



Province of the
EASTERN CAPE
DEPARTMENT OF EDUCATION

**GRADE 3
NUMERACY
PROVINCIAL LESSON PLANS
TERM 3
2009**

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Introduction

This Resource Pack on Lesson Plans for **Grade 3 teachers** were developed by the Provincial Curriculum Advisors and Foundation Phase teachers.

The **Provincial Numeracy Learner Attainment Targets** documents were developed in 2008 by a Provincial Task Team for Grades R – 3. The attainment targets have been developed using the NCS Learning Outcomes and Assessment Standards from the Mathematics Learning Area. These targets indicate the expected level of achievement of learners at the end of each term. The attainment targets have a similar meaning to the 'milestones' in the Foundations for Learning Assessment Framework. The milestones have been infused into the Numeracy Learner Attainment Targets.

Teachers should use the weekly lesson plans in conjunction with the Provincial Numeracy Learner Attainment Targets. The Formal Assessment Tasks referred to as **FAT 1, 2 and 3** are clearly described in Section 3 of the Grade 3 Provincial Numeracy Learner Attainment Targets with the Methods, Forms and Tools for assessment.

The weekly lesson plans have been developed using:

- The Numeracy Learner Attainment Targets as a starting point.
- The NCS Learning Outcomes and Assessment Standards.
- Government Gazette 30880 of 14 March 2008, which outlines the Foundations for Learning Campaign, details the minimum expectations for the teaching of Literacy and Numeracy as well as providing timetabling and resourcing suggestions.
- Foundations for Learning: Foundation Phase Numeracy Lesson Plans.

The weekly lesson plans are intended to assist teachers to pace their teaching, give them guidance when planning their assessment tasks and provide suggestions to enrich teaching practice. If you follow these lessons systematically you will cover the curriculum and reach the milestones for Grade 3

They are not intended to be prescriptive and teachers are not expected to abandon good practice in order to blindly follow the plans.

The weekly lesson plans provide:

- An Annual Learning Programme Overview
- The Learning Outcomes and Assessment Standards targeted for every week.
- Weekly lesson plans with recommended number ranges for the third term.
- The NCS Learning Outcomes and Assessment Standards from the Mathematics Learning Area.
- A series of activities for the different components of Numeracy.
- Exemplars of the Formal Assessment Tasks for the third term. These Tasks are indicated as **FAT 1, 2 and 3**.
- Resources that will be useful to the teacher.
- Space for Reflection and recording of Barriers to Learning on a weekly basis.

The Provincial Weekly Lesson Plans in conjunction with the Provincial Learner Attainment Targets can therefore be used as clearly defined Lesson Plans although the format is different to the one most teachers are used to. It is recommended that the teacher breaks down the weekly plans into daily plans. However the plans are not prescriptive and allow you to use your own way of presenting the lessons.

ADAPTING THE WEEKLY LESSON PLANS

Learners progress at different rates and learn in different ways, and you, as the class teacher, are best able to pace teaching and learning to the needs of the learners. Teachers are free to introduce their own sequence and adapt the number ranges where necessary.

ANNUAL LEARNING PROGRAMME OVERVIEW: NUMERACY GRADE 3

	TERM 1	TERM 2	TERM 3	TERM 4
LEARNING OUTCOMES & ASSESSMENT STANDARDS	LO 1: AS 1; 2; 3; 4; 5; 6; 7; 8; 9; 10; 11; 12 LO 2: AS 1; 2; 3; 4; 5 LO 3: AS 1; 3; 4 LO 4: AS 1; 2; 5; 6.1 LO 5: AS 1; 2; 3; 4; 5	LO 1: AS 1; 2; 3; 4; 5; 6; 7; 8; 9; 10; 11; 12 LO 2: AS 1; 2; 3; 4; 5 LO 3: AS 1; 2.1; 2.2; 3; 4; 5; 6; 7 LO 4: AS 1; 2; 5; 6.1 LO 5: AS 1; 2; 3; 4; 5	LO 1: AS 1; 2; 3; 4; 5; 6; 7; 8; 9; 10; 11; 12 LO 2: AS 1; 2; 3; 4; 5 LO 3: AS 1; 2.1; 2.2; 5; 6; 7 LO 4: AS 1; 2; 5; 6.1 LO 5: AS 1; 2; 3; 4; 5	LO 1: AS 1; 2; 3; 4; 5; 6; 7; 8; 9; 10; 11; 12 LO 2: AS 1; 2; 3; 4; 5 LO 3: AS 1; 6; LO 4: AS 1; 2; 5; 6.1 LO 5: AS 1; 2; 3; 4; 5
TARGETS	Count physical objects to 100. Count forwards and backwards in 1s, 2s, 5s and 10s to 300. Count forwards and backwards in 20s, 25s, 50s and 100s to 300. Number names from 1 to at least 10 in the mother tongue (if not the LOLT) and one other local language. Number symbols and number names to 300 Order, describe and compare numbers to 300. Order, describe and compare common fractions ($\frac{1}{2}$ and $\frac{1}{4}$). Place value of digits in numbers to 300. Money problems and converting to 300. Equal sharing and grouping with solutions that also include fractions to 300. Addition and subtraction (0-300). Multiplication of 2-digit by 1-digit numbers (0-300). Division of 2-digit by 1-digit(0-99) Estimation Mental calculations (+ and -) to 20. Mental calculations (x) to 20. Building up and breaking down numbers to 300. Doubling and halving to 300. Number lines Rounding off in tens to 300. Explains own solutions to	Count forwards and backwards in 1s, 2s, 5s and 10s to 500 Count forwards and backwards in 20s, 25s, 50s and 100s to 500. Knows number names from 1 to at least 10 in the mother tongue (if not the LOLT) and one other local language. Number symbols and number names to 500 Order, describe and compare numbers to 500. Order, describe and compare common fractions ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{3}$). Place value of digits in numbers to 500. Money problems and converting to 500. Equal sharing and grouping with solutions that also include fractions to 500. Addition and subtraction (0-500) Multiplication of 2-digit by 1-digit numbers (0-500) Division of 2-digit by 1-digit (0-99) Estimation Mental calculations (+ and -) to 30. Mental calculations (x) to 30. Building up and breaking down numbers to 500. Doubling and halving to 500. Number lines Rounding off in tens to 500. Explains own solutions to problems.	Count forwards and backwards in 1s, 2s, 5s and 10s to 700 Count forwards and backwards in 20s, 25s, 50s and 100s to 700. Number symbols and number names to 700 Order, describe and compare numbers to 700. Order, describe and compare common fractions ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{3}$). Place value of digits in numbers to 700. Money problems and converting to 700. Equal sharing and grouping with solutions that also include fractions to 700. Addition and subtraction (0-700) Multiplication of 2-digit by 1-digit numbers (0-700) Division of 2-digit by 1-digit (0-99) Estimation Mental calculations (+ and -) to 40. Mental calculations (x) to 40. Building up and breaking down numbers to 700. Doubling and halving to 700. Number lines Rounding off in tens to 700. Explains own solutions to problems. Checks the solutions of peers. Copy and extend number sequences to 700. Create own number patterns to	Count forwards and backwards in 1s, 2s, 5s and 10s to 1 000 Count forwards and backwards in 20s, 25s, 50s and 100s to 1 000. Number symbols and number names to 1 000 Order, describe and compare numbers to 1 000. Order, describe and compare common fractions ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{3}$). Place value of digits in numbers to 1 000. Money problems and converting to 1 000. Equal sharing and grouping with solutions that also include fractions to 1 000. Addition and subtraction (0-1 000) Multiplication of 2-digit by 1-digit numbers (0-1 000) Division of 2-digit by 1-digit (0-99) Estimation Mental calculations (+ and -) to 50. Mental calculations (x) to 50. Building up and breaking down numbers to 1 000. Doubling and halving to 1 000. Number lines Rounding off in tens to 1 000. Explains own solutions to problems. Checks the solutions of peers. Copy and extend number sequences to 1 000. Create own number patterns to

	TERM 1	TERM 2	TERM 3	TERM 4
TARGETS	<p>problems. Checks the solutions of peers. Copy and extend patterns using physical objects or drawings. Copy and extend number sequences to 300. Create own number patterns to 300. Describe observed patterns. Identify, describe and copy geometric patterns. 2-D Shapes & 3-D objects Observe, create and describe a given 2-D shape. Lines of symmetry. Describe own position in relationship with a 3-D object. Time: digital and analogue Conversions between:</p> <ul style="list-style-type: none"> minutes and hours hours and days days and months. <p>Identify important days on the calendar. Length Distance around 2-D shapes. Collect, sort and order data. Pictographs and bar graphs Read and interpret information in representations of data. Read and interpret data in tables and lists.</p>	<p>Checks the solutions of peers. Copy and extend patterns using physical objects or drawings. Copy and extend number sequences to 500. Create own number patterns to 500. Describe observed patterns. Identify, describe and copy geometric patterns. 2-D Shapes & 3-D objects 2-D shapes on faces of 3-D objects Observe, create and describe a given 3-D object. Lines of symmetry. Recognise and describe 3-D objects from different positions. Read and interpret informal maps of school environment or an arrangement of 3-D objects and locate objects on the map. Describe own position in relationship with a 3-D object. Time: digital and analogue Conversions between:</p> <ul style="list-style-type: none"> minutes and hours hours and days days and months. <p>Important days on the calendar. Different calendars used in different cultures. Mass Distance around 2-D shapes Area of 2-D shapes using tiling. Collect, sort and order data. Pictographs and bar graphs Read and interpret information in representations of data. Read and interpret data in tables and lists.</p>	<p>700. Describe observed patterns. 2-D Shapes & 3-D objects 2-D shapes on faces of 3-D objects Recognise and describe 3-D objects from different positions. Draw and interpret informal maps of school environment or of an arrangement of 3-D objects and locate objects on the map. Time : digital and analogue Conversions between:</p> <ul style="list-style-type: none"> minutes and hours hours and days days and months. <p>Identify important days on the calendar. Capacity Area of 2-D shapes using tiling. Collect, sort and order data. Pictographs and bar graphs Read and interpret information in representations of data. Read and interpret data in tables and lists.</p>	<p>1 000. Describe observed patterns. 2-D Shapes & 3-D objects Recognise and describe 3-D objects from different positions. Draw and interpret informal maps of school environment or of an arrangement of 3-D objects and locate objects on the map. Time: digital and analogue Conversions between:</p> <ul style="list-style-type: none"> minutes and hours hours and days days and months. <p>Identify important days on the calendar. Length, Mass and capacity Area of 2-D shapes using tiling. Collect, sort and order data. Pictographs and bar graphs Read and interpret information in representations of data. Read and interpret data in tables and lists.</p>

WEEK 1

Learning Outcomes and Assessment Standards Grade 3: Week 1

Learning Outcome 1 - Numbers operations and relationships

AS 1: *Counts forwards and backwards in:*

- 1.1 The intervals specified in Grade 2 with increased number ranges;
- 1.2 twenties, twenty-fives, fifties and hundreds between 0 and at least 1000.

AS 3: *Knows, reads and writes number symbols and names from 1 to at least 1000*

AS 4: *Orders, describes and compares the following numbers:*

- 4.1 Whole numbers to at least 3 digit numbers

AS 5: *Recognizes the place value of digits whole numbers to at least 3-digit numbers.*

AS 7: *Solves and explains solutions to practical problems that involve equal sharing and grouping and that lead to solutions that also include unitary and non-unitary fractions (e.g. $\frac{1}{4}$, $\frac{3}{4}$).*

AS 8: *Can perform calculations, using appropriate symbols, to solve problems involving:*

- 8.1 Addition and subtraction of whole numbers with at least 3 digits
- 8.2 multiplication of at least whole 2-digit by 1-digit numbers;
- 8.4 estimation.

AS 9: *Performs mental calculations involving:*

- 9.1 addition and subtraction for numbers to at least 50.
- 9.2 multiplication of whole numbers with solutions to at least 50.

AS 10: *Uses the following techniques:*

- 10.1 Building up and breaking down numbers;
- 10.2 doubling and halving;
- 10.3 number-lines;

AS 11: *Explains own solutions to problems.*

AS 12: *Checks the solution given to problems by peers*

Learning Outcome 2 – Patterns, Functions and Algebra

AS 2: *Copies and extends simple number sequences to at least 1000*

Learning Outcome 4 – Measurement

AS 1: *Reads and writes analogue and digital clock time in terms of hours, half-hours, quarters of an hour and minutes.*

GRADE 3 LESSON PLAN – WEEK 1

Counting

- Learners count forwards and backwards in multiples of 1,2,5 and 10 in number range 0-700. Learners may use number line and numbers grid

e.g. 399, 400, 401, ____, ____, ____, ____, ____, ____ (forward in 1's)
 402, 404, 406, ____, ____, ____, ____, ____, ____ (forward in 2's)
 280, 285, 290, ____, ____, ____, ____, ____, ____ (forward in 5's)
 170, 180, 190, ____, ____, ____, ____, ____, ____ (forward in 10's)
 399, 398, 397, ____, ____, ____, ____, ____, ____ (backwards in 1's)
 500, 498, 496, ____, ____, ____, ____, ____, ____ (backwards in 2's)
 495, 490, 485, ____, ____, ____, ____, ____, ____ (backwards in 5's)
 480, 470, 460, ____, ____, ____, ____, ____, ____ (backwards in 10's)

These counting activities can be done orally as a whole class, starting at any number, or in groups on the mat, with written activities to consolidate.

Counting must be done for 10 minutes DAILY.

- Learners count forwards and backwards in multiples of 20's, 25's, 50's and 100's from any given number in the number range 0-700. Learners may use number line and numbers grid

e.g. 440, 460, 480, ____, ____, ____, ____, ____, ____ (forward in 20's)
 125, 150, 175, ____, ____, ____, ____, ____, ____ (forward in 25's)
 150, 200, 250, ____, ____, ____, ____, ____, ____ (forward in 50's)
 100, 200, 300, ____, ____, ____, ____, ____ (forward in 100's)

Number concept

- Learners know, read and write number symbols and names in the number ranges 1-700

e.g. 245 - two hundred and forty-five

Number name	Numeral
Three hundred and four	
	259
Four hundred and seventy-six	
	591
Two hundred and eighty-six	

- Learners order whole numbers in an ascending (smallest to biggest) and descending (biggest to smallest) order. Learners may use number line and numbers grid

e.g. Arrange the following numbers in ascending order (smallest to biggest)
 224, 802, 208, 548, 458, 422, 242, 437
 ____, ____, ____, ____, ____, ____, ____, ____

e.g. Arrange the following numbers in descending order (biggest to smallest)
523, 325, 199, 253, 278, 185, 366, 29

—, —, —, —, —, —, —, —

Mat work – hand out flashcards with numbers on them, and let the children get into order – either ascending or descending order.

Written tasks should be used for consolidation.

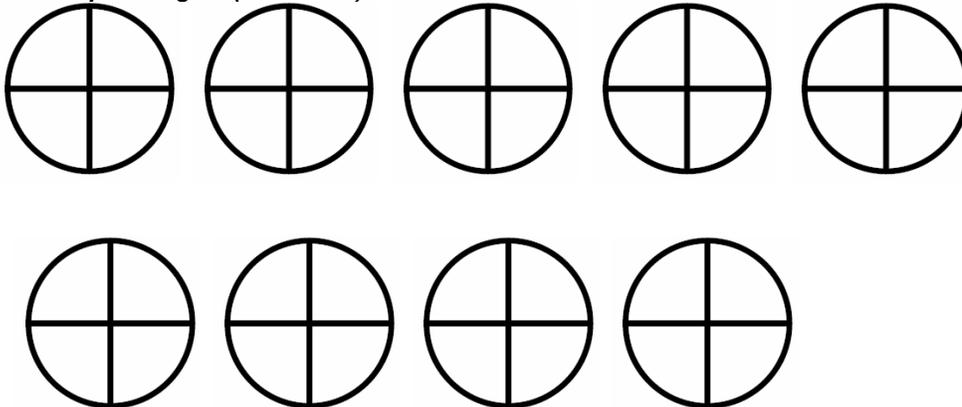
- Learners identify place value of a given digit in a number range 0-500. The learners must know the difference between hundreds, tens and units. These activities should be done with the use of flard cards. Learners make the number and then answer the questions relating to that or any given number.

e.g. What does the 1 stand for in 122? (100)
What is the value of the underlined number 481? (80)

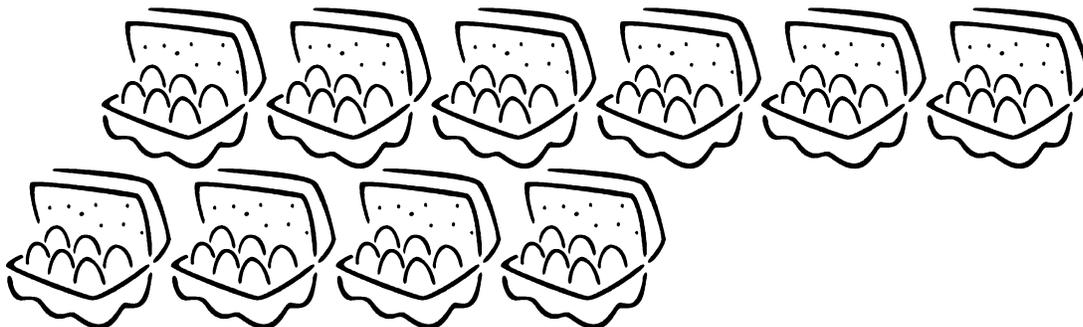
Fractions:

- Learners solve and explain solutions to practical problems that involve equal sharing and grouping where the remainder includes unitary fractions ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{3}$, etc.) and non-unitary fractions ($\frac{3}{4}$)

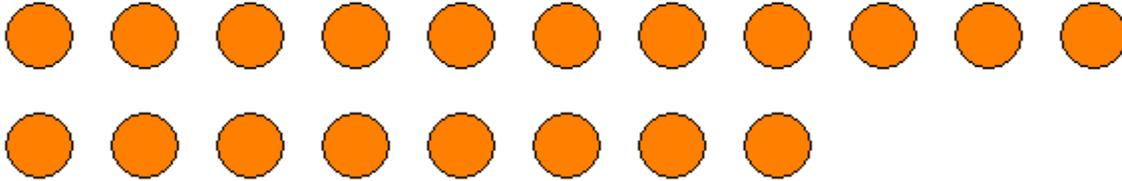
e.g. Mom has 9 pizzas that she must share between 4 people, how much pizza will each person get? (i.e. $9 \div 4 = \square$)



- How many eggs are there in 5 dozen?



- Share 19 oranges among 4 children.



Explain to the learners that they may “cut up” the left over oranges so that all the oranges are shared out. The learners may use objects or drawings to work this out. Answer: Each child gets and quarters

Calculations

- Learners perform addition and subtraction with whole numbers in the number range 0-700

e.g. 1. $343 + 124$
Method 1 for addition:
 $300 + 100 = 400$
 $40 + 20 = 60$
 $3 + 4 = 7$
 $400 + 60 + 7 = 467$

2. $254 + 135$
Method 2 for addition:
 $254 = 200 + 50 + 4$
 $+135 = 100 + 30 + 5$
 $389 = 300 + 80 + 9$

3. $476 - 212$
Method for subtraction:
 $476 - 200 = 276$
 $276 - 10 = 266$
 $266 - 2 = 264$
Note: It is important to keep the first number whole when subtracting.

- Learners perform multiplication of a 2-digit by a 1-digit number in the number range 0 – 700. Learners may use drawings or a number grid.

- 20×4
 - 30×3
 - 50×3
 - 40×5
 - 60×3

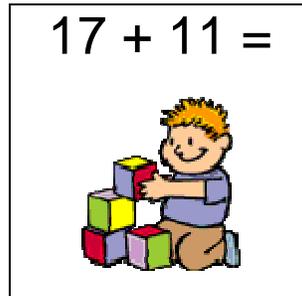
- 35×5
Method for multiplication of a 2-digit by a 1-digit number:
 $30 \times 5 = 150$
 $5 \times 5 = 25$
 $150 + 25 = 175$

- Learners estimate the answer to addition, subtraction, multiplication and division problems. Learners compare the calculated answer to the estimated answer.

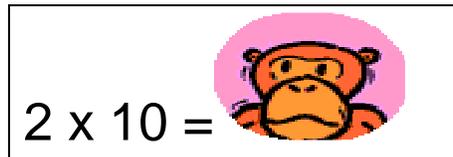
Sum	Estimated answer	Calculated answer	Difference between answers
$247 + 126$	400	373	27
$408 - 139$	256	269	13

43×5	250	215	35
$110 \div 10$	10	11	1

- Learners perform mental calculations using addition and subtraction with the answers to 40. Teachers use flash cards with the number symbols to represent the number combinations.



- Ask learners some simple word problems which they can work out in their heads.
e.g. There are 17 slices of bread. Mother cuts 12 slices more. How many slices will there be altogether?
- Learners perform mental calculations with multiplication with answers to 40. Teachers use flash cards with number symbols to represent the number combinations.



- Revise $\times 2$; $\times 5$; $\times 10$; $\times 4$; $\times 3$ tables
- Ask learners some simple word problems which they can work out in their heads.
Our school has 5 classrooms. Each classroom has 4 windows. how many windows are there altogether in the 5 classrooms?
- Learners break down numbers in the number range 0-500 and may use a number grid and a number line and flard cards.
e.g. $462 = 400 + 60 + 2$
 $462 = 300 + 100 + 50 + 10 + 2$
- Learners double and halve numbers with answers in the number range 1 - 500. Learners may use a number line, flard cards or a number grid.
○ e.g. **1. Double 243**
 $243 = 200 + 40 + 3$ (break up)
 $\rightarrow 400 + 80 + 6$ (double)
 $\rightarrow 486$ (add)
- 2. Halve 482**
 $482 = 400 + 80 + 2$ (break up)
 $\rightarrow 200 + 40 + 1$ (halve)
 $\rightarrow 241$ (add)

Doubling and Halving!

Complete the following questions:

1. Double 24 =
2. Double 35 =
3. Double 17 =
4. Double 56 =
5. Double 64 =
6. Double 59 =
7. Double 77 =
8. Double 84 =
9. Double 93 =
10. Double 105 =
11. Double 148 =
12. Double 253 =



Doubling Game!

- _ Take turns to throw a 1-6 dice.
- _ Write down the number you get.
- _ Double it and write down the answer.
- _ Take five turns each.
- _ The person with the biggest number wins; if there is a tie, the person with the smallest number wins.



Halve the numbers in the table below:

IN	24	18	38	44	56	62	94	126	158	142	186
OUT											

- Learners explain own solutions to problems.

Number patterns

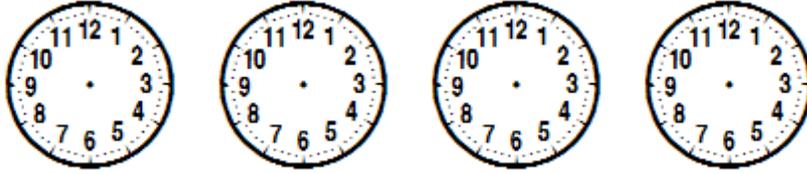
- Learners copy and extend simple number sequences in the number range 0-700 and may use number lines and number grid

e.g. 1, 2, 4, 8, 16, ____, ____, ____, ____, ____, ____,
517, 520, 523, 526, ____, ____, ____, ____, ____,
623, 619, 615, ____, ____, ____, ____,

Measurement

- Learners read and write hours, half hours, quarter past and minutes on an analogue and digital clock. Learners may use model clocks.
 - Learners set certain times on model clocks as pairs or individuals.
 - The teacher draw clock faces that show different times on individual cards and use it as flash cards
 - Learners draw times on blank clock faces on a worksheet
 - The teacher is advised to have a wall clock in the classroom so that the learners are able to read the time every day.

e.g. 1. Fill in the following times on the clocks below.
3 o'clock
Half past 10
Quarter past 7
Ten past 5



2. Now write these times as digital times.
e.g 3 o' clock = 03:00

Word sums

The learners must be encouraged to do their word sums using the three steps shown below. This will assist the educator in identifying any areas which need re-inforcement/consolidation, and it will also aid the learner in his explanation of how he solved his problem.

1. Dad bought 135 sweets, and mom bought 148 sweets. How many sweets did they buy altogether?

e.g. $135 + 148 = \square$

$$100 + 100 = 200$$

$$30 + 40 = 70$$

$$5 + 8 = 13$$

$$200 + 70 + 10 + 3 = 283$$

They bought 283 sweets altogether.

2. A farmer had 196 sheep. He sold 68 sheep, how many does he have left?
3. Freddy had 392 silkworms. Shane gives him another 163. How many silkworms does Freddy have now?
4. Dad has R258 in his wallet. How much more money does he need, if he wants to buy a CD player for R393?
5. A truck is carrying 438 bags of mielies. After off-loading some bags at the market, 186 bags were left on the truck. How many bags were off-loaded at the market?

Resources:

Counters, abacus, number grid(1000 block), flard cards, flash cards with number symbols and number names, model clocks, worksheets with blank clock faces.

Reflections:

Barriers:

WEEK 2

Learning Outcomes and Assessment Standards Grade 3: Week 2

Learning Outcome 1 - Numbers operations and relationships

AS 1: *Counts forwards and backwards in:*

- 1.1 The intervals specified in Grade 2 with increased number ranges;
- 1.2 twenties, twenty-fives, fifties and hundreds between 0 and at least 1 000.

AS 3: *Knows, reads and writes number symbols and names from 1 to at least 1000*

AS 4: *Orders, describes and compares the following numbers:*

- 4.1 Whole numbers to at least 3 digit numbers

AS 5: *Recognizes the place value of digits whole numbers to at least 3-digit numbers.*

AS 7: *Solves and explains solutions to practical problems that involve equal sharing and grouping and that lead to solutions that also include unitary and non-unitary fractions (e.g. $\frac{1}{4}$, $\frac{3}{4}$).*

AS 8: *Can perform calculations, using appropriate symbols, to solve problems involving:*

- 8.1 Addition and subtraction of whole numbers with at least 3 digits
- 8.2 multiplication of at least whole 2-digit by 1-digit numbers;
- 8.4 estimation.

AS 9: *Performs mental calculations involving:*

- 9.1 addition and subtraction for numbers to at least 50.
- 9.2 multiplication of whole numbers with solutions to at least 50.

AS 10: *Uses the following techniques:*

- 10.1 Building up and breaking down numbers;
- 10.2 doubling and halving;
- 10.3 number-lines;

AS 11: *Explains own solutions to problems.*

AS 12: *Checks the solution given to problems by peers*

Learning Outcome 2 – Patterns, Functions and Algebra

AS 2: *Copies and extends simple number sequences to at least 1000*

Learning Outcome 4 – Measurement

AS1: *Reads and writes analogue and digital clock time in terms of hours, half hours, quarters of an hour and minutes*

Learning Outcome 5 – Data Handling

AS 1: *Collects data (alone and/or as a member of a group or team) in the classroom and school environment to answer questions posted by the teacher and class (e.g. How many learners walk to school).*

AS 2: *Sorts, orders and organizes own and supplied data by one or more attributes for a particular reason.*

AS 3: *Draws pictures and constructs pictographs and bar graphs that have a 1 -1 correspondence between own data and representation.*

AS 5: *Reads and interprets data presented in simple tables and lists*

GRADE 3 LESSON PLAN – WEEK 2

Counting

- Learners count forwards and backwards in multiples of 1,2,5 and 10 in number range 0-700
- Learners count forwards and backwards in multiples of 20's, 25's ,50's and 100's from any given number range 0-700
e.g. 500, 520, 540, ____, ____, ____, ____, ____, 660 (forward in 20's)
See Week 1 for more examples of counting activities)
- Learners know read and write number symbols and names in the number ranges 1-700

Number name	Numeral
Five hundred	500
Three hundred and twenty-five	
	108
Twenty-nine	
	56
	497
Two hundred and eighteen	
	345

Number concept

- Learners order whole numbers in an ascending and descending order. Learners may use number lines and number grids.
e.g. Order the numbers below in ascending order.

261	695	402	462	486
546	254	23	489	825
50	200	980	321	756

- Learners identify place value of a given digit in a number range 0-700.
e.g. Circle the digit that is the same as the written amount.

Sixty **3(6)0**
Three hundred 365
Twenty 826
Nine 509
Five hundred 578
Seventy 973

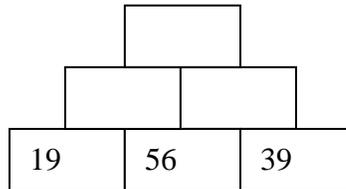
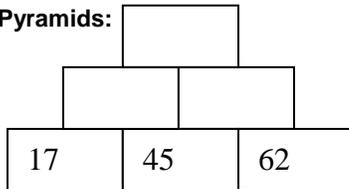
- Learners solve and explain solutions to practical problems that involve equal sharing and grouping where that leads to solutions that also include unitary fractions ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{3}$, etc.) and non-unitary fractions ($\frac{3}{4}$)

- e.g. 1. I have 300 sweets I give $\frac{1}{3}$ to Sipho. How many sweets does Sipho get?
 (The learners may work this out however they want to – but they must remember to show their three steps – refer to Lesson plan – week 1)
2. Lerato visits Ntombi who is sick in bed. Lerato gives Ntombi a bar of chocolate as a get-well present. Ntombi breaks the chocolate into four equal pieces. Draw the chocolate to show how Ntombi did this. What fraction name can we give each piece? Write the fraction.

Calculations

- o Learners perform addition and subtraction with whole numbers in the number range 0 – 700.
 e.g. 1. $345 + 167$ 2. $289 + 316$ 3. $579 - 342$ 4. $652 - 125$

Pyramids:

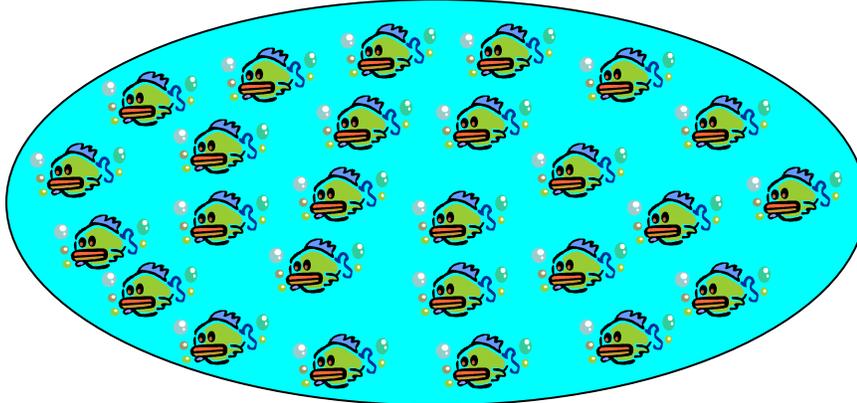


- o Learners perform multiplication of a 2-digit by a 1-digit number in the number range 0 – 700. Learners may use drawings or a number grid.

e.g. $45 \times 2 = \square$
 $45 + 45 = 40 + 40 + 5 + 5 = 90$ or $40 \times 2 = 80$
 $45 \times 2 = 90$ $5 \times 2 = 10$
 $80 + 10 = 90$

- o Learners estimate the answer to addition, subtraction, multiplication and division problems. Learners compare the calculated answer to the estimated answer.

e.g. *First estimate how many fish there are in each pond. Then count the fish, and work out the difference between your estimation and the actual number of fish.*



Estimate

Count

Difference

- o Learners perform mental calculations using addition and subtraction with the answers to 40. Teachers use flash cards with the number symbols to represent the number combinations. e.g.

$17 - 4 =$	$20 - 9 =$	$18 - 14 =$
$6 + 12 =$	$10 + 9 =$	$0 + 20 =$
$17 + 3 =$	$17 - 10 =$	$19 - 6 =$
$18 - 12 =$	$19 - 4 =$	$9 + 8 =$
$2 + 17 =$	$1 + 17 =$	$20 - 18 =$
$5 + 13 =$	$17 - 14 =$	$12 + 6 =$
$19 - 15 =$	$20 - 13 =$	$15 + 4 =$
$4 + 14 =$	$15 + 2 =$	$18 - 16 =$

- o Learners perform mental calculations using multiplication with answers to 40. Teachers use flash cards with number symbols to represent the number combinations.
e.g. 3×3 9×2 5×4 7×5 5×10 (Revise $\times 2$; $\times 5$; $\times 10$; $\times 3$; $\times 4$ tables)
- o Learners break down numbers in the number range 0-700 and may use a number grid and a number line.
e.g. $629 = 600 + 20 + \underline{\quad}$ $508 = \underline{\quad} + \underline{\quad}$
- o Learners double and halve numbers with answers in the number range 1 - 700. Learners may use a number line, flash cards or a number grid.



- e.g. One cow has two eyes.
- 12 cows have _____ eyes.
 - 20 cows have _____ eyes.
 - 13 cows have _____ eyes.
 - 25 cows have _____ eyes.
 - 30 cows have _____ eyes.
 - 15 cows have _____ eyes.
 - 16 cows have _____ eyes.
 - 40 cows have _____ eyes.
 - 9 cows have _____ eyes.



These two hungry dogs have to share the meat. Work out the answers.

If there are 12 chops, they each get _____ chops.

If there are 40 chops, they each get _____ chops.

If there are 24 chops, they each get _____ chops.

If there are 32 chops, they each get _____ chops.

- Learners explain own solutions to problems.

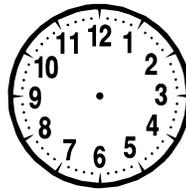
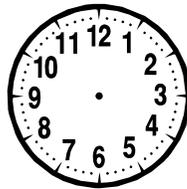
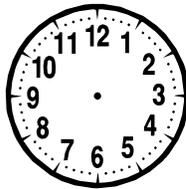
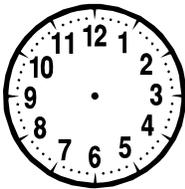
Number patterns

- Learners copy and extend simple number sequences in the number range 0-500 and may use number lines and number grid.

335, 337, 339, ____, ____, ____, ____, ____, ____, ____, ____,
 253, 258, 263, ____, ____, ____, ____, ____, ____, ____, ____,
 406, 416, 426, ____, ____, ____, ____, ____, ____, ____, ____,
 517, 512, 507, ____, ____, ____, ____, ____, ____, ____, ____,
 256, 276, 296, ____, ____, ____, ____, ____, ____, ____, ____,

Measurement

- Learners read and write hours, half hours, quarter past and minutes on an analogue and digital clock. Learners may use model clocks.



e.g. Draw the hands on the clocks.

quarter to 12

twenty past 8

quarter past 2

half past 11

Now write these times as digital times:

Data Handling

- Learners collect data in the classroom and school environment according to one attribute.
- Learners answer questions about the collections.
- Learners sort, order and organise the supplied data according to one attribute. Learners draw a bar graph to show correspondence between supplied data and representation. Learners use colouring in.

e.g. This graph shows vegetables liked by 7 learners.

✓ - likes the vegetable

x - does not like the vegetable

	Carrots	Peas	Pumpkin	Potatoes	Green beans
Luke	X	X	✓	✓	X
Karl	✓	✓	✓	✓	X
Zoliswa	X	X	✓	✓	X
Sharifa	✓	✓	X	✓	✓
Kgabo	X	✓	X	✓	X
Leila	✓	✓	✓	✓	X
Sarah	X	✓	✓	✓	X

- Using this information draw a bar graph, using the vegetables as your attribute.
 1. Which vegetable is the most popular?
 2. Which vegetable is the least popular?
 3. How many learners like: (i) carrots, (ii) pumpkin and (ii) peas?

Word sums

1. In a school there are four Grade 3 classes. Two classes each have 34 learners, there are 23 in the third and 31 in the fourth class. How many learners are there altogether?
2. Ann and Jim spent their holiday on a farm. They helped collect the eggs one day. 312 eggs were collected from 12 hens. How many eggs did each hen lay?
3. 19 cars have how many more wheels than 19 bicycles?
4. There are 12 months in every year. If I am 9 years old, how many months old am I?
5. Thando buys twelve 45c stamps and four 65c stamps. How much change will he receive from R10?

Resources: Counters, abacus, number grid(1000 block), flard cards, flash cards with number symbols and number names, model clocks.

Reflections:

Barriers:

WEEK 3

Learning Outcomes and Assessment Standards Grade 3: Week 3

Learning Outcome 1 - Numbers operations and relationships

AS 1: *Counts forwards and backwards in:*

- 1.1 The intervals specified in Grade 2 with increased number ranges;
- 1.2 twenties, twenty-fives, fifties and hundreds between 0 and at least 1 000.

FAT 1

AS 3: *Knows, reads and writes number symbols and names from 1 to at least 1000*

FAT 1

AS 4: *Orders, describes and compares the following numbers:*

- 4.1 Whole numbers to at least 3 digit numbers

FAT 1

AS 5: *Recognizes the place value of digits whole numbers to at least 3-digit numbers.*

FAT 1

AS 7: *Solves and explains solutions to practical problems that involve equal sharing and grouping and that lead to solutions that also include unitary and non-unitary fractions (e.g. $\frac{1}{4}$, $\frac{3}{4}$).*

FAT 1

AS 8: *Can perform calculations, using appropriate symbols, to solve problems involving:*

- 8.1 Addition and subtraction of whole numbers with at least 3 digits
- 8.2 multiplication of at least whole 2-digit by 1-digit numbers;
- 8.4 estimation.

FAT 1

AS 9: *Performs mental calculations involving:*

- 9.1 addition and subtraction for numbers to at least 50.
- 9.2 multiplication of whole numbers with solutions to at least 50.

FAT 1

AS 10: *Uses the following techniques:*

- 10.1 Building up and breaking down numbers;
- 10.2 doubling and halving;
- 10.3 number-lines;

FAT 1

AS 11: *Explains own solutions to problems.*

AS 12: *Checks the solution given to problems by peers*

Learning Outcome 2 – Patterns, Functions and Algebra

AS 2: *Copies and extends simple number sequences to at least 1000*

FAT 1

Learning Outcome 3 – Space and Shape (Geometry)

AS 1: *Recognizes, identifies and names two-dimensional shapes and three-dimensional shapes in the environment and in pictures including*

- boxes (prisms), balls (spheres) and cylinders
- Triangles, squares and rectangles
- Circles, Cones and pyramids

Learning Outcome 4 – Measurement

AS1: *Reads and writes analogue and digital clock time in terms of hours, half hours, quarters of an hour and minutes*

AS 2: Solves problems involving calculations with and conversions between:
2.1 Minutes – Hours

Learning Outcome 5 – Data Handling

AS 1: Collects data (alone and/or as a member of a group or team) in the classroom and school environment to answer questions posted by the teacher and class (e.g. How many learners walk to school).

AS 2: Sorts, orders and organizes own and supplied data by one or more attributes for a particular reason.

AS 3: Draws pictures and constructs pictographs and bar graphs that have a 1 -1 correspondence between own data and representation.

AS 5: Reads and interprets data presented in simple tables and lists

GRADE 3 LESSON PLAN – WEEK 3

Counting

- Learners count forwards and backwards in multiples of 1,2,5 and 10 in number range 0-700
- Learners count forwards and backwards in multiples of 20's, 25's ,50's and 100's from any given number range 0-700

FAT 1: Practical in small groups

Learners count forwards and backwards in multiples and intervals of 1,2,5, and 10 on number grid in the number range 0 – 700.

FAT 1: Written

Learners count on a number line on a worksheet in the number range 0 - 700.

FAT 1: Practical in small groups

Learners count forwards and backwards 20's, 25's, 50's and 100's in the number range 0 - 700.

FAT 1: Written

Learners count forwards and backwards in 20's, 25's, 50's and 100's in the number range 0 – 700 on a worksheet.

Number concept

- Learners know read and write number symbols and names in the number ranges 1-700
e.g. **Write down the following numbers:**
one hundred and one
four hundred and thirty -four
three hundred and fifty -two
six hundred and four

Write in words:

424

267

398

664

545

FAT 1: Practical in small groups/Written

Learners write number names and symbols in the number range 1 -700.

- Learners order whole numbers in an ascending and descending order. Learners describe the position of numbers 0 – 700 using before, after, between. Learners may use a number line or a number grid.

FAT 1: Practical in small groups.

Arrange numbers from **big to small or small to big** with number cards,
e.g. 687, 589, 356, 678.

Discuss before, after, 3 less than, 5 more than,

FAT 1: Written

Learners order numbers from biggest to smallest or smallest to biggest and answer questions about the numbers on a worksheet.

- Learners identify place value of a given digit in a number range 0-700
e.g. **478 →400 or 4 hundreds**

FAT 1: Practical in small groups

Learners identify the place value of a given digit in a number in the number range 0 - 700

e.g. 659 600 or 6 hundreds
566 60 or 6 tens

- Learners solve and explain solutions to practical problems that involve equal sharing and grouping where that leads to solutions that also include unitary fractions ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{3}$, etc.) and non-unitary fractions ($\frac{3}{4}$)

FAT 1: Practical in small groups/Written

The teacher asks word problems in the number range 0 - 700. Learners use concrete apparatus, drawings or calculations to solve their problems

e.g. Bheki collects marbles. He has 84 red marbles. He shares these red marbles among 4 of his friends. How many marbles do each of his friends get?

e.g. Tobeko must read 664 pages in 3 days. How many pages must he read in one day?

e.g. There are 125 slices of cheese in a packet. How many slices of cheese are there in 5 packets?

HINT: *The learners write their drawings or calculations in their class workbooks, on slates or white boards.*

FAT 1: Written

Learners solve word problems on a worksheet.

Calculations

- Learners perform addition and subtraction with whole numbers in the number range 0-700

e.g. 1. $450+115+37$
 $400 + 100 = 500$
 $50 + 10 + 30 = 90$
 $5 + 7 = 12$
 $500 + 90 + 10 + 2 = 602$

2. $698-534$
 $698 - 500 = 198$
 $198 - 30 = 168$
 $168 - 4 = 164$

Hint: Keep the first number whole when subtracting.

3. There are 3 camps with sheep on the farm. In the first camp there are 254 sheep, in the second camp there are 271 sheep and in the third camp there are 171 sheep. How many sheep does the farmer have?

FAT1: Practical in small groups/Written

The teacher asks word problems with addition and subtraction sums in the number range 0 - 700. The learners solve the problems using counters, drawings or calculations.

e.g. There are 227 red crayons and 397 blue crayons.
How many crayons are there together?

e.g. There are 672 passengers on the aeroplane.
There are 438 females on the plane, how many males are there?

HINT: *The learners write their drawings or calculations in their class workbooks, on slates or white boards.*

FAT 1: Written

Learners do calculations with addition and subtraction on a worksheet.

- Learners perform multiplication of a 2-digit by a 1-digit number in the number range 0 – 700. Learners may use drawings or a number grid.

- **Build up the table of 9**

X9	1	2	3	4	5	6	7	8	9	10	11	12
	9	18	27									

- **Multiplication of 2-digits by a 1-digit number:**

e.g. 1. $59 \times 3 = \square$

2. $2 \times 43 = \square$

3. $5 \times 99 = \square$

4. There are 6 boxes with packets of sugar. If there are 45 packets in a box, how many packets are there?

FAT 1: Practical in small groups/Written

The teacher asks word problems in the number range 0 - 700. The learners solve the problems using counters, drawing or calculations

e.g. A large aeroplane has 6 seats in a row. How many seats would there be if there are 54 rows?

HINT: The learners write their drawings or calculations in their class workbooks, on slates or white boards.

FAT 1: Written

Learners solve word problems on a worksheet.

- Learners estimate the answer to addition, subtraction, multiplication and division problems. Learners compare the calculated answer to the estimated answer.

FAT 1: Practical in small groups.

The teacher asks addition, subtraction and multiplication sums in the number range 0 – 40.

- Learners break down numbers in the number range 0-700 and may use a flard cards.

e.g. $297=200+90+7$ or $200+50+40+3+4$

FAT 1: Practical in small groups/Written

The teacher gives each learner a number between 1 – 700. The learners break down and build up the given number in 5 different ways.

HINT: The learners write their sums in their class workbooks, on slates or white boards.

- Learners build up numbers in the number range 1-700 and may use a number grid or a number line

e.g. 1. $100+100+6=206$

2. $\dots + \dots + \dots =284$

3. $300 + \dots + 8 = 348$

4. $\dots + \dots + 2 = 692$

- Learners double numbers with answers in the number range 1 - 700. Learners may use a number line, flard cards or a number grid.

e.g. double 189

double 278 (See method in Lesson Plan Week 1)

- Learners halve numbers in the number range 1 -700. Learners may use a number line, flard cards or a number grid.

e.g. halve 276

halve 199 (See method in Lesson Plan Week 1)

- Learners explain own solutions to problems

Number patterns

- Learners copy and extend simple number sequences in the number range 0-700 and may use number lines and number grid

e.g. 320, 340, 360....
98,198,298.....

FAT 1: Written

Learners copy and complete a number pattern in the number range 0 –700 on a worksheet.

Measurement

- Learners read and write hours, half hours, quarter past and minutes on an analogue and digital clock. Learners may use model clocks.
- Learners solve problems involving calculations with and conversions between - Minutes ↔ hours
e.g. 5 hours = □ minutes
135 minutes = □ hours + □ minutes
How many minutes are there in 4 ½ hours?
How many hours and minutes are there in 140 minutes?

Data Handling

- The teacher gives the learners a list of the average rainfall in mm per year of 5 cities.
- The learners are asked to draw a bar graph to represent the given data.
- The learners use different colours to illustrate the rainfall in millimeters.

The rainfall of different cities

50mm				
50mm		■		
30mm		■	■	
20mm	■	■	■	■
10mm	■	■	■	■
	Port Elizabeth	Cape Town	Durban	Johannesburg

- The learners are asked questions based on the graph:
(i) Which city had the most rainfall?
(ii) Which city had the least rainfall?
(iv) How many milliliters do e.g. Cape Town and Johannesburg have together?
(v) What is the difference in millimeters between the city that had the most and the city that had the least rainfall?

Word sums

1. Buhle has R216 in her account. Adam has R179. How much money must Buhle take out of her account to leave the same amount as Adam's?
2. Totalsports have 445 rugby balls and Sportsmans have 379 rugby balls. How many more rugby balls do Sportsmans need to have the same number as Totalsports?
3. Mrs Williams bought 186 cans of coke for the school tuckshop. If she bought another 219 cans, how many cans would she have altogether?
4. There are 33 pupils in the class. Each pupil has 4 pencils. How many pencils are there in the class?
5. Dean weighs 28kg, Zikhona weighs 33kg and Dale weighs 48kg. What is their combined mass?

Resources: Counters, abacus, number grid(1000 block), flard cards, flash cards with number symbols and number names, model clocks,2-D shapes, 3-D objects

Reflections:

Barriers:

WEEK 4

Learning Outcomes and Assessment Standards Grade 3: Week 4

Learning Outcome 1 - Numbers operations and relationships

- AS 1: Counts forwards and backwards in:**
1.1 The intervals specified in Grade 2 with increased number ranges;
1.2 twenties, twenty-fives, fifties and hundreds between 0 and at least 1 000.
- AS 3: Knows, reads and writes number symbols and names from 1 to at least 1000**
- AS 4: Orders, describes and compares the following numbers:**
4.1 Whole numbers to at least 3 digit numbers
4.2 Common fractions including halves, quarters and thirds ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{3}$)
- AS 5: Recognizes the place value of digits whole numbers to at least 3-digit numbers.**
- AS 6: Solves money problems involving totals and change in rands and cents, including converting between rands and cents**
- AS 7: Solves and explains solutions to practical problems that involve equal sharing and grouping and that lead to solutions that also include unitary and non-unitary fractions (e.g. $\frac{1}{4}$, $\frac{3}{4}$).**
- AS 8: Can perform calculations, using appropriate symbols, to solve problems involving:**
8.1 Addition and subtraction of whole numbers with at least 3 digits
8.2 multiplication of at least whole 2-digit by 1-digit numbers;
8.3 division of at least whole 2-digit by 1-digit numbers
8.4 estimation.
- AS 9: Performs mental calculations involving:**
9.1 addition and subtraction for numbers to at least 50.
9.2 multiplication of whole numbers with solutions to at least 50.
- AS 10: Uses the following techniques:**
10.1 Building up and breaking down numbers;
10.2 doubling and halving;
10.3 number-lines;
10.4 rounding off in tens
- AS 11: Explains own solutions to problems.**
- AS 12: Checks the solution given to problems by peers**

Learning Outcome 2 – Patterns, Functions and Algebra

- AS 2: Copies and extends simple number sequences to at least 1000**

- AS 4: Describes observed patterns**

Learning Outcome 3 – Space and Shape (Geometry)

- AS 1: Recognizes, identifies and names two-dimensional shapes and three-dimensional objects in the environment and in pictures including:**
- Boxes (prisms), Balls (spheres) and cylinders
 - Triangles, squares and rectangles
 - Circles, Cones and pyramids
- AS 2: Describes, sorts and compares two-dimensional shapes and three-dimensional objects in pictures and the environment, including**
2.1 Two-dimensional shapes in or on the faces of three-dimensional objects;

Learning Outcome 4 – Measurement

- AS 1: Reads and writes analogue and digital clock time in terms of hours, half-hours, quarters of an hour and minutes.**
- AS 2: Solves problems involving calculations with and conversions between:**
2.1 Minutes – Hours
2.3 Days – Months

AS 5: *Estimates, measures, compares and orders three-dimensional objects using non-standard and standard measures.*

- Mass (e.g. packets, kilograms);
 - Capacity (e.g. bottles, litres);
 - Length (e.g. desk lengths, metres)
-

Learning Outcome 5 – Data Handling

AS 1: *Collects data (alone and/or as a member of a group or team) in the classroom and school environment to answer questions posted by the teacher and class (e.g. How many learners walk to school).*

AS 2: *Sorts, orders and organizes own and supplied data by one or more attributes for a particular reason.*

AS 3: *Draws pictures and constructs pictographs and bar graphs that have a 1 -1 correspondence between own data and representation.*

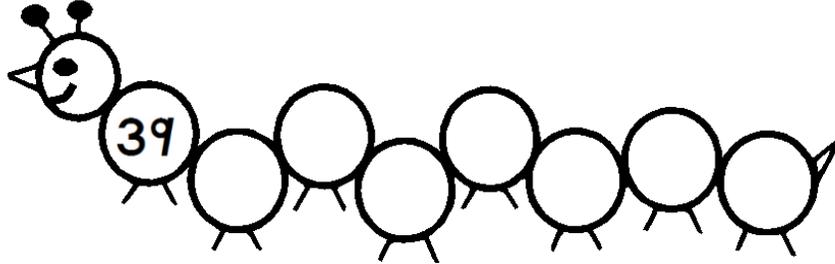
AS 5: *Reads and interprets data presented in simple tables and lists*

GRADE 3 LESSON PLAN – TERM 3 WEEK 4

Counting

- Learners count forwards and backwards in multiples of 1,2,5 and 10 in number range 0-700

e.g. Count on in 10's or 5's or 2's



- Learners count forwards and backwards in multiples of 20's, 25's ,50's and 100's from any given number range 0-700

Learners must use their knowledge of number patterns and relationships and apply it, e.g.

Count in 20s:

120 140 160 180 200

220 240

320

Count in 25s:

425 450 475 500

525 550

625 650 700 etc

Count in 100s

1 2 3 4 5

100 200 300 400 500 etc

- Can the learners recognize the patterns and relationships?
React to questions like the following:
 - how many hundreds have you counted?
 - which number will be your last number if you count 3 hundreds forwards from 270?
 - which number will be your last number if you count two 25s backwards if you start with 650?
 - how many 50s have I counted back from 700 to end at 550?
 - how many 25s have I counted on from 400 to end at 625?
- Draw a circle around the numbers that are multiples of 5: 215 235 252 255 259 295
- Draw a circle around the odd numbers: 150 375 600 425 350 557 500 625
- Draw a circle around the even numbers: 700 111 522 333 544 455 266 677

Number Concept

- Learners know, read and write number symbols and names in the number ranges 1-700

This is a practical lesson. Give each learner a card. Half the learners will have cards with 3 digit numbers (e.g. 326, 648) and the other half of the class will have cards with the same 3 digit numbers, but written in words (three hundred and twenty-six, six hundred and forty-eight). You know how

many learners there are in the class so make the cards accordingly. Shuffle the cards and give one card to each learner. They will be asked to move around the class and look for the learner who has the same number either in numbers or words. All learners will eventually find their partners.

- Learners order whole numbers in an ascending and descending order. Learners describe the position of numbers 0 – 700 using before, after, between. Learners may use a number line or a number grid.

e.g.

- Order the following numbers in ascending (smallest to biggest) order.

285	398	110	532	325	528	101	421

- Learners describe the position of numbers 0-700 using before, after, between.e.g.

What number comes before 535?

What number comes in between 526 and 528

What number is 2 less than 643, 3 more than 529, etc

- Learners identify place value of a given digit in a number range 0-700

e.g. 378 →300 or 3 hundreds

- Learners compare and describe $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{3}$ with a whole or with each other.

e.g. Which is the biggest? $\frac{1}{4}$ or $\frac{1}{3}$?

Which is the smallest? $\frac{1}{2}$ or $\frac{1}{4}$?

Which is the biggest? $\frac{1}{4}$ or $\frac{3}{4}$?

Which is the is the biggest 1 or a $\frac{1}{3}$?

1/2		1/2	
1/4	1/4	1/4	1/4

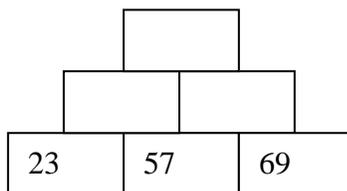
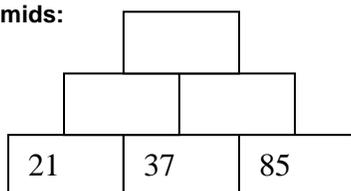
Calculations

- Learners perform addition and subtraction with whole numbers in the number range 0-700

1. $452 + 139$

2. $687 - 325$

Pyramids:



- Learners perform multiplication of a 2-digit by a 1-digit number in the number range 0 – 700. Learners may use drawings or a number grid.

- Revise the table of 9

- Multiplication of 2-digits by a 1-digit number

e.g.

- | | | |
|----------------------------|----------------------------|----------------------------|
| 1. $55 \times 5 = \square$ | 2. $7 \times 43 = \square$ | 3. $4 \times 57 = \square$ |
| $50 \times 5 = 250$ | $7 \times 40 = 280$ | |
| $5 \times 5 = 25$ | $7 \times 3 = 21$ | |
| $250 + 25 = 275$ | $280 + 21 = 301$ | |

4. The Grade 3 learners are going on a trip and the bus costs R150 to hire. There are 46 learners in the class.
- a) If they each bring R4, will there be enough money, or too little? How much too much, or how much too little?
5. Ask learners to first estimate the answer and then to calculate the answer and compare the 2 answers

Method: Step 1: $46 \times 4 = \square$

$$40 \times 4 = 160$$

$$6 \times 4 = 24$$

$$160 + 24 = 184$$

Step 2: $184 - 150 = 34$

There is R34 too much.

- Learners perform mental calculations using addition and subtraction with the answers to 40. Teachers use flash cards with the number symbols to represent the number combinations.

e.g. $6 + 12 = \square$
 $20 - 4 = \square$
 $15 - 8 = \square$
 $17 + 3 = \square$
 $18 - 6 - 2 + 3 = \square$

Ask learners some simple word problems which they can work out in their heads

- Learners perform mental calculations using multiplication with answers to 40. Teachers use flash cards with number symbols to represent the number combinations.

e.g. $5 \times 4 = \square$ $9 \times 2 = \square$ $6 \times 3 = \square$ $5 \times 3 = \square$ $3 \times 6 = \square$

- Give the learners a simple word problem to solve e.g. there are 17 children playing soccer. Four children join them. How many feet can be seen? Ask a learner to come and write the number sentence on the board ($17+4 = 21$, $21 \times 2 = 42$). Repeat this activity a few times.

- Learners divide a 2-digit number by a 1-digit number with solutions with and without remainders. Learners may use counters (concrete) or drawings (semi-concrete).

e.g. $26 \div 2 = \square$
 $28 \div 4 = \square$
 $35 \div 5 = \square$
 $27 \div 3 = \square$

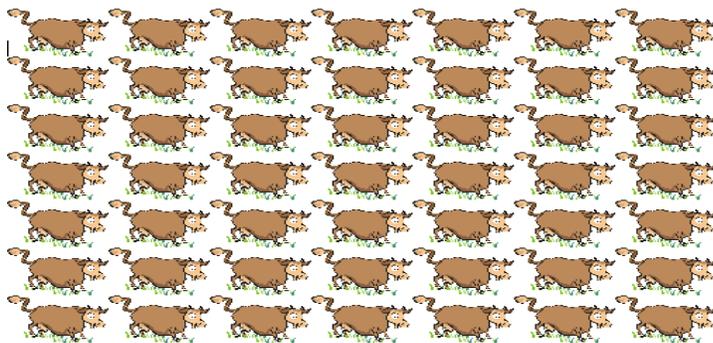
Ask learners some simple word problems which they can work out in their heads

- Mom bought 17 toffees and her two greedy children ate them all. How many toffees did they each eat? How many did they eat if they each ate the same amount?

- Mom bought 17 marbles for her two children. How many did they each get?

Discuss why the two answers are not the same. (*you can cut a toffee, but you cannot cut a marble.*)

e.g. The farmer has 49 cows, he wants to put them in 7 camps. How many are there in each camp?
(semi-concrete)



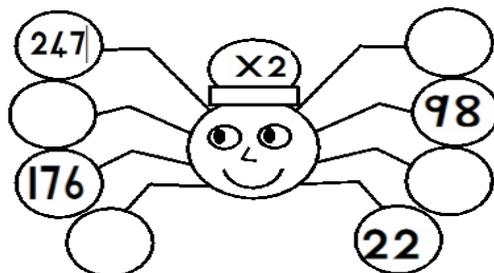
- Learners break down numbers in the number range 0-700 and may use flard cards.

e.g. $297=200+90+7$ or $200+50+40+3+4$

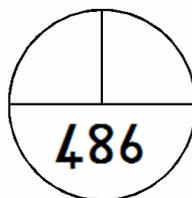
- Learners build up numbers in the number range 1-700 and may use a number grid or a number line

e.g. $100+100+6=206$
..... + 80 + =284

- Learners double numbers with answers in the number range 1 - 700. Learners may use a number line, flard cards or a number grid.



- Learners halve numbers in the number range 1 -700. Learners may use a number line, flard cards or a number grid.



- Learners solve money problems in the number range 0-700 using R200, R100,R50, R20, R10,R5, R2, R1, 50c, 20c, 10c,5c They may use real or play money.

Examples:

- Learners pack out a given amount such as 75c, R12,65, R82,90, R453, R1,85c. (*Use the least amount of notes and coins*)
- Learners exchange R100 and R50 notes for smaller notes and/or coins e.g
 $R100 = R20 + R20 + R20 + R20 +R20.$
 $R100 = R50 + R20 + R20 + R10$

- Learners discuss alternative combinations to make up the same amount. e.g.
 $R9,50 = R5,00 + R2,00 + R2,00 + 50c$
 $R9,50 = R2,00 + R2,00 + R2,00 + R2,00 + R1,00 + 20c + 20c + 10c$
 $R9,50 = R5,00 + R2,00 + R1,00 + R1,00 + 50c$
- They also complete the following converting rands into cents and cents into rands e.g.
 $R4 = \dots\dots\dots c$ $R625c = R\dots\dots, \dots\dots c$
 $R7 = \dots\dots\dots c$ $85c = R\dots\dots, \dots\dots c$
 $R5,80 = \dots\dots\dots c$ $667c = R\dots\dots, \dots\dots c$
- Let learners use paper money they made for a previous lesson. Working in pairs and taking turns to be the banker, they exchange their cents for rands. Each time they exchange money, they must record the transaction e.g. I gave the banker R2 and he gave me 200c, or 4 50c pieces, or 10 20c pieces.

- Learners solve word problems involving money

- I want to buy a TV for R599. I only have R322, how much more money do I need?

$R599 - R322 = \square$
 $R599 - R300 = R299$ (Do not break up the first number when subtracting. Keep it whole)
 $R299 - R20 = R279$
 $R279 - 2 = R277$
 I still need R277

- Learners explain own solutions to the problem.

- Learners round off any number to the nearest 10 in the number range 0-700

e.g. Round off the following numbers to the nearest 10:

$453 \approx 450$

$387 \approx \square$

$506 \approx \square$

$618 \approx \square$

Hint: Let the learners use a number grid.

Number patterns

- Learners copy and extend simple number sequences in the number range 0-700 and may use number lines and number grid

e.g. 320, 340, 360....(add 20)
 98,198,298.....(add 100)

Space and shape

- Learners recognise, identify and name 2D-shapes and 3D -objects in the environment and in pictures.

e.g. 3D objects: boxes, balls, cylinders, cones, pyramids
 2D-shapes: triangles, squares, rectangles, circles

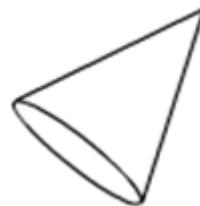


- Learners describe the 2D shape on the face of a 3D object.

e.g. Describe the properties of a brick:

- How many corners?
- How many faces?
- How many edges?
- What is the shape of the faces?

(See 'Properties of 3-D objects' on p 93)



- Learners sort 3D objects according to the 2D-shape observed.
e.g. circles on cylinders and rectangles on boxes.

Measurement

- Learners read and write hours, half hours, quarter past and minutes on an analogue and digital clock. Learners may use model clocks.
 - **Give the learners worksheets with blank clock faces. Ask them to draw the times below: 02:30; 5 past 3; quarter to 7; 20 past 11; 10:00**
 - **How many minutes are there in a quarter of an hour?**
 - **How many minutes are there in three quarters of an hour?**
 - **Count in 15s: 15, ____, ____, 60**
- Learners solve problems involving calculations with and conversions between: minutes ↔ hours

e.g. 6 hours = □ minutes
160 minutes = □ hours + □ minutes
How many minutes are there in 2 ¼ hours?
How many hours and minutes are there in 350 minutes?
- Learners solve problems involving calculations with and conversions between: day ↔ months

e.g. How many days in June, July and August?
- Consolidation of capacity

Look for items around your home that measure their content in millilitres or litres.
 Find two items which have a capacity less than a litre (less than 1000ml), equal to a litre (1000ml), and more than a litre (more than 1000ml).
 Draw each item and record its capacity.

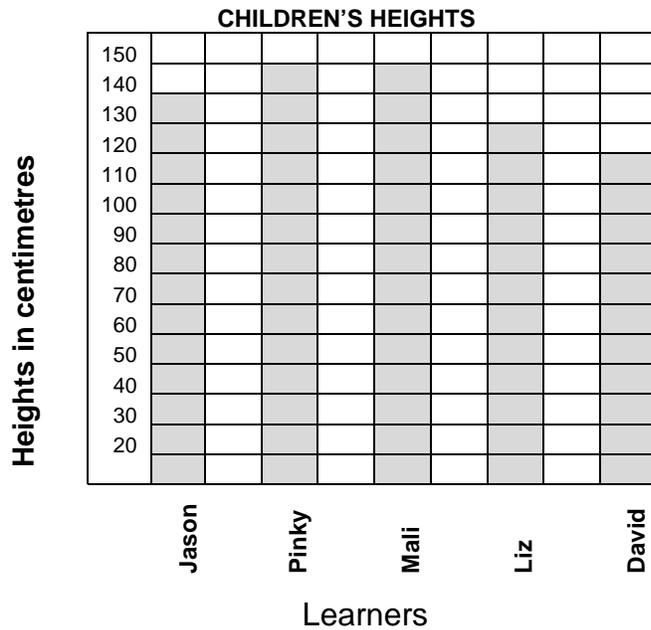
Less than 1 litre	Equal to 1 litre	More than 1 litre
 <i>capacity = 375 ml</i>	The capacity should be on the container.  <i>1 litre (1000 ml)</i>	 <i>capacity = 2 litres</i>
<i>capacity = _____</i>	<i>1 litre (1000 ml)</i>	<i>capacity = _____</i>
<i>capacity = _____</i>	<i>1 litre (1000 ml)</i>	<i>capacity = _____</i>
      		

Data Handling

- Example :
 Jason and four of his friends measured their heights.
 They wrote their heights on a list.

Name	Height in centimeters
Jason	130
Pinky	140
Mali	140
Liz	120
David	110

The learners made a bar graph to show their heights.



- How many children are less than 130 cm tall?
- How many children are between 120 cm and 150 cm tall?
- How many children are taller than 130cm?
- Who is the tallest?
- Who is the shortest?
- What is the difference between Pinky's and David's height?

Word sums

- We have recorded some rain in the summer. We have received a further 88 mm in Autumn and we now have had a total of 312 mm. How many millimeters did we record in summer?
- 122 people boarded a train at the first station. 341 boarded at the second station. How many people were travelling by train?
- Sam saved R468 and Paul has saved R124. How much more money does Paul need to save to have the same as Sam?
- An auction has 264 goats, and 230 more sheep than goats. How many sheep are there at the auction?
- Grandpa has 417g of biltong. Dad has 189g of biltong. How many grams of biltong must Grandpa eat to have the same amount of biltong as Dad?

Resources: Counters, abacus, number grid(1000 block), flard cards, flash cards with number symbols and number names, model clocks, worksheets with blank clock faces, 2-D shapes, 3-D objects, calendars

Reflections:

Barriers:

WEEK 5

Learning Outcomes and Assessment Standards Grade 3: Week 5

Learning Outcome 1 - Numbers operations and relationships

AS 1: Counts forwards and backwards in:

- 1.1 The intervals specified in Grade 2 with increased number ranges;
- 1.2 twenties, twenty-fives, fifties and hundreds between 0 and at least 1 000.

FAT 2

AS 3: Knows, reads and writes number symbols and names from 1 to at least 1000

AS 4: Orders, describes and compares the following numbers:

- 4.1 Whole numbers to at least 3 digit numbers
- 4.2 Common fractions including halves, quarters and thirds ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{3}$)

FAT 2

AS 5: Recognizes the place value of digits whole numbers to at least 3-digit numbers

AS 6: Solves money problems involving totals and change in rands and cents, including converting between rands and cents

FAT 2

AS 7: Solves and explains solutions to practical problems that involve equal sharing and grouping and that lead to solutions that also include unitary and non-unitary fractions (e.g. $\frac{1}{4}$, $\frac{3}{4}$).

AS 8: Can perform calculations, using appropriate symbols, to solve problems involving:

- 8.1 Addition and subtraction of whole numbers with at least 3 digits
- 8.2 multiplication of at least whole 2-digit by 1-digit numbers;
- 8.3 division of at least whole 2-digit by 1-digit numbers;
- 8.4 estimation.

FAT 2

AS 9: Performs mental calculations involving:

- 9.1 addition and subtraction for numbers to at least 50.
- 9.2 multiplication of whole numbers with solutions to at least 50.

FAT 2

AS 10: Uses the following techniques:

- 10.1 Building up and breaking down numbers;
- 10.2 doubling and halving;
- 10.3 number-lines;
- 10.4 rounding off in tens

FAT 2

AS 11: Explains own solutions to problems.

AS 12: Checks the solution given to problems by peers

Learning Outcome 2 – Patterns, Functions and Algebra

AS 2: Copies and extends simple number sequences to at least 1000

FAT 2

AS 4: Describes observed patterns

Learning Outcome 3 – Space and Shape (Geometry)

AS 1: Recognises, identifies and names two-dimensional shapes and three-dimensional objects in the environment and in pictures including:

- Boxes (prisms), Balls (spheres) and cylinders
- Triangles, squares and rectangles
- Circles, Cones and pyramids

AS 2: Describes, sorts and compares two-dimensional shapes and three-dimensional objects in pictures and the environment, including

- 2.1 Two-dimensional shapes in or on the faces of three-dimensional objects;

FAT 2

Learning Outcome 4 – Measurement

AS 1: *Reads and writes analogue and digital clock time in terms of hours, half-hours, quarters of an hour and minutes.*

AS 2: *Solves problems involving calculations with and conversions between:*

2.1 Minutes – Hours

2.3 Days – Months

AS 5: *Estimates, measures, compares and orders three-dimensional objects using non-standard and standard measures:*

- Mass (e.g. packets, Kilograms);
- Capacity (e.g. bottles, litres);
- Length (e.g. desk lengths, metres)

FAT 2

GRADE 3 LESSON PLAN – WEEK 5

Counting

- Learners count forwards and backwards in multiples of 1,2,5 and 10 in number range 0-700
- Learners count forwards and backwards in multiples of 20's, 25's ,50's and 100's from any given number range 0-700

FAT 2: Practical in small groups

Count forwards and backwards in multiples and intervals of 1,2,5 and 10 on a number line in the number range 0 – 700.

FAT 2: Written

Learners count in 2's, 5's, 10's and 1's on a worksheet.

FAT 2: Practical in small groups

Learners count forwards and backwards 20's, 25's, 50's and 100's in the number range 0 - 700.

FAT 2: Written

Learners count forwards and backwards in 20's, 25's, 50's and 100's in the number range 0 – 700 on a worksheet.

Number Concept

- Learners know, read and write number symbols and names in the number ranges 1-700
 - e.g. **Read 318**
Write 387 in words
- Learners order whole numbers in an ascending and descending order. Learners describe the position of numbers 0 – 700 using before, after, between. Learners may use a number line or a number grid.
- Learners identify place value of a given digit in a number range 0-700
 - e.g. **378 →300 or 3 hundreds**
- Learners compare and describe $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{3}$ with a whole or with each other.

FAT 2: Practical in small groups

The learners fold and colour fractional parts. They order the fractions from the smallest to the biggest and answer questions about the fractions.

- e.g. **Which is the biggest? $\frac{1}{4}$ or $\frac{1}{3}$**
Which is the smallest? $\frac{1}{2}$ or $\frac{1}{4}$
Which is the biggest? $\frac{1}{4}$ or $\frac{3}{4}$
Which is the is the biggest 1 or a $\frac{1}{3}$?

Calculations

- Learners perform addition and subtraction with whole numbers in the number range 0-700

FAT 2: Written

Learners write the answers to addition and subtraction sums on a worksheet. Learners solve word problems on a worksheet.

- Learners perform multiplication of a 2-digit by a 1-digit number in the number range 0 – 700. Learners may use drawings or a number grid.

FAT 2: Practical in small groups/Written

The teacher asks word problems in the number range 0 - 700. The learners solve the problems using counters, drawing or calculations,

e.g. There are 72 plastic cups in a box. How many cups are there in 9 boxes?

HINT: The learners write their drawings or calculations in their class workbooks, on slates or white boards.

FAT 2: Written

Learners multiply a whole 2-digit number by a 1-digit number. Learners solve word problems on a worksheet.

- Learners estimate the answer to addition, subtraction, multiplication and division problems. Learners compare the calculated answer to the estimated answer.
- Learners perform mental calculations using addition and subtraction with the answers to 40. Teachers use flash cards with the number symbols to represent the number combinations.
- Learners perform mental calculations using multiplication with answers to 40. Teachers use flash cards with number symbols to represent the number combinations.

FAT 2: Written

The teacher asks addition, subtraction and multiplication sums in the number range 0 – 40.

- Learners divide a 2 digit number by a 1 digit number with solutions with and without remainders. Learners may use counters (concrete) or drawings (semi-concrete).
- Learners break down numbers in the number range 0-700 and may use flard cards.

e.g. $597=500+90+7$ or $500+50+40+3+4$

- Learners build up numbers in the number range 1-700 and may use a number grid or a number line

e.g. $300+300+6=606$
 $500+ \dots + \dots =584$

FAT 2: Practical in small groups/Written

The teacher gives each learner a number between 1 – 700. The learners break down and build up the given number in 5 different ways.

HINT: The learners write their sums in their class workbooks, on slates or white boards.

FAT 2: Written

Learners break down and build up numbers on a worksheet.

- Learners double and halve numbers with answers in the number range 1 - 700. Learners may use a number line, flard cards or a number grid.

FAT 2: Practical in small groups/Written

The learners double numbers with answers in the number range 1 – 700. Learners halve numbers in the number range 1 – 700. The learners may use flard cards, the number line or a number grid.

HINT: The learners write their drawings or calculations in their class workbooks, on slates or white boards.

- Learners solve money problems in the number range 0-700 using R200, R100,R50, R20, R10,R5, R2, R1, 50c, 20c, 10c,5c learners may use real or play money
- Learners solve word problems involving money.

FAT 2: Practical in small group/Written

Using real or play money. The learners pack out the exact amount to pay for an item costing a given amount, e.g. R699, R1,95

Using real or play money. Learners pack out a given amount. They calculate using addition and subtraction,

e.g. $R512 + R104 - R222$
 $R432, 50 + R22, 75$

HINT: The learners write their calculations in their class workbooks, on slates or white boards.

The teacher asks word problems in the number range 0 - 700. Learner may use play money, drawings or calculations to solve the problems.

e.g. Mrs Nangu receives R128,50 for her birthday. Her father gives her R560. How much money does she receive? She spends R349 on clothes. How much money does she have left?

Learners convert rands to cents,

e.g. $730c = \square$ Rand etc.

HINT: The learners write their calculations in their class workbooks, on slates or white boards.

FAT 2: Written

Learners solve word problems on a worksheet.

- Learners round off any number to the nearest 10 in the number range 0-700
- Learners explain own solutions to problems

Number patterns

- Learners copy and extend simple number sequences in the number range 0-700 and may use number lines and number grid

FAT 2 : Written

Learners copy and complete a number pattern in the number range 0 – 700 on a worksheet.

Space and shape

- Learners recognise, identify and name 2D-shapes and 3D -objects in the environment and in pictures.

e.g. **3D objects: boxes, balls, cylinders, cones, pyramids**

2D-shapes: triangles, squares, rectangles, circles

- Learners describe the 2D shape on the face of a 3D object.

FAT 2: Practical in small groups

The teacher shows the learners a cone, a box, a cylinder and a pyramid. The learners describe the 2D-shape on the face of the 3D-objects. The teacher hands out a variety of 3D-objects. Learners sort the objects according to the 2D-shape on the face of the objects. .

- Learners sort 3D objects according to the 2D-shape observed.

FAT 2: Practical in small groups

Learners describe, sort, compare 3D-objects (boxes, balls, cylinders, cones and pyramids) according to flat, and curved surfaces (faces.)

Learners describe, sort and compare 2D-shapes (triangles, squares, rectangles and circles) and 3D-objects (boxes, balls, cylinders, cones and pyramids) according to straight and round edges.

Measurement

- Learners read and write hours, half hours, quarter past and minutes on an analogue and digital clock. Learners may use model clocks.

FAT 2: Practical in small groups

Learners read hours, half hours, quarter past and minutes on a digital and analogue clock.

FAT 2: Written

Learners write the time as indicated on analogue and digital clocks.

- Learners solve problems involving calculations with and conversions between - Minutes ↔ hours

FAT 2: Practical in small groups/Written

The learners convert minutes to hours and minutes and minutes to hours and minutes.

- Learners solve problems involving calculations with and conversions between day ↔ months
e.g.
 - How many days from 1 August to 3 October?
 - How many days in January, February and March?
- Consolidation of capacity

FAT 2: Practical in small groups

Learners use a one litre jug or bottle. Learners estimate how many litres in a watering can, a bucket, a bowl, a can and an ice cream container. Learners measure the capacity of the above items and compare their estimations with their measurements. Learners order the items from the most to the least and answer questions.

FAT 2: Written

Learners answer questions about capacity on a worksheet.

- Learners estimate the number of tiles that will cover a given area. Learners use tiles or a tile template to cover a given area.

FAT 2: Practical in small groups

Learners use a given rectangle to measure the area of the cupboard, the floor, their table etc.

Word sums

6. Granny baked 523 cup cakes. She gave 278 to mom. How many did granny leave for herself?
7. A farmer keeps 359 sheep for their wool and 279 for mutton. How many sheep does he have altogether?
8. The pupils in Grade 3 have 560 pencil crayons. If there are 20 pupils in the class, how many crayons does each child have?
9. A man saves R50 every month. How much money can he save in 6 months?
10. Tom did 37 sums. Andre did 3 times as many sums as Tom. How many sums did Andre do?

Resources: Counters, abacus, number grid(1000 block), flard cards, flash cards with number symbols and number names, model clocks,2-D shapes, 3-D objects, calendars

Reflections:

Barriers:

WEEK 6

Learning Outcomes and Assessment Standards Grade 3: Week 6

Learning Outcome 1 - Numbers operations and relationships

AS 1: *Counts forwards and backwards in:*

- 1.1 The intervals specified in Grade 2 with increased number ranges;
- 1.2 twenties, twenty-fives, fifties and hundreds between 0 and at least 1 000.

AS 3: *Knows, reads and writes number symbols and names from 1 to at least 1000*

AS 4: *Orders, describes and compares the following numbers:*

- 4.1 Whole numbers to at least 3 digit numbers
- 4.2 Common fractions including halves, quarters and thirds ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{3}$)

AS 5: *Recognises the place value of digits whole numbers to at least 3-digit numbers.*

AS 6: *Solves money problems involving totals and change in rands and cents, including converting between rands and cents.*

AS 7: *Solves and explains solutions to practical problems that involve equal sharing and grouping and that lead to solutions that also include unitary and non-unitary fractions (e.g. $\frac{1}{4}$, $\frac{3}{4}$).*

AS 8: *Can perform calculations, using appropriate symbols, to solve problems involving:*

- 8.1 Addition and subtraction of whole numbers with at least 3 digits
- 8.2 multiplication of at least whole 2-digit by 1-digit numbers;
- 8.3 division of at least whole 2-digit by 1 –digit numbers
- 8.4 estimation.

AS 9: *Performs mental calculations involving:*

- 9.1 addition and subtraction for numbers to at least 50.
- 9.2 multiplication of whole numbers with solutions to at least 50.

AS 10: *Uses the following techniques:*

- 10.1 Building up and breaking down numbers;
- 10.2 doubling and halving;
- 10.3 number-lines;

AS 11: *Explains own solutions to problems.*

AS 12: *Checks the solution given to problems by peers*

Learning Outcome 2 – Patterns, Functions and Algebra

AS 2: *Copies and extends simple number sequences to at least 1000*

AS 3: *Creates own patterns*

Learning Outcome 3 – Space and Shape (Geometry)

AS 2: *Describes, sorts and compares two-dimensional shapes and three-dimensional objects in pictures and the environment, including*

- 2.1 Two-dimensional shapes in or on the faces of three-dimensional objects;

Learning Outcome 4 – Measurement

AS 1: *Reads and writes analogue and digital clock time in terms of hours, half-hours, quarters of an hour and minutes.*

AS 5: *Estimates, measures, compares and orders three-dimensional objects using non-standard and standard measures.*

- Mass(e.g. bottles, litres)
- Length (e.g. desk lengths, meters)

Learning Outcome 5 – Data Handling

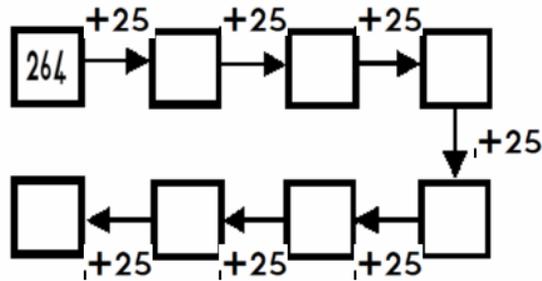
AS 4: *Reads, interprets and reports on information in won and peer's representations of data.*

GRADE 3 LESSON PLAN – WEEK 6

Counting

- Learners count forwards and backwards in multiples of 1,2,5 and 10 in number range 0-700
- Learners count forwards and backwards in multiples of 20's, 25's ,50's and 100's from any given number range 0-700

- Example:



- Songololos have 20 legs each.
 - a. Copy and complete: 520, 540, 560, ____, ____, ____, ____, ____, 680
 - b. How many legs do 8 (6, 12, 10) songololos have? (Count in 20's)
- Learners know read and write number symbols and names in the number ranges 1-700

One hundred and one =	Nine hundred and eighty =
One hundred and eleven =	Three hundred and eight =
Two hundred =	Three hundred and twelve =
Six hundred and fifty nine =	Four hundred and ten =
- The teacher says the number names and the learners show the number symbols on their number grids:
 - Read 678, 509, 437
 - Write the number name for: 568, 304, 690
 - Write the number symbol for: six hundred and fifty-four, etc.
 - The learners sit in a circle and the teacher sends a thick book around. Each of the learners get a turn to open the book at the page asked by the teacher.
- Learners order whole numbers in an ascending and descending order. Learners describe the position of numbers 0 – 500 using before, after, between. Learners may use a number line or a number grid.
- Learners identify place value of a given digit in a number range 0-700.

Can you circle the number that is equivalent to the written amount?

Sixty - 360

Forty - 244

Two hundred - 259

Three hundred - 398

Twenty - 429

Fifty - 659

Nine hundred - 901

Thirty - 333

Three hundred - 339

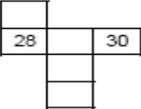
Twenty - 222

Eighty - 880

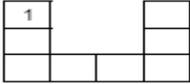
Eight hundred - 899

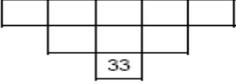
Place Value

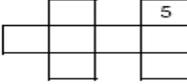
Here are some pieces from a 100 square. Unfortunately Mr Hedworth's printer didn't print all of the numbers in. Can **YOU** help?
Work out what the missing numbers are.

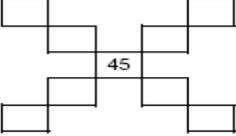
1. 

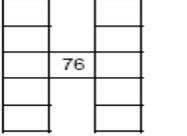
2. 

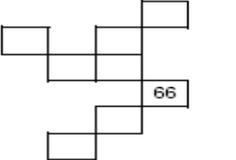
3. 

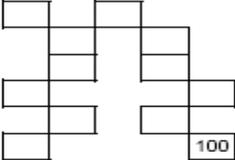
4. 

5. 

6. 

7. 

8. 

9. 

- Learners solve and explain solutions to practical problems that involve equal sharing and grouping where the remainder is a unitary fraction ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{3}$, etc.) in the number range 0 - 600. Learners may use drawings.
 - Granny bought 34 sausages and put them on a plate. Her three grandchildren shared them equally and ate them all. How many did each child eat?
 - Granny bought 29 sausages and put them on a plate. Her four grandchildren shared them equally and ate them all. How many did each child eat?
- Learners compare and describe $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{3}$ with a whole or with each other.
 - Find another way to write these parts of wholes. Look in the box for your answers.



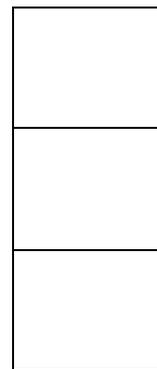
1 whole



halves



quarters



thirds

1.

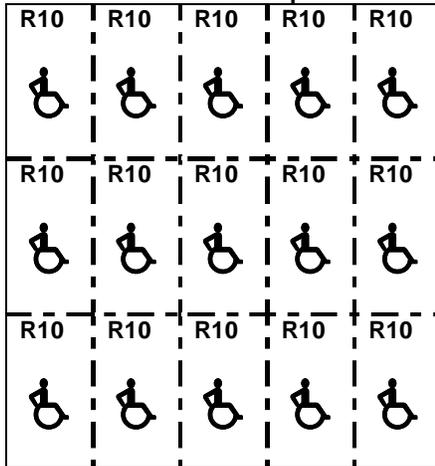
- a. half
- b. 1 quarter
- c. 2 quarters
- d. 3 quarters
- e. 1 third
- f. 2 thirds

$\frac{1}{4}$	$\frac{1}{2}$	$\frac{1}{3}$	$\frac{2}{3}$	$\frac{3}{4}$	$\frac{2}{4}$
---------------	---------------	---------------	---------------	---------------	---------------

2.
 - a. 1 half equals how many quarters?
 - b. Is one third bigger or smaller than 1 quarter?
 - c. Is one third bigger or smaller than one half?
 - d. Is one quarter bigger or smaller than one half?

- o Learners solve money problems in the number range 0-600 using R200, R100,R50, R20, R10, R5, R2, R1, 50c, 20c, 10c,5c - they may use real or play money.

e.g. 1. John has these stamps:



- What did John pay for this set of stamps?
 - What will John pay for two sets of stamps?
 - What will he pay for 7 stamps?
 - If he buys one and a half sets of stamps, how much will he pay?
2. Dad has to repair some pipes at home. He spends R87 on pipes, R54 on a new tap, R38 on screws and R13 on tape. How much change does Dad get for R200?
 3. Break up the following amounts using the LEAST amount of coins: 85c, R2,65, R5,90, R18,70
- Learners solve money sums verbally. e.g.
 - Belinda spent 90c. What change did she get from R1?
 - Thabo had R2, he spent 80c. How much money does he have left?
 - Learners explain how they worked out their answers.

Calculations

- o Learners perform addition and subtraction using whole numbers in the number range 0-700

e.g.

- $460+125+28 = \square$
 - $698-534 = \square$
 - There are 3 camps with sheep on the farm. In the first camp there are 254 sheep, in the second camp there are 271 sheep and in the third camp there are 171 sheep. How many sheep does the farmer have?
 - Learners estimate the answer. Learners compare the calculated answer to the estimated answer.
 - Learners explain own solutions to problems
- o Learners perform multiplication of a two digit by a one digit number in the number range 0 – 700. Learners may use drawings or a number grid.

e.g.

- $65 \times 3 = \square$
- $75 \times 5 = \square$
- $4 \times 47 = \square$
- **There are 56 cabbages in a row. How many cabbages will there be in 5 rows?**
- **Learners estimate the answer. Learners compare the calculated answer to the estimated answer.**
- **Learners explain own solutions to problems**

- Learners divide a two-digit number by a one-digit number. Learners may use counters (concrete) or drawings (semi-concrete).

e.g.

- | | |
|-------------------------|-----------------------|
| • $84 \div 4 = \square$ | $69 \div 3 = \square$ |
| $80 \div 4 = 20$ | $60 \div 3 = 20$ |
| $4 \div 4 = 1$ | $9 \div 3 = 3$ |
| $20 + 1 = 21$ | $20 + 3 = 23$ |

- **Learners explain own solutions to problems**

- Learners perform mental calculations with addition and subtraction with the answers to 40. Teachers use flash cards with the number symbols to represent the number combinations.

Example:

- **Give each learner a strip of 10 random numbers from 0 to 20 and a die. The learners throw their dice, adding and subtracting the dice number to each of the numbers on the strip. e.g. *throw 4*, then this number is added to each of the 10 numbers on the strip, then taken away from each of the 10 numbers. This makes a total of 20 sums the learners must write.**

•

- Learners perform mental calculations with multiplication with answers to 40. Teachers use flash cards with number symbols to represent the number combinations.

e.g. $12 \times 3 = \square$ $18 \times 2 = \square$ $5 \times 8 = \square$ $9 \times 3 = \square$

- Learners break down numbers in the number range 0-700 and may use a number grid and a number line

e.g.

- $699 = 600 + \underline{\quad} + 9$
- $699 = 300 + \underline{\quad} + 90 + 9$
- $645 = 500 + \square + \square + \square$

- Learners build up numbers in the number range 1 – 700. Learners may use a number grid or a number line.

e.g

- $300 + \square = 700$
- $200 + \square + 100 = 700$
- $1 + \square = 601$
- $100 + \square + \square + \square + 1 = 601$

- Learners double numbers with answers in the number range 1 - 700. Learners may use a number line, flash cards or a number grid.

e.g. **double 279**
 double 318

- Learners halve numbers in the number range 1 -700. Learners may use a number line, flard cards or a number grid.
e.g. halve 674
halve 599

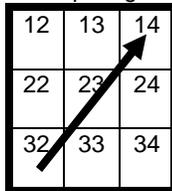
Number patterns

- Learners copy and extend simple number sequences in the number range 0-700 and may use number lines and number grid
1. Here is a square marked on the number grid:

10	11	12	13	14	15	16	17	18	19
20	21	22	23	24	25	26	27	28	29
30	31	32	33	34	35	36	37	38	39
40	41	42	43	44	45	46	47	48	49

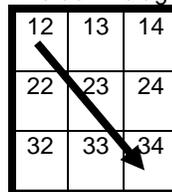
- It has 3 rows and 3 columns.
- Add the numbers in:
 - the middle row
 - the middle column
 - the up diagonal

12	13	14
22	23	24
32	33	34



- the down diagonal

12	13	14
22	23	24
32	33	34



- What do you see about the answers?

- Complete the following:
Ants have 6 legs each. How many legs do :
 - 2 ants have?
 - 3 ants have?
 - 4 ants have?
 - 6 ants have?

- Learners create their own number patterns in the number range 0-700. Learners may use a number line or a number grid.
e.g. 665, 666, 667, 668, 669
700, 690, 680, 670, 660

Space and shape

- Learners recognise, identify and name 2D-shapes and 3D -objects in the environment and in pictures. Learners describe the 2D shape on the face of a 3D object.

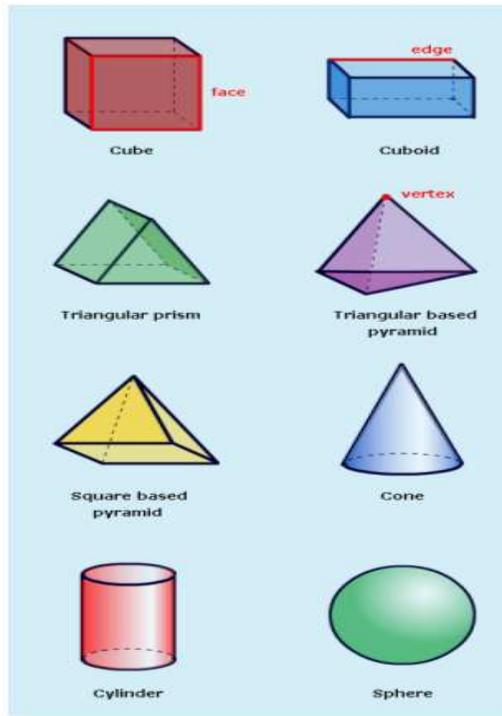
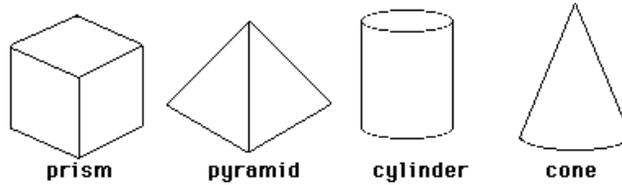
e.g.



- Learners sort 3D objects according to the 2D-shape observed.

e.g. *circles, triangles, rectangles, squares*

e.g. *3D objects: boxes, balls, cylinders, cones, pyramids*

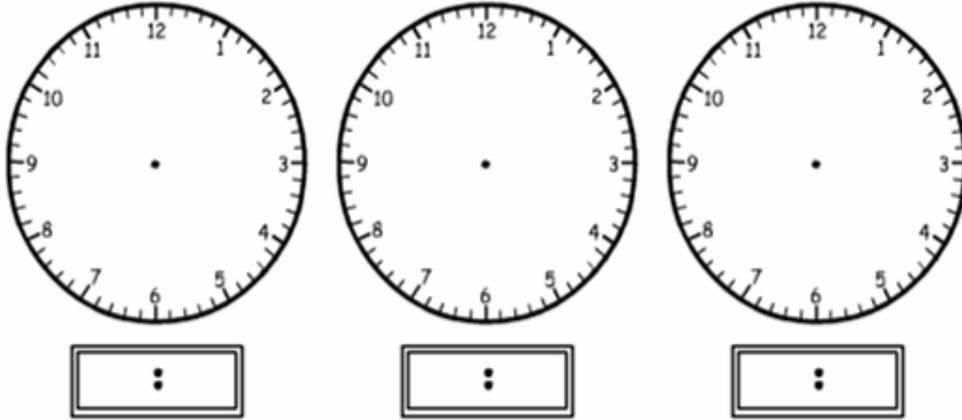


Measurement

- Learners read and write hours, half hours quarter to and minutes on an analogue and digital clock. Learners may use model clocks.

e.g.

- The learners draw the following times on the blank clock faces
- 5 o' clock 10 past 8 half past 3
- The learners write the times in digital time.

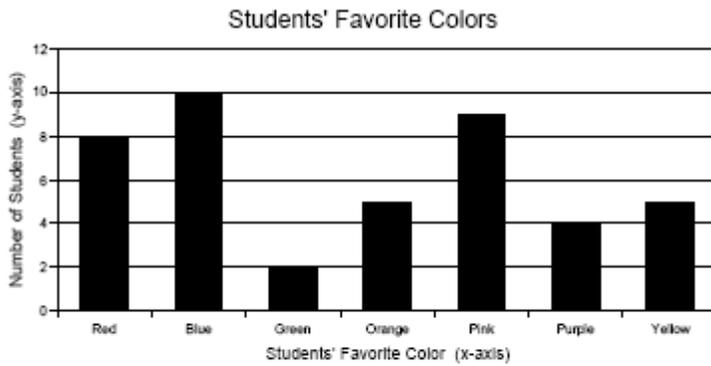


- Complete the elapsed time in the table below:

Start Time	End Time	Elapsed Time
8:00 A.M.	10:30 A.M.	2 hours and 30 minutes
10:00 P.M.	11:30 P.M.	
2:00 P.M.	5:00 P.M.	
12:30 P.M.	7:00 P.M.	
4:00 A.M.	11:00 A.M.	
3:00 P.M.	9:30 P.M.	
4:30 P.M.	6:00 P.M.	
12:00 A.M.	12:00 P.M.	
1:00 P.M.	1:30 P.M.	

Data Handling

- Learners read, interpret and report on information of data representations. Learners may present data in different ways.
e.g. pictograph, bar graph horizontal, vertical



1. How many students chose blue as their favorite color? 1. _____
2. How many more students chose red than green? 2. _____
3. How many more students voted for pink than purple? 3. _____
4. Which two colors had the same number of votes? 4. _____
5. How many students chose either pink or purple? 5. _____
6. If three more students voted for green, how many votes would green have? 6. _____
7. If two less students had voted for green, how many votes would green have? 7. _____
8. List each color in order, from the greatest number of votes received to the least.

Word sums

1. Australia scored 124 runs in a cricket match. South Africa scored 372 runs. By how many runs did South Africa win?
2. Xolani's farm is 37km from the school. Simon's farm is 5 times further. How far is Simon's farm from the school?
3. A packet of chips costs R2,50. How many packets can I buy for R7,50?
4. Piet runs 26 km every day. How far does he run in a week?
5. Mom has R650 in her purse. She buys groceries for R320 and meat for R186. How much change will she receive after she has paid for her purchases?

Resources: Counters, abacus, number grid(100 and 1000 block), flard cards, flash cards with number symbols and number names, model clocks, 2-D shapes, 3-D objects, blank clock face

Reflections:

Barriers:

WEEK 7

Learning Outcomes and Assessment Standards Grade 3: Week 7

Learning Outcome 1 - Numbers operations and relationships

AS 1: Counts forwards and backwards in:

- 1.1 The intervals specified in Grade 2 with increased number ranges;
- 1.2 twenties, twenty-fives, fifties and hundreds between 0 and at least 1 000.

AS 3: Knows, reads and writes number symbols and names from 1 to at least 1000

AS 4: Orders, describes and compares the following numbers:

- 4.1 Whole numbers to at least 3 digit numbers
- 4.2 Common fractions including halves, quarters and thirds ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{3}$)

AS 5: Recognises the place value of digits whole numbers to at least 3-digit numbers.

AS 7: Solves and explains solutions to practical problems that involve equal sharing and grouping and that lead to solutions that also include unitary and non-unitary fractions (e.g. $\frac{1}{4}$, $\frac{3}{4}$).

AS 8: Can perform calculations, using appropriate symbols, to solve problems involving:

- 8.1 Addition and subtraction of whole numbers with at least 3 digits
- 8.2 multiplication of at least whole 2-digit by 1-digit numbers
- 8.3 0 – 99 Learners divide a two digit number by a one digit number with solutions with and without remainders. Learners may use counters (concrete) or drawings (semi-concrete)
- 8.4 estimation.

AS 9: Performs mental calculations involving:

- 9.1 addition and subtraction for numbers to at least 50.
- 9.2 multiplication of whole numbers with solutions to at least 50.

AS 10: Uses the following techniques:

- 10.1 Building up and breaking down numbers;
- 10.2 doubling and halving;
- 10.3 number-lines;
- 10.4 rounding off in tens

AS 11: Explains own solutions to problems.

AS 12: Checks the solution given to problems by peers

Learning Outcome 2 – Patterns, Functions and Algebra

AS 2: Copies and extends simple number sequences to at least 1000

AS 3: Creates own patterns

AS 4: Describes observed patterns

Learning Outcome 3 – Space and Shape (Geometry)

AS 1: Recognizes, identifies and names two-dimensional shapes and three-dimensional objects in the environment and in pictures including:

- Boxes (prisms), Balls (spheres) and cylinders
- Triangles, squares and rectangles
- Circles, Cones and pyramids

AS 2: Describes, sorts and compares two-dimensional shapes and three-dimensional objects in pictures and the environment, including:

- 2.2 Flat/straight and curved/round surfaces and edges

AS 5: Recognizes and describes three-dimensional objects from different positions

Learning Outcome 4 – Measurement

AS 1: Reads and writes analogue and digital clock time in terms of hours, half-hours, quarters of an hour and minutes.

AS 2: Solves problems involving calculations with and conversions between:

- 2.2 Hours – days

Learning Outcome 5 – Data Handling

AS 1: Collects data (alone and/or as a member of a group or team) in the classroom and school environment to answer questions posted by the teacher and class (e.g. How many learners walk to school).

AS 2: Sorts, orders and organizes own and supplied data by one or more attributes for a particular reason.

- AS 3:** *Draws pictures and constructs pictographs and bar graphs that have a 1 -1 correspondence between own data and representation.*
- AS 4:** *Reads, interprets and reports on information in won and peer's representations of data.*
- AS 5:** *Reads and interprets data presented in simple tables and lists*

GRADE 3 LESSON PLAN – TERM 3 WEEK 7

Counting

- Learners count forwards and backwards in multiples of 1,2,5 and 10 in number range 0-700
- Learners count forwards and backwards in multiples of 20's, 25's ,50's and 100's from any given number range 0-700

• **Learners complete this chart by filling in all the missing numbers:**

601			604						610
					616				
							628		
	632								
				645					
		653							660
						667			
							679		
								690	
									700

- Learners colour in all the multiples of 20 in red on the number grid.
 - Learners write down the multiples of 25 from 601-700 in their workbooks.
 - Learners write down the multiples of 50 from 601-700 in their workbooks
 - Give simple oral word problems and encourage the learners to count in multiples of 20's, 25's and 50's e.g. the school buys 5 trays of peaches. Each tray has 25 (20; 50) peaches in it. How many peaches did the school get?
- Learners know read and write number symbols and names in the number ranges 1-700
**e.g. Read 618; 512; 301; 498;
Write 587; 309; 619; 451**
 - Learners order whole numbers in an ascending and descending order. Learners describe the position of numbers 0 – 700 using before, after, between. Learners may use a number line or a number grid.
 - Make 4 sets of cards with random numbers from 1 to 1000. Divide the class into 4 groups and give each group one set of cards. When you say “GO!” the leader hands out the cards to the group and they arrange themselves in ascending order. The first group in the correct order is the winner. Once you have played this a few times, ask the class to get into one long number line – in the correct order.
 - Arrange in ascending order:
569, 539, 609, 489
Arrange in descending order:
385, 626, 591, 532
 - Learners describe the position of numbers 0-700 using before, after, between e.g.
What number comes before 635?
What number comes in between 556 and 558
What number is 2 less than 661, 3 more than 589, etc
 - Learners identify place value of a given digit in a number range 0-700
e.g. 654 = 4 or 4 units

Place Value

Here are some pieces from a 100 square. Unfortunately Mr Hedworth's printer didn't print all of the numbers in. Can **YOU** help?
Work out what the missing numbers are.

1.

28	29	

 2.

76	77	

 3.

1			
21			24

4.

		33

 5.

	16

 6.

		5
23		

6.

23			
	45		
54		56	

 7.

55		
	76	
		97

8.

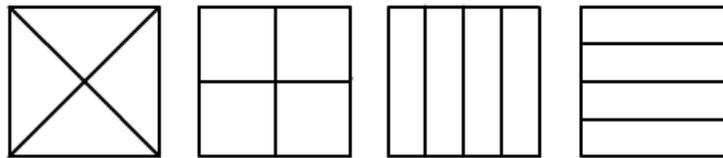
		45	
			66
		75	

 9.

	57		
			69
			100

- Learners solve and explain solutions to practical problems that involve equal sharing and grouping where the remainder is a unitary fraction ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{3}$, etc.) in the number range 0 - 700. Learners may use drawings.

Colour one quarter of each of these squares:



e.g. How many quarters equal $\frac{1}{2}$

- Learners compare and describe $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{3}$ with a whole or with each other.

e.g. Fill in $\frac{1}{2}$, & $\frac{1}{4}$ on a number line

If your friend offered you
some birthday
cake, would you
prefer $\frac{1}{2}$ or $\frac{2}{3}$
of it?



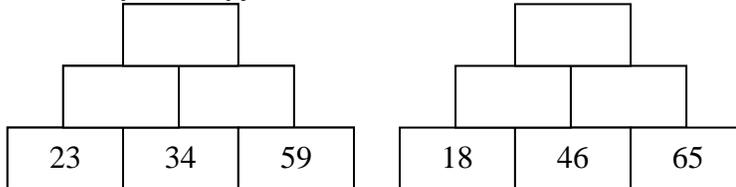
- There are 25 rows with chairs. Each row has 8 chairs. How many chairs are there altogether?
- I want to divide 105 apples equally amongst 5 children. How many apples will each child get?
- Father plants 225 plants in 25 rows. How many plants will there be in each row?
- Share 35 apples amongst 3 children.

- Answer: Each child will get and thirds.
- Share 37 oranges amongst 4 children.
- Answer: Each child will get andquarter

Calculations

- o Learners perform addition and subtraction with whole numbers in the number range 0-700

- **Complete the pyramids:**



- o Give learners a worksheet or workcard of addition of two 3-digit numbers. Learners must complete the sums using expanded notation.
- o Give learners a worksheet or workcard of subtraction of two 3-digit numbers. Learners must complete the sums using expanded notation.
- o Complete the number sentences:

- If you add me to 36, you will get 50. $36 + \square = 50$
- If you add 9 to me you will get 31. $\square + 9 = 31$
- If you add me to myself you will get 400. $\square + \square = 400$
- If you add 7 to me you will get 100. $\square + 7 = 100$
- If you add me to 600 you will get 600. $600 + \square = 600$
- If you add me to myself you will get 104. $\square + \square = 104$

- o Learners perform multiplication of a 2-digit by a 1-digit number in the number range 0 – 700. Learners may use drawings or a number grid.

- Show the following table and let the learners tell you what should be in the blank spaces:

- Muhle and Thandi each want to buy a roll and juice from the Tuck Shop. Juice and a roll costs R4. How much will it cost the two of them to buy a roll and juice for the following number of days?

No of days	1	2	4	5	10	11
Cost						

- o Learners divide a two-digit number by a one-digit number. Learners may use counters (concrete) or drawings (semi-concrete)

- $96 \div 3 = \square$ $75 \div 5 = \square$
- $90 \div 3 = 30$ $50 \div 5 = 10$
- $6 \div 3 = 2$ $25 \div 5 = 5$
- $30 + 2 = 32$ $10 + 5 = 15$

- Our class of 52 learners is going to the museum. If each car can take 5 learners, how many cars will our teacher need to organize so that everyone can go to the museum?
- Learners estimate the answer.
- Learners compare the calculated answer to the estimated answer.
- Learners explain own solutions to problems

- o Learners perform mental calculations using addition and subtraction with the answers to 40. Teachers use flash cards with the number symbols to represent the number combinations.

Example (Practical activity):

- Working with a group of about 8 learners at a time, let each learner choose their own number between 5 and 20, and write it on a piece of paper. Taking turns, they roll the dice and add the number onto their own number, then take the number away from their own number, writing number sentences (sums) each time. Do this till everyone in the group has had a turn to roll the dice. This can also be a written activity.
- Learners perform mental calculations using multiplication with answers to 40. Teachers use flash cards with number symbols to represent the number combinations.
 - Sit in a circle and choose one learner to start building the 2 times table. This learner says the first number (1 times 2 equals 2), the next learner says the next multiple (2 times 2 equals 4) and so on till everyone has had a turn. Choose a new leader and do the same thing with the 5 and 10 times multiplication tables. You can also include other multiples your class knows.
- Learners break down numbers in the number range 0-700 and may use a number grid and a number line
- Learners build up numbers in the number range 1 – 700. Learners may use a number grid or a number line.

e.g.

$$400 + 100 + 3 = \dots\dots$$

$$\dots\dots + 3 = 503$$

$$\dots\dots + \dots\dots + 2 = 432$$

$$300 + \dots\dots + \dots\dots + \dots\dots = 432$$
- Learners double numbers with answers in the number range 1 - 700. Learners may use a number line, flash cards or a number grid.
 - Double 347
 - Double 296
- Learners halve numbers in the number range 1 -700. Learners may use a number line, flash cards or a number grid.
 - Halve 684
 - Halve 528
- Learners round off any number to the nearest 10 in the number range 0 – 700. Learners may use a number grid or a number line.

Examples:

 - Is 126 closer to 120 or 130?
 - Is 292 closer to 290 or 300?
 - Is 478 closer to 470 or 480?
 - Is 504 closer to 500 or 510?

Number patterns

- Learners copy and extend simple number sequences in the number range 0-700 and may use number lines and number grid

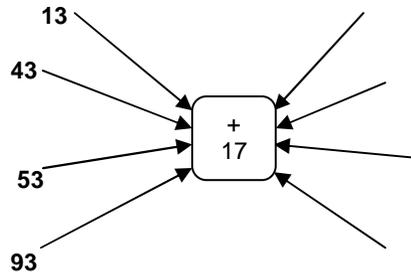
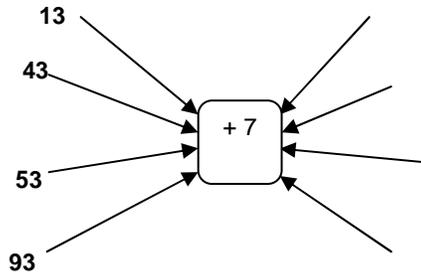
e.g.

$$669, 667, 665 \dots$$

$$330, 355, 380, 405 \dots$$

$$800, 400, 200, \dots \text{ (halving)}$$

$$550, 570, 590 \dots$$
- **Butterflies:** By completing the flow diagrams below children could recognize the pattern “whenever we add 7 to a number ending in 3 we complete the 10”; and that when we “add 17 (27, 37, etc) to a number ending in 3 - it’s like adding the 7 to complete the 10 and adding another 10”. e.g. $13 + 17 \rightarrow 13 + 7 \rightarrow 20 + 10 = 30$



- Ask learners to copy the following tables into their exercise books. They must identify the pattern and complete the tables:

Number of tables	1	2	3	4	5	6	7	8	10	16
Number of legs	4	18								

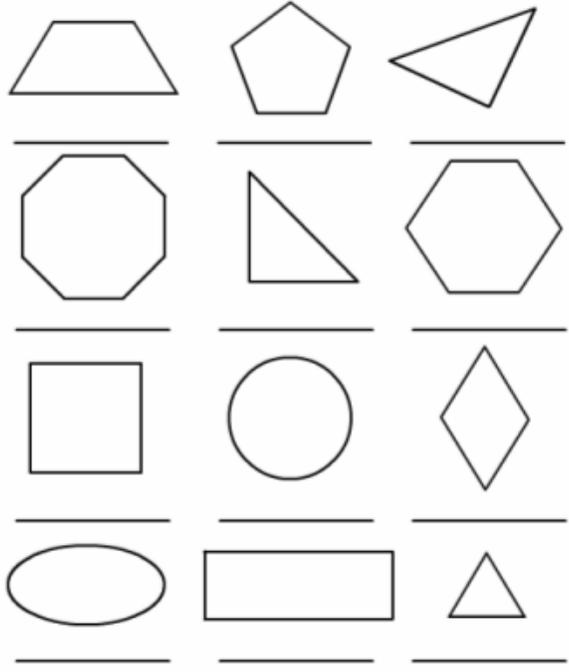
- Learners create their own number patterns in the number range 0-700. Learners may use a number line or a number grid.
e.g. **665, 666, 667, 668, 669**
700, 690, 680, 670, 660
- Learners describe a given/ own number pattern in the number range 0 – 700.

Space and shape

- Learners recognise, identify and name 2D-shapes and 3D-objects in the environment and in pictures.
e.g. **3D objects: boxes, balls, cylinders, cones, pyramids**
2D-shapes: triangles, squares, rectangles, circles.
- Learners describe, sort, compare 3D-objects (boxes, balls, cylinders, cones and pyramids) according to flat, and curved surfaces (faces.)
- Learners describe, sort and compare 2D-shapes (triangles, squares, rectangles and circles) and 3D-objects (boxes, balls, cylinders, cones and pyramids) according to straight and round edges.

2D Space Naming geometrical 2D shapes.

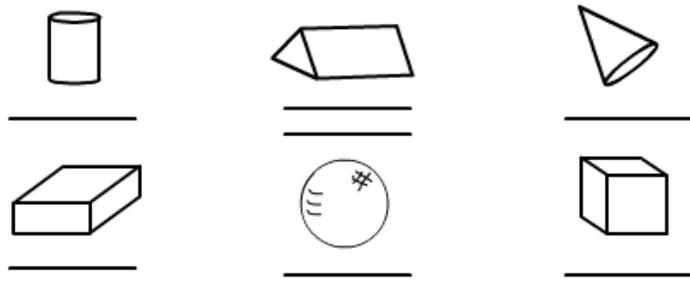
Name these shapes:



trapezium triangle diamond rectangle oval
square circle octagon hexagon pentagon

e.g. 3D objects: boxes, balls, cylinders, cones, pyramids

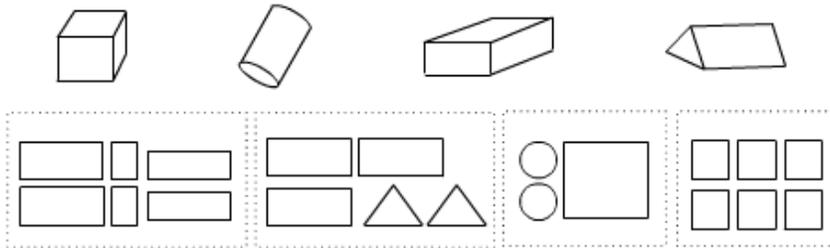
Name these shapes



cone, rectangular prism, cube, cylinder,
triangular prism, sphere

- Learners recognise and describe 3D-objects from different positions.
 - Place a 3-D object on the floor (or a desk). Learners look at it from 3 different angles, each time drawing the object as seen e.g. from the top, from the side, from the bottom. Display the drawings around the classroom.

Draw a line from each 3D shape to the shapes that make it.



Measurement

- Learners read and write hours, half hours quarter to and minutes on an analogue and digital clock.
- Learners solve problems involving calculations with and conversions between hours ↔ days
e.g. 2 days & 5 hours = □ hours
How many hours are there in 4 1/2 days?
How many days are there in 48 (72, 96) hours?

Data Handling

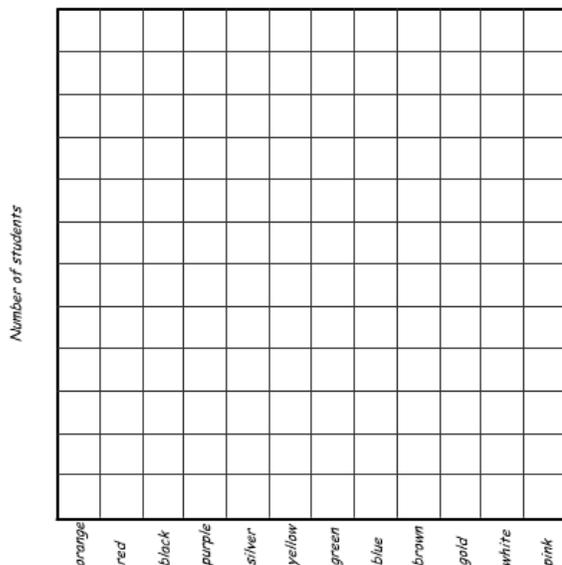
- Learners collect data in the classroom and school environment according to one attribute.
- Learners answer questions about the collections.
- Learners sort, order and organise the supplied data according to one attribute.
- Learners draw a bar graph to show correspondence between supplied data and representation.
- Learners use colouring in.

Favourite colours of students in year _____

Record your data:

colour	tally	colour	tally
orange		green	
red		blue	
black		brown	
purple		gold	
silver		white	
yellow		pink	

Ask students to choose their favourite colour from the list. Record each student's favourite colour using tally marks.



Construct your column graph:
 1) Label the numbers of students on the graph. (You may need to make each box represent two students)
 2) Colour in your columns to show the number of students who like each colour.

Word sums

- Dad has 625 bricks to build a wall. If Uncle Joe bought another 264 bricks, he would have the same number of bricks as Dad. How many bricks did Uncle Joe have to start with?
- Siyabulela has 685 marbles. If he gave 376 marbles away, How many marbles would he have left?
- Jenny has 292 stickers. How many more stickers does she need to collect to have 547?
- Mary has 335 flowers. She uses 5 flowers to makes a bouquet. How many bouquets can she make?
- A farmer planted 25 rows of apple trees. There are 12 trees in each row. How many apple trees did the farmer plant?

Resources: Counters, abacus, number grid(1000 block), flard cards, flash cards with number symbols and number names, model clocks,2-D shapes, 3-D objects

Reflections:

Barriers:

WEEK 8

Learning Outcomes and Assessment Standards Grade 3: Week 8

Learning Outcome 1 - Numbers operations and relationships

AS 1: *Counts forwards and backwards in:*

- 1.1 The intervals specified in Grade 2 with increased number ranges;
- 1.2 twenties, twenty-fives, fifties and hundreds between 0 and at least 1 000.

FAT 3

AS 2: *Knows number names from 1 to at least 10 in the mother tongue (if not the language of learning and teaching) and one other local language.*

AS 3: *Knows, reads and writes number symbols and names from 1 to at least 1000*

FAT 3

AS 4: *Orders, describes and compares the following numbers:*

- 4.1 Whole numbers to at least 3 digit numbers
- 4.2 Common fractions including halves, quarters and thirds ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{3}$)

FAT 3

AS 5: *Recognises the place value of digits whole numbers to at least 3-digit numbers.*

AS 7: *Solves and explains solutions to practical problems that involve equal sharing and grouping and that lead to solutions that also include unitary and non-unitary fractions (e.g. $\frac{1}{4}$, $\frac{3}{4}$).*

FAT 3

AS 8: *Can perform calculations, using appropriate symbols, to solve problems involving:*

- 8.1 Addition and subtraction of whole numbers with at least 3 digits
- 8.2 multiplication of at least whole 2-digit by 1-digit numbers;
- 8.3 division of at least whole 2-digit by 1 digit numbers
- 8.4 estimation.

FAT 3

AS 9: *Performs mental calculations involving:*

- 9.1 addition and subtraction for numbers to at least 50.
- 9.2 multiplication of whole numbers with solutions to at least 50.

FAT 3

AS 10: *Uses the following techniques:*

- 10.1 Building up and breaking down numbers;
- 10.2 doubling and halving;
- 10.3 number-lines;
- 10.4 rounding off in tens

FAT 3

AS 11: *Explains own solutions to problems.*

AS 12: *Checks the solution given to problems by peers*

Learning Outcome 2 – Patterns, Functions and Algebra

AS 2: *Copies and extends simple number sequences to at least 1000*

FAT 3

AS 3: *Creates own patterns*

FAT3

AS 4: *Describes observed patterns*

FAT 3

Learning Outcome 3 – Space and Shape (Geometry)

AS 1: *Recognises, identifies and names two-dimensional shapes and three-dimensional objects in the environment and in pictures including:*

- Boxes (prisms), Balls (spheres) and cylinders
- Triangles, squares and rectangles
- Circles, Cones and pyramids

FAT 3

- AS 2:** *Describes, sorts and compares two-dimensional shapes and three-dimensional objects in pictures and the environment, including:*
2.1 Two-dimensional shapes in or on the faces of three-dimensional objects
2.2 Flat/straight and curved/round surfaces and edges
- AS 5:** *Recognises and describes three-dimensional objects from different positions*

Learning Outcome 4 – Measurement

- AS 1:** *Reads and writes analogue and digital clock time in terms of hours, half-hours, quarters of an hour and minutes.*
- AS 6:** *Investigates (alone and/or as a member of a group or team) and approximate:*
6.2 Area of two-dimensional shapes using tiling

Learning Outcome 5 – Data Handling

- AS 1:** *Collects data (alone and/or as a member of a group or team) in the classroom and school environment to answer questions posted by the teacher and class (e.g. How many learners walk to school).*
FAT 3
- AS 2:** *Sorts, orders and organizes own and supplied data by one or more attributes for a particular reason.*
FAT 3
- AS 3:** *Draws pictures and constructs pictographs and bar graphs that have a 1 -1 correspondence between own data and representation.*
FAT 3
- AS 4:** *Reads, interprets and reports on information in won and peer's representations of data.*
FAT 3
- AS 5:** *Reads and interprets data presented in simple tables and lists*
FAT 3

GRADE 3 LESSON PLAN – WEEK 8

Counting

- Learners count forwards and backwards in multiples of 1,2,5 and 10 in number range 0-700

FAT 3: Practical in small groups

Learners count forwards and backwards in multiples and intervals of 1,2,5, and 10 on number grid in the number range 0 – 700.

FAT 3: Written

Learners count on a number line on a worksheet in the number range 0 - 700.

- Learners count forwards and backwards in multiples of 20's, 25's ,50's and 100's from any given number range 0-700

FAT 3: Practical in small groups

Learners count forwards and backwards 20's, 25's, 50's and 100's in the number range 0 - 700.

FAT 3: Written

Learners count forwards and backwards in 20's, 25's, 50's and 100's in the number range 0 – 700 on a worksheet.

- Learners know, read and write number symbols and names in the number ranges 1-700

e.g. Read 418

Write 587

FAT 3: Written

Learners write number names and number symbols in the number range 1 – 700.

- Learners recognise and say number names from 1 - 10 in one other local language.
- Learners order whole numbers in an ascending and descending order. Learners describe the position of numbers 0 – 700 using before, after, between. Learners may use a number line or a number grid.

FAT 3: Written

Learners order numbers from biggest to smallest or smallest to biggest in the number range 0 – 700 and answer questions about the numbers on a worksheet.

- Learners identify place value of a given digit in a number range 0-700
e.g. 654 → 4 or 4 units
- Learners solve and explain solutions to practical problems that involve equal sharing and grouping where the remainder is a unitary fraction ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{3}$, etc.) in the number range 0 - 700. Learners may use drawings.

FAT 3: Practical in small groups/Written

The teacher asks word problems in the number range 0 - 700. Learners use concrete apparatus, drawings or calculations to solve their problems,

e.g. Anna had 600 silkworms. She packs 120 in a box. How many boxes does she need?

e.g. The builder has 667 floor planks. He divides it equally into 3 groups. How many planks will there be in each group?

e.g. There are 9 roses in a bunch. How many will there be in 70 bunches?

HINT: The learners write their drawings or calculations in their class workbooks, on slates or white boards.

FAT 3: Written

Learners solve word problems on a worksheet.

- Learners compare and describe $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{3}$ with a whole or with each other.
e.g. Which is the biggest? $\frac{1}{4}$ or $\frac{1}{3}$
Which is the smallest? $\frac{1}{2}$ or $\frac{1}{4}$

Which is the biggest? $\frac{1}{4}$ or $\frac{3}{4}$
Which is the is the biggest 1 or a $\frac{1}{3}$?

Calculations

- Learners perform addition and subtraction with whole numbers in the number range 0-700

FAT 3: Practical in small groups/ Written

The teacher asks word problems with addition and subtraction sums in the number range 0 - 700. The learners solve the problems using counters, drawings or calculations.

e.g. On the Port Elizabeth flight there are 372 passengers and on the Cape Town flight there are 293 passengers. How many passengers altogether? How many more passengers on the Port Elizabeth than the Cape Town flight?

HINT: The learners write their drawings or calculations in their class workbooks, on slates or white boards.

FAT 3: Written

Learners write the answers to addition and subtraction sums on a worksheet. Learners solve word problems on a worksheet.

- Learners perform multiplication of a 2-digit by a 1-digit number in the number range 0 – 700. Learners may use drawings or a number grid.

e.g. $65 \times 3 = \square$

$75 \times 5 = \square$

$4 \times 47 = \square$

There are 56 cabbages in a row. How many cabbages will there be in 5 rows?

- Learners divide a 2-digit number by a 1-digit number. Learners may use counters (concrete) or drawings (semi-concrete)

FAT 3 : Practical in small groups/Written

The learners divide a two-digit number by a one-digit number. The teacher asks word problems with division in the number range 0 - 99. The learners solve the problems using counters, drawings or calculations,

e.g. $45 \div 4$, $72 \div 6$, $99 \div 8$ etc.

e.g. There are 86 sweets in a packet. Share the sweets between you and four friends. How many sweets does each one get, and how many sweets are left over?

HINT: The learners write their drawings or calculations in their class workbooks, on slates or white boards.

- Learners estimate the answer to addition, subtraction, multiplication and division problems. Learners compare the calculated answer to the estimated answer.
- Learners perform mental calculations using addition and subtraction with the answers to 40. Teachers use flash cards with the number symbols to represent the number combinations.
 - **Give simple oral word problems e.g. There were 80 balloons at the soccer match. 20 were red and 20 were green. The rest were yellow. How many yellow balloons were there?**
- Learners perform mental calculations using multiplication with answers to 40. Teachers use flash cards with number symbols to represent the number combinations.

e.g. $12 \times 3 = \square$

$18 \times 2 = \square$

$5 \times 8 = \square$

$6 \times 6 = \square$

FAT 3: Written

The learners write the answers to addition, subtraction and multiplication sums in the number range 0 – 40.

- Learners break down numbers in the number range 0-700 and may use a number grid and a number line
e.g. $699 = 600+90+9$
 $699 = 300+300+90+9$
 $645 = \square + \square + \square + \square$
- Learners build up numbers in the number range 1 – 700. Learners may use a number grid or a number line.
e.g. $300+400 = 700$
 $200+400+100=700$
 $\square + \square = 601$
 $\square + \square + \square + \square + \square = 601$
- Learners double numbers with answers in the number range 1 - 700. Learners may use a number line, flard cards or a number grid.
e.g. double 345
double 298
- Learners halve numbers in the number range 1 -700. Learners may use a number line, flard cards or a number grid.
e.g. halve 700
halve 399

FAT 3: Written

Learners double and halve numbers on a worksheet.

- Learners explain own solutions to problems
- Learners round off any number to the nearest 10 in the number range 0 – 700. Learners may use a number grid or a number line.
e.g. $686 \approx 690$
 $512 \approx \square$

Number patterns

- Learners copy and extend simple number sequences in the number range 0-700 and may use number lines and number grid

FAT 3: Written

Learners copy and complete a number pattern in the number range 0 – 700 on a worksheet.

- Learners create their own number patterns in the number range 0-700. Learners may use a number line or a number grid.
e.g. 665, 666, 667, 668, 669
700, 690, 670, 640, 600

FAT 3: Practical in small groups/Written

Learners create their own number patterns in the number range 0 – 700. Learners may use a number line or a number grid.

- Learners describe a given/ own number pattern in the number range 0 – 700.

FAT 3: Practical in small groups.

Learners describe their own/given number patterns in the number range 0 - 700.

Space and shape

- Learners recognise, identify and name 2D-shapes and 3D -objects in the environment and in pictures.

FAT 3: Practical in small groups/Written

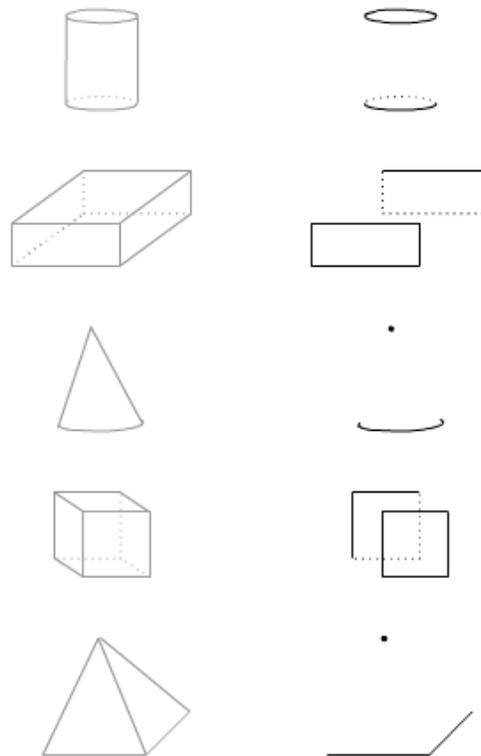
Learners recognise, identify and name 2D-shapes and 3D-objects.

- Learners describe the 2D shape on the face of a 3D object.
- Learners sort 3D objects according to the 2D-shape observed.
e.g.circles, triangles, rectangles and squares
- Learners describe, sort, compare 3D-objects (boxes, balls, cylinders, cones and pyramids) according to flat, and curved surfaces (faces.)

·Drawing 3 D shapes. _____

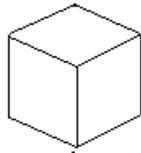
Trace each shape

Complete each shape

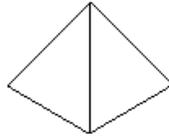


- Learners describe, sort and compare 2D-shapes (triangles, squares, rectangles and circles) and 3D-objects (boxes, balls, cylinders, cones and pyramids) according to straight and round edges.

e.g. 3D objects: boxes, balls, cylinders, cones, pyramids



prism



pyramid



cylinder



cone

- Learners recognise and describe 3D-objects from different positions.
 - Give learners pictures of 5 objects shown from different angles. Learners must identify the objects.

Measurement

- Learners read and write hours, half hours quarter to and minutes on an analogue and digital clock.
- Learners solve problems involving calculations with and conversions between hours ↔ days
 - e.g. **2 days & 5 hours = □ hours**
How many hours are there in 4 1/2 days?
How many days are there in 124 hours?
- Learners estimate the number of tiles that will cover a given area. Learners use tiles or a tile template to cover a given area.
 - e.g. **How many A4-books cover the floor area?**

Data Handling

- Learners collect data in the classroom and school environment according to one attribute.

FAT 3: Practical in small group

Learners collect data to determine their classmates favourite chocolate.

- Learners answer questions about the collections.

FAT 3: Practical in small groups

The learners sort the names of the learners according to their favourite chocolate.

- Learners sort, order and organise the supplied data according to one attribute.

FAT 3: Written

Learners present their representations on a graph

- Learners draw a bar graph to show correspondence between supplied data and representation.

FAT 3: Practical in small groups

Learners talk about their representations.

FAT 3: Written

Learners answer questions about the graph.

Word sums

1. Ben has R416 in her account. Ann has R279. How much money does Ann need to have the same amount as Ben?
2. Tim saves half the money he earns every week. How much money will he save in 12 weeks if he earns R26 per week?
3. Dad paid R649 for two bicycles. How much did he pay for one bicycle?
4. Mom ordered 426 flowers for a wedding. If 189 died, how many flowers were left?
5. It is 300 km from East London to Port Elizabeth. Port Alfred is halfway. How many kilometers is it from East London to Port Alfred?

Resources: Counters, abacus, number grid(1000 block), flard cards, flash cards with number symbols and number names, model clocks,2-D shapes, 3-D objects

Reflections:

Barriers:

WEEK 9

Learning Outcomes and Assessment Standards Grade 3: Week 9

Learning Outcome 1 - Numbers operations and relationships

AS 1: *Counts forwards and backwards in:*

- 1.1 The intervals specified in Grade 2 with increased number ranges
- 1.2 twenties, twenty-fives, fifties and hundreds between 0 and at least 1 000.

AS 3: *Knows, reads and writes number symbols and names from 1 to at least 1000*

AS 4: *Orders, describes and compares the following numbers:*

- 4.1 Whole numbers to at least 3 digit numbers
- 4.2 Common fractions including halves, quarters and thirds ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{3}$)

AS 5: *Recognises the place value of digits whole numbers to at least 3-digit numbers.*

AS 7: *Solves and explains solutions to practical problems that involve equal sharing and grouping and that lead to solutions that also include unitary and non-unitary fractions (e.g. $\frac{1}{4}$, $\frac{3}{4}$).*

AS 8: *Can perform calculations, using appropriate symbols, to solve problems involving:*

- 8.1 Addition and subtraction of whole numbers with at least 3 digits
- 8.2 multiplication of at least whole 2-digit by 1-digit numbers;
- 8.3 division of at least whole 2-digit by 1-digit numbers
- 8.4 estimation.

AS 9: *Performs mental calculations involving:*

- 9.1 addition and subtraction for numbers to at least 50.
- 9.2 multiplication of whole numbers with solutions to at least 50.

AS 10: *Uses the following techniques:*

- 10.1 Building up and breaking down numbers;
- 10.2 doubling and halving;
- 10.3 number-lines;
- 10.4 rounding off in tens

AS 11: *Explains own solutions to problems.*

AS 12: *Checks the solution given to problems by peers*

Learning Outcome 2 – Patterns, Functions and Algebra

AS 2: *Copies and extends simple number sequences to at least 1000*

AS 3: *Creates own patterns*

AS 4: *Describes observed patterns*

Learning Outcome 3 – Space and Shape (Geometry)

AS 1: *Recognises, identifies and names two-dimensional shapes and three –dimensional objects in the environment and in pictures including:*

- Boxes (prisms), Balls (spheres) and cylinders
- Triangles, squares and rectangles
- Circles, Cones and pyramid

AS 6: *Reads, interprets and draws informal maps of the school environment or of an arrangement of 3-D objects and locates objects on the map.*

Learning Outcome 4 – Measurement

AS 3: *Identifies important dates on the calendars including dates of:*

- 3.1 Religious festivals
- 3.2 Historical events

AS 6: *Investigates (alone and/or as a member of a group or team) and approximate:*
6.2 Area of two-dimensional shapes using tiling

Learning Outcome 5 – Data Handling

AS 1: *Collects data (alone and/or as a member of a group or team) in the classroom and school environment to answer questions posted by the teacher and class (e.g. How many learners walk to school).*

AS 2: *Sorts, orders and organizes own and supplied data by one or more attributes for a particular reason.*

AS 3: *Draws pictures and constructs pictographs and bar graphs that have a 1 -1 correspondence between own data and representation.*

AS 4: *Reads, interprets and reports on information in own and peer's representations of data.*

AS 5: *Reads and interprets data presented in simple tables and lists*

GRADE 3 LESSON PLAN – WEEK 9

Counting

- Learners count forwards and backwards in multiples of 1,2,5 and 10 in number range 0-700
- Learners count forwards and backwards in multiples of 20's, 25's ,50's and 100's from any given number range 0-700

- **Learners use a number line and a number grid to show position of different numbers e.g.**

520 . . . 580 . . . 660 . . .

Different kinds of number lines are introduced to learners.

Counting in 20s, 25s, 50s and 100s on the number line.

e.g.

400 425 . . . 525 . . .

They do likewise in 20s, 50s and 100s. It is clarified that these numbers form a pattern i.e. 50 is double 25 and 100 is double 50, e.g.
25, 50, 75, 100, 125, 150, 175, 200

- Learners know read and write number symbols and names in the number ranges 1-700
- **Complete this chart. Write the missing numbers and the number names.**

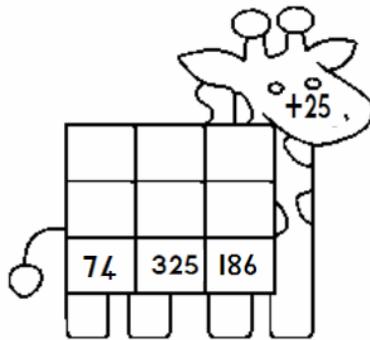
25 twenty-five		75	
125 one hundred and twenty - five			
	250 Two hundred and twenty - five		
		375 Three hundred and Seventy-five	
			500 five hundred

- Learners order whole numbers in an ascending and descending order. Learners describe the position of numbers 0 – 700 using before, after, between. Learners may use a number line or a number grid.

- At the beginning of the day a hospital had 579 batches of pills to hand out. By the end of the day 235 had been handed out. How many were left?
- Learners explain own solutions to problem.

- Complete the tables below:

	Answer	+10	-15
560+14			
450-25			
321x2			
690-90			
450÷2			



- Work these out in your head.

$54 - 30 = \square$

$73 - 40 = \square$

$93 - 30 = \square$

$23 - 10 = \square$

$87 - 50 = \square$

$61 - 30 = \square$

$51 + 30 = \square$

$89 + 10 = \square$

$95 + 10 = \square$

$54 + 40 = \square$

- Learners perform multiplication of a 2- digit by a 1-digit number in the number range 0 – 700. Learners may use drawings or a number grid.

$37 \times 3 = \square$

$43 \times 5 = \square$

$28 \times 4 = \square$

$93 \times 2 = \square$

- Learners divide a 2-digit number by a 1-digit number. Learners may use counters (concrete) or drawings (semi-concrete)

$85 \div 5 = \square$

$99 \div 3 = \square$

$88 \div 4 = \square$

- Learners perform mental calculations using addition and subtraction with the answers to 40. Teachers use flash cards with the number symbols to represent the number combinations.

$21 + 10$

$17 - 9$

$25 - 8$

$34 - 6$

$29 + 7$

$19 + 8$



MAGIC SQUARES!

In a magic square rows, columns and diagonals all have the same total.

4	3	8
9	5	1
2	7	6

All the rows, columns and diagonals in this magic square add up to 15.

Complete these magic squares to also make a total of 15.

6		2
	3	

	9	
		3
6		

8		
	5	7

Can you complete this magic square to make all the rows, columns and diagonals total 34?



- Learners perform mental calculations using multiplication with answers to 40. Teachers use flash cards with number symbols to represent the number combinations.

9×3

7×4

5×3

9×5

4×10

8×4

- Learners break down numbers in the number range 0-700 and may use a number grid and a number line

- Break down:**

$340 = 300 + 40 + 0$

$571 = \underline{\quad} + \underline{\quad} + \underline{\quad}$

$211 = \underline{\quad} + \underline{\quad} + \underline{\quad}$

$386 = \underline{\quad} + \underline{\quad} + \underline{\quad}$

$594 = \underline{\quad} + \underline{\quad} + \underline{\quad}$

$699 = \underline{\quad} + \underline{\quad} + \underline{\quad}$

- Learners build up numbers in the number range 1 – 700. Learners may use a number grid or a number line.

- Build up:**

$200 + 40 + 7 = 247$

$400 + 40 + 3 = \underline{\quad}$

$1 + 60 + 500 = \underline{\quad}$

$20 + 80 + 600 = \underline{\quad}$

$3 + 300 = \underline{\quad}$

$70 + 600 + 4 = \underline{\quad}$

$500 + 30 + \underline{\quad} = 532$

$\underline{\quad} + 40 + 8 = 648$

- Learners double numbers with answers in the number range 1 - 700. Learners may use a number line, flard cards or a number grid.

- Double these numbers:**

346

275

192

318

- Learners halve numbers in the number range 1 -700. Learners may use a number line, flard cards or a number grid.

- Halve these numbers:**

642

658

362

530

- Learners round off any number to the nearest 10 in the number range 0 – 700. Learners may use a number grid or a number line.

- Round 165 to the nearest 10
- Round 674 to the nearest 10.
- Is 514 closer to 510 or 520?
- Is 346 closer to 340 or 350?

Number patterns

- Learners copy and extend simple number sequences in the number range 0-700 and may use number lines and number grid

e.g. 669, 667, 665 ...
 330, 355, 380, 405 ...
 600, 300, 150, ...
 20, 40, 80 ...

- Learners create their own number patterns in the number range 0-700. Learners may use a number line or a number grid.

e.g. 665, 666, 667, 668, 669
 700, 690, 670, 640, 600

- Learners describe a given/ own number pattern in the number range 0 – 700.

Space and shape

- Reads, interprets and draws informal maps of the school environment or of an arrangement of 3-D objects and locates objects on the map.

1. Describe the positions of the objects on the grid.

- The  is on B4.
- The  is on _____.
- The  is on _____.
- The  is on _____.
- The  is on _____.
- The  is on _____.

5						
4						
3						
2						
1						
	A	B	C	D	E	F

2. Draw these objects on the grid in the correct position:



Measurement

- Identifies important dates on the calendars including dates of:
 - 1.1 Religious festivals
 - 1.2 Historical events

September 2009

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

- Use the above calendar and answer the following questions:
 - What day is it today?
 - Find the day on your calendar and colour it red.
 - What day will the 8th of September fall on? Colour this day yellow.
 - Heritage Day is on the ____ of September. Circle this day in blue.
 - The 1st of September falls on a _____.
 - What will the date be if it is 3 weeks later?
 - What do you notice about the numbers in each column? (*They differ by 7*)
 - Put a box around any four numbers on the calendar, for example:

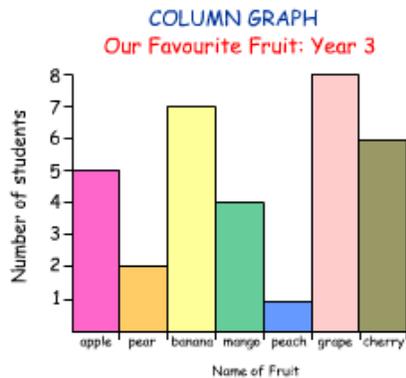
3	4	8	9	18	19
10	11	15	16	25	26

- Find relationships among the numbers. Add the diagonal numbers in each box. Look at your answers. What do you notice?
- The 1st of September is the beginning of (Spring; Autumn).
- There are ____ days in September.
- There are ____ Sundays in September.
- There are ____ school days in September.
- Learners estimate the number of tiles that will cover a given area. Learners use tiles or a tile template to cover a given area.
 - e.g. How many match boxes will cover an A4-paper.

Data Handling

- Learners collect data in the classroom and school environment according to one attribute.
- Learners answer questions about the collections.
- Learners sort, order and organise the supplied data according to one attribute.
- Learners draw a bar graph to show correspondence between supplied data and representation.
- Learners use colouring in.

Column Graphs



- How many children chose pears as their favourite fruit? _____
- How many children chose grapes as their favourite fruit? _____
- How many children chose bananas as their favourite fruit? _____
- How many children chose mangos as their favourite fruit? _____

Word sums

- John caught 185 fish. Piet caught five times more fish than John. How many fish did Piet catch? How many fish did they catch altogether?
- Mr Lime had 684 orange trees in his orchard. A hail storm damaged 487 trees. How many trees were not damaged?
- Mputi buys 12 apples at 25c each, 7 pears at 43c each and 5 bananas at 62c each. How much did the fruit cost altogether?
- There are 338 grade 3 learners who want to take part in a Mini-Walk. If every learner pays R2 entrance fee, how much money will we make?
- There are 297 elephants in the game reserve. The ranger took 119 to Mpumalanga. How many elephants were left?

Resources: Counters, abacus, number grid(1000 block), flard cards, flash cards with number symbols and number names, model clocks, 2-D shapes, 3-D objects

Reflections:

Barriers:

Some teaching ideas, activities & resources

Activity ideas

- This one came by accident, but kept my class thinking for the whole day! Give the children the numbers 1,2,3,4 and the operations +,x,-, and 'divide by'. Tell them they must find as many of the numbers 0-20 as they can by using ALL the numbers 1-4 and ANY combination of operation in each 'answer', eg $1+2+3+4=10$; $4 \times 3 - 2 + 1 = 11$; $2 - 1 \times 4 \times 3 = 12$; $4 + 3 \times 2 - 1 = 13$ etc (my own brain is beginning to ache...). They can then see that there are many ways of getting the same answer, as well as how to make higher and lower numbers using different combinations of the operations. You can challenge them to find the highest number possible (can you beat $4 + 1 \times 2 \times 3$? I can!). Gather ideas in after, say 10 minutes and cross off the numbers children have managed to make from a list on the whiteboard. I GUARANTEE there will be someone who is determined to find the numbers no-one managed to get! (Even if it is yourself. Can anyone make 17.....?)
- Here's a game which I call Place Value Clap.
 - I write a 4 digit number on the board and choose four children.
 - They decide between themselves who is to clap thousands, who will clap hundreds, tens and units.
 - Lining up in the correct place, they clap their digit or fold their arms smugly for a zero.
 - The 'thousands' person then has to say the whole number correctly.
 - They then swap until all four children have had a chance to be each digit.
 - The most confident children always manage to get the highest digit giving the less confident 1, 2 or 3 chances to hear the number correctly. A useful starter/filler.

This game can easily be differentiated for larger / smaller numbers simply by changing the number of children involved.

- The teacher prepares two series of numbers from 0 to 9 on an A4 for each digit, and gives one number to each pupil.

Teacher starts asking the named pupil to step in front of the blackboard showing to the rest of the class the number given. The teacher writes on the board at the head of each pupil the corresponding order: units, tens, hundreds, etc. We all name the number.

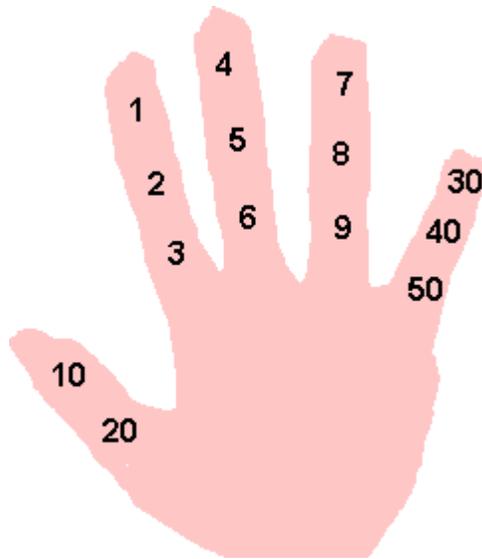
Then the teacher asks which pupils will have to change position if I add 2 tens, or I want the number 3.456, or change the thousands for the units. Children have to think the operation, the answer, and the children that would have to change position.

In every change, we say the new number.

- How to count to 59 on one hand...

The finger pads (3 on each finger - and two for the thumb) are a useful resource for counting in threes. Try just three fingers to count to 9 then use the thumb as a "ten".

Now count on the finger pads again to get to 19 and use the second thumb pad as 20. The little finger can be used for 30, 40, and 50.

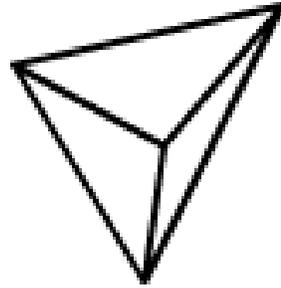


- Fingers can be used to count to ten but also in tens. I found it specially useful when asking children to add 9 or 11 by adjusting.
 - Get children to VISUALISE number bonds $1+9, 2+8$...using fingers.
 - Add ten to each of these bonds to get bonds of 20.
 - Count in tens - each finger with 10 invisible rings (or even visible to start with)
 - Add ten to the set number looking at fingers ($34+10$ 3 fingers up, keep 4 in your head and the result will be 44).
 - Over a number of sessions children should be able to VISUALISE fingers in their heads and think of following ten and add one more or take one away for adjusting.
- Some possible problems:
 - a) I have got three apples. Ana has got five bananas. How many apples have I got?
 - b) Ana has got seven peaches. I eat 3 peaches. How many peaches have I got?
 - c) Ana lives in house no 27. Susan is in no 35. How many houses are in between?
 - d) Ana has 2 brothers. How many children have their parents got?
 - e) There are 5 horses, 3 cows, and 4 parrots on a farm. How many farm animals are there?

PROPERTIES OF 3-D OBJECTS

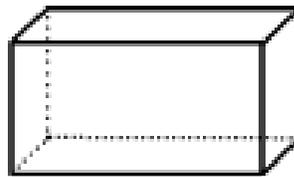
A Triangular Pyramid has:-

- * 4 faces
- * 6 edges
- * 4 corners



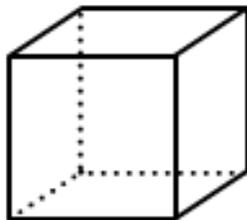
A Rectangular Prism has:-

- * 6 faces
- * 12 edges
- * 8 corners



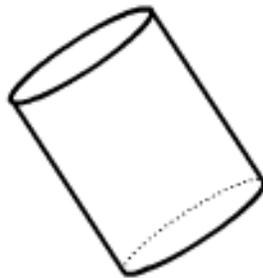
A Cube has:-

- * 6 faces
- * 12 edges
- * 8 corners



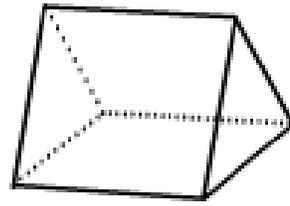
A Cylinder has:-

- * 3 faces
- * 2 edges
- * 0 corners



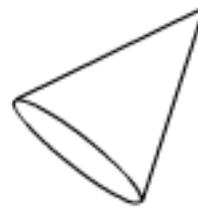
A Triangular Prism has:-

- * 5 faces
- * 9 edges
- * 6 corners



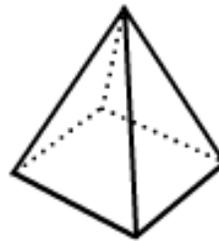
A Cone has:-

- * 2 faces (one flat one curved)
- * 1 edge
- * 1 corner, the apex

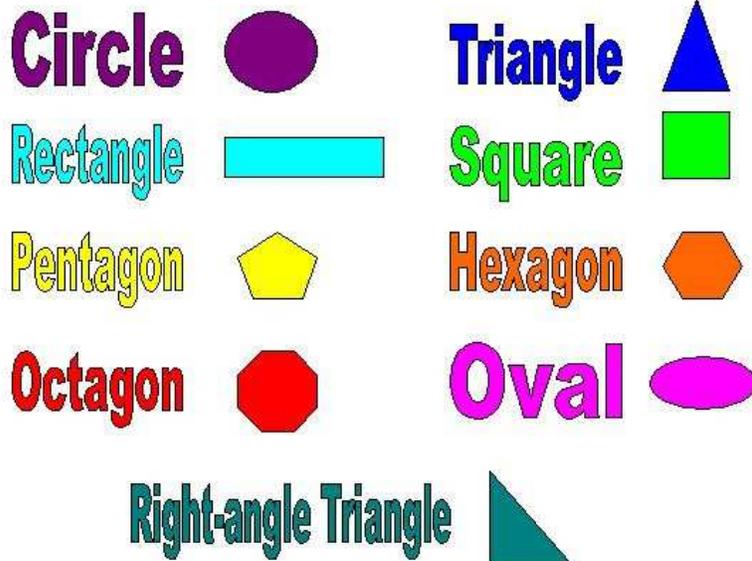


A Square Pyramid has:-

- * 5 faces
- * 8 edges
- * 5 corners



2D Shapes



Point **Edges**
Corners **Faces**
Sides

100-GRID

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

SOLVING WORD PROBLEMS



1. Read the problem carefully.



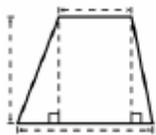
2. Cross out unnecessary information.

3. Show your work. Don't do it in your head.



4. Don't erase your mistakes. Cross out errors instead.

5. Re-read your problem and check your answers.

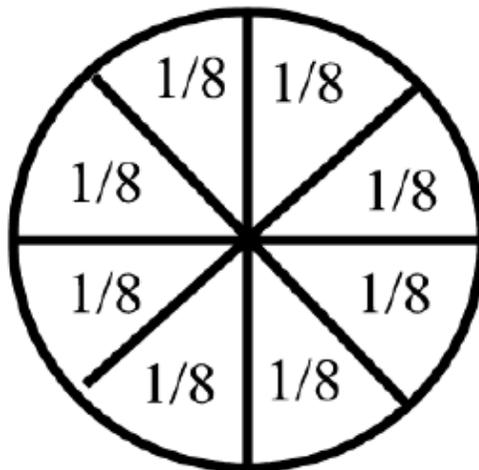
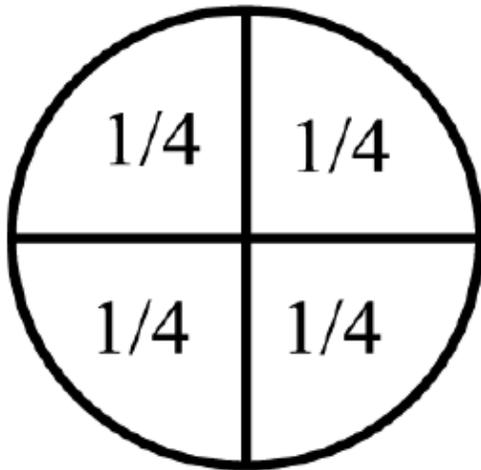
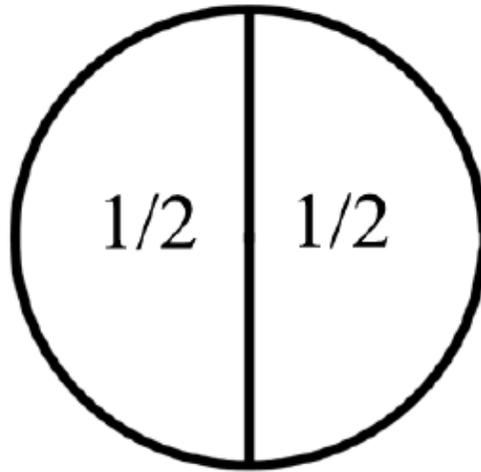
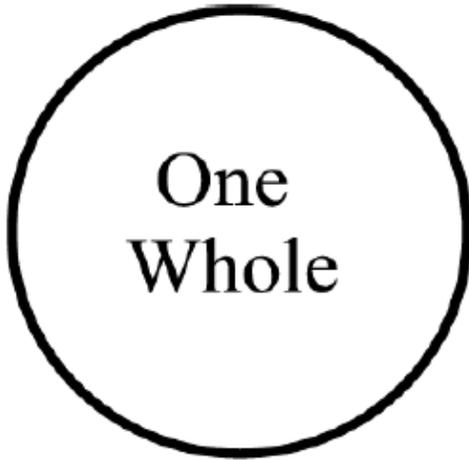


6. Draw a picture that illustrates the problem.



7. Write in your own words how you got your answer.

Fraction Manipulatives



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TEACHING STUDENTS TO SOLVE WORD PROBLEMS

Using the right strategies for problem solving is at least as important as getting the right answer. Students should be encouraged to reflect on how they got their answers and share their strategies with the class. The class learns that there is more than one way to get a correct answer. When they realise this, they expand their thinking. You may use problems in many ways, depending on the time you allow. We suggest that you never do more than a page of word problems a day. One or two problems, followed by discussion, are plenty. Do this every day and your students will become great problem solvers.

Strategies for Problem Solving: Have your students write out the problem or cut and paste the problem into a special "Problem Solving Notebook". Have them follow the steps on the poster.

Number Puzzles (Higher Level)

1. I am thinking of two numbers.
 - a. They are both odd and between 359 and 370.
 - b. They are both even and differ by 156.
What are my two numbers?
 - c. One is odd, the other is even and their sum is 201.
2. Find three consecutive numbers which add up to 39.
3. I'm thinking of a number. I add 12. I double it. I subtract 8. I halve the number. I get 12. What's my number?
4. Find a pair of numbers which make a sum of 13 and a product of 36.
5. Write 5 subtraction sentences with 54 as an answer.
6. Use 8, 3, 9 and 4 to make five addition sentences and find the answers.
7. What numbers are hiding behind the stars in these sequences?
 - a. 118, 115, 112, *, *, *, *
 - b. 112, 124, 136, *, *, *, *
 - c. 12, 8, 4, *, *, *, *
8. Choose two numbers to make this sentence true:
Double ____ = half of ____
9. Copy the grid and make each row and column total 20.

7		
	5	
		6

10. Make your own grid with different numbers but giving the same total when you add each row or each column. Do not repeat any digit or number.

Number Puzzles (Middle Level)

1. Write 5 subtraction sentences with 28 as an answer.
2. Use 5, 1, 9 and 6 to make five addition sentences and find the answers.
3. What numbers are hiding behind the stars in these sequences?
 - a. 18, 15, 12, *, *, *, *
 - b. 16, 32, 48, *, *, *, *
 - c. 15, 10, 5, *, *, *, *
4. I am thinking of two numbers. What are my two numbers?
 - a. They are both odd and between 35 and 99.
 - b. They are both even and differ by 16.
5. Find three consecutive numbers which add up to 27.
6. I'm thinking of a number. I add 6. I double it. I subtract 8. I halve the number. I get 2. What's my number?
7. Find a pair of numbers which make a sum of 12 and a product of 27.
8. Draw three rings. Use numbers 1 to 9 only once. Write them in the rings so that each ring has a total of 15.

Number Puzzles (Easy Level)

1. Use 2, 1, 4 and 6 to make five addition sentences and find the answers.
2. What numbers are hiding behind the stars in these sequences?
 - a. 2, 4, 6, *, *, *, *
 - b. 5, 10, 15, *, *, *, *
3. Find three consecutive numbers which add up to 12.
4. Find a pair of numbers which make a sum of 8 and a product of 12.
5. Draw two rings. Use numbers 1 to 9 only once. Write them in the rings so that each ring has a total of 10.

FLARD CARDS

1	2	3	4	5	6	7	8	9	0
1	0	2	0	3	0	4	0	5	0
6	0	7	0	8	0	9	0		
1	0	0	2	0	0	3	0	0	
4	0	0	5	0	0	6	0	0	
7	0	0	8	0	0	9	0	0	
1	0	0	0	2	0	0	0	0	

