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Integrating the Primary Grades Curriculum Using a Science Activity Handbook for a Classroom Pet

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INTEGRATING THE PRIMARY GRADES CURRICULUM USING A SCIENCE ACTIVITY HANDBOOK FOR A CLASSROOM PET

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by

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An integrated activity handbook for a guinea pig, a classroom or home pet, has been developed to aid teachers in incorporating science into the elementary classroom. Studies indicate the importance of science education for young children. This integrated approach has been found to be a means to connect various academic areas such as science, reading, and mathematics. The Washington State Essential Academic Learning Requirements contain many elements, features, and forms that can be met in the materials and activities in this project. Research and literature regarding science education were explored.

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CHAPTER ONE

BACKGROUND OF THE PROJECT

Introduction

It is imperative that today's students gain scientific knowledge that relates to their interests and needs. Increased knowledge in science allows students to become increasingly literate, acquire critical learning skills, and most importantly become responsible citizens (Abruscato, 2000). Our world as we know it today has become more scientific than in any other time in history. Today's students need to be strong in literacy in order to make the critical decisions affecting the world around them. In fact, these students will become the future citizens of our nation and world. Our education system must take on the challenge of producing individuals who are fully capable. It is very important that the concept of being literate expand to new thinking. In light of this, our concept of literacy must not only include that which has always been considered part of a good literacy program, reading and mathematics, but also take on the additional teaching of technology and science. The impact of not meeting these new educational needs may be increasingly detrimental to our future (Nelson, 1999).

The teaching of science at the elementary level has not always implemented methods of inquiry, higher level questioning skills, or the effective integration of science with other curriculum areas such as reading, writing, or mathematics using a thematic unit approach (Jones, 1997). Inquiry learning is an accepted worldwide philosophy for teaching. In fact, the National Science Education Standards have included inquiry learning as part of the content

standards for Grades K-4 (Abruscato, 2000). This type of learning is based on children making their own discoveries and acquiring new understandings. This process is based on a high level of student activity. In fact, children learn how to learn by discovering the answers for themselves (Victor, 1989). Inquiry learning allows students to investigate by asking questions. Students conduct their own studies or review other data. Children come to a better understanding of scientific processes by inquiry learning (Ellis & Fouts, 1993).

Teachers who provide time to learn and study science will give students the chance to increase their thinking ability. By understanding about thinking skills, teachers can enable students to move from simplistic to complex abilities. Time spent on the study of science concepts is well spent because it impacts the development of these thinking skills not only today, but tomorrow as well (Abruscato, 2000).

The use of the thematic unit approach provides a much-needed path for both teachers and students to make a meaningful connection between the world around them and the classroom. It dissolves the concept of separate, isolated facts and allows knowledge to be the tool for the acquisition of new learning. This approach allows for the student to make meaning and have new insights about the world. Integration of subjects allows for the transfer of knowledge across curriculum areas (Lipson, Valencia, Wixson, & Peters, 1993). In fact, an integrated curriculum may make it possible for students to gain control of their own learning (Lake, 1994).

Students who are actively involved in the learning process probably have a clear target or focus. This process of learning using activities moves the student through various skills to an understanding of key concepts and important ideas. These students are gaining ownership of the subject matter and are probably creating meaning for themselves (Tomlinson, 2000). Kotar, et. al in Jones, 1996, stated that students gain literacy in science plus increase knowledge in academic areas such as reading, writing, and mathematics when taught elementary science by an activity approach.

Purpose of the Project

The purpose of this project is to develop a student science non-fiction text or handbook written about a guinea pig, a classroom or home pet. The book will be composed at a second or third grade reading level or at an appropriate level on the reading continuum. It will include facts and information about the animal including pictures, labels, headings, and charts. The book's purpose will be to provide background information about a guinea pig with the purpose to instruct and inform the students about this classroom or home pet. It will also include information and instructions about the care of the pet. The handbook can be used as an independent project or as part of a take-home reading project. Included in the handbook will be activities centered on the care of a guinea pig such as time management, costs, and environmental concerns. Also, there are extension activities to bridge the school to career gap. Students will be exposed to animal careers and read about ways to prepare for them.

Within the structure of the textbook will be text features that are included in the Reading Frameworks from the appropriate grade levels. These text features will include an introduction, references, checklists, headings, tables, graphs, and paragraphs, which reflect the third grade frameworks from the Washington State Essential Academic Learning Requirements (EALRs). Some of the reading goals that will be addressed in the project include the student being able to utilize reading strategies, read for meaning, be able to use many kinds of forms and features of text, and be able to search to find information (Washington State Commission on Student Learning, 1999). The project will provide opportunity for students to read and dissect a science non-fiction text and learn the implications and dynamics of science text as a reading genre; thus, allowing exposure to the forms and features inherent in this type of book. By including reading goals, science is integrated with language arts.

Significance of the Project

The project is significant because of the alignment of the student textbook/ handbook with the reading goals of the EALRs. This project is also significant because it builds on the interest of the young reader. Students love animals and especially enjoy learning about and caring for class pets, specifically a guinea pig. Their motivation to gain more knowledge about this animal will prompt students to read a science genre book. With this newly gained reading ability, the students will be able to transfer their reading skills to other science or social science texts. Increased classroom and home reading is significant for classrooms with struggling and reluctant readers.

Limitations of the Project

The project may possibly be limited to only students having access to a guinea pig in their classroom or at home. Although, it is possible to read the handbook and gain new knowledge without owning a guinea pig. The student doing the activities without the pet and following the specific directions could only complete some of the activities.

The interest level of the students in animals, more specifically a guinea pig, could limit the project. It would also be limited by the age and reading development of the students. The book is written at a second/third grade reading level and may be too easy for an older reader or too difficult for the emergent, younger reader.

Definition of Terms

To provide a better understanding of the project, the following definition of terms are provided:

Washington State Learning Goals- The four major goals developed by the Commission on Student Learning to raise the standards of academics for the students of Washington State.

Washington State Essential Academic Learning Requirements (EALRs)- The specific components that state what students should be able to do and know at the end of their K-12 education (Washington State Commission on Student Learning, 1999).

Reading Frameworks- Implemented by the Washington State Commission on Student Learning to help teachers plan and use the Essential

Academic Learning Requirements in reading. It is organized by grade level and assists teachers in assessment and checking student progress and growth.

Text Features- The qualities and attributes of different forms of writing. (Washington State Commission on Student Learning, 1999).

Discovery Learning- Creating a learning environment full of exploration, learning of new knowledge, and the application of that knowledge in new situations (Abruscato, 2000).

The National Science Education (NSE) Standards- A document written by teachers and scientists that specifies what it means to be literate in science and identifies what should be taught in science at different grade levels (Abruscato, 2000).

Inquiry Learning-A teaching philosophy known around the world whereby children make their own discoveries and learnings. A general pattern is followed in this method of learning. Children are asked a question. The children in class have not investigated the answer. A problem is identified through discussion and investigation is encouraged by the children in order to solve the problem. Data are gathered through a variety of means. The information is interpreted and summarized individually or collectively by the class. At the end of the lesson, conclusions are made. These conclusions lead to new questions and the inquiry cycle begins over again. This is a process whereby children learn how to learn by discovering the answers for themselves (Victor, 1989).

Overview of the Remainder of the Project

Chapter two will center on research summaries as well as look at the literature that supports the teaching and reading of the science genre in the second and third grade classroom. Chapter Two will also give the background rationale supporting the reading of science texts and building enthusiasm for learning science. Chapter Three will describe the procedures used to develop the project by the author. Chapter Four will detail the project, which is a student science non-fiction handbook about a guinea pig with animal and career activities. Also included are student comprehension pieces as a follow-up to the topics and vocabulary covered in the handbook. Chapter Five will include the author's summary, recommendations, and conclusions.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

The Critical Importance of Science Education

Most elementary teachers spend more time on the teaching of reading than on the teaching of science. In fact, elementary teachers spend about 90 minutes a day on reading and only 17 minutes per day teaching science (Enochs & Riggs, 1990). In fact, one-half of elementary teachers that were questioned in a national study ranked the teaching of science four out of five of the top school subjects (Tilgner, 1990). It is believed by many teachers that science education is the least important subject area in the curriculum of the elementary school. Science education has become a lesser priority or even in some cases left out of the curriculum at the primary grades. If there is instruction in science it is often of a lower quality and/or so infrequent in duration, thus making it almost totally ineffective (Tilgner, 1990).

There are several common roadblocks to science education. These include time and curriculum requirements, teacher experience with science content areas, and focusing on content areas that are most comfortable to the instructor. Fitting all-important elements into the curriculum has always been a struggle for educators. Expectations have grown from the school, teachers, and students in the school environment. The amount of knowledge in the world has so rapidly increased that it would be impossible to cover all of it in any one curriculum (Ellis & Fouts, 1993). Science instruction that is presented through literature, both non-fiction and fiction alleviates the pressure to put other

literature, both non-fiction and fiction alleviates the pressure to put other curriculum areas on the back burner (Gertz, Portman, & Sarquis, 1996).

According to Abruscato (2000), elementary science instruction should have its focus in the area of discovery learning. Educators' goals should include making sure students attain knowledge, become literate, gain skills, and become responsible as human beings. When students have the chance to make new discoveries that are deemed important to their own particular needs and individual interests, these goals become reachable.

Washington's Innovative Program to Improve Public Education

Washington State's educational reforms have mandated requirements in the area of reading making it essential for students to know the text features and specific genre found in science non-fiction text. Students are expected at early grades to recognize and use these features when reading science books or manuals (Washington State Commission on Student Learning, 1999).

Prior to the year 1993, the state of Washington did not have any uniform or consistent goals of learning throughout its public school system. There had been attempts at earlier times to develop common standards throughout the state. These endeavors basically left each school district to create its own learning objectives without any common attempt to measure student achievement. All of that changed when the Washington State legislature approved the Education Reform Act in 1993, which originated widespread and consistent learning goals for all of the students from Washington State. These

targets had the purpose and design of increasing the standards of academics and raising the bar of how students achieved in the public school system. The act's design was to give students the chance to become accountable citizens in their communities and state, have the ability to become a contributing member of society, and most importantly have the life-long opportunity to partake in a fruitful and gratifying lifestyle. The Education Reform Act of 1993 established a Commission on Student Learning to carry out the numerous elements of education reform. The commission was charged to develop:

- Academic standards that were clear and set high
- A system of accountability for both schools and school districts
- Assessments that were standards-based and would measure the achievement of Washington's students (Education Reform Act, 1993).

The commission responded by developing basic education goals for all school districts to provide the chance for all students to increase their knowledge and skills. The four basic education goals are:

1. Read with comprehension, writes with skill, and communicates effectively and responsibly in a variety of ways and settings;
2. Know and apply the core concepts and principles of mathematics; social, physical, and life sciences; civics and history; geography; arts; and health and fitness;

3. Think analytically, logically, and creatively, and to integrate experience and knowledge to form reasoned judgments and solve problems;

4. Understand the importance of work and how performance, effort, and decisions directly affect future career and educational opportunities (Washington State Commission on Student Learning, 1999).

To further clarify and fine-tune these standards, the Commission developed Essential Academic Learning Requirements (EALRs) to identify the specific knowledge and scholastic skills needed in every classroom and demonstrated by each student. Along with the EALRs, the commission developed measurement tools that assess students' progress and development.

The EALRs related to this project are that "the student understands and uses different skills and strategies to read." In Goal 1.2, the student will have the opportunity to learn and develop science vocabulary through reading facts and information through the project science manual. Goal 1.3 addresses the idea that the student will need to alter reading for different purposes and types of material. The student will adjust his/her reading to the different text features of the manual as stated in Goal 1.5. With the assessment piece in place, the student will meet Goal 2.1 by comprehending what is written and being able to restate details and important information. In Goal 3, " the student reads different materials for a variety of purposes." In order to attain this standard, the student

will gain new information by reading science, mathematical, and technical documents in Goal 3.1. In Goal 3.2, the student will find and access facts to perform tasks such as using schedules, following through on directions, problem-solving. Lastly, in Goal 4 " the students set goals and evaluate progress to improve reading." In Goal 4.3, " the students' interests grow and they share their experiences from reading and gaining new knowledge (Washington State Essential Learning's, 1993).

In order to assist and aid teachers in the use of the Washington State Essential Learning's, a framework was developed. Margaret Mooney, known throughout the world as an expert in the field of reading, was enlisted as a reading consultant for Washington state's educational reform. And in so doing, she accepted the opportunity to develop the reading frameworks by which educators would implement and monitor the Washington State Essential Learning's (A Framework for Achieving the Essential Academic Learning Requirements in Reading, Revised 1997).

The purpose of the framework is to be a base for the assessment piece. It enables a platform that sequences the student's growth and development. A basic premise of the frameworks is that students move at varied and diverse rates. With this in mind, the frameworks are organized by grade level. It is organized in four main sections:

- Overview
- Quick Check

- Suggested Genres and Text Features to Be Worked Toward by the End of Each Grade Level

- Suggested characteristics to be Worked Toward by the End of Each Grade Level

The purpose of the overview is to consolidate the most essential learning for that grade level bearing in mind regular progress and growth.

Skills and strategies are summarized in the Quick Check. These are considered to be the tasks needed to be mastered at each level in order to be ready for the next grade.

Fiction and nonfiction texts and their corresponding text features are listed in a chart indicating those that should be familiar at each grade level. There is a scaffolding of tasks building from the previous grade level. The core of the four Essential Academic Learning Requirements is seen in the variety of materials that are recommended at each grade level.

A more specific outline of skills and strategies are specified in the Suggested Characteristics chart. These are to be worked on as a goal for the end of each grade level. There is also a glossary to provide definitions of any unknown terms.

There are applicable skills from the reading frameworks for the second and third grade classroom. One second grade skill has a student who "locates information in a range of text and illustrations to answer problems or pursue a

topic." At the third grade level, a student "uses strategies of skimming and scanning to locate information." A student at this level "copes with a wide range of text forms and features and thinks critically about the text that is being read and identifies supports in the material" (Wenatchee School District Learning and Teaching Guide, 2000 p. 88).

The Essential Academic Learning Requirements also address goals in science. Under Goal 1, "the student understands and uses scientific concepts and principles." To achieve standard 1.1, students will "use properties to identify, describe, and categorize substances, materials, and objects, and use characteristics to categorize living things." Students will explore and learn about characteristics of a guinea pig in this handbook. Upon completion of the project, students will be able to identify different types of guinea pigs, describe specific characteristics and attributes specific to this species, and categorize this type of animal within the general animal kingdom. Under Goal 2, "the students knows and applies the skills and processes of science and technology. Specifically, the student will perform scientific inquiry by asking questions and further investigating to find answers and solve problems. Also, under 2.1, problems are solved and challenges are met by applying science knowledge and skills in science. Last, Goal 3 states, "the student understands the nature and contexts of science and technology." Under Goal 3.2, the student understands that science, society, and the workplace are all interrelated (Washington State Essential Learning's, 1993).

Why Science Education in Early Grades

The devotion of time to the teaching and learning of science is of paramount value because of the obvious correlation between the amount of time that is spent on an academic subject and the level of a student's achievement in that subject (Baker & Piburn, 1997). The teaching of science at the elementary level often means forfeiting instruction in other critical academic areas such as reading and language arts (Gertz, Portman, & Sarquis, 1996). In fact, according to Tilgner (1990), teachings of science concepts are often left out or not given the importance of other subjects at the elementary level. The concern is that if science is taught it is not of a high quality of instruction.

The passion by many elementary teachers for reading and language arts has not always been carried over to the teaching of science. Teachers may not see the importance of science education as helping students to be literate in reading and writing (Dickinson & Flanigan, 1997). Elementary teachers miss the opportunity to orchestrate science education with the real world. Teachers miss a prime teaching opportunity because primary students are "concrete operational thinkers" who by actively exploring come to an understanding of the world around them (Charlesworth & Lind, 1990).

Students separate their learning at school and the real world at the conclusion of the school day (Hurd, 1997). Teachers who underutilize, ignore, or avoid science instruction are not nurturing future individuals to use thinking skills. The ideas that are gained through science help students gain great satisfaction

as adults and responsibility as future citizens (DeBoer, 1991). In fact, science is the perfect subject for lessons that are coherent, authentic, relevant, powerful, transferable, and meaningful. Students are motivated to learn because of their own choice or passion. Once interest is developed it will lead to the pursuit of another. Science can be that passion whereby students explore allowing for scaffolding and/or linking of key concepts or ideas to others. Children should be given the permission to explore their devotion to science (Tomlinson, 2001).

Integrating Science Instruction with Language Arts

In many classroom settings, children observe the world around them as an endless ordering of fractured events. How these are perceived lessen the experiences and make for somewhat disjointed and unconnected learning. Basically, the learner does not see how the acquisition of knowledge and personal experiences fit together to create a whole and complete picture. Teachers need to enable students to see that a knowledgeable human being lives in a network of interactions. Science time throughout the curriculum provides for this type of learning (Abruscato, 2000). There should be harmony of science education with the real world. Teachers should work to lessen the gap between the student's two worlds, inside and outside of the classroom. It is valuable to interconnect all aspects of the learner's life (Hurd, 1997). The integration of science in a true-to-life way increases the child's learning (Carin & Sund, 1989).

An interdisciplinary curriculum may help students gain the background

knowledge to enhance six critical life-long skills. These skills include the accurate use of language, ability to work through problems and find solutions, understand science and technology ideas and be able to use their tools, have imagination, be able to work cooperatively in groups, and be able to learn independently. By working on these skills, learning is enhanced (Grady, 1994).

The integration of science instruction with and through literature makes possible more science education in the elementary school. This additional learning does not come at the cost of other important curriculum areas, but rather is woven through the other academic areas (Gertz, et al., 1996). The use of children's literature in science is a natural way to integrate the curriculum and add a language arts component (Bosma & Guth, 1995). The shortcomings in elementary schools teaching science are directly correlated to the demands for teaching the basics. It is difficult for teachers to move beyond the teaching of mathematics and language arts, Often, science instruction in elementary schools is more verbal activity than actually engaging in science activities. The students do not move to higher level thinking, solving of problems, or making any application to current events (Briscoe, Peters & O' Brien, 1990).

It can be beneficial to the learner if that which is being taught can be presented in several different ways. This may seem repetitious, but these repeated and varied opportunities provide for the most learning (Caine & Caine, 1991). It is much easier for students to master new information when presented in multiple ways. In fact, the integration of the curriculum is the backbone for

more complicated thinking by combining the learning from many varied disciplines (Grady, 1994). Through the integration of curriculum, learners have opportunities for genuine learning (Lipson, Valencia, Wixson, & Peters, 1993).

Integration is not new as an educational concept. This thinking has been around since John Dewey (1933) and the influence of progressive education. Current brain research supports the fact that learning occurs through the connection of different disciplines. Educators have the responsibility to carefully plan instruction and learning experiences so that the student gains optimum understanding. Brain connections are made that combine and disburse the same information. The data are easily identified and then ordered in the same way (Bosma & Guth, 1995).

Students in an integrated science curriculum also gain logical thinking skills. Tilgner (1990) feels that this type of thinking needs to be part of the curriculum and should be given time to develop and grow.

The National Association for Core Curriculum has conducted 80 studies showing that students who had a variety of integrated programs performed as well or better on standardized tests than students studying in separate classes (Vars, 1991). Science integration increases time on other tasks since students should be using reading, writing, observational, and thinking skills while engaged in science (Bisard, 1988). This provides an excellent opportunity for students to see academic areas such as science as part of the whole, and not as separate, unrelated pieces (Grady, 1994).

Educators always look for ways to help their students organize all of the compartmentalized facts, data, and bits of knowledge in a day of learning. They seek ways to help students make meaning from all of life's experiences. Integrative curriculum is one answer to take away some of the stress of a packed, stressful school day. Teaching across curriculum disciplines is coordinated around one theme and allows for a broader base of learning. Teachers and students may work together on the course of study, direction of the unit, and the evaluation process. This collaboration is a wonderful aspect of the integrated curriculum (Vars, 1991).

Elementary teachers have more of an advantage because of their training in all of the academic areas. They may not see integration as a problem or be intimidated. They can be considered as role models for integration in their school district (Elkind, 1994). Teachers may be pleased that the integration of science instruction with and through literature makes possible more science education in the elementary school. This additional learning does not come at the cost of other important curriculum areas but rather woven through the other academic areas (Gertz, Portman, Sarquis, 1996).

In conclusion, Hughes (1991) states that there are four characteristics of integrative curriculum. First, it is authentic and makes connections to the way children actually learn. Second, through integration students are encouraged to create their own purpose, obtain wisdom, and be able to use new learning. Third, the integration of subjects uses higher-level thinking and makes the

transposing of new concepts from one academic discipline to another. The last characteristic is that the integration of subjects makes it possible for the different stages of learning to be woven in the experiences that the student brings to the learning environment.

Summary

The review of literature emphasized that science instruction does not need to take a back seat to other basic, academic instruction. In fact, incorporating science and the teaching of literature-both non-fiction and fiction can be an excellent way to facilitate both (Gertz, Portman, & Sarquis, 1996). Science is an integral part of the world around us and helping our children harmonize with that world helps students connect their learning (Hurd, 1997).

The integration of the curriculum is what gives the students the chance to see all academic areas as part of the whole, not as separate, unrelated pieces (Grady, 1994). Glatthorn (1994) argues in support of integration in four ways:

- Life in the real world is not separate or divided into compartments.
- Optimum learning takes place when there is an interest or connection for the student.
- Time is saved when subjects are integrated.
- Knowledge is more easily retained and recalled when there is a holistic approach according to brain activity research.

The research findings support the conclusion that compared to isolated

subject instruction, students who had a variety of integrated programs performed as well or better on standardized tests (Vars, 1991). Students move into higher level thinking skills and even improve in logical reasoning and thinking (Tilgner, 1990).

By initiating new teaching and learning methods such as relating subjects and skills, students become active, excited, and enthusiastic in the classroom setting. It has to be said that one of the best outcomes of an integrated curriculum is that teachers and students become learning partners working together, not independently (Bosma & Guth, 1995).

CHAPTER THREE

PROCEDURES

The purpose of the project was to develop a student handbook for a guinea pig. The handbook is to provide background knowledge and information about this animal. This handbook can be used as a classroom or home resource.

The author first became interested in the concept of a handbook when working with her sister-in-law on other educational products for teachers. It was found that many of the Essential Academic Learning Requirements in reading were focused in being able to read non-fiction material. From background knowledge, the author knew that boys and girls at the second and third grade levels are extremely interested in animals and especially enjoy a classroom pet. It was felt that this subject area would provide a good starting point for integrating science and language arts. By combining the interests of the elementary student and the reading requirements of the State of Washington, learning would be integrated and scientific knowledge would be increased. Children need to be able to read many different forms of print, both fiction and non-fiction. In so doing, the author believes that students need many kinds of opportunities and activities to promote growth and mastery of the material. It was believed by the author that the need to relate across academic curriculums and the constant battle of time constraints were good reasons for integrating science with the teaching of non-fiction.

The final project is a detailed handbook of information including

The final project is a detailed handbook of information including background information and origin, vital statistics, housing and accommodations, feeding, and care-taking tips of the pet. The author used resources including textbooks, animal care books, classroom ideas books, and Internet sites to gather information. The format of the handbook is designed to include reading, writing, mathematics, and science concepts. The handbook includes activities that can be done independently or part of a take-home reading program.

The design for the handbook pages is located in Chapter Four and recommendations for their implementations are found in Chapter Five of the project.

CHAPTER FOUR

THE PROJECT

This project is intended to be a science handbook for a guinea pig written for a primary elementary student. The resources and information chosen for this project are based on current research in the field of integration of science and language arts by selected authorities. The project's focus of instruction is based on teaching practices that are considered relevant, meaningful, and authentic.

The project was written for second or third graders in the Wenatchee School District. The reading activities were designed to meet the standards set by the Washington State Essential Academic Learning Requirements (EALRs) for reading. The author chose language arts activities that would encourage the use of text features and forms outlined in the Reading Benchmarks for second and third grades.

The project consists of a table of contents covering the topics of a class pet. The chapters include descriptions, varieties, habitat, care, and interesting facts of a guinea pig. Pictures and diagrams with captions and labeling are included. The handbook also includes a glossary of terms and an index. There are learning activities following the chapter topics in the areas of language arts, science, and mathematics. These activities also bridge the school to career connection by introducing work opportunities in the animal world. Included will be suggestions for preparing for a career working with animals including course study and practical experience. Students will have the chance to apply their knowledge and decision-making in animal care and responsibility issues such as

time and money management of a pet. Assessment activities focus on access of new knowledge and vocabulary and self-reflection of any new learning.

The research established the critical importance of science education in the lower elementary grades. All too often, the teaching of science has been left out of the school day. District curriculum guides are expanding and the teaching day may not lengthen, thus science may not have the priority of other academic subjects. Teachers have lost a valuable opportunity to capture the interest and attention of young children in a subject they care about. This handbook was designed with the idea that a teacher could implement the use of it and in so doing, encourage science exploration and learning. It is the author's hope that by enlisting the passion of animals in children, literacy in science and reading would also be encouraged.

The project is included in the appendix.

CHAPTER FIVE

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

This project has established the need for science education in elementary schools. Today's young students need opportunities to learn science concepts and build scientific background through exploration in reading. In past years, the early grades in elementary schools were lacking in science handbooks and non-fiction texts that were readable, understandable, and of interest to beginning readers. Most children's literature was written in a narrative form. Authors more often chose fiction as a genre of writing and commonly, did not write non-fiction text for young readers. The author has developed a handbook with scientific concepts centering on a classroom pet, a guinea pig. By choosing this topic, the author has centered on one of the interests of children, which is animals, more specifically pets.

This student text provides multiple opportunities for children to read and learn. The premise of this handbook is to align the reading of the text with the Washington State EALRs. It more specifically meets reading benchmarks found in the Learning and Teaching Guide published by the Wenatchee School District. Thus, it provides opportunities to practice reading skills, strategies, and newly learned reading techniques. This project has encompassed the following skills that will promote literacy: 1. Students will be given the opportunity to read a table of contents to access the location of topics of interest. 2. A glossary of terms dealing with a guinea pig will increase the student's vocabulary and the

opportunity to learn new words. 3. An index will facilitate easy location of words of interest within the handbook and review important alphabetizing skills.

The handbook has been formatted with headings and guided questions for each topic. The student can easily choose selected topics or read the handbook from beginning to end. Within each topic, the student will be gaining meaning by determining the main idea and learning new details and factual information. The text includes **bold print** for key vocabulary. The author chose to use questions, as part of the text, to engage the reader and encourage the relationship between the text and the audience. The handbook includes pictures with labels that clarify and define important parts of a topic. Captions give even more important information and science background on the guinea pig. In summation, the project is designed to not only encourage scientific concepts, but to promote strong literacy.

Conclusion

In discussing this science handbook with third grade students, the author has learned that the topic of a classroom pet, the guinea pig, is of high interest to young students. The students were very interested in the project and desired to learn more about a guinea pig. With this in mind, the author realized the importance of being accurate and correct in relaying information and facts in the format of this handbook. The author also realized that it was more difficult than anticipated, coming to a consensus of information. It was also challenging to write the text at a level understandable and fully comprehended for this age of a child.

Further, the author has dialogued with educational colleagues and been encouraged in the writing of the project. Fellow teachers have found the idea for the handbook to be of interest, and recognized the value of the content and format. Teachers with classroom pets encouraged the writing of the handbook and were excited to implement its use in the classroom. Lastly, friends and relatives outside the classroom setting saw the value of this handbook and supported its development and future use in and out of the classroom.

This science handbook will be implemented as a classroom tool for reading or as a home resource for a guinea pig. Based on the response and use of this handbook, the author will value the feedback from students, teachers, and parents. These comments and ideas will make possible alterations and changes to increase the effectiveness and use of this project.

Recommendations

The author is most interested in two key areas in increasing the capacity and use of this project. First, the author is interested in designing a prototype guinea pig to be used in classroom settings without a live guinea pig. The author realizes that not all educators desire to have real pets in the classroom. There are many reasons prohibiting animals in the classroom. Teachers are wary of potential lawsuits. If an animal bites a child, the ramifications can be serious. Student allergies can also prevent pets in the classroom. Teachers cannot limit children from their classrooms who have allergies and thus, may hesitate setting up a classroom with pets. It may also be true that a child may not be aware of their allergies prior to exposure. The care and responsibility of a classroom pet

can be a huge amount of work for a teacher. Therefore, teachers may not choose to increase their daily workload. Finally, having an animal in a classroom may have high costs for the classroom teacher such as housing, bedding, food, supplies, toys, and veterinarian visits.

Second, the author would like to develop a teacher resource manual to accompany the student handbook. This manual will match the reading material outlined in the student book. It will include more ideas for increasing reading comprehension that align with the concept of a class pet. The teacher resource book would include black line masters for additional activities and reinforcement tasks.

The primary goal of this project is to increase science concepts through reading. We are living in a fast-paced world whereby reading and accessing new learning is of critical importance to learners. Educators and parents are always looking for ways to promote reading as a life-long ambition. This project is one way to facilitate reading and the learning of new science concepts at the same time.

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APPENDIX

Guinea Pigs:
A Student Handbook for a Classroom or Home Pet

by Sue Wilson

Author's Note:

Dear Boys and Girls,

It is always very exciting to get a new pet for your classroom or home. This is a handbook to help you learn new facts and information about your new pet guinea pig. If, you do not have a guinea pig, maybe some day you will and this book will help you prepare for that time in the future.

You will find many **topics** located in the **table of contents**. You may read the handbook page by page or choose a favorite or interesting topic to read first. When you finish reading and learning about a guinea pig, there are comprehension activities to help you check for understanding.

At the end, you will find many animal and career activities to further increase your knowledge about the care of a pet guinea pig and working with animals in the future.

Have fun and enjoy reading and learning about guinea pigs!

Table of Contents

Guinea Pigs

What is a guinea pig?

The guinea pig is a popular pet for children. It is a rodent like mice, gerbils, or hamsters. Like other rodents, the guinea pig has very useful teeth for gnawing their food . They also have small tails. They are not as big when compared to other popular pets.

Did you know that the guinea pig is a relative to the porcupine? There are fourteen different kinds of guinea pigs. All of these kinds or species come from South America.

Something very interesting about a guinea pig is that their babies are born with fur. This is different than other rodents whose young are not born with fur or are hairless. The guinea pig babies are able to move around right after they are born.

Origin

What is the history of the guinea pig?

Do you think that the guinea pig is a pig? Or, do you think that this animal is from New Guinea? Neither of these is true. It is actually a South American grassland rodent. They came from the Andes Mountains in South America. South America is a continent south of the United States of America. They were made pets by the Inca Indians in Peru. When animals are made pets they become domesticated.

During the 16th century or 1500's, explorers who were Dutch or from the European country Holland took the guinea pig to Europe. Later, in the 1770's around the time of the American Revolution, the animals traveled to America with sailors as pets or what was considered to be "fancy pets."

Natural Home

What is the natural habitat or home of the guinea pig?

Did you know that the guinea pig lived in a grassy, open area in it's natural environment in South America? These animals do not make their own homes. Instead, they choose burrows or homes that have been abandoned by other animals. The guinea pig does not burrow or dig for their homes. Instead, they look for homes that are protected and not open to predators (animals that will "prey " or attack the guinea pig.) They prefer to live in long grass to protect their large family groups. It is good if the grass is protected by stems that overhang. The long grass and stems will protect them from animals that are meat-eating.

The guinea pig is very shy and scares easily. They are considered to be social animals in the wild or natural

state. This means that they like to live in groups, and not alone or solitary. They are plant eating animals and do not eat meat. The scientific term for these animals that do not eat meat is herbivorous. In fact, the guinea pig will forage or search for all kinds of seeds, fruits, roots, and grasses. They most often hunt for these foods late in the day.

Appearance

What does a guinea pig look like?

The guinea pig is more closely related to the woodchuck, chinchilla, or porcupine. It is considered to be more of a "porcupine-like" rodent rather than a "rat-like" rodent. It is not closely tied to mice or gerbils.

Did you know that the wild guinea pigs are one-half the size of the domestic or pet guinea pigs? Guinea pigs are 10 to 12 inches long. The weigh about 2 - 3 pounds when they are adult or mature. It has a stocky, full body with short legs. Did you know that it does not have a tail? Can you think of another rodent that does not have a tail? The guinea has a life span of 5 - 10 years.

Guinea pigs come in many different colors. They range from "agouti" brown like their relatives who live in the wild grassland, bright silver or even a lilac

color, to a tortoiseshell color.

Their fur can be smooth or more like a "punk rocker." The American guinea pig is a short-haired breed. While the Peruvian guinea pig can have hair that is up to 18 inches long.

Use the **picture labels** that are below to help you learn more facts about the guinea pig:

stocky, full body

smooth or rough fur

short or long hair

no tail

short legs

weighs about 2-3 pounds

about 10-12 inches long

Housing

What about a cage or house for a guinea pig?

A guinea pig will need a good, safe cage for it's home. Some of the possible choices are wire, heavy plastic, glass, or stainless steel. There is a problem with wire because it will corrode (the wire turns bad.) Glass may not provide the best air supply or ventilation. Did you know that wood is not a good choice because it is hard to clean and the guinea pig may gnaw on it.

It is good to think carefully about the size and shape because a guinea pig could escape. One size that is suggested is 18 inches by 18 inches for one adult. A cage that is 100 square inches is ideal for each adult or mature guinea pig. The cage will need walls that are 9 to 10 inches tall. It is best to have a 1 to 2 inch rim around the bedding to keep it from being thrown

out. Wire sides work well for good air supply. The cage will not need a lid because the guinea pig does not climb or jumb very well. But, always protect the guinea pig from any predator such a cat or dog. In this case, put a firm fitting lid on the cage. And, don't forget to always protect a guinea pig from any dangers or sharp edges in the cage.

You might think wire is a good choice for the floor because it will stay cleaner. But, the guinea pig's feet or legs can be injured or hurt if caught in the wire. What is the best choice? Experts think a solid floor with a good supply of clean bedding. The bedding is important because the guinea pig will dig into the straw or hay. Don't choose a bedding like cedar wood chips because it has an oil that is harmful to the animal. The bedding should be free of dust, able to absorb moisture, and be very clean. It is important that the

bedding is easy to change. Torn, recycled paper or wood shavings with no oil or scent/smell are good choices. Remember, to change the bedding often.

Did you know that guinea pigs like to play hide and seek. Well, not really....but, they do like to hide. Since they scare easily and are shy, put an upside-down cardboard or wood box for some needed shelter. They don't climb, but a ramp in the cage will give the guinea pig some needed exercise.

What is most important is that the cage has good light, nice air supply, and can be cleaned easily. The perfect cage will make a nice home for a guinea pig.

Cleaning the Cage

How should a guinea pig cage be cleaned?

It is very important to keep the guinea pig cage very clean. Use hot water and soap to clean the cage and all of the cage "furniture" once a week. Be sure to use a safe disinfectant to sterilize the cage and furniture. Check with your local pet store for this product.

The food and water containers need to be cleaned and disinfected each day. It is a good idea to have two sets of containers. One set can be put in the dishwasher and cleaned thoroughly.

Food

What kind of food does the guinea pig eat?

The guinea pig needs to be able to gnaw or grind their own food. By doing so, they are eating "roughage" like being in the wild. Did you know that gnawing or grinding on food helps keep the front teeth short? This is important so these teeth do not grow too long or become overgrown.

Unfortunately, the guinea pig can not make their own vitamin C. Vitamin C is very important to the health of a guinea pig. They need a small amount of fresh fruits and vegetables each day to provide their body with the necessary vitamin C. This is a very important step in the care of a guinea pig. These little animals like melons (skin, too,) apples, carrots, celery, cabbage, cauliflower stalks, and tomatoes. It is important not to give a guinea pig spinach, potatoes,

or lettuce because they do not have any food value for the guinea pig. They can be toxic or poisonous for your animal. Do not feed them plants that grow from a bulb because they are toxic, too. Since the guinea pig is herbivores or plant eaters, always remember to feed them plants such as fruits and vegetables and do not feed them meat.

Pet food stores have a special pellet for guinea pig. Don't give your guinea pig rabbit pellets because it does not have the right mix of vitamins and nutrients.

Following these special tips will help make sure that your guinea pig stays healthy.

How important are teeth?

Teeth are very important for the survival of animals. It is easy to identify animals by the arrangement of their teeth.

There are four main groups of animals. **Carnivores** eat meat. **Herbivores** eat plant. **Insectivores** eat insects. And, **omnivores** eat all kinds or varieties of foods.

The teeth of animals are shaped and arranged in different ways. **Incisors** in the front are for cutting. **Canines**, next to incisors, shred and tear meat. **Molars** are used for grinding. These teeth are found in the back of the mouth.

Water

Is water important for a guinea pig?

Yes, always make sure that clean water is available. The guinea pig should drink from a bottle with a "sipper" tube. This tube can become easily contaminated, so check frequently. The guinea pig will chew and gnaw on the "sipper" tube which get particles of food into the tube. This tube should be cleaned and disinfected daily. By providing clean, fresh water, the guinea pig is on the road to good health.

Bathing

Should guinea pigs be bathed?

Most guinea pigs are thought to be clean animals except the long-haired Peruvian or also called Silkies. Although, a clean cage will lessen the smell. A bath may keep the guinea pig cleaner. It is important to know that the guinea pig will probably not like a bath.

There are some things that might make bathing a more enjoyable task. First, make sure the animal can stand and feel like it is on solid footing. The water temperature should be just right...not too hot or too cold. Always dry the guinea pig thoroughly to make sure they don't catch a cold or get chilled. It may be a good choice to use a hair dryer VERY CAREFULLY. In the end, a dry powder shampoo may be a better and easier choice. It is true that the guinea pig enjoys being brushed and groomed.

Handling a Guinea Pig

How should a guinea pig be handled?

It is always important to pick up a guinea pig with two hands. Remember, to hold or support the chest/abdomen plus the hindquarters of the guinea pig. Fortunately, the guinea pig is not a known biter, in fact the chances of being bit are 1 in 400. It may make a squeeling sound or protest similar to a pig's.

Good Pet Choice?

Is the guinea pig a good choice for a pet?

Yes, it is a good pet for many reasons. It is not considered to be a biter. In fact, they do not often scratch. The guinea pig is not thought to be a fussy or picky eater. This type of animal is well-liked by both breeders and regular people. The guinea pig is easily available to those looking for a pet. They are not high strung in personality, but easy-going in temperament.

Interesting Facts about Guinea Pigs

What are some of the interesting facts about the guinea pig?

Did you know that the guinea pig was the first rodent to become a pet or be **domesticated**? In fact, the guinea pig was the first small mammal to travel in space. On March 9, 1961, it rode on the Soviet space ship Vostok-3A No.1. It wasn't the only animal to go on this space ship. It traveled with a mouse and a dog named Chernuska.

The guinea pig does not use it's paws to pick up food. Unlike other small animals, the guinea pig does not store food for later times.

Guinea Pig Hazards

What are some issues to avoid around a guinea pig?

It is important to spare the guinea pig loud noises. Too much excitement may be a bad thing for these animals. In fact, stress can be damaging to the guinea pig.

Did you know that you should not move suddenly around a guinea pig? It is true because these little pets may become so scared that they stop moving or look frozen. Would you believe that they may not move for up to 20 minutes? But, becoming motionless or without any movement is not the only way a guinea pigs may react to being scared. These little animals may panic and run without control, leaping and jumping. Or, they may make a very loud squeeling sound that could be called a **shrill.**

What can you do to help prevent

some of these reactions? Provide a place or shelter for the guinea pig to hide when scared or stressed. It is important to allow for peaceful times for guinea pigs during day hours because they tend to be overly-active during night hours. You may wake up during the night to hear or see your guinea pig being very busy and active. The guinea pig cage needs to be in a location without excitement or too much activity. Also, try to attempt to limit the noise around your pet.

Room temperature is very important to check and monitor. Make sure that the room is not hot. Guinea pigs do NOT do well in heat. They handle cool rooms better. It is easy for them to get heat stroke especially if they are overweight or have full, thick fur. Watch for any weakness, not moving, panting, slobbering, etc. These may be signs of a heat stroke.

How do you treat heat stroke? Cool water can be sprayed on the guinea pig or the animal can be bathed in a cool bath. Be very careful to check the temperature of the water to make sure it is not TOO cold and chills the animal. It is smart to check with a veterinarian about a possible heat stroke condition. And remember, do not let guinea pigs be in the direct sun or be in a room without a good source of ventilation.

As mentioned before, give guinea pigs vitamin C or ascorbic acid. Just like human beings, vitamin C can not be made inside the body of a guinea pig, so it must be given to the animal.

How do you make sure that a guinea pig has enough vitamin C? Always give or supplement a guinea pig's diet with special guinea pig pellets. Also, provide lots of fruits and healthy vegetables that are rich in vitamin C. Some vegetable choices might be kale

(a dark, green, leafy vegetable), mustard greens, collards, broccoli, brussel sprouts, and parsley. Fruits with vitamin C are lemons with their peel, oranges, and guava.

Exercise

What kind of exercise does a guinea pig need?

Does a guinea pig need exercise like people? Yes, most definitely. Make sure to provide exercise each day. Did you know that the cage is NOT big enough to exercise a guinea pig? You have heard of playpens for human babies. Would you believe that guinea pigs have playpens, too? In fact, they can be built at home or bought at a pet store. These playpens provide a nice area for play for a guinea pig. It is important that this play area include everything that is important to the care of a guinea pig. If, it does not have these things, then make sure that the guinea pig can get back to the cage. It will need to have a door or be very close.

Guinea pigs can be given a chance to wander around a room or house.

Is there anything special to be aware of if you allow your guinea pig to roam free?

Yes, protect your "wandering" pet from any "predators" like cats or dogs. Make sure that the room or entire house is free of any dangers or hazards especially open doors to the outside. Always remember that the guinea pig will need to use it's cage for any "bathroom needs", food, water, and safety or shelter concerns.

*Note: A shallow litter box filled with hay or litter box material can be left in a "special" corner of the room or house. This may help to prevent an accident on a floor in the house.

Baby Guinea Pigs

What about baby guinea pigs?

When baby guinea pigs are born, their eyes are completely open. Many rodents are born with closed eyes. Baby guinea pigs also have a full coat of fur. Would you believe that they can run? This, too is different from other tiny newborns that do not run at birth. And last, they can eat food that is solid. This is amazing because most babies can only eat liquids, not solids. Although, they can eat solid food, they still nurse from their mother for 2 - 3 weeks.

What if baby guinea pigs are orphaned? This is very sad when this happens, but the orphaned guinea pig babies can be cared for by the owner. The babies should be fed grated apple, oat flakes, chopped bread, cucumber that has been mashed, and finely blended broccoli and carrots.

Unlike other rodent families, guinea pigs enjoy being together as a family. In fact in other rodent families, some male fathers have to be separated from their young. But, not male guinea pigs because they can stay near their young in the same cage.

Guinea Pig Name

Why are they called guinea pigs?

Did you know that the story of the name "guinea pig" was lost over time because it was so old? One thought is that the name came from a South American country called Guyana. It was a Dutch colony from Holland during the 16th century. Secondly, the name may have come from a ship's port in West Africa named Guinea. It is a French colony and is a connecting port to South America. One of the most likely ideas is that "gulden" in Dutch and German has the meaning of golden. In fact, some of the wild guinea pigs have this "golden color." Did you know that in England there was a golden coin named a "guinea"? These coins were used in its colonies. It is believed that the guinea pig cost 21 shillings or guinea. How did part of the name "pig" come about? Well, the guinea pig has a rounded rear

end like a pig. But, that is not all. They
have a high-pitched squeel and they run around like little baby piglets.

Scientists use "scientific names" to call animals. Guinea pigs have the scientific term *Cavia* from which the common term cavy comes. Did you know that the name *guinea pig* has come to be known as words for any person or animal in a science or laboratory experience? It is sad to think that guinea pigs and other animals like rabbits, mice, and rats are used as objects in a laboratory experiment. One important thing to remember is that these animals help researchers discover new cures for disease and illness.

Different Kinds or Varieties of Guinea Pigs

Did you know that there is more than one kind of guinea pig?

It is true! There are two categories of guinea pigs. One is called the selfs. Isn't that a strange name? But, that is what they are called. A self is actually an animal of any kind which has only one, single color. For example, they can be red, chocolate, or black. In fact, the list is getting longer, but there are about twelve different colors in this variety. New colors are still being discovered. If, a guinea pig is bred with the same color, then the offspring will be the same color. For guinea pigs, a self also tells us their type of coat. For this kind of guinea pig, it is always a smoothcoated variety.

The second kind is called the non-self. It is interesting because they can be one color or smoothcoated. They cannot be **both**. The non-self kind of

guinea pig is the variety that can also have two or more colors. In other words, you don't have more than one color on a self guinea pig, but you can with a non-self variety.

Guinea pigs have a variety of fur types such as smooth, rough, short, or long. The non-self kind of guinea pigs only have non-smooth fur. It is important to know your choices or options when selecting a guinea pig. You local pet store may not have examples of all the different kinds and styles of guinea pigs that are available.

Would you believe that all colors are possible to find in the different kinds of coats? People who breed guinea pigs can develop many different combinations of colors and fur types. Some interesting combinations of two colors are called bi-colors. *Bi* is a prefix that means two like bicycle means two wheels. Some examples would be a

white and black or even lemon (yellow) and black. *Tri* is a prefix that means three like tricycle means three wheels. By adding a third color, a tricolor or three-colored guinea pig is developed.

You might be interested to know that a new variety called Satin has been developed. Just like a bright paint, this type of guinea has a high gloss fur like satin. There is another new kind called the Ridgeback. This variety has a rough row of hair like a ridge of mountains that stands up on the back of the guinea pig.

Can you predict the future varieties of guinea pigs? What about a hairless little pig like the hairless cat? Oh, no...that would be a very strange sight! Or, a little guinea pig with very long ears. Something less unusual might be a striped guinea pig. It is difficult to know what future varieties might be developed.

Guinea Pig Language

Did you know that guinea pigs "speak" in their own guinea pig language?

Well, they don't really speak, but they communicate in their own way. In fact, their noises and squeaks have a purpose and they are really trying to "talk" to you and others.

This is a "table" which describes what the movements and sounds of a guinea pig mean:

Behavior of Guinea Pig	***Making Sense of It***
Touching Noses	Greeting Each Other
Grunting and Gurgling	Contented, at peace
Jumping	Joyful, Happy
Cooing	Calming, reassuring
Squeaking	Begging, in pain, lonely, fearful

Vital Statistics

What are some of the important facts or vital statistics of the guinea pig?

How long can they live?	Up to 12 years
How long do they usually live?	About 5 years
How many guinea pigs in an average litter?	3 baby guinea pigs
How old are guinea pigs when they are weaned?	About 3 weeks

Glossary

What are some words that you should know?

burrow (ber o) a hole dug in the ground for shelter
continent (kon ti nent) one of the seven huge land masses on earth
domesticated (de mes ti kated) a wild animal is tamed
environment (en vi ren ment) everything that helps a living thing to grow like the water, air, plants, animals, and surrounding land and soil
guinea pig (gin e pig) a short-earred rodent without a tail that is kept as a pet
herbivorous (her biv or es) eating only plants or grasses
mammal (mam al) it is an animal class that has a backbone, is warm-blooded, most often have hair or fur, and the off-spring are nursed by their mothers.
pellet (pel it) a round, small ball of dry food or medicine for small animals
rodent (ro dent) a mammal with incisor teeth good for gnawing
predator (pred a tor) an animal that hunts other animals

variety (va ri e te) an animal that is different from another in the species

ventilation (ven ti la shun) making fresh air possible

vitamin (vi ta min) one of the important substances necessary for a body's proper growth

Vocabulary Word Cards

Make **Word Cards** for your favorite vocabulary words. How do you make a word card...let me show you how!

Name of Word- write the name of the vocabulary word

Definition of Word- write the meaning of the word

Synonym- write a word that means the same or about the same as the word

Analogy- write a comparison for the word like:
apple: red:: banana: yellow

Use the word in a sentence- try writing the word in a sentence of your choice

Draw a symbol- make a picture of your word

Synonym

Definition of Word

Analogy

Name of Word

(Use it in a sentence)

Draw a Symbol

WORD CARD

Comprehension Questions

Can you answer **comprehension questions** about guinea pigs? Two column note-taking is a great way to remember information and learn new things.

How does it work?

Well, choose one of your favorite topics and read the **heading** before the topic pages. Turn the heading into a question using question words like how, when, what, where, why, and who? Try it with the topic "housing!" These are some sample questions...

How are houses made?
When are houses needed?
What is used to make their house?
Where are houses kept?
Why are houses needed?
Who lives in the house?

Name _____
Date _____
Two Column Note-taking

Topic:_____

Question #1:	Answer #1:
_____	* _____
_____	_____
_____	_____
	_____

Question #2:	Answer #2:
_____	* _____
_____	_____
_____	_____
	_____
	_____

Text to Me,
Text to Text,
and
Text to World

You have finished reading a book about guinea pigs. This handbook is full of words, sentences, paragraphs or that which we call the **text.** To help you really understand what you have read, make connections with what you have read by using these ideas:

Text to Me: How does the information or text that you have read relate to you?
Example: I have a guinea pig or I have seen a guinea pig at my friend's home.

Text to Text: How is the handbook that you have read like any other books, texts, or stories that you have read?
Example: I read another book about guinea pigs or I have seen pictures of guinea pigs in a story that I read.

Text to World: How is the information or text connect to anything else in the world?
Example: I have read about South America and guinea pigs come from there or people in other countries have guinea pigs.

Reflection Questions

Can you write a **reflection** about what you have learned about guinea pigs? It is always a good idea to reflect back on what you have read. Here are some ideas to help you get started...

I learned...can you share a thought or idea about something that you learned from reading about guinea pigs?

I was surprised that...can you share or write something that caught you off-guard or really took you by surprise? Do you have any new learnings that you could not believe?

I wonder...what do you wonder about now that you have read a handbook? Do you have more questions or concerns that you would like answered?

Name _____
Date _____
Guided Reading

Text to Me:

* _____

* _____

* _____

Text to Text:

* _____

* _____

* _____

Text to World:

* _____

* _____

* _____

My Reflection:
I learned _____

I was surprised that_____

I wonder _____

Guinea Pig Activities

Responsible Ownership

What does it mean to be a responsible pet owner of a guinea pig?

Having a guinea pig as a pet is a very enjoyable experience and will bring its owner much enjoyment. But, the truth is that it is a lot of work. Think about the following before getting a guinea pig:

1. Always think about the responsibility of raising and caring for a guinea pig before you adopt one.

2. You will need to care for the guinea pig for its entire lifetime. Guinea pig owners cannot take a day off. Your pet will require daily care.

3. Remember, give your guinea pig fresh food and water each and every day.

4. You will need to make sure that your pet is taken care of even if you are away for only one day or on a longer vacation.

5. Even a guinea pig needs attention, love, and to be exercised each day.

6. Groom your pet on a regular basis by bathing and brushing your guinea pig.

7. Your guinea pig needs a protected shelter that is quiet and safe for rest or sleep.

8. Don't forget to protect your pet from disease. Your pet may need check-ups from a veterinarian.

Time Management

How much time will it take to care for a guinea pig each day?

*Write down the amount of time that you *estimate* it will take to do the following jobs:

Feeding _____

Putting out Fresh Water _____

Cleaning Food and Water Bowls _____

Brushing _____

Bathing _____

Changing Bedding _____

Changing Litter box _____

Total Time: _____

Costs

How much will your guinea pig cost?

If you are thinking about owning a guinea pig, think about the costs. Owning a guinea pig is not without spending money.

Initial or Beginning Costs: You want to adopt a guinea pig, what will it cost?

Cost of guinea pig _____
Housing or cage _____
Bedding materials _____
Food and water containers _____
Grooming supplies _____
Foods and supplements _____
Toys and playthings _____

Weekly and Long-term Costs: What will it cost to keep a guinea pig each week?

Fresh bedding material _____
Fresh food-Hay, pellets, fruits, vegetables _____
Unexpected medical or veterinary needs _____

Environment Concerns

Do you have the right ***environment*** to care for a guinea pig properly?

How much space does a guinea pig need? Design and measure the size of a cage or hutch (height, width, and length). Design one that will fit the needs of a pet guinea pig.
*Note: Check back in the topic **housing** for ideas for the size of the cage.

What are the activities of a guinea pig? Does it need to run, play, hide, or exercise?

_____

_____

How much time exercising does a guinea pig need? Do you need to help your help your pet or participate with it?

_____

_____

How big will a guinea pig get? _____
Sketch a drawing of a guinea pig and label the **dimensions** or size of it.

When does a guinea pig like to play? Nighttime or daytime? _____

Comparing Animal and People's Needs

How are human needs and guinea pig needs the same? How are they different?

Food: What are the foods that you eat? Would it be a good idea to eat dog food? Is eating candy all day a good idea? Do you have a favorite food? Are there foods and vitamins that are important for human beings just as the guinea pig has certain foods?

Shelter: How would you describe your house? How are you protected by your shelter? Could you live without your shelter? How is your home and the cage of a guinea pig similar? How are they different?

Medical Help: Why is it important to have check-ups at a doctor's office? What can a doctor do if you are sick? How are doctor's visits the same for human beings and guinea pigs? How are they different?

Clothing: Why is clothing important? Why do we choose the clothing that we do? Guinea pigs don't wear clothes. What protects them?

Pets in the White House

Did you know that our presidents have had pets in the White House?

Buddy came to the White House in December of 1997. He lived with the Clinton family. Buddy was a chocolate Labrador retriever.

Buddy wasn't the only pet to live with the Clinton's. Socks, the cat, moved into the White House in 1993. The last cat to live with a president was with the Carter family. Her name was Misty Malarky Ying Yang.

Back in the 1960's, President Lyndon Johnson had a dog named Yuki. Did you know that presidents don't always buy "**pedigree**" or top dogs? Yuki was found at a gas station in Texas by Luci Johnson, his daughter. They sure have fun in the president's office, the Oval Office.

Dogs and cats are not the only pets in the White House. President Harrison had a son named Russell who had a pet goat. Can you believe that? His name was Old Whiskers. Old Whiskers should have been called Troublesome Whiskers because one day the President of the United States had to chase Old Whiskers. He was running away with the president's grandchildren. Don't you think that the president's pets should be better behaved?

There was one pet that might have been loved the most of all. This dog's name was Fala and he belonged to President Franklin Roosevelt. The president actually took Fala almost everywhere he went. Fala was one lucky dog. You might even call Fala the "Vice-President."

Animal Careers

Have you ever thought of having a job or career with animals? Here are some possibilities:

Veterinarian

Where would you work? Individual or team practice, zoos, teaching at a university/college, humane society/shelter/clinic specializing in spaying/neutering

How do you get the job? College degree, veterinary school for four years, working with a veterinarian who is licensed(this is called a residency). You will take a state test/exam and fulfill licensing requirements.

Veterinary Technician

Where would you work? Animal shelters, in a private clinic working with veterinarians, or animal sanctuary which protects animals of all kinds.

How do you get the job? You will study veterinary technology and earn an associate degree. Technicians need to know animals and how they behave.

Wildlife Biologist

Where would you work? Agencies in the state that protect wildlife, parks keeping wild animals, places that rehabilitate wildlife animals.
How do you get the job? Study wildlife biology in college and earn a degree

Zoo Director

Where would you work? City owned zoos or parks
How do you get the job? Earn a graduate degree(more than 4 years) in zoology or a field that is related, ability to be in charge, and a good problem- solver.

Humane Society Director

Where would you work? Organizations that protect and shelter animals both local or national
How do you get the job? Degree from a college, experience on the job, ability to take charge, skills in problem-solving, good communication skills dealing with the public

Animal Control Officer

Where would you work? You would work for an agency that controls animals in your city.
How do you get the job? Ability to handle animals with care and love, good skills in communication, need to know the laws about cruelty to animals, need to be able to work with news media, public, and city officials

Animal Trainer

Where would you work? Animal shelters, working with guide dogs and the hearing-impaired, organizations that teach animal training, own practice, movies or television shows
How do you get the job? Ability to successfully work with animals and owners, knowledge of animals and how to work with them, attending a school teaching vocational skills

Preparing for an Animal Career

Can you do anything *right now* to get ready to work with animals in the future? Yes, you sure can! Here are some great ideas for you:

1. Read, read, read all kinds of books, magazines, and computer material. You can find interesting topics about nature, animals, and the best way to care for and protect them both now and in the future.

2. Learn to write effectively and with purpose. Someday, you may be writing for a newspaper or magazine about issues protecting pets. It is important to be able to communicate ideas to others. By practicing your writing skills, you may be able to help pets in the future.

3. Always take the best care of your own pet. Learn more ideas by talking to others and reading as much as you can about the health of your pet. It is a great idea to talk to your veterinarian when you take your pet in for shots or check-ups. Your veterinarian will give you helpful tips for caring for your pet.

4. Have you ever thought about volunteering at the local humane society or nature center? Working with pets one on one is very valuable and will give you what is called work experience. You might also work on projects to benefit the animal shelter like collecting food or blankets for the pets.

5. As you continue in school, take classes in the following areas: biology, zoology, anatomy. These classes will give you more information and valuable background knowledge about animals.

6. Have you ever thought about starting an animal club at school to teach other students about caring for pets?

You can be on your way to a career or job with animals and pets **today!** Don't delay, start making your plans and become an expert on animals and their care.

Helping Animals Today

You are thinking about your future! But, you are still young and you want to help animals today. What can you do right now?

1. Always show kindness and respect to people and animals.

2. Always take good care of your pets! Your pet needs water, food, and exercise each day. This is showing good responsibility as a pet owner.

3. Animal organizations in your town or city need your help. You can earn money to help them by having a bake sale, car wash, garage sale, or collecting recycling goods.

4. Older people in your neighborhood may need can groom their pet or your help. Ask them if you walk their pet. Did you know that donations of pet food may be appreciated by the elderly?

5. Animal shelters in your area may need food and blankets for animals in need.

6. When you take a hike or walk, always show

respect and appreciation by protecting the environment and not littering.

7. Write a play, story, or poem about animals and their importance in our world and share with your family, friends, class, or school.

8. Read animal books to your siblings or other students in your school.

9. Build a bird house or bat house for your animal friends.

10. Always remember that animals need YOU to show them that you care!

Index

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