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Factors influencing teachers'choice and use of tasks for formative assessment of mathematics in grades 2-6

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Appendix 1:

Coding categories

Coding Categories

The following categories were identified and used in coding the transcripts.

2 answers
accountability
application
assistance given
baseline
challenge
choice
class management
classroom
organization
concepts
criteria
cross curriculum
difficulties
enjoyment
evaluating children
exam
explaining
fairness
familiar
fear
format
formative assessment
formula
fractions
generalizations
geometry
grade
graphs
group assessment
group dynamics
grouping
guidance
independent work
individual assessment
kids answers
language
layout
level of task
life skills
manipulatives
marking
marks
mathematics
measurement
method
modeling
number
OBE
observation
pairs
patterns
prediction
problematic task
promotion
question presentation
recording
reliability
reporting
rules
self assessment
sequence of teaching
skills
space
strategies
summative
syllabus
symmetry
tables
task
teaching
test construction
themes
time
teachers'
mathematics
unexpected response
unfamiliar
validity
word problems

Appendix 2:

Assessment tasks: Foundation Phase

Foundation Phase

Assessment Pack

Table of Contents

Activity Name	Page
Make R1-00	3
Sorting	7
Symmetry	9
Graphing	12
Addition Bingo	18
Space Rockets	20
Shopping	22
Steps	24
4 in a Row	26
Grade 1 assessment	29

How many ways can you make R 1.00?

Use your coins to help you.

Teachers Notes

What preparation is required?

- Learners work in small groups or pairs to facilitate discussion.
- Learners bring coins to school - One example of each denomination. They use the coins to make rubbings of each amount they decide on.
- Copy the observation sheet for your own use

How do we do the activity?

- The teacher may want to assess 6 – 10 learners at a time (1-2 groups or 3 – 5 pairs)
- Learners list of all the ways they can think of to make R 1:00. They present their findings on a chart by making rubbings of the coins.

Questions to elicit information about learners thinking.

- How do you know this will make up a Rand?
- Which ways do you think are similar? In what ways do you think they are similar?
- If you were a shopkeeper which way would you rather use? Could you say why you would choose this way?

Make R1-00 Observation sheet

	does not make up the correct amount	attempts to make up R1-00 using only 1c coins	only uses 1 way (eg 50c+50c)	finds a limited number of ways and struggles to explain them.	finds a number of ways using most denominations of coins.	can talk about similarities between ways (EG 20+20+10+50 is really like 50+50 because here we just broke the 50 up)	
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Please write the date of your observation in the appropriate block.
Indicate subsequent progress with an arrow.

Sort these things into groups.

Explain your groups to your teacher.

Teachers Notes

What preparation is required?

Fill a container with a variety of objects: button, bottle top, pen lid, pen, pencil, koki, stones, coins of different types, stick, tooth pick, sweet paper, counters, paper clip, staples, drawing pin, ruler, sucker, glue, string, cotton, wool, fabric, pins, nuts, bolt, washer, spoon etc

You do not have to stick to the above list, make variations according to available materials.

How do we do the activity?

Give learners a collection of objects to sort.

Ask the learners to decide their own way to sort and then explain their groups.

Questions to elicit information about learners thinking.

Please explain what made you sort into these groups.

Tell me why these things belong together.

Give each group a name to explain what things belong in it.

Would you say there are some things that could belong in more than 1 group?

Sorting Observation sheet

	does not know how to sort the items	can group some items into groups but cannot find a category for more than half of the items.	sorts the items into categories that do not relate to each other EG school things, plastic things, red things and round things	sorts the items into categories EG school things, plastic things, red things and round things and can explain their categories	can explain that one can sort according to different criteria: eg shapes: (long, round, irregular) or use (for joining pages) association (school things)	can talk about similarities between ways (EG 20+20+10+50 is really like 50+50 because here we just broke the 50 up)	Comment
							
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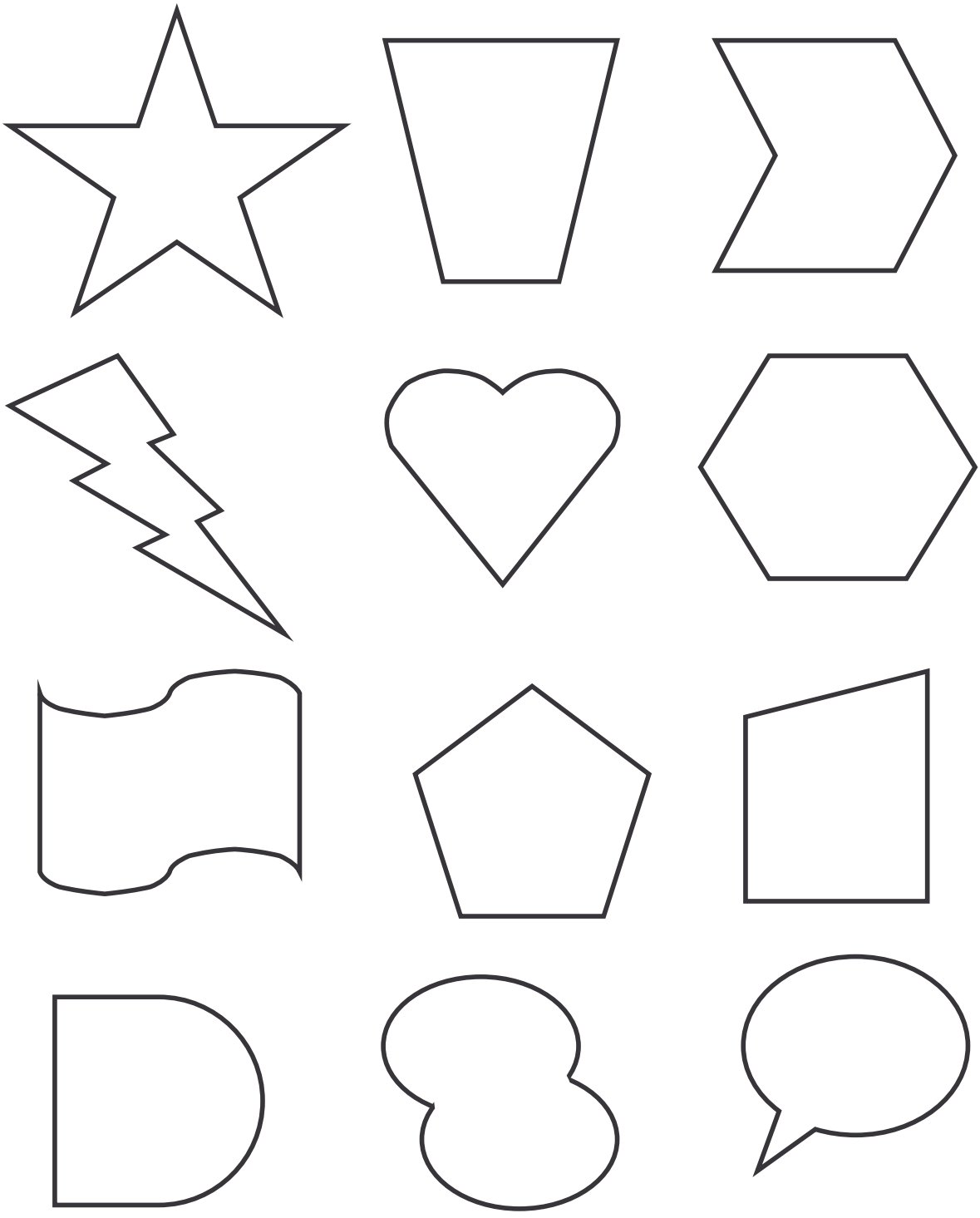
Please write the date of your observation in the appropriate block.
Indicate subsequent progress with an arrow.

Are these shapes symmetrical?



Teachers Notes

What preparation is required?

If this activity is done in pairs, one copy of page ……. is required for each pair.

Learners need scissors and glue.

How do we do the activity?

- Ask learners to cut out all the shapes on the sheet
- Learners then sort shapes into 2 groups: Symmetrical shapes and non-symmetrical shapes. Symmetrical shapes are those where the one half is a mirror image of the other.

- Learners find their own ways of testing for symmetry. (Most children test by folding along a midline.)

Questions to elicit information about learners thinking.

Show me how you know if the shape has to halves that are the same.

Which shape tricked you? You thought they would be symmetrical and they were not?

Symmetry Observation sheet

	does not know how to sort the items	can group some items into groups but cannot find a category for more than half of the items.	sorts the items into categories but make errors with irregular shapes. Does not find a way for verifying if shapes are symmetrical.	can explain how sorting was done. Can correctly select categories by inspection.	can develop other symmetrical and non symmetrical shapes.	
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Please write the date of your observation in the appropriate block.
Indicate subsequent progress with an arrow.

Find out about your friends.

Write your question here:

Teachers Notes

What preparation is required?

You may want to introduce the activity with a discussion about some aspect that the learners may want to find out about the class. E.g. how much pocket money they get, qualities they find important in friends, how they get to school etc. This may link to program organizers you are doing.

How do we do the activity?

Learners design a data collection sheet to collect data from their classmates and then graph their findings.

Addition Bingo

10	17	11	15
18	13	16	14
20	12	15	17
19	16	13	14

Addition Bingo (1)

Addition Bingo

14	17	10	20
16	11	13	15
10	19	15	12
18	17	14	16

Addition Bingo (2)

Addition Bingo

16	12	15	20
17	19	13	10
18	14	13	16
11	14	17	15

Addition Bingo (3)

Addition Bingo

15	19	14	11
13	17	16	15
20	10	12	17
14	13	18	16

Addition Bingo (4)

Teachers Notes

What preparation is required?

Learners play in groups of 4

Prepare 2 dice marked as follows for each group:

0, 1,2,3,4,5  10,11,12,13,14,15 

Prepare a set of bingo boards for each group (see pages ….)

Learners need counters (or colouring pencils.)

How do we do the activity?

- Learners play in groups of 4. Each learner has a different bingo board.
- Learners take turns to throw the dice, add the numbers and cover that answer on their board.
- The first learner to cover (or colour in) all numbers in a row (vertical, horizontal or diagonal) is the winner.

Addition Bingo Observation sheet

	Does not have any strategy for adding	counts on fingers to add single digit numbers	makes errors when adding numbers	adds numbers using concrete methods EG counting on fingers, tallying etc.	Adds numbers using knowledge of bonds and place value	
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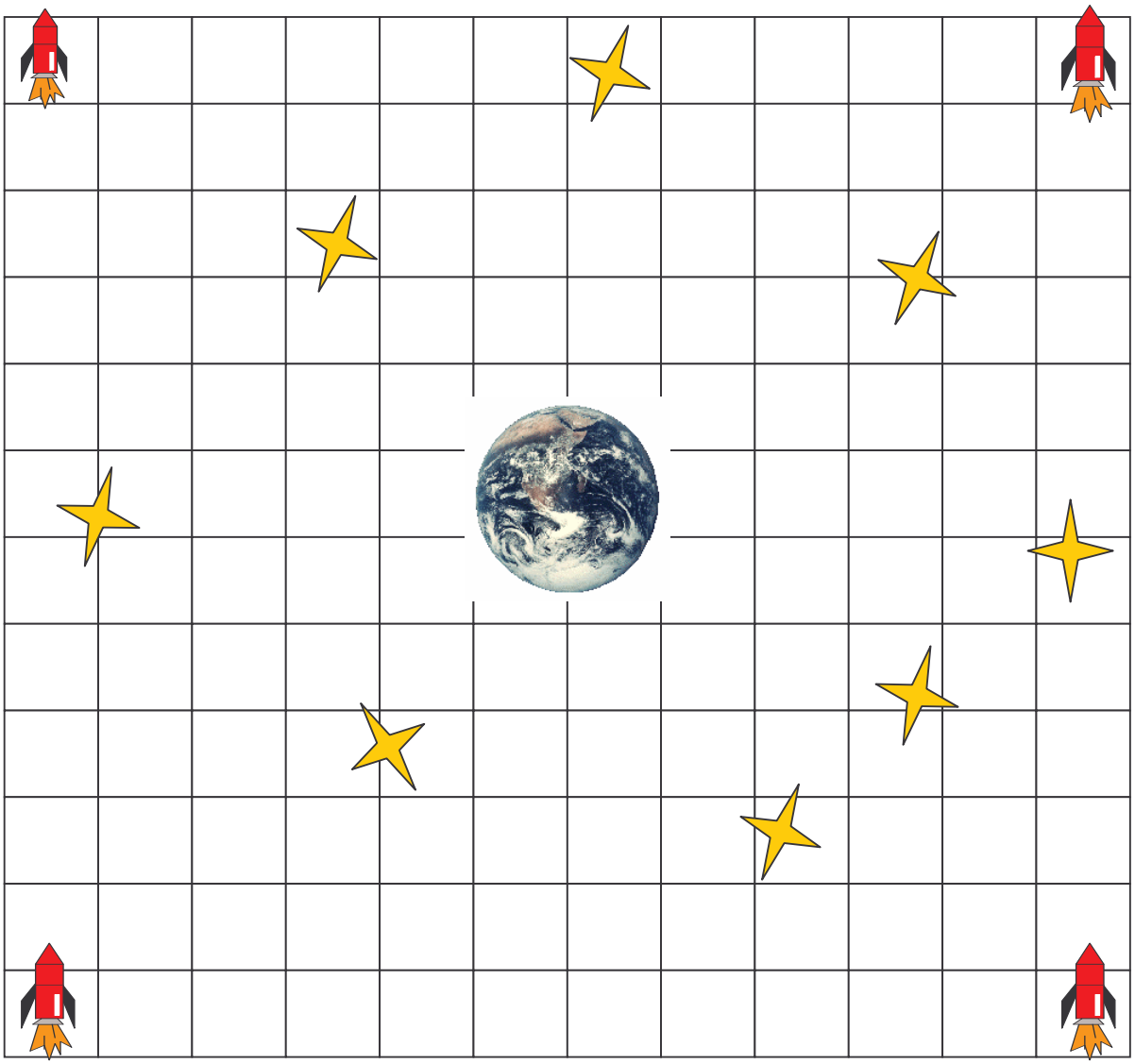
Indicate subsequent progress with an arrow.

Space Rockets

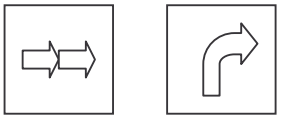


Teachers Notes

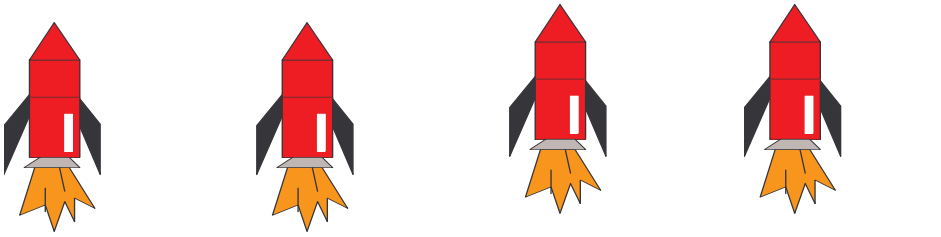
What preparation is required?

You need:

- a game board (see above) You may like to enlag\rge it to a# size.
- dice with 3 faces marked as follows:
  - 3 sides marked “straight 2 squares”
  - 3 sides marked “turn”



- coloured rockets (see below)



How do we do the activity?

Players place their rockets on the base board in any one of the corner squares.

Players take turns to roll the dice and to move their rocket appropriately. The Turn instruction may be either a half turn or a quarter turn. Rockets may not move diagonally.

The first player home is the winner.

Shopping



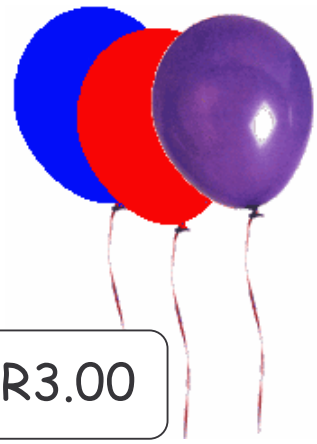
R 8.00



R 7.00



R 5.00



R3.00



R11.00



R3.00



R2.00



R 4.00



R5.00

Teachers Notes

What preparation is required?

Use a classroom shop or spaza where things can be bought or sold.

It should be stocked with boxes of items for sale and have a good supply of play money.

How do we do the activity?

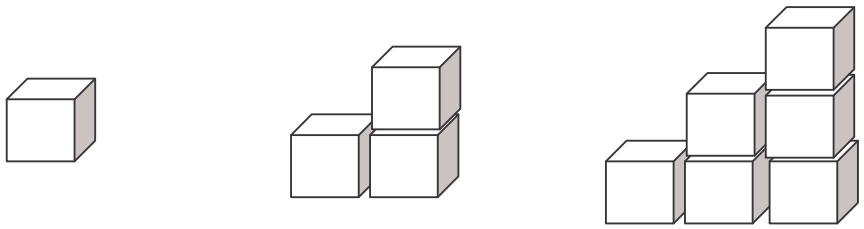
Get the learners to look at the prices in the shop. Discuss then in comparison to prices they know. Are they realistic?

Buy 3 things and ask the child acting as shopkeeper to tell you how much you need to pay. The learner may work it out on paper if they need to.

Give the money and ask for change.

First buy items that add up to an amount less than R20.00. If the learner is correct, repeat the activity and buy items up to R50.00 and R100.00.

Look at these steps:



1 2 3

How many blocks do you need for 1 step?
2 steps?
3 steps?
4 steps?

How would you work out how many blocks you need for 10 steps?

... or any number?

Teachers Notes

What preparation is required?

Learners may require concrete materials. Depending on what is being assessed, they may have drawn a blank table in their books as follows:

Number of rows	Number of blocks in each row	Number of blocks all together

How do we do the activity?

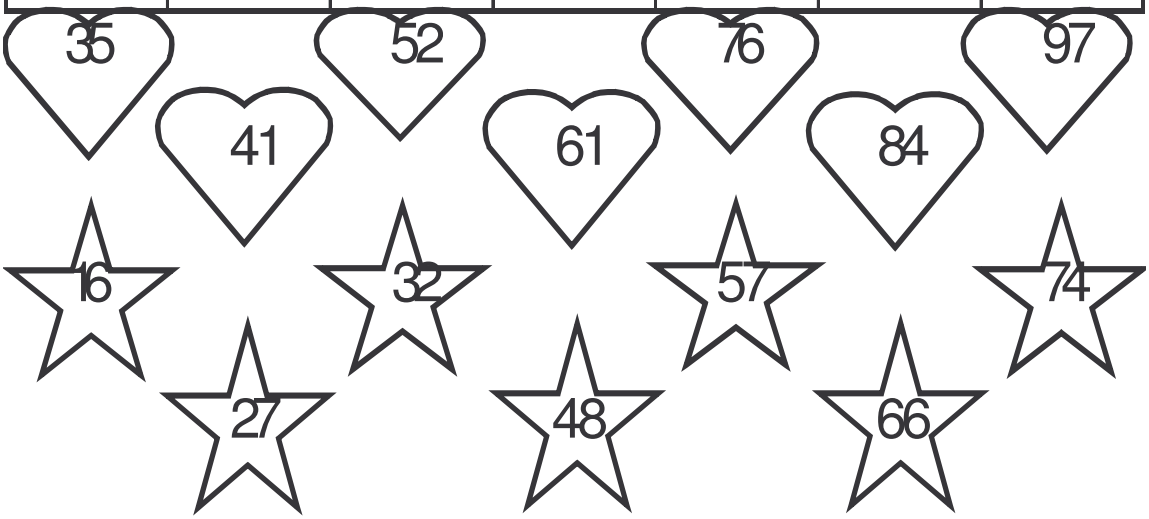
Make blocks available for the learners to use, if they wish.

Encourage the learners to show their findings in a table or graph. Ask learners to explain their thinking to you.

4 in a row

Addition

51	150	57	92	100	132	92
79	142	100	84	141	109	89
93	73	113	118	107	88	115
67	62	116	129	68	150	109
124	101	83	163	118	135	124
133	108	77	171	103	126	109
154	145	111	68	127	98	158



Teachers Notes

What preparation is required?

Make 1 copy of the game board for 2 learners. You may use 2 sets of coloured counters instead of colouring the page, to allow you to use the games over many times.

How do we play the game?

- Learners work in pairs
- Each learner has a different coloured pencil.
- Learners take turns to select a number in a heart and a number in a star. They add them together and colour in their numbers on the " 4 in a row board" using their colour.
- Learners continue to take turns.
- Each time a learner colours 4 in a row in any direction, they draw a line through the 4 blocks and count it as a win.
- If a learner chooses a number that has already been coloured, the miss a turn.
- The winner is the one with the most rows at the end of the game.

4 in a row Observation sheet

	counts on fingers to add single digit numbers	Does not have any strategy for "adding	makes errors when numbers require "adding	adds numbers with difficulty EG counting on fingers, tallying etc.	adds numbers effeciently. But selects them by trial and error	selects numbers to arrive at the desired answer	
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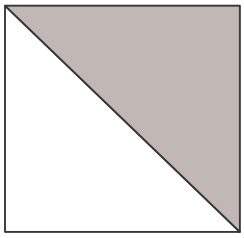
Please write the date of your observation in the appropriate block.
Indicate subsequent progress with an arrow.

Name: _____ Grade 1

1. Tick each picture where half is shaded.

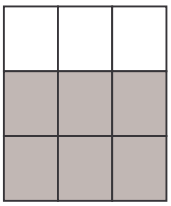
a)



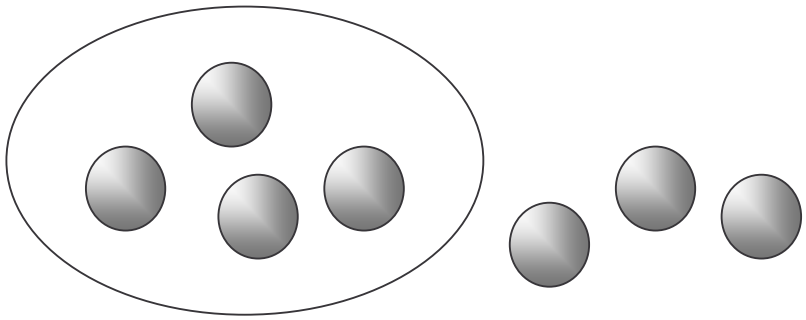
b)



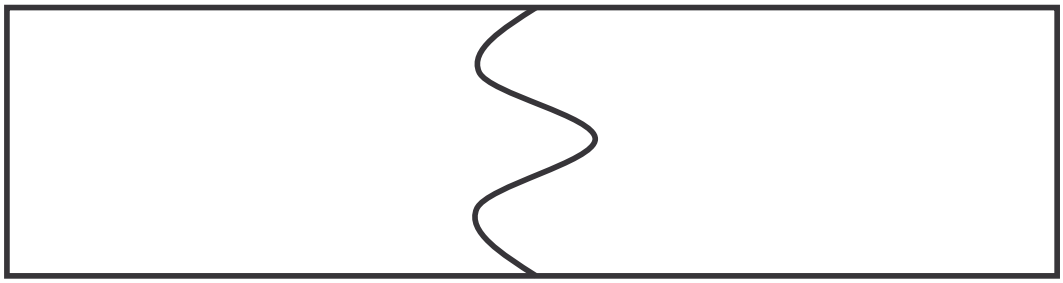
c)



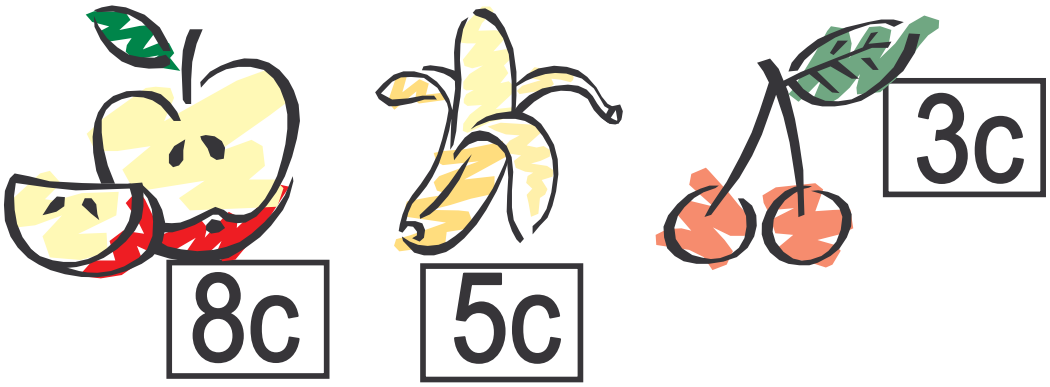
2. Write a number story about this picture



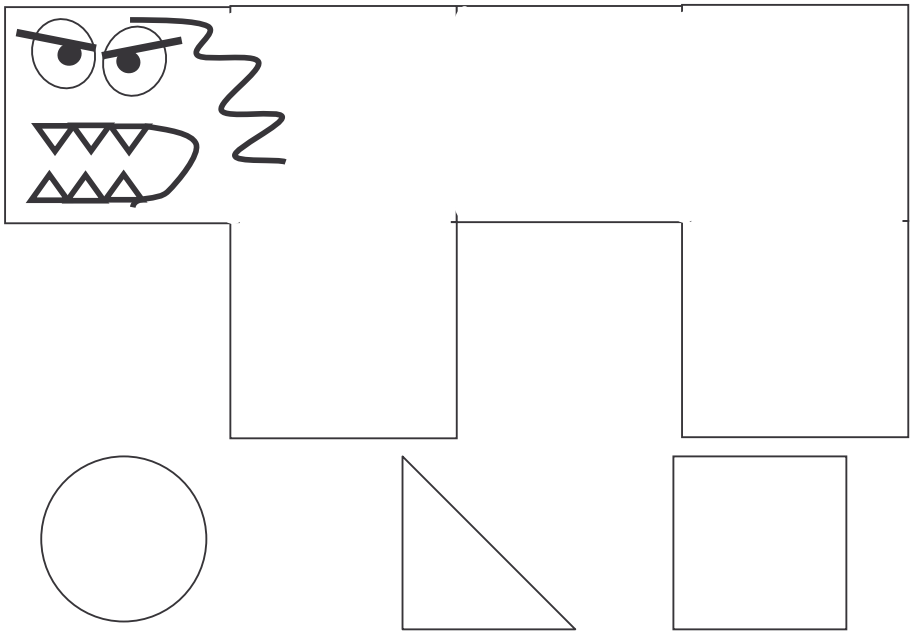
3. Draw blocks on the right side of the wavy line.
Draw marbles on the left side of the wavy line.



4. How much would I have to pay for all of these?



5. Tick the shapes that will cover the monster without leaving spaces



6. How many squares will cover the monster?

Appendix 3:

Assessment tasks: Intermediate Phase

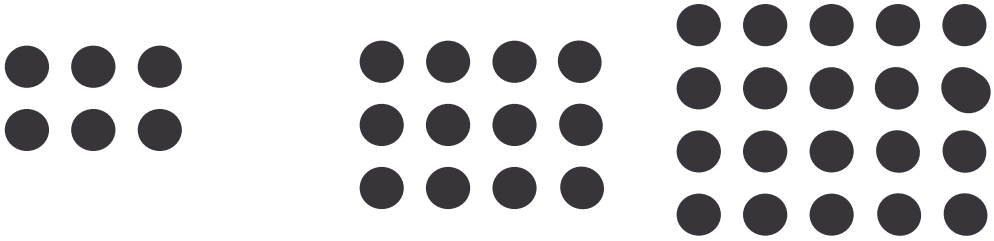
Intermediate Phase

Assessment Pack

Table of Contents

Activity Name	Page
Rectangular Numbers	3
How Tall?	6
Pool Paving	9
News paper project	12
Wrapping presents	15
Dice	17
Block towers	19
Painted Cube	22
Skeleton tower	24
4 in a Row – multiplication	26
Grade 4 assessment	29
Grade 5 assessment	35
Grade 6 assessment	39

Use the pattern below to answer the questions:



1. 2. 3.

How many dots are there in picture number 5?

How many dots are in the 20th pattern?

Explain how you could work out how many dots there would be in any number of the pattern.

Teachers Notes

What preparation is required?

- Learners work in small groups or pairs to facilitate discussion.
- The teacher may want to assess 6 – 10 learners at a time (1-2 groups or 3 – 5 pairs)
- Learners may wish to use counters in he initial phases of the investigation.

How do we do the activity?

Encourage learners to find their own ways of doing the investigation.

Questions to elicit information about learners thinking.

- What do you think they did to make pattern 1?
- What do you think was done to pattern number 1 to get to pattern number 2? What would you do to find the next pattern?
- What do you think we can do to know without counting all the dots what will be in pattern 4?
- What do you think we could do to find out the number of dots in number 10? Number 100. Could you work out any number?

Follow up tasks

Select follow up tasks according to your observations.

- Learners play multiplication games that require them to show graphically what they are multiplying.
- Learners count objects in many different ways
- Learners do other investigations involving number patterns

Investigation: Rectangular Numbers Observation sheet

	Remain uninvolved while the group or partner works on the problem	Get stuck, but makes progress when prompted with questions.	Count the number of dots in each pattern given but not know the next pattern in the sequence	Draw the next pattern in the sequence, but not explain clearly how they reached that pattern	Describe the patterns in terms of multiples	Be able to describe a way of calculating any number pattern in the sequence.	
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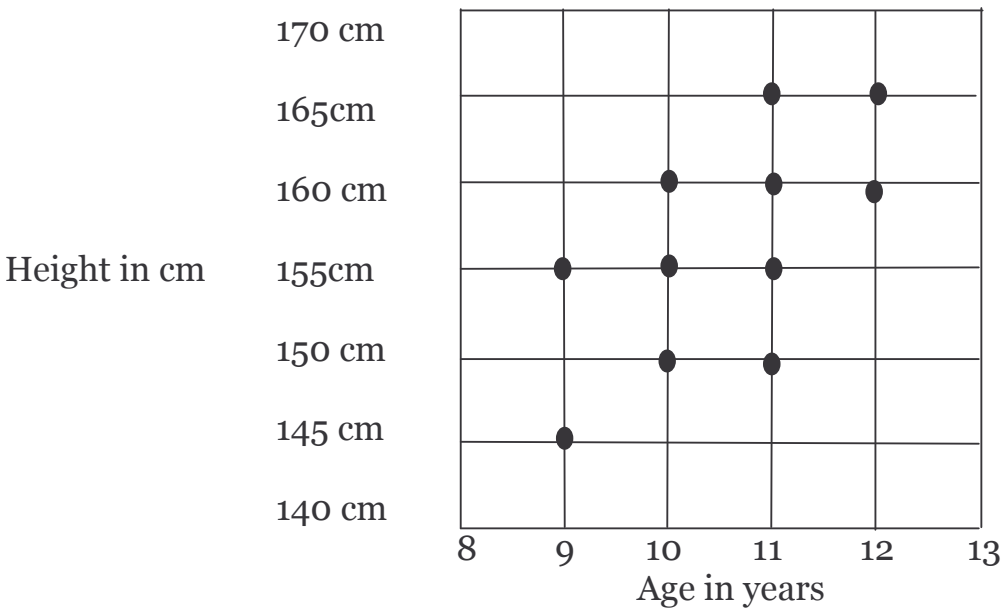
Please write the date of your observation in the appropriate block.

Indicate subsequent progress with an arrow.

How tall?

The learners in our class did a survey of their friends in the grades 4,5 & 6. They plotted their findings on this chart:



How tall is the tallest person?

How old was the tallest person?

Most of the learners were _____ years old

Most people were .... cm tall.

There were two 9 year olds. They were _____ cm apart.

Teachers Notes

What preparation is required?

Decide if you want to asses learners in pairs or individually.
Make a copy of the graph available to learners.

How do we do the activity?

Ask learners the following questions:

How tall is the tallest person?
How old was the tallest person?
Most of the learners were ____ years old
Most people were …. cm tall.
There were two 9 year olds. They were ____ cm apart.

Questions to elicit information about learners thinking.

What can you tell me about this grid?
What do you think this label could tell us about the dots?
What else do you think we can find out from this graph?

How tall? Observation sheet

	Have no idea how to read of the graph	Read one axis but not the other	Draw the next pattern in the sequence, but not explain clearly how they reached that pattern	Answer the questions accurately	Volunteers other information from the graph.	
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Please write the date of your observation in the appropriate block.

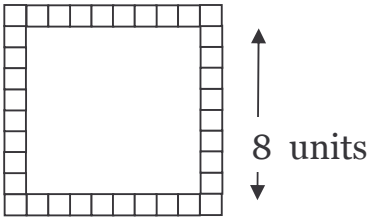
Indicate subsequent progress with an arrow.

Pool Paving

Sipho works in a pool and paving shop that sells square ponds and paving to surround the ponds. The paving blocks are all 1 unit square.

Customers tell Sipho the size of the pond and Sipho has to work out how many paving blocks they need they need.

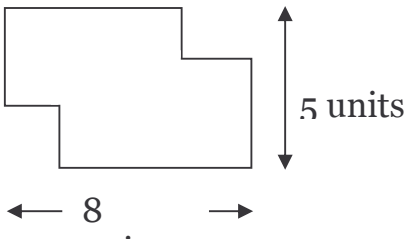
1. How many paving blocks will they need for a pond that is 8 units by 8 units?



2. Can you find a rule that Sipho can use for any square pond?

3. Can you find a rule that Sipho could use if the shop also sold rectangle ponds?

5. Can you find a rule that works for all ponds that are this shape?



This pond will need 30 blocks. Check that you agree.

Teachers Notes

What preparation is required?

Decide if you want to asses learners in pairs or in groups.
Make a copy of the task and, if required, a number of squares or cubes available to learners.

How do we do the activity?

Encourage learners to find their own ways of doing the investigation.

Investigation: Pool Paving Observation sheet

	Remain uninvolved while the group or partner works on the problem	Get stuck, but makes progress when prompted with questions.	Count the number of squares in each pattern given but not know the next pattern in the sequence	Draw the next pattern in the sequence, but not explain clearly how they reached that pattern	Describe the patterns in terms of multiples	Be able to describe a way of calculating any number pattern in the sequence.	
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Please write the date of your observation in the appropriate block.

Indicate subsequent progress with an arrow.

News paper project



1. Choose 2 newspapers of different types. (Eg weekly and weekend, broad sheet and tabloid)

2. Count the number of pages that each type of paper gives to sport.

3. Draw diagrams, charts or graphs comparing the 2 newspapers.

4. Explain what types of graphs you chose and why

5. Hand in the 2 newspapers you chose with your project.

Teachers Notes

What preparation is required?

- As a class collect a variety of newspapers. Sort them into categories: weekly, week end, daily. Broadsheet and tabloid) Discuss the different audiences.
- Learners can work in small groups, individually or in pairs.
- The teacher assesses learners discussion about how best to present their findings.
- Learners can present their findings in an oral presentation or on a poster

How do we do the activity?

6. Choose 2 newspapers of different types. (Eg weekly and weekend, broadsheet and tabloid)
7. Count the number of pages that each type of paper gives to sport.
8. Draw diagrams,charts or graphs comparing the 2 newspapers
9. Explain what types of graphs you chose and why
10. Hand in the 2 newspapers you chose with your project.

Questions to elicit information about learners thinking.

If I had a 4 page paper and it was all sport and I had a 10 page paper with 4 pages of sport. Which do you think you would call a sport paper?

Tell me in ordinary words what you would want to say about the sport pages and the whole paper.

Tell me what you are saying in this picture? What did you do to get to this picture?

Follow up tasks

compare test marks where tests are out of easily comparable amounts, then to more complex totals where a lowest common multiple is required.

Use fraction pieces of wholes to explore why a lowest common denominator is required.

Do a graph showing what proportion of each paper is advertising.

Newspapers Observation sheet

	Remain uninvolved while the group or partner works on the problem	Simply compares the number of pages without reference to the whole paper	Represents the total as an un- simplified fraction. Cannot answer who proportionally has more. E.g. 4 out of 24 and 5 out of 25.	Represents the proportion in a diagramatic way	Represents the proportion as a percentage, or common fraction	Comment
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Please write the date of your observation in the appropriate block.

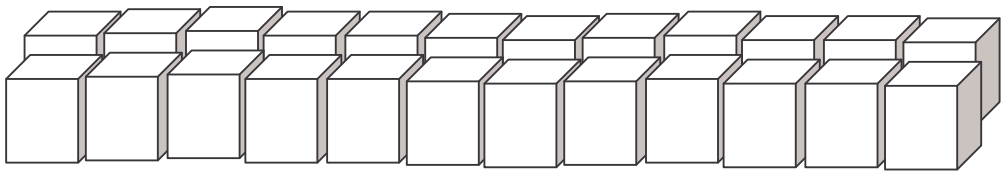
Indicate subsequent progress with an arrow.

Wrapping presents

Simangele and Samantha are wrapping presents. They need to find a way of wrapping 24 cubes in 1 present in such a way that they use the least wrapping paper possible.

Investigate all the ways you can think of for packing the cubes.

How do you know you have found the best way?



Now work out how to wrap 64 cubes in a way that uses the least paper.

Teachers Notes

What preparation is required?

Decide if you want to asses learners in pairs or in groups.
Make a copy of the task and, if required, a number of blocks or cubes available to learners.

How do we do the activity?

Encourage learners to find their own ways of doing the investigation.

Questions to elicit information about learners thinking.

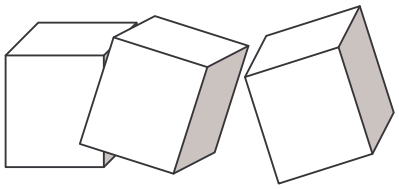
Build the shape using cubes. Show me how you got your answer.

What do you think makes the paper smaller in some ways and not others?

Dice

Neo was playing dice. She told Tebogo that the product of the numbers she had rolled was 36. Mary said she must have rolled a 6, 6 and 1.

Neo said that she had rolled a different combination. What are the other possible combinations that Neo could have rolled?



Teachers Notes

What preparation is required?

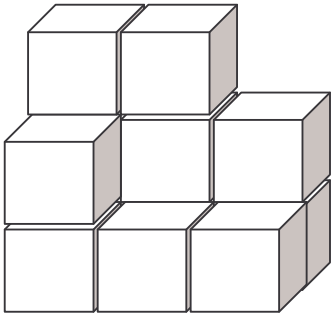
None. Learners may want dice or rough paper to explain their thinking.

How do we do the activity?

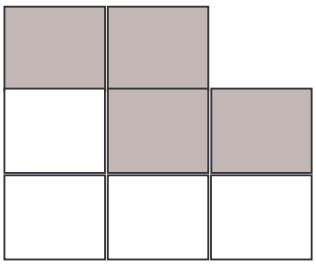
Ask learners to find other answers and explain how they got them.

Block Towers

A stack of blocks is shown here.



This is a drawing of how it might look from the front if you look at eye level.



- Draw how it might look from the back at eye level to it.
- Draw how it might look viewed from directly above it.
- Draw how it might look from the left at eye level to it
- Draw how it might look from the right at eye level to it.

Teachers Notes

What preparation is required?

Provide learners with blocks if necessary. For the assessment they need to be given a chance to show if they can visualize each side or not.

How do we do the activity?

Learners can be encouraged to each draw the view from their own side and then check if their group visualized the same.

Questions to elicit information about learners thinking.

- Tell me what you see if you sit here. (get learner to look straight onto the block)
- What do you think makes some sides easy to draw and others more difficult?
- Tell me how you know what to draw and what not to draw.

Follow up tasks

Give learners practice at building shapes. Provide some other cards for learners to copy using blocks.

Ask learners to draw the shape form their perspective one layer at a time. Learners could place each layer on top of each other and trace the final product.

Learners could start with a set of drawings and then make the building

Visualisation: cube towers Observation sheet

	Not know how to start	Not know whether to draw objects that are recessed.	Struggle to limit their drawings to 2 dimensions and include sides to their drawings	Succeed with most of the perspectives but not all	Draw each side using visualization	
						Comment
Name						
1						
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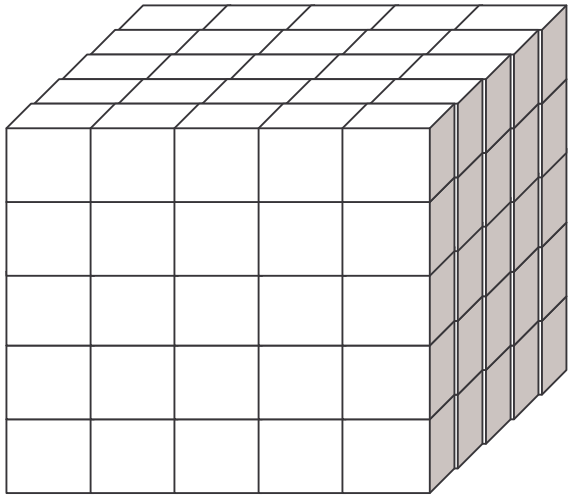
Please write the date of your observation in the appropriate block.

Indicate subsequent progress with an arrow.

Painted Cube

Imagine that the 6 outside surfaces of a large cube are painted blue. The large cube is cut up into 125 small cubes. (5 X 5 X 5)

How many of the small cubes have:



0 blue faces?
1 blue face?
2 blue faces?
3 blue faces?
4 blue faces?
5 blue faces?
6 blue faces?

Choose cubes of 2 other sizes and work out the same questions for them.

Do a presentation to explain your answers.

Teachers Notes

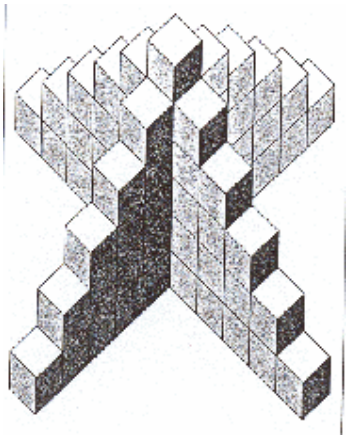
What preparation is required?

Decide if you want to assess learners in pairs or in groups.
Make a copy of the task and, if required, a number of blocks or cubes available to learners.

How do we do the activity?

Encourage learners to find their own ways of doing the investigation.

Skeleton Tower



How many cubes are needed to build this tower?

How many cubes are needed to build a tower that is 3 cubes high?

How many cubes are needed to build a tower like this but 12 cubes high?

Draw a table and then a graph to show how many cubes we need for towers of many different heights.

Explain how you worked out your answers.

Teachers Notes

What preparation is required?

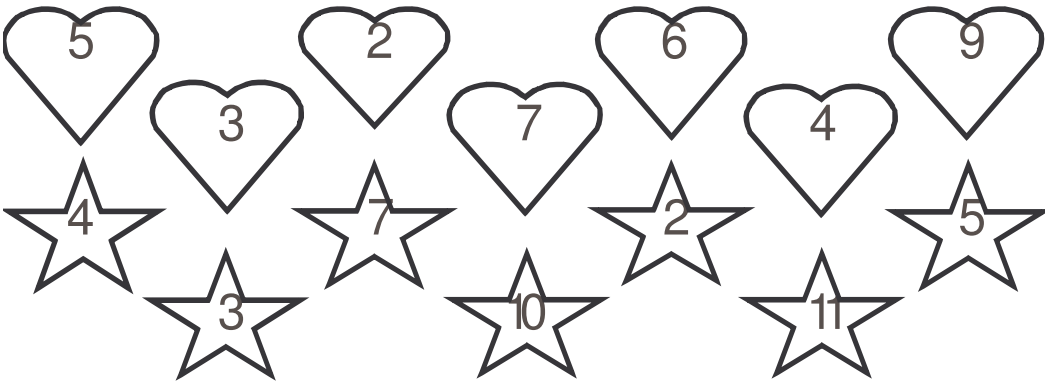
Decide if you want to assess learners in pairs or in groups.
Make a copy of the task and, if required, a number of blocks or cubes available to learners.

How do we do the activity?

Encourage learners to find their own ways of doing the investigation.

4 in a Row
Multiplication

8	36	16	21	49	28	90
50	80	72	18	60	22	12
24	56	20	25	77	48	25
27	40	33	40	24	49	55
30	32	44	9	70	35	14
15	16	12	42	63	20	96
10	20	45	24	6	54	88



Teachers Notes

What preparation is required?

Make 1 copy of the game board for each pair of learners. You may use 2 sets of coloured counters instead of colouring the page, to allow you to use the games over many times.

How do we play the game?

- Learners work in pairs
- Each learner has a different coloured pencil.
- Learners take turns to select a number in a heart and a number in a star. They multiply them and colour in their numbers on the " 4 in a row board" using their colour.
- Learners continue to take turns.
- Each time a learner colours 4 in a row in any direction, they draw a line through the 4 blocks and count it as a win.
- If a learner chooses a number that has already been coloured, the miss a turn.
- The winner is the one with the most rows at the end of the game.

4 in a row: Multiplication Observation sheet

	Does not have any strategy for Multiplication	Uses concrete methods of multiplying	makes errors when multiplying	Multiplies numbers with difficulty EG counting on fingers, tallying etc.	Multiplies numbers effeciently. But selects them by trial and error	selects numbers to arrive at the desired answer	
							Comment
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Please write the date of your observation in the appropriate block.

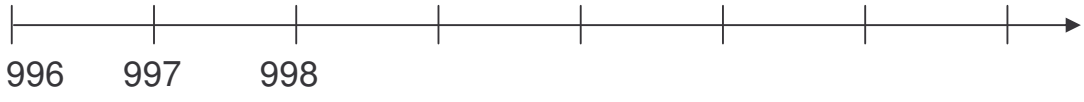
Indicate subsequent progress with an arrow.

Name: _____Grade 4

1. Fill in the missing numbers:







2. What is the value of the number typed in **bold**?

749 _____ **2**104 _____

32**1**8 _____ 725**8** _____

3974 _____ 45**0**8 _____

3. Fill in the answer on the line:

230 ÷ 10 = _____ 5400 ÷ 10 = _____

2300 ÷ 10 = _____ 5400 ÷ 100= _____

4. Find the answers:

13 + 6 + 19 = _____ 27 + 8 + 40 + 13 = _____

```
  12
+  7
+ 19
____
```

```
  26
+  8
+  7
+ 19
____
```

472 – 361 = _____ 340 - 120 = _____

742	806	204
- 624	- 508	-108
_____	_____	_____

5. Fill in the answers:

2 x 5 =	3 x 7 =	5 x 9 =	6 x 6 =
4 x 8 =	9 x 4 =	8 x 8 =	6X7 =

6. Choose any method to work out the following:

23 x 7 = 45 x 6 = 39 x 5=

25 x 12 = 37 x 22=

24 ÷ 6 = 59 ÷ 8 = 39 ÷ 4 =

7. Write a number sentence and then work to work out these problems.

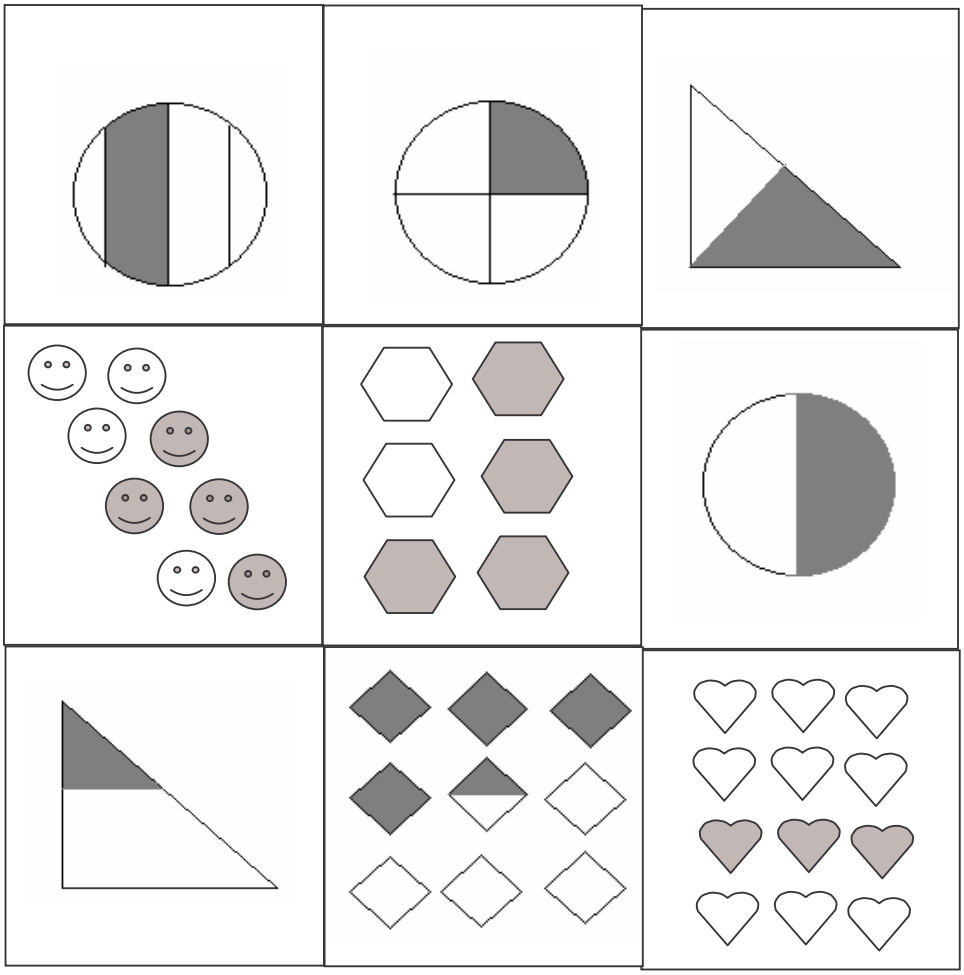
At the Spaza shop They sold 36 cooldrinks on Monday. 26 on Tuesday, 42 on Wednesday and 112 on Thursday. How many cooldrinks did they sell?

Uncle Themba is 39 years old. Aunty Sonto is 5 years younger. How old are they together?

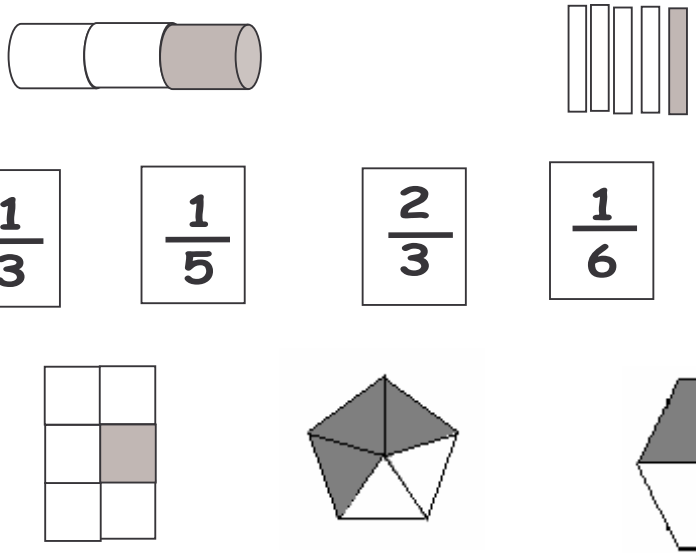
There were 31 mielies in 1 row. How many mielies were there in16 rows?

8. Draw a red circle around the diagrams that show half.

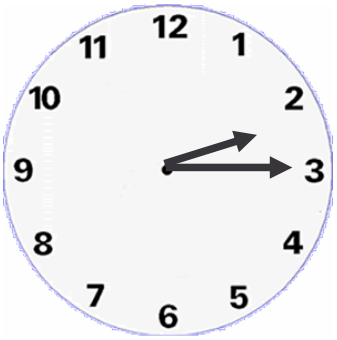
Put a cross on the drawings that show a quarter.

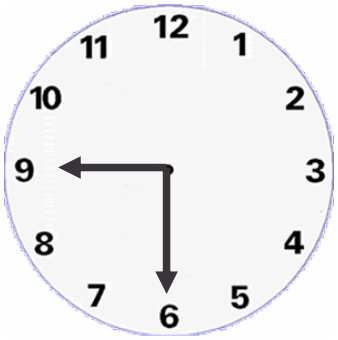


9. Match the names with the fractions shown



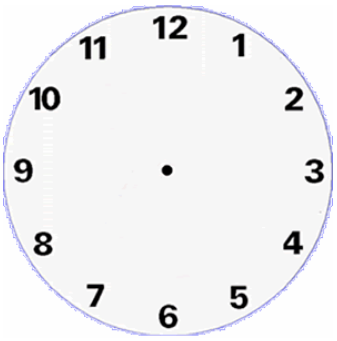
10. What time is shown on these clocks?

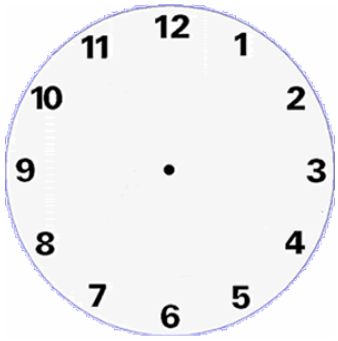




_____ _____

11. Write the time on these clocks.





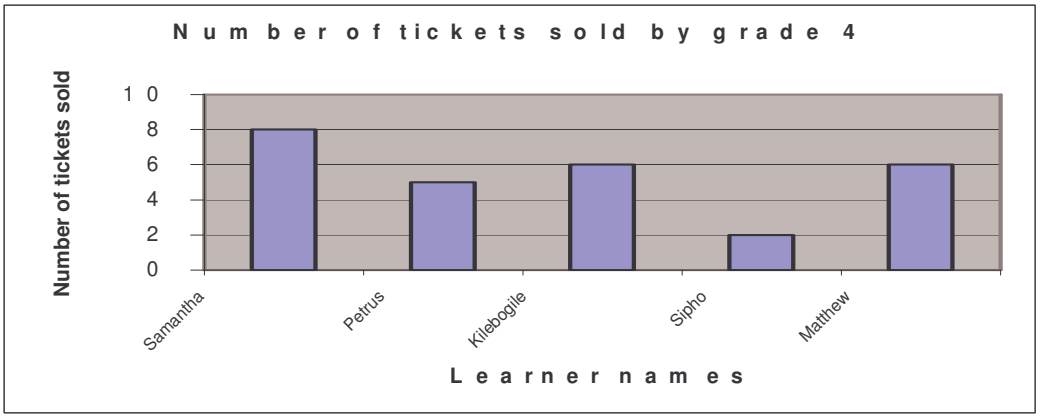
Quarter past 9 5 to 11

12. What is the least number of coins you would need to make the following amounts?

R 4.26 =

R 13.27 =

13. Write 3 sentences about this graph.



Use one of these words in each sentence.

Most least the same

_____

_____

_____

_____

_____

_____

Name: _____Grade 5

1. Say if these sentences are true or false? If they are false, write the true sentence.

   - The sum of 80 + 290 = 370

   - The difference between 1000 and 200 is 1200.

   - 23 900 minus 990 is 13 000.

2. Complete these:

Subtract 16394 from 28 908. (show your working out)

3 834 – 1 445= 4 930 + 5 856 =

(4 000 + 138) + (60 125 – 555) =

30 000 - (460 + 9 348) =

3. A soccer stadium can hold 75 000 people. 91 035 people arrive to see the game. How many had to be turned away?

4. Fill in the missing numbers

333,336, 339, _____, _____, _____.

1 369, 1 379, 1 389, _____, _____, _____.

2 525, 2 520, 2515, _____, _____, _____.

5. Fill in the answer:

23 000 ÷ 10 = 412 000 ÷ 1000 =

23 000 ÷ 100 = 1 210 000 ÷ 100 =

6. Write in words:

13 508

_____

7. Write in Numbers:

One hundred and twenty one thousand and forty two

_____

8. Give the answers as quickly as you can:

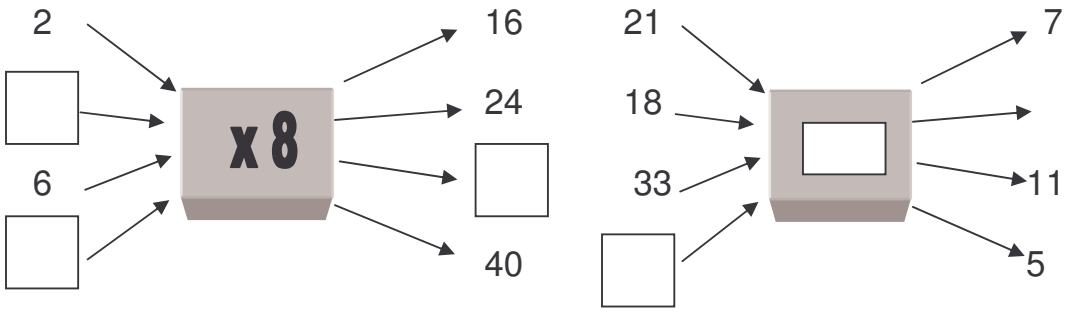
9 X 9 = 20 x 8 = 12 x 9 =

19 x 9 = 25 x 7 = 44 x 4 =

9. Calculate these:

423 x 7 = 145 x 16 = 339 x 251=

10. Fill in the blanks on the number machines



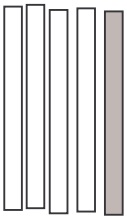
11. Use any method you know to work out the following:

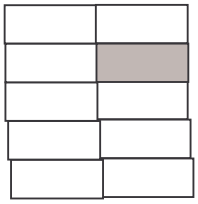
45 ÷ 3 = 875 ÷ 5 =

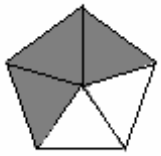
615 ÷ 3 = 2736 ÷ 6 =

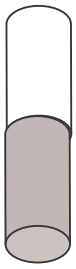
684 ÷ 36 =

12. Match the picture to the decimal fraction









0,1 0,2 0,6 0,5 0,3

Name: _____Grade 6

1. Write in words:

7 413 508

_____

_____

2. Write in Numbers:

Two million one hundred and twenty one thousand and forty two

_____ .

3. Calculate:

4 930 + 5 856 =

116,9 + 4 + 12,05 =

30 000 - (460 + 9 348) =

415,9 – 52,44 =

4. Give the answers as quickly as you can:

9 X 9 =	20 x 8 =	12 x 9 =
19 x 9 =	25 x 7 =	44 x 4 =

5. Find the product:

509 x 32=	339 x 251=	14,9 x 7 =

6. Find the quotient:

8 371 ÷ 34 =	94,68 ÷ 9 =

7. Calculate:

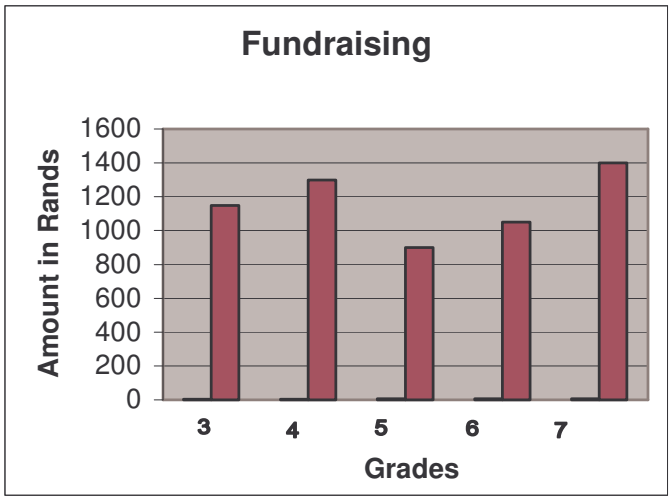
$2\frac{1}{2} + 1\frac{5}{6} + \frac{3}{8} =$ $\frac{5}{6}$ **of 150**

8. A successful advertisement was show on television. It was shown 4228 times. It was shown 28 times a week. For how many weeks did this advertisement run?

9. Uncle Tebogo uses his car 4 days a week to go to and from work. He does no other travelling. On Monday before leaving for work his ododmeter showed 63 728,8 km. On Thursday when he came home it showed 63 927,2 km.

   How far is his work from home?

11. This graph shows the amount of money collected for the school by each grade.



a) How much money was collected by grade 4?

b) How much more money did grade 7 collect than grade 6?

c) How much money was collected all together?

d) The school wanted to raise money for computers. They cost R10 000,00. How much more do they need?

Appendix 4:

Transcriptions: School A

School A

Teacher 1: Okay, well we chose this one. [refers to the rectangular Number assessment p 3]
Um …They seem to struggle with that sort of thing, logical problem and … um …while a lot of them could pick up the pattern fairly quickly..and work out what the next pattern is going to be…there were a couple of groups who just couldn't get them right

Researcher: So you did them in groups

Teacher 1: They worked in pairs actually. A couple of pairs, where they basically have to deal with n … an algebraic type problem … no one actually came up with an answer there.
Um… they could see the pattern ….they could understand what was going to happen next.
But they couldn't see why um… why it was going to be like that they couldn't see …the rule behind it.
So… they…possibly from that,I would say that they handled it on their level and then when it got beyond their level then that was it 'cos nobody actually got to the point where …. Um to n.

Researcher: So it was because they were unfamiliar or whatever.. I gather it was unfamiliar.

Teacher 1: Ja, They don't really do a lot of things like this. They have some similar things, but not so much predicting patterns like this.They've done more numbers.. I think what it did show was that they can form logical conclusions…. And make logical conclusions.
But then it cuts off at a certain point and they couldn't take it further. As I say some couldn't get past predicting, you know what that number is.
It was very interesting.

I, I didn't look at it closely enough when I choose it.
'cos I thought it was fairly easy and then when they got busy (laugh) it was actually quite difficult. I actually sat trying to work out the last part myself, I couldn't get it right either.
(it was) Interesting in a number of ways. They handled the working it out. Some of them would work it into numbers and then just worked out how much was being added … and some of them used … multiplication… some of them just kept drawing dots.

Researcher: Do you think language was a problem?
I didn't pick up any problems with the language, I think they saw it on a very simple level so they didn't need complicated language to discuss it.

Teacher 2: I'm in grade 5. We chose 3 different worksheets.
We chose something with um numbers, patterns. (Grade 5 traditional test) Writing with the numbers, multiplication, division and decimal fractions certain of the things were done differently to how we've done them in class and I thought number patterns, …
I thought that my girls, my lot, would be able to manage it but as they were working I found …for example that decimal fractions they can convert fractions to decimal fractions, some of them were given to them in picture form, and they just couldn't get it right.
And at this stage a lot um, Very few of them did get it right. Um…

It was a surprise
Researcher: What do you think of it as an assessment?
Teacher 2: They couldn't do it so it wouldn't have been a fair assessment…because it tells us that they cant necessarily apply what we taught them in a different form.
Researcher: Ahm, maybe we should stick with Gr 5
Teacher 3: I chose it because it was different.
Researcher: You liked the difference?
Teacher 3: Um, we've covered the skills this year. We saw that they struggled with word problems. We did give them something with one word problem, number patterns, we've done. Lot of them have struggled with that.
Researcher: If it hadn't been the end of the year, If I came to you in January…would you have chosen the test?
Teacher 2: We haven't covered the skills, no.
Researcher: Okay so the content influenced your choice more than the format.
Teacher 3: We wont have done decimal, that much of decimals that much of decimal fractions at the beginning of the year Ya… like find out if they can work it out themselves.
Teacher 4: Okay I've done an exercise almost the same they've done I've dealt on multiplication and division And my main point of choosing that … and multiplication and division they struggle more with multiplication, not knowing their times tables. And as I'm went on marking these papers, But what I've realised is that the reasons they couldn't solve the whole problem and not to the whole answer, the final answer the correct answer,the accurate answer, getting it … it is because of not knowing their multiplication. They know the rules like you teach them for multiplication show them that you the first multiply your units you come with your tens, that they know but the times tables is a problem. …. But …They actually, that sometimes they forget to put the zero before they go multiply with the tens. That is actually the reason they got some of the problems wrong. Some of them they got their different methods but not the ones that was taught to, some used the .. …. The ones where they group the numbers you know.
Researcher: And as an assessment?.
Teacher 4: I … I think it is a good assessment especially when. you want to er …concentrate on them knowing their times tables.

Researcher: So in a sense it's good as a teaching tool
Teacher 2: Ya you know to make them work on…I don't know if all the other grades have the same problems but in Grade 4 we have drilled tables with them like over and over and over again. But if If I asked them like 7x8 they wouldn't know it. Rote…If they do it rote they will be able to, be able to work it out. If you ask them off the top of their heads they wont know it at all.
Teacher 4 Ja. If you don't know your multiplication and your division, you can't solve lots of your word problems as well. Even if you give them the rules of saying like ….when you do division that thing of You divide daddy mommy sister brother. They are used to that rule still they know I have to divide now, I have to multiply now.

But sometimes their numbers are going wrong because basically they don't know their times tables….

Teacher 2: It's something you either know it or you don't right up to matric.

Teacher 1 :I still don't know some of my times tables I had a maths block. The way I cured it I went into army. Send them all too the army I say. Fear of consequences that gave me the maths block.

Teacher 5: I chose the graph one (How Tall, p 6) The reason why I chose this one is I wanted to use it as a revision on graphs and because there's a little bit of measurement. It covers 2 aspects of work that we've done ….Two aspects of work that we've done …because That's why I chose it because it's familiar work, and I want to see if they will cope with it..um…
when I marked it, I realised most of them of them found it very easy or easily except for the question where they had to work out the difference between the 2 heights.That's more an application type question. It clearly shows the girls that is struggling with maths they either got one out of five or zero out of five.
They couldn't manage it and its just like …..(inaudible)

What I didn't like about the test is there were 2 questions that have 2 answers, They didn't cope so nicely with that. I tried not to give a reason or anything like that – I just said go work it out yourselves. So they either chose 1 answer or wrote them both down. Because there's not a clear cut way of saying this one is the correct one.

Researcher: Is this kind of question familiar?

Teacher 5: Ya, they're used to … a test is like this.
No not really because we would usually colour in the little blocks, ….in grade 4
There were 1 or 2 children that got like 1 or 2 out of 5 and I was a bit surprised but they are the type of children who don't like challenges, they like cant do it they scribble down the answer and ….They just sit and look at it and they don't want to do it,but most of the girls just go through it .It was too easy for them, but what I realised is that they cant do am application type of question.
But maybe as a beginning exercise beginning of graphs,
that would be nice. No they did really quite well most of them got 4 out of 5. So they really didn't find it difficult.

Researcher: How did you do the task?
Each child had a copy and what I find with groups is that it doesn't really come out . It doesn't reflect them, 'cos 1 will answer and 1 will write down.

Teacher 1 One thing I must say about this is that they kept going on it they didn't want to stop. They spent about two periods trying to get to the bottom of it, I didn't have anyone saying no I'm sick of this. That was nice.
I actually asked them to write down why.
How they got it and why. What they did.
This is a big passenger, That I've actually pulled it out to look at it.

Teacher 6: I chose this one (Grade 4 traditional test) because ….A very traditional ….I thought it would be interesting for me. And it was interesting, especially in the light of the exams ..A lot of children

couldn't cope with the multiplication, even tho' we've done it, so I went back and revised it in class

Researcher: Was it before or after exams?

Teacher 6: Before and that was the only reason I chose it to be honest with you,

Researcher: was it a fair assessment?

Teacher 5: Not for me because I didn't use the marks. I think if you're looking for an assessment for the whole grade, then you put much more thought into it. The kind of skills that you have taught and how must I assess it.

Teacher 4 I should of say when I was marking it, there were 4 kids where we're not sure actually if they should go to the next standard and I actually used this because its like the basic operations that they needed the fact that they couldn't even follow the rules, not even knowing their tables. That made me aware that they couldn't cope with grade 7 work.

Researcher: Are there any you would never use?

Teacher 1: I didn't want to do that (wrapping presents) one because I thought it would take too long. They would have to sit and work it out on paper. What is basically a 3 d problem on 2 d equipment, That's what the problem is.

Teacher 5: And the one where you have to draw the block (Block towers) from the back and from the side. I thought that was too hard. They're only starting with geometry basic names of…

Teacher 1: The one with the pyramid, (skeleton tower) They'll never be able to cope with that one without equipment. You can't expect them to have spatial perception with something like that without trying it out.

Researcher: Do think it's a problem using groups? groups?

Teacher 1: No, not really with OBE. I can't say why I chose to put them in pairs. I think I put them into pairs…I knew there were some that would just sit and look at it and go into a total blank…If they could discuss it and brainstorm.

Teacher 5: I would have chosen something simpler.
A normal type of graph simple questions.

Teacher 1 I chose this one because algebra is something they struggle with. At the beginning of the year I would choose Lynne's one to see who needs extra support From the previous grade This is very time consuming because assessing something like that you're not really assessing did they get their answers right? You're assessing their way of thinking. How did they get to the answer.

Appendix 5:

Transcriptions: School B

School B

Headmaster: Who's going to start?
Researcher: Whoever wants to start.
Teacher 1: Okay I'll start.
Researcher: Thanks. I'll try and catch your voice…
Teacher 1: I used um four activities from the pack…Make up R1,00 in as many different ways as you can. How many different ways can you find? (p 3) I used um the blocks… the block activity. (p 24) How many blocks do you need for one step, two steps, three steps, four steps and we actually went right the way up to 10 steps.
Researcher: Now you are grade?
Teacher 1: Three.
And um I've got the way they did it in here. And they showed their findings more or less in a table.
Um, we also used um the symmetry(p 9) sorting the shapes into symmetrical and non-symmetrical sections.
And we used the four in a row game – so that's what the Gr 3s did.
Researcher: And how did they go? Did you have any preferences?
Teacher 1: Well I actually did a discussion with them today and they loved all four activities. And ahh, but this one, the four in a row… they actually struggled to understand what to do with it to start with. I had a lot of explaining to do…in that particular activity.
Researcher: The numbers might have also been a bit big.
Teacher 1: They weren't I asked them they said no, they enjoyed those numbers… what they did as soon as they had used a heart and star they coloured it in or crossed them off they didn't understand that they could reuse them, the heart or the star to get answers for each and every one.
Researcher: What made you choose.- please anybody just interrupt - but what made you choose those activities?…
Teacher 1: I approached it in a certain way, I divided my class into groups of four and um each group of 4 had a different activity to do …so what I did was explain the activities to them then I gave the pieces of paper to them and let them go with it. Then I visited each group to see how they were doing and am ah asking them questions and if I found that they were struggling or so, I sort of guided them as to how to carry on.
We actually found an interesting way of doing this one , (Make R1.00, p 3). We found that the rubbings took too long So, instead they took their coins that they had, I gave each of them a selection of coins from 1c up to R1 used them as a template and they just quickly put them down on a piece of paper drew round it and then drew the R1 or 5c on it. To make that quicker, 'Cos we're really in a hurry in Grade 3.
Researcher: Yes, um and they were after many..
Teacher 1: And I wanted to do many ways as possible to make up… And each …

Teacher 2: Why didn't you use the photocopier? I have stamps…with all the cons on them

Teacher 1: I did it the day before and I didn't have time to find out who had what.
Umm… they loved the symmetrical one finding these…
I just want to tell you that I gave them a certain period of time in which to complete the activity And then they had to come up and show the class what they had achieved and the class actually liked that, being shown and taught by the group who…

Researcher: So the way you worked it out at the moment, not everyone has done every activity.

Teacher 1: That's right…And I couldn't do your assessment as you wanted I found it difficult to work your assessment …I cant focus on how (they were working)

Researcher: Okay,

Teacher 1: …because I'm all involved in working out the thing so it's very hard to know who - …. Any way, and this is the way they …(Shows learners work.)

Researcher: Thanks very much…. They're beautiful.

Teacher 1: What we found here was that we couldn't.. . we actually found the language very difficult to come to a conclusion about the pattern that was formed on this side (refers to learners working on the steps activity p 24) It was difficult to put it in words…Refers to children's work…The steps and the rows had the same numbers, but the row with the number of the blocks becomes bigger by one…(with each step) We found the language very difficult so it's 1, 3….

Researcher: I see.

Teacher 1: Any way they realised there was a pattern and they understood it because it was done with blocks…

Researcher: Now what made you decide to do it in groups?

Teacher 1: Because I work like that …And I don't mind using these activities because I use this book for inspiration (Refers to a British curriculum book). I try to work on a two-week cycle.. And its got solving problems, working fractions, Capacity, shapes, etc. So this was consolidation and learning new stuff so it didn't worry me.

Teacher 1: Can I go next because I used the same activity…I'm grade 2…so I did it in a much more hands on sort of way… now I planned to use actual bricks lots of bricks because Mr Carrie used to have,… but when I went to look for the bricks yesterday, there were none left.. .. so a boer maak a plan…. So we actually went outside as a class ….And we collected all the tyres. .. and we made steps outside using the tyres and we counted.
We only had enough tyres to build five steps umm so then we counted the tyres that we used.
We discussed how each column was um one more um one more one more…… they totalled them. I then put the students into groups of four – they chose their own groups They each

had their chalkboard and um they then used building blocks to build their own sets of steps…their chalk …
I then extended it to um …I asked them I wanted a number sentence.
Look I'm really big on number sentences…So they had to write down a number sentence…for the entire thing. I said I want a number sentence. I want you to tell me what you've done…they could all give me the total because they did count correctly. I then did a number sentence on the board… they could all give me the total because they all counted correctly 1+2+3+4+5+6 …so they used their chalkboard to write down .
They then went back to their desks and I repeated the process but using an abacus … so each child built their individual staircase using the abacus….I then did a number sentence on the board just so that they could evaluate what they had written Just so they could see …. Then I used the abacus again…. Up to move ten….

Researcher: How did you feel about it as a maths activity?

Teacher 2: As um as a maths activity?

Researcher: Or um I mean…what did they learn from it maths wise?

Teacher 2: (shrugs) They enjoyed it um …they enjoyed it. I had one group that didn't complete it they kept knocking their steps down. And I had another group that was unable to work together although it was their own choice of groups,
But the other 4 groups worked together successfully. And I've written it there (hands over comments on the activity)

Researcher: Any comments so far about its' use as an assessment.
No, I didn't because um …I mean No we're not octopuses we cannot have eyes in the back of our head. We cannot be assessing the children while you're I while you're trying to stimulate them, direct them, and guide them discuss with them and then you're still trying to mark… and umpire the fights.
I found that impossible to do.

Researcher: That's interesting

Teacher 1: That's why you teach the kids to work in groups. There are some little problems…(Laughter)

Teacher 3: Most of them were too difficult, (for this time of year) many of the activities, the bingo, the rockets, all of that was too difficult. ….
So I chose the sheet that you had given us …colour two horses colour 4… the gr1s can't read but they can read the word two and they can read the word four so they picked up what they had to do. ….again at this time of the year it's almost too easy now, for them now at this time.

Um, I could use this assessment earlier on in the year but not at this time. Um, they enjoyed doing it and they did it very um…. It was too easy for them almost….there was nothing in this set that was really relevant to what they really need at this stage.
It was difficult to pick up something….. they did in the only interesting thing I found with some of them was it said colour 2

horses, they didn't T colour two in a row, they'd colour one at the beginning and one at the end, for me it was interesting, the brighter children that did that…Most of them got that right

Researcher:: So for you the problem was level..

Teacher 3: You know the one where you have to talk about interesting things about your friend, I thought about doing that and to try to put it onto a chart, but I would do all the work. They couldn't They could tell me things and I could have put it on the chart. It was difficult to try and find something appropriate.

Researcher:: Any comments about it as an Assessment?

Teacher 3: I wouldn't use it now. I would have used it earlier on, when we had learnt to read numbers you know, that sort of thing.

Teacher 2: I went into (teacher 3)'s class today and I mean she's working on developing the bonds of 7. … and she has a delightful way of doing it. She gives each child seven beans ,that are black on the one side and white on the other side. and they shake and drop,,, and then she sorts out there's five white ones and two black ones and 5 and 2 make 7. … and then they pick it up and shake and drop again. And then you've got four and three or …again and five and two …

Teacher 3: T and they get very excited … all black ones and no white ones now what do they do? Then I say how do you write no white ones? Oh its nought – it's a very interesting one.

Teacher 4: Okay it was difficult to choose and I find … Sometimes to work from someone else's work isn't always easy… So to choose something from the pack that was relevant to what we're doing now that could be used was quite difficult … but I choose a couple of the worksheets which we did, this one where the little girls played dice…. She has 3 dice and she gets the product of 36….so I thought we're always whining about tables, lets do this as a bit of an extension activity. … so I gave them dice which didn't really work because they were quite happy to sit and throw the dice and find things that …definitely didn't come to the number they were supposed to come to.

So after… um my group were split up at the time so I had them in smaller groups still …. So I said okay let's put the dice aside and we started working to see what adds up to what They battled, they battled to say 6X6 = 36 but didn't want to add in the times 1. We havn't done – the word you used is product. … so we haven't done…. So we related them to the things they have done, different names to say addition, subtraction multiplication. … um once they started getting the hang of it. The first group didn't quite get there in half an hour …. The second group initially thay gave me just 2 numbers, I said, no, no you've got to have 3 .. they were, I think maybe was mathematically a bit stronger than the first group….. Then they tried the 9, but 9 doesn't work….. let's split it to smaller numbers like 3 & 6…

so I feel from the tables point of view they certainly enjoyed it…. It as a different way of looking at their times tables. And the second group did do a lot better. Once they exhausted the

options of 36 I then gave them other numbers….and …as I say they progressed once they got the hang of it.
they did battle, though, with the fact that they had to use three numbers [because they don't like multiplying with such a big number] ….. they didn't want to multiply and the first group wanted to add they's say 5x6 is 30 plus 5. They didn't want to do another times. They has been doing bracketsnin class….. and they got it.… so look I used it purely as an extension activity and they did enjoy it.

If you want to look at their scribbling, this little one here ticked off all hers with 2 numbers and the she says Oh that would be a good idea …..or add x1

Researcher:: I would be interested…

Teacher 5: I haven't done any of these quite honestly but that was one I would have done with my gr 6s (Dice activity, p 17) because I'm quite heavy on to tables So um and I the first term I spend virtually entirely on tables and on adding and subtracting… not they you don't do a good job (refers to teacher4) … I just ….but they loose it

Teacher 4 : We try!

Teacher 5: I've been working with fractions over the last couple of days and Today one of them said wow ! Gee it's only tables So maybe I'll give this a shot over the next week or so

Teacher 4: They really enjoy it but don't get the dice out…the dice serve no purpose

Teacher 5: One or two would really enjoy it.I mean there are a couple of kids who would really enjoy it, but others would just…

Teacher 4: That might mean if you're going to do this activity to start off saying then it might be an idea to do this first… then you've got the three numbers what is the product…And then after that say, right now, … you must give me this product Ja, that would also work

The other one I did was this little one about fractions which obviously comes up later…. I chose it on the premise of a glimpse of what's to come later in future, it looked quite fun for them.. So we just did a very basic little input lesson,
I wasn't going to let them work in groups since it was …

Researcher: Just let me see which on that was

Teacher 4: (holds sheet up – Grade 4 assessment question 8 p …) and I explained to them that we work with, that we take the whole thing, whether it is a box of smarties, a set of pictures here, a whole cake we're trying to … divide it into equal parts…. And they actually coped relatively well. I was surprised for example on the one with the diamonds where there was one that was in half that they could tell it was a half….. the other one that surprised me was this triangle one [mm] they could see that it was actually a quarter….if you look …the other thing off it comes out to be a quarter.

However, all of them said that the circle that was just sliced like that which proves that the part that it had to be equal in size…didn't quite sink in…not in the time we had then when they just had to match up the shaded area they did quite well . so they seemed to understand that 3 parts were covered 5 what ever…. So that one went… look it went well in the class ….

Teacher 2: that's what we do in gr 2 and then we do it in gr 3 let them, please god have some concept …So it should go well in the class

Teacher 4: So I just did this as a little bit of a glimpse into what's to come.

Teacher 4: …you asked us to look at one we would possibly not use.. Now I'm very much in favour of graph work and that sort of stuff. The graph that was included in this pack was a survey of the heights of children in the class. I felt that the questions had to be a little bit more specific or the graph needed to be a little bit more clear. If you go back to it and have a look here. How old were the tallest people? I know they'll come to me and say but there's two people, which one must I write? And another one of the questions was most people were how tall…and there were 2 answers with the same number of people. So the graph actually had to be better plotted or …. The questions slightly….more clear

Researcher:: Ya that's common … they only want one answer…

Teacher 4: Maybe I'm a left brain, I also only want one answer. I'm happy to use the graph but I would definitely change the question and for the gr4 level I would easily have asked 15 to 20 and more than 1 graph, obviously for that lesson.
But I did jot down some notes and that if you're interested.

Researcher::Thank you!

Teacher 4: If you'd like to see those (hands over notes)

Researcher: I really appreciate all the work…. This is very nice. Thanks

Teacher 6: Right, shall I start, I have grade 5. I actually didn't have time to do more….I would have liked to had done more I did the 4 in a row and I put them in pairs, okay, so they could try that. ….
They actually loved the activities. They went very, very well. It took them a while and not everybody in the end realised at the end that if they wanted to get specifically to that number to look at the number that they wanted ..but there were 2 or 3 that cottoned on to that pretty fast.
They were saying okay, my 6 and my 5 will give me 100 and something, where can I go from there.….but it wasn't everybody….

Researcher: So they were approximating.

Teacher 6: I found this system too difficult…(referring to the observation sheet, p 26). I was just about pulling my hair out trying to assess what the children were actually able to do or whatever… so I wouldn't be able to…

It was a nice exercise in just trying to let them sort of feel around different combinations, and to estimate before they actually added… so from that point of view it was quite good. …
I did try, You can take this one (passes on some learners work) there where 2 of them (showed learners workings). One didn't understand what I meant by 4 in a row at all even though I did explain the basics. The other one did understand but she said she had a row but she didn't. She had alternative blocks, skipping blocks.
Did you mean to have more than one particular product,? oh not product, sum – I mean more than one particular sum …..There were two 124s and there were 2 …?

Researcher: You can get it in 2 different ways.

Teacher 5: … one or two of them said to me I can get it in 2 different places. I said well which do you want? Think for your 4 in a row? But it worked out.

I did have one or two who battled to co-operate. You know one was sitting there with all her teeth in her mouth and the other was trying to run the show and things like that. And sorting that out as well which is a bit difficult to do anything further.

Researcher: Now you did it as a whole class or in pairs?

Teacher 5: In pairs. I chose 1 activity and I actually put them into pairs literally. I said you and you. I just went down the line like that. Fortunately for me one person was absent .

Researcher: So it was difficult with a whole class but also difficult in small groups.

Teacher 5: It was observation, having eyes in the back of your head. But I should perhaps have thought about that and had completely different ones. But it was still getting around to each one of them.

Teacher 2: I mean that is a very subjective evaluation, what do you think what's going on…

Teacher 6: Can I ask a question? Did your class try to block others from getting 4 in a row?

Teacher 7: One or two ….

Teacher 6: Mine did.

Teacher 7: Now here for instance… this was the one…. Nikita Paulsen who actually got the most out of four in a row she managed to get five and her partner got 3.

Researcher: And how long did it take?

Teacher 7: Half an hour -That's all I gave them.
A lot of the others are 3 and 1, 3 and 2, 1 and 1, but this was the one who actually got the most. She cottoned on to it very quickly…and she not that bad at maths but she's slightly slower. She's able to be quite adept at actually aiming for a number and trying to look and say Right my 9 and my 2 is going to give me 18, let me try that one type of thing..….
But you can take these

Researcher:: Thanks very, very much,

What did you think of the competitive element? (silence then laughter)

Teacher 7: It wasn't that bad.

Teacher 6: When somebody got a row of 4 in my class I rang the bell! They do thoroughly enjoy it… but I'm not sure….what I would be able to do with it in a sort of formal situation …where I had to workout what to do with it,

Teacher 2: But I don't know how you would think of reconstructing your observation sheet because you know to answer questions, as well as sort out fights as well as write on this thing, was actually too much!

Teacher 8: I actually thought about that quite carefully. And I thought that what I would do if I if I was to do this often, is only take 2 groups and leave the rest of the class to get on with this activity. Then you'd have to have 3 or 4 similar activities and then assess other groups – not necessarily on the same content..… So that by the end of the cycle you've assessed everybody but…

Teacher 7: but I'm actually at the moment doing division with 1 number. 10 hundred thousand and multiply them of all the short method. I thought I haven't even started it with them. So although they haven't done … 2 numbers with them, so I stayed away.

Teacher 7: We discussed these papers at the back. And we thought what we might do was give the gr. 6 in January just to see if they did get through all of that …. Grasped all of that….

Teacher 6: And for me to take the grade 4

Researcher:: So it would be in that sense a base line assessment .. so where we start …
Thank you very much, though,

Teacher 2: You know what annoys me , what truly annoys me, it they expect us to put smiley faces. I've been teaching gr 2s but I refuse to put a little face with a straight mouth. But I'm not a child

Teacher 1: Sandy, you know I do a lot of self-marking in my class….
And I started at the beginning of the year to get them to mark their own assessments. And I showed them the three faces and I ask them to say how they feel about their work that day and they could choose and they could do it quite often. And they like doing it….

Teacher 6: But I'm not a child

Teacher 2: But they do it, I do 1,2,3,4,5 and I know where I'm going….

Teacher 6: And they write their own comment to suit the little face that they drew.

Teacher 8: My grade 7's when they swap they mark each others work, they don't do it that often but for Mental maths they do… give each other smiley faces or whatever…

Teacher 2: No well look, for the children I'm always doing smiling faces but I'm not doing it for them not on my documents and my admin to have little faces - it's insulting!

Teacher 8: Okay, I'm going to start off backwards. The one I would never use I've got grade 7's… this cube thing…(refers to the Skeleton Tower, p 24) I actually think I couldn't do it… If I couldn't do it then they cant…

I did the area, the squares with the areas around… (pool paving, p 9) I have just done area in science and we did area of the square and the circle so I thought it was kind of related to what we were doing… I put them into groups of three… I've got a very weak class…. So I divided them into … with one brain and 2 others I made a conscious effort to make sure that in each group there was one competent ..I thought that was a good idea, I tried to solve those problems. and so I realised I couldn't watch every group, so I started off thinking I'll just watch 2 or 3 groups.

Towards the end I just moved around…So I focussed on ….

Some of the class opted out. In most cases it was children who opt out of Maths regularly. Elizabeth… unfortunately maths and her do not belong together…

I was quite impressed., that some opted out, but when I walked past they actually got involved. One or two of the groups just gave up… more social reasons …. They couldn't work together and they didn't want to work together.

I gave them the unifix blocks…. They really did help….They were getting a bit lost so I sent down to get the blocks. They needed something physically to measure it…

Most of the children actually worked out, by looking at the picture and by building it that the eight by eight most of them…managed to work out that there was some sort of pattern for the square so they did even if they did it by a physical table

for the one there's four even of they didn't actually work out the formula…. Most of them got as far as compiling a table and a pattern.. which I was quite surprised about in some cases … most of the groups, the better groups or the one's who stayed focussed on the activity the whole of the time.

Actually it worked out well it's 5 plus the corners. Only one group got as far as the second half of the page. It was 1 weak and 2 very strong girls. You know they could, and that they were very interested in it.

They worked out how many blocks go around this one and they worked out that there's gotta be a way of working it out. And they're getting back to me with the answers soon.

They were …. Nicole…Nicole and Michelle……
It's very much Nicole's kind of thing she's gonna be an engineer one day…

Researcher: As a form of assessment ….

Teacher 8: Because it was beyond the normal it wasn't anything I would use The group that got as far as 64 and stopped… I said well lets look at it if you're going …. You can't say they're stuck on level one…. Because if you've interfered how can you assess Because you have to interfere … They've got an answer …. Um, ya, … and they were ready to sit back for the rest of the lesson

I found that for some of the children they had the idea but the language issues were very hard . They had answers but they couldn't communicate it with me when I came round. I didn't see a difference between first language and second language problems on that problem…

Researcher: Same as your problem (referring to teacher 1)

Teacher 8: It's hard to say exactly what you mean mathematically.

But like Linda at the beginning of next year, use the grade 6 one

Researcher: Some of those just came straight out the back of textbooks.

Teacher 8: But it's a little bit of everything. I like the idea of assessing at the beginning. I like to know where my girls are at before I start…

A lot of them (tasks) are interesting but I felt for the amount of time …a lot of time…. I mean it took me about 45 minutes…. I think is was just about as much time as I could afford on the work. I just don't think for the benefits…

I mean it's great for them to be doing problem-solving.. and investigations… and thinking. I try to do 1 or 2 during the year, but really the time we have and the syllabus …

I thought things like that four-in-a-row and that kind of activity … The only time I would use them… after maths test I give them other things to do not even extension… more like fillers, literally fillers. … get those kids to sit and do that in that not…

Researcher:: Thanks. Any other comments. Things you absolutely hated?

Teacher 4: I must be honest I'm still very much in favour, especially in something like maths in individual assessment…
Once you go into a group it's hard to see exactly who is doing the work, who understands what.
Group work, projects. … One does the work and 3 copy… there is no doubt about it and they all get assessed at the same level. The ones' who work get angry…because they are working and carrying 3 or there may be 2 out of 5 working putting this together. And the other 3cruise and they get ..

Teacher 1: use groups a lot in the classroom but I like to see them.
I see what they do.

Teacher 2: Group projects and as Janet & I know because… ahh for that simple reason… grade one two or three children have eyes like a chameleon. They can keep there head there and they can copy from there so you're constantly working on alternate worksheets…you know you colour a thing two ways and you have an A worksheet sitting next to a B worksheet.… because otherwise everybody in the class would have 1 child's work ….

Teacher 8: I did a maths project where they had to They draw up bar graphs and things using a computer … and then each child in the pair had to write down what part they actually did. So they actually planned as a pair… there're are steps each person would take on I'll do step 1 you do step 2 and then they write. Who actually did the work on that step it's a negotiated project, but it's actually individual project.

Teacher 2: Look, another thing I do not perceive how it works is self-assessment in foundation phase. They are incapable of assessing themselves.
I've done it for years, because we started using the sharp eye from Australia. One of the activities is write your own report. I mean they are all brilliant. Grade 2 they all believe "My reading is wonderful' you know "My maths is terrific"… and they can't assess their peers because I've always conducted …

If you had somebody, you could choose who you would want to sit next to you who could help you with the work who would you choose?… they never choose the brightest children because they don't know who the brightest children are, they choose the child with the biggest mouth, the nicest lunch tin, the one with the smarties.… at that age group they cannot assess one another and they cannot assess themselves…

They have no idea about…. Especially the weaker kids
We do this sort of social – you know you're having a birthday party. You can only invite 4. Which 4 you know or you can invite 20 … you've got to leave out four… who are you going to leave out? …So you pick up who's absolutely not gonna be invited to anybody's party. Look at their social sort of things….. and then you say Write down the name of the girl or the child who you think is the cleverest in Maths. It's never the brightest child. They've got no clue. Even the brightest child doesn't know she's the brightest child.…they really don't…

So in that age group, the OBE stuff, the self assessment, and peer assessment … can't be done in foundation phase quite honestly

Teacher 8: Ja, even my grade 7's, when they have an oral they have to assess each other on a scale of 1 – 5. Nice good OBE assessment. I give a kid between 16 and 20 out of 30. And not

a single one in my class got less than a distinction from their peers.

Teacher 2: Yes the little ones do that as well. I say to them right guys you can do it concert style or you can do it privately. Some of them choose to do it privately…. If they do it in front of the class The other ones whistle, clap, and shriek…. They can stumble through it but as long as they have the confidence to get up and do it they think it's wonderful. "Yes, yes…she must get a 1 Mrs J, she must get a 1",

Researcher: But they don't know what they're aiming at.

Teacher 8: But even when they do. I mean mine are very clear cut. Did the person have an introduction to their oral? … My criteria can't possibly be more blunt… but there's no way that the criteria aren't made clear or understood but ….they actually couldn't. and they get the criteria in the preparation. But no ways is anyone a 1 or a 2, they're always a 5 out of 5.

Teacher 2: But by the same token, if the child doesn't achieve …. The child's immediate reaction in any primary school is …. The teacher doesn't like me – he always picks on me – and you know, then that's her total reaction. … so therefore that's how the children perceive any form of correction that you … so they're not prepared to do it to their peer group. … not prepared to risk unpopularity so you get this pass 1 pass all attitude.… So everybody must get a big clap and everybody must get a one or an A,

Teacher 3: Like in their reports, They do self assessment in their reports. And they're always at least 1 block better than… (the teachers rating)

Teacher 2: And you see, as well, I mean we do not have an OBE type report because… but I like what we do… You cannot give an A symbol for English because one child can do beautiful prepared reading but cannot read Unprepared work… one child can write well the other child can't…. So how can you round this out… so we're not likely to be a lot of benefit to you

Researcher: no, no I want to hear where you're at…

Teacher 2: So we actually divide….so even numeracy is divided into number concept, Operations, problem solving. And that is on the report. And each child is marked in those areas. And yes your speech is less we have a lot of children whose home language is not english. We have a lot of pupils whose home language is not English…. Lot of Portuguese children and a lot of black children of different language groups. So we do divide it up. We divide it up into…. Prepared reading, unprepared reading and creative writing.

I've been on a lot of these courses and I sit there and usually shut up. You land up with a child with a round figure of 3 …you know a round symbol, satisfactory, but they might be a

wonderful … presenter of poetry ….So I think we're taking too much away. Umm…

Researcher: Are they saying give a general ballpark…?

Teacher 2: One symbol for numeracy and one symbol for literacy and one symbol for English and then comment, comment, comment, comment,
We had one child who came to the school with the report that said understands the cultural context of mathematics.
… no that is the criteria that children were evaluated on in the f irst term and

Researcher: that was it … nothing else…?

Teacher 2: But I do go with ongoing evaluation as opposed to …, I will use a certain worksheet or evaluation sheet. like we're doing time using clocks… stamps…. Lots of discussion. I then have a worksheet that I use for evaluation… I simply give them a 1, 2, 3, 4, or 5…. And I might through the term pick up six or eight symbols for numeracy. And then I come up with a term mark …so …ah… that's what I do…

Teacher 4: Well as a parent you yourself feel happier to see where your child's strengths lay.

Researcher: Um thank you…

Teacher 2: I also don't want to see what the child sitting near my child can do. I want to see what my child can do.

Teacher 8: Well it says that we are actually looking at the children and where her strengths are…It it's not just a mark that we pull from a mark file … but it's more personal assessment

Teacher 2: Also I mean we're a small schools 1 of each class. It's a different ball game from a school where there 5 standard 1s and 5 standard 2s.. We know the children and the staff is very stable…I can say Cynthia , so and so – what was she like last year?

I mean then there's a lot of documentation…but by the same token … there's personal contact. …. we know all the children and the children all know us and we can talk. Also we talk to the parents on a daily basis, we pick up the phone or have the parents in regularly…they become involved.

Appendix 6:

Transcriptions: School C

School C

Teacher 1: We chose the addition bingo. (p 18). The one with the number range from 1 to 20.
Researcher: This is grade 1?
Teacher 1: When we made the decision we'd only just started… It was the beginning of this term.
Teacher 2: The beginning of this term
Teacher 1: That's what we were doing.. Bridging of 10. And also the other activities were weren't appropriate for what we're doing.
Researcher: You said they enjoyed it
Teacher 1 Ja, They enjoyed it and ja I enjoyed it.
Teacher 2: I thought it was good for assessing. You could see a number of things coming up. Those children were still counting with their fingers, using their fingers, those that were just counting on...um.. I also saw the brighter children getting frustrated in a mixed ability groups they would have rather chosen friends that they knew, could add quickly, otherwise they would also just be giving the answer.

Another thing that was interesting, um… to slow the game down they had to verbalise how they got their answer. And some of them battled to actually verbalise their answer, they just couldn't explain actually how they got the answer. Others were great, They would say said I know 7&1 is eight so 17 and 1 is 18. So then you could straightaway see they verbalised well.
They were in a ….higher …ability range.
Researcher: And as an assessment?
Teacher 2: I straightaway got my 3 ability groups.
Those that used fingers, that didn't count on that counted all the numbers…those that got stuck with numbers more than ten, and .. didn't know what to do.

I didn't give then a selection of apparatus. I put them on the floor with the counters and the dice and they had to basically find the answer.
Teacher 1: I gave them a freedom of choice. ..counters and said ….
a lot went for their number squares.
They found counting on easy the think that I noticed was that if the first dice fell say with a 5 they would count 5 plus 11. Whereas the abler children automatically started at 11. … They got that they could change it round - the addition .
Teacher 4: Isn't that a property?
Teacher 3: I think how it works in class depends on a wide range of factors, a very wide range of factors.
Researcher: Was the task different to what you usually do?
Teacher 4: Similar
Teacher 3: We've done similar activities.
Teacher 4:: What was nice, what I learnt, from here, you could actually do a whole another bingo as the year progresses. With more difficult numbers, starting with bigger numbers 30s, 40s, 50s starting with single numbers,

Teacher 3: I also thought you could use it as a teaching strategy, because once you've found the kids that only use their fingers, I could tell the children that from now on you're only starting with the biggest number. It doesn't matter if you throw the 5 first and then the 11. Actually teach them what to do in that game.
Or you say you're only going to use units, start with the end numbers, ..
and then you're gonna add the tens. Because some of them do that automatically and others wouldn't know how to. You actually can use it to re-teach.

Teacher 4: I think you've got to use it to build on. Because straight away you can use your ability groups, the kids that were very good at just adding and not using any apparatus because otherwise they get bored and are shouting out the answers
so you couldn't keep on playing the same game.. Perhaps you could assess the group dynamics too.

The first round everybody was quite happy to sort of feel their way through everybody's ability. It was the second round the quicker ones were started getting impatient with the slower ones. It became an increasing problem.
They were taking over, saying just do it this way….I think older they get,
the more you realize that perhaps homogeneous groups is not always the answer. You have to put them in ability groups…it depends on the children…

Researcher Is there anything you would never have chosen?

Teacher 5 I liked the money one but we haven't done money.
We would wait until we've done . It's not a fair assessment if you've never touched it.

Teacher 4: This was nice, all you had to do was photocopy it and there you are…

I used the tick list but it didn't fit with the activity. I devised, I used it ,I wrote used fingers accurately, used fingers ….. I used the tick list but … I devised but I wrote .. used fingers accurately, used fingers sufficiently a star for the very bright child who was working in the abstract, Average, weak for fingers all the time.

Researcher Did you find it easy?

Teacher 4 I quite enjoyed it. I often work with my class list where I put my own criteria, wrote them then filled them in. What would you do with the comments?
but I like what we do…

Researcher Okay so you chose symmetry for the cutting?

Teacher 5 Yes because we … er have done it. … um..
I decided not to do it as a group sort of activity, but as an individual activity.
I found out quite a few children who actually cut out very badly. They cut all the black lines they couldn't see- if they were symmetrical by the time they'd finished cutting them….I was interested to see that there were some children that really didn't

know what was going on, they were just copying the others, and then sorting out their own.

They sorted out the symmetrical and the non-symmetrical but there were some that know exactly what is going on. A lot were confused with this sign, this one here (flag)… They weren't too sure if it was symmetrical or not, because they said, if you fold it in half and turn it around, cut it out it would actually match.
I explained to them that you have got to have a mirror image.

Some cut so badly they made this into a square so it was symmetrical.

Then quite a few managed to draw their own little shaped and things like that and symmetrical and non symmetrical. I didn't mark them I just stapled them on.

They could explain their process. I said to them how did you discover that it was symmetrical. Some just used their finger like that, others folded none of them cut it actually in half and matched it.

And some of them said I thought it out in my brain. So they used … so that obviously they did know. You know the hearts were obvious ones,
can only fold it vertically you know these um you know this one over here also caught them. You know on the paper it was sideways on and they said that.
I said that if you turn that around .Oh ja then it is symmetrical,
It was very interesting because I hadn't actually thought that they were they seeing it that way.

Researcher: And the figure 8?

Teacher 4: Yes, this one also, yes! A lot put it on the symmetrical side. I actually took a mirror and showed them. Is it showing the exact thing? It's not actually symmetrical. In the end they….. felt it if you could cut it, you could match it.
I think they thoroughly enjoyed …er …the activity you know.

First they just put it on. Then I said check this one, fold that one if you're happy with it, now stick.

What we did when we did symmetry, what we had was like they had to complete like finish the stop street, which was also like a difficult activity.
So this would have been nice you know to have used then.

It's not so easy to get the idea for grade 2s. We really only sort of touch it in grade 2. We don't send a lot of time on it.

As I say a lot of them couldn't really explain what their processes were.
They were just looking on the paper and copying.

Researcher: Do you think you got Insight into children's thinking?

Teacher 4: Yes!
I made my own class list, I didn't realise I could have marked on this one,
I also worked on co-operation, …..there were 2 children that didn't have a clue.
I didn't realise that they were quite as weak as they were.

One little one who's attending OT for 2 years, her cutting was disastrous, I'm going to have to speak to her OT teacher when she comes 'cos her cutting's really bad.

Teacher 5: Obviously the grade 1's had chosen Bingo The blocks are too simple for Grade 2. Bingo, would have liked but didn't appeal, well not to me anyway I think its …..chose because of the number range. I didn't choose Bingo because I had a lot of my own.

I felt they must have something to …..I chose 4 in a row Initially just to start them off as to how it worked, because we were in the middle of multiplication,
it was a wonderful activity. wonderful game it really worked very well
It taught me a lot about the children.

It really had to have small groups, it it is actually quite an involved game….
One group had finished and they went to the then I realized you actually have to watch them to see how they … you know, their strategies, you find that some of them used a number chart.

Very interesting, some of them struck up a deal, they had to get 4 in a row, so what they would do, they realised they could block each other, so Russell and James struck a deal, and said alright I wont block you if you don't block me.
It was absolutely fascinating.

All in their head, so they would work on 1 side of the grid and the partner would work on the other side. As the game progressed it was interesting
because they reversed the game they would find the answer first which 2 numbers and then add.

They had the cheek to ask me ma'm, what makes 166?
James actually wanted a time limit because friend taking too long
It was amazing I saw abilities just like that. Some made their own rules which was also very interesting.

And very interesting to see who the leaders were and who the followers.
By the end of the activity they would rather go and work with someone who was their own ability level.

This is an addition activity I made my own one busy with multiplication
They actually started pairing up on their own. Most of them worked through it with me.

Teacher 5 Just in grade 2 don't really go higher than 2 times 3 times 4,5 & 10.

A few liked working with the 6 but it wasn't really a whole class activity.
So it was wonderful, it was really nice.

As an assessment it is quite a noisy activity,
they get very excited, but I didn't have large groups.
I was looking for something that would apply to multiplication because ……..

That was a complete surprise. It was actually wonderful and they still ask if the can play it. Very challenging little group I have

Researcher Anything that you absolutely hated and would never have tried?

Teacher 5 paging through the pack.) This one (Make R1.00, p 3) was a little bit babyish.

We have done a lot of symmetrical work where they copy the 1 side of the picture onto the other.
Rocket game, must be honest I didn't look at it maybe it was too easy. There wasn't really much for grade 3.

Teacher 6 I was doing food I did the graph….To collect data. It wasn't so much a numeracy test maybe a life skills assessment. It also tied in with all about me which is one of or themes. We had a data collection sheet. I only got them to interview 10 children, because I did the same last year, they had to ask everybody. No they forgot who they has asked so it was a bit of a disaster.

Then they had to put the information onto the actual graph.
There's the data collection sheet, and there's my graph. I was just basically assessing their ability to co-operate with each other and then their ability to organise and collect data and their interaction in the class. It wasn't a formal numeracy assessment,
more like a life skills kind of a thing..

We had nice questions that we followed up for example
If you were having a party what food would you not have?
You have a restaurant what would you have on the menu yourself?
The most popular food. We spoke about adverts and…
It was a nice activity lends itself to a lot of different areas.
It's OBE-ish. Kids are Working together and ..
For example we're doing Mass. They're gonna weigh themselves as a group activity those for those that want to participate, and with that very graph I'm going to use that graph …
But its quite nice.

Teacher 2: I personally don't feel it's specific enough. Parents want more specific feedback about where they are in class. A lot of the

things we assessed fall under life skills And maths, numeracy, whatever you want to call it, reading skills can be so well analysed and can give a far more accurate picture than you get from this. Sometimes for Maths we just need to be able to say he can do it or he cant do it. He can do extremely well or he's just average, and not to be bogged down with how he co –operates In a group or how he thinks his way through it. I think that part is important, I mean how he interacts,
I think it is important that that part comes out. Not to be so positive.

The parent gets the report that says he can count to 50 and thinks "wow, he's doing great" , meanwhile the rest of the class can work up to 150. The reports are so vague and ambiguous for the parents. The old report had a 1 – 5 scale and the parents couldn't understand it. This is really very vague
Comment satisfied It's very restricted too. Can, middle, can't. You're frightened to say can because then you've got nowhere to move him to.
Positive comments all the time. No comparison between….others you as the teacher knows where the child is, the parent doesn't.

Teacher 5: The very bright ones always working hard getting attained so why should they carry on working their butt off? They're actually not happy working in groups. The slower child sits back and lets them do it as well. They are constantly up against the bright child and battles. Without differentiation they will never experience success, he wont at that level and success breeds success.

Teacher 4: It is important that…..Don't put bright child with weak child, your bright child works with the average child, and the average child works with the weaker. The bright child can't actually help someone who is not too sure which way to go