts on the feelings and ideas that they have and the action that they will take when implementing the curriculum.*

If educators do not have an understanding of what is expected of them (policy), then feelings of uncertainty about what to do, ideas and action of what can be done are limited. As soon as teachers develop an understanding of what is expected (this comes from practical application), a wave of feelings, ideas and actions are in place. This was evident at all the schools, but the height of the wave varied from school to school. At school A and B, high waves were in place and at school C waves of medium height were in place. This can be attributed to a number of factors, for example, the experience of educators and the activity of planning learning programmes and developing understanding in the process.

I propose the following theory:
Understanding of curriculum expectations has an impact on the feelings and ideas that you have and the action that you will carry out. This inter-relationship is represented in the model on the next page:



I recommend that for the implementation of the curriculum to be successful, students at pre-set level be should be exposed to the curriculum process both in a theoretical and practical manner for them to develop a sound understanding of the curriculum expectations. Teachers in the field need to be involved with task groups in developing and understanding the curriculum, in the process. Basic guidelines for working with curriculum expectations should be developed by teachers, departmental and NGO personnel. These guidelines should be user friendly in terms of the language and pictorial illustrations and made available to all teachers.

- *Teachers' engagement with a science focus in an OBE Learning programme, varied across resource contexts.*

The engagement with a learning programme in terms of the planning, presentation and reflection differed for all schools. This engagement was on two levels, organisational and conceptual. The difference on the organisational level was evident from the placing of science in the timetable, the types of learning programmes developed and presented, action, difficulties and restrictions that the educators experienced. Educators at the moderately resourced school presented the programme in specific time slots, whilst educators at highly and minimally resourced schools were not restricted to time slots.

The differences that were evident was due to the educators understanding of the policy, the resources in place at the learning sites, including the human resources and the dynamics that operated at each school.

This engagement also varied at a conceptual level, where the educators understanding about science clearly influenced the ideas and the action that was planned and presented. Educators at the minimally resourced school had a lack of conceptual understanding with regard to detail, while educators at the highly and moderately resourced schools displayed this.

I recommend that students at pre-set level are exposed to the policy and practice of designing and developing, and evaluating learning programmes with teachers and learners in neighbouring schools. When developing these programmes students should be exposed to the varied resource contexts of schools and improvisation should be in place. Students could evaluate the learning programmes during practice teaching, so those teachers in the field can observe and develop from this. Teachers in the field could form working groups in an area and they could develop learning programmes with the assistance of college, department and NGO's. All teachers should be part of this process and the issuing of participation certificates could be the 'carrot'. It is important that individuals should not lose sight of the conceptual level as one can get bogged down with the organisational level. Both levels should be viewed as together but apart.

- *Educators, collaborative partnerships, understanding of policy, knowledge and assumptions about the availability of resources to educators and learners and the educators' knowledge about strategies and learners influenced the teaching and learning strategies and also the activities that were planned and presented.*

Teachers working in collaborative partnerships are central to the implementation of the curriculum. According to Hargreaves (1996), 'it is important to build professional

cultures of teaching among small communities of teachers, in each work place, who can work together, develop common goals and establish challenging but realistic limits regarding what can reasonably be achieved'. The enriching experience of a 'true' collaborative experienced is fully expressed in the following quote from a school A educator, 'We learn from each other'. According to Falinski (1992), 'the presence of an on-site colleague who could serve as a resource and sounding board is one of the important factors accounting for individual teachers' success in changing practice'.

This collaborative relationship was evident at all schools but the extent of the collaboration differed. At the minimally resourced school the collaboration was not equal as the educator who had the understanding and ideas was the one who held the collaboration together.

All teachers should consider developing collaborative partnerships within and beyond the school boundaries. The great problem with collaboration is for teachers to find the time to collaborate. I have no suggestions for this, as teachers' contexts are so different. A possibility is for teachers to close school early on Thursday afternoon and this could be viewed as development time. Teachers should be given recognition for this time and effort.

The educators understanding of how learners learn, who their learners are, what teaching and learning strategies are and the types of resources at their disposal and how to use these resources all impact on what teachers plan in a learning programme and how they present the learning programme. Teachers who are restricted in their knowledge and understanding of these aspects are also restricted in their action. Physical resources restrict teachers in minimally resourced schools but this should not blind them to possibilities that can be carried out, in terms of initiative and innovative teaching strategies. A quote from a school C educator, 'Now we know that we can do things, even with what we have'.

Students, teachers and policy makers should be exposed to the possibilities within each resource context and appropriate action should be taken.

- *Time management of the presentation of the learning programme impacted on the presentation of the learning programme.*

Educators varied in their management of time when presenting the learning programme, from a full programme presented in a busy and partially rushed manner to one where a laizze-faire atmosphere prevailed and time managed by the bell.

In planning learning programmes, educators need to address the target groups that they are working with and the activities planned. The management of this should be analysed and suitable plans of action should be decided on. The cramming of a programme and the compulsion to present everything could lead to the decay of otherwise exciting innovative activities, knowledge and skills, as these are not developed fully.

- *The inclusion of assessment in the engagement with a learning programme varied in form and manner*

Assessment and, more than this, continuous assessment has been frowned on by many practitioners. As, a result the pictures of a big bear stunts the inclusion of assessment in a learning programme. Teachers who were exposed to curriculum development and systemic implementation of OBE at their learning site included various forms of assessment extensively. What was common to all schools was that no recording of assessment was observed.

Clearly, the importance of assessment cannot just be spoken about. Teachers need to hear about it, experience it and then do it. It is only from this practice that they can develop.

- *Learners at the different resourced schools were different types of learners.*

Learners were different in a number of aspects, e.g. experience, age, cultural backgrounds. Learners used different learning styles, where learners at school A were communicative and responsive and learners from school C were haltingly communicative. All this is related to the teaching and learning atmosphere that prevails in the classroom and also to the learners' culture, where Black learners are not expected to talk out and share their views, because it is seen as disrespect.

This has implications for the types of learning programmes that educators have to develop, the teaching and learning strategies that should be in place and generally the 'experience' that the learners are exposed to in the teaching and learning process.

- *Learners developed different types of knowledge and the level of development varied*

Learners were exposed to different types of knowledge linked to the programme organiser. At school C, the focus was on the garden (planting and care) and at school A, the focus was on the garden (planting and care); measuring; counting etc.

Learners at school C experienced minimal, superficial knowledge input. Learners at schools A and B were challenged and developed knowledge,skills and attitudes.

These findings are based on a limited sample, but what was observed for each school was taken as representative for that school type.

SECTION 2

SUGGESTIONS FOR FUTURE RESEARCH

In investigating the critical questions a number of other questions were raised:

1. What impact, do teachers' views of themselves in curriculum change, have on the implementation of the curriculum?
2. How do teachers in minimally resourced schools develop over a period of three years, after an impact assessment/constructive support from the department?

3. How can task teams be developed so that they can be constructive in providing support and guidance to practitioners/
4. What is suitable action for the implementation of a new curriculum?
5. How can all educators be included and extended in curriculum development and implementation?

SECTION 3
CONCLUSION

The best way to analyse a process is to do this in action. The action of Grade 1 educators' and learners' engagement with a science focus in an OBE Learning programme was different. This difference can be attributed to the lack of resources, including human resources. The lack of human resources was seen in the light of a lack of understanding of the process and the absence of the community. The restrictions that physical resources have on engagement do not overshadow the possibilities that can take place.

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APPENDIX

Appendix A

A 1 – Research instruments

A 2 – Data analysis framework

Appendix B

School A

B 1 – Learning Programmes (Educators Rose and Sue)

B 2 – Materials (readers and poetry) used

B 3 – Master copy of Learners' book

B 4 – Learners' graphs

B 5 – Learners' books x 2.

B 6 – Learner transcripts

B 7 – Scoring of Educator and Learner Indicators

Appendix C

School B

C 1 – Day 1, Activity 1 – in the garden activity sheet

C 2 – Educators' chart – Sun

C 3 – Master copy of Learners' book

C 4 – Learners' books x 4

C 5 – Learner transcripts

C 6 – Scoring of Educator and Learner indicators

Appendix D

School C

D 1 – Plan of Learning Programmes

D 2 – Charts used by educators

D 3 – Scoring of Educator and Learner indicators

D 4 – Learners drawings (Day 2)

APPENDIX A

QUESTIONNAIRE

A : SCHOOL PROFILE

The purpose of this questionnaire is to collect information on the resources present at the school.

To be completed by **Principal/other management person**

1. Name of school_____

2. Location of school

   2.1. Circuit : _____
   2.2. District : _____

3. Classification of school (tick one of the following)

3.1. Junior Primary- Foundation Phase
3.2. Primary

4. Size of school (tick or fill in where required)

Statement	Grades							
	Grade 0	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7
1. Which grades operate in this school								
2. Number of each grade								
3. Number of learners in each grade								

4. Number of boys in each grade								
5. Number of girls in each grade								
6. Number of teachers in each grade								
7. Teacher to pupil ratio								

5. Teacher Qualifications

	Teacher Qualification				
	< M 3	M 3	M 4	M 5	M 6
5.1.Number of teachers					

5.2. Are there any teachers with specialist training?_____
List the specialist training courses.

_____

_____

_____

5.3. Curriculum Development

5.3.1. Have teachers experienced Curriculum Development: Yes ☐ No ☐

5.3.2 If yes, describe the curriculum development experienced _____

_____

_____

_____

_____

6. Years of Teaching Experience

	Years of teaching experience					
	0 – 5 years	**6 - 10 years**	**11-15 years**	**16-20years**	**20-25years**	**25-30years**
Number of teachers						

7. Racial composition of the school

	African	**White**	**Coloured**	**Indian**
Number of learners				
Number of teachers				

8. Complete the following with regard to the number of Grade 1 classrooms of 1999.

8.1.	Number of Grade 1 classrooms
8.2.	Number of Grade 1 teachers
8.3.	Number of teacher aides (if any) for Grade 1
8.4.	Total number of Grade 1 learners
8.5.	Total number of Grade 1 girls
8.6.	Total number of Grade 1 boys

9. Language policy at the school for Grade 1 learners

9.1 Language of instruction_____

9.2 Home language of **most** learners in Grade 1_____
9.3. Home language of other learners in Grade 1_____
9.4. Is there academic support for 2nd language Grade 1 learners?_____
Describe the
support_____
_____
_____

10. Rate the general condition of the school buildings by ticking ONE of the following :

10.1.	the school needs complete rebuilding
10.2.	some classrooms need major repairs
10.3.	most of all classrooms need minor repairs
10.4.	some classrooms need minor repairs
10.5.	the school is in good condition

11. Does your school have the following resources: AND if yes what is the status or condition of each resource:

RESOURCES	**AVAILABILITY**		**CONDITION**			
	Yes	**No**	**Very Good**	**Good**	**Poor**	**Very poor**
11.1 Electricity						
11.2. a telephone						
11.3. a typewriter						
11.4. a fax machine						
11.5.a photocopier						
11.6. a computer						
11.7. a library						
11.8. a staffroom						
11.9.a storeroom						
11.10 a sportsfield						
11.11. a garden						
11.12. a swimming pool						
11.13. a tennis court						

12.1 If a garden is present, is it maintained by a gardener/other?

12.2. How often is it cleaned etc.?

QUESTIONNAIRE

B. TEACHER CHARACTERISTICS PROFILE

The purpose of this questionnaire is to collect information on the qualifications, experience and training of the Grade 1 teacher.

To be completed by **the Grade 1 teacher**

1. **Name of School** _____

2. Sex of teacher (please tick)

	Female
	Male

3. Age of teacher: (Please tick)

<20 yrs	20-24yrs	25-29yrs	30-34yrs	35-39yrs	40-45yrs	>46

4. Teaching Experience

	Number of years
4.1. Number of years teaching	
4.2. Number of years teaching at this school	
4.3. Number of years teaching Grade 1	
4.4. Number of years teaching Grade 1 at this school	
4.5. Did you teach Grade 1 in 1998? Yes/No	

5. Please provide your Academic and Professional Qualification in the table below

Name of Qualification e.g.Matric	**Name of Institution where qualification was obtained**	**Year obtained**

6. Are you currently studying? Yes ☐ No ☐
If yes, name the course that you are studying_____

7. Which of the following statements best describe how you feel about teaching in relation to OBE Life Skills? (Please tick)

Statement	Yes	No	Not sure
7.1. I am confident to teach OBE Life Skills			
7.2. I am competent in the teaching of OBE Life Skills			
7.3. I need more training on OBE Life Skills			
7.4. I value highly the training in OBE Life Skills that I received			

8. Which of the following statements best rate your level of confidence and competence to teach OBE Life Skills. (Please tick).

Question	Very high	High	Mode rate	Low	Very low
8.1. How would you rate the level of your confidence to teach OBE Life Skills					
8.2. How would you rate the level of your competence to teach OBE Life Skills					

9. Please list all the OBE Life Skills In –Service Training courses/Conferences that you have attended in 1997 and 1998. In each case indicate how you rate the value of the In-service Training.

Focus of course /conference	Who offered it	No. of Days	Value of training Useful /not useful
1.			
2.			
3.			
4.			
5.			

10.1 Have you visited any school to observe OBE Life Skills learning experieces Yes ☐
No ☐

10.2 If yes, name the schools that you visited._____

_____

_____

10.3 Why did you choose this/these particular schools?

_____

_____

_____

_____

11. Which of the following OBE materials does your school have? (please tick)

Materials
11.1 Policy document for the Foundation Phase
11.2. Life Skills programmes with Teachers' Guides
11.3. Life Skills programmes without Teachers' guides
11.4. Illustrative learning packages
11.5. Stationery packages

12. Are there any OBE materials that you may have developed ? If yes, name the materials developed and in each case state if you developed them on your own or in a group and describe the group (teachers at school; in regional workshops; zonal workshop etc.)

Materials	Own/Group	Group description

13. Can you list any OBE Lifeskills books and other books that you use when planning Life Skills learning experiences. In each case briefly state why you used the books.

OBE Life Skills Books/Other Books	**Reason for use**

C : LEARNER PROFILE

To be filled in by the Grade 1 teacher in relation to her/his class only.

1. School Name : _____
2. Teacher s' Name: _____
3. Grade 1_____

4.1. Number of learners in your class _____
4.2. Number of boys in your class _____
4.3. Number of girls in your class _____

5. Fill in the number of learners in each age catergory as for March 1999, in the table below:

Age of learners	Number of learners
6 years old	
7 years old	
8 years old	
9 years old	
10 years old	
other	

6. Complete the table below, stating the home language of the learners and the number of learners having that home language.

Home language	Number of learners

7. Racial composition of the Grade 1 class:.

	RACE GROUP			
	African	White	Coloured	Indian
No of learners				

8.Complete the table below in relation to your learners this year:

	Number of learners
Learners who attended pre-school in 1998	
Learners who did not attend pre-school in 1998	
Other	

9. Name the residential areas that the learners come from.

Residential Area	Number of learners

10. Any other general comments about the Grade 1 learners.

SEMI-STRUCTURED INTERVIEW

To be conducted with the Grade 1 teacher and her colleague/s

1. Can you describe your feelings when the research was discussed with you and you were selected to be involved?

T (S)

T (R)

2. What ideas did you have when the programme organiser – Me in the garden

a) was first given to you?

T (S)

T (R)

b) after you planned the programme.

T (S)

T (R)

c) was there a difference in the type and number of ideas that you had at the initial discussion and after planning the programme. Describe this difference.

T (S)

T (R)

3. Can you describe the feelings that you had
a) before you presented the programme to the learners on the 1st day

b) after presenting the programme to the learners on the 1st day

c) after presenting the programme to the learners for a week.

4. What aspects (things) did you have to consider (take into account)
a) when planning this programme?

b) when presenting this programme?

5. What difficulties did you experience
a) when planning the programme?

b) when presenting the programme?

c) Can you explain why you experienced these difficulties?

d). Can you describe how you overcame these difficulties?

6. Did you feel restricted in any way when you were:
a) planning the programme. Explain

b) presenting the programme. Explain.

7. If you had to reflect on what you have planned and presented in the past 5 days, would you change what you have done?

Why would you change what you have done?

How would you change what you have done?

8. Has what you have done in the past 5 days made you think differently about:
a) planning a learning programme. Explain fully

b) presenting a learning programme. Explain fully.

9. What are some of the aspects that you will consider in future when planning and presenting a learning programme?

10. What is your understanding of OBE-based Science materials?

11. a) What did you see as Natural Science in the programme - Me in the garden?

b) Why did you see it as Natural Science?

12. Could you describe the learners' reaction to the activities.

13. Could you describe your reaction to the a) activities
b) The way in which the learners reacted to the activities

OBSERVATION SCHEDULE

School _____

Day _____ Date _____

Duration of learning experience_____Start time _____End time_____

Number of Grade 1 learners_____

Site of learning experience _____

TEACHER - Indicators

1. Use of a variety of teaching strategies

4	3	2	1
Teacher uses more than 2teaching methods, all involve learners	Teacher uses 1 or 2 methods that involve learners	Teacher uses one or more methods - do not involve l	Teacher uses method that does not involve learners

None/little/much

2. Use of materials by teacher to enhance learning

4	3	2	1
Uses more than 2 Kinds of materials To enhance learning	Uses 2 kinds of materials to enhance learning	Uses 1 kind of material that enhances learning	Uses no materials/ materials do not enhance learning

3. Teacher questioning skills

4	3	2	1
Asks a variety of Questions, including Open-ended, probe For l understanding	Asks mostly close-ended questions and and 1 or 2 open-ended questions	Asks simple recall questions only or close-ended questions	Asks no questions

4. Teacher feedback to learners

1	2	3	4
Gives feedback about Correct and incorrect Responses in a Manner that encourages Further effort	Gives feedback about incorrect responses only, in a manner that encourages further effort	Gives feedback about correct responses only	Gives no feedback feedback given in a manner that dis courages further effort

Is the teacher feedback individual?

5. Language used by the teacher

4	3	2	1
Integrates English and Home-language Consistently	Uses code-switching only when majority do not seem to Understand	Communicates only in English even when learners do not seem to understand/discourages use of home language	Uses home language only

6. Role of teacher

4	3	2	1
Facilitates, engages in Discussion with groups, Questions and prompts	Facilitates, engages in discussion with groups	Facilitates, moves from group to group and observes	Does not facilitate

7.Teacher integrates themes from different learning areas_____

LEARNER

1. Grouping of learners

4	3	2	1
Flexible groups, with assigned roles	Flexible groups without assigned roles	Permanent groups with without assigned roles	Whole class only- no gr

2. Learners work in groups

4	3	2	1
Groups of learners discuss problems, questions and activities	Group of learners with limited interaction	Only one or two learners in a group interact	Learners sit in groups but work as indivi

3. Use of materials by learners. (learning is activity-based)

4	3	2	1
Learners share and all manipulate materials in groups	Most learners share and manipulate all materials	Some learners manipulate/ others observe	None of the learners manipulate materials

4. Learners ask questions

4	3	2	1
Learners ask questions which show creative thinking, without teachers' encouragement	learners ask questions that show their thinking only when T encourages	Learners ask simple questions	Learners do not ask questions

5. Learners activity

4	3	2	1
Learners involved In discussions and Problem solving and/ Or creative activities	Learners involved only in sharing of ideas	Learners involved in teacher directed activities	Teacher lectures learners listen to teacher

6. Opportunities for learners

4	3	2
Boys and girls have Equal opportunity to participate	Only boys/girls get an opportunity to participate	Learners have no opportunity to participate

7. Learners given opportunities to demonstrate what they learn

4	3	2	1
Groups of learners given Opportunity to demonstrate Their work	Individual learners given opportunity to demonstrate their Work	Groups of learners not given opportunity to demonstrate their work	Individual learners not given opportunity to demonstrate work

8. Use of language by learners.

CLASSROOM RESOURCE PROFILE

The researcher will complete this instrument at the beginning of each observation session.

1. Indicate how you would describe the classrooms being observed (Please tick)

	Yes	No	Qualitative comment
1.1. Learners have adequate seating places/space			
1.2. Adequate writing surface for learners			
1.3. Chair for educator/facilitator			
1.4. Table for educator/facilitator			
1.5. Adequate natural lighting			
1.6. Adequate space for movement between desks			
1.7. Charts displayed in the classroom			
1.8. Walls are painted and well maintained			
1.9. Ventilation			
1.10.Classroom is adequately roofed			
1.11.Windows available and in reasonable state of repair			
1.12. Chalkboard available			

2. General comments on Classroom Resources Observation:

_____

_____

_____

FRAMEWORK FOR DATA ANALYSIS

1. The data analysis framework is structured to give meaning to the way educators engage (plan and present) an OBE learning programme that has a Science focus.

In the framework A.1: provides the resource context of each school (learning site);
A.2: provides the engagement of learners and educators with the Science focus OBE learning programme.

A. 1 Resource context.

The resource context of each school was an all-encompassing factor that had to be specified, described and interpreted. This was done to answer the research question about the different resource contexts of each school. To do this, I analysed the school profiles, the Grade 1 educator profiles, the classroom resource profile, researchers classroom observation notes, educators' reflective diary and the researchers' reflective diary. I grouped the data pertaining to resources into eight categories, namely, building/infrastructure; facilities; human resources; materials; resources to teach OBE; school resources for Grade 1 learners; community resources and financial resources. The 1st six categories were developed in a research on the Impact Evaluation of OBE: a comparative study of Grade 1 classrooms (Jansen, J., 1998). The data pertaining to resources was grouped to give a clear picture of the resources available at each school and in so doing to give clarity (descriptive analysis), to what is meant by a well resourced, moderately resourced and an under resourced school.

The 1st category is the **building/infrastructure** category and it was concerned with the actual structural state of the building.
The 2nd category is the **facilities** category. It was concerned with amenities available to teachers and the learners at the school.
The 3rd category is the **human resource** category. This category was concerned with two sections namely:

a. The number of personnel at the school, educator experience and qualifications the educator to pupil ratio.
b. 1.The Grade 1 educators and learners since they are the focus in this research.

Who the Grade one educators are is concerned with their age, gender, number of years teaching experience, academic and professional qualifications, how the educators feel about teaching in relation to OBE Life Skills, their involvement with curriculum development and exposure to OBE workshops. This data was captured and a descriptive –interpretive analysis of the data for each educator was done.
b. 2. The data for the Grade 1 learners was captured from the learner profiles, educators' reflective diaries, researchers' reflective diaries, observation schedule, researchers observation notes, learner documents and learner interviews. Who the Grade one learners are, is concerned with their age, gender, home language, race and pre-school activity. A descriptive –interpretive analysis of the data was done.

The 4th category is the **material (resource)** category. It was concerned with the actual structures ('things'), both concrete and abstract, that the educators and learners used for teaching and learning during the engagement with the learning programme. The materials

used are grouped into the following category types: concrete and abstract. Each category type was further divided into other categories. The concrete category was further divided into the following categories: books, worksheets, garden and gardening implements, chalkboard, charts, music cassettes, activity instruments and other and the abstract category was divided into poetry, stories, drama and games. This data was captured from the researchers classroom observation notes, the educators' planning documents for the learning programme, Grade 1 educators' reflective diary and the researchers reflective diary. A descriptive interpretive analysis of the data was carried out.

The 5th category was the **resources to facilitate OBE**. It is concerned with establishing if a school is in the possession of Curriculum 2005 – OBE Foundation Phase Policy Documents from the Education department. These documents are to be used by the grade 1 educator to implement OBE. An example of an OBE policy document is Life Skills programmes with Teachers' guides. This data was captured from the Grade 1 educators' profiles and a descriptive interpretive analysis of the data was carried out.

The 6th category was the **classroom resources for Grade 1 learners**. This category was concerned with the resources available to Grade 1 learners. This data was captured from the classroom resource profile and the researchers observation notes. The analysis of the data is in the form of plan representations of classroom settings and the descriptive interpretive analysis of the classroom resource data.

The 7th category was the **community resources**. This category was concerned with the support given by parents and the extended community within which the learning site is located. This data was captured from the researchers observation notes and the educators' documentation analysis. The analysis of the data is in the form of a descriptive interpretive report.

The 8th category was the **financial resources**. This category was concerned with the finances available to the school, in terms of the education department subsidy, schoolfees and donations made to the school. This data was captured from a telephonic interview with the principal. The analysis of the data is in the form of a descriptive interpretive report.

Table School x - Eight categories of the Resource context

Building	Facilities	Human Resources	Materials (resources)	Resources to Facilitate OBE	Classroom Resources for Grade 1 learners	Community Resources	Financial Resources

A.2. EDUCATORS AND LEARNERS ENGAGEMENT WITH A SCIENCE FOCUS IN AN OBE LEARNING PROGRAMME.

The descriptive interpretive analysis of the educators' and the learners' engagement with the learning programme included both the planning and the presentation of the learning programme. This data was captured from the researchers' observation notes, observation schedules, educator interviews, educator documentation analysis, learner documentation analysis, educators' reflective diaries, researchers' reflective diaries and the post-session learner interviews.

The presentation of data for this section was presented in two broad categories to give clarity and a full descriptive analysis of the engagement with the learning programme.
Section 1 – planning of the learning programme;
Section 2 – the presentation of the learning programme and;
Section 3 – future considerations.

Section 1 – Planning of the learning programme

1.1.Timetable arrangements

This was concerned with establishing when the educator planned to present the learning programme. Questions that the researcher asked in this section were: Would the programme be presented within specific time slots; Would it be extended over a period of time and what determined this arrangement?

1.2.A. Educator aspects

This sub-section was concerned with establishing:

The feelings,
Ideas,
Action and
Understanding that the educator had about the planning of the learning programme.

1.2.A.1. The ***feeling*** category was divided into two sub-categories:
(a) The teachers' feelings during the initial interview, when the research proposal details were presented and discussed;
(b) Before presenting the learning programme to the learners

1.2.A.2. The ***idea*** category was concerned with the ideas that the educator/s had when planning the programme, before presenting the learning programme;

1.2.A.3. The ***action*** category focused on the:
(a) aspects;
(b) difficulties and
(c) restrictions that the educators experienced during this time.

1.2.A.4. The ***understanding*** category was concerned with

(a) The educators understanding of a science focus in an OBE learning programme;
(b) The educators understanding of what Natural Science is/entails.

I decided to use descriptors (describing words – adjectives) which typified each educator. Table below represents the ***feeling, idea and action*** categories and examples of descriptors in each category for educator x for the planning of the learning programme.

Table ... Descriptors for Educator x for Planning of the Learning programme

Educator aspects	**Planning Time periods**	**Descriptors**
Feelings	Initial interview	
	Before presenting the learning programme	
Ideas	Before presenting	
Action	Aspects	
	Difficulties	
	Restrictions	

A descriptive interpretive discussion for each of the categories, including the understanding category was presented.

1.2.B. Learners and learning;
1.2.B.1. Completion of tasks within a specified time;
1.2.B.2. Educators' understanding of the ability of various learners in the class group.

1.2.C. Understanding of planning requirements, namely, specific outcomes, learning experience format, learning programme;

1.2.D. Collaborative planning with colleagues and support from management.

SECTION 2 – THE PRESENTATION OF THE LEARNING PROGRAMME.

This descriptive interpretive report was organized according to the following sub-headings for ease of reading:

2.1. Description of the learning programme. A brief description of the actual learning programme that was observed during each session was presented.

2.2.A. Grade 1 Educators'
Feelings,
Ideas and
Action for the presentation of the learning programme

2.2.A.1. The ***feeling*** category was sub-divided into two sub-categories:

(a) After the first day of presenting the learning programme to the learners;
(b) After a week of presenting the learning programme.

2.2.A.2. The ***idea*** category was concerned with the ideas that the educator/s had after presenting the learning programme.

2.2.A.3. The ***action*** category focused on:
(a) Aspects;
(b) Difficulties and
(c) Restrictions that the educators experienced during this time.

I have used descriptors (describing words – adjectives) which typified each educator.

Table .. below represents the categories and examples of descriptors in each category for the presentation of the learning programme for educator x.

Table ... Descriptors for Educator x for Presentation of the learning programme

Educator aspects	**Presentation Time period**	**Descriptors**
Feelings	After presenting the Programme for one day	
	After presenting the programme for a week	
Ideas	After presenting the programme for a week	
Action	Aspects	
	Difficulties	
	Restrictions	

The data presented in the table were further descriptively analyzed.

2.2.B. Learners and learning

The educators' view of the learners and learning comes from the following sources – educators' reflective diary; researchers reflective diary; learning experience transcripts and educator interview; the researchers observation notes and observation schedule.
For greater clarity and organization, the discussion will be according to the following:
2.2.B.1. Completion of tasks within a specified time;
2.2.B.2. Preparation of learners for a task.
2.2.B.3. Educators' knowledge of the ability of various learners in the class group
2.2.B.4. Preparation of learners for the learning programme

2.2.C. Time management

2.2.D. Use of teaching and learning strategies determined from scoring of educator and learner indicators (see analysis below).

2.3. Grade 1 learners'

(i) Feelings about the activities,

(ii) Understanding of knowledge being developed

(iii) Understanding of the activities that they were doing and the skills that they used/developed.

The learners' evidence was presented in the form of categories mentioned above and narrative vignettes.

Analysis of Observation schedule - Indicators of the observation session

The educator and learner indicators used in this research are for the purpose of establishing if OBE was being implemented. The following is a list of educator and learner indicators:

Educator indicators

1. Use of a variety of teaching and learning strategies
2. Use of materials by educator to enhance learning
3. Educator questioning skills
4. Educator feedback to learners
5. Language used by the educator
6. Role of the educator
7. Educator integrates different learning areas

Learner indicators

1. Grouping of learners
2. Learners work in groups
3. Use of materials by learners(learning in activity-based)
4. Learners ask questions
5. Learners activity
6. Opportunities for learners
7. Learners given opportunities to demonstrate what they learn
8. Use of language by learners.

A scoring table and bar charts of the educator indicators and learner indicators were developed using quantitative analysis. A descriptive interpretive report of the educator the learner indicators that I observed during my observation period at the learning site are presented in this section. Reference will be made to the Observation Schedule in Appendix A.

Scoring of Educator indicators and graphing of indicators

The researcher scored each indicator according to the numerical value above each descriptive for each indicator. For example, a descriptive for the educator indicator number 1, which is the use of teaching and learning strategies, was - the educator used 1

or 2 methods that involved learners and this had a numerical value of 3 on the observation schedule.

The researcher then recorded the number for each indicator for each of the sessions (assuming it is 5) observe in Table ...below:

Table ... : Scoring of Educator Indicators

Educator indicators	Session 1 Day 1	Session 2 Day 2	Session 3 Day 3	Session 4 Day 4	Session 5 Day 5
1	3	4	4	4	4
2	4	4	4	4	4
3	4/3	4/3	3	4	3
4	4	4	4	4	4
5	3	2	2	2	2
6	3	4	4	4	4
7	Yes	Yes	Yes	Yes	Yes

Educator indicator number 3 had 4/3 for session 1. The scoring here reflects 4 for ½ the session, where the educator asked a variety of questions including open-ended, probe for understanding and 3 for ½ the session, where the educator asks mostly close-ended questions and 1 or 2 open-ended questions. This was so because of the types of activities or questions that took place on that day.

From the number scored for each session for each indicator, the researcher decided to calculate a percentage to give a cumulative quantity for each aspect of the indicator scored for each session. The percentage was calculated by counting how many times out of five a particular aspect was observed, for example, educator indicator 1 in table.... had 3 once out of five times and 4, four times out of five. For each a percentage was then calculated. This was done to give a clear analysis of the educator indicators. Table ...below has the percentage for all the educator indicators observed.

Table ... Percentage of each aspect for each educator indicator

Educator Indicators	Percentage 4	Percentage 3	Percentage 2	Percentage 1	Total percent
1	80	20	0	0	100
2	100	0	0	0	100
3	40	60	0	0	100
4	100	0	0	0	100
5	0	20	80	0	100
6	80	20	0	0	100
7	-	-	-	-	-

The researcher then plotted a graph for the variables, educator indicators 1-7 and the percentage of the educator indicator aspects, namely 4, 3, 2, 1.

Graph of educator indicators

Descriptive Interpretive analysis of Educator Indicators

2.4.3. Scoring of Learner Indicators and graph

The scoring of the learner indicators was done according to that for the educator indicators. The scores were represented in a table and a graph.

2.4.4. Descriptive Interpretive analysis of Learner Indicators

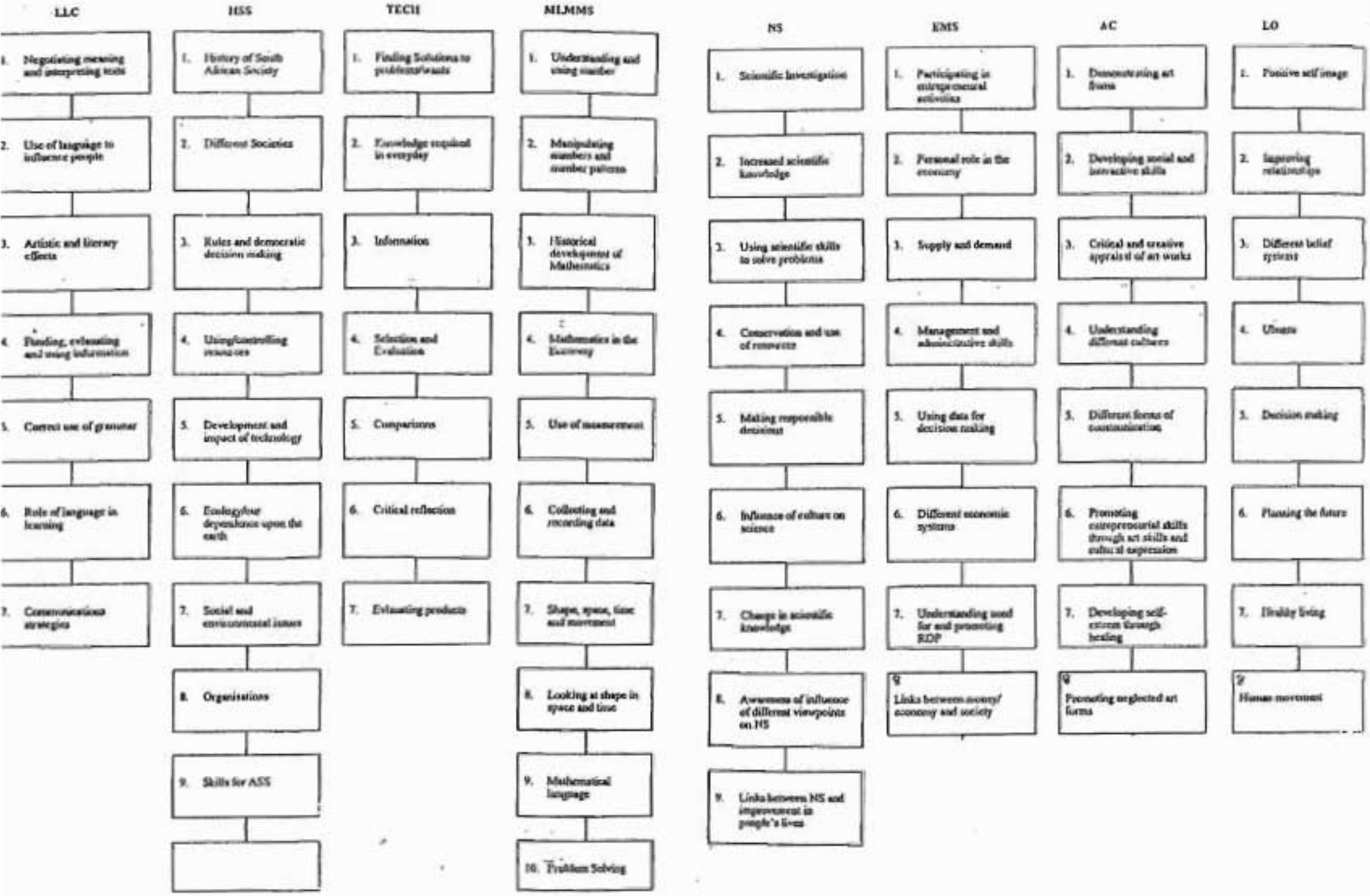
2.5. Assessment

SECTION 3 – FUTURE CONSIDERATIONS

This section was concerned with the educators' future considerations concerning the engagement with a learning programme. The questions asked for this were taken from the semi-structured educator interview, questions 7,8 and 9.

APPENDIX B


me in the garden
classification
measuring
counting
Time
seasons
shadows
growth.
Seasons
Temperature
plants
conservation
flowers
floating & sinking
soil.
Trees
plant & seed growth
excursion picnic to Japanese gardens.
Subtraction & addition


LLC
1. Negotiating meaning and interpreting texts
2. Use of language to influence people
3. Artistic and literary effects
4. Finding, evaluating and using information
5. Correct use of grammar
6. Role of language in learning
7. Communication strategies
HSS
1. History of South African Society
2. Different Societies
3. Rules and democratic decision making
4. Using/controlling resources
5. Development and impact of technology
6. Ecology/our dependence upon the earth
7. Social and environmental issues
8. Organisations
9. Skills for ASS
TECH
1. Finding Solutions to problems/wants
2. Knowledge required in everyday
3. Information
4. Selection and Evaluation
5. Comparisons
6. Critical reflection
7. Evaluating products
MLMMS
1. Understanding and using number
2. Manipulating numbers and number patterns
3. Historical development of Mathematics
4. Mathematics in the Economy
5. Use of measurement
6. Collecting and recording data
7. Shape, space, time and movement
8. Looking at shape in space and time
9. Mathematical language
10. Problem Solving
NS
1. Scientific Investigation
2. Increased scientific knowledge
3. Using scientific skills to solve problems
4. Conservation and use of resources
5. Making responsible decisions
6. Influence of culture on science
7. Change in scientific knowledge
8. Awareness of influence of different viewpoints on NS
9. Links between NS and improvement in people's lives
EMS
1. Participating in entrepreneurial activities
2. Personal role in the economy
3. Supply and demand
4. Management and administrative skills
5. Using data for decision making
6. Different economic systems
7. Understanding need for and promoting RDP
8. Links between money/ economy and society
AC
1. Demonstrating art forms
2. Developing social and interactive skills
3. Critical and creative appraisal of art works
4. Understanding different cultures
5. Different forms of communication
6. Promoting entrepreneurial skills through art skills and cultural expression
7. Developing self-esteem through healing
8. Promoting neglected art forms
LO
1. Positive self image
2. Improving relationships
3. Different belief systems
4. Ubuntu
5. Decision making
6. Planning the future
7. Healthy living
8. Human movement

GRADE 1 PROGRAMME
LEARNING PROGRAMME: Numeracy.

PHASE ORGANISER: Environment PROGRAMME ORGANISER: _____

SPECIFIC OUTCOMES ASSESSMENT CRITERIA	INDICATORS LEARNERS WILL BE ABLE TO:	SUGGESTED ACTIVITIES
MLMMS. S.O.1 Understanding and using number A.C 1 understand number concepts. A.C 3 Estimation as a skill. S.O. 5 Use of measurement	Count things in the garden - garden walk. Use personal experiences to show significance of number. use body parts to estimate and measure length & height. show knowledge of non-standard forms of measurement.	worksheet - trees, flowers, gates, rocks. write no. symbols and no. names. Measure tree trunks, flower stems using rope, string, hands. tree trunks, flowers, shadows.
N.S S.O.1. Scientific investigation A.C 1-6	collect & record data, observe and ask questions	Garden walk to observe plants. Measure shadows tree trunks for length
MLMMS. S.O. 7. shape, space, time and movement.		Discussion on items in garden: colour & shape of leaves,

SPECIFIC OUTCOMES ASSESSMENT CRITERIA	INDICATORS LEARNERS WILL BE ABLE TO:	SUGGESTED ACTIVITIES
		trees, flowers
		Discuss time when
		observing shadows
		of trees, people.
MLMMS. S.O.6. collecting		
and recording data.		

GRADE 1 PROGRAMME
LEARNING PROGRAMME: Literacy.

PHASE ORGANISER: Environment PROGRAMME ORGANISER: Me in the garden.

SPECIFIC OUTCOMES ASSESSMENT CRITERIA	INDICATORS LEARNERS WILL BE ABLE TO:	SUGGESTED ACTIVITIES
L.L.C S.O.1 Learners make and negotiate meaning and understanding.		
A.c.1 original meaning is created through personal texts	create a personal text and communicate it orally and visually.	Draw News about child's garden. Discuss each child's garden at newstime.
A.c.2 A key message is identified and clarified.	Listen with understanding to identify and respond to key message.	Stories, poetry, music, instructions
A.c.3 Meaning is constructed through interaction with other language users and texts	Show understanding of a written text by using a range of decoding and comprehension skills to make meaning.	Basic group readers and individual readers (see list attatch)
So 3 Learners respond to the aesthetic, affective cultural and social values in texts.		
A.c.1 Responses to the	Listen actively and	

SPECIFIC OUTCOMES ASSESSMENT CRITERIA	INDICATORS LEARNERS WILL BE ABLE TO:	SUGGESTED ACTIVITIES
L.L.C.S.O.3.		
A.C.1 artistic effects of texts are demonstrated.	attentively to a variety of texts.	listen to and understand stories, rhymes and songs
S.O.4 Learners access, process and use information from a variety of sources and situations.	evaluate, use, organise and present information from a variety of situations & sources	Discuss garden items brought from home
A.C.1 The information need is defined.	define the information need - know about the variety of sources eg; books, magazines, newspapers.	Recognise / identify characters / situations in fiction - class reader and story bks.
A.C.3 Information is located, accessed and selected.	locate, access and select information	Use non-fiction books to help find out facts about plant life and use outside for info.
S.O.7 Learners use appropriate communication strategies for specific purposes and situations		
A.C.1 appropriate medium of communication is chosen.	communicate orally and visually in a range of familiar social situations.	Drama - act out a walk in a garden - what do you see, and hear

GRADE 1 PROGRAMME
LEARNING PROGRAMME: Literacy.

PHASE ORGANISER: Environment. PROGRAMME ORGANISER: Me in the garden.

SPECIFIC OUTCOMES ASSESSMENT CRITERIA	INDICATORS LEARNERS WILL BE ABLE TO:	SUGGESTED ACTIVITIES
Tech S.O.3. Access, process and use data for technological purposes A.C.1-3 produce work in which various types of data are accessed, processed and used	observe, research and locate relevant data from given and other sources	Conservation and litter problem - collect litter in school and glue on daily boards Do 2 weeks study:- Before & after talk Look up how pollution damages plants/animals
L.L.C S.O.2 Learners show awareness of language usage A.C.1	Discuss objects collected from garden and classify.	Sort and classify objects from garden.
Tech S.O.1 Finding solutions to problems/wants	Identify needs to plan a picnic.	Plan a picnic.

GRADE 1 PROGRAMME
LEARNING PROGRAMME: Life Skills

PHASE ORGANISER: Environment PROGRAMME ORGANISER: Me my garden.

SPECIFIC OUTCOMES, ASSESSMENT CRITERIA	INDICATORS LEARNERS WILL BE ABLE TO:	SUGGESTED ACTIVITIES
LLC SO1 learners make and negotiate meaning and understanding Ac 1 Original meaning is created through personal texts Ac 2 A key message is identified LLC SO 6	1) Talk about their garden 2 Listen respond to questions 3	Story to encourage personal text. Books, magazines to discuss Group activity Cut / glue garden pictures
learners use language for learning	3 Uses relevant terminology and assimilates concepts	
NS: SO1 Use process skills to investigate phenomena Ac 1 Identify, collect and talk about things found in the garden NS: SO2	4 Name, sort / classify objects 5 Answer investigative questions, 1	Collect objects from garden plants / leaves / seeds insects / birds / reptiles Identifying parts / purposes of a plant / tree

SPECIFIC OUTCOMES ASSESSMENT CRITERIA	INDICATORS LEARNERS WILL BE ABLE TO:	SUGGESTED ACTIVITIES
NS:SO2 Demonstrate an understanding of concepts and principles and construct knowledge in the natural sciences NS: SO5 Use scientific knowledge and skills to support responsible decision making. 1-6 Issues are identified, gathered processed, non-scientific issues are identified, alternatives are considered and reasons for decisions are communicated NS: SO6. Demonstrate knowledge & understanding the relationship between science and culture AC1 NS: SO9 Demonstrate an understanding of the interaction between the natural sciences and socio-economic development	1) learn scientific principles eg ie plants need sunlight / water / warmth 2) Plant seeds / cutting have a conducive growing enviroment 3 Identify gardens are scientific social and aesthetic places 4 Draw / record information 5 Identify and describes objects that are used for similar purpose in different cultures 6 Understand how science and technology are used	Grow beans. Deprive 1 of light 1 of water 1 of warmth } Observe Rook plant cutting; Plant seeds / cutting Identify non scientific issues eg. garden are also aesthetic in value 'places for social gatherings Talk about pictures of lawn mowers / sawi animals grazing. inequalities (Joseph's garden) Discuss how devices save time and effort Collect pictures : Dig / Make a garden

AC1 Evidence is provided of how science & technology are used

SPECIFIC OUTCOMES ASSESSMENT CRITERIA	INDICATORS LEARNERS WILL BE ABLE TO:	SUGGESTED ACTIVITIES
EMS SO1 Engage in entrepreneurial activity AC 1 Needs are identified LO: SO7 Demonstrate the values and attitudes necessary for a healthy and balanced lifestyle AC1 Practice personal hygiene LO: SO8 Evaluate & paticipate in activities that demonstrate effective human movement & development AC2 Different ways of moving to gain confidence in simple movement patterns Tech SO1 Understand and apply the technological process to solve processes problems and to satisfy needs & wants AC SO1 Demonstrate skills	1) Observe describe plant plants. - nature for selling ie how cultivated plants can earn money. 2) Describe basic activities that people do to stay healthy 3) Learners responds to various instructions/ terminology related to movement. 1) Know how to use a phone in case of an emergency Use skills learnt to explore theme/explore/use available resources	Cultivate Plants for selling purpose at the end of the year PE Safety / Accidents Role play Box garden

GRADE 1 PROGRAMME
LEARNING PROGRAMME:

PHASE ORGANISER: _____ PROGRAMME ORGANISER: _____

SPECIFIC OUTCOMES ASSESSMENT CRITERIA	INDICATORS LEARNERS WILL BE ABLE TO:	SUGGESTED ACTIVITIES
L.O SOS AC1		
Practice acquired and life and decision making skills. SO1	1) Identify what they need for a picnic.	Plan a picnic.
LO1 - Positive Self image.		Dramatisation.
LO SO2	Create an art project & thereby working together harmoniously	Create a tree from leaf rubbings
Improving relationships.		

EDUCATOR SUE

Day Monday Phase Organiser Environment

Date 15 March Programme Organiser Me in the Garden

Learning Area	S.O	Activity	P.I Learner can
Life Skills	LLC SO1	Establish existing knowledge. Ask questions. What is a garden? Who has a b.g/small garden	1) Can talk about his/her garden i.e understand key concept.
Water week	SO6	collect data.	
	NS SO1	Tell story.	
Hand Writing	LLC SO 1.1	g	write the letter correctly.
Literacy			
Phonics	LLC S.O. 1.3	use letter 'g' to introduce. g- my garden. Revise phonics by discussing other initial blends	Identify initial blends
Reading	LLC SO.1.1 1.4	Where is my bone? Lad (Butter(fly) Home ~~Lad~~ is this my home?	Tell about the pictures and draw conclusions
Bears Birds Rabbits Ducks			
Literacy Activity		Illustrate book cover.	
Numeracy	MLMNS SO1	Garden Walk. Count / Collect trees stones flowers seeds feathers etc	1) Can identify situations in the environment 2) Can count objects
Oral / Practical			
Recording	NS SO1.1	Classify Record Data. Busy Act Wks on trees Colour - words to indicate colour	Identify words- red yellow brown
	AC SO1	ART Draw My Garden (Colour my house. Red windows	

Day Tuesday Phase Organiser Environment

Date 16 March Programme Organiser

Learning Area	S.O	Activity	P.I
Life Skills	LL1 SO4 NS. 1 SO 7	Assembly Discuss / sort / classify things learners brought from home gardens. Music. songs on the garden.	1) Can name / sort & discuss objects from their garden. 2) Illustrate the above.
Hand Writing		g.3 rows. Neat book.	
Literacy			
Phonics			
Reading — Bears, Birds, Rabbits, Ducks		Ben butterfly where is it? Help	
Literacy Activity			
Numeracy AC 1-6	LL1 NS SO 6 NS SO 8 AC 3	Collect / sort / record things from the garden Make a pictorial/block graph	• sort / answer questions concern How mo more / less / same Count. Interpret 2) Extracting relevant informatio.
Oral / Practical Recording	AC 3	Hardwork. Box Gardens.	Explore & Use resources to make a small garden.
Life Skills. cont.	SO1 AC 1	Make gardens from plants, stones etc collected	

Day Wednesday — Phase Organiser

Date 17 March — Programme Organiser

Learning Area	S.O	Activity	P.I Learners
Life Skills	NS. SO.9 NS? SO.2 SO6	Veggetable garden. Dig / Plant / Water Look at/ discuss garden tools. Talk about caretaker garden. ↓ see Literacy Ad.	1) Understand plants need soil/sun/ water. 2) Understand how technology is used. 3) Understand the needs of different cultures.
Hand Writing			
Literacy		N/s. Garden implements	
Phonics		P. Little p book.	
Reading — The egg (T) — The egg — Lad — Bears, Birds, Rabbits, Ducks	L.O SOS Tech. SO1.	Did reading / Plan a picnic. Fun readers to take home. Letter went home to parents.	Identify what you need for a picnic. Find solutions to wants. Children pic picnic lunch with parents.
Literacy Activity		Colour, Cut sequence pictures on gardening.	
Numeracy	MLMM SO1. NS SO1 PC 1-6	Measuring/Time. Measure shadows. Measure Tree Trunks.	1) show knowledge of the use of non-standard forms of measurement, with competence & confidence.
Oral / Practical		Work book.	2) Use skills to investigate phenomena (shadows).
Recording		Record measurement of shadow twice that day.	
Busy Work.		Draw wide & narrow tree.	
W/s. Make two sides the same / equal!			

Day Thursday Phase Organiser Environment

Date 18 March Programme Organiser Me ain the garde

Learning Area	S.O	Activity	P.I
Life Skills		Assembly Poem The seed	
Did pg 81 Zebra crossing. Discussed & coloured	NS. SO1.	Discuss parts of a plant. Put plants in coloured water. Observe	Identify and talk about parts of the plant.
	LLC SO7	Music. Dramatize seeds growing	
Hand Writing		p. 3 rows a pattern.	
Literacy		p wks to colour	
Phonics		cut /glue into writing book	
Reading Bears Birds Rabbits Duck		Come into the garden. the egg Where is my bone? where is it?	
Literacy Activity		wks colour pictures of garden items. Fill in intial sound	
Numeracy	NLNMS SO1	Introduce Addition. Using seeds /leaves etc. Problem solving. (Incidental subtraction	Learner can use basic operations (+ -) for problem solving.
Oral / Practical Recording Busy Work	LLC SO4	Colour plants. Access labels from picture.	Learner can copy labels from picture
	AC. LO.2.	ART Leaf Rubbings. Make a tree	Group Co-operation

Day Friday Phase Organiser. Environment.

Date 19 March Programme Organiser. Me in the garden.

Learning Area	SO.	Activity	P. I learner understands:
Life Skills Ac Hand Writing	NS SO's 1-6	Discuss (non scientific issues) purpose of Municipal Gardens ie) social and aesthetic places to visit. Picnic for at the Japanese Gardens	1) Social values 1) gardens are places of leisure 2) Gardens are well planned 3) Appropriate behaviour
Literacy Phonics		Collect objects	1) Collect objects 2) Play games
Reading		Play games. Have a picnic.	3)
Literacy / Busy Work			
Numeracy	NS SO1	Soil packets	
Oral / Practical Recordings.		Collage.	

Readers for Literacy:
Me in the garden.

Ginn 360 Level 1:

Bk.4 Home
Bk.5 Lad
Bk.6. Ben

Little Bks:

Bk.2 Is this my home?
Bk.3. butterfly.
Bk.4 where is it?
Bk 5 where is my bone?
Bk.7 in the garden.
Bk 12 on my bike

Sunshine Books. Level 1:

The weather chart.
Up in a tree
I can jump
I have a home.
The wind blows strong.
} Fiction.

Water
In the air
On the ground
Camouflage
My dog
} Non-Fiction.

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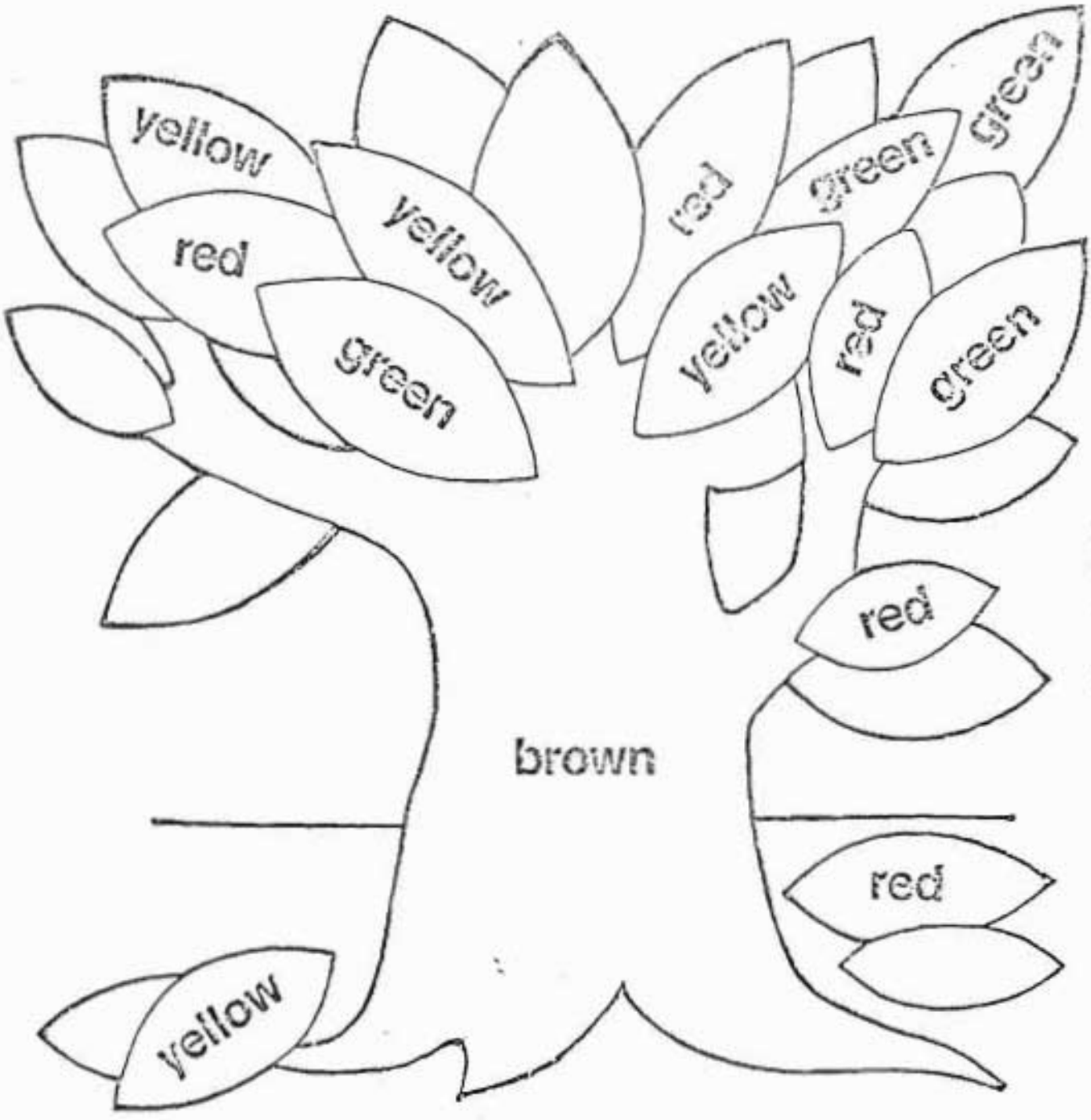
spider
The nest
} concept Bks

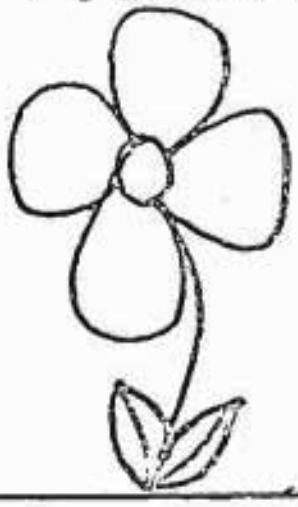
NAME _____



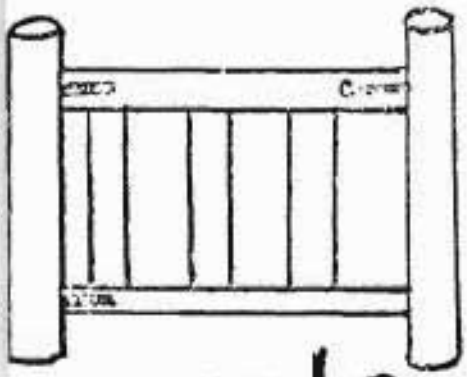
brown brown

tree

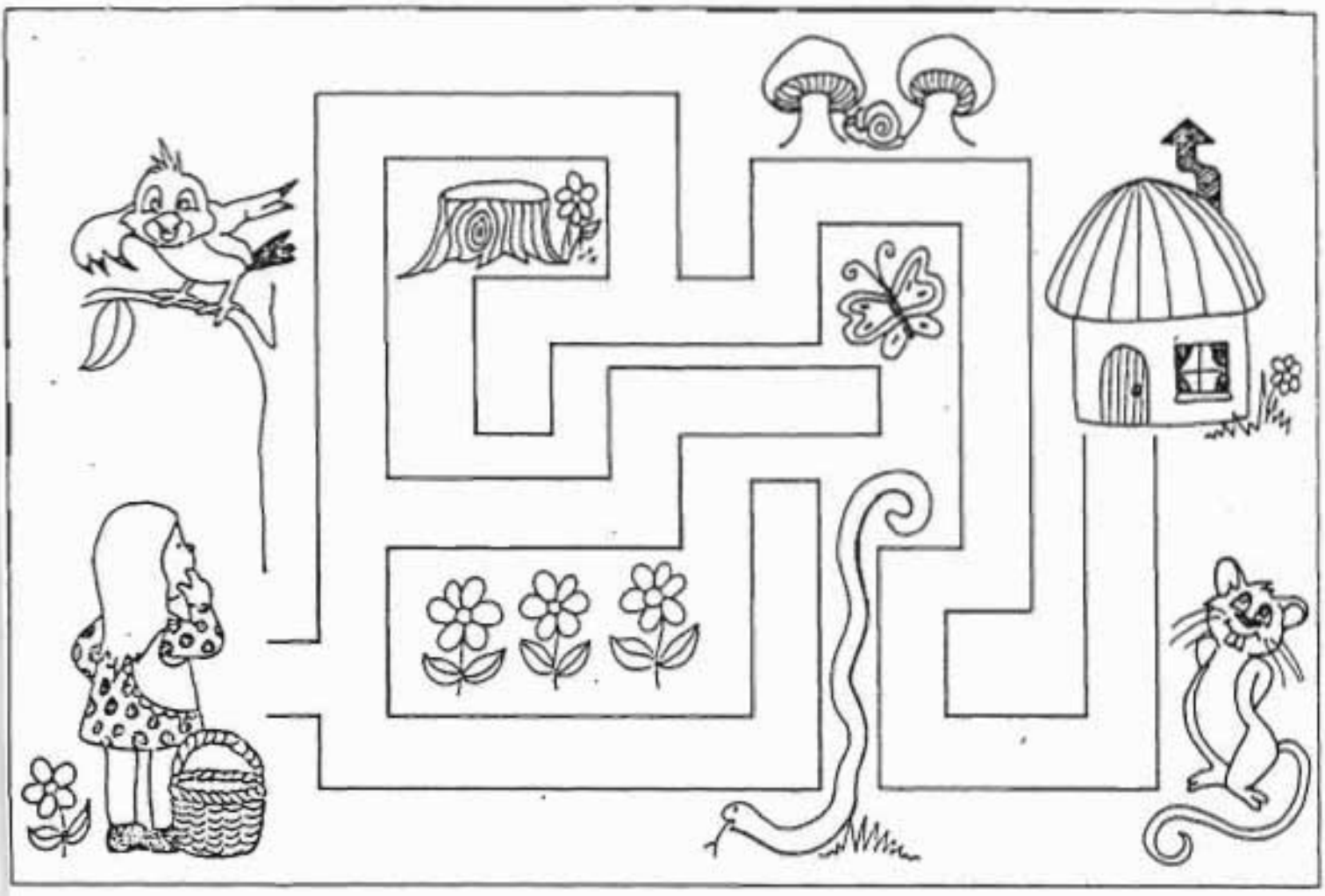
flower

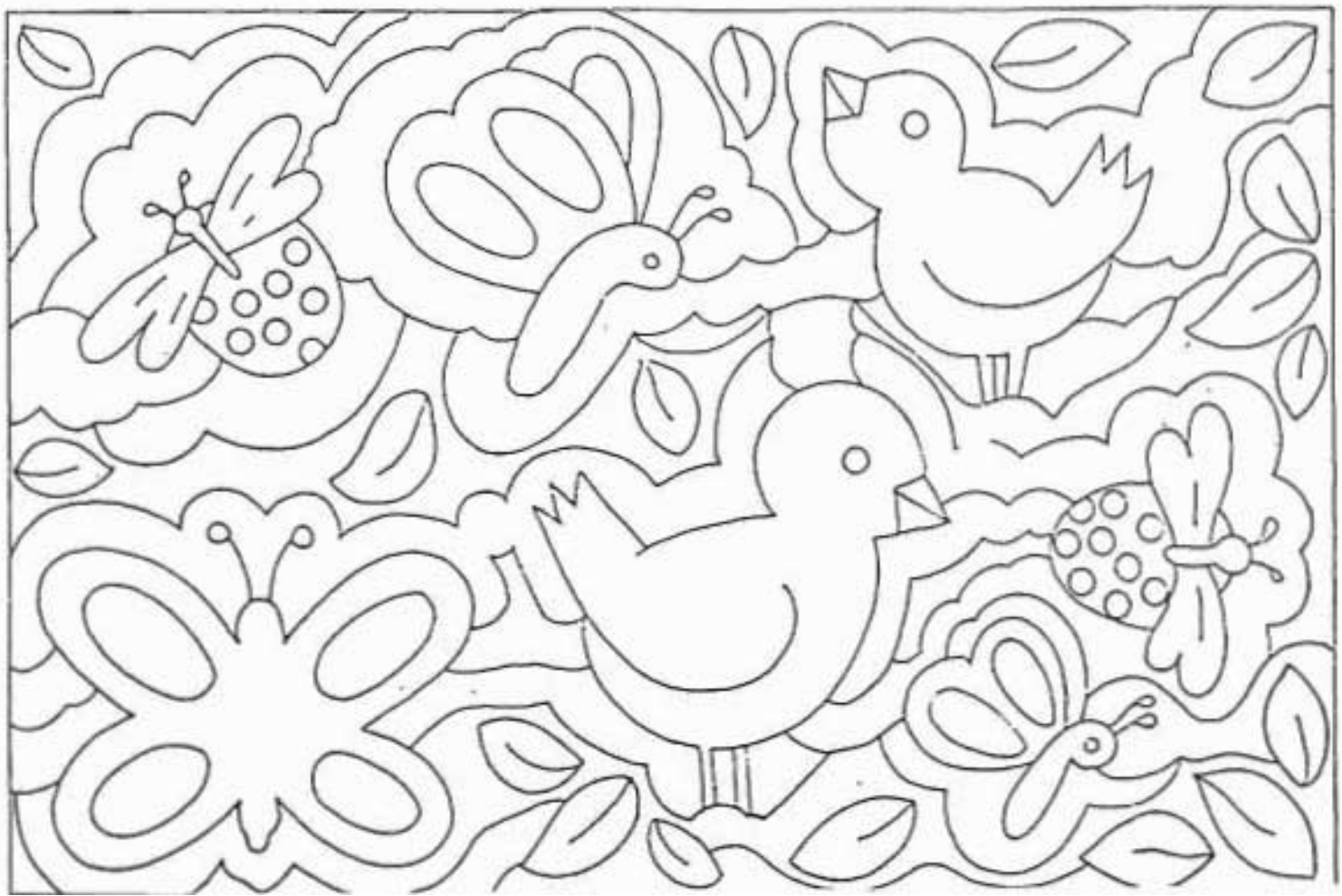


rock

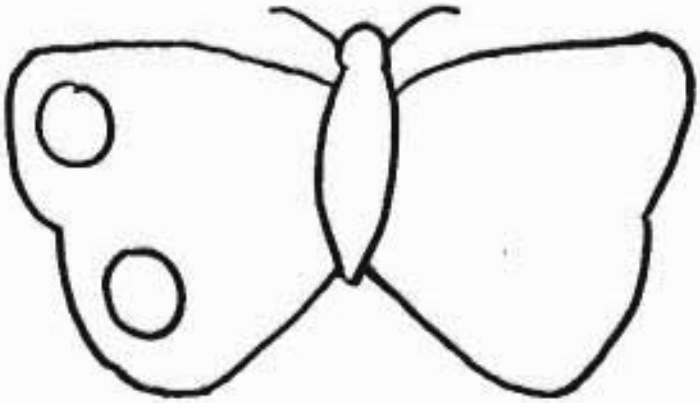


gate





Make both wings the same.



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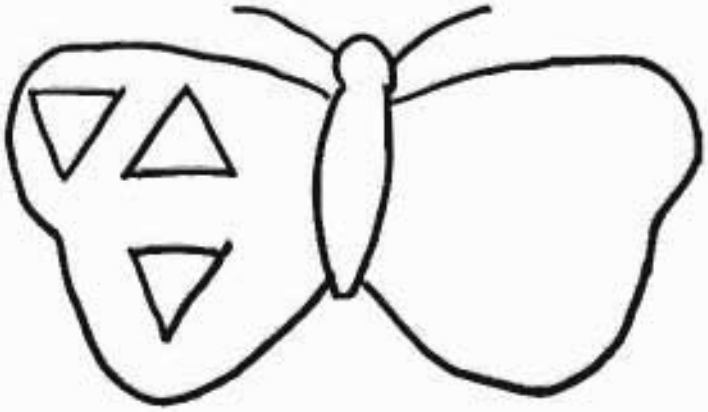

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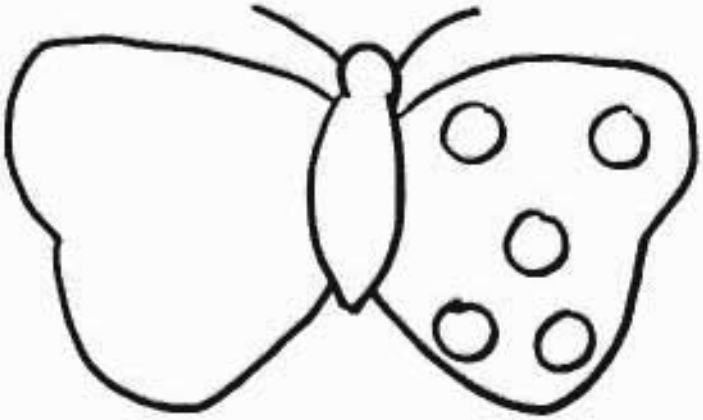

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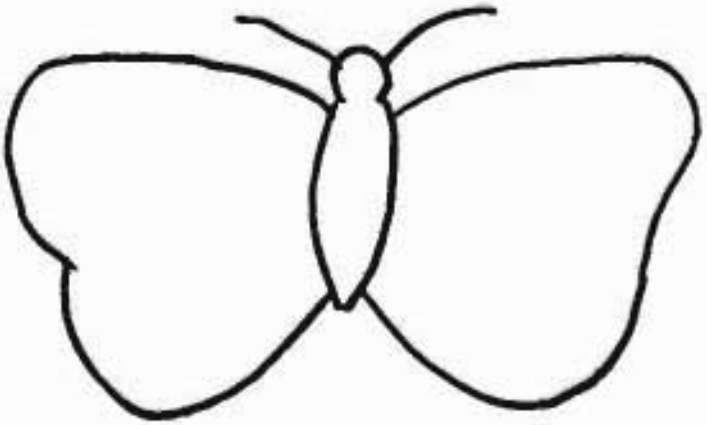

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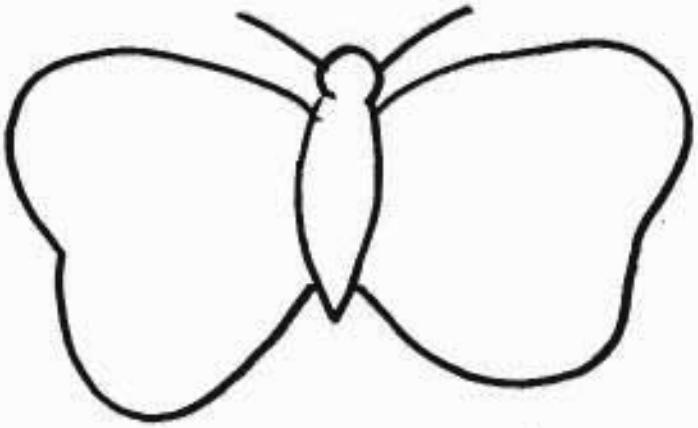

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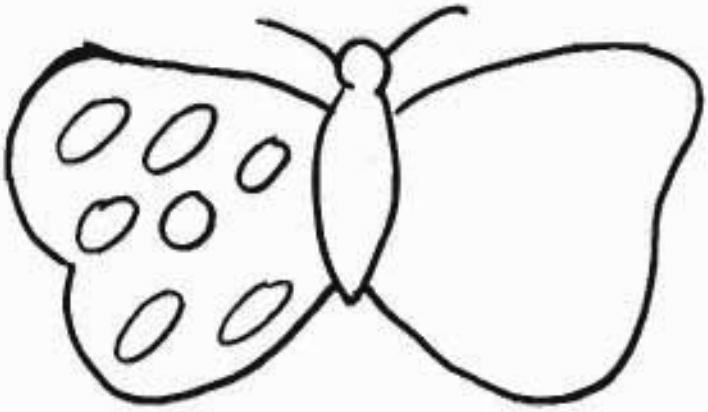

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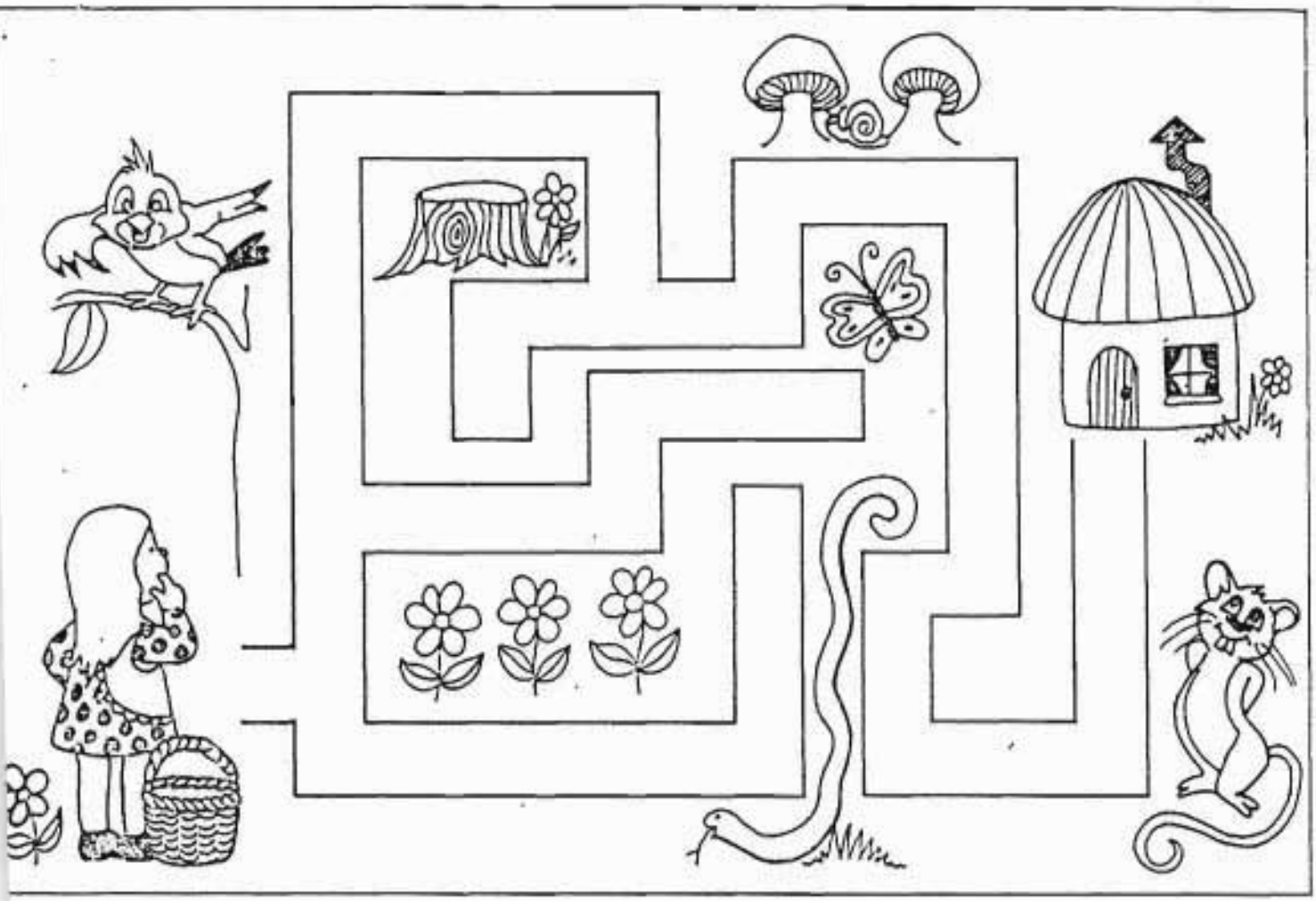

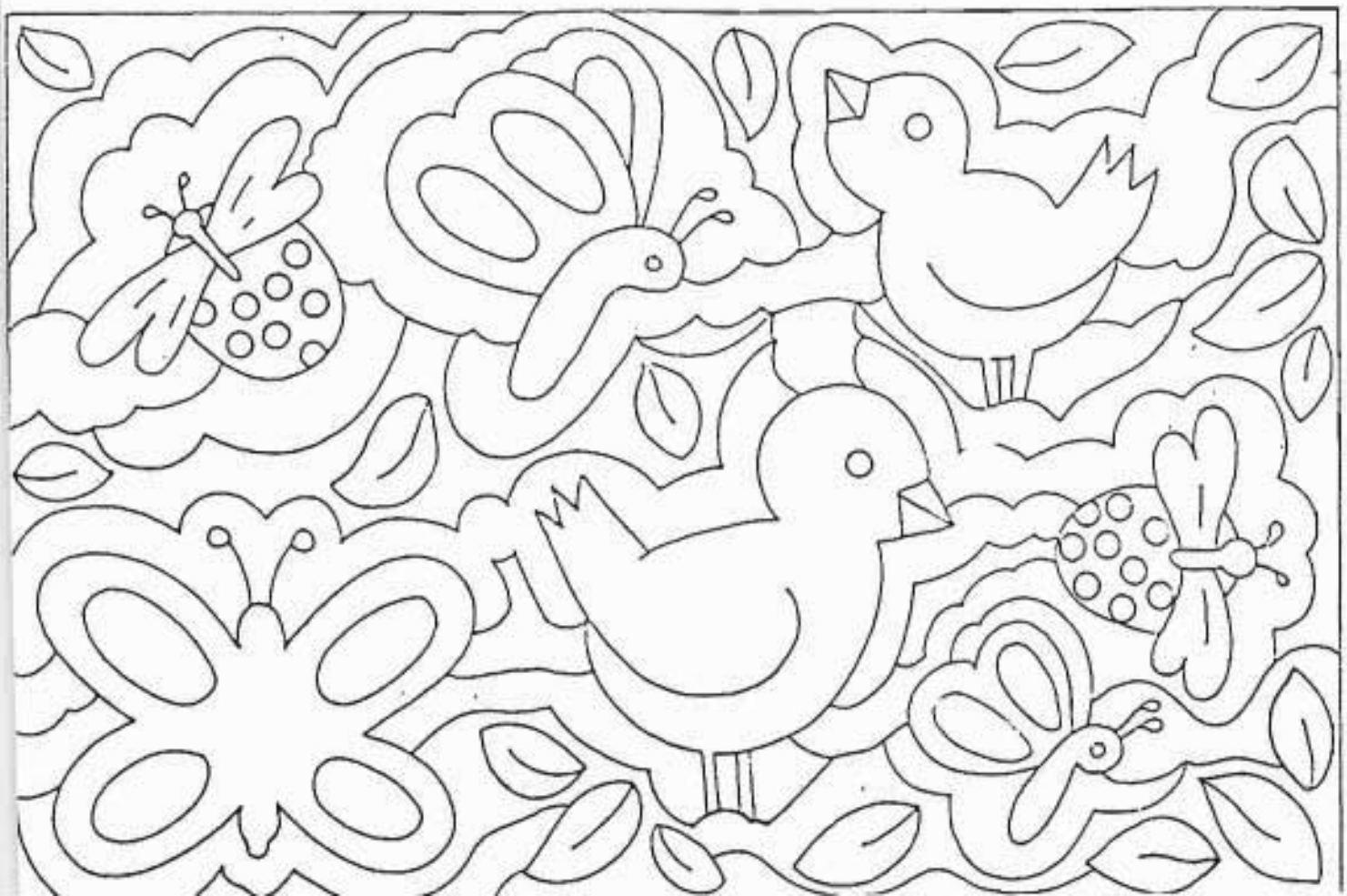

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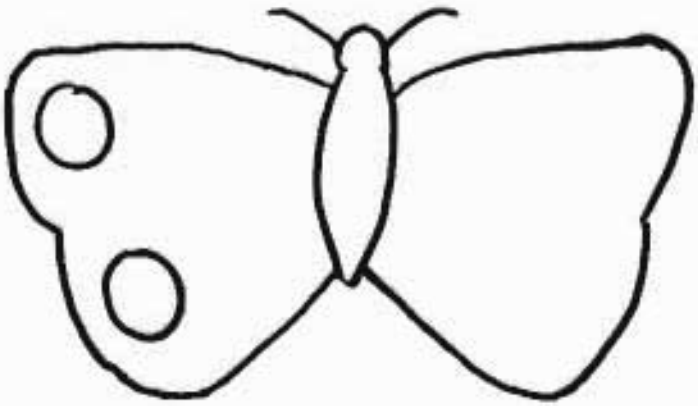

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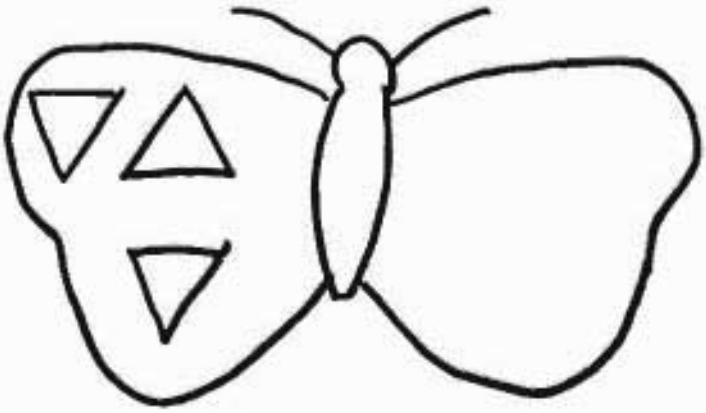

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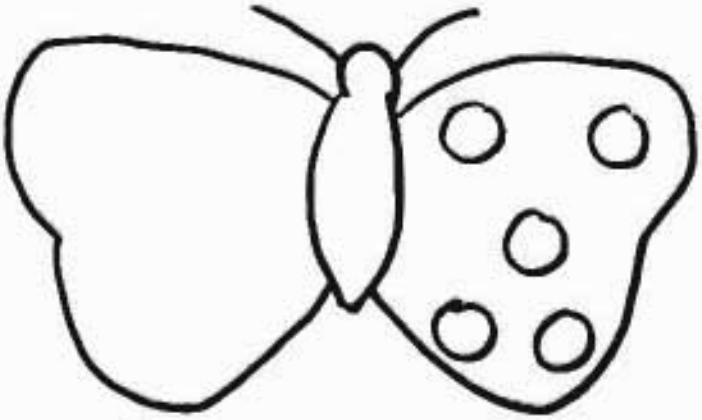

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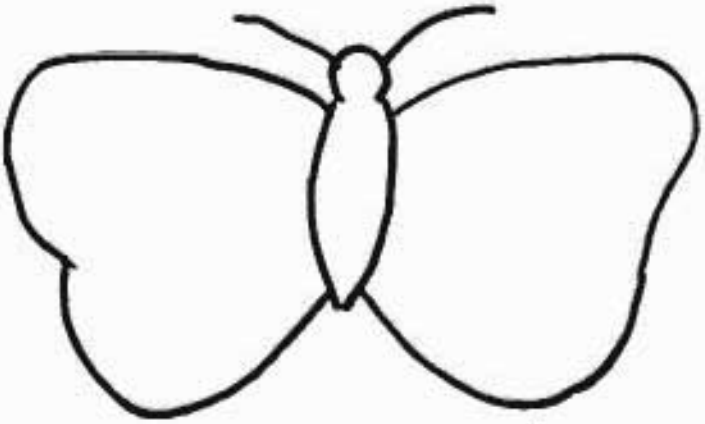

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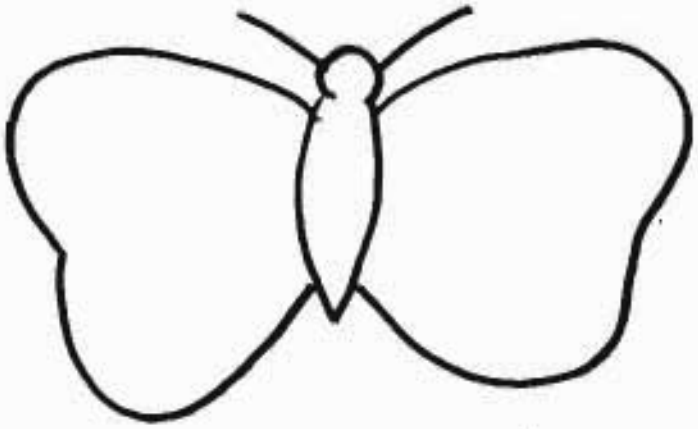

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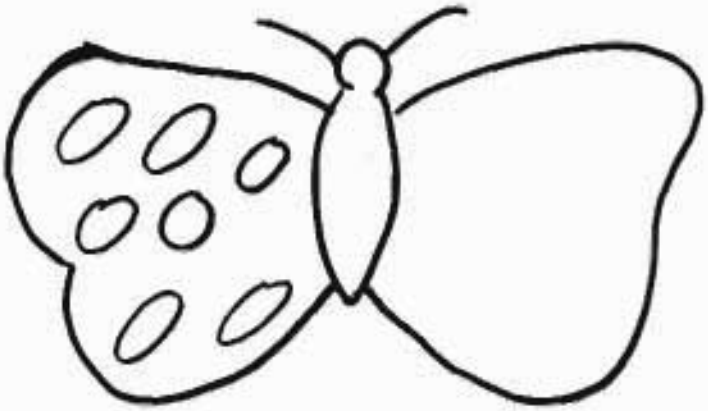

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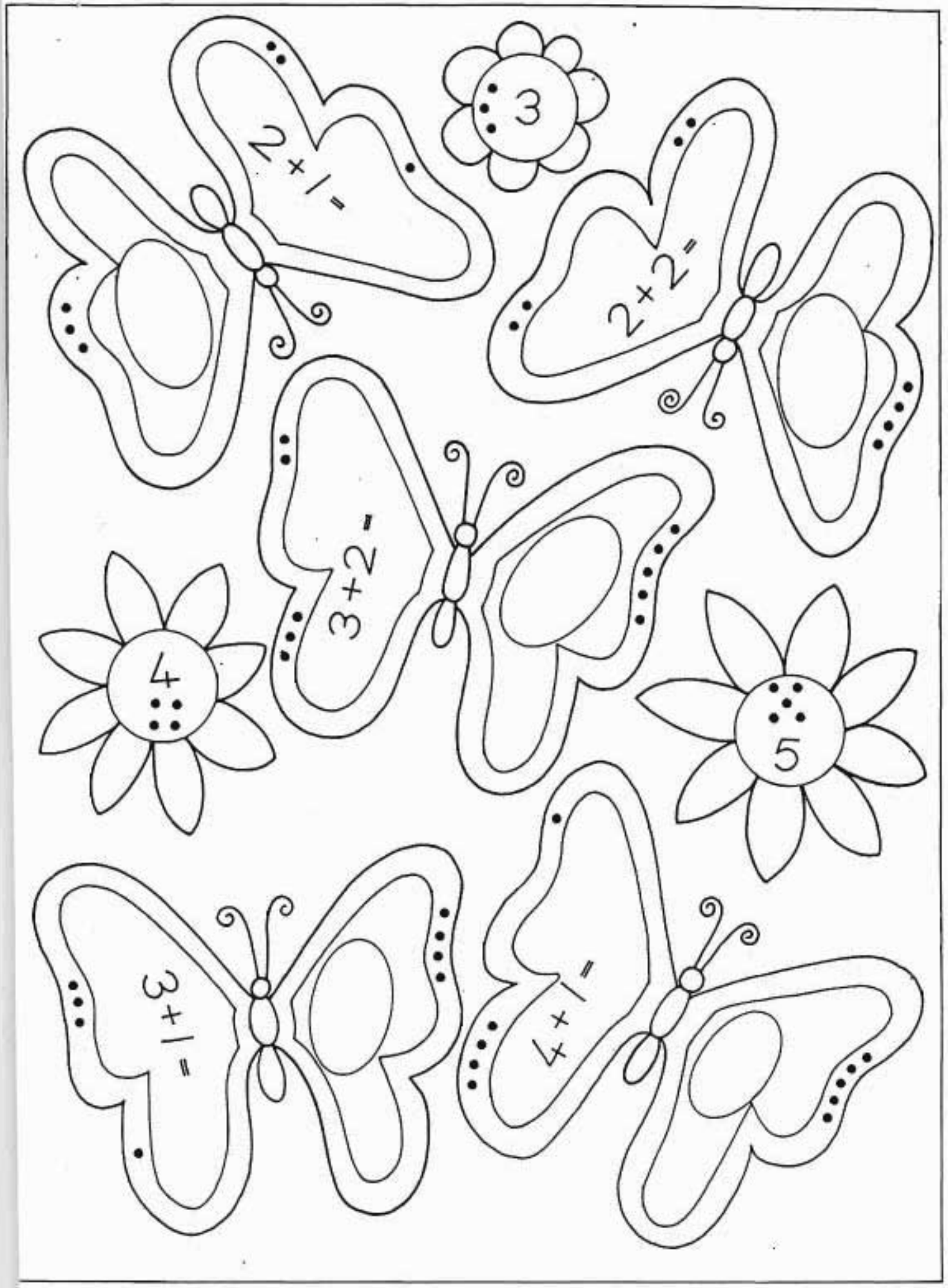
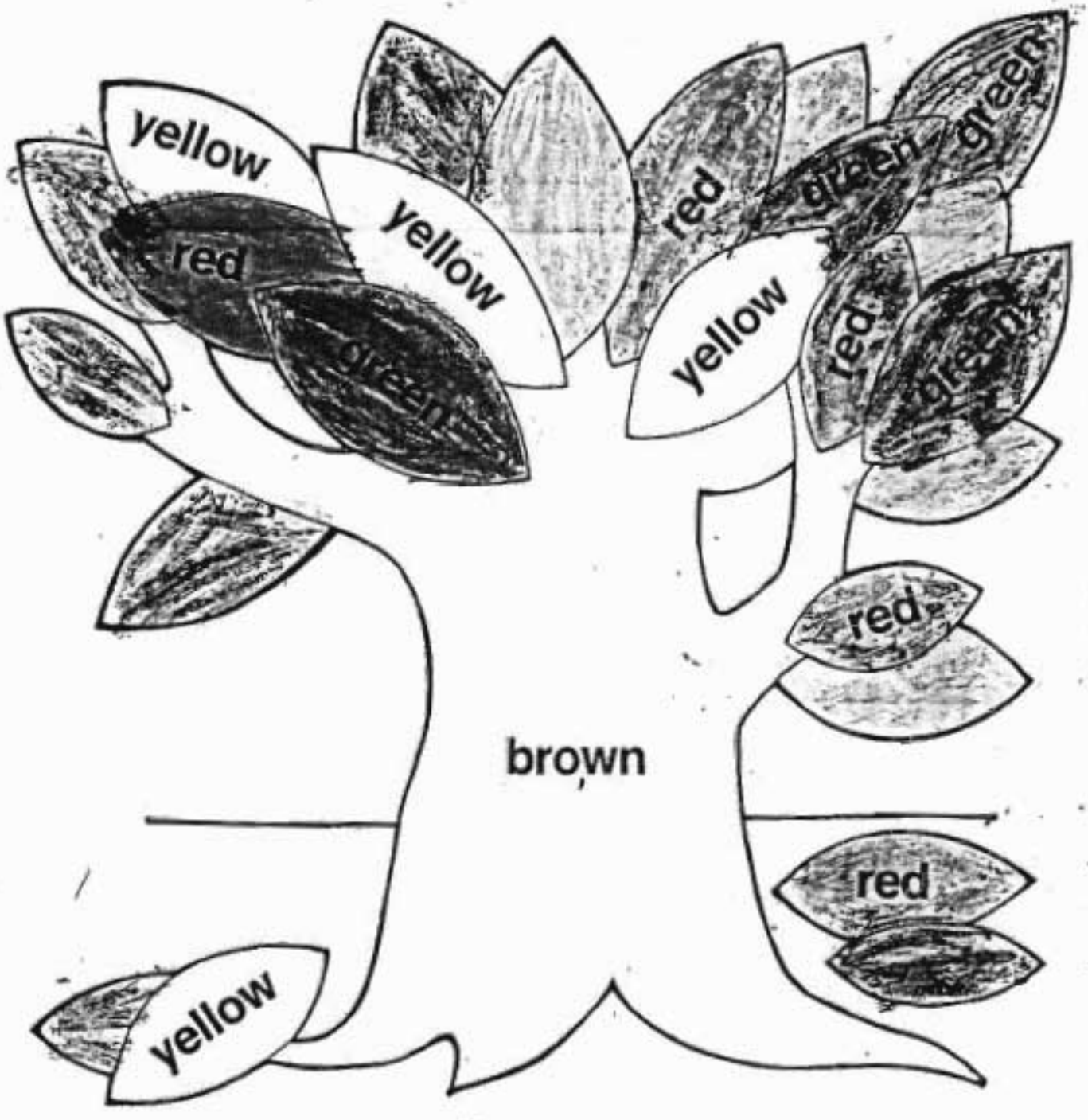

2+1=
3
2+2=
3+2=
4
5
3+1=
4+1=

NAME _____



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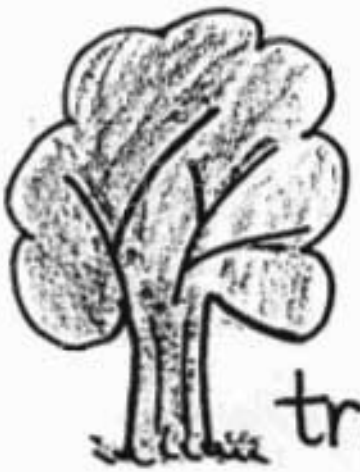


tree

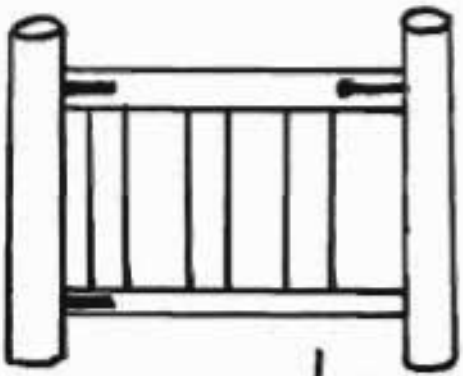
1 2 3 4 5 6 7 8 9 10

flower

4

rock

5



gate

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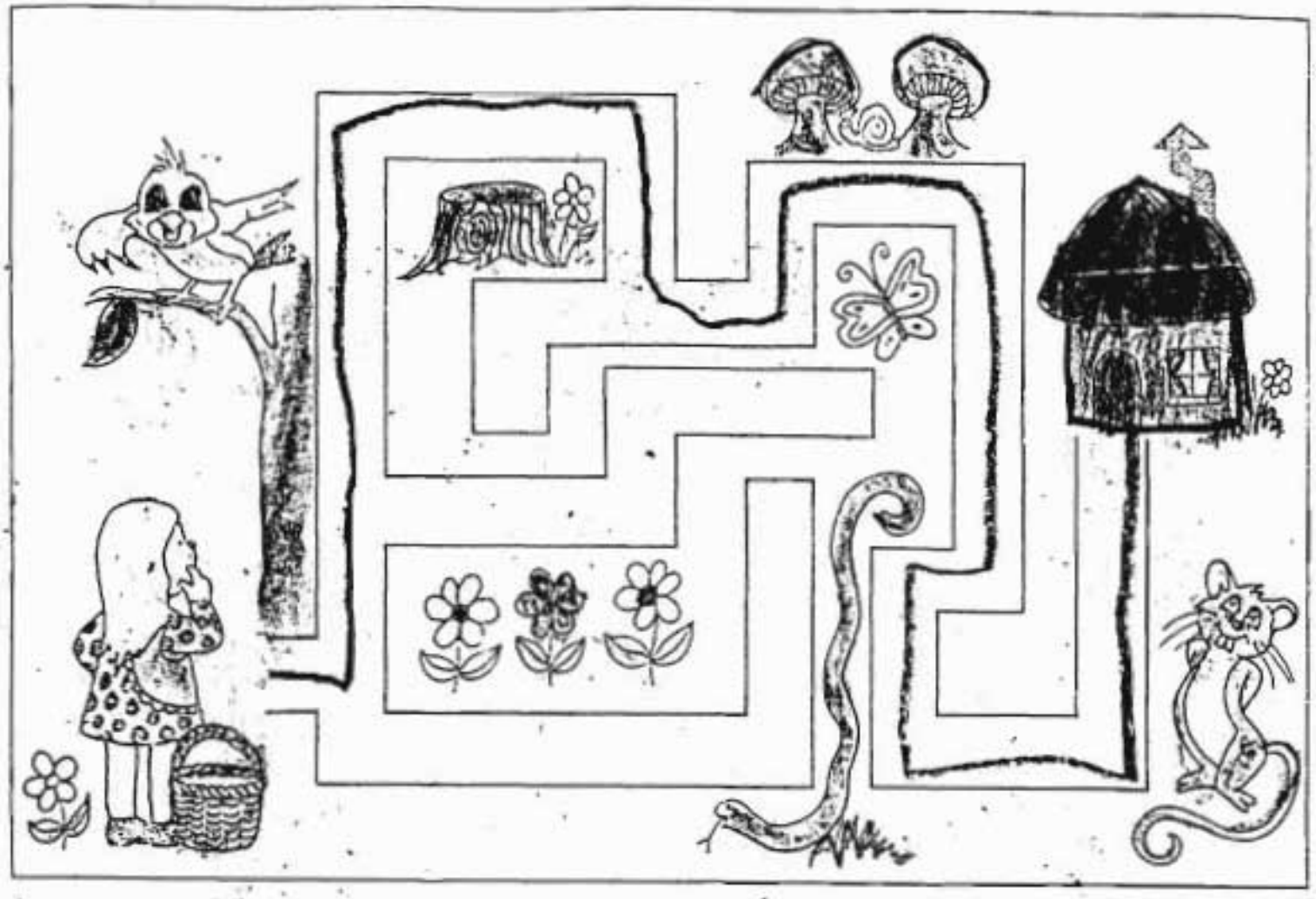
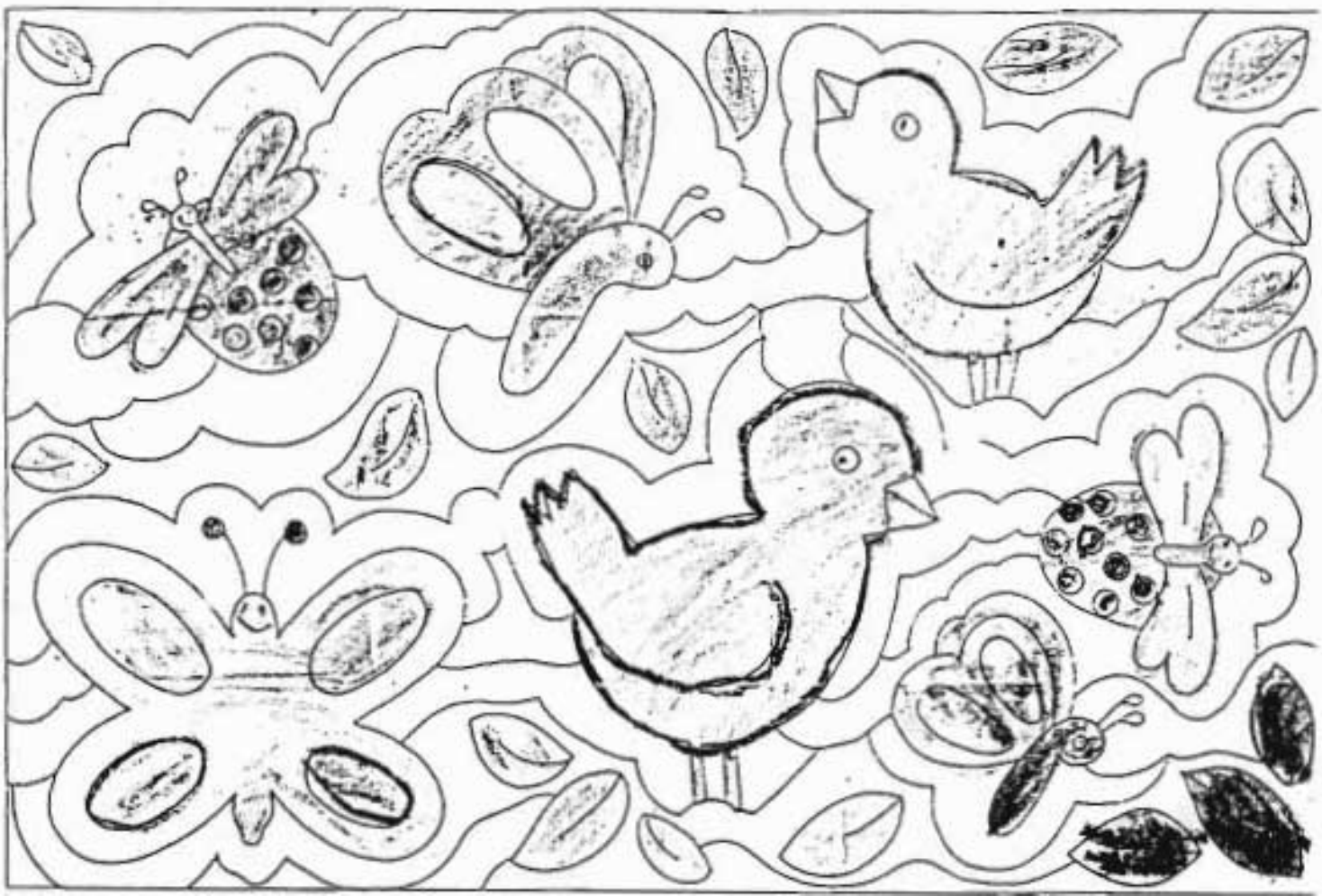
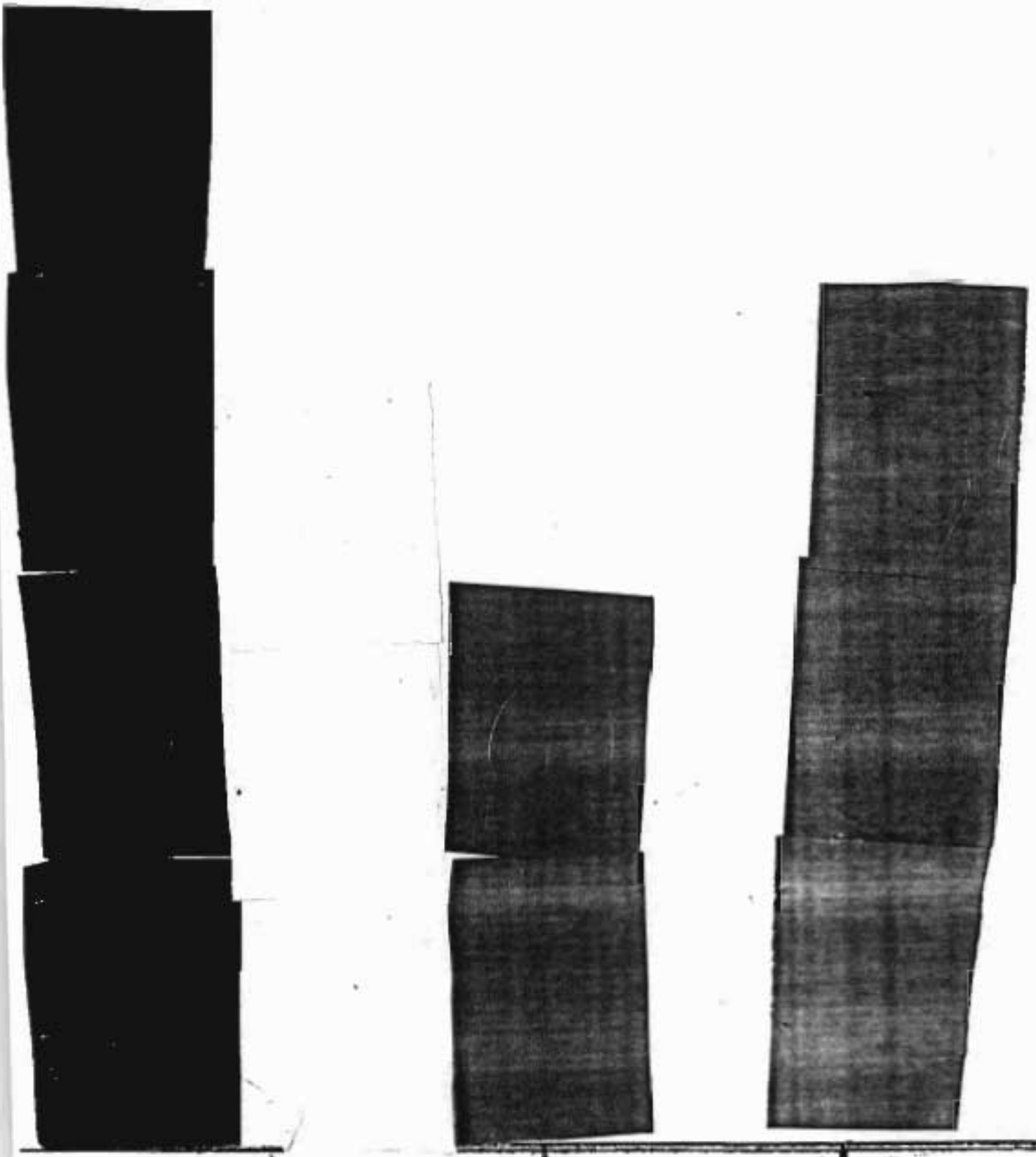
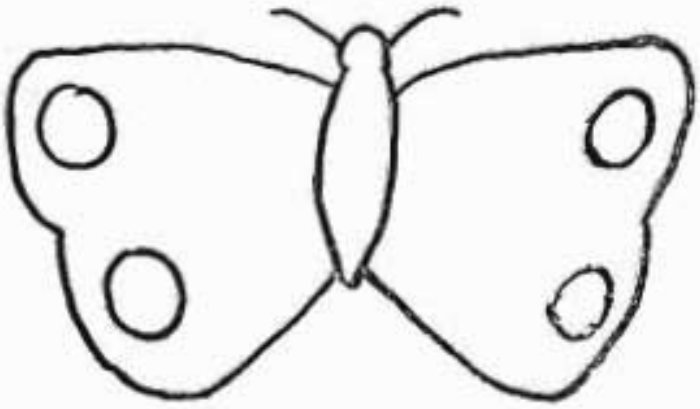






seeds	flowers	leaves	insects

Make both wings the same.



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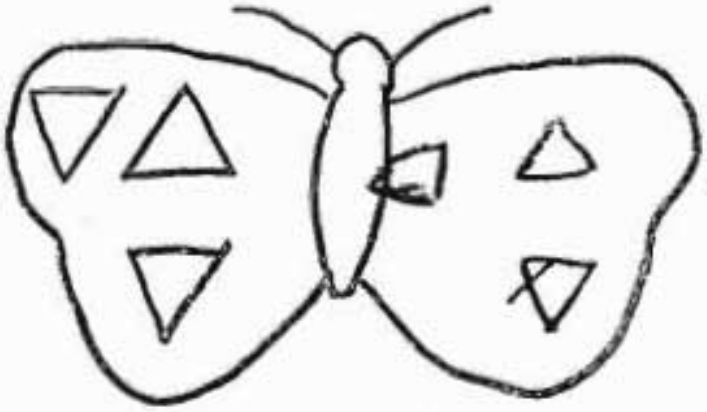

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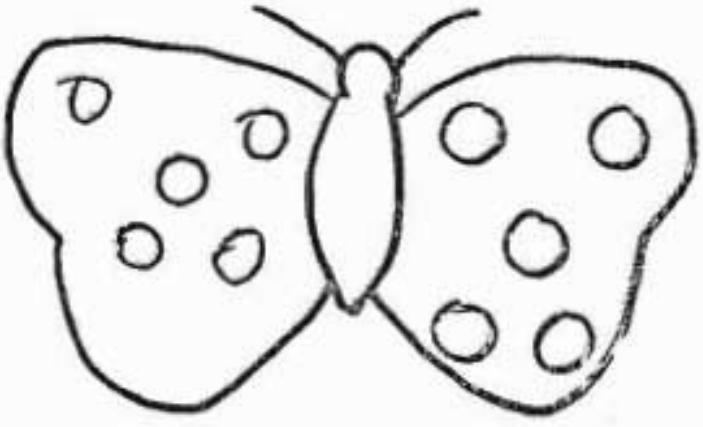

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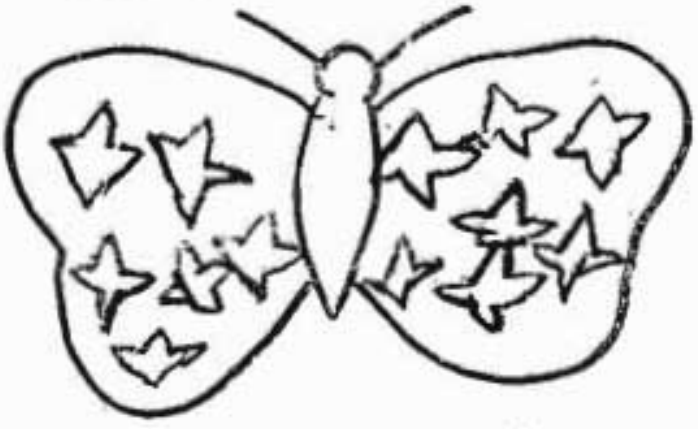

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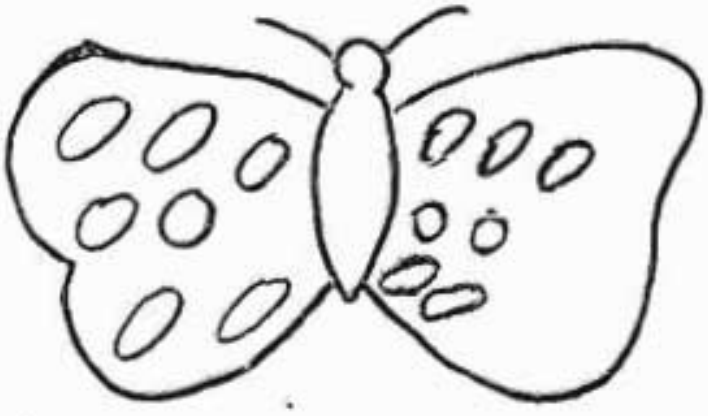

7 = 7

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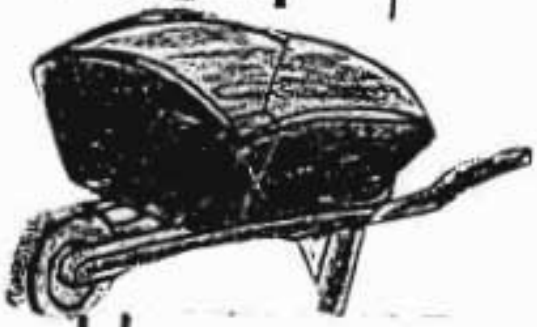
5 5 5 5 5 5 5 5 5 5 5 5

7 7 7 7 7 7 7 7 7 7 7 7

tap

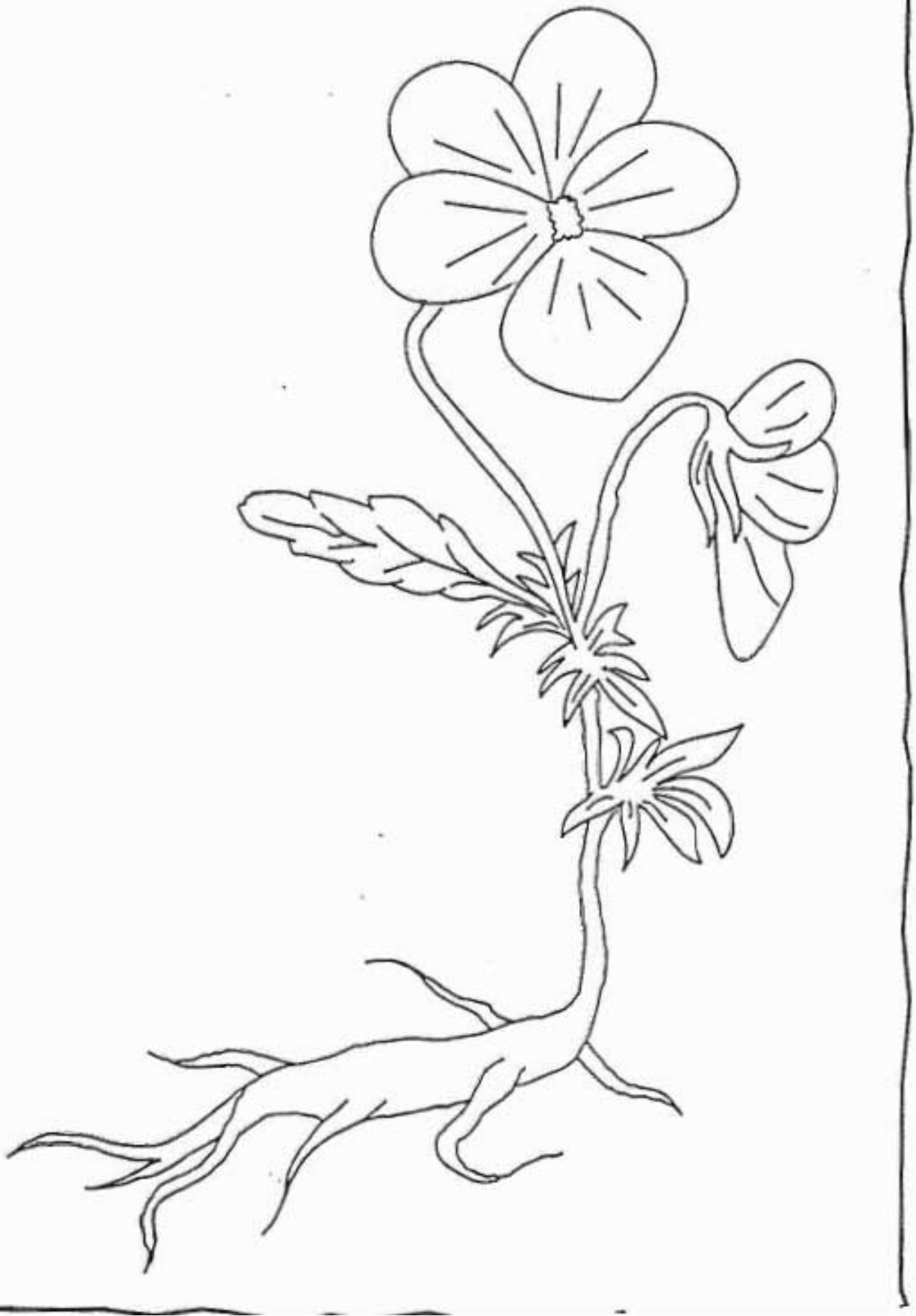


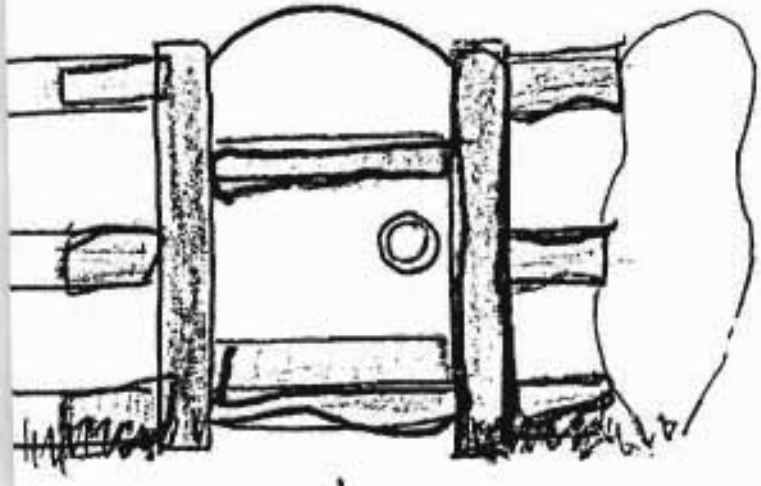
wheelbarrow

dog

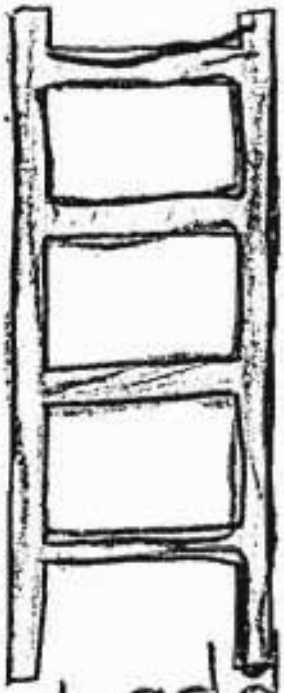
fork

Parts of a Plant



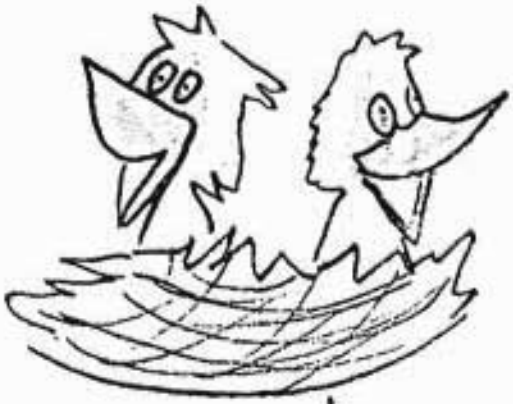


gate

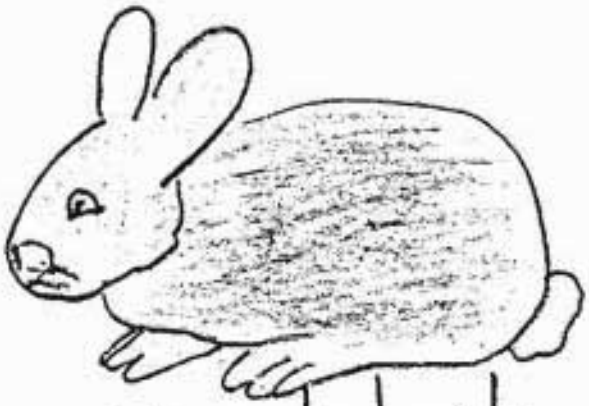


ladder

Parrot

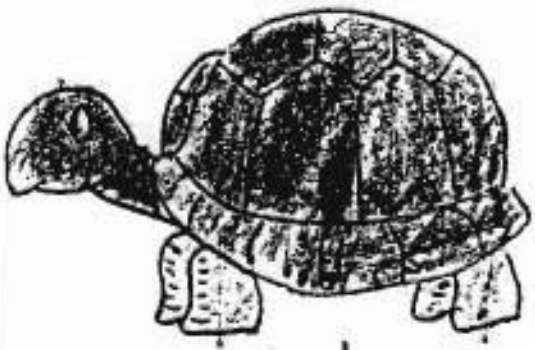


nest



rabbit

tap



tortoise

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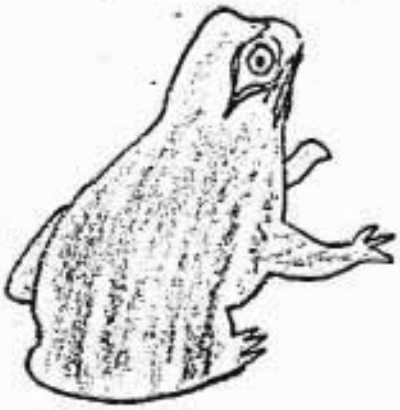
butterfly

flower

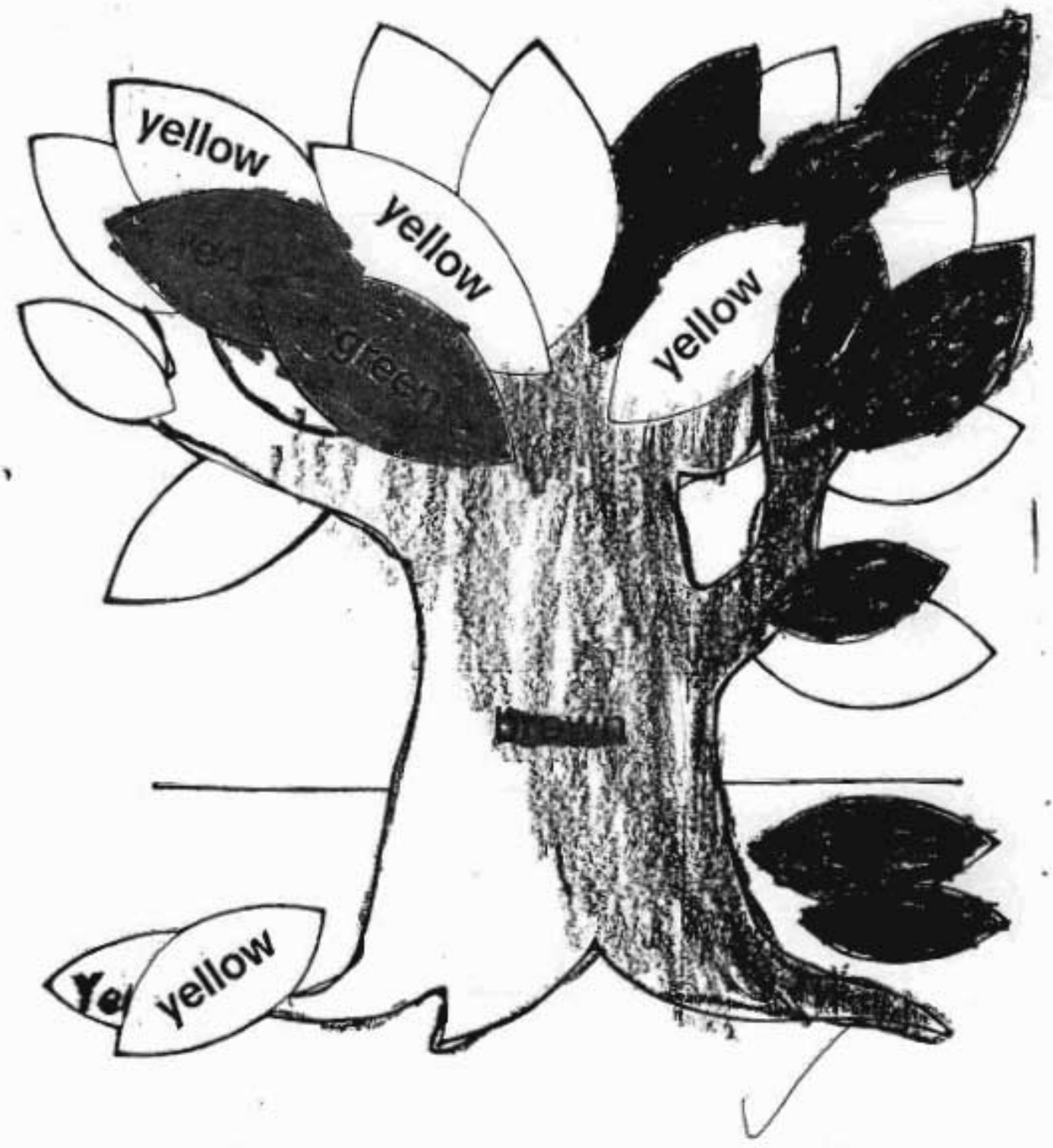


froa

March

g g g g g g g

NAME _____



brown brown

tree

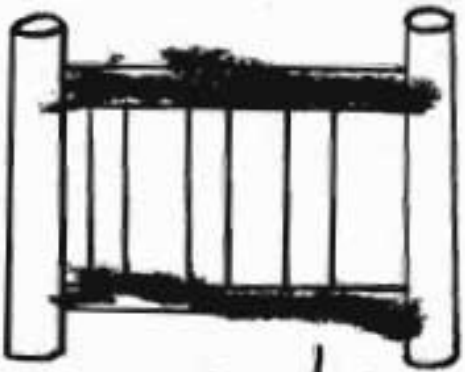
11

flower

9

rock

2

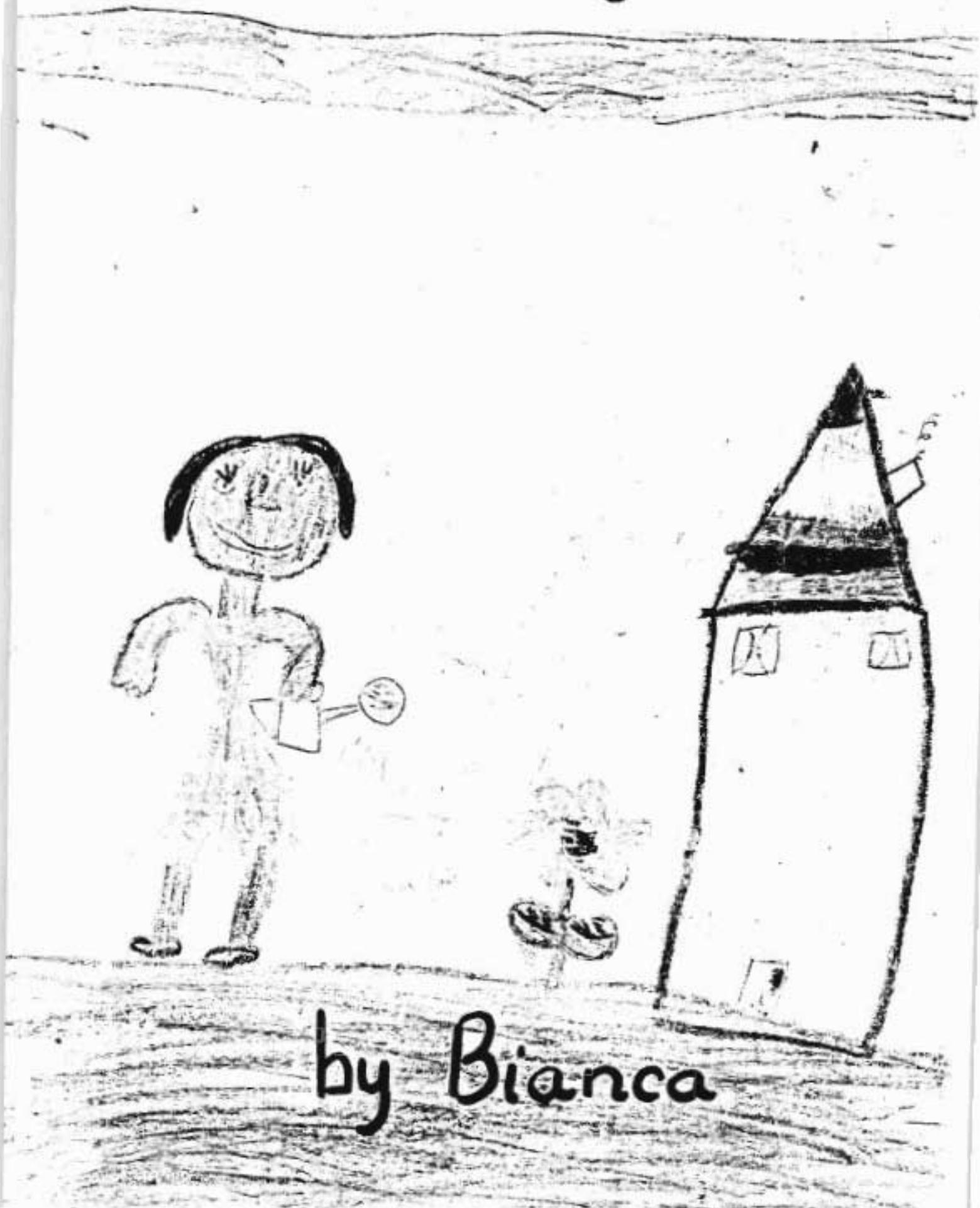


gate

3

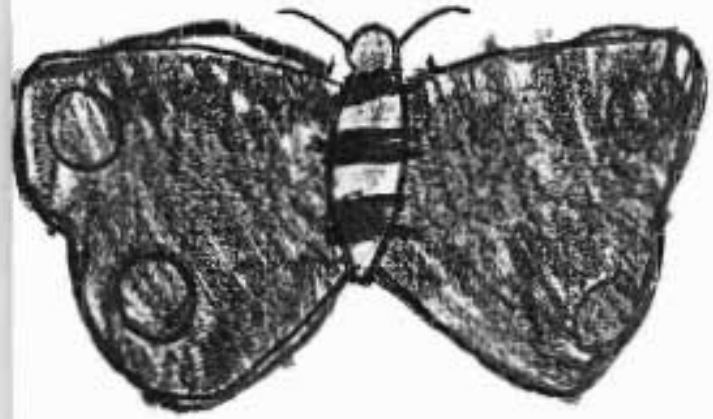
Me in the garden

Me in the garden.



by Bianca

Make both wings the same.



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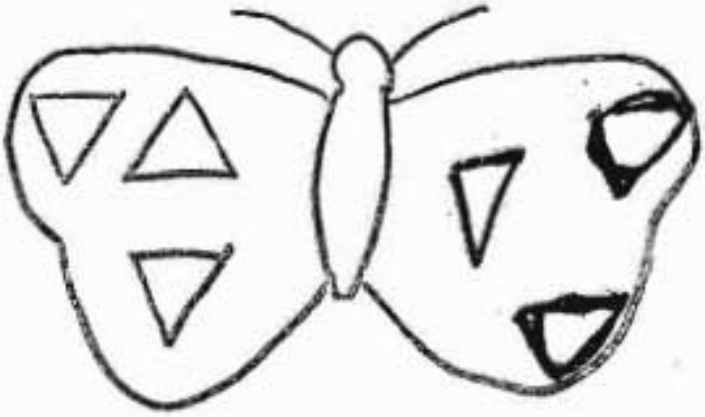

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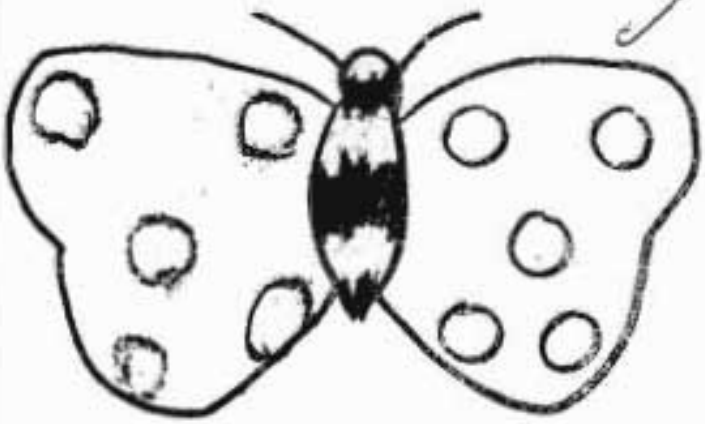

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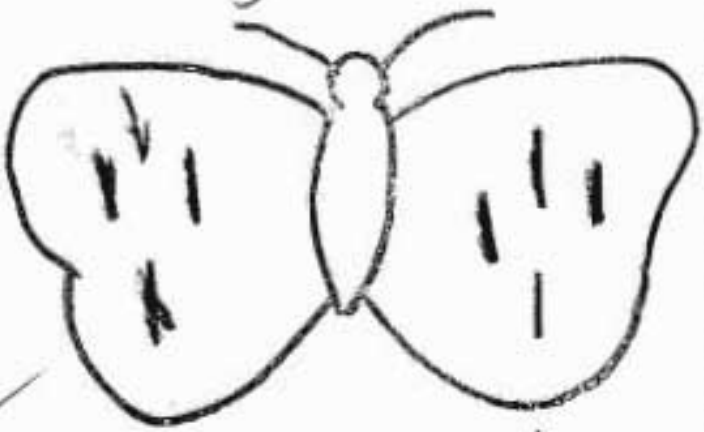

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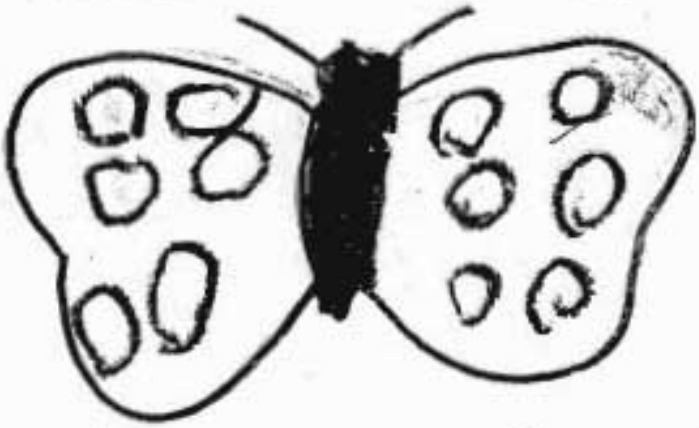

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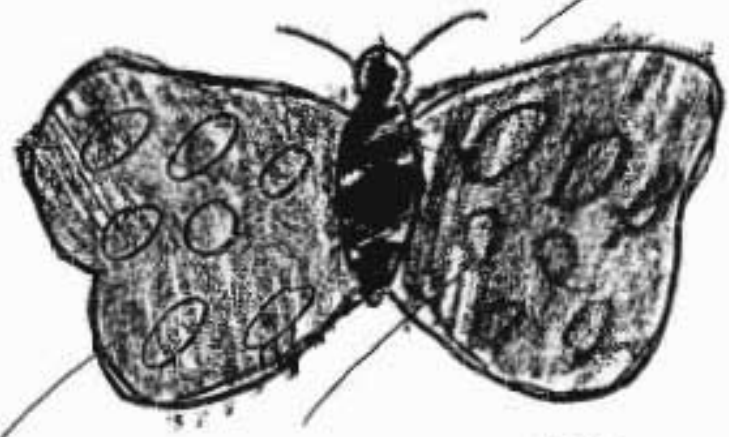
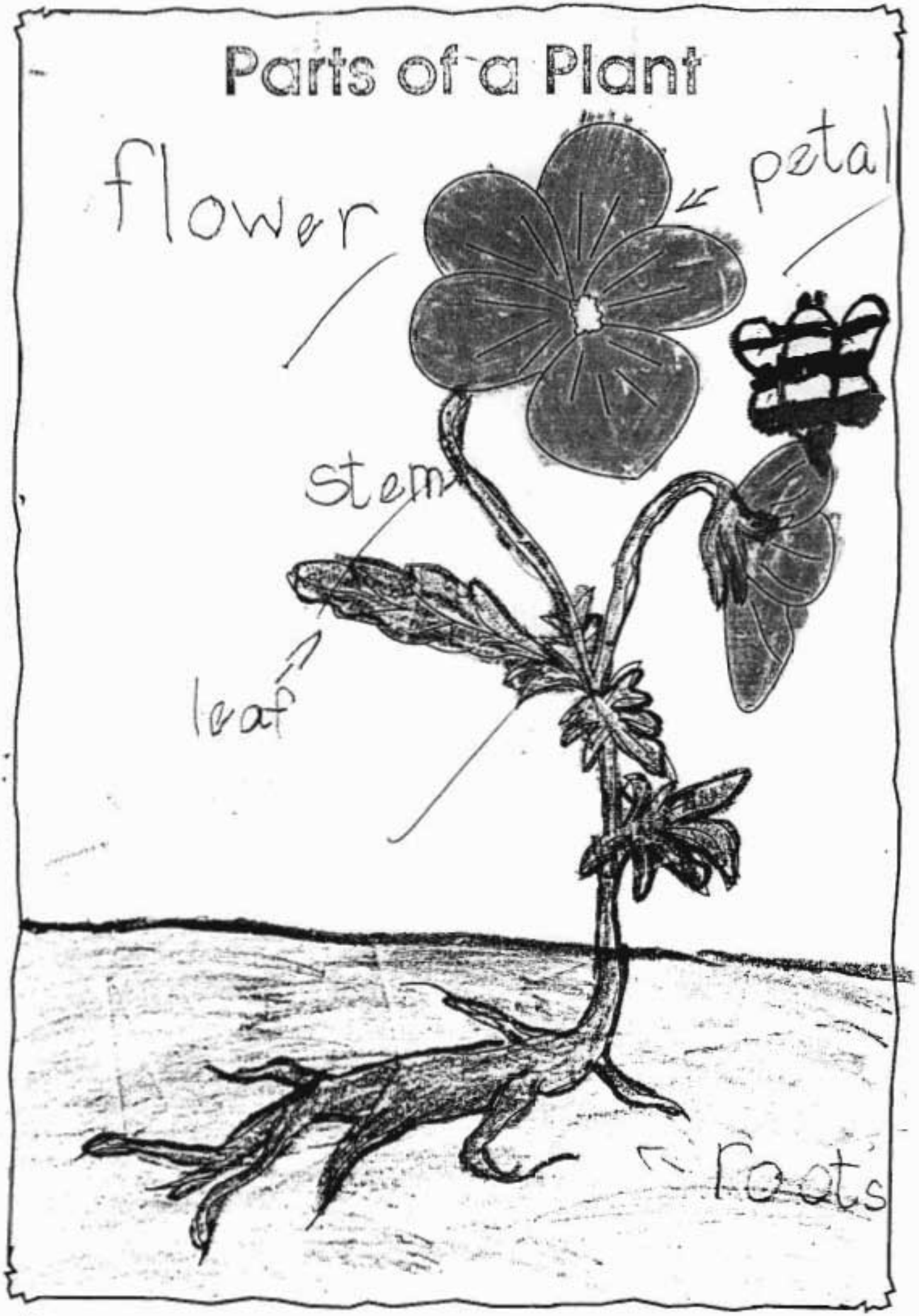


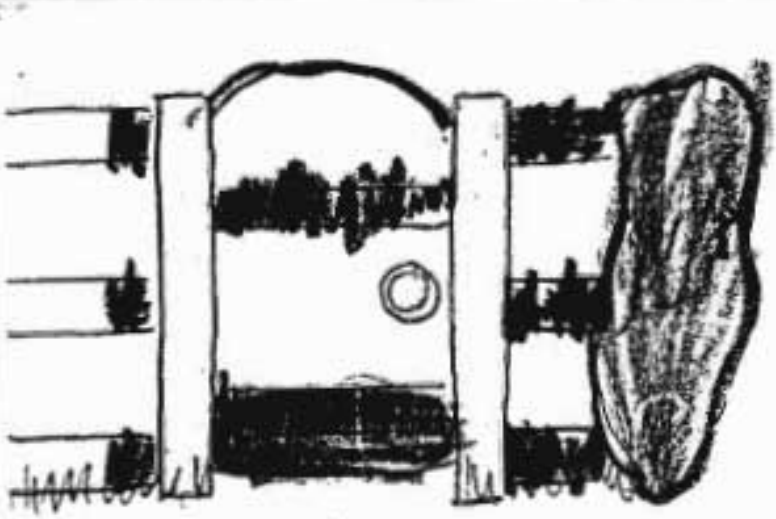
7 = 7

5 5 5 5 5 5 5

7 7 7 7 7 7 7 7

Parts of a Plant





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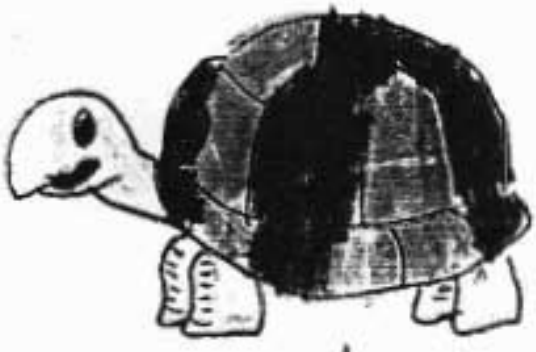

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19 March

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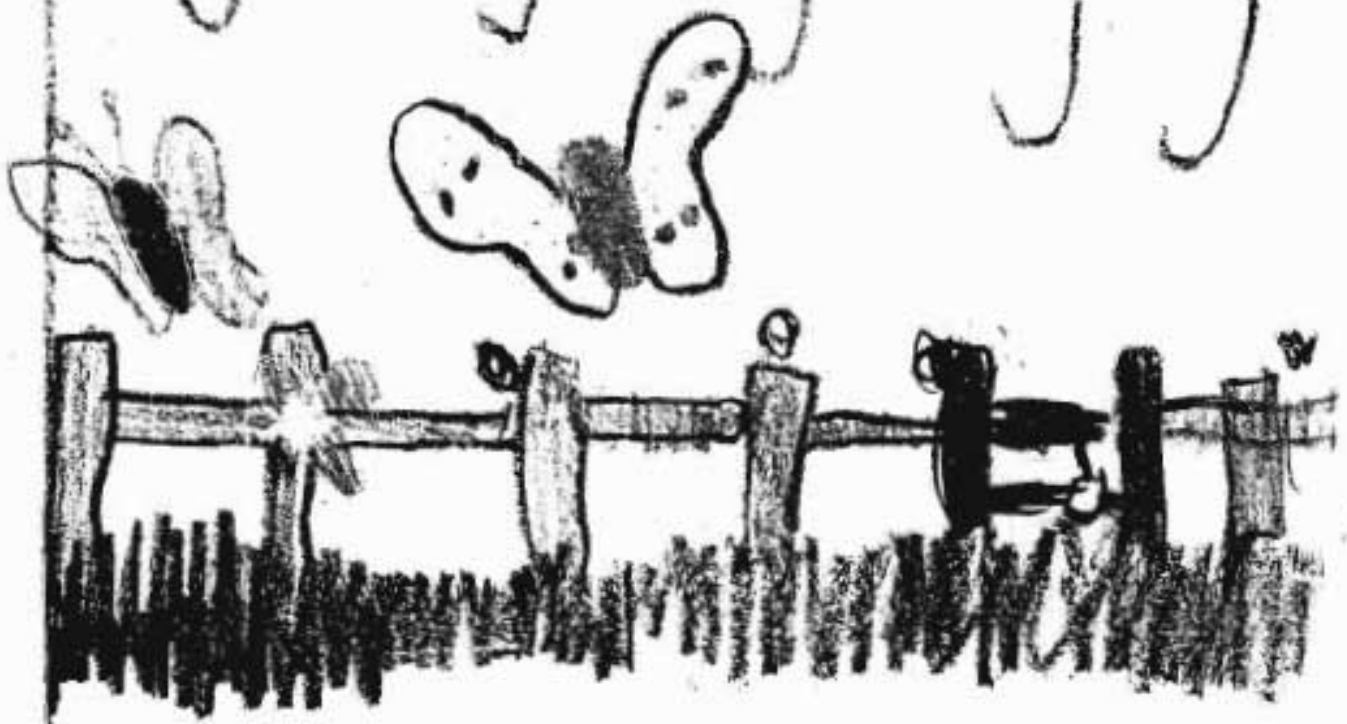
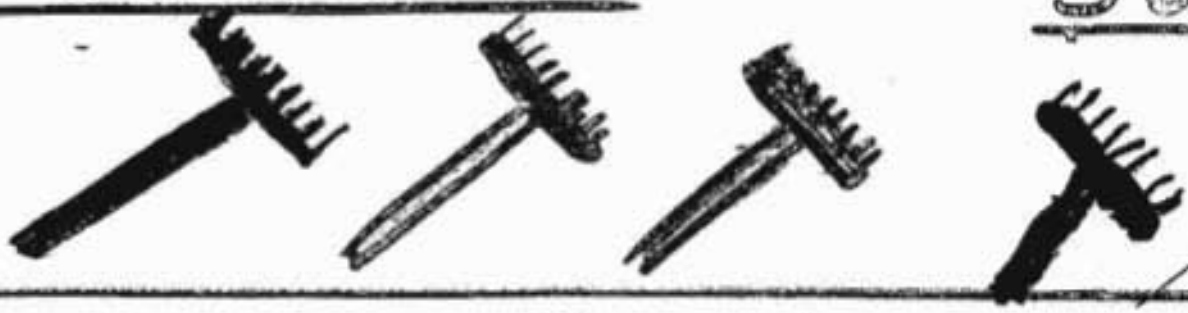
9 9 9 9 9



Count on.

Stop.



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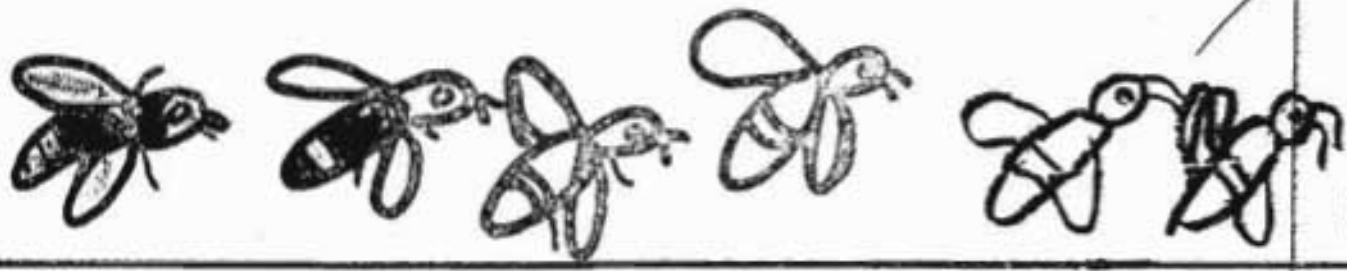
5



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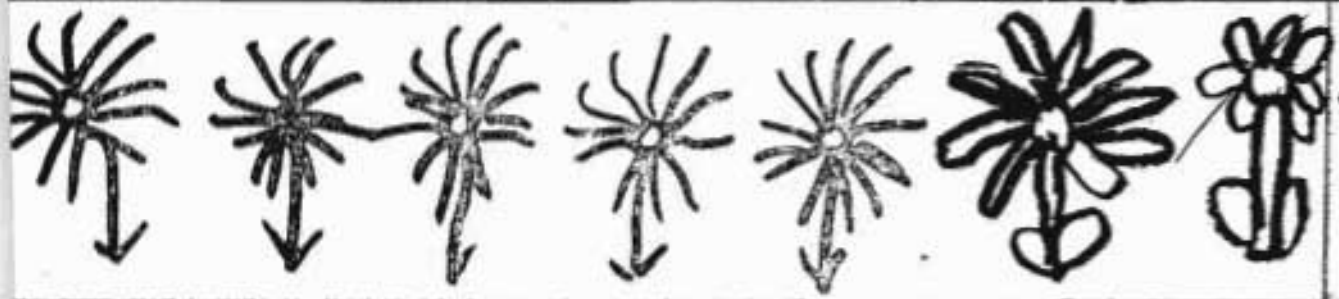


7

8

1 2 3 4 5 6. 7 8

1 2 3 4 5 6 7 8 9

4. 5. 6. 7 8 9 10

Things I use in a garden.

wheelbarrow

lawnmower

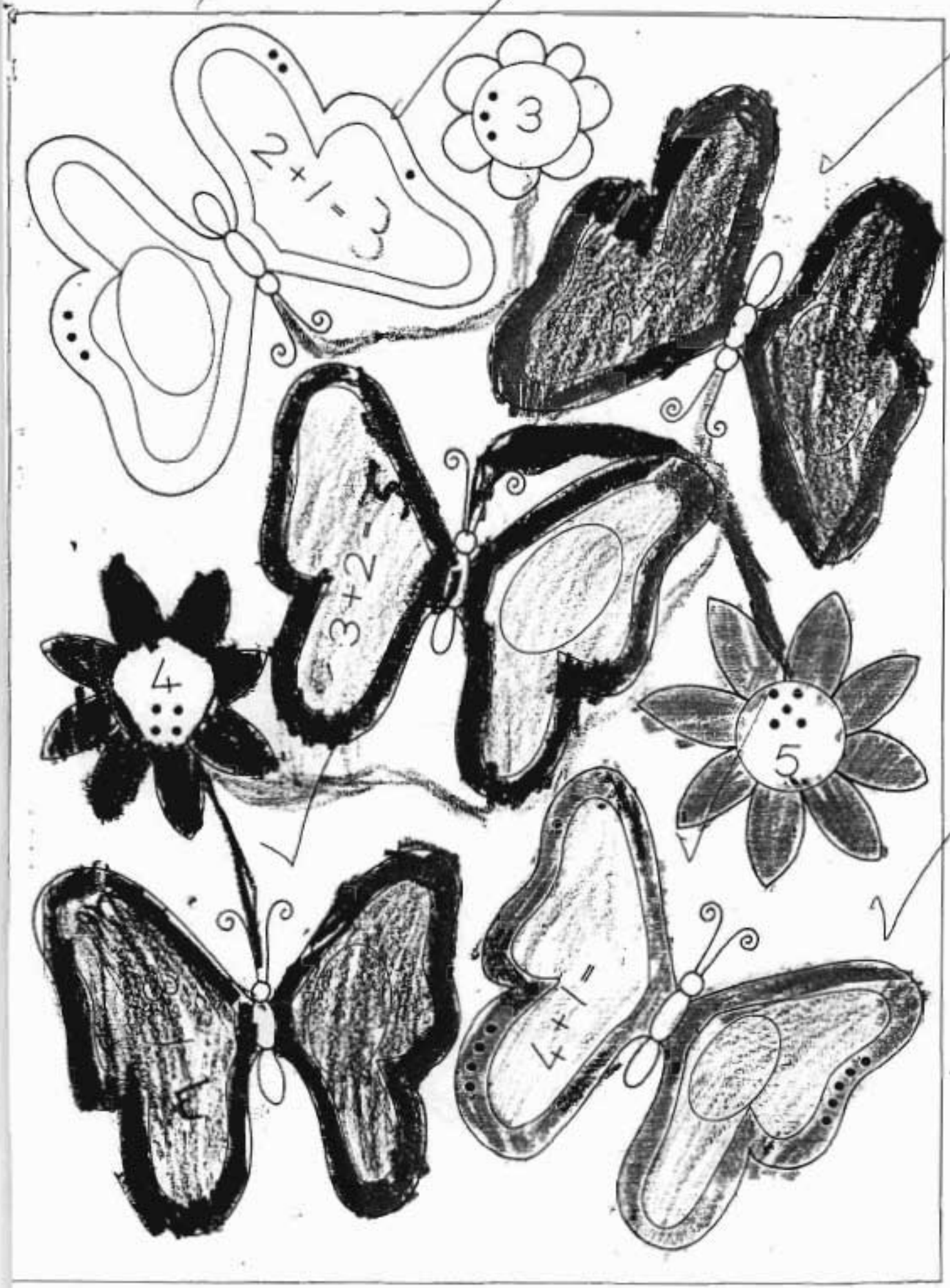
fork

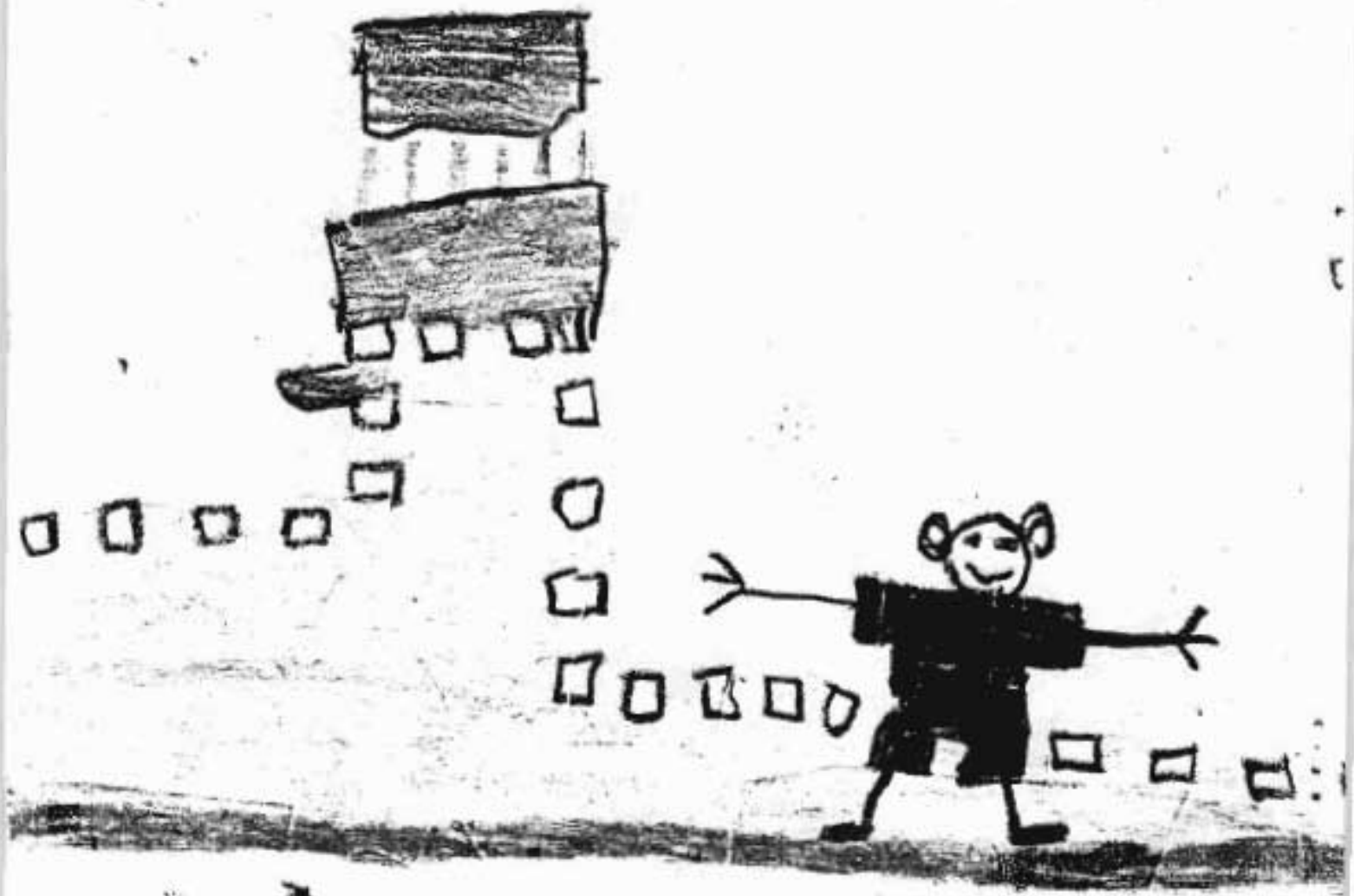
spade

hosepipe

tap

dog


2+1=3
3
3+2=
4
5
4+1=



Learner transcripts – Case study A

Understanding of the content (knowledge)
a. Garden
Educator – What can you see in a garden? (educator directed question to specific learners).
Learner 1 – flowers
Learner 2 – grass
Learner 3 – sand
Educator – another name for sand
Learner 4 (shouted out) – soil
Learner 5 – sometime see roots in a garden
Educator – where do they come from
Learner 5 – trees
Learner 6 – rocks
Learner 7 – leaves of trees
Learner 8 - earthworms.....
Learner 9 – shongololo (Zulu for millipede)

Learners saw the garden as a place where animals and flowers, rocks and sand was found. What is significant is that the learners did not say plants neither did they say insects or birds.
I claim that learners defined garden using their past experience and observing concrete structures.

b. Requirements for planting seeds
Extract taken from classroom transcription:

Learner – seeds to plant a vegetable garden
Educator – Yes we need seeds to plant them, well done and something which we all forgot about that we need, two very important things to grow these seeds, we need
Learner (other) – water;
Learner (another) – soil
Learner 1 – air;
Learner 5 – compost
Educator – yes compost, soil and something else that we need, what do you see on the side?
Learner (other) – air
Educator – air and yes
Learner 11 – sun.
I claim that the learners could name the requirements for seed growth, but the reasons for the requirements are not understood.
Note : the term germination was not used.

c. . Use of the word flower and plant
Learners used these terms interchangeably. Transcripts:
Educator – you must count the number of plants and write it in your books

Learner – I counted thirty flowers
Educator – where did you see all those flowers
Learner (pointing to plants) – over there
(Note – activity worksheet 1 in learners book.)

Educators reflective diary:
Activity on counting flowers, rocks etc. .. revealed that some learners were unsure of what a flower and plant are – counted plants not flowers.
I claim that this is unacceptable when learning science because the structure and functions of plants and flowers are so different. At this early stage it is important that learners learn to use the correct terminology.

d. Classification and graphing
Learners developed knowledge about how to classify items from the garden and how to record this in the form of a graph.

Educators Rose' reflective diary:
Learners learnt a lot about how to group items from the garden. The learners now understand how to do a bar graph. I was impressed by the way the learners understood 'most', least and same from the graph

Educator Sue' reflective diary:
The children understood the concept of sorting and classifying and I soon had seven groups.....

e. Vegetative reproduction (asexual)
Learners were observing a rose flower and a geranium plant – transcription
Educator what can you say about the growing of it?
Learner – one can grow a root and the other cannot
Educator – right, which one has a root
Learner – points to pot plant – That one has the root
What about the rose, does it have a root
Learner 10 – it does not
Educator – will it carry on growing?
Learner 2 – Yes
Learner 20 - no
Learner 9 – it will grow a root
Learner 3 – NO
Learner 14 – no

I claim that learners do not understand how a radicle (root) develops from a seed and they do not understand that only some plants exhibit vegetative reproduction.

f. The role of the sun in making shadows

Learners standing outside in the sun – transcripts
Educator – What do you notice when you look on the ground next to you, it moves when you move
Learner – a shadow;
Educator – How are shadows formed?
Learner 7 – when I am walking here I get a shadow
Learner 12 – the sun;
Learner 2 - When I stand here, my shadow is here
(pointing on the ground)

I claim that some learners were aware of what caused shadows, and what shadows did and what caused shadows but some did not.

g. Conservation
Educator – why do we have the Japanese garden?
Learner 4- to make the area nice;
Learner 8 – so people can visit them;
Learner 9- for people to see different kinds of flowers (plants)
Learner 2- for people who do not have gardens
I claim that the learners understand the significance of having a public garden.

(iii) Activities and skills that the learners used.
a. Making observations and predictions:
Evidence from transcripts:
Educator – There are differences between the rose and the pot plant, can anyone tell me what are the differences?
Learner – the other one does not have big leaves, like the other one;
Learner – one is pink and the other is blue
Educator – what else is different ?
Learner – one has thorns and the other does not.....
on page 123. – where learners are making predictions about which will develop a root.
Educator – We will put this on the window-sill and observe it in two days.

b. Measuring shadows (early and mid morning), recording measurements and making conclusions.
Learners worked in groups of two.
Learner 1 – You stand and I will mark the shadow
Learner 2 – where will you mark?
Learner 1 – I am not sure – here and here. Educator where do we mark?
Educator – from the bottom of the foot to the head
Learner 2 – let me do it?
Learner 1 – no I will do it
Learner 1 marks the shadow length
Learner 2 – I will measure it

Learner put his first foot down and counted two. Educators reflective diary – It was interesting to watch how some children forgot to count their first foot when they stepped.

Learners after measuring their shadows the second time concluded that their shadows were in a different position and they were shorter.

I claim that learners could mark off the shadow length, but they experienced problems with measuring the shadow length, using their feet. Learners made appropriate conclusions.

c. classifying seeds and fruit
Evidence from transcripts:
Educator – Is a paw-paw a seed or a fruit?
Learner – a fruit
Educator – Why?
Learner 3 – has seeds inside
Educator – Is a mealie cob a seed or a fruit?
Learners did not know this

Educator - Can we eat seeds?
Learner – yes.. Learner – No

Educators reflective diary:
Learners sorted the seeds and fruits. It was rewarding to see them doing it

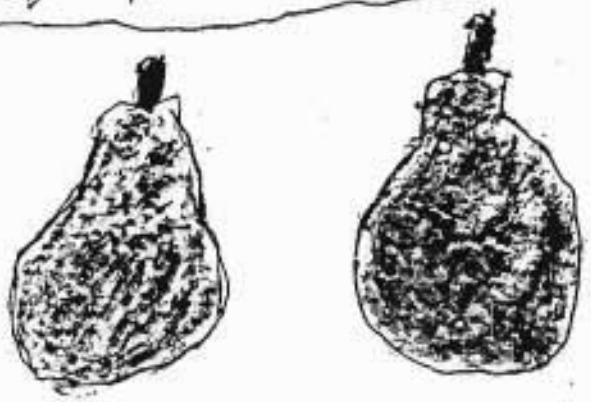
d. developing graphing skills (See learners book – Appendix B)
Teachers reflective diary – I was impressed by the way the learners decided to do the graph , the block graphs were developed well

e. planting seeds
Joseph (gardener) – push your finger halfway in the soil and make a hole. Put you seed inside and close it up
Learner – Why must we put our finger halfway?
Learner – for the seed;
Learner – Joseph is she right?
Joseph – the seed must not be too deep, it will not grow

f. communicating verbally
Educator – discuss with you friend what you liked about the Gardens we visited

I claim that the learners developed a range of skills but the extent of the development is questionable, as learners were not assessed on this, except for d and f above. Also, for some of the skills not all the learners were exposed to them during the course of the observation period, measuring shadows, only 1 group experienced this.

S a n d L E



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nomtyndo

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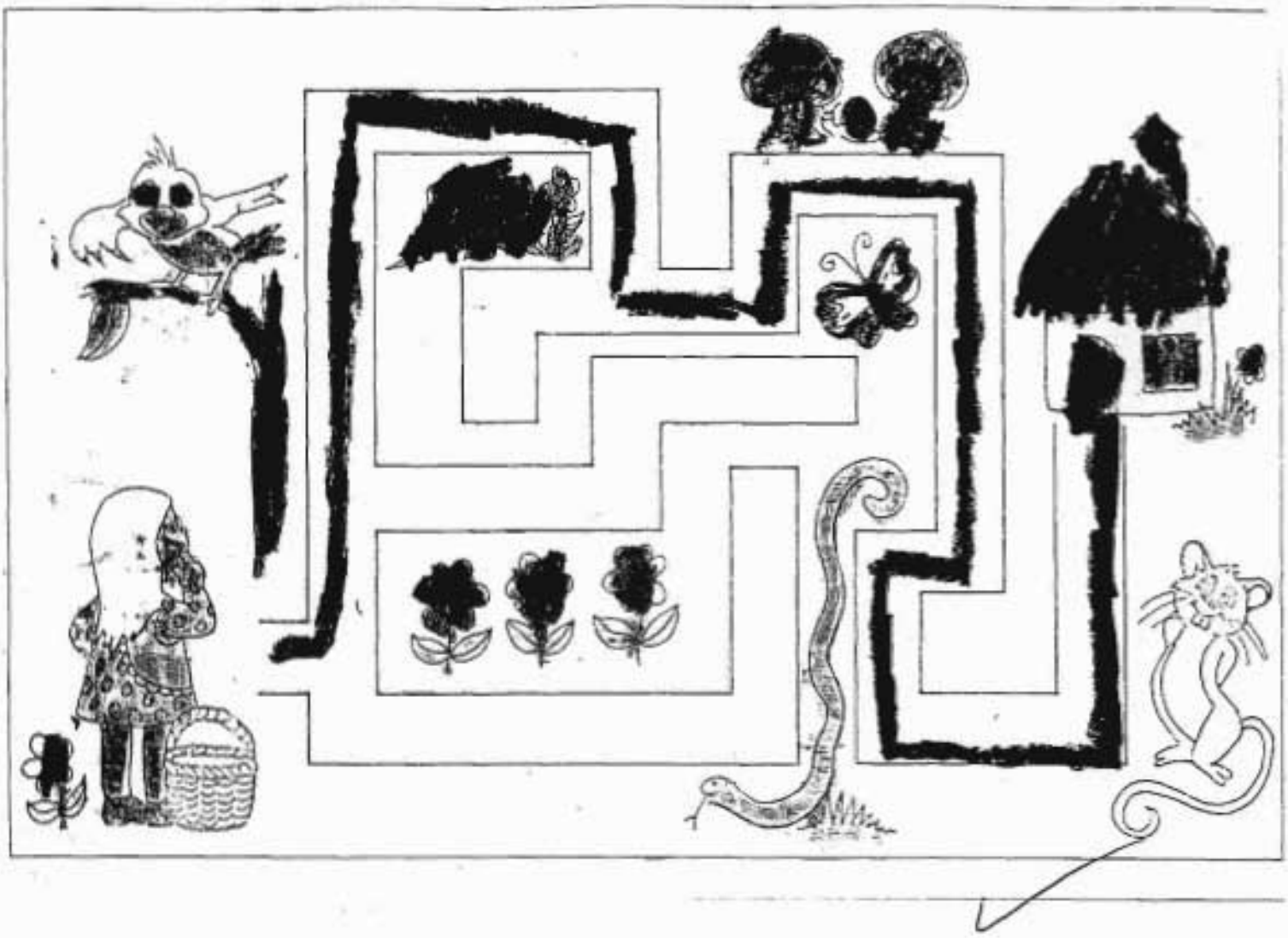
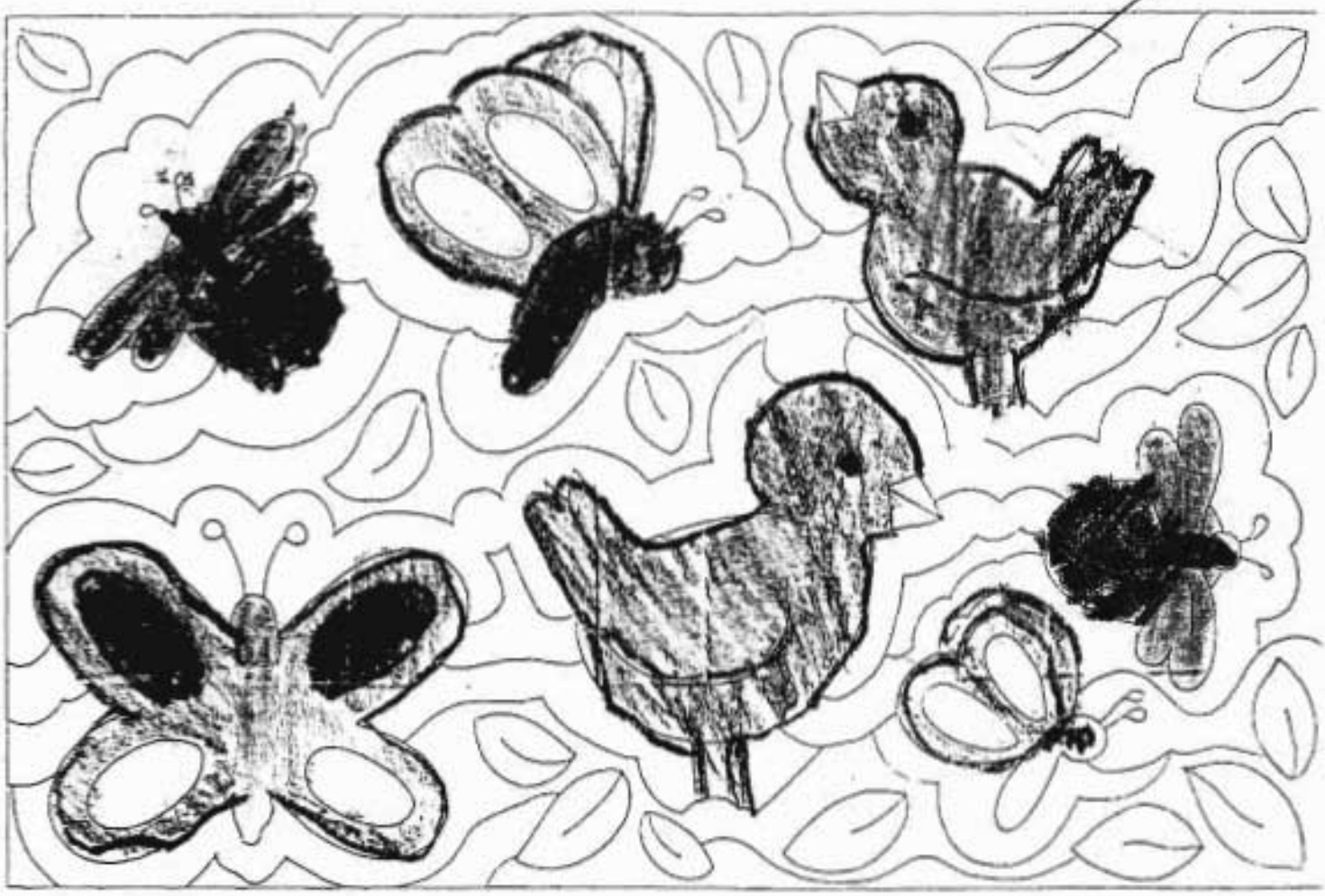
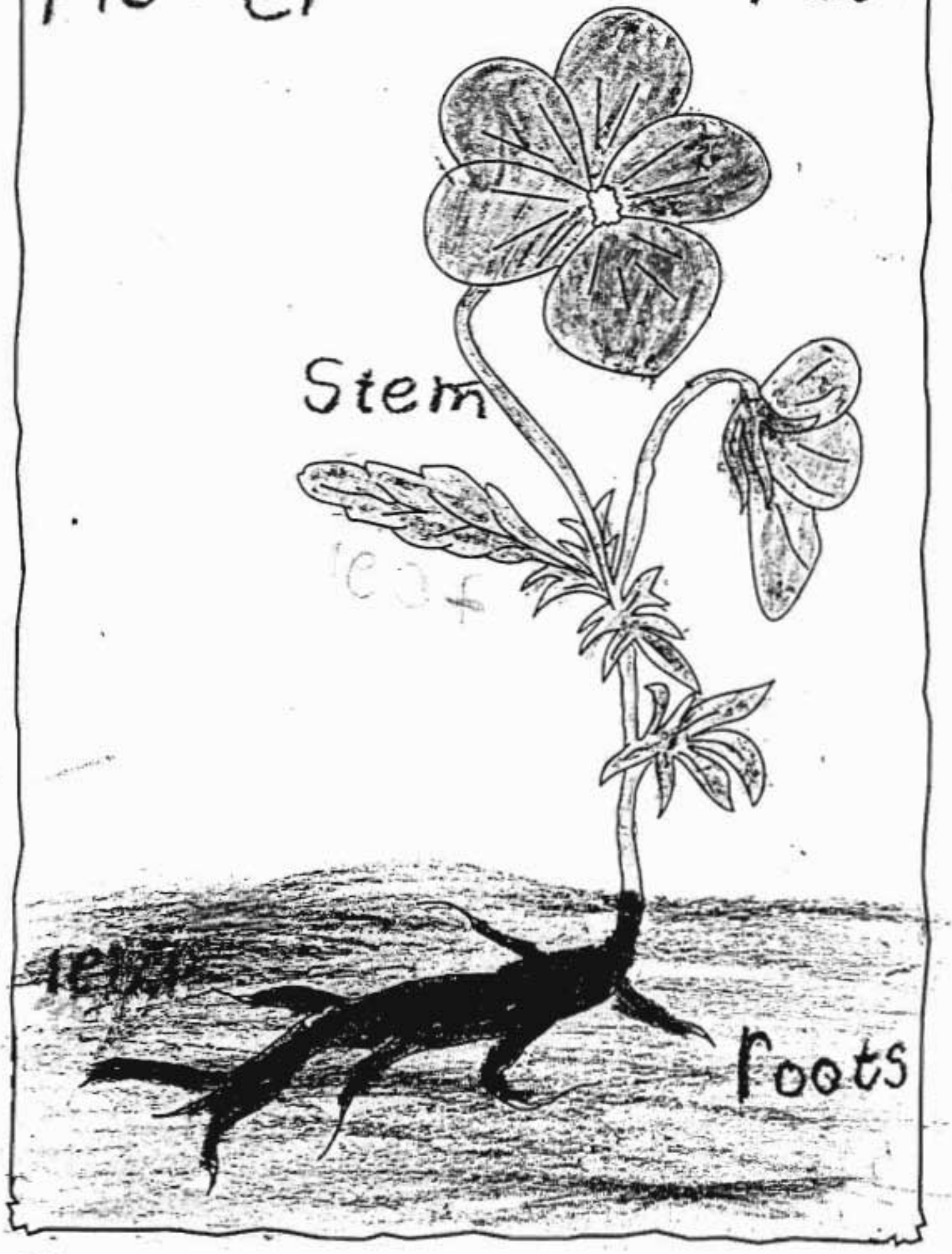




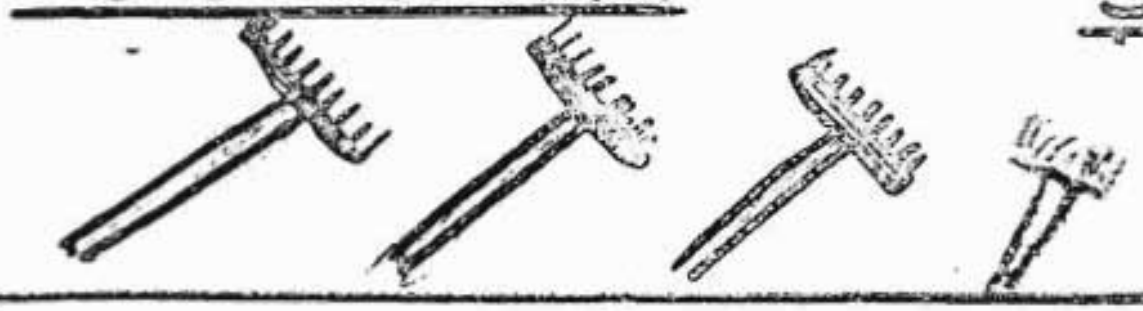
seeds | flowers | leaves | insect

Parts of a Plant



Count on.

Stop.



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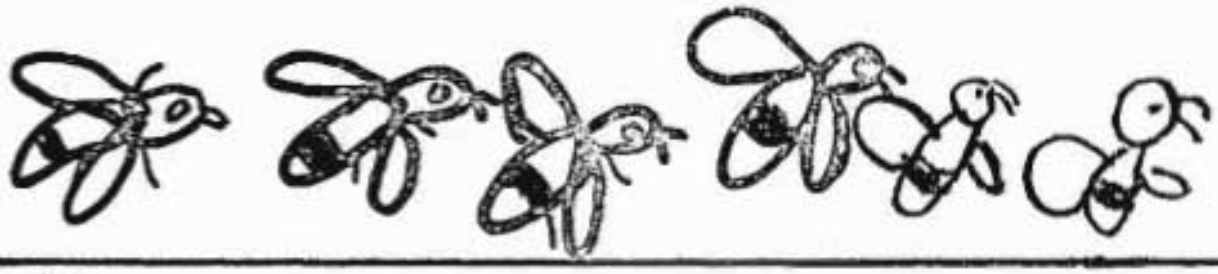

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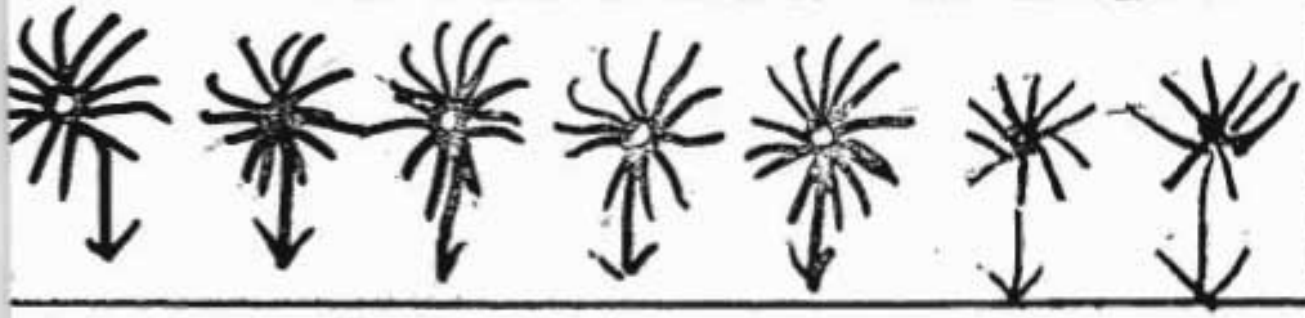


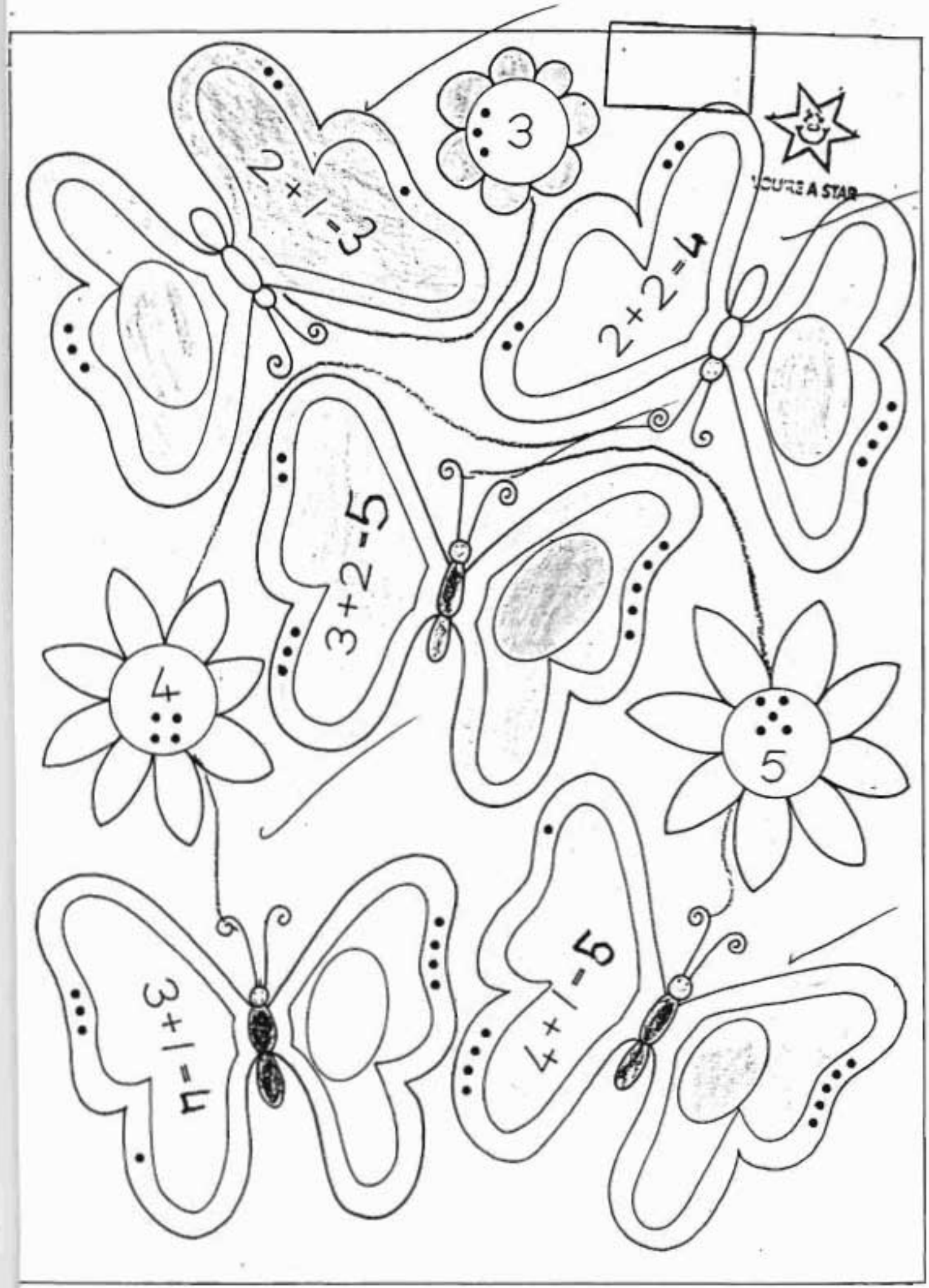
7

8

1 2 3 4 5 6. 7 8 9

1 2 3 4 5 6 7 8 9

4 5 6 7 8 9 10


2+1=3
3
2+2=4
3+2=5
4
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3+1=4
4+1=5

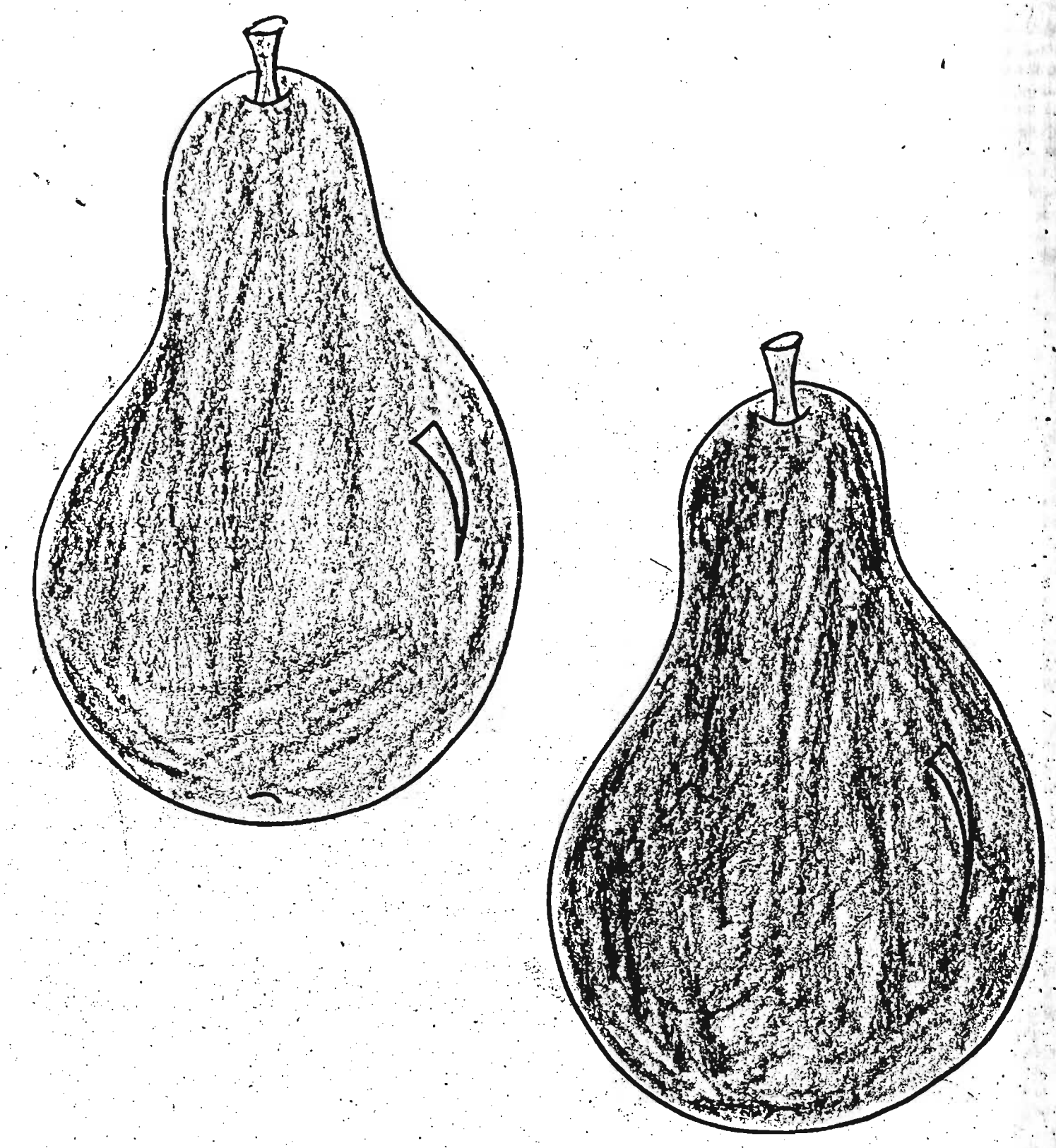

Africa

Short Term Planning for Grade 1

Phase organiser.
Programme. Organiser

DATE	LEARNING PROGRAMME	Specific Outcome SO	AC Assessment Criteria	Activities	Resources	Comments
	Life Skills	NS and EMS * to ~~understand~~ develop the understanding of natural science towards socio economic development and improvment of peoples lives * to promote the protection of environment. * to distigush between vegetable garden and flowes garden	* use of trees and flowes * weeding * get shade from tree.	* cutting of ~~flowes~~ grass and trees *	* magazines * trimmer	
	LITERACY	LLC * able to identify flowes from tree * able to draw tree not flowes * to develop learners the skill of listening reading and viewing	* vocabulary like: trees, flowes, grass watering can *	Demostration	watering can garden fork	
	Numeracy	MLMMS to build and understanding of ~~to~~ cal counting and	by giving colours they know	~~name~~ naming colours of flowes	flowes	

Two



2 Pears

19
18
17
16
15
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3
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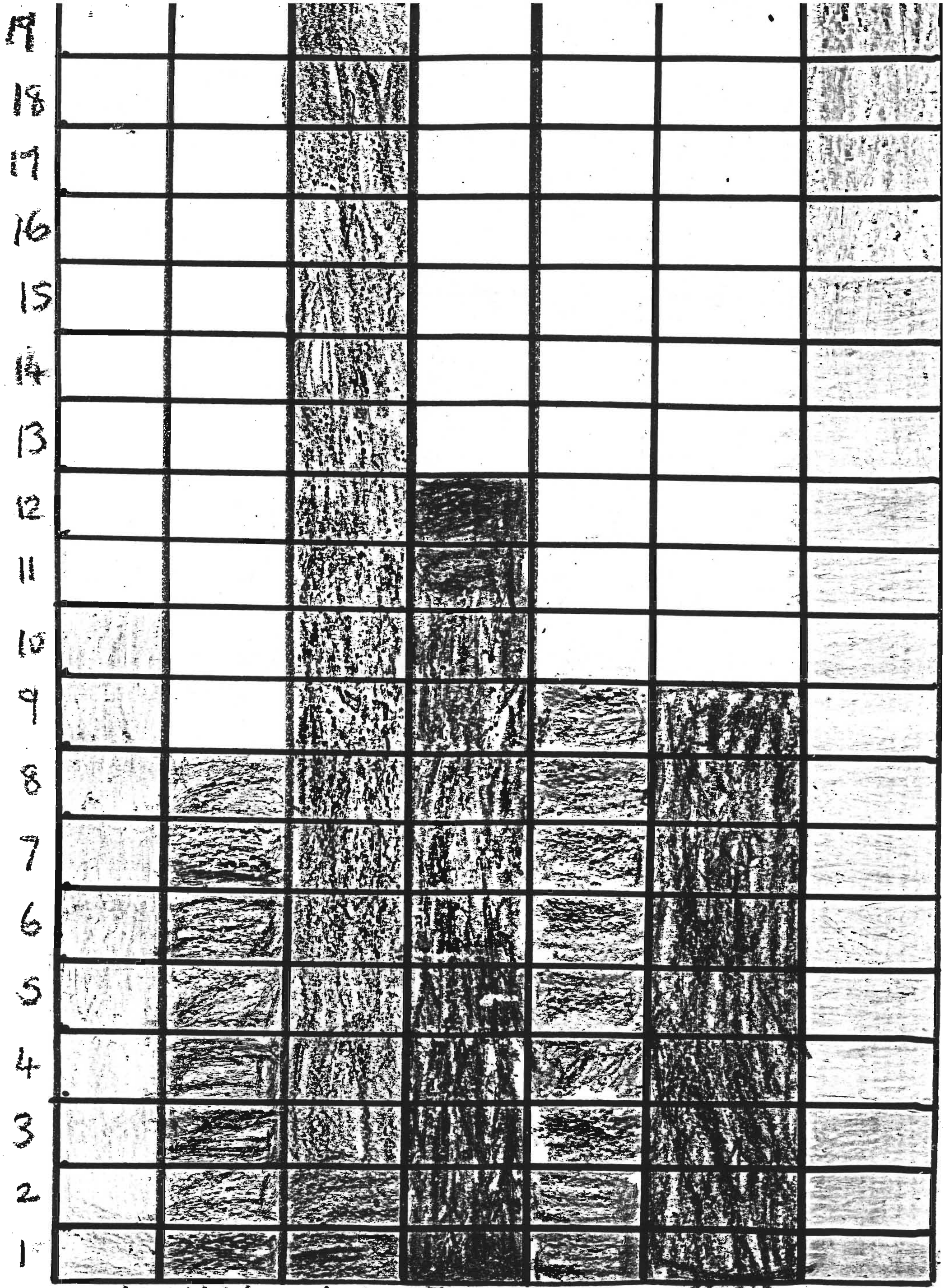
1

dry leaves | twigs | dark grey | light stones | flowers | purple


15
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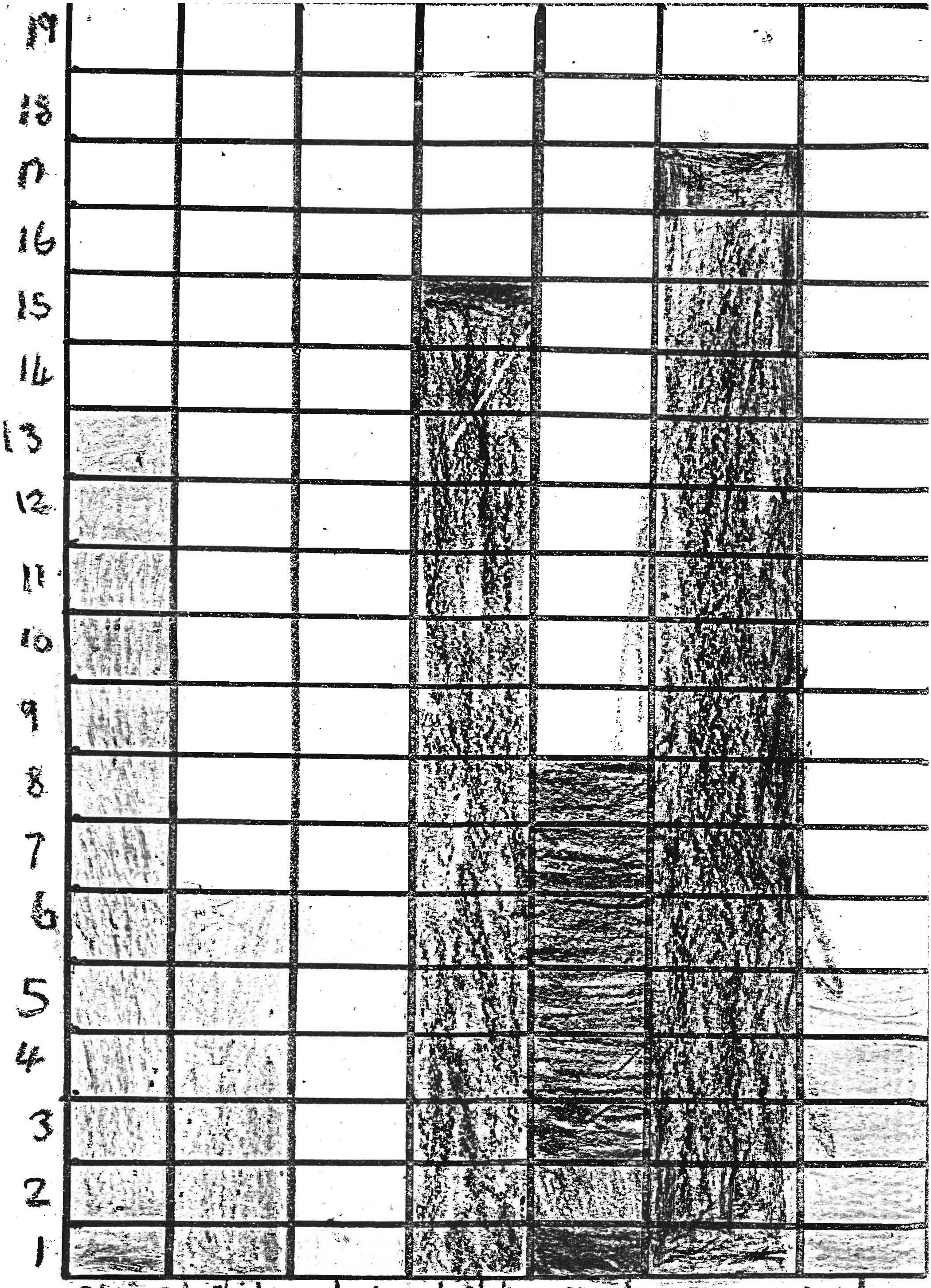
2
1
purple leaves
Light
dark
rocks
twigs
dry
flowers


20
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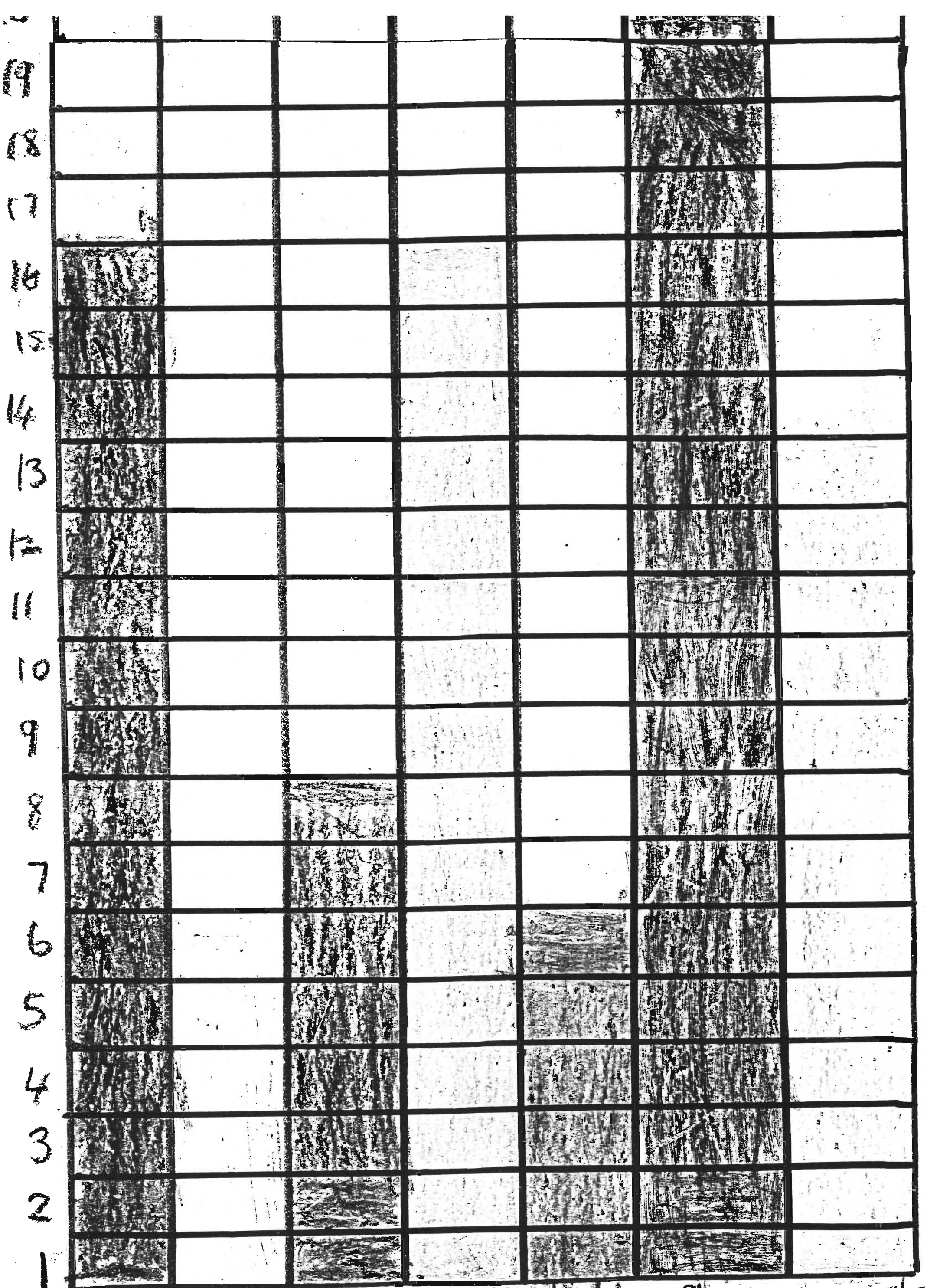
3
2
1
Stones
sticks
dark green
light green leaves
purple
flowers
dry leaves


15
14
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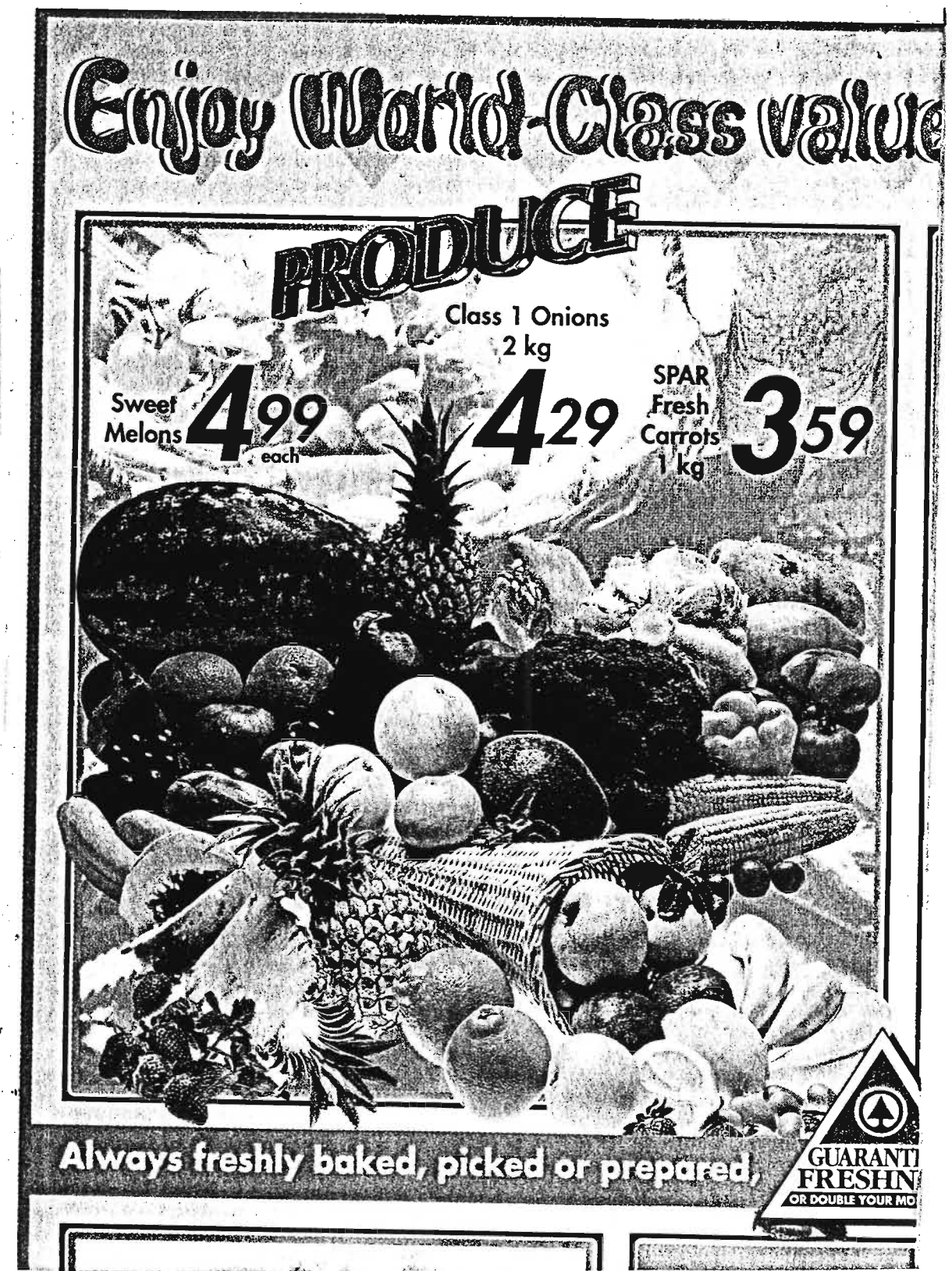
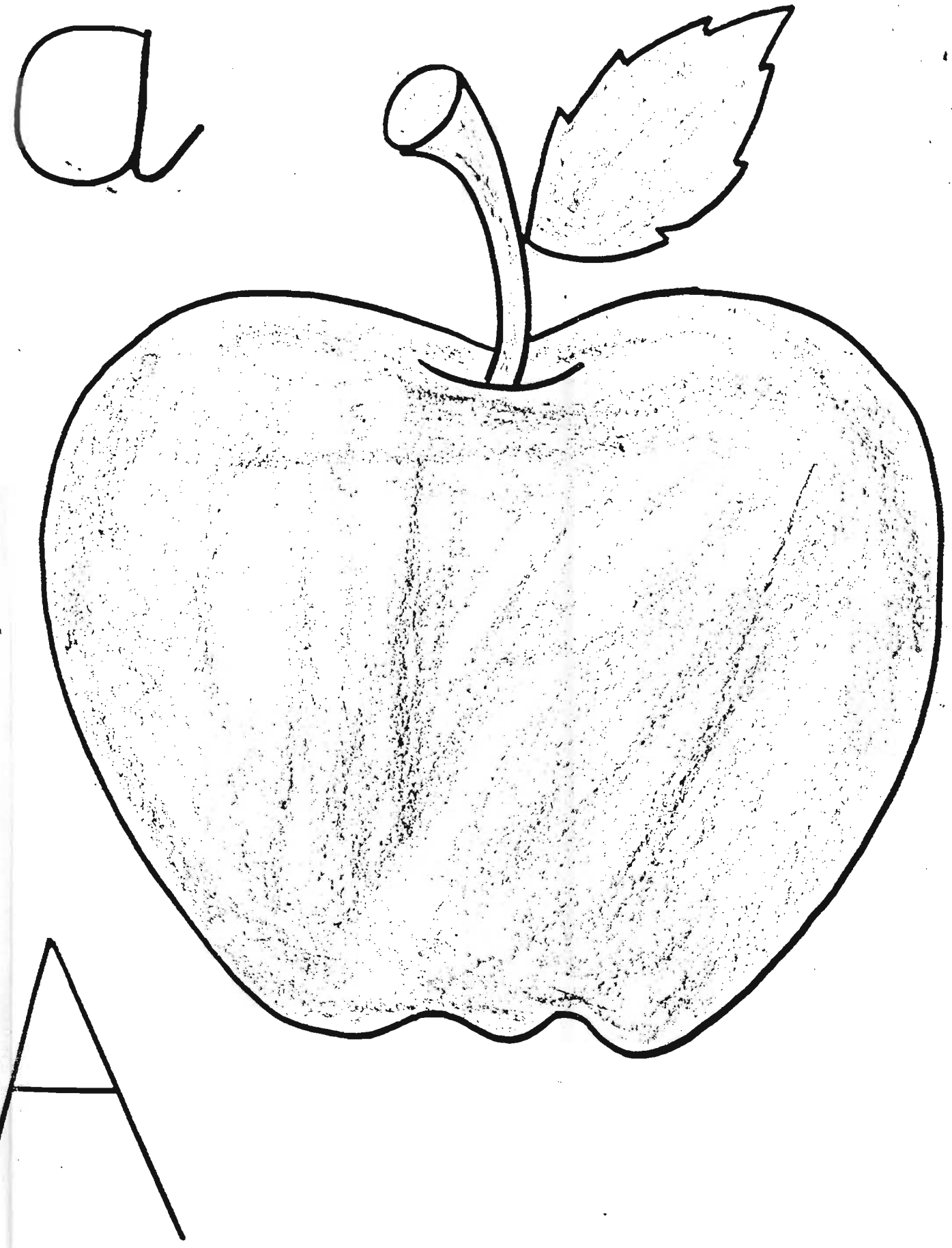
9
8
7
6
5
4
3
2
1
Stars
Sticks
dry leaves
green leaves
light green
flowers
purple

Date	Learning Programs	Specific Learning Outcomes	Assessment Criteria	Activities	Resources	Comments
	Life Skills	HSS * to develop a critical understanding of nature and use of sources * to acquire, investigate and solve problems skills * to develop interest in gardening * to ensure that they don't look down upon the people who are gadners	* by collecting litte, witin the garden * share ideas of how different part of tools work	making a compost could draw pictures of different tools	tools pupils	
	Numeracy	MLMMS * able to sort, count and classify litte using different criteria * grouping	naming paper plastic tin etc.	pupils	charts	
	Literacy	LLC *able to copied the correct spelling * able to distigush between fruits and vegetables	music vocabulary like i) apple, banana etc ii) cabbage; tomatoe	naming those fruits and vegetables	magazines pictures pupils	

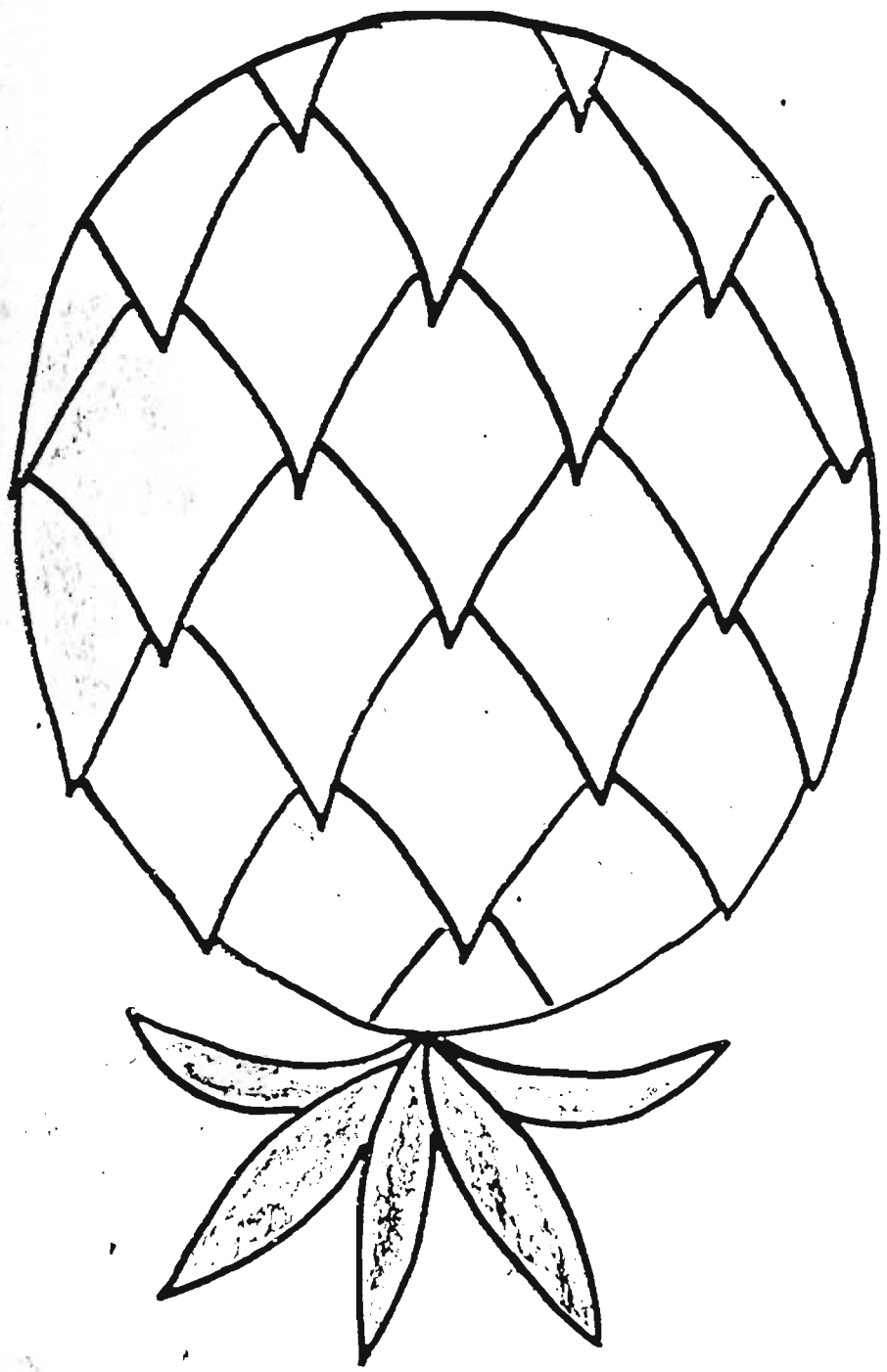

Enjoy World-Class value
PRODUCE
Class 1 Onions
2 kg
4 29
SPAR
Fresh
Carrots
1 kg
3 59
Sweet
Melons
4 99
each
Always freshly baked, picked or prepared,
GUARANT
FRESHN
OR DOUBLE YOUR MO



a

A

ale	Learning Programme	SO	A-C	Nationalities	Resources	Comments
	Life Skills					



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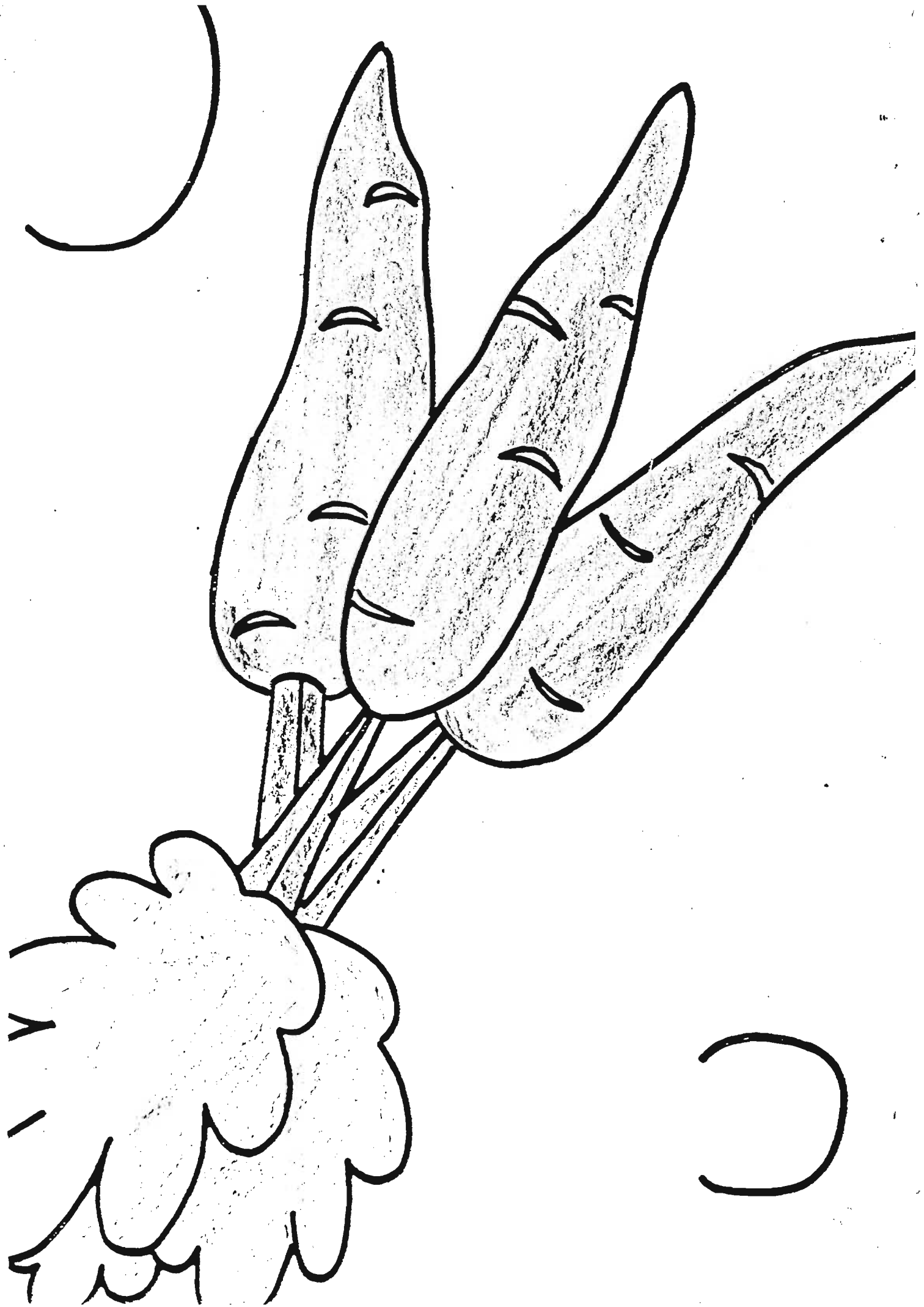


d

c

Mud

Mud is very nice to feel
All squishy-squash between the toes!
I'd rather wade in wiggly mud
Than smell a yellow rose.

Nobody else but the rosebush knows
How nice mud feels
Between the toes.

POLLY CHASE BOYDEN

Little Rain

When I was making myself a game
Up in the garden, a little rain came.

It fell down quick in a sort of rush,
And I crawled back under the snowball bush.

I could hear the big drops hit the ground
And see little puddles of dust fly round.

A chicken came till the rain was gone;
He had just a very few feathers on.

He shivered a little under his skin,
And then he shut his eyeballs in.

Even after the rain had begun to hush
It kept on raining up in the bush.

One big flat drop came sliding down
And a ladybug that was red and brown

Was up on a little stem waiting there,
And I got some rain in my hair.

ALEEN FISHER

The Seed

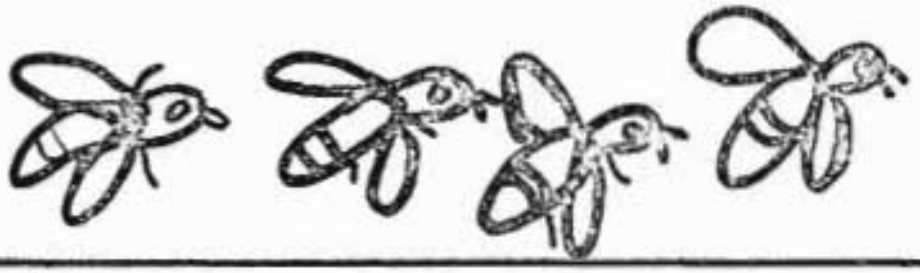
low does it know,
us little seed,
it is to grow
a flower or weed,
it is to be
vine or shoot,
or grow to a tree
with a long deep root?
A seed is so small
where do you suppose
it stores up all
of the things it knows?

Count on.

Stop.

4

5



6

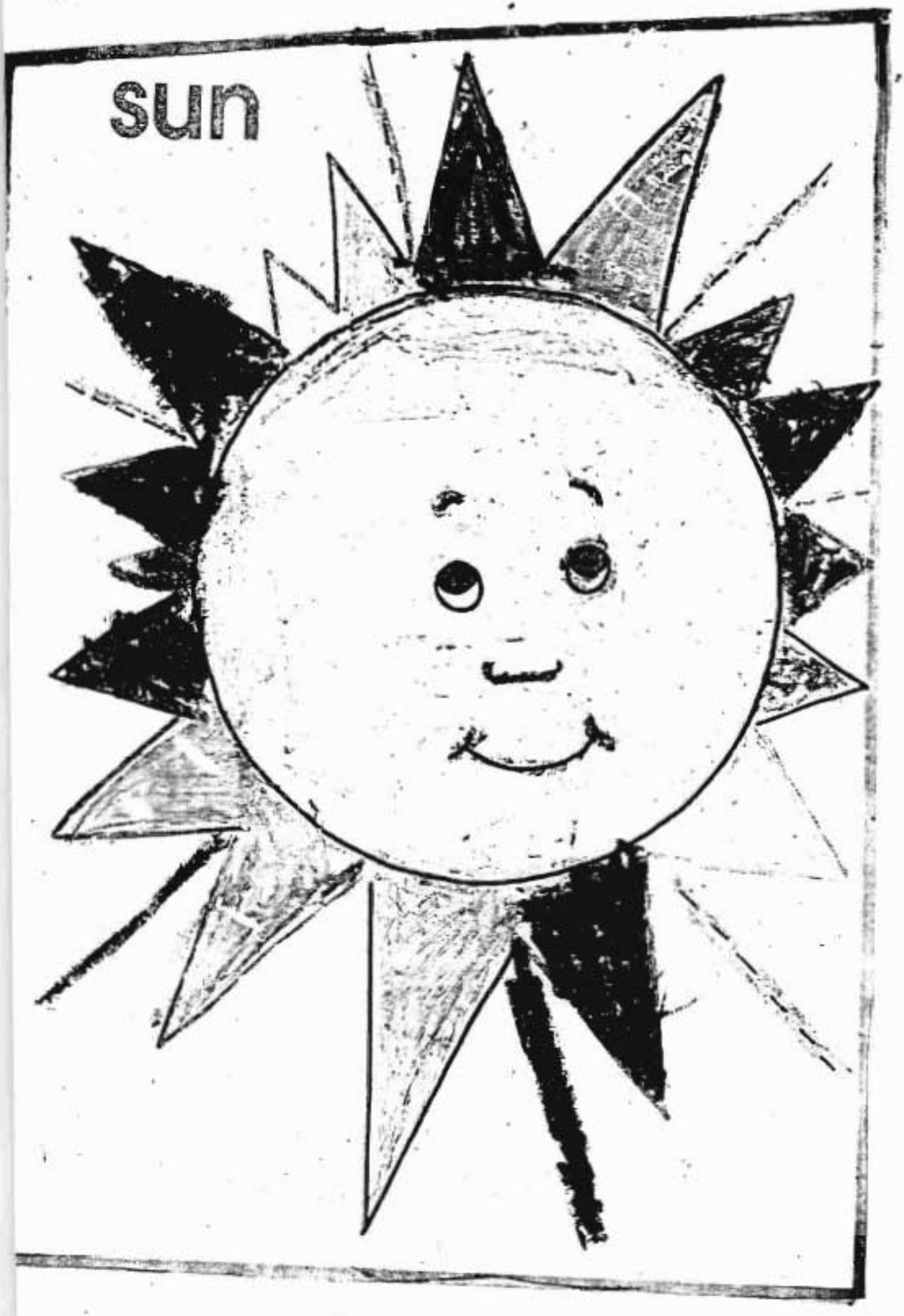
7

8

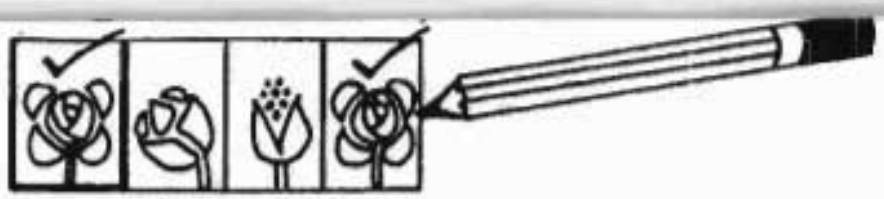
1 2 _ 4 _ 6. 7 8

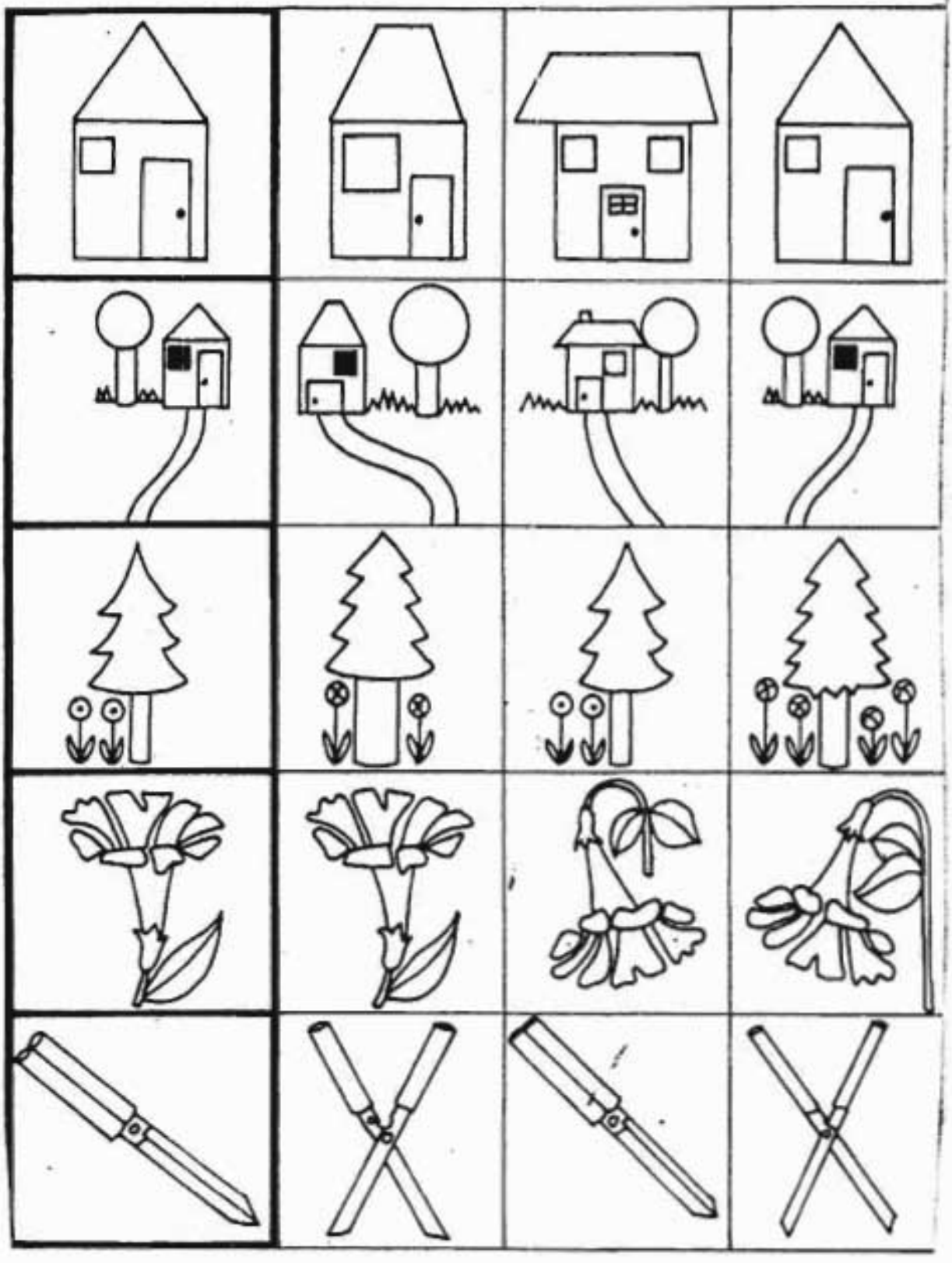
1 2 3 _ 5 _ _ _ 9

4 5 6 _ _ 9 10


sun

Our Garden Book



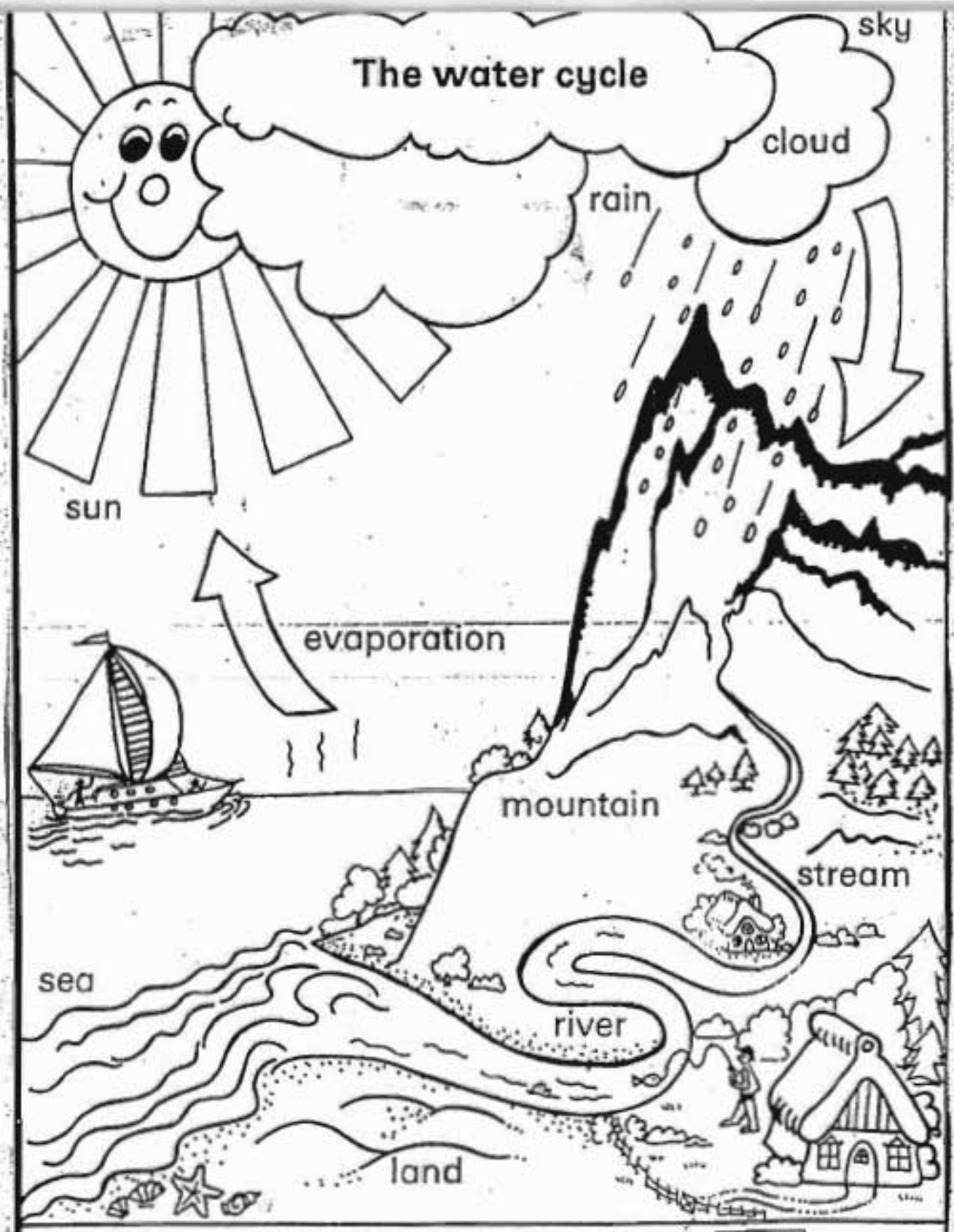


NAME:

STD:

SCHOOL:

Give the picture a name.

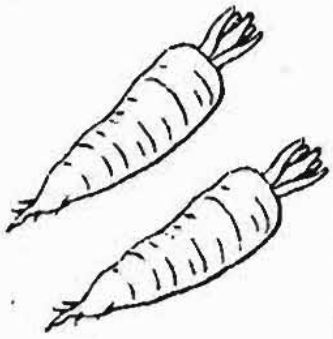


How many words begin with r?

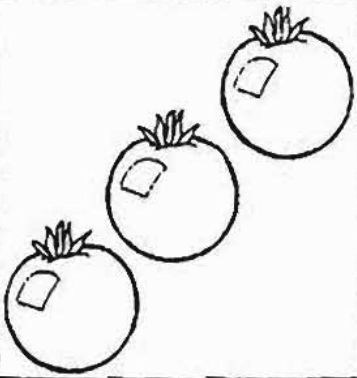
How many words begin with s?

Water 7

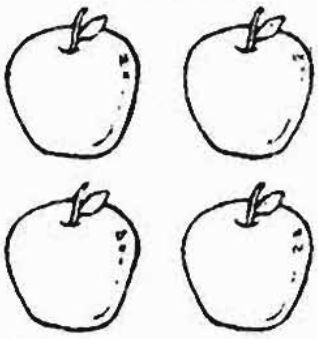
1 1 1 1 1



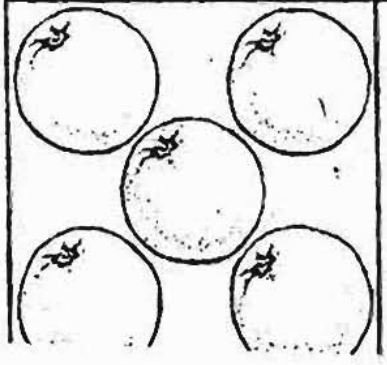
2 2 2 2 2



3 3 3 3 3



4 4 4 4 4



5 5 5 5 5

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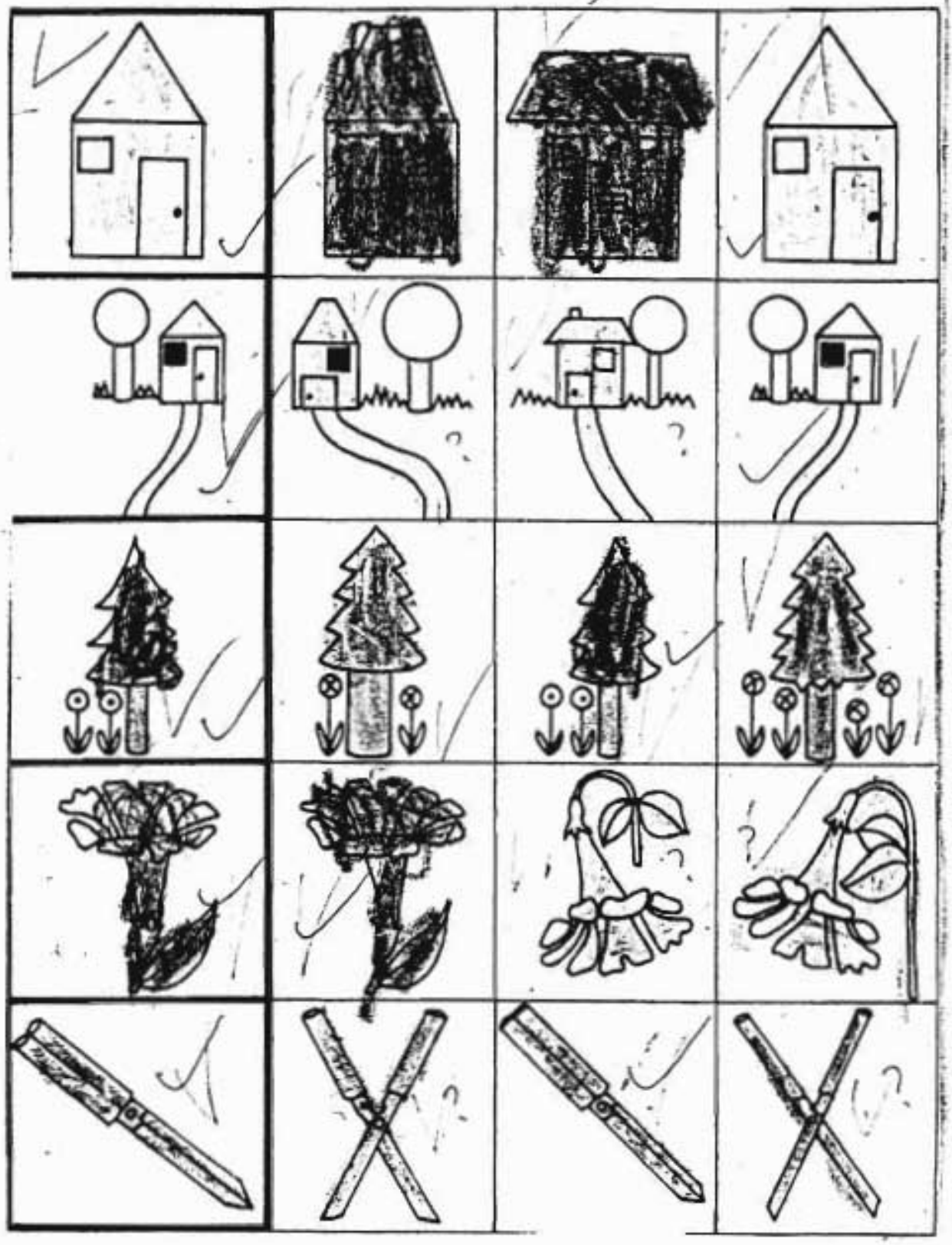
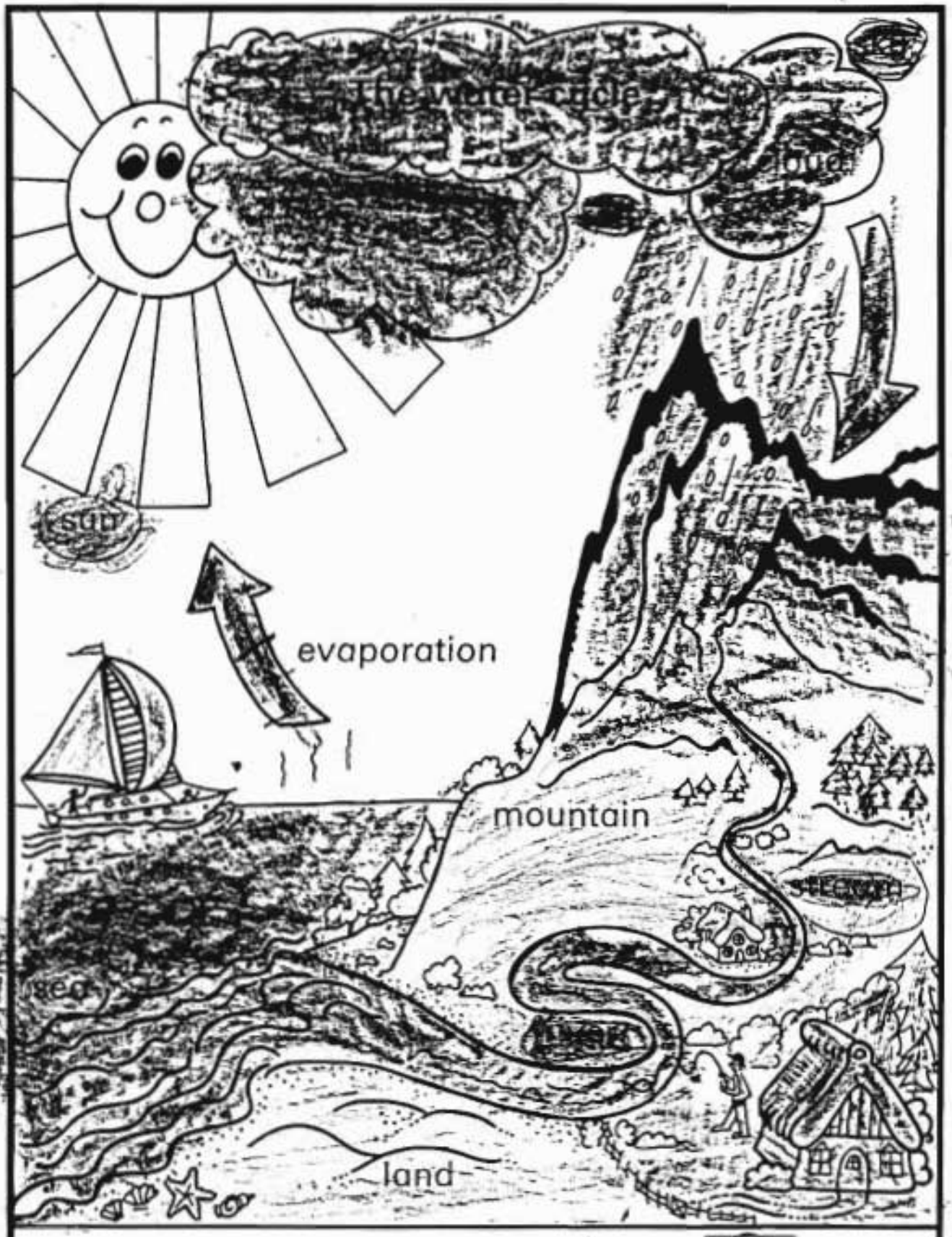
Lethu

lethu MTI





How many words begin with r? 2

How many words begin with s? 4

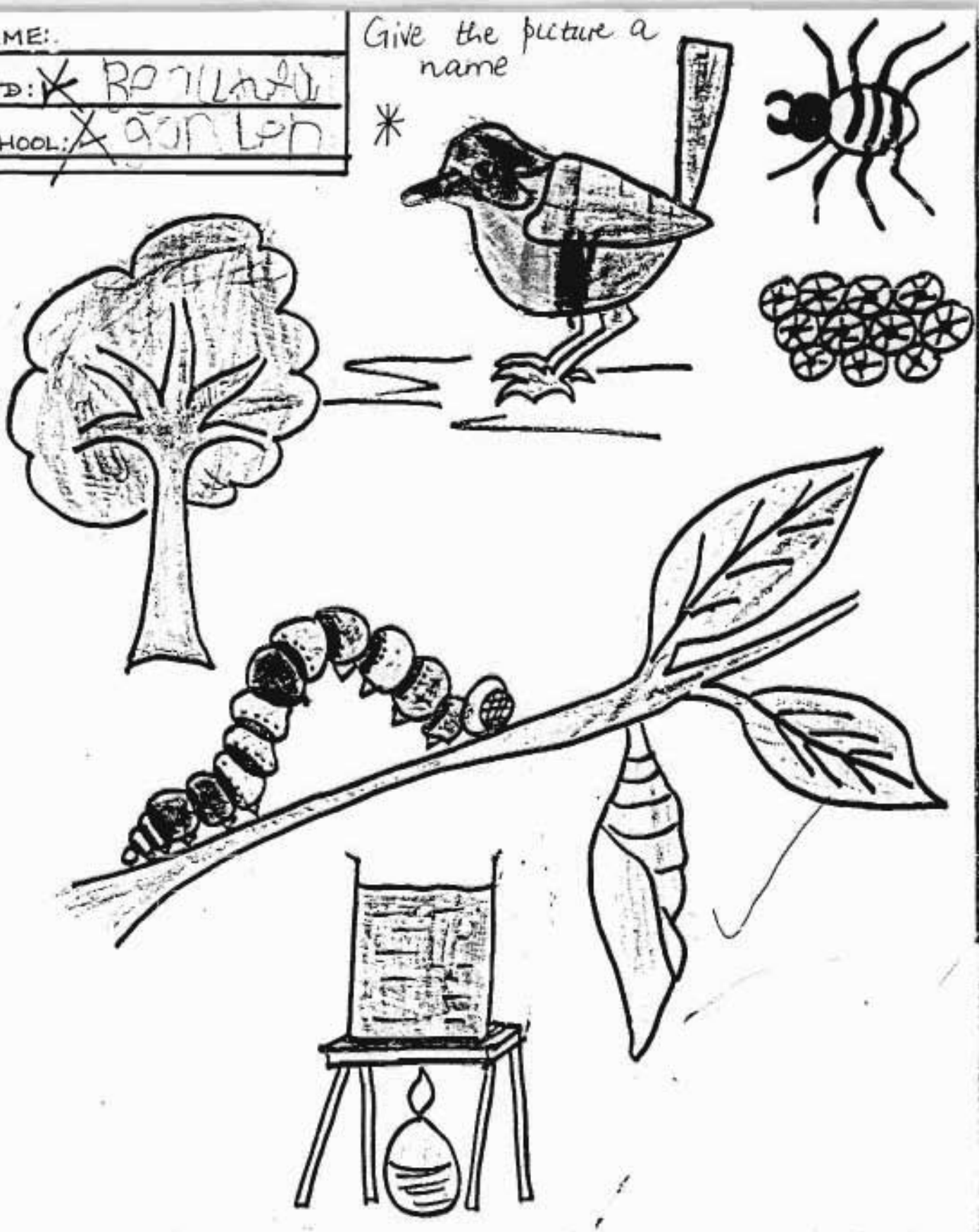
Water 7

NAME:

STD:

SCHOOL:

Give the picture a name



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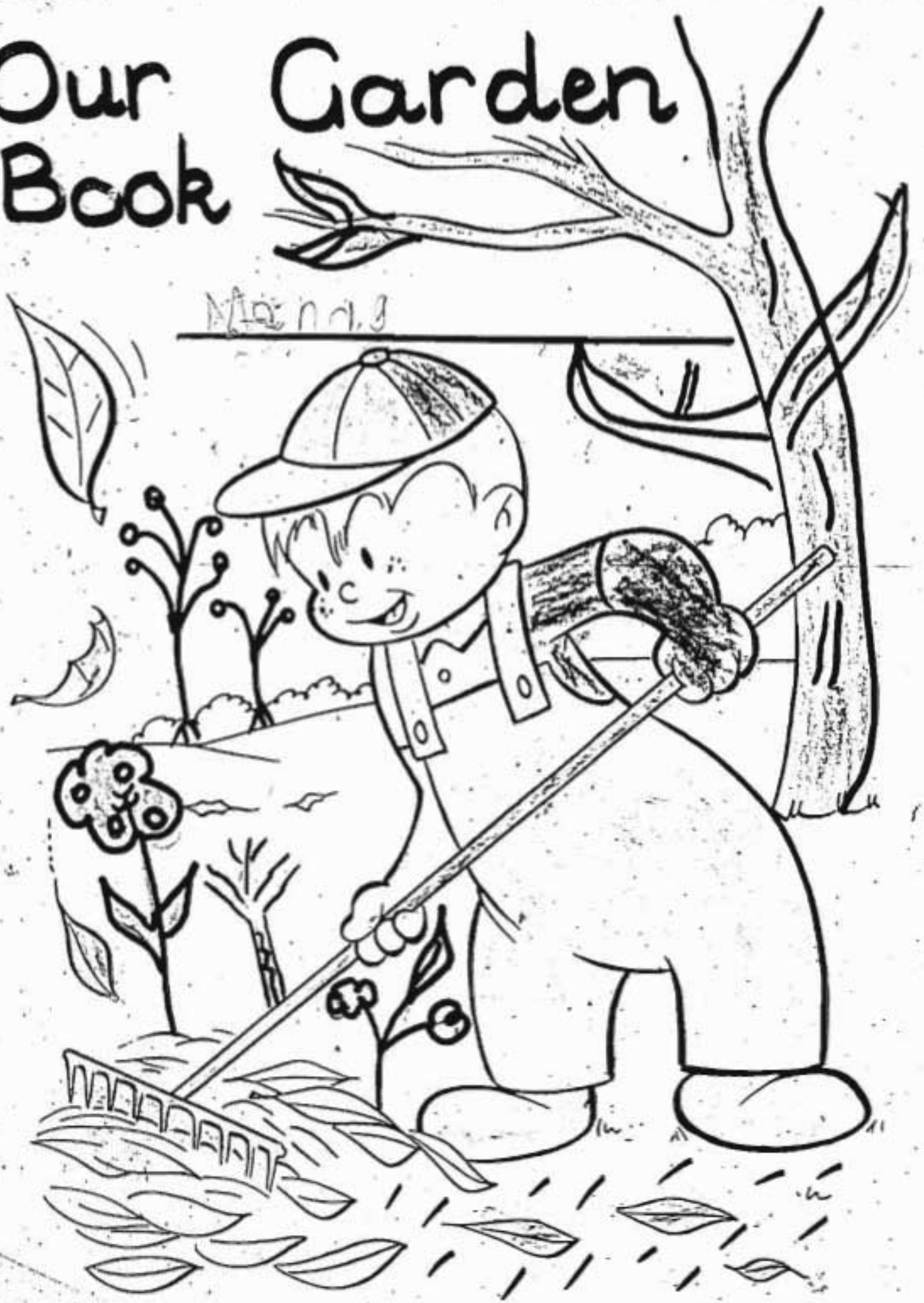
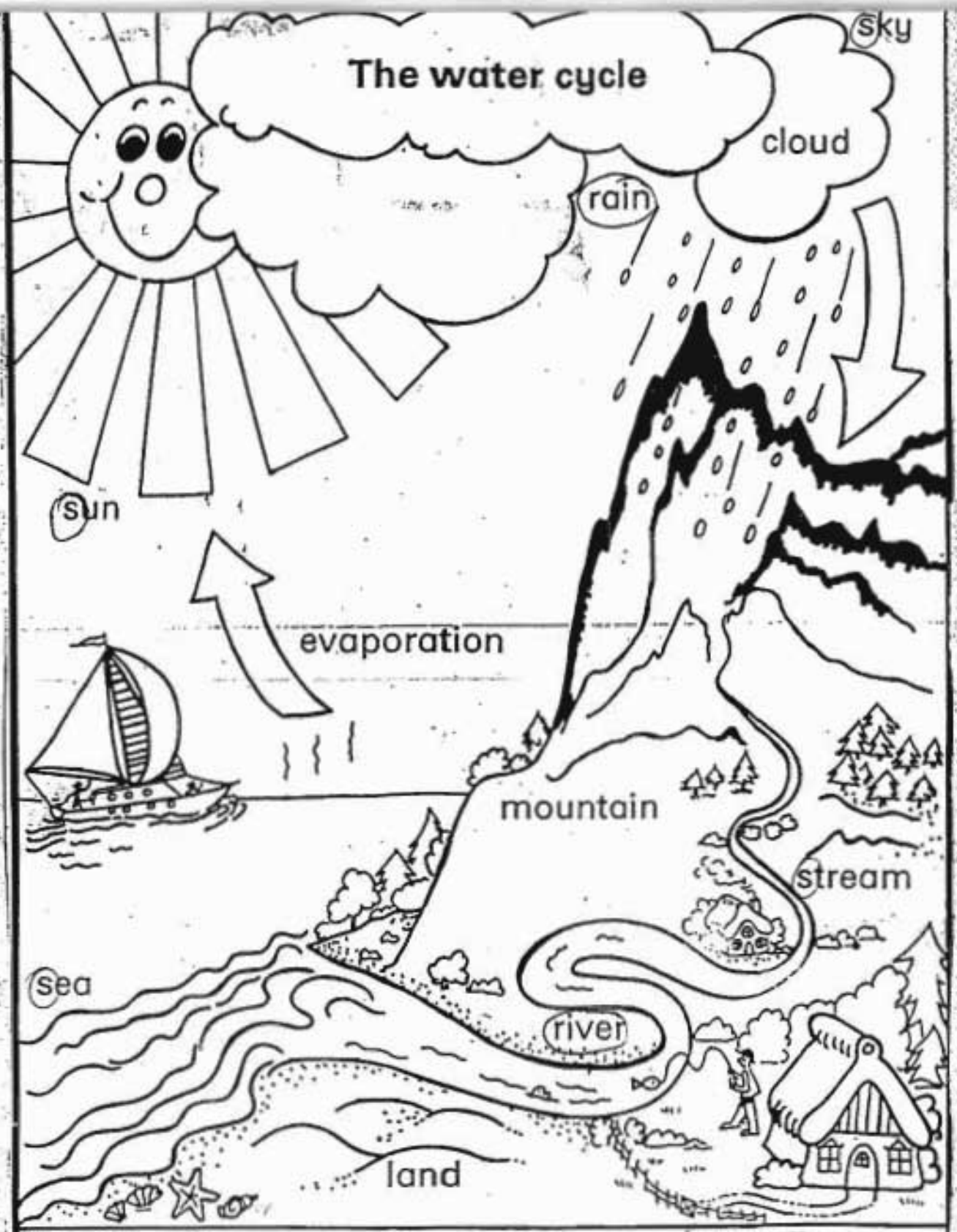




How many words begin with r? 12

How many words begin with s? 4 ✓

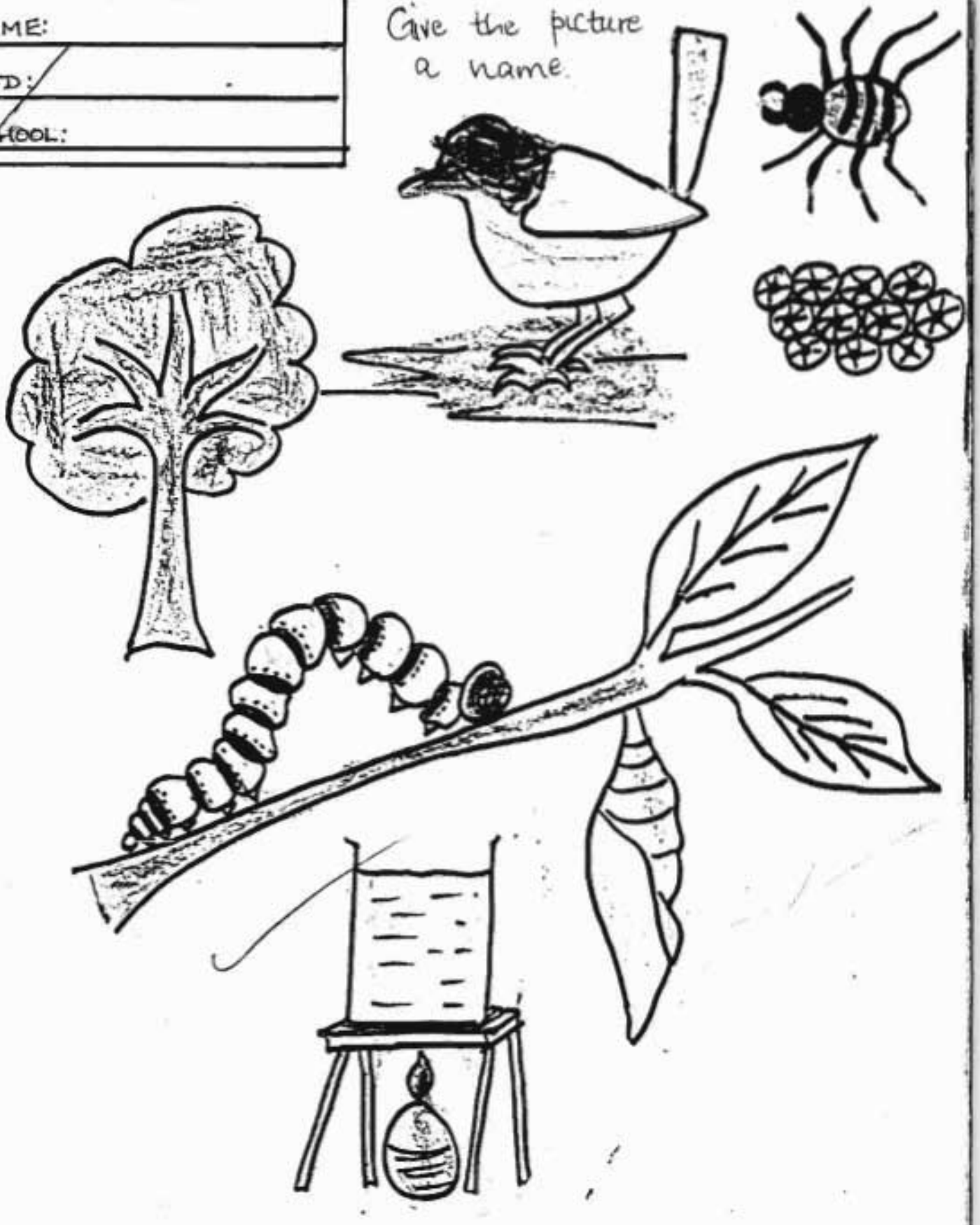
Water 7.

NAME:

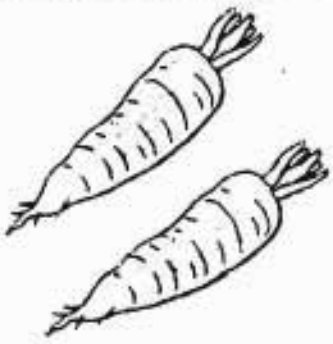
STD:

SCHOOL:

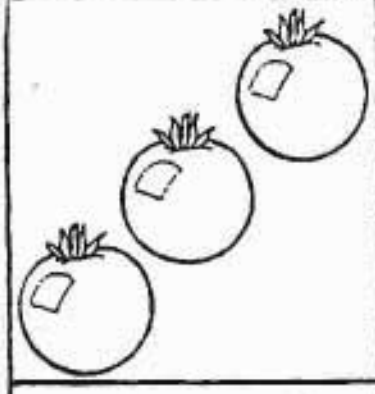
Give the picture a name.



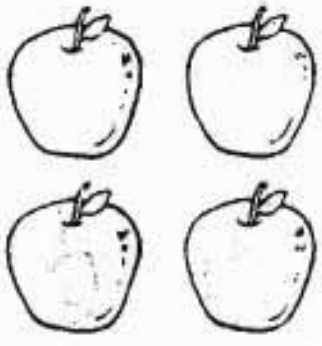
1 1 1 1 1



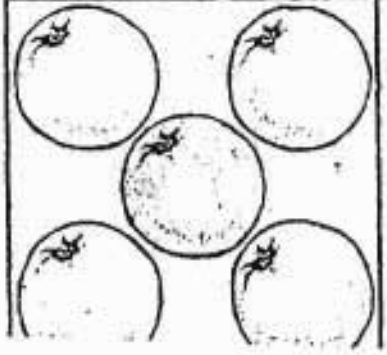
2 2 2 2 2



3 3 3 3 3



4 4 4 4 4



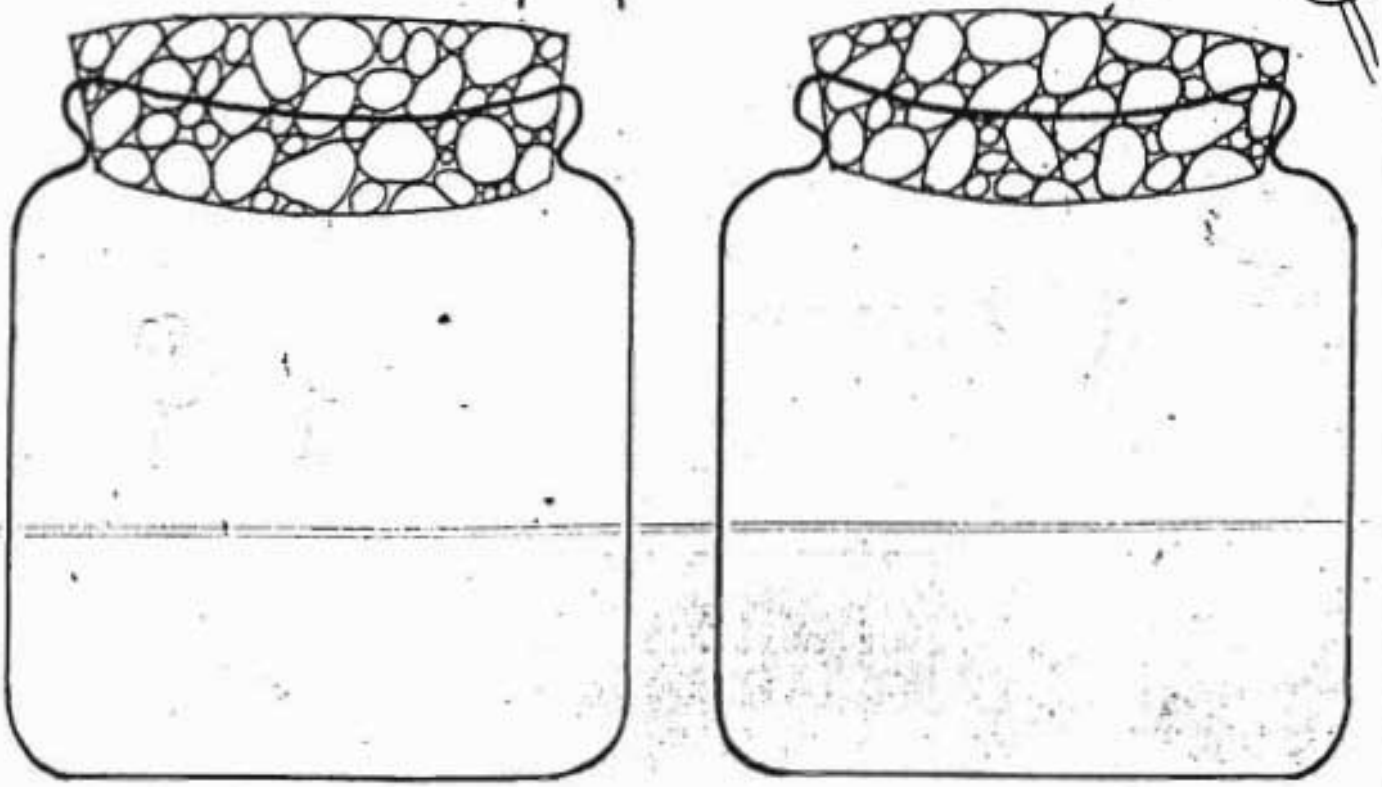
5 5 5 5 5

Good

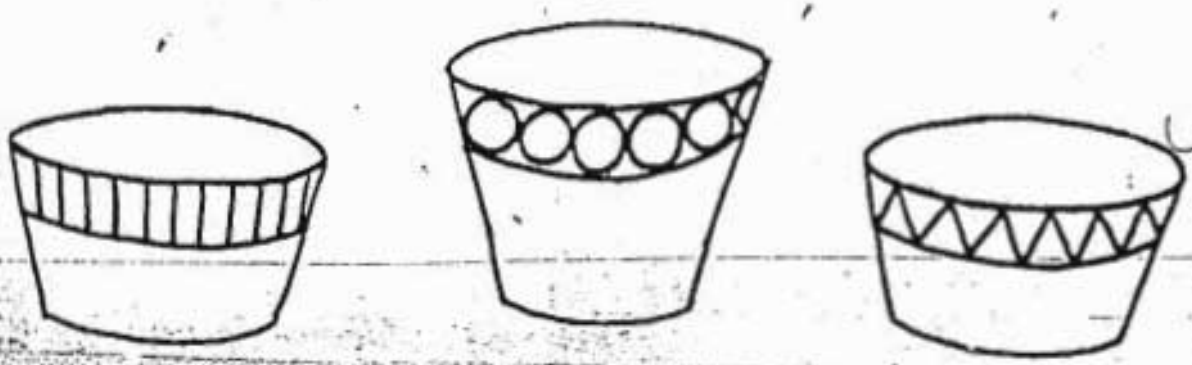
Trace the numbers.

2 2 2 2 2 2 2 2

Draw 2 lollipops in each jar.



Draw 2 yellow flowers in each pot



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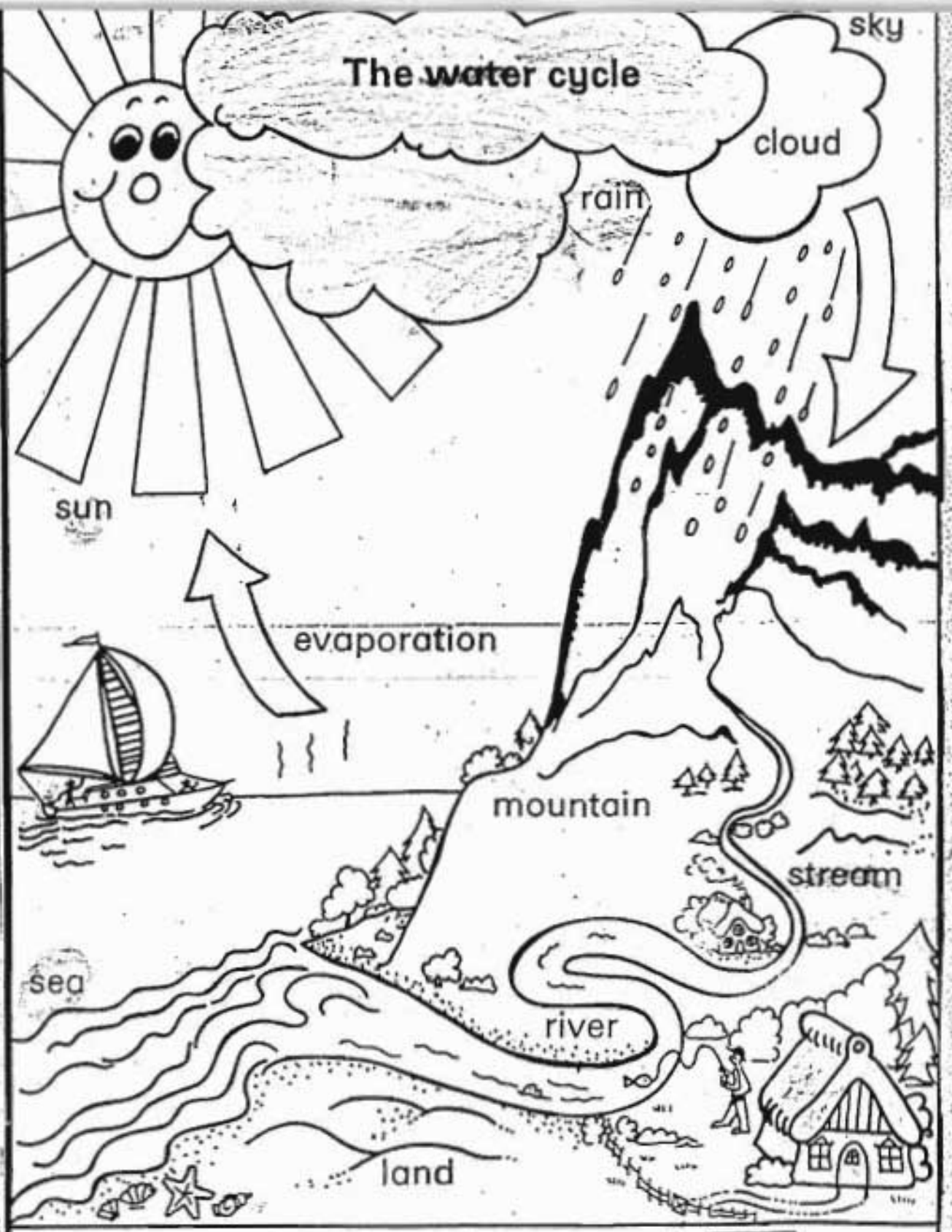
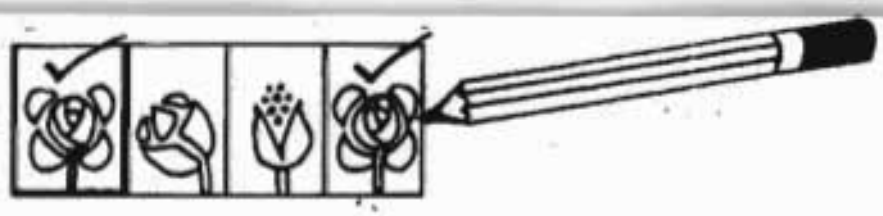
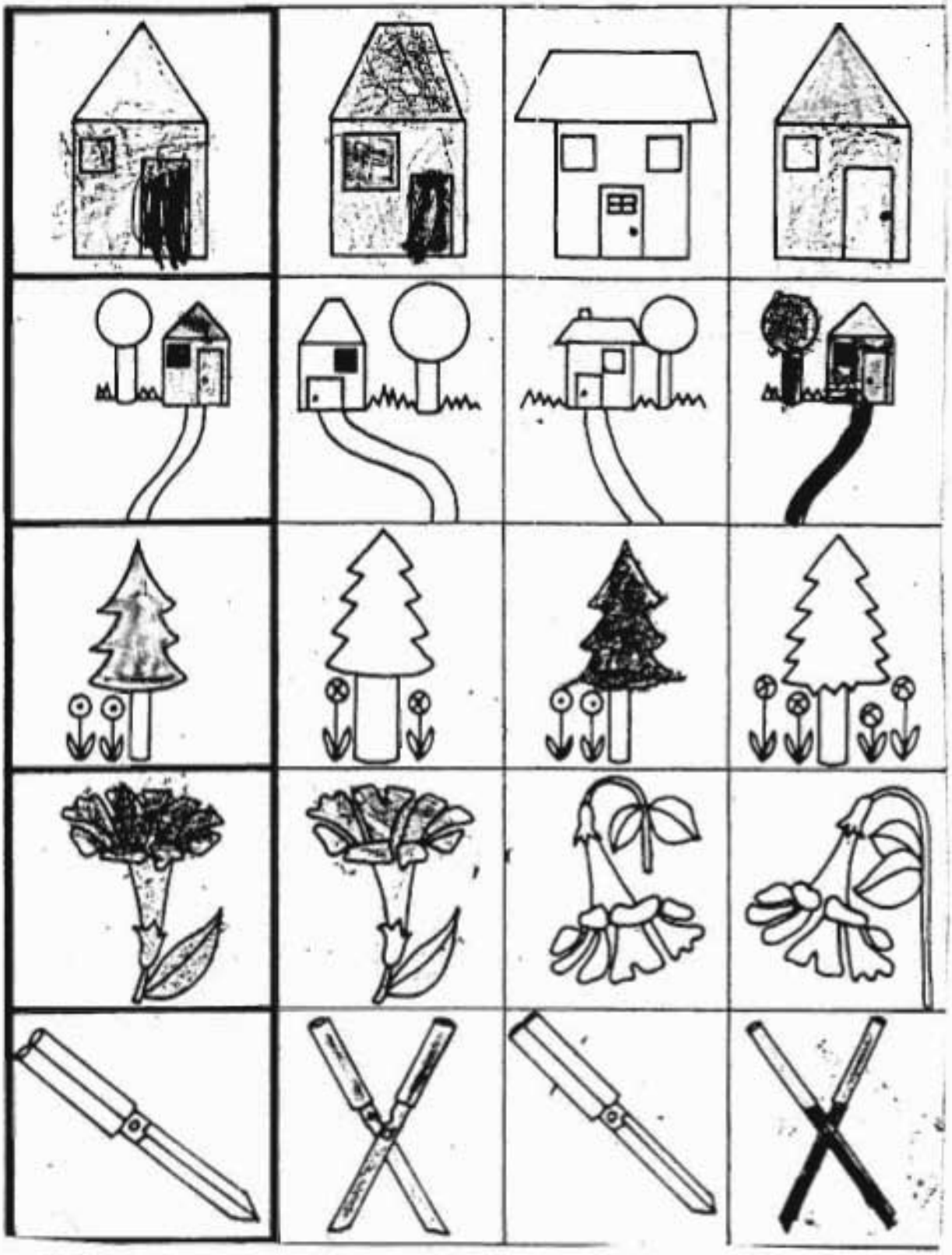


How many words begin with r? 5

How many words begin with s? 1

Water 7

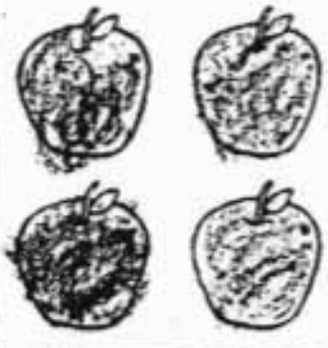
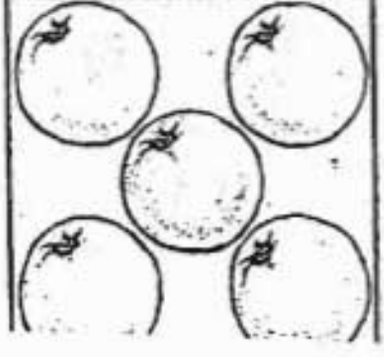




NAME: White life

STD:

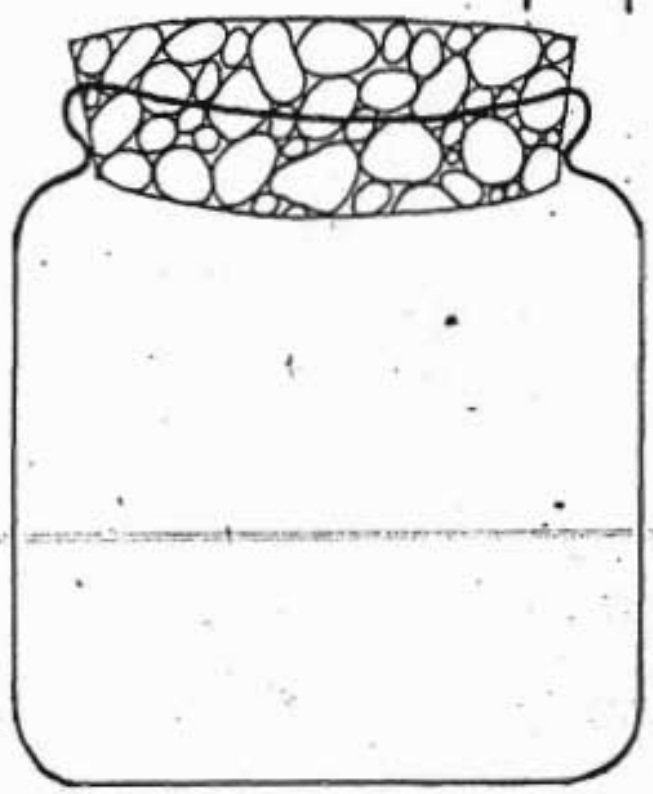
SCHOOL:

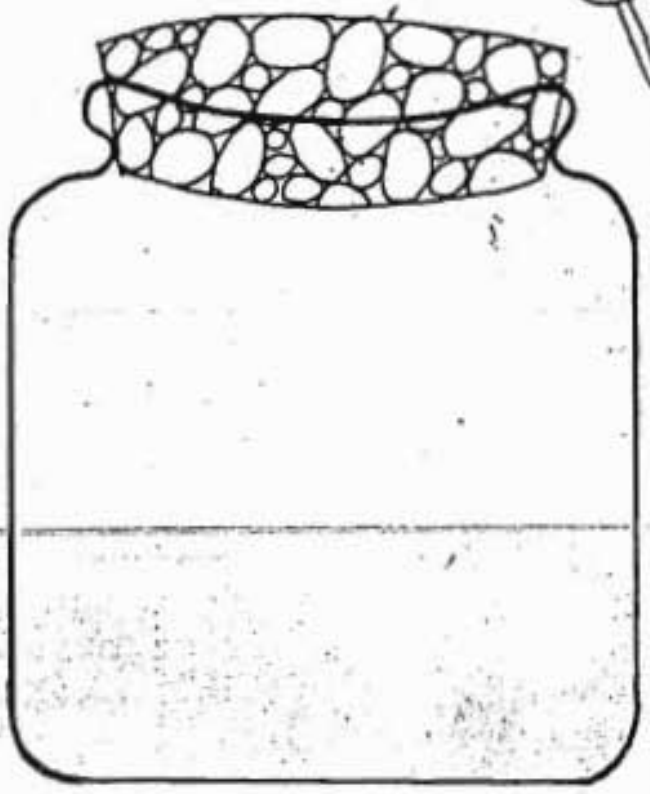
	1 1 1 1 1
	2 2 2 2 2
	3 3 3 3 3
	4 4 4 4 4
	5 5 5 5 5

Trace the numbers.

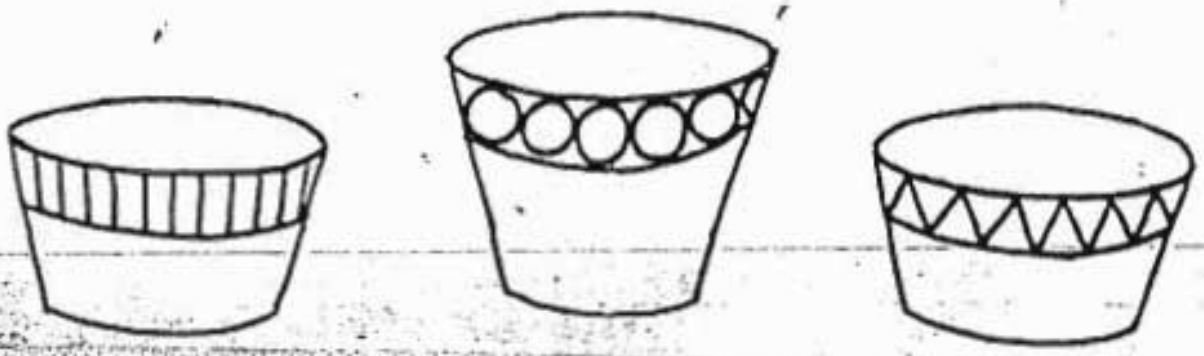
2 2 2 2 2 2 2 2 2 2

Draw 2 lollipops in each jar.

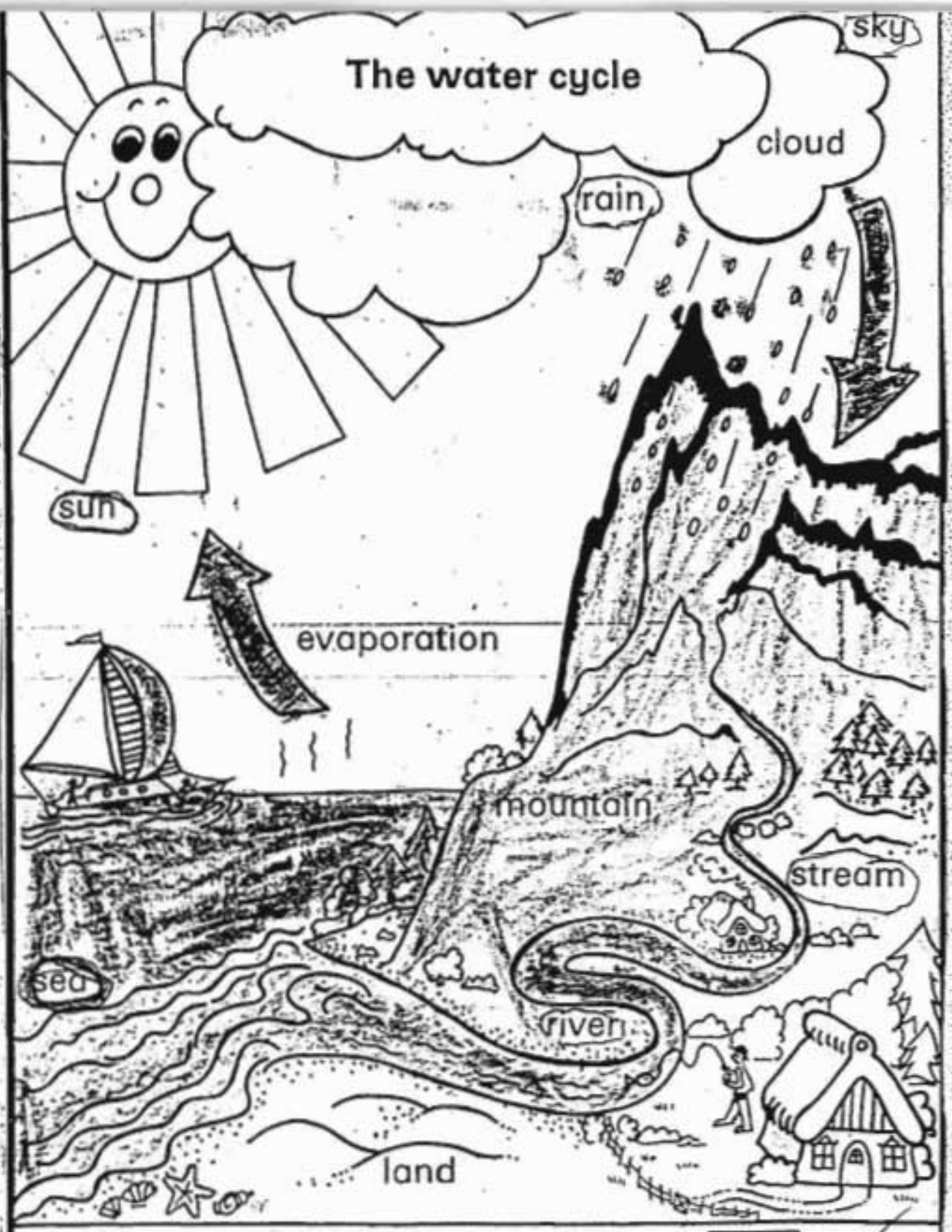




Draw 2 yellow flowers in each pot



Our Garden Book



How many words begin with r? 2

How many words begin with s? 4

Water 7

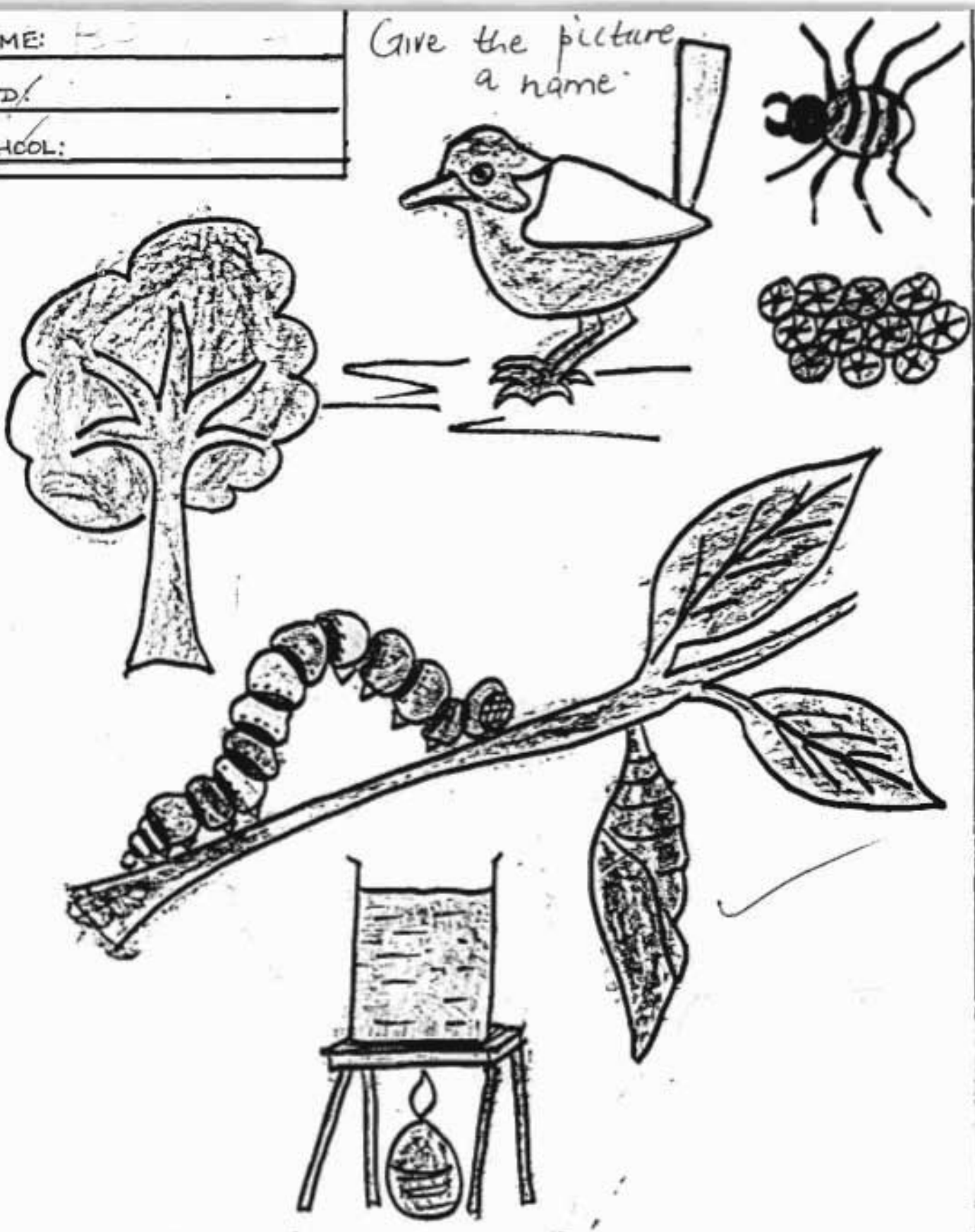
DOMA

NAME:

STD:

SCHOOL:

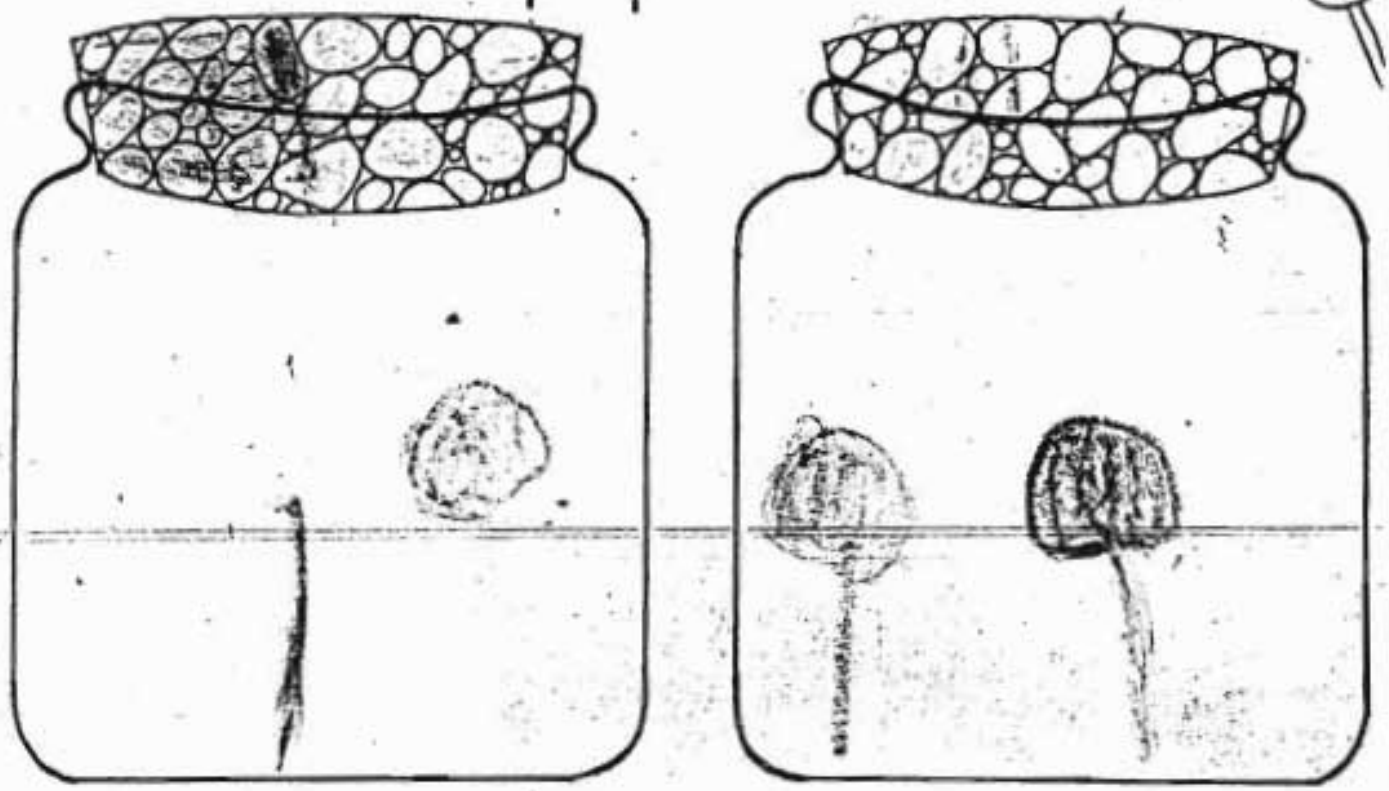
Give the picture a name.



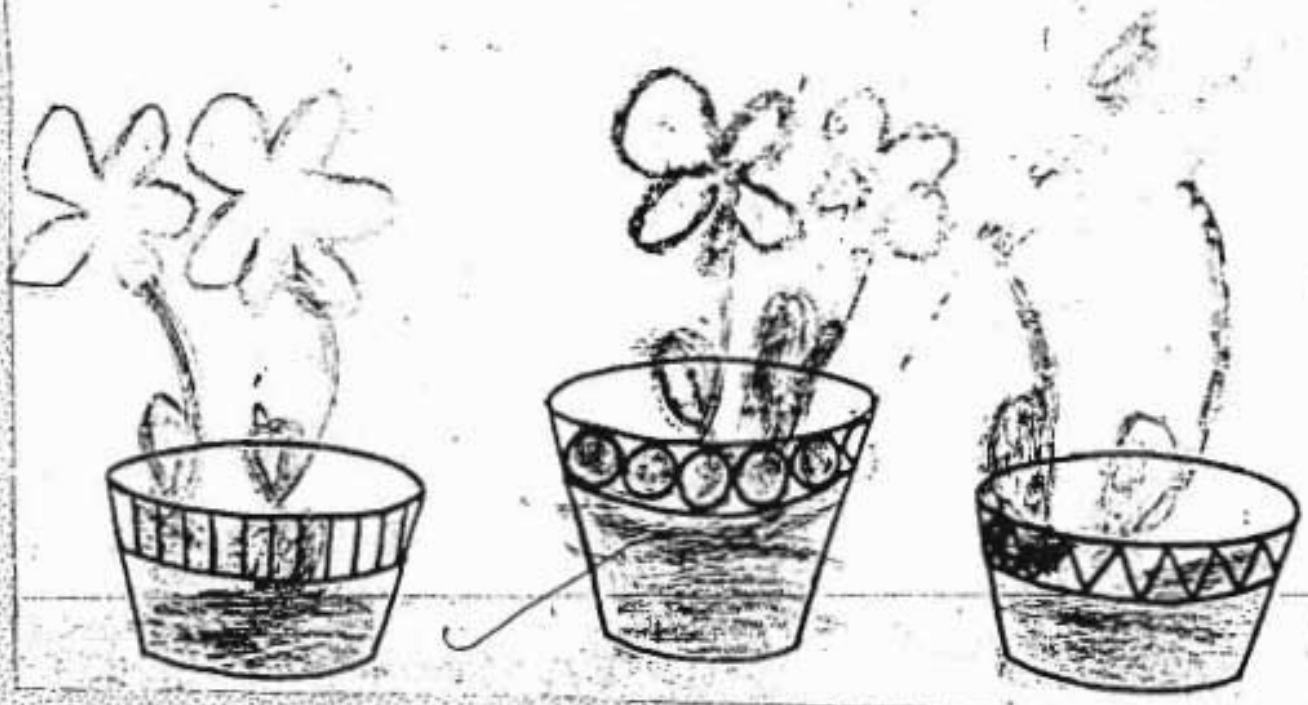
Trace the numbers.

2 2 2 2 2 2 2 2

Draw 2 lollipops in each jar.



Draw 2 <u>yellow</u> flowers in each pot



Scoring of Educator indicators – case study A (appendix B)

I recorded the number for each indicator for each of the five days observed (day 1 and 2 – educator Rose and day 3,4 and 5 – educator Sue) in Table A 4.4 below:

Table A 4.4: Scoring of Educator Indicators

Educator indicators	Day 1	Day 2	Day 3	Day 4	Day 5
1	4	4	4	4	4
2	4	4	4	4	4
3	4/3	4/3	4/3	4	4
4	4	4	4	4	4
5	2	2	2	2	2
6	4/3	4/3	4/3	4/3	4/3
7	Yes	Yes	Yes	Yes	Yes

The following table has the percentage for all the educator indicators observed for educator Rose and educator Sue.

Table A 4.5. Percentage of each aspect for each educator indicator for educator Rose and Sue

Educator Indicators	Percentage 4		Percentage 3		Percentage 2		Percentage 1		Total percent
	Rose	Sue	Rose	Sue	Rose	Sue	Rose	Sue	
1	**100**	100	**0**	0	**0**	0	**0**	0	100
2	**100**	100	**0**	0	**0**	0	**0**	0	100
3	**50**	83	**50**	17	**0**	0	**0**	0	100
4	**100**	100	**0**	0	**0**	0	**0**	0	100
5	**0**	0	**0**	0	**100**	100	**0**	0	100
6	**50**	50	**50**	50	**0**	0	**0**	0	100
7	-		-		-		-		-

Note – Percentage for each aspect for each indicator for educator Rose in bold figures

I then plotted a graph for the variables, educator indicators 1-7 and the percentage of the educator indicator aspects, namely 4, 3, 2, 1.

Table A. 4.6. Percentage of each aspect for each educator indicator for School A

Educator Indicators	Percentage 4	Percentage 3	Percentage 2	Percentage 1	Total Percentage
1	100	0	0	0	100
2	100	0	0	0	100
3	70	30	0	0	100
4	100	0	0	0	100
5	0	0	100	0	100
6	50	50	0	0	100
7					

2.4.3. Scoring of Learner indicators

A table of the scoring of the learner indicators is presented below:

Table A. 4.7. Learner indicators.

Learner indicators	Day 1 Educator Rose	Day 2 Educator Rose	Day 3 Educator Sue	Day 4 Educator Sue	Day 5 Educator Sue
1	2	2/4	4/3	4/3	2
2	3	4/3	4/3	4/3	4
3	3	4	4	4	4
4	4	4	4	4	4
5	2	4/2	4/3/2	4/3	4/2
6	4	4	4	4	4
7	3/1	3/2	3/2	2	4
8	-	-			

Table A. 4.8 - Percentage of each aspect for each learner indicator for educator Rose and Sue Grade 1 learners.

Learner Indicators	Percentage 4		Percentage 3		Percentage 2		Percentage 1		Total percent
	Rose	Sue	Rose	Sue	Rose	Sue	Rose	Sue	
1	**25**	33	**0**	33	**75**	34	**0**	0	100
2	**25**	67	**75**	33	**0**	0	**0**	0	100
3	**50**	100	**50**	0	**0**	0	**0**	0	100
4	**100**	100	**0**	0	**0**	0	**0**	0	100
5	**25**	44	**20**	28	**55**	28	**0**	0	100
6	**100**	100	**0**	0	**0**	0	**0**	0	100
7	**0**	33	**50**	33	**25**	34	**25**	0	100
8									

Table A. 4.9. - Percentage of each aspect for each learner indicator for School A

Learner Indicators	Percentage 4	Percentage 3	Percentage 2	Percentage 1	Total percentage
1	29	17	54	0	100
2	46	54	0	0	100
3	75	25	0	0	100
4	100	0	0	0	100
5	34	24	42	0	100
6	100	0	0	0	100
7	16	42	30	12	100

APPENDIX C

What to observe

With your eyes look around.

What can you see?

What colours can you see? (answers in sentences)

What can you hear?

Still sitting what can you smell?

Pick a little piece of leaf/grass smell it!

Put your piece of grass in your mouth - How does it taste? ~~like~~

Feel the grass - Is it soft, hard.?

Go feel the leaves, bark, sand - smooth or rough?

Picnic

- ~~Prayer~~ Manners
- Litter
- Sharing

Prayer.

Learner transcripts – case study B

(ii) Understanding of the content (knowledge), processes and skills.

During the presentation of the learning programme, learners understanding and misunderstanding of science concepts and processes were looked at.

a. Garden - For the garden activity on day 1 learners described a garden in terms of what they had observed, – has trees, grass. Learners did not include animals in what is found in a garden. Learners observed birds in the sky and these were not linked to the garden probably because they were not seen in the garden itself.

Garden – the meaning of garden was taken to mean the place where plants/flowers grow. This was stated on day 2.

b. Water cycle – this is evident from the transcripts and the drawings coloured in by the learners.

Educator – What do you think will happen now, drip is going up, higher up in the sky, what will happen now? He is going to .....
Learner – he is going to God,
Learner – go to the sky
Learner – change
Learner – maybe get stuck in the sky
Educator – okay let us see what is going to happen...

Educator pointing to the worksheet on the water cycle.
Educator – What is going on, who can tell us?
Learner – the sun is taking him (drip the drop)

Educator –When it is going to ran do you see what happens to the sky?

L –yes

E - it get

L - black

E – dark. It is because all the drops of water are getting heavier, too heavy for me to carry

All the drops of water come down on?

L -floor

L – river

L – grass

L- trees

L- flowers

L- houses

E -right

Researcher and learners exchange after the water cycle demonstration

Educator – Cecile, what made the water warm?
Cecile – the sun
Educator – in the story yes, but here what made the water warm
Cecile – kettle, switch on
Educator – then what happened to the water
Cecile- get warm
Educator – water starts to get warm and then it starts to b, b, b.
Cecile- boiling

Researcher questioned a learner about what was in the picture (water cycle worksheet)

R – Tell me what is happening in this picture?

L – It is raining

R- Where is it raining?

L- points to rain in the picture

R- What is the picture all about?

L – about ummh, ummh water.

R – What is happening to this water?

L – It is coming up to the sky……..

R – Why do we call it a water cycle?

L –it is round and it is not stopping

I claim that this learner had the big idea of the water cycle and he verbalised his understanding.

c. Use of the word flower and plant

Learners used these terms interchangeably.

L – flowers were damaged (learners standing in the garden – means plants).

d. Planting

Learners developed a basic understanding of requirements for planting.

Educator – Why do we measure the hole?

Learner – so you put the plant

Learner – for the plant

Learner – plant not squashed

Educator – and then we put the soil back

Learner – push soil down

Educator - and then you water the plant, what is going to happen to the plant?

Learner – grow

The understanding of how to plant was developed. The importance of digging a hole, inserting the plant and putting the soil back and then watering the plant was realised.

d. Conservation

Ed – It is good to

L- water the plant

L- good to dig

L – good to put the sand back

Ed – yes it was good but something bad happened too, bad, bad

L – mam, we were standing

L – flowers were damaged

(iii) Activities and skills that the learners used.

Classifying - Learners grouped different types of gardens, fruits and vegetables by stating examples of each.

Educator – now before we go out there I want you to tell me about different types of gardens that we have, a flower garden, what other gardens?

Learner – a tree garden

Educator – good, what else?

Learner – vegetable garden.

Case study B - Scoring of indicators

Observation schedule - Indicators of the Observation sessions

2.4.1. Scoring of Educator indicators

I recorded the number for each indicator for each of the five sessions observed in the table below:

Table 1: Scoring of Educator Indicators

Educator indicators	Session 1 Day 1	Session 2 Day 2	Session 3 Day 3	Session 4 Day 4	Session 5 Day 5
1	3	4	4	4	4
2	4	4	4	4	4
3	4/3	4/3	3	4	3
4	4	4	4	4	4
5	3	2	2	2	2
6	3	4	4	4	4
7	Yes	Yes	Yes	Yes	Yes

The following table has the percentage for all the educator indicators observed.

Table 2. - Percentage of each aspect for each educator indicator

Educator Indicators	Percentage 4	Percentage 3	Percentage 2	Percentage 1	Total percent
1	80	20	0	0	100
2	100	0	0	0	100
3	40	60	0	0	100
4	100	0	0	0	100
5	0	20	80	0	100
6	80	20	0	0	100
7					

Scoring of Learner indicators

A table of the scoring of the learner indicators is presented below:

Table 3 - Learner indicators.

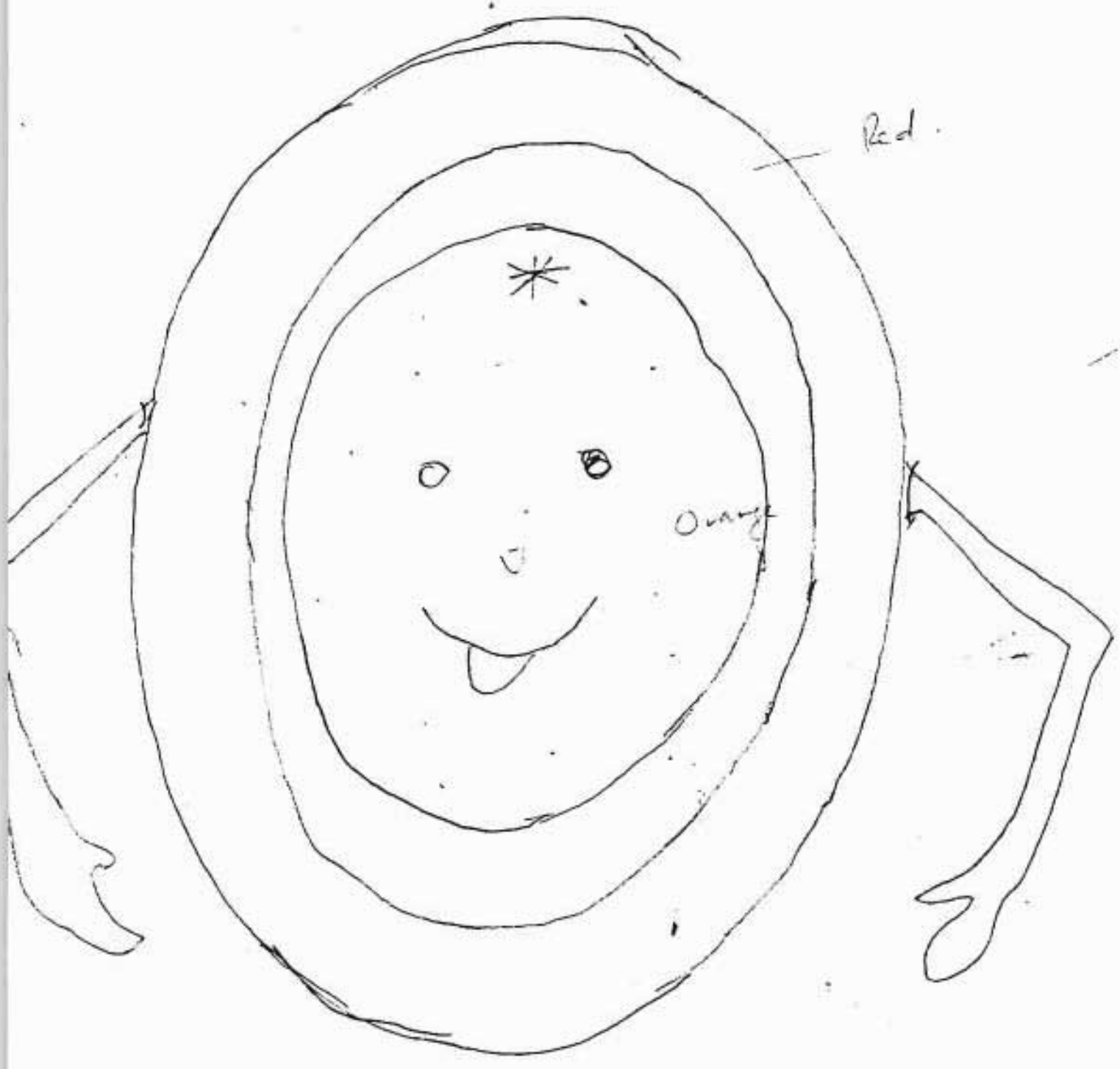
Learner indicators	Session 1 Day 1	Session 2 Day 2	Session 3 Day 3	Session 4 Day 4	Session 5 Day 5
1	2	2	1/3	4	4
2	3	3/4	-	¼	3
3	4	4	4	4	4
4	2	1	2	1	1
5	2	2	2 / 4	4	2
6	4	4	4	4	4
7	3	4	4	4	4
8	-	-	2 learners	In groups discussed what they were doing	In groups

Table 4. – Percentage of each aspect for each learner indicator

Learner Indicators	Percentage 4	Percentage 3	Percentage 2	Percentage 1	Total percent
1	40	10	40	10	100
2	25	63	0	12	100
3	100	0	0	0	100
4	0	0	40	60	100
5	30	0	70	0	100
6	100	0	0	0	100
7	80	20	0	0	100
8					

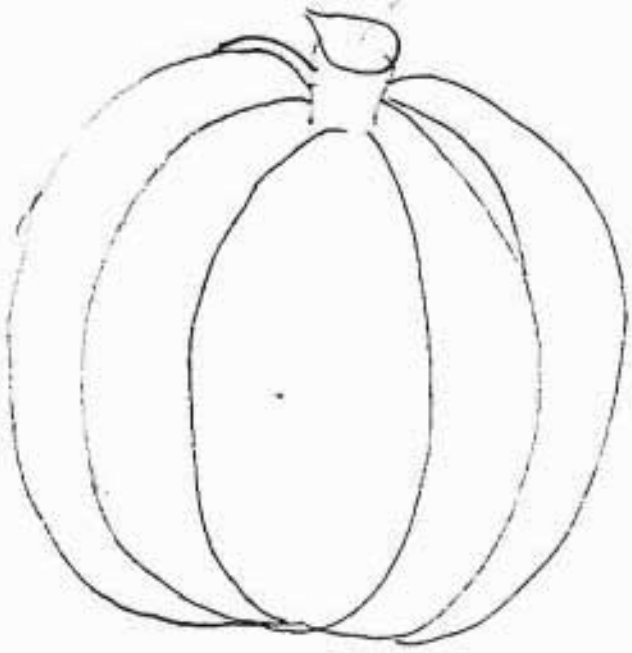
APPENDIX D

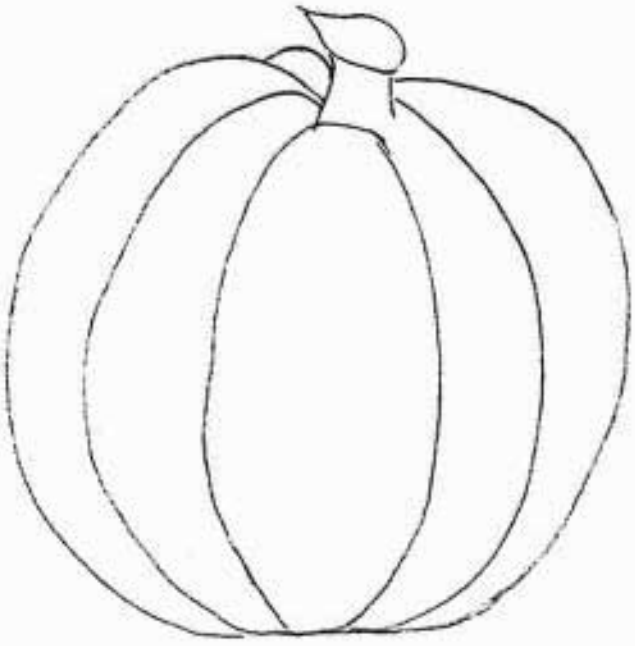
Annie apple

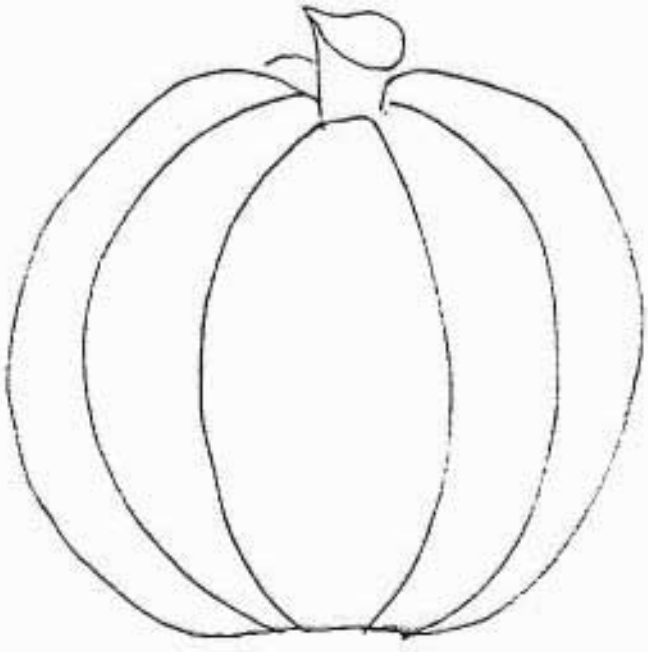


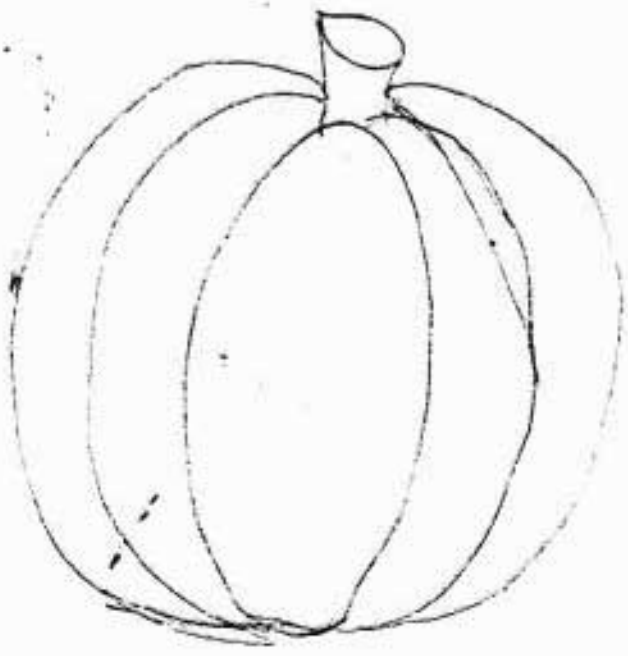
Oscar Orange

Black label

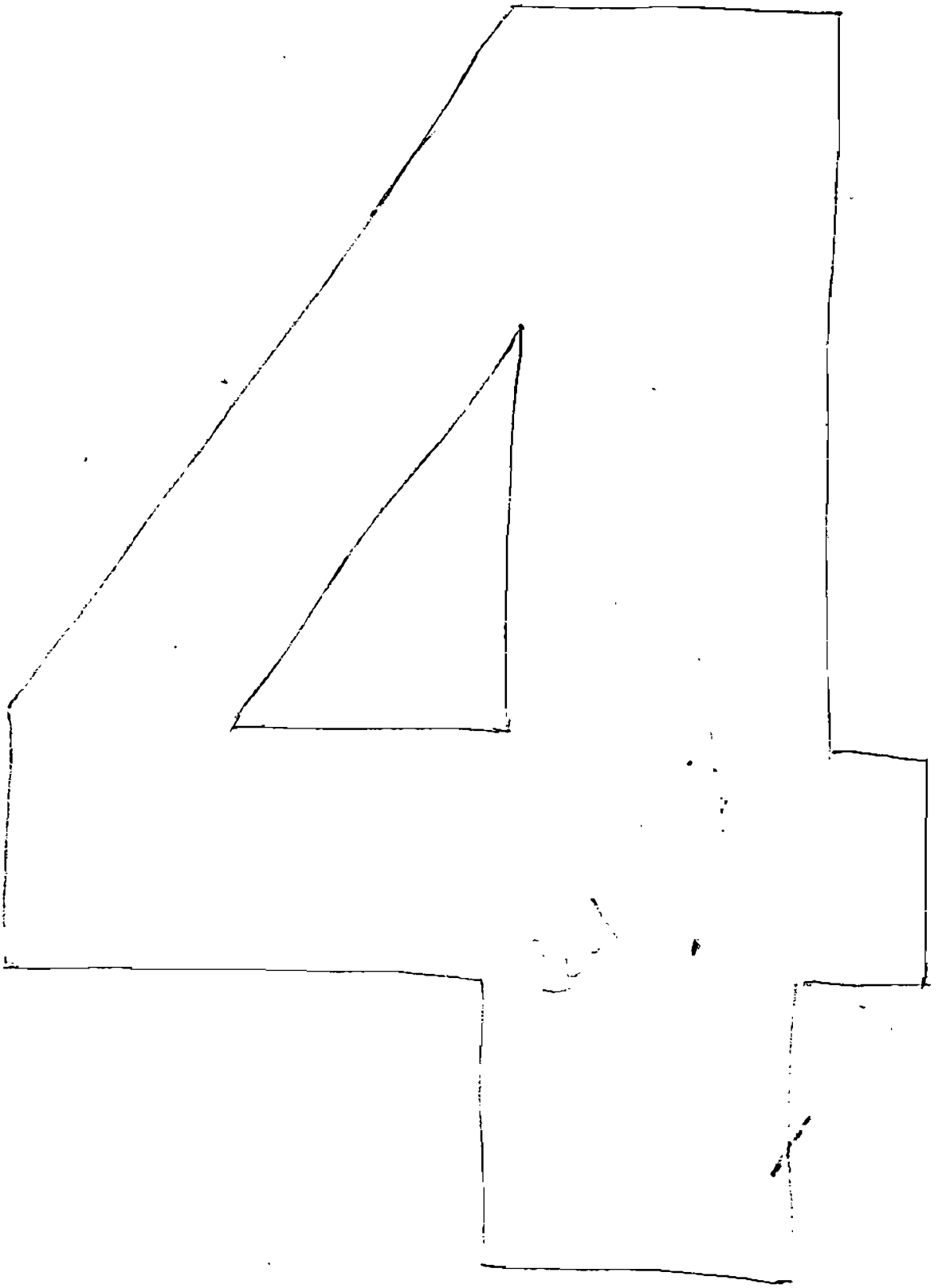








4 Pumpkins



Four

Scoring of Educator indicators – case study C

I recorded the number for each indicator for each of the three days observed. I scored each indicator by taking the full days activities into account.

Table C. 1: Scoring of Educator Indicators for school C

Educator indicators	Day 1	Day 3	Day 5
1	3	3	3
2	4/3	4	4
3	3/2	3	3
4	3/2	3/2	3/2
5	4/1	4/1	1
6	3/2/1	2/1	1
7			

Table C. 2. - Percentage of each aspect for each educator indicator for School C

Educator Indicators	Percentage 4	Percentage 3	Percentage 2	Percentage 1	Total Percentage
1	0	100	0	0	100
2	83	17	0	0	100
3	0	83	17	0	100
4	0	50	50	0	100
5	33	0	0	67	100
6	0	11	28	61	100
7					

Scoring of Learner indicators

Table C. 3. Scoring of Learner indicators for school C.

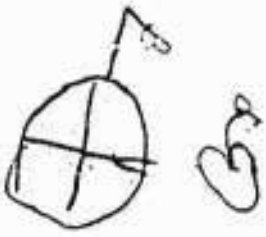
Learner Indicators	Day 1	Day 3	Day5
1	3/2/1	3/2/1	1
2	3/2	1	2/1
3	3/2	2	2
4	1	1	1
5	2	2/1	2/1
6	3	3	3
7	4/3	1	1
8			

Table C. 4. Percentage of each aspect for each learner indicator for school c.

Educator Indicators	Percentage 4	Percentage 3	Percentage 2	Percentage 1
1	0	22	22	56
2	0	17	33	50
3	0	17	83	0
4	0	0	0	100
5	0	0	67	33
6	0	100	0	0
7	17	17	0	66

NOVO

4



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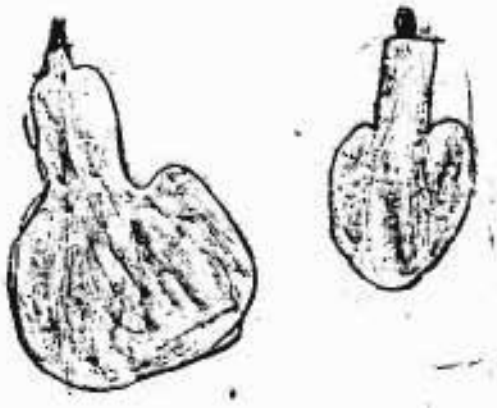

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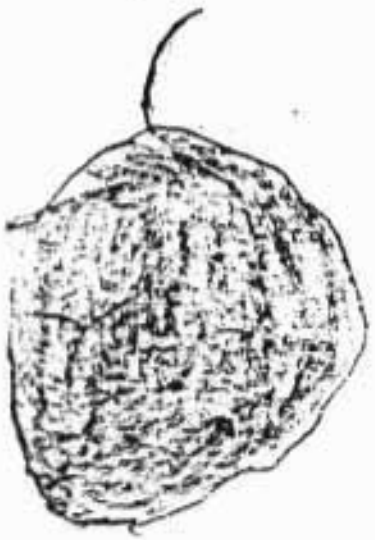

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