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MAKITAB system of small group learning interaction analysis : a manual for researchers and coders

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FACULTY OF EDUCATION
School of Education Studies

MAKITAB SYSTEM OF SMALL GROUP LEARNING INTERACTION ANALYSIS

A Manual for Researchers and Coders

Leonard King
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Collette Tayler

March 1993

EDITH COWAN UNIVERSITY
PERTH   WESTERN AUSTRALIA

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Acknowledgements

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TABLE OF CONTENTS

Page No.

Introduction

The MAKITAB system of small-group learning interaction analysis has been developed over a 4 year period. When data were gathered late in 1989 on the verbal interactions of Grade 5 students participating in small-group cooperative learning, we were faced with the problem of having to develop an appropriate analysis system. An initial system was created using inductive approaches. Following further data gathering across other grade levels and subject areas, the system has undergone successive refinements. The final instrument, as presented in this manual, has reached a state of consistency that enables coding of most verbal eventualities as they occur in the small-group cooperative learning context. Furthermore, the reliability and validity of the instrument seems to have been established. The MAKAITAB instrument should facilitate useful data gathering across a broad range of small-group cooperative learning settings.

The manual has been prepared for researchers and coders who need an instrument to code verbal process behaviours of students during small-group cooperative learning. Following some definitions and general notes for coders, the manual consists of a presentation of the six interaction areas. The interaction areas are defined and then each category within the interaction areas is described and examples of the category provided. A summary of the interaction areas and the interaction categories is presented in the next section.

Normally a coder will work from data protocols for each group during a small-group cooperative learning lesson. These protocols may have been prepared from script-taping of lessons or transcripts of recorded lessons or a combination of both. For each verbal comment or question in the protocols a pair of symbols identifying speaker and listener will have been included. The coder records the appropriate category down the left side of the protocols. Specific guidance for coding is included in the General Notes section of the manual.

The manual for MAKITAB is backed by a technical report which details the development of the instrument, the processing of the coded data derived from the instrument, and the reliability information. A copy of the technical report is available at a cost of $10.00 (including postage) on request from :

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Summary of MAKITAB

A summary of MAKITAB is provided in Figure 1. The structure of MAKITAB consists of six interaction areas :

Whole Class Introduction	(I)
Group Task	(T)
Group Dynamics	(D)
Monitoring Group	(M)
Whole Class Intervention	(N)
Whole Class Wrap-up	(R)

These interaction areas cover the components of any small group cooperative learning lesson. Four of the interaction areas involve the teacher in verbal interactions with one or more students, namely, I, M, N and R. Two of the interaction areas, T and D, involve only students in verbal interactions.

As Figure 1 indicates, each interaction area consists of numerous categories. Similar categories may appear across a number of interaction areas and often there is a similarity in the code number for such categories, e.g., the Feedback--Positive category, IS03, DS03, MS03, NS03 and RS03. With a total of 69 categories plus 5 possible non-task-related categories and a Cannot Code category, the MAKITAB system is comprehensive. However, the horizontal alignment of categories within interaction areas facilitates the coding process.

SMALL GROUP LEARNING INTERACTION ANALYSIS (MAKITAB)
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3.

WHOLE CLASS INTRODUCTION	GROUP TASK	GROUP DYNAMICS	MONITORING GROUP	WHOLE CLASS INTERVENTION	WHOLE CLASS WRAP-UP
IS01 Recapitulating from previous lessons	TS01 Management - materials / movement processes	DS01 Decision-making	MS01 Checking progress	NS01 Recapitulating previous activity	RS01 Recapitulating / summarizing lesson
IS02 Explaining task content / procedures / materials	TS02 Clarifying task directions / requirements	DS02 Assigning role(s)	MS02 Clarifying or eliciting task content / solution	NS02 Clarifying task content / procedures / materials	RS02 Marking / collating findings
IS03 Feedback - positive		DS03 Task feedback - positive	MS03 Feedback - positive	NS03 Feedback - positive	RS03 Feedback - positive
IS04 Feedback - negative		DS04 Task feedback - negative	MS04 Feedback - negative	NS04 Feedback - negative	RS04 Feedback - negative
IS05 Setting context	TS05 Determining work actions	DS05 Challenging group member(s) / asserting	MS05 Clarifying task procedures	NS05 Checking thinking process(s)	RS05 Reviewing thinking process(s)
IS06 Explicit teaching of content	TS06 Accepting work actions	DS06 Positive response to challenge / assertion	MS06 Giving answer / solution	NS06 Explicit teaching of new content	RS06 Looking ahead
IS07 Recapitulating task content / procedures	TS07 Rejecting work actions	DS07 Negative response to challenge / assertion	MS07 Giving explicit directions	NS07 Giving explicit directions	RS07 Giving directions
IS08 Control / discipline	TS08 Examining, comprehending, clarifying & routine responding	DS08 Seeking approval / feedback	MS08 Control / discipline	NS08 Control / discipline	RS08 Control / discipline
IS09 Student question / comment	TS09 Sudden ideas / insights	DS09 Self-evaluation - positive	MS09 Student initiated contact	NS09 Student question / comment	RS09 Student question / comment
	TS10 Proposing	DS10 Self evaluation - negative	MS10 Resolving problems (dynamics)	NS10 Checking progress / marking	
	TS11 Negotiating, arguing, reacting to ideas, insights or proposals	DS11 Monitoring behaviour in group			
	TS12 Final agreement	DS12 Group evaluation			
	TS13 Final rejection	DS13 Aggression / conflict			
	TS14 Representation	DS14 Seeking help			
	TS15 Reviewing	DS15 Offering help			
	TS16 Monitoring student / group progress				

SPEAKER - LISTENER

1-4	Female student
5-8	Male student
9	Group
U	Unknown student
C	Class
T	Teacher
H	Helper
P	Parent
O	Outsider
S	Self
X	Other

CODING NOTES

##99	Non-task related (IS, TS, MS, NS, RS)
0000	Cannot code
S	Statement - For coding questions substitute
?	for a cognitive question and
X	for all other forms of question

Figure 1 : Summary Chart of MAKITAB

Definitions of Variables Coded in the Small Group
Learning Interaction System

Cognitive Question

A question (a) related to task content, that is, the knowledge and/or skills to be learned; and (b) that involves thinking processes used while learning content or working the learning task, including the procedures to undertake the task.

Feedback

A verbal response by the teacher to a student's comment, suggestion, question or answer. Feedback might also relate to behaviour. Feedback may be positive (fine, good, well done); encouraging (it's hard, isn't it); affirmative (yes, okay, all right, that is correct, repetition of answer); negative (no, incorrect); or a critical comment (that is a silly answer, John).

Group Dynamics

Forces at play within the group especially as they pertain to relationships and how the group functions.

Interaction

A reciprocal action involving talk.

Interaction Area

Within the MAKITAB, a section reserved for talk in a particular grouping of categories. In the system there are six interaction areas: Whole Class Introduction, Group Task—attending to or fulfilling the task, Group Dynamics—how the group functions, Monitoring Group by Teacher/Aide/ Parent, Whole Class Intervention, and Whole Class Wrap-up.

Interaction Category

Within the MAKITAB, a classification within an area of interaction. For example, within the area of Whole Class Introduction, there are nine categories of interaction beginning with Recapitulating from Previous Lessons.

Monitoring Group

Teacher talk to a group or student in which the teacher observes, checks, clarifies or oversees group performance or behaviour. Group monitoring takes place between the lesson introduction and the conclusion.

Other Questions

A question (a) related to rules, routines, directions, materials management, group progress, control and discipline, or determining work actions; (b) that involves group dynamics type matters; and (c) is personal or non-task-related.

Representation	Representation in visual form, the product of group work.
Task	A definite piece of work assigned to or expected from a group/class. *Task* has *content* and *procedural* strands. *Task content* is the substance or subject matter being learned within the task. *Task procedure* is the course of action, steps involved or manner of proceeding with the task.
Whole Class Introduction	The preliminary part of the lesson leading up to the small group learning.
Whole Class Wrap-up	The end or final part of the lesson in which the teacher talks to the whole class about the lesson.

General Notes

Guidelines for Coders

1.   Recording Codes

All interactions should be coded speaker and listener with speaker being denoted first. The following symbols are used :

SPEAKER - LISTENER

1-4	Female Student	(i.e., Anna = 1, Beth = 2, etc.)
5-8	Male Student	(i.e., Alex = 5, Brian = 6, etc.)
9	Group	
U	Unknown Student	
C	Class	
T	Teacher	
H	Helper	
P	Parent	
O	Outsider	
S	Self	
X	Others	

When a lesson is coded, the codes should be entered on the lesson protocols. Later, these codes can be transferred to the coding sheet.

Examples: TS01 : 2-4   I am going to use your ruler.

TS02 : 4-2   The teacher said that when we come to the second one we have to guess the length.

2.   Segmenting Statements into Units for Coding

Although this is an interaction category system which entails only the coding of interactions, a more representative flavour of talk can be gained by breaking lengthy statements into subtopics (i.e., a shift of gears within a statement).

For example, in IS02 (Explaining task content/procedure/materials) a lengthy teacher statement could encompass all three subtopics (i.e., task, procedure, materials). A narrow interpretation of the coding system would designate this one as IS02. However, we believe this would not capture the quality and length of the teacher's exposition. In order to overcome this problem, we suggest that within lengthy statements such subtopics be given codes. Subtopics can often be identified by transition words such as okay, all right, next, now, first, second.

This principle would also extend to interactions which encompass two categories.

Examples:	IS02 : T-C	The task is described on your worksheet. It involves comparing the size of fractions very much like the ones we have just been
	IS02 : T-C	doing. / To complete the task you will have to work in the group you have been placed in. You must work together and co-operate to suggest one answer for each question.
	IS02 : T-C	/ To complete the task you will need fraction strips. Those strips are
	IS02 : T-C	on the desk in the front of the room. / I would like one person from each group to collect the strips.

3. **Stay in Code**

A question/answer exchange should be coded in the same category. The question usually sets the area of interaction.

Examples:	DX14 : 1-9	Will someone hold this?
	DX14 : 2-1	There.

4. **Questions - Cognitive (?), or Other (X)**

Questions are to be coded as *cognitive* (?) when they:

(a)   relate to task content, that is, the knowledge and/or skills to be learned;

(b)   involve thinking processes used while learning content or working the learning task, including the procedure to undertake the task.

Questions are to be coded as *other* (X) when they:

(c)   relate to rules, routines, directions, materials management, group progress, control and discipline, or determining work actions;

(d)   involve group dynamics type matters;

(e)   are personal or non-task-related.

Rhetorical questions may be coded as cognitive (?) or other (X). The decision will depend upon the context of the question and whether it demands cognitive involvement or otherwise.

5. **Coding Rules for TS08-TS13**

These points may help clarify TS08-13:

(a)   A useful metaphor for TS08 (Examining, comprehending, clarifying and routine responding to content) is *arranging the furniture* or *clearing the decks* for what is to follow.

(b) If an interaction is TS09 (Sudden insight) or TS10 (Proposing), as a general rule it will be followed by another TS10 (Proposing), a TS11 (Negotiating, arguing, reacting to ideas, insights or proposals), a TS12 (Definite agreement), or a TS13 (Definite rejection). However, sometimes TS11 will drop back into TS08 type interactions (e.g., Use the ruler to measure).

(c) A useful guideline for talk that is very difficult to categorize is: If not TS09, 10 or 11, then TS08.

6. Operation of Whole Class Intervention Area

As a general rule, the Whole Class Intervention (N) area comes into operation straight after group work commences. The exception to this rule is when the Whole Class Introduction is structured in a step-by-step manner which alternately involves explicit teaching and group work. For example, the teacher explains equivalent fractions; the students in groups generate a list of equivalent fractions; the teacher collates and generalizes about these fractions; and then the groups respond to further problems posed by the teacher before commencing a worksheet. In this instance, the area coding would alternate between I and T. Once the students start on a sustained period of cooperative learning, the N area would come into operation as and when appropriate.

7. Students Speaking to Each Other in the Teacher-involved Interaction Areas

When students speak and listen to each other during the teacher-involved areas, such as Whole Class Introduction (IS), Monitoring Group (MS), Whole Class Intervention (N), and Whole Class Wrap-up (R), then their interactions are to be coded within Group Task (T) or Group Dynamics (D).

8. Completion of Task

Stop coding when a group has completed the task and is waiting for everyone else to catch up/or the wrap-up to begin.

9. Extended Feedback

Watch for extended feedback.

Examples:

IS06	: T-U	So I'd say it's between 50 and 55.
IS08	: U-T	53
IS03	: T-U	Okay about 52-53, something like that.
IS03	: T-U	/ Okay that was real close. When you made your estimates you were getting it kind of close to 50.
IS03	: T-U	Well done.

10. **Feedback in Whole Class Wrap-up**

Designated categories of feedback in the Whole Class Wrap-up include only the following:

> RS03   Feedback--positive
> RS04   Feedback--Negative

All other feedback should be recorded in the appropriate category. For example, in RS02 (Marking/collating findings) an affirmation or repetition of a student answer would be coded RS02.

11. **Using the Category Representation**

Because Representation (TS14) is often difficult to catch from transcripts and this affects validity, it is suggested that when TS14 occurs concurrently with something else (like TS08, 10, 12) then code TS14.

12. **Request for Repeat of Comment or Question**

When a question or comment is not heard by the student or teacher, then code the response in the preceding category.

Examples: I?06 : T-U   What would you say that number would be?
IS06 : U-T   90
I?06 : T-U   What?
IS06 : U-T   90.

13. **Repeat of a Question**

If a question is repeated by a teacher, then that question should only be coded once.

Example: I?06 : T-C   What kind of pattern can you see?
[No response]
What kind of pattern can you see?

14. **Chorus Response**

When there is a chorus response to a question, then a separate coding should be made for each responding student.

15   **High Inference or Unfinished Comments**

As a general rule, code high inference or unfinished comments in the
Cannot Code category. These comments may be incomplete,
unintelligible or the cassette may pick up comments from another group.
Only comments with a clear meaning should be coded.

Comments or questions which fall outside the category system should
also be coded Cannot Code.

Examples: 0000 : 2-5   Two-eighths is a . . .

                0000 : 5-2   Oh you might as well say one-half is larger
                                than . . .

                0000 : T-C   Put your . . .

16.   **Interactions Related to Recording Equipment**

Do not code interactions which are obviously related to the presence of
the cassette recorder or microphone. If in doubt, give the benefit of the
doubt to the teacher.

Examples: 0000 : 2-5   That's probably been taped.
                0000 : 5-2   Huh?

Whole Class Introduction

Definition of Introduction:

The preliminary part of the lesson leading up to the small group learning.

IS01 Recapitulating from Previous Lessons

Comments and questions during whole class instruction which relate to *bridging* or *reviewing* the procedures or content *from a previous lesson(s) to a current lesson.* This category relates *only to a series of lessons on a particular topic or theme.*

Examples:	IS01	: T-C	In the previous lesson we learned about
	IS01	: T-C	equivalent fractions. / You will recall that we have had several lessons on prediction. In our last lesson we predicted the rate at
	I?01	: T-C	which ice melts. / Who can remember some factors that affected our predictions?
	IS01	: T-C	Remember our rule (from a previous lesson) about all hands up before asking the teacher a question.

IS02 Explaining Task Content/Procedures/Materials

Comments and questions during whole class instruction which *explain the nature of the task* and/or *direct the groups' task for the lesson* and/or *procedural steps* to be followed by the groups or which relate to the *distribution of materials.*

Examples:	IS02	: T-C	I'm going to give each person one of these white rectangles, and this is going to
	IS02	: T-C	represent your pizza. / It says on these worksheets that somebody has a pepperoni pizza, and you're going to have to colour this so that it looks like a pepperoni pizza.
	IS02	: T-C	Each group will have an equivalence chart; each group will have a straight edge; each group has some questions to answer.
	IS02	: T-C	/ When you get your sheet, I want you to write down the names of the members in
	IS02	: T-C	your group. / Each group will get one sheet, and everyone in the group, in agreement and understanding, will help provide the
	IS02	: T-C	answers to the questions on this sheet. / I

IS02 : T-C   will give you thirty minutes. / When you're
              finished, turn your sheet over on your desk
              and I will know that you're done.

IS02 : T-C   I want you to work out a way to represent
              our findings.

IS02 : T-C   Now let's get on to it. We are into it now.

IS03   Feedback -- Positive

Interactions which provide *positive comment, encouragement* or *affirmation*
about the *progress, achievement, effort, action* or *behaviour* of the whole
class, a group(s) and/or a student(s).

Examples: IS06 : I-T   About 80.
               IS03 : T-I   Okay. That's a pretty good estimate.

               IS06 : 2-T   48.
               IS03 : T-2   48.

               IS03 : T-C   Fine . . . good . . . well done.

IS04   Feedback -- Negative

Interactions which provide *negative* or *critical comment about the
acceptability, appropriateness, progress, achievement, effort, action* or *behaviour*
of the whole class, a group(s) and/or a student(s).

Examples: IS04 : T-5   No, that answer is incorrect.

               IS04 : T-6   That's a silly answer.

IS05   Setting Context

Comments and questions which set the *context* for the lesson. These
interactions may relate to providing an *overview of the lesson, stating
goals/objectives, outlining expectations* or *stimulating interest/motivation.*

Examples: IS05 : T-C   Today we are going to do some work on
                             predictions.

               IS05 : T-C   I've got a really tough problem for you to
                             solve. Let's assume we have been engaged
                             by the early Egyptians to help them work
                             out an easy way of moving large objects
                             from one place to another.

               IS05 : T-C   I think you'll enjoy today's lesson because
                             we are going to learn about different
                             mathematical shapes.

               IS05 : T-C   Today we are going to continue with our
                             charts.

IS06   Explicit Teaching of Content

Occasions when the teacher *introduces, explains, develops* or *reinforces content*. Explicit teaching involves the *content foundation* for the lesson. This includes question-answer exchanges with students. The content in question could have been learned at an earlier time but does not involve bridging or reviewing the content from a previous lesson(s) to the current lesson (IS01).

Examples:	IS06	: T-C	A square is a special kind of rectangle.
	I?06	: T-1	Can you make up a statement about how much pizza Anna ate?
	IS06	: 1-T	She ate one whole.
	I?06	: T-1	How did you know that?
	IS06	: 1-T	Because two-fourths is half, and half and half is one whole.
	IS06	: T-C	We could also have done it as a mathematical statement and said 1/2 + 1/4 + 1/4.

IS07   Recapitulating Task Content/Procedures

Comments and questions made by the teacher during whole class instruction in which the teacher *reviews* the *group task content* and/or the *procedural steps* to be followed by the groups. Normally, IS07 will occur after IS02.

Examples:	IS07	: T-C	Reminder: When a group is working well and co-operating, they work quietly, quickly and carefully.
	IS07	: T-C	I'll go through it quickly again . . .
	IS07	: T-C	Again, just to remind you, the first job is to write your name, then the names of the members of your group and then answer the questions.

IS08:   Control/Discipline

Comments made by the teacher which pertain to matters of control and discipline. This may include *gaining attention, commenting, warning, rebuking* or *disciplining a disruptive or inattentive* student or group(s).

Examples:	IS08	: T-C	Eyes to me.
	IS08	: T-U	I need your attention up here, Mary.
	IS08	: T-C	Stop sliding your chairs.
	IS08	: T-C	Would you turn around and look at the board.

IS09   Student Question/Comment

Comments and questions *initiated and made by a student(s)* to the teacher during whole class introduction in which the student(s) is *questioning, commenting, speculating* or *suggesting content or procedure relative to the task.*

Examples:	IX09	: U-T	What if others in the group don't like suggestions?
	IX09	: U-T	Are you allowed to use cardboard?
	IS09	: U-T	You said last week we could write one down and I think some of us did write one down.
	IX09	: U-T	Should we write our last name?

IS99   Non-task Related

Interactions by the teacher or a student(s) which indicate *non-involvement* or *distraction from the task* being worked by the teacher and the class.

Examples:	IS99	: 2-T	My Mum makes pizzas.
	IX99	: 5-T	When are we going to lunch?

Group Task : Attending To The Task/Fulfilling The Task

Definition of Task:

A definite piece of work assigned to or expected from a group/class.

Interactions in this category relate only to student talk.

TS01 Management - Materials/Movement

Interactions associated with the type of material to be used, or the collection, arranging or distribution of materials and equipment required for group working on the task. Interactions which involve movement in terms of work space are included in this category.

This category does not include movement (physical activity) or the manipulation of materials (e.g., calculators, geoboards) as part of the work task.

Examples:	TX01 : 1-2	Do you have a good crayon?
	TS01 : 1-5	Okay, use pencil.
	TS01 : 1-6	Come and find the picture.
	TS01 : 2-1	Okay, we're going to need all the pizzas to do this worksheet.
	TS01 : 2-5	Toss me the fraction strip showing one-quarter.
	TS01 : 2-6	I need to go on the other side of the desk so that I can draw the right way up.
	TS01 : 5-6	We need to go inside now.

TS02 Clarifying Task Directions/Requirements

Comments and questions *seeking* to clarify directions, instructions or requirements to be followed when doing the task. This includes conferring to obtain help from the teacher or seeking directions on what to do when a task is completed. Reading instructions/questions from a worksheet are also included in this category. Questions read from a worksheet are coded TS02; student generated questions in this category are coded TX02.

| *Examples*: | TS02 : 5-1 | And then you're supposed to colour it in. |
| | TS02 : 5-2 | We have to do this together. |

(examples cont'd)

TS02 : 6-1	The question says, "Who eats the most pizza?" [worksheet question].	
TS02 : 6-2	Wait a minute. We should put our names on it.	
TX02 : 1-2	Sara, how do you spell your name [to write on worksheet].	
TS02 : 2-1	S-a-r-a.	
TX02 : 5-9	Do any of you know what you're doing?	
TS02 : 1-5	No.	
TS02 : 6-5	Tell the teacher.	
TS02 : 5-6	Why don't you finish it first.	
TS02 : 5-2	Let's do number 3 first.	
TS02 : 1-6	No one else has got their hands up.	
TX02 : 6-1	Now what did you want?	
TS02 : 1-6	I want to know what she told us.	
TS02 : 2-6	I want to too.	
TS02 : 6-9	Hands up then.	

TS05   Determining Work Actions

Interactions which involve *determining who will undertake* or *who has undertaken* particular *work actions* (i.e., jobs) toward achieving the *group task*. This includes *volunteering for* or *unsolicited rejection* of a task. Task determination can lead to *overt acceptance* (TS06) or *overt rejection* (TS07) or there may just be tacit acceptance or rejection (implied, so it generally cannot be coded).

This category is distinguished from TS08 in that the work actions are distinct jobs which contribute to the working of the group task. The work actions *are not* routine manipulative operations which may be part of the learning. Work actions (jobs) may be determined in the planning process or arise in response to a definite need during the working of the task. The category of determining work actions may also be used in the sense of checking up to see who has undertaken a particular work action for the group.

Coders should bear in mind the purpose of the category is to identify interactions which determine work actions (jobs) and students who play a significant part in *setting up and carrying out work actions* (jobs) that facilitate the achievement of the group task (i.e., the active participator). This category does not pertain to structural roles (e.g., recorder) in the group (see DS02).

Examples:	TS05 : 5-6	I'll finish the legend.
	TX05 : 5-2	Who's going to do the drawings?
	TX05 : 6-5	What am I doing? *(examples cont'd)*

TS05	: 6-1	I'm not going to construct halves and eighths.
TS05	: 6-2	Whoever gets done first will make halves.
TX05	: 1-6	Who did this one?
TS05	: 2-5	I'll cut them out now.
TS05	: 1-5	I thought you were going to draw a picture, Carol.
TS07	: 2-1	No, I'm working on this.

TS06 Accepting Work Actions

Comments by a group member that *confirm* the acceptance of particular work actions (jobs).

Examples:	TS05	: 2-6	You do the map.
	TS06	: 6-2	Okay.
	TX05	: 1-5	Will you make thirds?
	TS06	: 5-1	If that's what you want, I'll make thirds for you, Susan.

TS07 Reejecting Work Actions

Comments by a group member that *confirm* non-acceptance of particular work actions (jobs).

Examples:	TX05	: 1-2	Do you want me to take this home to my brother to do?
	TS07	: 2-1	No way, he might wreck it.
	TS05	: 1-5	You're meant to be drawing.
	TS07	: 5-1	No, I'm not.
	TX05	: 6-1	Are you doing the pepperoni pizza?
	TS07	: 1-6	No, I want to do tuna.

TS08 Examining, Comprehending, Clarifying and Routine Responding

Comments, questions and other interactions which are associated with *identifying, defining* or *paraphrasing content; examining, discussing* or *gathering information; elaborating upon content; clarifying facts and concepts; manipulating materials or equipment* in *relation* to *task content or procedure; making routine, low level responses (chatter) while working through task content/procedure.* This category also includes the sharing or collating (not discussing to reach consensus) of answers in independent format lessons.

Examples:	T?08	: 1-2	How do you spell science?
	TS08	: 2-1	S-C-I-E-N-C-E.
	TS08	: 1-5	It's just the same set out in a different way.
	T?08	: 5-1	Can you think of some other combinations that make up three quarters? [would lead to TS09 or TS10]
	T?08	: 1-6	Why do you have to add to get the answer?
	TS08	: 6-1	Because she ate half and quarter of each pizza.
	TS08	: 2-6	There now—divide it [the pizza] up into how many people you have to share it with.
	T?08	: 6-2	With you? With you three?
	TS08	: 2-6	No look. It says that Anna and Ben decide to share a pepperoni pizza.
	TS08	: 3-5	Mine's a big one.
	T?08	: 1-5	What did you get?
	TS08	: 5-1	Six.
	T?08	: 1-6	What's the exposition?
	TS08	: 6-1	Same as the introduction—the background stuff.
	TS08	: 5-9	I like this activity.
	T?08	: 5-6	What did you get on number 3?
	TS10	: 6-5	One whole.

TS09   Sudden Idea(s)/Insight(s)

A 'flash-in-the-mind', impulse, insight or creative idea which is related to the task but is *not a definite* recommendation for inclusion in the group task.

Examples:	TS09	: 1-9	Hey, I've got a good one. We could have a cyclone.
	TS09	: 2-9	Half! Gosh! Gosh, they're all going to be a half.
	TS09	: 5-9	Oh, I have an idea: it could be bacon, bacon and cheese.
	TS09	: 6-9	I know what we could do.

TS10   Proposing

Interactions in which a group member(s) offers for consideration,
acceptance or action a *definite recommendation, suggestion, prediction, plan,
method, explanation* or *answer* for inclusion in the group task. This offer
may take the form of a proposal, an extension of a proposal, or a counter-
proposal. A proposal, extension of a proposal, or counter-proposal may
be *ignored, negotiated over, accepted* or *rejected* (see TS11-TS13).

Examples:	TS10 : 1-9	Let's say we are in a group and we go around the world in a voyage and the next morning we wake up and we're wrecked.
	TS10 : 1-9	Let's crush it.
	TS10 : 2-9	Make a big ice-cube out of cardboard and join it on.
	TS10 : 3-9	It would work with a hammer.
	TS01 : 1 -9	If you were really hungry would it be better to share a pepperoni, cheese or bacon pizza? [Note: A student reading from the worksheet.]
	TS10 : 2-9	Cheese, I think.
	TS12 : 5-9	Cheese.
	TS10 : 5-6	Now you add all these together.
	T?11 : 6-5	Are you sure?
	TS11 : 5-6	Yes. [The discussion continues before closure.]

TS11   Negotiating, Arguing, Reacting to Ideas, Insights or Proposals

Comments and questions in which group members *talk, work through, or
react to ideas, insights or proposals*. These interactions normally involve
higher cognitive level interactions such as *reciprocal discussion,
consideration of implications, application of content, examination of different
points of view, verbalization of reasoning processes, critical thinking,* or
statements for and against a proposal or counter-proposal. Normally TS11 will
follow TS09/TS10, but interactions may occasionally revert to TS08.

Examples:	TS10 : 1-2	Ben ate the least pizza.
	TS11 : 2-1	No, he didn't.
	TS11 : 2-1	Look – Candice gets one-third and one-
	TS11 : 2-1	quarter. / Ben gets all those pieces, so it
	TS11 : 2-1	couldn't be Ben. / Anna gets that and that, but one-third is smaller [sic] than
	TS11 : 2-1	one-quarter. / So it has to be Candice.
	TS11 : 2-1	Darren gets one-third.
	TS11 : 1-2	Yeah, but . . . *(cont'd)*
	TS10 : 5-9	Candice and Darren ate the least pizza [i.e., a counter proposal].

TS11	: 6-9	Two-sixths is smaller than three-ninths.
TS11	: 1-9	Wait a minute, two-sixths equals one-third. Three-ninths equals one-third.
TS11	: 2-1	Yeah.
TS10	: 1-9	So they're the same. Talking about two-ninths, no, so Anna and Ben.
T?11	: 2-9	How can Ben be eating the least? [rhetorical question]
TS11	: 2-9	He ate the most.
TS11	: 5-2	Uh-huh, see Anna.
TS11	: 1-9	Two-sixths equals one-third. Three-ninths equals one-third.
TS11	: 6-9	So they all eat the same.
TS11	: 6-9	Unless two-sevenths is bigger.
TS11	: 1-6	Two-sevenths isn't bigger.
TS11	: 5-9	Two-sevenths is smaller.
TS11	: 1-9	Well they're both the same. Candice and Darren ate the same. So that means Candice and Darren ate the least pizza.
TS12	: 5-1	Yes, that's what I said.
TS12	: 1-5	Okay.
TS11	: 1-6	It can't be seven-eighths. Look, here's half, and right below is four-eighths.
TS11	: 6-1	Seven-eighths would be more than four-eighths.
TS11	: 1-6	So it would be more than a half, too.
TS12	: 6-1	Okay.
TS11	: 2-5	Kevin Costner can't play Romeo.
T?11	: 5-2	Why not?
TS11	: 2-5	He doesn't look Italian.
TS12	: 6-5	Yeah, he's not young enough, either.

TS12   Final Agreement

Interactions in which a group member(s) *agrees to final recommendations, suggestions, plans* or *answers* for inclusion in the group task.

Examples:	TS12	: 1-9	We all agree that the title should be 'How to Survive in a Cold Climate'.
	TS12	: 5-9	Yes, it's hot water.
	TS10	: 1-5	Wrap it in material.
	TS12	: 5-1	Yes, what a good idea. Let's do that.
	TS12	: 6-9	I have to go along with it, I don't have any choice.

TS13   Final Rejection

Interactions in which a group member(s) *reject recommendations, suggestions, plans* or *answers* for inclusion in the group task. The rejection is *final* and *dismisses* content from further consideration for the group task.

Examples:
TS13 : 1-6	No way, we're not having that.
TS13 : 6-1	We will not have that pop-up.

TS14   Representation

Comments, suggestions or questions associated with the *actual recording* or *representation* of the *product* or *recommendations* for *inclusion in the group product*. This includes such acts as writing, drawing, colouring, erasing, preparing a chart and performing. When TS14 occurs concurrently with another category (TS08, TS10, TS12) then code the interaction as TS14.

Examples:
TS14 : 5-6	Write it down as best you can.
TS14 : 5-1	Write that three-eighths is a proper fraction too.
TS14 : 5-6	I've almost got it erased.

TS15   Reviewing

Comments and questions related to *going back over developed content* in order to *check its usefulness, appropriateness* or *accuracy*. This may involve inquiry, questioning, inspection, reworking, or evaluation of the developed content for the group task. Reviewing also includes the redoing of an experiment to check the accuracy of a result.

Examples:
T?15 : 5-2	What have you got written down so far?
TS15 : 2-9	Hey guys, listen to what I've written.
TS15 : 1-9	Okay, let's check.
T?15 : 1-9	What's the same as two-fifths?
TS15 : 2-1	Four-tenths.
TS15 : 6-1	We shouldn't have cut these, these are messy.
TS15 : 1-9	This one is the best.

TS16 Monitoring Student/Group Progress

Interactions, observations, comments or suggestions about *progress* in terms of *use of time* or where the student or group *is in relation to task achievement or other groups.*

Examples:	TX16 : 1-2	Are you almost done?
	TS16 : 1-9	Come on, come on, let's get busy.
	TS16 : 2-9	Here, we have to do fourths.
	TS16 : 5-9	We are running out of time.
	TS16 : 6-9	All done.
	TS16 : 1-9	Let's get this done.
	TS16 : 1-9	I've finished.
	TS16 : 2-9	I haven't done number 2 yet.
	TS16 : 5-9	We didn't do that one.
	TS16 : 6-9	That group is ahead of us.
	T?16 : 1-9	What have we discovered so far?
	TX16 : 1-2	We'll do it after, okay?
	TS16 : 1-5	Now we got to show Mr Brown.

TS99 Non-task Related

Actions, comments and questions which indicate *non-involvement* with or *distraction from the task* being worked by the group. This *does not* include *off-task, conflict* (DS13).

Examples:	TS99 : 5-6	Look at the blood on my thumb.
	TS99 : 1-2	Will you come and play after school?
	TS99 : 2-1	One of the tadpoles is dead.

Group Dynamics : How The Group Functions

Definition of Group Dynamics:

Forces at play within the group, especially as they pertain to *relationships* and *how the group functions*.

Interactions in this category relate only to student talk.

DS01   Decision Making Processes

Interactions dealing with *how* decisions are made. These decisions may be by *consensus seeking, voting, dominant leadership behaviour* or *some other forms of interaction*.

Examples:	DS01 : 1-2	We all have a turn.
	DS01 : 2-1	It goes in alphabetical order. 1, 2, 3, 4, in alphabetical order.
	DS01 : 5-9	I'll do it first.
	DS01 : 2-5	No alphabetical order. A . . . alphabetical order.
	DS01 : 1-9	Start with Brad.
	DS01 : 6-9	Okay, whoever thinks one-third is the largest, raise your hand.
	DS01 : 5-9	Let's all just do one thing we want.
	DS01 : 6-9	Yeah.
	DX01 : 1-2	So, Tom, do you agree?
	DX01 : 2-1	Do you agree Jim?
	DS01 : 1-9	Everybody agrees.
	DS01 : 5-9	Let's have a vote on this.
	DX01 : 6-5	Okay, where are we going to sit?
	DS01 : 5-6	I would like to sit next to Tina.
	DX01 : 5-9	Is that okay with everyone?
	DS01 : 6-2	It doesn't matter.
	DS01 : 2-6	Yes, it does.
	DS01 : 1-6	Let's put it over there.
	DS01 : 2-6	Yes.
	DS01 : 5-6	Yes.
	DS01 : 1-6	Yes.

DS02   Assigning Role(s)

Interactions related to determining who will fulfil, or has fulfilled, particular *structural* small group member roles (recorder, timekeeper, judge, encourager, etc.) as opposed to *task* oriented actions.

Examples:	DX02 : 5-6	What do I do?
	DS02 : 6-5	You are the director.
	DS02 : 1-9	I'm timing.
	DS02 : 1-2	You be the recorder; you write the answers.
	DS02 : 2-1	Okay.
	DX02 : 5-9	Guys, I'll be the direction reader, okay?
	DS02 : 2-5	I'm still the writer.

DS03   Task Feedback -- Positive

A group member(s) provides *positive evaluative comment, encouragement,* or *affirmation* to another group member(s) *about the progress of the group task, an individual work effort* or *work action (job).* Praise or admiration are included. This category does not relate to student behaviour during group work.

Examples:	DS03 : 3-5	Our story is pretty good, look how much we've done.
	DS03 : 5-3	That looks good.

DS04   Task Feedback -- Negative

A group member(s) provides *negative or critical evaluative comment* to another group member(s) about the *progress of the group task,* an *individual work effort or work action (job).* Criticism or personal, derisive comment *about task performance* is included. This form of comment may move into non-productive or personal conflict, and then becomes DS13. The DS04 category does not relate to student behaviour during group work.

Examples:	DX08 : 5-6	Which one looks best?
	DS04 : 6-5	No-oo, he should have big wings.
	DS09 : 1-6	It's easy.
	DS04 : 6-1	I know, that's why she wanted to do the pepperoni.
	DS04 : 2-1	That writing is messy.
	DS04 : 1-2	I have nothing to say. I'm not doing any more.

DS05 Challenging Group Member(s)/Asserting

An individual group member *interrupting, asserting* or *reasserting* the right to speak, to *contribute content*, to *argue content*, to *follow procedure*, to *demand a response* or *contribution* from another group member. If not listening to the tape or observing, it is often difficult to distinguish between DS05 and other categories. If in doubt, code as the other category (e.g., TS05, TS08).

Examples:	DX05 : 1-9	Listen, can I speak?
	DS05 : 2-1	I want to finish.
	DX05 : 1-2	Why should it be your way?
	DS05 : 2-1	Shh, I'm talking.
	DX05 : 1-2	Can I write something down?
	DS05 : 1-9	Let me do something.
	DS05 : 2-1	Let me see the cheese.
	DS07 : 1-2	No.
	DS05 : 6-9	Wait, wait.

DS06 Positive Response to Challenge

Following a challenge (DS05) from a group member, *agreement* or a *positive response* is given.

Examples:	DX05 : 1-5	Can I go ahead?
	DS06 : 5-1	Yes, go ahead.
	DS05 : 1-6	I want to do something with that flower.
	DS06 : 6-1	Okay, do it.

DS07 Negative Response to Challenge

Following a challenge (DS05) from a group member, *rejection* or a *negative response* is given.

Example:	DX05 : 1-6	Can I go ahead?
	DS07 : 6-1	No, I don't want you to.

Examples of DS05, DS06, DS07:

	DS05 : 1-2	Here. If it's my thing, then I write it down.
	DS07 : 2-1	No.
	DS05 : 1-2	Yes, because it's fair.
	DS06 : 5-1	It does not matter.
	DS06 : 1-9	Well then I'll just write it down.
	DX05 : 1-9	Can I write something down?
	DS07 : 2-1	And I have, Anna.
	DS05 : 1-2	I'm doing it.
	DS07 : 2-1	No, do this.

DS08   Seeking Approval/Feedback

A group member(s) approaches another group member(s) for *feedback about, approval of,* or a *positive determination* about the *quality of content* produced/to be produced, or the *accuracy of a technique* used/to be used.

Examples:	DX08 : 1-5	Which one is best?
	DX08 : 6-2	See David, how's that for a foot?
	D?08 : 6-5	Do you agree that I should put the picture here?
	DS08 : 2-5	Look at these and see what you think.

DS09   Self-Evaluation -- Positive

A group member proffers a *positive comment* to *another group member(s) about* the quality of *self work* or *effort*. This comment may be a defensive response to negative feedback.

Examples:	DS09 : 1-5	I'm good at drawing monkeys.
	DS09 : 6-2	This is easy.
	DS09 : 2-9	Oh, I know how to add it, do this.
	DS09 : 1-6	I can write upside down.
	DS04 : 1-6	You've got it wrong.
	DS09 : 6-1	No, I think it's right.
	DS09 : 5-2	See, we were right.

DS10   Self-Evaluation -- Negative

A group member proffers *a negative comment* to *another group member(s) about* the quality of *self work* or *effort*.

Examples:	DS10 : 1-2	I'm not progressing too well.
	DS10 : 1-5	This isn't really my best drawing.
	DS10 : 1-6	I don't get this.
	DS10 : 1-5	I can't colour this.

DS11   Monitoring Behaviour in Group

A group member(s) *comments* to another group member(s) about or *monitors* the *behavioural performance* of a group member(s). Such comments may be either positive (encouraging, friendly, cohesive) or negative (discouraging, divisive, critical) and reflect either on-task or off-task behaviour.

Examples:	DS11 : 1-2	Oh thanks.
	DX11 : 1-5	What's D. doing over there in a different group?
	DS11 : 1-6	You guys aren't doing it fair.
	DS11 : 2-1	He's not letting him do anything.
	DS11 : 2-5	Don't go around there hollering at us. You have to do your part, too.
	DS11 : 2-6	You guys, come on, help us.
	DS11 : 5-6	You are being silly.
	DS11 : 5-1	You guys be quiet.
	DX11 : 5-2	You can still try, can't you? [rhetorical]
	DS11 : 1-6	Here Jarrad, try this, you can do it.
	DS11 : 5-9	If you're done, then just read a book or something.
	DS11 : 1-9	Shhh!
	DS11 : 6-5	Don't worry about it.

DS12 Group Evaluation

A group member makes evaluative comments to another group member or to an outsider (e.g., the teacher) about the *relationships, rules, decision making, problems* or *successes* within the group; about the *composition* of the group; about *being part* of the group; or about *feelings* towards the group. Such comments may be positive or negative.

Examples	DX12 : 1-2	Do you like the group, Tim?
	DS12 : 5-6	I want to leave this group.
	DS12 : 6-5	I like working with Jane.
	DS12 : 2-9	We're the best group here, probably.
	DS12 : 1-5	Please take me off this team and give me a different team.
	DS12 : 1-2	We got that right.
	DS12 : 5-9	No one listened when I told you.
	DX12 : 1-5	Can you imagine keeping track of people having equal turns?
	DX12 : 5-1	No
	NS10 : T-C	We have a group finished.
	DS12 : 5-6	I think it's 'cause we worked ahead.
	DS12 : 6-5	Yeah. When we were on number three, some people were still getting started.
	DS12 : 1-X	They don't ask me anything. They just do it.

DS13 Aggression/Conflict

Comments which indicate *non-productive* or *personal conflict* within the group. These comments are, at most, *superficially related to the task* and may be aggressive, derisive, derogatory, abusive, critical or defensive. Comments which involve niggling or squabbling would be included in this category. DS13 differs from ##99 in that ##99 is related to off-task matters that are not as dysfunctional.

Examples:	DS13 : 1-2	Don't you dare hit me with that.
	DS13 : 2-1	Be glad to.
	DS13 : 1-6	At least I don't smell.
	DS10 : 1-2	Yes, I'm stupid.
	DS13 : 2-1	That's why you're in L.D. [Learner Disabled].
	TX01 : 1-2	Can I borrow a pencil?
	DS13 : 2-1	Look, you should have picked your pencil up. You should have picked it up if you
	DS13 : 2-1	care about it. / I don't care about your
	DS13 : 2-1	pencil. / You have lots. I don't have any.
	DS11 : 1-2	She says she's not going to put her hand up again.
	DS13 : 5-9	I just told you I'm not putting my hand up one more time.
	TX16 : 1-2	Troy, do you think we've finished?
	DS13 : 5-2	He doesn't know - he's 'thick'.

DS14 Seeking Help

A group member approaches another group member for *help* or *assistance* with a work action or task.

Examples:	DX14: 1-9	Will someone hold this?
	DX14: 5-1	There.
	DX14: 1-9	You guys, can you help me?
	DS14 : 6-1	Yeah.
	DS14 : 1-2	I need you to help.
	TS01 : 2-1	The fraction is greater than five-eighths-more than five-eighths-and is equivalent to eight-twelfths.

DS15 Offering Help

A group member approaches another group member(s) and *offers help* or *assistance* in the performance of a work task or action.

Examples:

TS08 : 2-U	We need to do it this way.
DS15 : 2-9	I'll show you.
DS15 : 2-9	Here, I'll show you how to do it.
DS15 : 1-2	Daniel, let me show you how to do that.
DX15 : 1-9	Can I help?

Monitoring Group

Definition of Monitoring Group:

**Teacher talk to a group or student in which the
teacher observes, checks, clarifies or oversees
group performance or behaviour.**

Interactions involve the teacher (T), helper (H), or parent (P) and a student(s).
Interactions between students, in the teacher's/helper's/parent's presence,
should be coded in the categories of *Group Task* or *Group Dynamics*. Group
monitoring takes place between the lesson introduction and the conclusion.

MS01 Checking Progress

Interactions in which the teacher is checking, questioning or making
statements about the group progress *in terms of the student(s) achieving the
assigned group task.*

Examples:	MX01: T-9	Are you sharing ideas?
	MX01: T-5	Are you doing anything, Donna?
	MX01: T-9	Have you done your prediction?
	MS01 : T-9	I see you've listed your materials.
	MX01: T-9	Do you have your names on it?
	MX01: T-9	Have you got a prediction for the next one?
	MS01 : 2-T	Yes

MS02 Clarifying or Eliciting Task Content/Solution

Interactions in which the teacher contributes to the group's *clarifying of
content, bringing to light information, brainstorming, proposing of content* or
solutions. These interactions are *often associated with teacher questioning
(probing/eliciting), reasoning* or *guiding toward an outcome.*

Examples:	M?02 : T-9	What's the general idea of this story?
	M?02 : T-9	Okay, what's your title?
	M?02 :T-9	How did you get that name?
	M?02 : T-5	Are you trying to say which of those are larger than half?
	M?02 : T-9	We don't have solar heat so what can we use?
	M?02 : T-9	Is there another way you can get it done?
	MS02 : 2-T	Yeah.

MS03 Feedback -- Positive

Interaction in which the teacher provides *positive comment, encouragement* or *affirmation* about the *progress, achievement, effort, action* or *behaviour* of the whole class, a group(s) and/or a student(s).

Examples:	MS03 : T-9	I like the way you have included herbs and spices in the story.
	MS03 : T-9	Fine . . . good . . . well done.
	MS03 : T-9	You're working very well here.
	MS03 : T-9 M?02 : T-9 MS02 : 6-T	Okay, that's one way you can do it. / Is there another way? There could be if the other one was put like this.

MSO4 Feedback -- Negative

Interactions in which the teacher provides *negative* or *critical comment* about the *acceptability, appropriateness, progress, achievement, effort, action* or *behaviour* of the whole class, a group(s) and/or a student(s).

Examples:	MS04 : T-1	No, that answer is incorrect.
	MS04 : T-5	That's a silly answer.
	MS04 : T-9	You were not allowed to use that type.

MSO5 Clarifying Task Procedures

Comments made by the teacher during group work which *explain, re-explain* and/or *clarify* the *groups' task* for the lesson and/or the *procedural steps* to be followed by the *groups*. This category generally relates to when the task and/or procedural steps are *not clearly understood* or the group is in *need of further direction*.

Examples:	MS05 : T-9 MS05 : T-9	The first thing you must do is list other names for a quarter. / Then list other names for two-thirds. You may use your charts to
	MS05 : T-9	do that. / For number 4, remember you need to put a little line of explanation.
	MS05 : T-9	/ If you have a question, please let others help.
	MS05 : T-9	This one here is a model of what you are building. When you get to here it stops.
	MS05 : 6-T	So that's the finished product.
	MS05 : T-9	This is the finished product, number 5.
	DS12 : 1-9	So we were right.
	MX05 : T-9	Where is your blank sheet of paper?

MS06 Giving Answer/Solution

Interactions in which the teacher *gives* the *answer* or *solution* to the group as they work at the task. This category differs from MS02 in that MS02 is concerned with developing thinking. MS06 is directive and closes thinking.

Example: MS06 : T-9   The answer is three-quarters.

MS07 Giving Explicit Directions

Interactions involving the student in which the teacher gives *explicit directions or commands* to the group about procedural matters, materials, development of content, and behavioural performance. Directions are *explicit* and *cover an understood matter*.

Examples: MS07 : T-9   Put you names at the bottom of the [group] copy.

MS07 : T-6   Go and get the materials.

MS07 : T-2   Write it on the sheet.

MS07 : T-1   Kevin, record that answer for the group.

MS08 Control/Discipline

Comments made by the teacher which pertain to matters of *control* and *discipline*. This may include *gaining attention, commenting, warning, rebuking* or *disciplining* a disruptive or inattentive student or group(s).

Examples: MS08 : T-9   Eyes to me.

MS08 : T-5   I need your attention up here, Mary.

MS08 : T-9   Stop sliding your chairs.

MS08 : T-9   Would you turn around and look at the board.

MS09 Student-initiated Contact

Student approaches and/or asks the teacher/helper/parent for assistance or information *about the task/behaviour*.

Examples: MX09: 6-T   Could you make a leg of lamb for me?

MS09 : 5-T   We've discussed it, but we don't get it.

MS09 : 1-T   Ms Brown, John is not trying.

MS10 Resolving Problems

Comments made by the teacher, and responses by the student(s) which involve *monitoring, resolving* or *sorting out problems* within the group.

Examples:

MS09 : 1-9	Fred's got my geostrips.
MX10 : T-1	What are these here? / Are
MX10 : T-1	they broken? / Kylie will get
MS10 : T-1	some more.
MS10 : 1-T	No Fred took half of them.
MS10 : T-1	Fred, please give them back. [Fred returns geostrips and Kylie gets some more.]
MS09 : 6-T	Yeah, Mr Brown she wants the piece of paper.
MX10 : T-6	Why?
MS10 : 6-T	My shape was right there, her shape was there and she was doing cut offs.
MS10 : T-6	Cooperate, one sheet here and one sheet there.
MS10 : 6-T	I wanted to do it with the other sheet.
MS10 : T-6	No, Bill. Calm down. / Put a piece of paper
MS10 : T-6	on each desk and just settle down.

MS99 Teacher/Student Non-Task Related

Interactions which indicate *non-involvement with, distraction from,* or *conflict* relative to the task being worked by the teacher and the group.

Examples:

MS99 : 1-T	We have lots of Island Cattle in Scotland.
MS99 : T-1	You'll have to tell me about that some time.

Whole Class Intervention

Definition of Whole Class Intervention:

**Teacher talk to the whole class between the
lesson introduction and the lesson conclusion.**

NS01   Recapitulating Previous Activity

Interactions which *review the previous activity(ies)* or *bridge the procedures
and content from a previous activity(ies) to the current activity(ies)*.

Example: NS01 : T-C   In the problem you have just done, we were
working out how to find the perimeter of
shapes like puddles. Now we are going to
think of ways to find the area of unusual
shapes.

NS02   Clarifying Task Content/Procedures/Materials

Comments and questions during a whole class intervention which *explain*
or *re-explain the nature of the task* and/or *direct the groups' task* and/or the
procedural steps to be followed by the groups or which relate to the
distribution of materials to the group(s).

Examples: NS02 : T-C   Okay, some of you may have done it, and
NS02 : T-C   you may have done it incorrectly. / Let's
look at it and see exactly what it
N?02 : T-C   means. / It says, how much did you divide
the pepperoni into? Jane?
NS02 : U-T   Two halves.
NS03 : T-C   Two halves, right.
N?02 : T-C   Does that give you an idea of how to do that
one? [rhetorical]
NS02 : T-C   Now let's look at it again.
NS02 : T-C   It then asks how many combinations you
can find.

NS03   Feedback -- Positive

Interactions which provide *positive comment, encouragement* or *affirmation*
about the *progress, achievement, effort, action* or *behaviour* of the whole
class, a group(s) and/or a student(s).

Examples: NS03 : T-C   Now you have worked really well. They are
very good answers.

NS03 : T-C   It's good that you try to do things in your
head.

NS04 Feedback -- Negative

Interactions in which the teacher provides *negative* or *critical comment* about the *acceptability, appropriateness, progress, achievement, effort, action* or *behaviour* of the whole class, a group(s) and/or a student(s).

Examples: NS08 : T-C   Right, stop for a minute.
                  NS04 : T-C   Some people aren't working.

                  NS04 : T-C   That answer is incorrect.

NS05 Checking Thinking Process(s)

Interactions in which the teacher *explores the thinking process used by the student(s)* during the lesson. This might include the *establishment of precise meaning, defining ideas or concepts, resolving logical sequences, discussion of the direction of content, reviewing creative ideas* or *proposing and exploring solutions.*

Example: NS10 : T-C   Your group thought X was the answer.
               NS05 : T-C   / Tell us how you reached that. [The group
               NS05 : T-C   explains.] / Okay ... so you started
                             with ... and you came up with ...
               N?05 : T-C   [paraphrases group explanation]. / Okay,
                             let's think about this--what were you
                             thinking when you tried this way?

NS06 Explicit Teaching of New Content

Interactions in which the teacher *introduces, explains,* and *develops new content* or *extends previously learned content* after students have begun the group task. This provides the *content foundation* for the next part of the lesson. This includes question and answer exchanges with student(s).

Example: NS06 : T-C   Now I am going to explain to you how to do
                             trial and error problem solving.

NS07 Giving Explicit Directions

Interactions in which the teacher gives directions regarding task *content/procedure,* use of *time* or *materials.* Directions are *excplicit* and *cover an understood matter.*

Examples: NS07 : T-C   You have 2 minutes to finish the worksheet.

                  NS07 : T-C   That group go over there.

NS08 Control/Discipline

Comments made by the teacher which pertain to matters of control and discipline. This may include *gaining attention, commenting, warning, rebuking* or *disciplining a disruptive* or *inattentive* student(s) or group(s).

Examples:	NS08 : T-C	Eyes to me.
	NS08 : T-C	I need your attention up here, Mary.
	NS08 : T-C	Stop sliding your chairs.
	NS08 : T-C	Would you turn around and look at the board.

NS09 Student Question/Suggestion

Comments and questions initiated and made by a student(s) to the teacher during whole class instruction in which the student is *questioning, speculating,* or *suggesting* content or procedure relative to the task.

| *Examples*: | NX09 : 1-T | Mrs Smith, do we have to describe in written words the pattern we can see in the fractions one-third, one-quarter, and one-half? |
| | NS02 : T-1 | Yes, describe the pattern in written words. |

NS10 Checking Progress/Marking

Interactions in which the teacher *checks progress of content, marks work,* or *collates findings* or *solutions* to problems.

Examples:	NS10 : T-C	The answer to number 1 is 15.
	NS10 : T-C	Hands up those who had it right.
	N?10 : T-C	What did you get wrong, John? [Teacher works example on board.]
	NX10: T-C	Are there any groups who have finished their worksheet?

NS99 Non-Task Related

Actions/interactions which indicate *non-involvement with* or *distraction from the task* being addressed by the teacher and the class.

| *Example*: | NS99 : 1-T | Look, the gerbil is eating the lettuce. |

Whole Class Wrap-up

Definition of Wrap-up:

Wrap-up refers to the section of the lesson which follows small-group work. It involves the teacher and/or the student(s) in whole class interactions.

RS01 Recapitulating/Summarizing the Lesson

Interactions in which the teacher *reviews* the whole lesson or *summarizes* the content development of the lesson. This *review* might be done by *posing problems* to test understanding or *reworking problems* which were not fully understood.

Examples: RS01 : T-C   Today we have looked at two important ideas. The first idea was that of estimation of points on a number line.

                 RS01 : T-C   The second idea was . . .

RS02 Marking/Collating Findings

Interactions in which the teacher *marks work, checks progress, collates findings* or *solutions to problems.*

Examples: RS02 : T-C   I need to know your group findings.

                 R?02 : T-C   What did your group find?

                 RS02 : U-T   Our group found that one-half was larger than one-third.

RS03 Feedback -- Positive

Interactions in which the teacher *provides positive evaluative comment, encouragement or affirmation* about *progress, achievement, effort, action* or *behaviour* by the whole class and/or a group(s) and/or a student(s).

Examples: RS03 : T-C   You have followed our rules about working in groups really well.

                 RS03 : T-C   That sounds like a very logical answer. I like it.

                 RS03 : T-C   Most are well on the way to finishing the final poster.

RS04 Feedback -- Negative

Interactions in which the teacher *provides negative or critical comment* about the *acceptability, appropriateness, progress, achievement, effort, action* or *behaviour* by the whole class, and/or a group(s) and/or a student(s).

Examples: RS04 : T-C   Today some of you did not work effectively as a group because you did your own thing without sharing or negotiating within your group.

RS04 : T-C   This group didn't get their work finished.

RS05 Reviewing Thinking Process(s)

Interactions in which the teacher *explores the thinking processes* used by the student(s) during the lesson. This might include *establishment of precise meaning, defining ideas or concepts, resolving logical sequences, discussing direction of content, reviewing creative ideas* or *proposing and exploring solutions*.

Examples: RS05 : T-C   When you were working out a short way to find the perimeter of a rectangle--why would you use that formula--find the length and breadth then double it. [Elicited general responses; teacher then paraphrased the students' correct thinking.]

RS05 : T-C   Okay, so they got a benchmark of four-eighths which they knew was one-half, and then they looked to see if it was less than that or greater than that. And that's how we do it.

RS06 Looking Ahead

Interactions in which the teacher provides *information about* or an *overview of progress* towards the next/future lesson(s).

Example: RS06 : T-C   Tomorrow we will do work on area.

RS07 Giving Directions

Interactions in which the teacher *directs* students regarding materials, tidying up, dismissal or getting ready for the next class lesson.

Examples:	RS07 : T-C	Now, return the maps to me.
	RS07 : T-C	You must put your worksheets away now.
	RS07 : T-C	Okay, quickly tidy up.
	RS07 : T-C	The teams that are still working can continue working.

RS08 Control/Discipline

Comments made by the teacher which pertain to matters of control and discipline. This may include *gaining attention, commenting, warning, rebuking* or *disciplining a disruptive* or *inattentive* student(s) or group(s).

Examples:	RS08 : T-C	Eyes to me.
	RS08 : T-C	I need your attention up here, Mary.
	RS08 : T-C	Would you turn around and look at the board.

RS09 Student Question/Suggestion

Comments and questions initiated and made by a student(s) to the teacher during *whole class wrap-up* in which the student is *questioning, speculating* or *suggesting content* or *procedure* relative to the task.

Example:	R?09 : U-T	Mrs Smith, could you please draw on the board how the fraction one-fifth will look.

RS99 Non-Task Related

Actions/interactions which indicate *non-involvement* with or *distraction from the task* being addressed by the teacher and the class.

Example:	RS99 : T-C	I can see you guys are looking forward to your holidays.

References

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