Foundations
For
Learning

Foundation Phase
Numeracy
Lesson plans

First term

Grade 3

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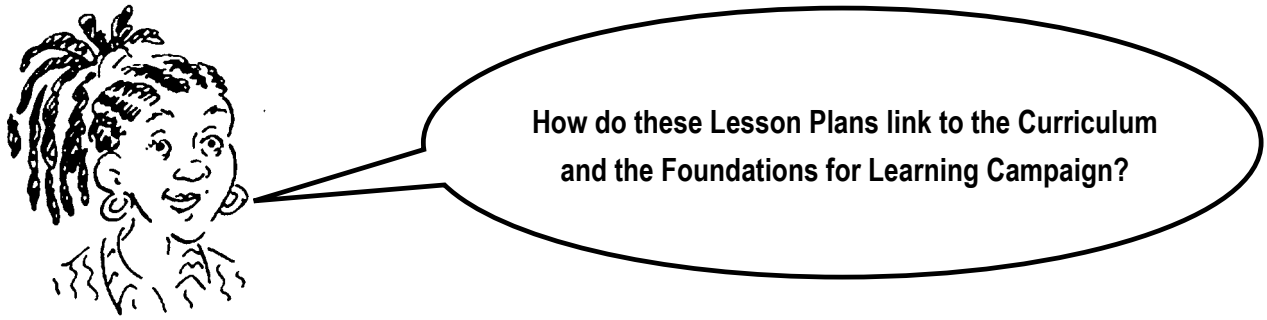
INTRODUCTION

BACKGROUND

The **Foundations for Learning Assessment Framework** which was distributed to all schools during 2008 contained "milestones" for each grade. These milestones explain the content (knowlwdgw, concepts and skills) embedded in the Learning Outcomes and Assessment Standards of the NCS, and indicate the expected level of achievement of learners at the end of each term. This document contains **Lesson Plans** based on the milestones.

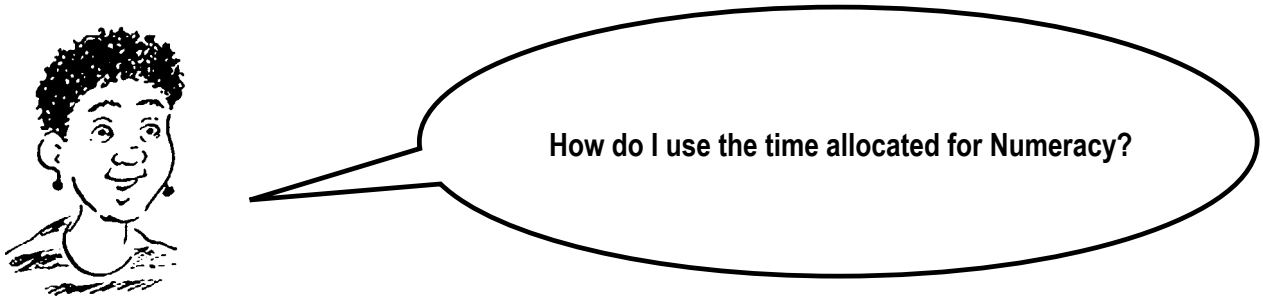


These **Lesson Plans** have been developed using:

- The NCS Learning Outcomes and Assessment Standards as the starting point
- The Milestones and
- 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 (Languages and Mathematics) as well as providing timetabling and resourcing suggestions.

The following **table** provides an example of how these three documents are linked for Grade 2 Numeracy:

Learning Outcomes	Milestones for Numeracy Grades 1- 3	Government Gazette: Daily Teacher Activities for Numeracy Grade 2	Grade 3 time allocation in Gazette
LO 1 Numbers, Operations and Relationships LO 2 Patterns, Functions and Algebra LO 3 Space and Shape (Geometry) LO4 Measurement LO 5 Data Handling	All Learning Outcomes covered each term	• Counting with whole class every day, usually at the beginning of the lesson • Oral Mental maths and Number Sense development • Group teaching: - Concept development (10mins) - Problem solving and investigation (20mins) • Classroom organisation, supervision of independent work	10 minutes 10 minutes 30 minutes per group :- 10 minutes and 20 minutes 15 minutes



The Government Gazette No 30880 provides the following breakdown of the formal teaching allocations for Numeracy and Literacy in the Foundation Phase per day in line with the NCS Policy:

Grade	**Daily total for Numeracy**	**Daily total for Literacy**	**Home Language Literacy**	**First Additional Language Literacy**	Allowance should be made for reading for enjoyment for 30 minutes per day
Grade 1	1 hour 30 minutes	1 hour 50 minutes	1 hour 40 minutes	10 minutes	
Grade 2	1 hour 30 minutes	1 hour 50 minutes	1 hour 30 minutes	20 minutes	
Grade 3	1 hour 45 minutes	2 hours	1 hour 30 minutes	30 minutes	

The Gazette further guides teachers by providing examples of the activities that can be done in each section contained in the Daily Teacher Activities, together with a time allocation.

However in practice:

- Although this is Numeracy time, language development is vital – particularly mathematical language. It is for this reason that basic concepts (colour, shape, size, etc.) - which in the past were always associated with Mathematics – now appear in the Language Learning Area under LO 5: Thinking and Reasoning. Learners need language in order to develop concepts. Nevertheless, these concepts have been included in the Numeracy milestones as they link with many of the Mathematical Assessment Standards e.g. patterns.
- Counting is extremely important in the development of number concepts and learners should count with physical objects (rational counting) and without physical objects (rote counting) ever day.
- Because numeracy concepts need to be developed and consolidated in a variety of contexts, certain activities often go together. For example, counting and patterns are interrelated and learners need to be given the opportunity to develop this understanding through the activities provided.
- While the teacher is working with a group of learners developing new concepts at their level of understanding, the rest of the learners will be working on their own doing consolidation and revision activities of concepts learnt. This means that the independent and written work and the work done with the teacher in the group may not be the same.
- It is unnecessary to "*teach to the clock*" and stick rigidly to the times on a daily basis. On some days for example you may want to spend longer on a counting activity and less time on mental work. On another day you might shorten the written activities in favour of a longer oral session.

However over the week you should try to balance the times to cover the allocations.

- Activities can be done in a different order. For example, counting can be linked with the group sessions and may take place after the mental maths time. It is good to also vary the lessons.
- Look for opportunities to integrate, both within Numeracy (Mathematics) and across the other two Learning Programmes (Literacy and Life Skills). A number of the activities can be linked to a theme / context so there are many overlaps with the other Learning Programmes. Integration then takes place naturally.

How, then can these lesson plans help teachers?
What do they provide?

These 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 2.

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

The Plans provide:

- **An overview of the term,** together with an **Assessment Overview,** broken into weekly units. The overview covers 10 weeks of work and provides a useful termly checklist. (You might want to compare this with your Work Schedule and your Phase Learning Programme and ask yourself questions such as: *Does your Work Schedule include similar content? Do you reach approximately the same point at the end of each term*? *How does this compare to your Assessment Plan?*) .

- **An overview for each week** This helps you to see the content covered included in the week's lesson plans, to see how it is paced and to make use of specific lesson plans. Learning Outcomes and Assessment Standards have been included. The latter have been numbered as AS1, 2, 3 etc. No sub-bullets are indicated.

- **Individual lesson plans for each week** There are **10 weekly Lesson Plans for each term**. Each week's Plan provides **Daily Activities** for the **different components of Numeracy**, corresponding to the milestones. These are.
  - **Counting**

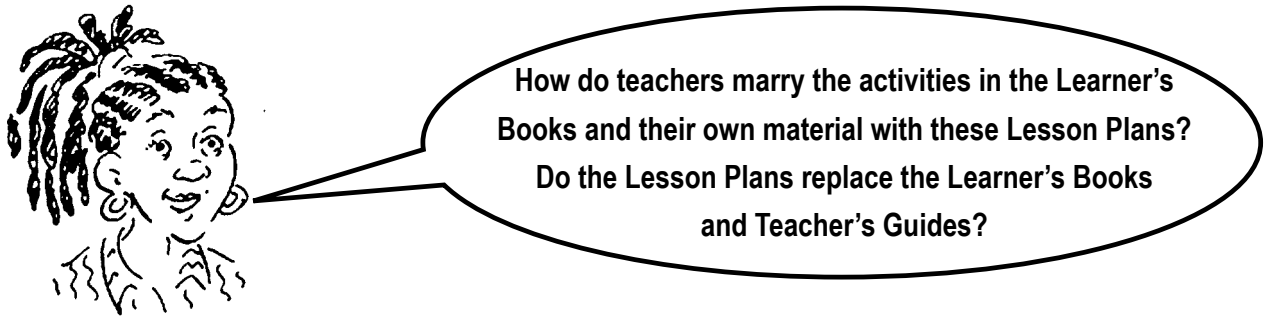
- **Mental maths and Number sense development**
- **Group teaching : concept development and problem solving**

The lessons for the week are broken down into daily steps providing teachers with a breakdown of content and suggestions for implementation. *However the plans are not prescriptive and allow you to use your own way of presenting the lesson. They are rich in practical ideas drawn from best practice and as such can enrich implementation in the classroom*.

- **Suggestions for the Assessment Tasks** for each term are shown at the end of Week 4 (Assessment Task 1), Week 7 (Assessment Task 2) and Week 9 (Assessment Task 3)

ADAPTING THE LESSON PLANS

Remember: Every class and learner is unique. There can be no "one size fits all". 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 your learners. **You can introduce new material in another order as long as you reach all the milestones for Grade 2.** This means that you are free to follow your own sequence as long as it is systematic and thorough.



These Lesson plans should be used together with approved Teacher's Guides, Learner's Books and Work Books. They are not intended to replace the Teacher's Guides and Learner's Books or the material you have developed yourself. The Lesson Plans do not provide actual worksheets, workcards or other material for learners. They may, however, provide examples of the kind of work that can be done

Approved Teacher's Guides should pace the work for the year so that all the Learning Outcomes and Assessment Standards are covered. There will therefore be similarities between the Teacher's Guides and Learner's Books and these Lesson Plans. However the order of content may be presented somewhat differently so you will need to compare and marry the content. **Remember that ultimately you are the decision maker.**

NUMERACY

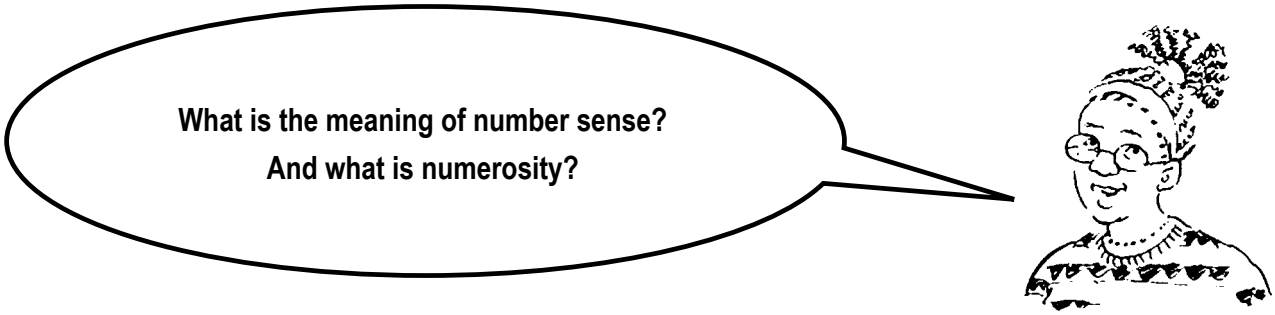
This section explains the key points of each component.

COUNTING

Most learners come to school at the beginning of grade 3 already able to rote count to at least 200. This does not mean, however, that the child understands the value numbers to 200. Rote counting, that is counting without objects, is important in Grade 3 as it teaches the learners the sequence and language of the numbers. Do not limit the learners in their rote counting exercises – let them count as far as they can. At the same time you need to expose your learners to rational counting – that is counting with objects. This counting out of objects is an essential skill and entails co-ordinating a number word with an object to be counted. Learners with eye-hand co-ordination difficulties, or those not able to do one-to-one correspondence easily, might battle at first with counting out objects. Therefore the objects to be counted are very important as a learner can only make sense of counting if he or she finds it sensible to count the objects. In other words, objects that do not belong together naturally can be the cause of counting difficulties early in the year. For example, if your counters are a mixture of shapes and colours, a learner may say there are 4 red counters and 3 blue counters rather than counting 7 counters. This problem should not exist in Grade 3 and your counters need to be mixed, though if a learner has difficulty counting this could be the problem. Counting out should always be in context. It is also a good idea to ask the question "How many" when starting a counting out exercise e.g. how many steps from the table to the door? How many birds are in this picture? How many counters are in this packet? Etc. An essential part of counting is to first estimate and then to count and verify the number.

Remember, the attention span of young learners is very short. Therefore, although counting is done daily, limit the time for this activity. Rather than one long session of counting, spend a few minutes throughout the day counting – count the number of steps to the toilet, how far can you count before everyone is lined up, count the number of boys in the line, and so on. Counting rhymes are wonderful and learners enjoy this type of activity.

MENTAL AND NUMBER SENSE ACTIVITIES



Before starting to teach mathematical concepts, learners in Grade 1 need to follow an **emergent numeracy programme** to develop listening skills, auditory / visual discrimination and memory, gross / fine motor and eye-hand coordination, body image, laterality and figure-ground perception. You may find that there are learners in your Grade 2 and 3 classes who still need such a programme. Annexure

9 explains these terms and provides examples of activities. You will find learners at different levels of readiness in your class. Your programme should meet the needs of all the learners i.e. learners who are ready to move on should not be kept at the same level as learners who are still developing these essential skills.

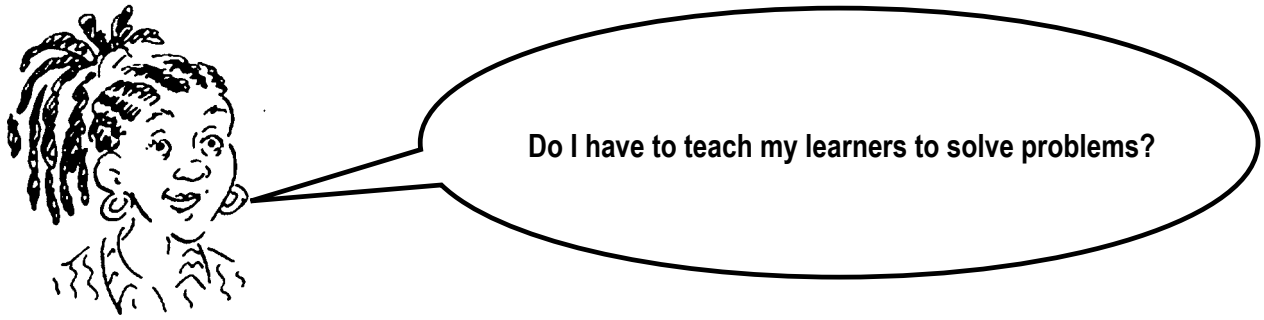
Many teachers are in a hurry for their learners to know facts 'off by heart'. However, knowing facts 'off by heart' is no indication that the learners understand what they are doing, or that they will be able to use these facts in different contexts. It is much, much more important that you design activities which will help your learners develop a **sense of number** because it is this sense of number that learners use when trying to build up an understanding of computational strategies. You cannot teach number sense, you can only help learners acquire it by exposing them to various activities which allow learners to construct knowledge for themselves. Encouraging learners to reflect on what they are doing and then talking about it, helps these learners to develop a sense of number.

Different kinds of knowledge (physical, social and logico-mathematical) form part of one's number sense and so it is important that these are clearly reflected in your teaching programme.

- *Physical* knowledge is the knowledge that the learner acquires from physical objects – so you can see how important it is to use counters and objects and to count out, and not to just rote count!
- *Social* knowledge can only be learnt through interaction with people - and number names and symbols are an example of social knowledge acquired by learners.
- *Logico-mathematical* knowledge refers to the type of knowledge that learners construct for themselves e.g. noticing the pattern of the number names (forty-one follows on forty) goes beyond social knowledge of the number names. The most important aspect of *logico-mathematical* knowledge which the young learner has to construct regarding numbers is **numerosity.** This means to have a feeling for the "how many" of a number – to build up a profile of the number so as to know as much as possible about a number.

Learners pass through three developmental levels – counting all, counting on and breaking up numbers. Again, you cannot teach these levels, you can only support the learners' development by providing appropriate activities. By doing this, mental arithmetic skills will develop naturally as learners start shortening their methods for solving problems – fewer steps will be written down as more calculation is done mentally. Do not neglect geometry and measurement – geometrical activities and word problems with geometrical contexts are very much part of number sense development and problem-solving.

PROBLEM SOLVING

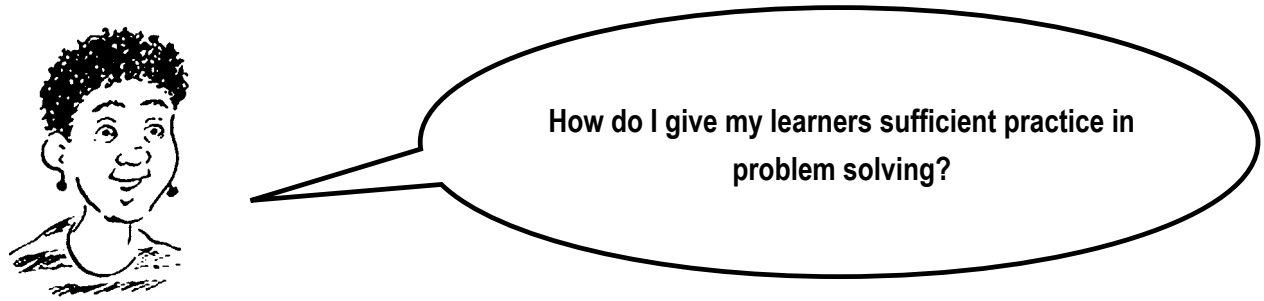


There are many different ideas as to what problem solving is and its value for young children. However, one of the focal points of the Mathematics Learning Area is that learners be exposed to problems on a regular basis. It also states that in the Foundation Phase:-

> *"the number concept of the learner is developed through working with physical objects in order to count collections of objects, partition and combine quantities, skip count in various ways, solve contextual (word) problems and build up and break down numbers." (p8)*

But what exactly is a problem? A definition is "*A problem is a task that requires the person solving the problem to use knowledge, understanding and skills that he/she has acquired from other activities and to apply these to the new and unfamiliar situation and come up with a solution".*

When you read the Assessment Standards you will notice that it is stated that 'learners can perform calculations …**to solve problems**', and '**solves money problems**', and '**solves and explains solutions to practical problems** that involve equal sharing and grouping..' By placing information in context, problem solving becomes a powerful activity and is one of the main vehicles for developing number sense. Therefore you need to constantly challenge learners with realistic, real-life problems without first teaching prerequisite tools or operations. You will never again teach that "the word 'altogether' means you must add, and that 'how many are left' means you must take away"! This means learners should be able to solve problems using all four operations before they even know what they are! In order to fulfill the purpose of word problems, learners should regularly be given problems which are new to them and for which they do not possess routine methods of finding the answer. The objective of giving word problems is to enable your learners to develop new knowledge, take note of how others solve the problem and to reflect on their own thinking.



No one can become a proficient problem solver if they are only exposed to problems once a term! Learners need to be exposed to problems as often as possible. The lesson plans give an indication as to how you can manage this every second day. Care must be taken not to concentrate on one particular type of problem, or problems relating to only one operation. Each problem must be

interpreted on its own. Exposing learners to a variety of problems enables them to develop their ability to interpret problems, and this helps to give meaning to the concept of the operations. Annexure 2 provides a list of the different problem types. You will need to adapt the names and the numbers to suit your learners. Use the list as a guide and make up your own problems which suit your context. Although you can ask the whole class the same problem at the same time, most teachers have found that it is more manageable to do problem solving during Group teaching time.

What do the rest of the class do during Group teaching time?

Taking two or more groups will take at least half an hour for each group every day, perhaps a bit longer. Learners not busy with the teacher need to be involved in independent written or practical activities. These activities need to be such that learners know what they have to do and be able do it without interrupting the teacher, asking for help. Training learners to get on with work on their own takes considerable time and patience. The learners need to know which tasks they have to do and, possibly, the order in which they have to complete them. The level of difficulty of the tasks should be such that they don't need help from you. If you think your learners will battle with a particular task – wait until you have time to help them or your group sessions will be continually interrupted.

During the first term the tasks have been kept simple, short and quite repetitive. Often learners will be expected to complete 2 or at the most 3 tasks per day, copying numbers from the board and drawing a picture, completing a readiness activity, or doing a dot-to-dot activity. It helps to have some routine initially so that the order of tasks remains the same and learners gain confidence in working through more than one activity independently, rather than having to continually ask the teacher, "*What do I do next?"*

What do we mean by Group teaching and Group work?
Are they the same thing?

GROUP TEACHING OR GROUP WORK

Learners come to school with very different levels of readiness for formal teaching and learning due to variations in age, sex, ability and attendance at a grade R or pre-school. Some children have special needs that should be identified in the first years of school so that differentiated learning can take place at an early age. .Learners progress in Grade 1 will vary considerably, so the Grade 2 teacher needs to provide for revision and the re-teaching of skills and concepts where necessary.

Teaching and working in groups is a powerful tool to cater for all these diverse needs. Group teaching and group work are also ideal for multi-grade and multi-phase classes.

Group teaching means different things to different people. However, it is not just rearranging the desks into groups. You can either:

- teach learners in same ability groups so that they are taught at a pace that is comfortable for them and their learning is scaffolded. The quicker learners can be challenged and extended and the weaker learners can benefit from more time, support and attention in a small group situation. The learners do not all need to be at the same stage of learning and the activities given to the learners can be varied to meet their needs. Those with special needs can be supported in this way.
  To do this you will need to divide the learners into same-ability groups for certain activities. This works very well as it accommodates the range of abilities in a class – specially large classes. Most teachers find that they can comfortably work with 3 or 4 groups in the class
  OR
- teach the whole class the same lesson BUT differentiate the activities by giving DIFFERENT tasks to either individuals or groups of learners; these tasks can either be at the same level or at varying levels of difficulty. This works well for collaborative learning, small classes and where there are not huge differences between the levels of learners.

Many teachers do not differentiate between the learners' ability levels and do group teaching because they think that they will now have to plan three lessons instead of only one! However, group teaching offers great benefits for everyone in the classroom. You deal only with a group of about 10 learners at one time, while the learners learn self-discipline and take responsibility for their own learning. For group teaching to be successful, you will have to be well organized and know exactly what outcome you are expecting for each group that day. The lesson plans will guide you if you have never attempted group teaching before.

Group work

Group work differs from group teaching in that during group work the whole class is engaged in the same activity at the same time. Groups for these lessons are generally randomly chosen and are mixed ability groups. The idea is that each group will work on one aspect related to the main topic and at the end of the lesson they will present their findings to the rest of the class. As each group adds their information, a whole picture of the topic emerges. This type of work is suited to aspects such as measurement and data handling.

RESOURCES

The Government Gazette No 30880 gives a list of recommended resources for Numeracy which schools should endeavour to provide. In addition to exercise books, Learner's Books, Workbooks and basic stationery which most schools already provide, the following are highlighted as being especially important for Grade 3:

- Counters

- Number squares/grids
- Number dice
- Small individual abacus
- Small white boards and pens, or small chalk boards and chalk
- Coloured sticks, beads and threads
- Shapes

FIRST TERM OVERVIEW

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10
Counting	Whole Class : Daily rote counting in 1s to 300 Whole class : Daily rote counting in multiples of 2, 5 and 10									
	Whole class: Daily rational counting in 1s, 2s, 5s, and 10s, forwards and backwards, starting and ending at any number as indicated									
	Counts out objects in 2s to 50	Counts out objects in 5s to 50	Counts out objects in 10s to 50	Counts out objects in multiples to 50				Counts out objects in multiples to 100		
	Count in 10s from 10 to 200	Count in 10s to 200 starting and stopping at any number	Count in 100s to 1000	Count in 10s to 200 starting and stopping at any number	Counting in 2s and 20s forwards and backwards to 200	Counting in 5s and 50s forwards and backwards to 500	Count in 2s and 20s to 200, 5s and 50s to 500 and 10s and 100s to 1000	Counting in 2s, 20s, 5s, 50s, 10s and 100s forwards and backwards starting and ending at any number		
	Revision of ordering numbers 1st to 50th									

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10
Concept Development and Number Sense	Revision of Grade 2 knowledge and skills									
	Develop vocabulary for the concepts being dealt with each week									
	Knows, reads and writes number name and symbol for 1 to 100									
	Add and subtract 2- digit and 1-digit numbers				Add and subtract two two-digit numbers where the one number is a whole 10			Add and subtract a three-digit and a two-digit number where the two-digit number is a whole 10		
					Repeated addition and subtraction of 2, 5 and 10					
					Recognises and completes given number patterns					
	Revision of multiplication of 2, 5 and 10				Calculations using multiples of 2, 5 and 10					
					Doubles and halves numbers to 50					Doubles and halves numbers to 50
	Identifies the numerosity of numbers to 50				Identifies the numerosity of numbers to 100					
					Expanded notation of two and three-digit numbers					
					Addition and subtraction working with whole tens					
					Recognises symmetry in 2-D shapes			Recognises symmetry in 2-D shapes		
					Data handling	Measurement	Data Handling Measurement			

		Problem solving. Introducing group teaching. Work with mixed ability groups	Problem solving. Work with mixed ability groups and establish a group of learners ready to move on more quickly.	Problem solving. Work with 1 better ability group and 2 mixed ability groups. Establish a group needing to consolidate Grade 2 numeracy skills.	Problem solving. Work with 3 ability groups at their own level.

During the first term there will be a focus on revising and consolidating concepts developed in Grade 2, developing number sense and exposing learners to problem solving. Learners should be allowed access to counters, number grids, number lines, etc. when working with numbers and solving problems if they need them.

NB: It is important that the concepts learned in Learning Outcome 1 are also developed in the context of the other Learning Outcomes. For example, recognising patterns is an essential mathematical skill and this is done through counting in multiples as well as completing number patterns such as counting in 10 starting from any number. An understanding of fractions is built up by exposing learners to different problem contexts and this links with the concept of symmetry. By using the learners' knowledge of relationships they are able to sort numbers according to two criteria.

THE ASSESSMENT FRAMEWORK

	ACTIVITIES THAT WILL BE USED FOR ASSESSMENT		
	COUNTING	CONCEPT DEVELOPMENT	PROBLEM SOLVING
WEEK 1			
WEEK 2			
WEEK 3			
WEEK 4	Oral activity dealing with counting in multiples Practical activity dealing with counting out to 100 Practical activity counting in 10s starting at any number	Practical and written activities dealing with expanded notation of two-digit numbers Practical and written work dealing with addition and subtraction of one-digit and two-digit numbers	Oral and practical work dealing with expanded notation
ASSESSMENT TASK 1 COMPLETED			
WEEK 5			
WEEK 6			
WEEK 7	Oral, practical and recorded activities dealing with counting in multiples and number patterns Oral activity dealing with the numerosity of numbers to 34	Recorded activity dealing with doubling and halving Practical and recorded activities dealing with sorting according to two criteria Practical activity to assess understanding of measurement : length	Oral and practical activities dealing with the addition and subtraction of two two-digit numbers
ASSESSMENT TASK 2 COMPLETED			
WEEK 8			
WEEK 9		Written activity dealing with recognising the pattern of counting in 10 starting from any number Practical and recorded work dealing with working to the 10 when adding and subtracting Practical activity dealing with symmetry	Oral, practical and written activities dealing with solving problems using grouping and sharing where the remainder is a fraction Oral, practical and written activities dealing with solving problems and explaining solutions
ASSESSMENT TASK 3 COMPLETED			
WEEK 1O			

The criteria for the assessment are drawn from the Learning Outcomes, the Assessment Standards and the Milestones

FIRST TERM: WEEK 1

COMPONENT	MILESTONES	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5
COUNTING LO 1 AS 1, 2	• Counts out objects to 100 • Counts in multiples of 2 and 20 to 200, 5 and 50 to 500, 10 and 100 to 1000	Daily : • Rote count from 1 to 100. • Counting from a given number to 100, counting forwards and backwards using a number card. • Count out objects up to 50 in 1s and 2s. • Counting in multiples of 2.				
NUMBER SENSE AND MENTAL LO1 AS3, 8 LO 2 AS2	• Consolidation of concepts developed in Grade 2 in readiness for Grade 3 • Count in10 starting at any number e.g. 2, 12, 22, 32 etc • Knows, reads and writes number names and symbols from 1 to 100 and explores their relationship • Is able to add and subtract two digit and 1 digit numbers • Calculates multiplication of 2, 5, 10	Daily: • Count in 10s from 10 to 200. • Number patterns.				
		DAY 1	**DAY 2**	**DAY 3**	**DAY 4**	**DAY 5**
		Revision: Word and number 1-30 Addition and subtraction of 2 digit and 1 digit number e.g. 43 + 5 38 - 3	Revision: Word and number 31- 50 Addition and subtraction of 2 digit and I digit number e.g. 59 + 4 85 - 3	Revision: Word and number 51-70 Multiplication of 2	Revision: Word and number71-100 Multiplication of 2	Revision: Word and number 1-100 Addition and subtraction of 2 digit and 1 digit number Multiplication of 2
GROUP TEACHING LO1 AS8, 11	• Solve problems, and explains solutions, using number charts and counters if needed with numbers up to 200	Ask each group the same problems. They can be solved using counters, drawings, etc. Number range: 1-50				WHOLE CLASS ACTIVITY
			Do 1 or 2 word problems each day	Do 1 or 2 word problems each day	Do 1 or 2 word problems each day	

WEEK 1: WHOLE CLASS

WEEK 1	WHOLE CLASS COMPONENT (Counting and Mental/Number Sense)

Notes to the teacher:

- Week 1 is extended over 8 days - the first two weeks of school- and ends at the end of the actual second week of the term. Teaching must begin on the first day of school. Every learner must go home having learnt something. However, the first three days are disruptive in many schools due to orientation and administration. Therefore week 1 (8 days) will enable you and the learners to settle down as soon as possible so that work can begin.
- The Numeracy time allocation is an hour and forty-five minutes (1H45) per day. It would be ideal to have all this time together. The Numeracy time is divided into 3 components viz. Counting (15 minutes), Mental and Number sense (20 to 30 minutes) and group teaching (20 minutes per group). However, for the first term the numeracy time is spread throughout the day, with no more than a one hour session as young learners settling into a new classroom routine are often not able to concentrate for longer than this.
- Ensure that you have all the resources required for every lesson. All other teaching aids must be made or organized before the day commences. It is not good practice to make resources like charts during instruction time. A well organized educator has very little discipline problems and ensures that maximum time is spent with the learners.
- Counting at the beginning of the day helps learners to focus on numbers. Every day you will let your learners do rote counting (to develop the vocabulary of numbers) as well as rational counting (thinking what they are doing) activities. Counting at the beginning of the lesson is done with the whole class every day.
- Daily activities indicate activities that should be done every day. The specific concepts being developed are indicated every day e.g. Day 1.
- Marking the register and talking about the Weather chart and Birthday chart are daily activities involving incidental learning and are usually part of the Literacy Oral component. These activities can also be done during the Numeracy lessons.
- Always ensure that all learners have their writing materials - pencils, crayons, rulers, books etc. before commencing the lesson.
- Every learner needs to have a set of counters. An example is use white kidney beans as counters. Count 100 and place in a money bag. This is a cheap and can be used very easily by the learners.

DAILY ACTIVITIES

COUNTING AND MENTAL/NUMBER SENSE

Daily Activities.(to take no more than 15 minutes)

To be done daily:

- Learners rote count from 1 to 100.
- Learners count in multiples of 2 from 0 to 100.

Choose from the following (to make up 15 min).

- Counting from a given number e.g. 38 to 100 with number cards for each learner or the teacher's number chart. They point to each number as they are counting paying attention to the direction i.e. from left to right – then proceed to the second row and begin from the left.
- Counting forwards and backwards from a given number 47 to 90 and 89 to 30 using number cards, number line, abacus, etc.
- Count in 10s from 10 to 100 – observe number pattern.
- Count out objects up to 50 in 1s and 2s.
- Learners enjoy number rhymes and songs. This type of activity will be beneficial to your slower learners.

DAY 1 (to take no more than 30 minutes)

- Ask learners questions such as: "What number comes after 154?", "What five numbers come just before 200?", and "What are the even numbers between numbers 30 and 40?", "Name three numbers that are bigger than 67". Learners use the number grid to answer the questions.
- Have flashcards with numbers and number words and flash to the class - learners say the number or the word. Draw two columns on board. Write the numbers on the left side of the column and the number words on the right side of the column. Learners are asked to match the number with the number word.
- Write a few sums on the board e.g. 43 + 5 = 54 – 3 = 76 + 2 = 89 – 3 =
  Learners use their number charts counting on from the first number to arrive at the answer. If a subtraction sum is done then learners point to the first number on their number cards and move backwards according to the second number to get the answer. This is done practically with the learners.
- Give the learners a simple word problem to solve e.g. *there are 15 birds on the fence and 3 join them. Then 4 fly away. How many birds now on the fence?* Ask a learner to come and write the number sentence on the board (15+3-4=). Repeat this activity a few times.

DAY 2 (to take no more than 30 minutes)

- Ask learners questions such as, "I am thinking of a number. It has a 2 in it. It is bigger than 100, but smaller than 110. What number is it? I am thinking of a number. It is a 2 digit number. It is more than 49 and less than 51. What number is it"?
- Use the flashcards with the numbers and the number words. Flash the cards and learners say the word or the number. Write the numbers from 31 to 50 on the board. Learners are asked to write the number and then write the number word next to it. Learners can refer to the teacher's wall chart on numbers and number words in order to help them to spell.
- Put up a chart with addition and subtraction sums. Learners are asked to copy the sums into their books. Using their number cards, learners can work out the answers and write it as their answers in their books.

DAY 3 (to take no more than 30 minutes)

- Hand out work cards that contain shapes that can be counted. An example has been provided as Annexure 4. In the example provided, Word card 1, has ungrouped shapes and in Work card 2 they have been grouped. Learners should find their own way to group the shapes on Work card 1 to make counting easier. However, any learners who struggle to do that can rather use Work card 2, where the pictures have already been grouped. Let learners work on their own or in pairs first and then compare what they found with their group.
- Learners are given worksheets. The numbers are written on top of the worksheet e.g. 56 68 53 70 69 etc. The number names are written in the worksheet. The learners have to choose the correct number from the top and write it next to the number name.
  sixty nine = _____ fifty three = _____

- Give each learner 20 counters. Learners are asked to group the counters into groups of 2 and then to count the groups of two's. Learners then put two counters back in their packet. They will now have 18 counters. Learners will then be asked to count the groups of 2 as well as the number of groups. Many examples can be used. This work is done practically while you walk around to see if the learners are grouping correctly. Each time ask the learners to say how many groups and counters they have e.g. I have 6 groups of 2 so I have 12 counters.

DAY 4 (to take no more than 30 minutes)

- Ask learners questions such as:
  "What number comes after 189?"
  "What five numbers come just before 110?"
  "What are the even numbers between 130 and 140?"
  "Name three numbers that are bigger than 93"
  "What number comes after 99"
  "What number comes before 200"
- Learners will be given cards with the numbers (about 5 numbers per card). Numbers will range between 71 to 100.Learners will copy the numbers from their cards in their books and write the number names. They then exchange cards with their partners and copy those numbers in their books and write the number names.
- Write multiplication sums on the board e.g. 2 x 1 = **up** to 2 x 10 =. Learners are asked to copy the sums in their books. For the sum 2 x 5 = they would draw 5 groups of 2 circles. They would count the circles and write the answer. An example is 2 x 5 = oo oo oo oo oo = 10
  Learners can use counters and make their groups and then draw.

DAY 5 (to take no more than 45 minutes) – whole class

- This game uses sets of number cards which include cards for the numbers from 1 to 9 and from 10 to 90. The game helps to consolidate Grade 2 knowledge of numbers up to 100. Groups must be divided into two teams of 3-4 learners each called Team A and Team B. Give each team of learners a set of number cards.

Round One

Each team must shuffle their number cards, keeping the single digit cards separate from the two-digit cards. One learner in Team A closes eyes and chooses one number card from each pile. He or she makes a two digit number with the cards and hides it from the other team. A member of Team B closes eyes and chooses one number card from each pile. The team then makes a two digit number. They compare numbers and whoever has the highest number wins the round. Team members check that the numbers are right.

Round Two

Tell the teams to swap their two-digit number with the other team's two-digit number. Now they each make a new number with their cards and compare numbers. The team with the highest number wins.

Round Three

Teams choose two more two-digit number cards and two more single digit cards (with their eyes closed). They take all their cards and make the highest numbers that they can. They must put their numbers in order from the biggest to the smallest. Both teams put their six numbers together in order from biggest to smallest. The highest number scores 6 points, the next highest will get 5 points down to the smallest number with 1 point.
Teams add up their scores to see which team has the most points.
Mix the teams and play the 3 rounds again.

Assessment	**Formal:** No formal recorded assessment. **Informal**: Unrecorded assessment of learners' oral responses and ability to participate.

WEEK 1: GROUP TEACHING

WEEK 1	**GROUP TEACHING COMPONENT (Concept Development and Problem Solving)**

Notes to teacher:

- On Tuesday introduce the class to group work. Randomly divide your class into 3 groups, not more than 12 learners in a group. If you have a large class you may need 4 groups. For the first part of the lesson (about 30 minutes) do the counting and number sense activities with the whole class. Then explain the activities they will do while you are busy with a group. This is the Independent work suggested. Have extra activities, such a jig-saw puzzle, ready for the quick workers. Work with 1 group a day for about 20 minutes and do the same activities with each of the groups. Work with 1 group on Tuesday, 1 group on Wednesday and 1 group on Thursday.
- Do not be afraid to ask learners to solve a problem. They come to school already being good problem solvers! You are not asking them to write down sums. You are giving them a problem situation and asking them to solve it through talking to each other, using concrete apparatus, drawing pictures and then explaining how they solved the problem and what their solution is. Learners are working in 3 mixed ability or social groups for this week.

DAILY ACTIVITIES

Examples of activities to be done independently. *Work from a Learners' Book, worksheets, workcards, work from the board, etc.*

- Worksheet: Join the dots from 1-100. Colour in the picture according to the colour grid.
- Addition and subtraction with 2 digit and 1 digit numbers up to 20.
- Repeated addition and subtraction number sentences.
- Halving and doubling activities.

- Activities recognising numbers before and after given numbers e.g.

Before		After
	27	
	36	
	19	

- More and Less. 2 more than 35 is … 5 less than 99 is …
- Number patterns. Complete the pattern 58 60 62 ___ 66 68 ___
- Matching pictures with numbers or numbers with words up to 50

Working with the group

GROUP 1

*On **Tuesday** this group works with the teacher for 20 minutes.*

- Do an **estimation activity.** Give each pair of learners a pile of counters (they can work on their own or in pairs). Start with piles of over 30 counters. Ask them to estimate the number of counters first. Discuss these estimates with the group – if one guess is obviously much too big or too little, see if learners can explain why they think the estimates are far out. Choose one pile of counters for the whole group to estimate. Ask questions such as: *"Is this pile of beans closer to 5 or to 50", "If it's closer to 50, is it less than 20 or more than 20"*. If learners still don't have a sense of a 'good guess', put the pile aside and count out say 20 counters from your stock. Compare the pile for estimation with the pile of 20. Is it more or less? Now compare it to a pile of 50. Is it more or less? Narrow it down until learners can make a reasonable estimate of how many counters there are. Check the estimates together as a group, counting out the pile of counters to see how accurate the estimates are. Counting could be done in twos (2; 4; 6; ….)
- Give learners paper, writing tools, counters and a number square. Ask them two different word problems which they solve by talking about them, drawing pictures and so on. Use the number range 1 to 50. Let each learner tell the group how s/he solved the problem. Ask 1 addition and 1 subtraction problem.
-

GROUP 2

*On **Wednesday** this group works with the teacher for 20 minutes.*

- Do an **estimation activity.** Give each pair of learners a pile of counters (they can work on their own or in pairs). Start with piles of over 30 counters. Ask them to estimate the number of counters first. Discuss these estimates with the group – if one guess is obviously much too big or too little, see if learners can explain why they think the estimates are far out. Choose one pile of counters for the whole group to estimate. Ask questions such as: *"Is this pile of beans closer to 5 or to 50", "If it's closer to 50, is it less than 20 or more than 20"*. If learners still don't have a sense of a 'good guess', put the pile aside and count out say 20 counters

from your stock. Compare the pile for estimation with the pile of 20. Is it more or less? Now compare it to a pile of 50. Is it more or less? Narrow it down until learners can make a reasonable estimate of how many counters there are. Check the estimates together as a group, counting out the pile of counters to see how accurate the estimates are. Counting could be done in twos (2; 4; 6; ….)

- Give learners paper, writing tools, counters and a number square. Ask them two different word problems which they solve by talking about them, drawing pictures and so on. Use the number range 1 to 50. Let each learner tell the group how s/he solved the problem. Ask 1 addition and 1 subtraction problem.

GROUP 3

*On **Thursday** this group works with the teacher for 20 minutes.*

- Do an **estimation activity.** Give each pair of learners a pile of counters (they can work on their own or in pairs). Start with piles of over 30 counters. Ask them to estimate the number of counters first. Discuss these estimates with the group – if one guess is obviously much too big or too little, see if learners can explain why they think the estimates are far out. Choose one pile of counters for the whole group to estimate. Ask questions such as: *"Is this pile of beans closer to 5 or to 50", "If it's closer to 50, is it less than 20 or more than 20"*. If learners still don't have a sense of a 'good guess', put the pile aside and count out say 20 counters from your stock. Compare the pile for estimation with the pile of 20. Is it more or less? Now compare it to a pile of 50. Is it more or less? Narrow it down until learners can make a reasonable estimate of how many counters there are. Check the estimates together as a group, counting out the pile of counters to see how accurate the estimates are. Counting could be done in twos (2; 4; 6; ….)
- Give learners paper, writing tools, counters and a number square. Ask them two different word problems which they solve by talking about them, drawing pictures and so on. Use the number range 1 to 50. Let each learner tell the group how s/he solved the problem. Ask 1 addition and 1 subtraction problem.

Assessment	**Formal:** No formal recorded assessment. **Informal**: Unrecorded assessment of learners' oral responses and ability to participate.

FIRST TERM: WEEK 2

COMPONENT	MILESTONES	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5
COUNTING LO 1 AS 1,2,	• Counts out objects to 100 • Counts in multiples of 2 and 20 to 200, 5 and 50 to 500, 10 and 100 to 1000	Daily : • Rote count from 1 to 200 • Count from a given number to 100(change number), counting forwards and backwards using a number card • Count out objects up to 50 in 5s • Counting in multiples of 5				
NUMBER SENSE AND MENTAL LO1 AS3 AS8	• Consolidation of concepts developed in Grade 2 in readiness for Grade 3 • Count in10 starting at any number e.g. 2, 12, 22, 32 etc • Knows, reads and writes number names and symbols from 1 to 100 and explores their relationship • Is able to add and subtract two digit and 1 digit numbers • Calculates multiplication of 2, 5, 10	Daily: • Count in 10s from any given number up to 100 • Number patterns				
		DAY 1	**DAY 2**	**DAY 3**	**DAY 4**	**DAY 5**
		Revision Word and number 1-100	Revision Addition and subtraction of 2 digit and I digit number (from 6-9) up to 50 44-8 38+9	Revision Multiplication of 5	Revision Addition and subtraction of 2 digit and 1 digit number (from 6-9) 65 + 8 71 - 9	Revision Word and number 1-100 Addition and subtraction of 2 digit and 1 digit number Multiplication of 5
GROUP TEACHING LO1 AS8,11	• Solve problems, and explains solutions, using number charts and counters if needed with numbers up to 200	Ask each group the same problems. They can be solved using counters, drawings, etc. Number range: 1-50				WHOLE CLASS ACTIVITY Number game.
		Group 1 works with teacher. *Ask 1 addition and 1 multiplication word problem.* Groups 2 and 3 work on their own	Group 2 works with teacher. *Ask 1 addition and 1 multiplication word problem.* Groups 1 and 3 work on their own	Group 3 works with teacher. *Ask 1 addition and 1 multiplication word problem.* Groups 1 and 2 work on their own	Take selected ability group. The rest of the class works on their own.	

WEEK 2: WHOLE CLASS

WEEK 2	WHOLE CLASS COMPONENT (Counting and Mental/Number Sense)

Notes to the teacher:

- The Numeracy time allocation is an hour and 45 min. per day. It would be ideal to have all this time together. The Numeracy time is divided into 3 components viz. Counting (15 minutes), Mental and Number sense (20 to 30 minutes) and group teaching (20 minutes per group). However, for the first term the numeracy time is spread throughout the day, with no more than a one hour session as young learners settling into a new classroom routine are often not able to concentrate for longer than this.
- Ensure that you have all the resources required for every lesson. All other teaching aids must be made or organized before the day commences. It is not good practice to make resources like charts during instruction time. A well organized educator has very little discipline problems and ensures that maximum time is spent with the learners.
- Counting at the beginning of the day helps learners to focus on numbers. Every day you will let your learners do rote counting (to develop the vocabulary of numbers) as well as rational counting (thinking what they are doing) activities. Counting at the beginning of the lesson is done with the whole class every day.
- Daily activities indicate activities that should be done every day. The specific concepts being developed are indicated every day e.g. Day 1.
- Marking the register and talking about the Weather chart and Birthday chart are daily activities involving incidental learning and are usually part of the Literacy Oral component. These activities can also be done during the Numeracy lessons.
- Always ensure that all learners have their writing materials - pencils, crayons, rulers, books etc. before commencing the lesson.
- Every learner needs to have a set of counters. An example is use white kidney beans as counters. Count 100 and place in a money bag. This is a cheap and can be used very easily by the learners.

DAILY ACTIVITIES

COUNTING AND MENTAL/NUMBER SENSE

Daily Activities.(to take no more than 15 minutes)

To be done daily:

- Learners rote count from 1 to 200.
- Learners count in multiples of 5 from 5 to 50 and then from 100 to 150

Choose from the following (to make up 10 min).

- Ask learners the following questions. Allow them to use their number cards to help them answer the questions:
  - Is the number 48 in the 5s pattern?
  - Is 160 in the 5s pattern and the 10s pattern?
  - Which of these numbers is in the 5s pattern, but not in the 10s pattern?
  - What is the first number that is in the 2s pattern and the 10s pattern?
  - Is 73 in the 2s pattern?
  - Which of these numbers are even: 3 6 9 12
  - Which of these numbers are odd: 33 66 99 120
- Counting forwards and backwards from a given number 49 to 90 and backwards from 99 to 25 using number cards, number line, abacus.

- Count in 10s from 10 to 100 – observe number pattern.
- Count out objects up to 50 in 5s.
- Learners enjoy number rhymes and songs.

DAY 1 (to take no more than 30 minutes)

- Learners work with 1-100 number squares. Ask them to put a counter on the number 10. Then ask which number will be 10 blocks after this one? (20). And after this one? (30). Ask learners to complete the pattern they have made on their number squares up to 100. Ask one or two learners to explain the pattern they have just made using their own words. Now ask learners to put a counter on the number 7. Ask them to put another counter on a number that is exactly 10 more than 17. Ask if they add another 10 to this number (17), can they guess where to put the next counter? Ask them to complete the pattern and put counters on every 10th number after this. Then learners can read out the numbers with counters on them. (7, 17, 27, 37, 47, 57, 67, 77, 87, 97)
- This is a practical lesson. Give each learner a card. Half the learners will have cards with 2 digit numbers (e.g. 26, 48) and the other half of the class will have cards with the same 2 digit numbers, but written in words (twenty-six, 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.
- Give the learners a simple word problem to solve e.g. *there are 17 birds in the tree and 5 join them. Then 4 fly away. How many birds now on the fence?* Ask a learner to come and write the number sentence on the board (17+5-4=). Repeat this activity a few times.

DAY 2 (to take no more than 30 minutes)

- Learners work with 1-100 number squares. Ask them to put a counter on the number 10. Then ask which number will be 10 blocks after this one? (20). And after this one? (30). Ask learners to complete the pattern they have made on their number squares up to 100. Ask one or two learners to explain the pattern they have just made using their own words. Now ask learners to put a counter on the number 3. Ask them to put another counter on a number that is exactly 10 more than 13. Ask if they add another 10 to this number (13), can they guess where to put the next counter? Ask them to complete the pattern and put counters on every 10th number after this. Then learners can read out the numbers with counters on them. 93, 13, 23, 33, 443, 53, 63, 73, 83, 93). Repeat the activity using different numbers.
- Learners choose a two-digit number which you write on the board e.g.34, and learners copy into their books. You call out a single digit number and learners first add this number to the two-digit number and then subtract it. For example, the learners write 34 in their books, you call out 8, learners will do the following 34+8=→34–8=. Discuss the answer and learners mark their own work. Repeat the activity a few times using different numbers.
- Give the learners a simple word problem to solve e.g. *there are 12 children playing soccer. 3 join them. How many feet can be seen?* Ask a learner to come and write the number sentence on the board (12+3→15 x2 = 30). Repeat this activity a few times.

DAY 3 (to take no more than 30 minutes)

- Ask several questions such as the following ones. If someone knows the answer, they should show a finger or thumb, without raising a hand or shouting out. Wait until there has been a bit of time for every child to get the answer before you ask. Questions could be: *What number is10 more than 81? What number is10 less than 13? What 3 numbers come after 44 if you count in 10s from there? What numbers come before 99 if you count in 10s backwards from there?*

  Tip: *Let 4 or 5 learners answer each time even if the first answer is correct. This makes learners check their own answer so that they are confident that they are right!*
- Ask learners quick calculations with 10 for numbers between 1 and 200. They can use their number cards to help them. Here are some examples:
  - "I am thinking of a secret number. When I add 10 to this number, I get 32. What is my number?"
  - "I am thinking of a secret number. When I subtract 10 from this number, I get 155. What is my number?"
- Give each learner 50 counters. They are asked to group the counters into groups of 5. Learners will then be asked to count the number of counters by counting in fives and then count the number of groups. Learners then put away 5 counters in their packet. They will now have 45 counters. Learners will again be asked to group the counters in groups of 5, count the counters in their groups as well as the number of groups. Many examples can be used. This work is done practically while you walk around to see if the learners are grouping correctly.

DAY 4 (to take no more than 30 minutes)

- Use activities from textbooks or worksheets that use different forms of number patterns. Here are some examples:

20 [+10] → 30 [+10] → 40 [+10] → ____ [+10] → ____ [+10] → ____

93 [-10] → ____ [-10] → ____ [-10] → ____ [-10] → ____ [-10] → ____

Learners work in pairs to complete the tables. In this way they check each other, so are able to mark their own work.

- Learners choose a two-digit number which you write on the board e.g.67, and learners copy into their books. You call out a single digit number and learners first add this number to the two-digit number and then subtract it. For example, the learners write 67 in their books, you call out 6, learners will do the following 67+6= 67-6=. Discuss the answer and learners mark their own work. Repeat the activity a few times using different numbers.

DAY 5 (The whole lesson with the whole class)

- Call one learner to the front and asked to show his/her 10 fingers to the class. Ask how many fingers and many learners there are. Call another learner who shows his/her 10 fingers to the class and then the third learner is called - each time asking how many fingers and how many learners there are. Once there are 8 learners standing in the front of the class, challenge learners by saying: if 8 learners have 80 fingers, how many learners do I need to have 120 fingers? Let them work it out until the correct number of learners are standing in the front. Challenge the learners again by using an even bigger number!
- Take the learners outside and divide them into 2 groups. One group will play the game while the other group observes. You will need the following resources for the game: a hoop, an A4 size page and about 9 counters. Each learner will take a pencil and paper to write on with them. Place the hoop on the ground and place the A4 page in the middle. Count ten paces away from the hoop and make a line with a chalk or place a piece of string, etc. Explain the game to the learners. One learner stands on the line and is given 9 counters. The learner throws the 9 counters inside the hoop. The counters that land on the paper represent a 2 digit number and counters that land outside the page but in the hoop represent a single digit number. Example: if 5 counters land on the paper it will represent the number 50 and if 4 counters land outside the page it will represent the number 4, so learners will calculate to see what number is i.e. 54. The counters that land outside the hoop will not be counted. The rest of the learners will write the number down on their paper. Then the next learner of group 1 has a turn. All learners in the group will have a turn to throw the counters while the numbers are recorded. At the end of the game, the teacher asks questions e.g. who had the highest number, who had the lowest number etc. Group two will sit around the hoop and observe and also record the numbers. Group 2 will have their turn on another day.

Assessment	**Formal:** No formal recorded assessment. **Informal**: Unrecorded assessment of learners' oral responses and ability to participate.

WEEK 2: GROUP TEACHING

WEEK 2	GROUP TEACHING COMPONENT (Concept Development and Problem Solving)

Notes to teacher:

- In the first week you introduced the class to working on their own while you worked with a group. You had 3 or 4 mixed ability groups and worked with each one during the week.
- This week, during the group teaching time, you will establish which learners are ready to work more quickly and this will be your first ability group.
- While you are working with a group, the rest of the class will be working independently. You need to provide them with a variety of activities which reinforce and consolidate concepts already learnt. Try to vary the activities e.g. giving a practical activity (counting counters in counting bags), a written activity (filling in numbers, sequencing, etc.) and a fun activity (dot-to-dot pictures, puzzles, etc.)

DAILY ACTIVITIES

Examples of activities to be done independently. *Work from a Learners' Book, worksheets, workcards, work from the board, etc.*

- Worksheet: Join the dots. Numbers are in multiples of 2. Learners colour picture according to colour grid.
- Addition and subtraction of 2 digit and 1 digit numbers up to 50.
- Repeated addition and subtraction number sentences.
- Halving and doubling activities: half of 20 + 5 = 8 doubled + 9 =
- Before and after up to 50.
- More and less. 2 more than 35 is … 5 less than 99 is …
- Number patterns. Complete the pattern 38 + 5 + 5 + 5 =
- Matching numbers both single digit numbers and double digit numbers with the number name.

Working with the group

GROUP 1

*On **Monday** this group works with the teacher for 20 minutes.*

- Choose a number between 1 and 34. Ask each learner in the group to say a fact about the number. Example: The number is 25 - learners can say 25 is more than 24, or 25 is before 26, or 25 is half of 50 etc.
- Counting in 5s – individual. Ask each learner to count in 5s and ask them to stop when you clap your hand. Next learner will continue counting in 5s until you clap your hand for the next learner. This will continue until all learners in the group have had a chance to count in 5s.
- Give learners paper, writing tools, counters and a number square. Ask them 1 addition and 1 multiplication word problem which they solve by talking about them, drawing pictures and so on. Use the number range 1 to 100. Let each learner tell the group how s/he solved the problem.

  Tip: *Remember you are observing the learners in order to select learners for the top group*.

GROUP 2

*On **Tuesday** this group works with the teacher for 20 minutes.*

- Choose a number between 1 and 34. Ask each learner in the group to say a fact about the number. Example: The number is 25 - learners can say 25 is more than 24, or 25 is before 26, or 25 is half of 50 etc.
- Counting in 5s – individual. Ask each learner to count in 5s and ask them to stop when you clap your hand. Next learner will continue counting in 5s until you clap your hand for the next learner. This will continue until all learners in the group have had a chance to count in 5s.
- Give learners paper, writing tools, counters and a number square. Ask them 1 addition and 1 multiplication word problem which they solve by talking about them, drawing pictures and so on. Use the number range 1 to 100. Let each learner tell the group how s/he solved the problem.

  Tip: *Remember you are observing the learners in order to select learners for the top group*.

GROUP 3

*On **Wednesday** this group works with the teacher for 20 minutes.*

- Choose a number between 1 and 34. Ask each learner in the group to say a fact about the number. Example: The number is 25 - learners can say 25 is more than 24, or 25 is before 26, or 25 is half of 50 etc.
- Counting in 5s – individual. Ask each learner to count in 5s and ask them to stop when you clap your hand. Next learner will continue counting in 5s until you clap your hand for the next learner. This will continue until all learners in the group have had a chance to count in 5s.
- Give learners paper, writing tools, counters and a number square. Ask them 1 addition and 1 multiplication word problem which they solve by talking about them, drawing pictures and so on. Use the number range 1 to 100. Let each learner tell the group how s/he solved the problem.

  Tip: *Remember you are observing the learners in order to select learners for the top group*.

Day 4

- **On Day 4, take the group of selected learners for the fast group.** Give an addition and subtraction problem using the number range of over 100. Observe learners in this group if they can manage working and check if your grouping is correct.

Assessment	**Formal:** No formal recorded assessment. **Informal**: Unrecorded assessment of learners' oral responses and ability to solve problems.

FIRST TERM: WEEK 3

COMPONENT	MILESTONES	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5
COUNTING LO 1 AS 1, 2	• Counts out objects to 100 • Counts in multiples of 2 and 20 to 200, 5 and 50 to 500, 10 and 100 to 1000	Daily : • Rote count from 1 to 200 • Counting from a given number to 100(change number), counting forwards and backwards using a number card • Count out objects up to 100 in 10s • Counting in multiples of 10				
NUMBER SENSE AND MENTAL LO1 AS3 AS8	• Consolidation of concepts developed in Grade 2 in readiness for Grade 3 • Count in10 starting at any number e.g. 2, 12, 22, 32 etc • Knows, reads and writes number names and symbols from 1 to 100 and explores their relationship • Is able to add and subtract two digit and 1 digit numbers • Calculates multiplication of 2, 5, 10	Daily: • Count in 100s from 100 to 1000 • Number patterns • Count in 10s start at any given number				
		DAY 1	**DAY 2**	**DAY 3**	**DAY 4**	**DAY 5**
		Revision: word and number 1-100 Expanded notation up to 99	Revision: addition and subtraction of 2 digit and I digit number (up to 5) to 100 76 + 3 98 - 4	Revision: multiplication of 10 Expanded notation up to 99	Revision: addition and subtraction of 2 digit and 1 digit number (up to 5) to 100 87+ 3 97 - 4	Multiplication of 10 Expanded notation
GROUP TEACHING LO1 AS8, 11	• Solve problems, and explains solutions, using number charts and counters if needed with numbers up to 200	Ask each group the same problems. They can be solved using counters, drawings, etc. Number range: Group 1 works in 1-100 and Groups 2 and 3 work in 1-50.				WHOLE CLASS ACTIVITY Number game
		Group 1 works with teacher. *Ask 1 subtraction and 1 grouping word problem.* Groups 2 and 3 work on their own	Group 2 and 3 work with teacher. *Ask 1 subtraction and 1 grouping word problem.* Group1 works on their own	Group 2 and 3 work with teacher. *Ask 1 addition and 1 sharing word problem.* Group 1works on their own	Take selected ability group. The rest of the class works on their own.	

WEEK 3: WHOLE CLASS

WEEK 3	WHOLE CLASS COMPONENT (Counting and Mental/Number Sense)

Notes to the teacher:

- The Numeracy time allocation is an hour and 45 min. per day. It would be ideal to have all this time together. The Numeracy time is divided into 3 components viz. Counting (15 minutes), Mental and Number sense (20 to 30 minutes) and group teaching (20 minutes per group). However, for the first term the numeracy time can spread throughout the day, as young learners settling into a new classroom routine are often not able to concentrate for long periods at a time.
- Ensure that you have all the resources required for every lesson. All other teaching aids must be made or organized before the day commences. It is not good practice to make resources like charts during instruction time. A well organized educator has very little discipline problems and ensures that maximum time is spent with the learners.
- Counting at the beginning of the day helps learners to focus on numbers. Every day you will let your learners do rote counting (to develop the vocabulary of numbers) as well as rational counting (thinking what they are doing) activities. Counting at the beginning of the lesson is done with the whole class every day.
- Daily activities indicate activities that should be done every day. The specific concepts being developed are indicated every day e.g. Day 1.
- Marking the register and talking about the Weather chart and Birthday chart are daily activities involving incidental learning and are usually part of the Literacy Oral component. These activities can also be done during the Numeracy lessons.
- Always ensure that all learners have their writing materials - pencils, crayons, rulers, books etc. before commencing the lesson.
- Every learner needs to have a set of counters. An example is use white kidney beans as counters. Count 100 and place in a money bag. This is a cheap and can be used very easily by the learners.

DAILY ACTIVITIES

COUNTING AND MENTAL/NUMBER SENSE

Daily Activities.(to take no more than 15 minutes)

To be done daily:

- Learners rote count from 1 to 200.
- Counting from a given number to 100, counting forwards from a given number and counting backwards from a given number.
- Count out objects up to 100 in 10s (group work)
- Counting in multiples of 10.
- Number patterns

Choose from the following (to make up 10 min)

- Learners work with their number cards and counters. Learners work in pairs. One learner will do the activity while the other learner observes and corrects if necessary. The learners sitting on the right will do the activity. The teacher asks the learners to count in twos. The learner must place a bean on every number that has been counted. The partner observes and corrects the learner if necessary. Learners observe the pattern and comment.
- Learners work with their number cards and counters. Learners work in pairs. One learner will do the activity while the other learner observes and corrects if necessary. The learners sitting on the left will do the activity. The teacher asks the learners to count in fives. The learner must place a bean on every number that has been counted. The partner observes and corrects the learner if necessary. Learners observe the pattern and comment.

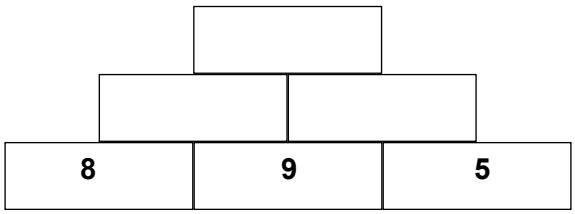
- All learners work with the number cards and their own counters. The teacher asks the learners to choose a number and place a bean on the number. The teacher asks the learners the following questions:
  "On what number did you place the bean?"
  "What number is before this number and what number is after this number?"
  "This number is between which two numbers?"
  "What number is on top of this number and what number is below it?"
  The teacher asks the questions to individual learners. Ask as many learners as possible.
- Count in 100s to 1000

DAY 1 (to take no more than 20 minutes)

- Learners will be given worksheets with the single digit numbers and two digit numbers and number names. Learners will use their crayons or pencils to match the number and the number name.
- Write a few two-digit numbers on the board, e.g. 89 35 46 79 23 48. Tell learners they are going to arrange the numbers from the smallest to the biggest. Ask the learners to look for the smallest number and write it below the line of numbers. Strike out that number from the group of numbers i.e. 23. Then ask the learners to look for the smallest number from the remaining numbers i.e. 35. Write it below the line of numbers and strike out that number from the group of numbers. Carry on till the numbers are re-arranged from smallest to biggest.
  Example: 89 35 46 79 23 48
  23 35 46 48 79 89
  Do a few examples and then call individual learners to the board to do the activity.
- Learners are handed out cards with single digit numbers. Cards are shuffled and then handed to each learner. The learners copy the number in their books and then they are asked to multiply that number by 5 and write the answer. Learners then swap their number cards with their partners. They copy the new number in their books and then they multiply the number by 5 and write the answer. Repeat until learners have written five or six number sentences.

DAY 2 (to take no more than 20 minutes)

- Using their number cards, learners place a counter on the number 10. Ask them to find the number which is10 more and place a counter on that number. Do the same starting with 4, and counting in 10s, each time placing a counter on the number which is 10 more. Now let learners do the following addition number sentences in their books. Complete the pattern:
  7+10= 17+10= 27+10= 37+10= 47+10 = 107+10=
- You are going to introduce your learners to number pyramids today. Draw a simple pyramid on the board e.g.



Allow learners to try and solve the problem as to what the missing numbers are. If no one is able to find the way to do this, show the class how to add the first two numbers and write it on the square above and then add the second and the third numbers together and write in on second square above. Ask if anyone now knows how to find the top number! Learners add the two numbers in the second row and write it on the top. Do a few more examples.

Tip: *Once you are sure learners understand how to work out these pyramids, it can be done as a worksheet form Independent work during Group Teaching time.*

DAY 3 (to take no more than 20 minutes)

- Play the "I spy game" to revise multiplication facts e.g. "I spy with my little eye a number that when multiplied by 2 gives me 20. What is the number?" Play the game a few times, then you can let the learner, who is first to find the answer, be the teacher.
- Write a few two-digit numbers on the board, e.g. 89 35 46 79 23 48. Tell learners they are going to arrange the numbers from the smallest to the biggest. Ask the learners to look for the smallest number and write it below the line of numbers. Strike out that number from the group of numbers i.e. 23. Then ask the learners to look for the smallest number from the remaining numbers i.e. 35. Write it below the line of numbers and strike out that number from the group of numbers. Carry on till the numbers are re-arranged from smallest to biggest.

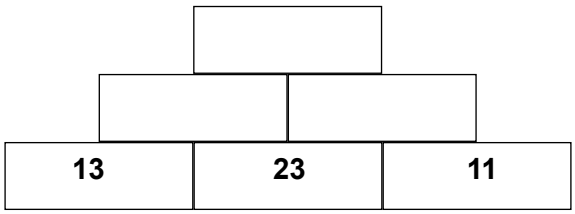
  Example: 89 35 46 79 23 48
  23 35 46 48 79 89

  Do a few examples and then call individual learners to the board to do the activity.
- Learners are handed out cards with single digit numbers. Cards are shuffled and then handed to each learner. The learner copies the number in their books and then they are asked to add 10 to that number and write the answer. Learners then swap their number cards with their partners. They copy the new number in their books and then they add 10 to the number and write the answer. Repeat until learners have written five or six number sentences.

DAY 4 (to take no more than 20 minutes)

- Using their number cards, learners place a counter on the number 10. Ask them to find the number which is10 more and place a counter on that number. Do the same starting with 4, and counting in 10s, each time placing a counter on the number which is 10 more. Now let learners do the following addition number sentences in their books. Complete the pattern:

  9+10= 19+10= 29+10= 39+10= 49+10 = 109+10=
- Draw a simple pyramid on the board using two-digit numbers e.g.



Allow learners to try and solve the problem as to what the missing numbers are. If no one is able to find the way to do this, show the class how to add the first two numbers and write it on the square above and then add the second and the third numbers together and write in on second square above. Ask if anyone now knows how to find the top number! Learners add the two numbers in the second row and write it on the top. Do a few more examples.

DAY FIVE (Whole class)

- Revise work done during the week.
- Take the learners outside and divide them into 2 groups. Group 2 will play the game while the Group 1 observes. You will need the following resources for the game: a hoop, an A4 size page and about 9 counters. Each learner will take a pencil and paper to write on with them. Place the hoop on the ground and place the A4 page in the middle. Count ten paces away from the hoop and make a line with a chalk or place a piece of string, etc. Explain the game to the learners. One learner stands on the line and is given 9 counters. The learner throws the 9 counters inside the hoop. The counters that land on the paper represent a 2 digit number and counters that land outside the page but in the hoop represent a single digit number. Example: if 5 counters land on the paper it will represent the number 50 and if 4 counters land outside the page it will represent the number 4, so learners will calculate to see what number is i.e. 54. The counters that land outside the hoop will not be counted. The rest of the learners will write the number down on their paper. Then the next learner from group 2 has a turn. All learners in the group will have a turn to throw the counters while the numbers are recorded. At the end of the game, the teacher asks questions e.g. who had the highest number, who had the lowest number etc. Group 1 will sit around the hoop and observe and also record the numbers.

Assessment	**Formal:** No formal recorded assessment. **Informal**: Unrecorded assessment of learners' oral responses and ability to participate.

WEEK 3: GROUP TEACHING

WEEK 3	GROUP TEACHING COMPONENT (Concept Development and Problem Solving)

Notes to teacher:

- In Week 2 you started working in groups. In Week 3 you will take the learners you have identified as being ready to move on and work at a quicker pace and work with them at their level. Divide the rest of the class into 2 equal mixed ability groups. Work with Group 1 on Day 1 and then work with both the other groups on Day 2 and 3. During the week you will try to identify learners still needing a revision programme of Grade 2 work and these learners will be put in one group in Week 4. For the first part of the lesson (about 35 minutes) do the counting and number sense activities with the whole class. Then explain the activities they will do while you are busy with a group. Have extra activities ready for the quick workers.
- While you are working with a group, the rest of the class will be working independently. You need to provide them with a variety of activities which reinforce and consolidate concepts already learnt. Try to vary the activities e.g. giving a practical activity (counting counters in counting bags), a written activity (filling in numbers, sequencing, etc.) and a fun activity (dot-to-dot pictures, puzzles, etc.)
- Learners **must do** the work set. Once they have completed this they may choose any mathematical activity e.g. jigsaw puzzle.

DAILY ACTIVITIES

Examples of activities to be done independently. *Work from a Learners' Book, worksheets, work cards, work from the board, etc.*

- Worksheet: Join the dots. Numbers are in multiples of 5. Learners colour picture according to colour grid.
- Addition and subtraction with 2 digit and 1 digit numbers up to 100.
- Repeated addition and subtraction number sentences.
- Halving and doubling activities: half of 100 + 50 = 40 doubled + 20 =
- Before and after up to 100
- More and less. 40 is more than 25 by … 53 is less than 99 by …
- Number patterns. Complete the pattern: 12 + 10 + 10 + 10 =
- Writing the numbers and number names.

Working with the group

GROUP 1

*On **Monday** this group works with the teacher for 20 minutes.*

- Learners will each be given a pack of counters, although they will work in pairs. The first learner will make groups of 10 with the counters in his/her packet and count as they are doing the activity. The second learner watches and corrects the first learner if necessary. Then the second learner has his/her turn while the first learner observes and corrects if necessary.
- Give each learner a pack of flard cards. Each pack will contain the numbers 1 to 9, 10 to 90 and 100 to 900. Ask learners to set the cards out in sequence. If they did this in Grade 2 they will already know how to work with these cards. However, if they have never worked with these cards you will need to go slowly until they are familiar with how the cards work. Remember, though, that you have selected these learners as being faster than the others so they need to be challenged. If a learner cannot keep, you can change them to another group. Ask them to:

- Identify single digit numbers by pointing to them as you say them.
- Make a 2 digit number using the flard cards, e.g. 37. Learners will take the 30 and the 7, placing the 7 over the 0 of the 30 to show the number 37. Ask them to show the cards they used (30 and 7), saying 30 and 7 makes 37. When they have finished with the number they put the cards back in the sequence of the other cards. Do this with other two-digit numbers.

  Tip: *Make sure learners use the cards correctly. For example, if you ask for the number 43, they must take the card with 40 and the card with 3 and build the number 43. If they take the cards 4 and 3, the number may look like 43 when placed together, but the moment the cards are separated they are single digit cards so cannot make a two-digit number "forty-three" – they only say "four" and "three".*

- Give learners paper, writing tools, counters and a number square. Ask them 1 subtraction and 1 sharing word problem which they solve by talking about them, drawing pictures and so on. Use the number range 1 to 100. Let each learner tell the group how s/he solved the problem.

GROUP 2

*On **Tuesday** and **Wednesday** this group works with the teacher for 20 minutes.*

- Learners will each be given a pack of counters, although they will work in pairs. The first learner will make groups of 10 with the counters in his/her packet and count as they are doing the activity. The second learner watches and corrects the first learner if necessary. Then the second learner has his/her turn while the first learner observes and corrects if necessary.
- Give each learner a pack of flard cards. Each pack will contain the numbers 1 to 9, 10 to 90 and 100 to 900. Ask learners to set the cards out in sequence. If they did this in Grade 2 they will already know how to work with these cards. However, if they have never worked with these cards you will need to go slowly until they are familiar with how the cards work. Ask them to:
  - Identify single digit numbers by pointing to them as you say them.
  - Make a 2 digit number using the flard cards, e.g. 37. Learners will take the 30 and the 7, placing the 7 over the 0 of the 30 to show the number 37. Ask them to show the cards they used (30 and 7), saying 30 and 7 makes 37. When they have finished with the number they put the cards back in the sequence of the other cards. Do this with other two-digit numbers.

    Tip: *Make sure learners use the cards correctly. For example, if you ask for the number 43, they must take the card with 40 and the card with 3 and build the number 43. If they take the cards 4 and 3, the number may look like 43 when placed together, but the moment the cards are separated they are single digit cards so cannot make a two-digit number "forty-three" – they only say "four" and "three".*

  - Give learners paper, writing tools, counters and a number square. Ask them two different word problems which they solve by talking about them, drawing pictures and so on. Use the number range 1 to 50. Let each learner explain to the group how s/he solved the

problem. You will ask learners 1 subtraction and 1 grouping problem on Tuesday and 1 addition and 1 sharing problem on Wednesday.

Tip: *Remember you are observing learners in order to select the learners who need more time for revision of Grade 2 work.*

GROUP 3

*On **Tuesday** and **Wednesday** this group works with the teacher for 20 minutes.*

- Learners will each be given a pack of counters, although they will work in pairs. The first learner will make groups of 10 with the counters in his/her packet and count as they are doing the activity. The second learner watches and corrects the first learner if necessary. Then the second learner has his/her turn while the first learner observes and corrects if necessary.
- Give each learner a pack of flard cards. Each pack will contain the numbers 1 to 9, 10 to 90 and 100 to 900. Ask learners to set the cards out in sequence. If they did this in Grade 2 they will already know how to work with these cards. However, if they have never worked with these cards you will need to go slowly until they are familiar with how the cards work. Ask them to:
  - Identify single digit numbers by pointing to them as you say them.
  - Make a 2 digit number using the flard cards, e.g. 37. Learners will take the 30 and the 7, placing the 7 over the 0 of the 30 to show the number 37. Ask them to show the cards they used (30 and 7), saying 30 and 7 makes 37. When they have finished with the number they put the cards back in the sequence of the other cards. Do this with other two-digit numbers.

    Tip: *Make sure learners use the cards correctly. For example, if you ask for the number 43, they must take the card with 40 and the card with 3 and build the number 43. If they take the cards 4 and 3, the number may look like 43 when placed together, but the moment the cards are separated they are single digit cards so cannot make a two-digit number "forty-three" – they only say "four" and "three".*
  - Give learners paper, writing tools, counters and a number square. Ask them two different word problems which they solve by talking about them, drawing pictures and so on. Use the number range 1 to 50. Let each learner explain to the group how s/he solved the problem. You will ask learners 1 subtraction and 1 grouping problem on Tuesday and 1 addition and 1 sharing problem on Wednesday.

    Tip: *Remember you are observing learners in order to select the learners who need more time for revision of Grade 2 work*

Day 4

- **On Day 4, take the group of selected learners for the group still needing revision.** Give an addition and subtraction problem using the number range of 1-34. Observe learners in this group if they can manage working and check if your grouping is correct.

Assessment	**Formal:** No formal recorded assessment. **Informal**: Unrecorded assessment of learners' oral responses and ability to solve problems.

FIRST TERM: WEEK 4

COMPONENT	MILESTONES	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5
COUNTING LO 1 AS 1, 2	• Counts out objects to 100 • Counts in multiples of 2 and 20 to 200, 5 and 50 to 500, 10 and 100 to 1000	Daily : • Rote count from 1 to 300 • Counting from a given number to 100(change number), counting forwards and backwards using a number card • Count out objects up to 100 in 10s • Counting in multiples of 10				
NUMBER SENSE AND MENTAL LO1 AS3 AS8	• Consolidation of concepts developed in Grade 2 in readiness for Grade 3 • Count in10 starting at any number e.g. 2, 12, 22, 32 etc • Knows, reads and writes number names and symbols from 1 to 100 and explores their relationship • Is able to add and subtract two digit and 1 digit numbers • Calculates multiplication of 2, 5, 10	Daily: • Count in 100s from 100 to 1000 • Number patterns • Count in 10s start at any given number				
		DAY 1	**DAY 2**	**DAY 3**	**DAY 4**	**DAY 5**
		Revision: word and number 1-100 Expanded notation up to 99	Revision: addition and subtraction of 2 digit and I digit number (6-9) to 100 76 + 7 98 - 8	Revision: multiplication of 2, 5, and 10 Expanded notation up to 99	Revision: addition and subtraction of 2 digit and 1 digit number (6-9) to 100 87+9 97-9	Number patterns Expanded notation
GROUP TEACHING LO1 AS8, 11	• Decomposes two-digit numbers as expanded notation i.e. 26=20+6 using flard cards • Solve problems, and explains solutions, using number charts and counters if needed with numbers up to 200	Ask each group the same problems. They can be solved using counters, drawings, etc. Number range: Group 1 works in 1-100; Group 2 works in 1-75; Group 3 works in 1-50				
		Groups 1 and 3 work with teacher, one group at a time. *Ask 1 addition and 1 subtraction word problem* Group 2 works on their own.	Groups 2 and 3 work with teacher, one group at a time. *Ask 1 addition and 1 subtraction word problem* Group 1 works on their own.	Groups 1 and 3 work with teacher, one group at a time. *Ask 1 multiplication and 1 groping word problem* Group 2 works on their own.	Groups 2 and 3 work with teacher, one group at a time. *Ask 1 multiplication and 1 grouping word problem* Group 1 works on their own.	Integrate with Arts and Culture : Symmetry

WEEK 4: WHOLE CLASS

WEEK 4	WHOLE CLASS COMPONENT (Counting and Mental/Number Sense)

Notes to the teacher:

- The Numeracy time allocation is an hour and 45 min. per day. It would be ideal to have all this time together. The Numeracy time is divided into 3 components viz. Counting (15 minutes), Mental and Number sense (20 to 30 minutes) and group teaching (20 minutes per group). However, for the first term the numeracy time can be spread throughout the day, as young learners settling into a new classroom routine are often not able to concentrate for long.
- Ensure that you have all the resources required for every lesson. All other teaching aids must be made or organized before the day commences. It is not good practice to make resources like charts during instruction time. A well organized educator has very little discipline problems and ensures that maximum time is spent with the learners.
- Counting at the beginning of the day helps learners to focus on numbers. Every day you will let your learners do rote counting (to develop the vocabulary of numbers) as well as rational counting (thinking what they are doing) activities. Counting at the beginning of the lesson is done with the whole class every day.
- Daily activities indicate activities that should be done every day. The specific concepts being developed are indicated every day e.g. Day 1.
- Marking the register and talking about the Weather chart and Birthday chart are daily activities involving incidental learning and are usually part of the Literacy Oral component. These activities can also be done during the Numeracy lessons.
- Always ensure that all learners have their writing materials - pencils, crayons, rulers, books etc. before commencing the lesson.
- Every learner needs to have a set of counters. An example is use white kidney beans as counters. Count 100 and place in a money bag. This is a cheap and can be used very easily by the learners.
- **Assessment Task 1** will be done during this week. The Assessment activities form part of daily activities.

DAILY ACTIVITIES

COUNTING AND MENTAL/NUMBER SENSE

Daily Activities.(to take no more than 10 minutes)

To be done daily:

- Learners rote count from 1 to 200.
- Counting from a given number to 100, counting forwards from a given number and counting backwards from a given number.
- Counting in multiples of 10, 5 and 2.

Choose from the following (to make up 10 min)

- Hold up flash cards saying, for example, 2x5 or 5x2 or 2x10 etc. Learners answer and the first one to answer is given the card. Once all the cards have been taken, learners count how many cards they have and the learner with the most cards is the winner.
  Tip: *This can be used as an assessment activity, so make sure you do it every day until all learners have been assessed.*
- Counting forwards in twos from 38 to 70 and backwards from 80 to 62.
  Counting forwards in 5s from 36 to 86 and backwards from 72 to 32.
- Write a set of numbers from 100 to 1000 using whole hundreds e.g. 200, 300, etc. on pieces of cardboard. Call out 10 learners to the front of the class and give each one a randomly chosen number. Learners must order themselves from the smallest number to the largest. Ask which number is 1st, 2nd, etc. Do this activity a few times giving other learners a chance to participate.

DAY 1 (to take no more than 20 minutes)

- Give each learner a card. Half the learners will have cards with 2 digit numbers (e.g. 26, 48) and the other half of the class will have cards with the same 2 digit numbers, but written in words (twenty-six, 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.
  Tip: *Use this as an assessment activity for Assessment Task 1.*

DAY 2 (to take no more than 20 minutes)

- Addition and subtraction of single digit and two digit numbers e.g. 26+3= 47-5=. Learners work in pairs. The teacher writes about 10 sums on the board. The first learner copies the first sum. The learner uses his/her number card to write the answer. The second learner observes and marks the sum. The second learner copies the second sum and using the number card writes the answer. The first learner will observe and mark the sum.
  Tip: *This activity will be used for assessment. Use your observations for assessing learners.*
- Measurement: Introduction to cm. The teacher has a height chart on the wall. She selects a group of about ten learners in the class and measures their height. She then records the name of the learner and their height in cm on the board. She asks the class the following questions:
  - "Who is the tallest learner in the group?"
  - "Who is the shortest learner in the group?"
  - "Which two learners have the same height?"

DAY 3 (to take no more than 20 minutes)

- Learners are handed out cards with single digit numbers. Cards are shuffled and then handed to each learner. The learners copy the number in their books and then they are asked to multiply that number by 5 and write the answer. Learners then swap their number cards with their partners. They copy the new number in their books and then they multiply the number by 2 and write the answer. Repeat until learners have written five or six number sentences, using the multiplication of 2, 5 and 10.
  Tip: *Use this as an assessment activity for Assessment Task 1.*
- Give the learners a few simple word problems to solve e.g. *three girls and three boys are riding their bicycles. How many wheels are there?*

DAY 4 (to take no more than 20 minutes)

- Learners are handed out cards with single digit numbers. Cards are shuffled and then handed to each learner. The learners copy the number in their books and then they are asked to multiply that number by 5 and write the answer. Learners then swap their number cards with their partners. They copy the new number in their books and then they multiply the number by 2 and write the answer. Repeat until learners have written five or six number sentences, using the multiplication of 2, 5 and 10.
  Tip: *Use this as an assessment activity for Assessment Task 2.*

- Let learners choose any number between 1 and 34. Each learner in the class tells a different number fact about that number. If your class is large, choose a number and let ten learners tell you facts about the number, then choose another number and let another ten learners have a chance. You may have to choose 3 or 4 different numbers each day otherwise it becomes too difficult for the learners if the class is big.

DAY FIVE (To take no more than 20 minutes)

- Learners work with 1-100 number squares. Ask them to put a counter on the number 10. Then ask which number will be 10 blocks after this one? (20). And after this one? (30). Ask learners to complete the pattern they have made on their number squares up to 100. Ask one or two learners to explain the pattern they have just made using their own words. Now ask learners to put a counter on the number 3. Ask them to put another counter on a number that is exactly 10 more than 13. Ask if they add another 10 to this number (13), can they guess where to put the next counter? Ask them to complete the pattern and put counters on every 10th number after this. Then learners can read out the numbers with counters on them. 93, 13, 23, 33, 443, 53, 63, 73, 83, 93). Repeat the activity using different numbers.
  Tip: *This is an assessment activity, so make sure you observe all the learners as they participate.*
- Give each learner a sheet of drawing paper. Ask them to fold it in half then open it. Go around the classroom putting three blobs of different coloured paint in the fold. If you do not have paint, use three blobs of ink – it works just as well. Learners carefully fold the paper again and, using their hands, smooth the paper so that the paint is spread between the two sheets. They open the paper, let the paint/ink dry in the sun and then decorate the shape using wax crayons. Display the symmetrical drawings in the classroom.

Assessment	Formal : **Recorded Assessment Task 1:** During the whole class and group teaching activities as indicated rate the learners against the following milestones, recording specific problems: • Counts out objects to 100 • Consolidation of concepts developed in Grade 2 in readiness for Grade 3 • Count in10 starting at any number e.g. 2, 12, 22, 32 etc • Is able to add and subtract two digit and 1 digit numbers • Calculates multiplication of 2, 5, 10 • Decomposes two-digit numbers as expanded notation i.e. 26=20+6 using flard cards

WEEK 4: GROUP TEACHING

WEEK 4	GROUP TEACHING COMPONENT (Concept Development and Problem Solving)

Notes to teacher:

- By now you have established 3 groups. Every day you will work with 2 different groups in a small group situation e.g. sitting on the mat together. During this time you will do activities to develop number concepts at the level of the learners in the group. A number of types of activities are provided and you should do ALL the types each time you work with that group; but remember, although examples are provided, you should look for your own examples that will suit your learners. You will also give the learners at least 2 different word problems to solve every time you work with them. It is through solving problems and discussing the solutions that learners develop a sense of number, an understanding of the operations and the ability to reflect on their thinking.
- While you are working with a group, the rest of the class will be working independently. You need to provide them with a variety of activities which reinforce and consolidate concepts already learnt. Try to vary the activities e.g. giving a practical activity (counting counters in counting bags), a written activity (filling in numbers, sequencing, etc.) and a fun activity (dot-to-dot pictures, puzzles, etc.)
- **Assessment Task 1** will be done this week.

DAILY ACTIVITIES

Examples of activities to be done independently. *Work from a Learners' Book, worksheets, work cards, work from the board, etc.*

- Multiplication (2x, 5x, 10x) number sentences to be completed.
- Addition and subtraction with 2 digit and 1 digit numbers up to 100.
- Repeated addition and subtraction number sentences.
- Halving and doubling activities: half of 100 + 50 = 40 doubled + 20
- Number patterns. Complete the pattern: 12 + 10 + 10 + 10 =
- Writing the numbers and number names.
- Learners will work in pairs and use their flard cards. Each pair of learners can draw a table like this in their exercise books or use the worksheet provided. Learners complete the table.

My number	Cards that I have	Cards that I need
127	20	

Tip: *Use the relevant written activities for Assessment Task 1.*

Working with the group

GROUP 1

*On **Monday** and **Wednesday** this group works with the teacher for 25 minutes.*

- Learners will each be given a pack of counters, although they will work in pairs. The first learner will make groups of 10 with the counters in his/her packet and count as they are doing the activity. The second learner watches and corrects the first learner if necessary.

Then the second learner has his/her turn, but uses groups of 5, while the first learner observes and corrects if necessary.

Tip: *This is an assessment activity.*

- Each learner will be given a pack of flard cards which contains the numbers from 1 to 9; 10 to 90, 100 to 900.Ask learners to make the numbers you tell them e.g. 38. Learners will build the number (using 30 and 8) and then decompose the number into the 2 digit number and the single digit number (30 and 8). Each time ask the learners to explain what they are doing and which numbers they are using.

  Tip: *This is an assessment activity.*
- Give learners paper, writing tools, counters and a number square. Ask them two different word problems which they solve by talking about them, drawing pictures and so on. Use the number range 1 to 100. Let each learner explain to the group how s/he solved the problem. You will ask learners 1 addition and 1subtraction on Monday and 1 multiplication and 1 sharing problem on Wednesday.

GROUP 2

*On **Tuesday** and **Thursday** this group works with the teacher for 25 minutes.*

- Learners will each be given a pack of counters, although they will work in pairs. The first learner will make groups of 10 with the counters in his/her packet and count as they are doing the activity. The second learner watches and corrects the first learner if necessary. Then the second learner has his/her turn, but uses groups of 5, while the first learner observes and corrects if necessary.

  Tip: *This is an assessment activity.*
- Each learner will be given a pack of flard cards which contains the numbers from 1 to 9; 10 to 90, 100 to 900.Ask learners to make the numbers you tell them e.g. 38. Learners will build the number (using 30 and 8) and then decompose the number into the 2 digit number and the single digit number (30 and 8). Each time ask the learners to explain what they are doing and which numbers they are using.

  Tip: *This is an assessment activity.*
- Give learners paper, writing tools, counters and a number square. Ask them two different word problems which they solve by talking about them, drawing pictures and so on. Use the number range 1 to 75. Let each learner explain to the group how s/he solved the problem. You will ask learners 1 addition and 1subtraction on Tuesday and 1 multiplication and 1 sharing problem on Thursday.

GROUP 3

*This group works with the teacher **every day** for 25 minutes.*

- Learners will each be given a pack of counters, although they will work in pairs. The first learner will make groups of 10 with the counters in his/her packet and count as they are doing the activity. The second learner watches and corrects the first learner if necessary. Then the second learner has his/her turn, but uses groups of 5, while the first learner observes and corrects if necessary.

  Tip: *This is an assessment activity.*

• Each learner will be given a pack of flard cards which contains the numbers from 1 to 9; 10 to 90, 100 to 900.Ask learners to make the numbers you tell them e.g. 38. Learners will build the number (using 30 and 8) and then decompose the number into the 2 digit number and the single digit number (30 and 8). Each time ask the learners to explain what they are doing and which numbers they are using. ***Tip:*** *This is an assessment activity.* • Give learners paper, writing tools, counters and a number square. Ask them two different word problems which they solve by talking about them, drawing pictures and so on. Use the number range 1 to 100. Let each learner explain to the group how s/he solved the problem. You will ask learners 1 addition and 1subtraction on Monday and Tuesday and 1 multiplication and 1 sharing problem on Wednesday and Thursday.	
Assessment	Formal : **Recorded Assessment Task 1:** During the whole class and group teaching activities as indicated rate the learners against the following milestones, recording specific problems: • Counts out objects to 100 • Consolidation of concepts developed in Grade 2 in readiness for Grade 3 • Count in10 starting at any number e.g. 2, 12, 22, 32 etc • Is able to add and subtract two digit and 1 digit numbers • Calculates multiplication of 2, 5, 10 • Decomposes two-digit numbers as expanded notation i.e. 26=20+6 using flard cards

SUGGESTED ASSESSMENT TASKS: GRADE 3 NUMERACY FIRST TERM

TASK 1: WEEK 4

COMPONENT	MILESTONES	WKS	TASKS
COUNTING AND MENTAL/NUMBER SENSE	• Counts out objects to 100 • Consolidation of concepts developed in Grade 2 in readiness for Grade 3 • Count in10 starting at any number e.g. 2, 12, 22, 32 etc • Is able to add and subtract two digit and 1 digit numbers • Calculates multiplication of 2, 5, 10	Wk 4	• Use the practical activity on Day 1 to observe learners' ability to recognise number symbols and number names. • Use the oral activity during the week and the written activities on Days 3 and 4 to assess learners' knowledge of the multiples of 2, 5 and 10. • Use practical work on Day 5 to assess knowledge of counting in 10s from any number. • Use written work done independently during group teaching time for assessment.
PROBLEM SOLVING	• Decomposes two-digit numbers as expanded notation i.e. 26=20+6 using flard cards • Count in10 starting at any number e.g. 2, 12, 22, 32 etc	Wk 4	• Flard card work during group teaching time will be used to assess expanded notation. • Practical work concerning counting in 2, 5 and 10 done during group teaching can be used for assessment.

Concepts need to be assessed in different contexts, so do not be afraid to assess the same concept orally, practically and in a written form. The more times you are able to assess a concept, the better you will know if the learners can use their knowledge in different situations. Your aim is not for learners to learn things 'off by heart', but rather that they can confidently apply their knowledge in different contexts.

FIRST TERM: WEEK 5

COMPONENT	MILESTONES	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5
COUNTING LO 1 AS 1, 2	• Counts out objects to 100 • Counts in multiples of 2 and 20 to 200, 5 and 50 to 500, 10 and 100 to 1000 • Count in 10 starting at any number e.g. 2, 12, 22, 32 etc	Daily : • Counting in 1s to 300. • Counting in multiples to 300. • Counting in 2s and 20s forwards and backwards to 200, starting and ending at any number.				
NUMBER SENSE AND MENTAL LO 1 AS 3, 8, 9, 10 LO 2 AS 2 LO 3 AS 4 LO 5 AS 1, 2, 3	• Recognises the pattern of counting in 10 starting at any number • Identifies the numerosity of numbers 34 • Calculates multiplication of 2,5,10 • Doubles and halves numbers to 50 • Determines the line of symmetry in 2-D shapes • Sorts, orders and organizes own data according to two attributes	Daily : • Repeated addition and subtraction of 2, 5 and 10 • Recognise and complete number patterns of 10 • Build up concept of numerosity of numbers to 34				
		DAY 1	**DAY 2**	**DAY 3**	**DAY 4**	**DAY 5**
		Double and halve numbers to 25 Repeated addition and subtraction of 2, 5 and 10 Symmetry in 2-D shapes	Double and halve numbers to 25 Repeated addition and subtraction of 2, 5 and 10 Symmetry in 2-D shapes	Repeated addition and subtraction of 2, 5 and 10 Calculates multiplication of 2,5,10	Calculates multiplication of 2,5,10 Data Handling	Data handling
GROUP TEACHING LO 1 AS5, 7, 11, 12	• Decomposes two-digit numbers as expanded notation i.e. 26=20+6 using flard cards • Is able to add and subtract two two-digit numbers where one number is a whole 10 e.g. 24+10=? • Solves problems, and explains solutions, using number charts and counters if needed with numbers up to 200 • Solves problems using grouping and sharing where the remainder is a fraction	Ask each group the same problems. They can be solved using counters, drawings, etc. Number range: Group 1 works in 1-150; Group 2 works in 1-100; Group 3 works in 1-75				WHOLE CLASS ACTIVITY Data Handling
		Groups 1 and 3 work with teacher, one group at a time. *Ask 1 addition and 1 sharing with remainder word problem* Group 2 works on their own.	Groups 2 and 3 work with teacher, one group at a time. *Ask 1 addition and 1 sharing with remainder word problem* Group 1 works on their own.	Groups 1 and 3 work with teacher, one group at a time. *Ask 2 different types of multiplication word problems* Group 2 works on their own.	Groups 2 and 3 work with teacher, one group at a time. *Ask 2 different types of multiplication word problems* Group 1 works on their own.	

WEEK 5: WHOLE CLASS

WEEK 5	WHOLE CLASS COMPONENT (Counting and Mental/Number sense)

Notes to the teacher:

- Counting at the beginning of the day helps learners focus on numbers. Every day you will let your learners do rote counting (to develop the vocabulary of numbers) as well as rational counting (thinking what they are doing) activities. Counting at the beginning of the lesson is done with the whole class every day.
- Daily activities indicate activities that should be done every day. The specific concepts being developed are indicated every day e.g. Day 1.
- Learners will learn about working with numbers and build a solid number knowledge if you present them with a range of similar tasks, but with different contexts and different concrete resources to use. If you do this, you will find that there is less need for rote counting and skip counting.
- Data handling is a useful new part of the curriculum because it gives learners skills of sorting, organising and representing information. These are important for building research skills later in life.
- Your learners need opportunities to sort real things in their lives, objects in your classroom (shapes, collections of things that they can sort in their own ways), pictures of things like animals, foods etc.
- Later in the year, learners will make and draw graphs to represent their collections. They need to make concrete graphs first, using the actual objects that need sorting; then move onto pictographs (also called pictograms) to represent the concrete objects. It is only after this, that learners can begin to work with symbol graphs (e.g. ticks represent the objects) and bar graphs. Give learners opportunities to:
  - sort in their own ways and then decide what sorting rule was used;
  - sort according to a rule you give them;
  - guess the sorting rule when you give them objects already sorted;

Examples of each of these ways to sort are provided in the lessons.

DAILY ACTIVITIES

COUNTING AND MENTAL/NUMBER SENSE

<u>Daily Activities</u>.(to take no more than 10 minutes)

Do be done daily:

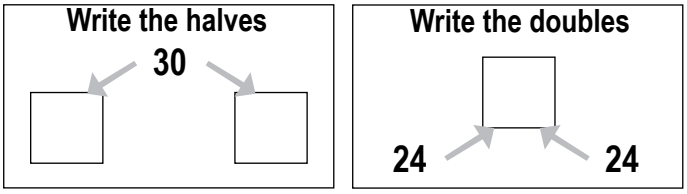
- Learners' rote count in 1s from 200 to 300.
- Learners' rote count in multiples of 2, 5 and 10 in the number range 1 to 300.

Choose from the following (to make up the 10 mins.):

- Let learners choose any number between 1 and 34. Each learner in the class tells a different number fact about that number.
- Learners count in 2s and 20s starting at any number. Discuss the two patterns that emerge i.e. if counting starts on an even number, all the numbers will be even, and if counting starts on an odd number all the numbers will be odd.
- Let learners count with their number squares and counters. Count and put counters on the 100 square as you count. Start with the 10s, and then do the 5s and then the 2s.
- Count using a pattern of doubling or halving and ask learners to identify the pattern e.g. 2, 4, 8, 16 or 24, 12, 6, 3. Let learners make up their own patterns.

DAY 1 (to take no more than 30 minutes)

- Ask learners to put out 5 counters in a row in front of them. Then ask them to put another row of counters underneath the first row. How many counters do they have now? (10). Ask learners to tell you something about the pattern e.g. 5+5=10, 2x5=10, 10 is double 5, 5 is half of 10, etc. Do the same with other single digit numbers. Learners need to see different ways of writing down doubles and halves. Here is one way to show them. Ask them to work these ones out:

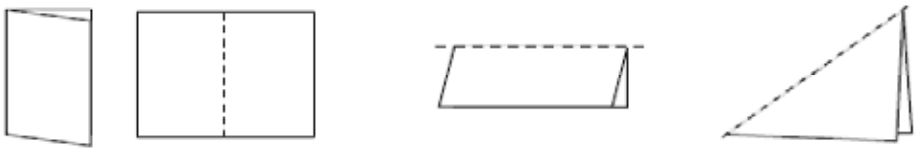


Show learners patterns that use doubling, such as this one:

And patterns that use halving, like this one:

Ask them to explain to you why the first pattern is a doubling pattern and the second one is a halving pattern.

- Learners should know their left from their right by now, so play a quick game such as 'Simple Simon' or do some exercises that require them to 'cross the midline' e.g. "Touch your right shoulder with your left hand." Use the understanding of left and right to explain symmetry of their bodies. Ask learners to stand up with their legs straight and together. They make a line with a finger on their own bodies. It will go from the top of the head, down the nose, through the middle of their lips, continuing down their bodies and down the line between their legs. Ask if they can imagine folding their bodies over on this line! If they could, they would find that the right side fits almost perfectly on top of the left side. This is not quite perfect, because we all have slight differences between the two sides of our bodies. Explain that when you fold a shape in half and the two sides of the shape fit exactly onto each other, then we say the two sides are **symmetrical**, or the shape has **symmetry**. Make a flash card with this word to show learners. Ask learners to look at their left hands and ask if a hand is symmetrical? They should be able to point out that a hand isn't symmetrical because it has a thumb on one side only, or because none of the fingers are the same size. Ask learners to hold both hands up in the air, with fingers spread out and thumb touching thumb. Their two hands are symmetrical. They can check by pretending to 'fold' the one hand onto the other hand. They fit exactly on top of each
- Give each learner a **square** piece of paper. Ask them to fold it so that it is symmetrical. Is there more than one way to fold the square?



DAY 2 (to take no more than 30 minutes)

- Ask the learners the following type questions. Allow them to discuss it with each other. They may use counters, number lines, number grids, etc. to help them.
  - How many eyes do 4 children have? If I double the number of children, how many eyes would there be?
  - Four people got in the lift and went to the second floor. Some people got into the lift and now there were double the number of people in the lift. How many people got into the lift at the second floor?
  - Mr. Mthembu had 16 cows. Half of them died. How many cows does Mr. Mthembu have now?

    Use small numbers as you are consolidating the learners' understanding of doubling and halving, which they did in Grade 1 and 2.
- Ask the learners the following type questions. Allow them to discuss it with each other. They may use counters, number lines, number grids, etc. to help them.
  - Mom bought 7 sausage rolls and her two greedy children ate them all. How many sausage rolls did they each eat? How many did they eat if they each ate the same amount?
  - Mom bought 7 jerseys for her two children. How many did they each get?

    Discuss why the two answers are not the same (*you can cut a sausage roll, but you cannot cut a jersey – therefore the first answer will be a fraction and the second will be a remainder.)*
- Tell learners to find a partner and to face each other. One is the 'mirror' and the other does the actions. Whatever actions the learner does, the 'mirror' has to copy e.g. scratch the nose, brush teeth, wave, etc. Be careful – if the learner uses the right hand, the mirror has to use the left hand! Let them take turns to be the mirror.

  Tip: *If it is possible, it is much better if learners can first do this activity with a real mirror. You can then discuss which hand the learner is using, but what the reflection does.*

DAY 3 (to take no more than 30 minutes)

- This is an investigation for learners to complete in pairs. Together they complete this table. If they are unsure of any answer, they can use counters or count the body parts on their friends! Note that 'fingers' includes thumbs, so that learners can practise multiples of 5. Before the lesson, prepare enough of these empty tables for learners to each have one.

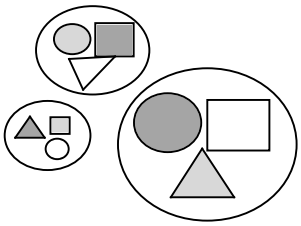
Children	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**
Number of legs	2													
Fingers on one hand	5													
Toes on two feet	10													

Tip: *Once learners are familiar with this type of table, it can become part of the independent written work.*

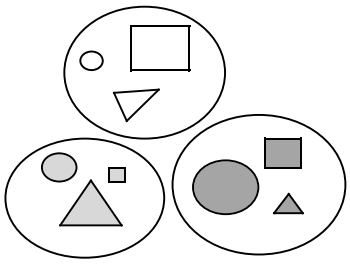
DAY 4 (to take no more than 30 minutes)

- Take the learners outside and ask them to get into groups of 4 legs, 6 legs, 20 fingers, 10 noses, etc. Each time ask questions such as: How many children in the group of 4 legs? If 2 children have 4 legs, what are two two's? If two two's are 4, what are three two's? and so on.
- Give each group (as they sit) a box of at least 20 shapes – these could be cardboard or plastic or cut from paper, but there should be a mix of sizes and colours of squares, rectangles, triangles, circles and other shapes. Ask them to sort their shapes according to colour, then according to size, then according to type of shape. With each round of sorting, learners discuss and check whether they have it correct within their groups. Demonstrate on the board how you could represent your sorting with 'sorting circles'. Draw three big circles on the board labelled 'BIG', 'MIDDLE' and 'SMALL'. Some learners take turns to put a shape from their table into one of the three circles, attaching it with prestik to the board.

Big, middle and small shapes:



Blue, red and yellow shapes:



Change the labels of the circles to 'CIRCLES', 'RECTANGLES' and 'TRIANGLES'. Then let other learners (who haven't had a chance yet) put their shapes into the right sorting circles. Allow some discussion about where to put a square – on the outside of all the circles, or with the rectangles? If they recognise that it is a special kind of rectangle, they will be happy to put it into the rectangle sorting circle. Ask learners to sort the shapes now according to size *and* shape. They make their own plans about how to do this. Let some learners show the class what they have done. Learners should represent what they have done with a drawing as well.

DAY 5 (whole lesson)

- Discuss the activity done on Day 4 and how things can be sorted and recorded. It becomes more complicated to use sorting circles for more than one sorting rule. Using a table is a useful way of sorting for two criteria. Make enough space in a table drawn on the chalkboard for learners to once again put their shapes where they belong. So for example, a big circle has two sorting rules (size and shape) and will go in the first block.

	BIG	**MIDDLE**	**SMALL**
CIRCLES			
RECTANGLES			
TRIANGLES			

- Give each table group of learners an unsorted box of items. Use any items that you have, or create one using washers, nails, screws, pegs, toilet rolls, stones, coins, buttons, matchsticks, crayons, pencils and pens, scissors and glue, paper clips etc. Ask the groups of learners to sort out the box and put the objects into groups. Don't prescribe any particular way to do this. They will need to present their sorting ideas to others in the group and debate whether everybody agrees to these criteria. Ask groups where you noticed some interesting discussion about criteria to tell the class how they decided to sort the items they had. Some suggested ways of sorting might be: size, type of item, things for writing with and other; new and old; uses of the items.

  Tip: *This activity allows learners to find their own rules for sorting objects*.
- Now learners work in randomly selected groups of 6 – 8 learners. Each group decides what questions they want to ask the class about what they like or don't like, e.g. "What is your favourite food/ fruit/ colour/ time of the school day/ animal?" Make sure that each group chooses something different. When each group has decided on a question, they put the question onto a large sheet of paper and stick it up on a wall of the classroom. For example, they could write "What is your favourite animal?" All learners move around the classroom, filling in answers on the different sheets of paper around the classroom. Give them only about 10 – 15 minutes to do this. It is not important for every learner to answer every question! Groups take their own sheet of paper with its question and read through the answers. They must decide how to sort the information they have. One learner from each group reports to the class about what they found. For example, they might say, "12 learners answered our question. 5 like bananas, 3 like oranges, 1 likes apples ... ". You can end with a quick discussion about what learners found out about each other. Was there anything that surprised you (e.g. perhaps no one said that sweets were their favourite food!) or anything expected (e.g. break time is the favourite time of day for all learners!).

  Tip: *This can become a written activity for Independent work the next week. Each learner writes down what their group found in the class survey. They must find a way to represent how they sorted the answers. They could use sorting circles, or a table, or some kind of picture.*

ASSESSMENT	**Formal :** No formal, recorded Assessment **Informal:** Unrecorded assessment of learners' oral responses and willingness to participate.

WEEK 5: GROUP TEACHING

Week 5	GROUP TEACHING COMPONENT (Concept Development and Problem Solving)

Notes to teacher:

- By now you have established 3 groups. Every day you will work with 2 different groups in a small group situation e.g. sitting on the mat together. During this time you will do activities to develop number concepts at the level of the learners in the group. A number of types of activities are provided and you should do ALL the types each time you work with that group; but remember, although examples are provided, you should look for your own examples that will suit your learners. You will also give the learners at least 2 different word problems to solve every time you work with them. It is through solving problems and discussing the solutions that learners develop a sense of number, an understanding of the operations and the ability to reflect on their thinking.
- While you are working with a group, the rest of the class will be working independently. You need to provide them with a variety of activities which reinforce and consolidate concepts already learnt. Try to vary the activities e.g. giving a practical activity (counting counters in counting bags), a written activity (filling in numbers, sequencing, etc.) and a fun activity (dot-to-dot pictures, puzzles, etc.)
- Learners **must do** the work set. Once they have completed this they may choose any mathematical activity e.g. jigsaw puzzle

Examples of activities to be done independently. *Work from a Learner's Book, worksheets, workcards, etc.*

- See how many different rectangles of different lengths you can make by arranging 12 counters in rows.
- Learners keep adding or subtracting 2 until they reach 100:

2 [+2] → 4 [+2] → 6 [+2] → ___ [+2] → ___ [+2] → ___

100 [-2] → ___ [-2] → ___ [-2] → ___ [-2] → ___ [-2] → ___

- Repeated addition and subtraction number sentences.
- Number patterns or other sequencing activity (e.g. pictures, shapes, etc.).
- Fill in the numbers you would use when counting in 2s, 5s and 10s on a number line or number square.
- Complete number sentences using 2 operations.
- Complete addition and subtraction number sentences using two digits with a complete 10 using open frame sentences e.g. 34+☐=44, 34+☐=54 or 27-☐=20, 27-☐=7.
- Doubling and halving activities.

Working with the group

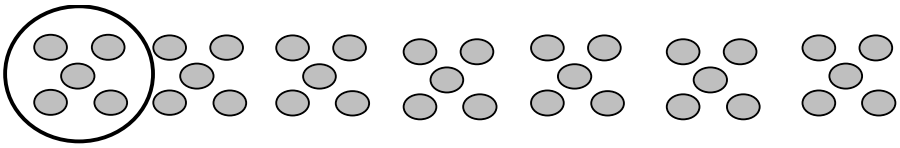
GROUP 1

*On **Monday** and **Wednesday** this group works with the teacher for 25 minutes.*

- Give each pair of learners between 30 and 40 counters. Ask them to estimate how many there are and then to count them. Did they estimate too many or too few?

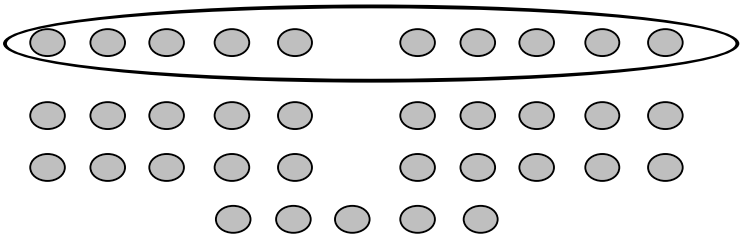
- Using the counters they group them in groups of 5. If you have eggboxes or similar containers they can put their groups of 5 into the containers. Ask each group how many groups of 5 they have and how many counters were left over. Then ask how many counters there are in 2 groups, 3 groups, 4 groups and up to 7 groups of counters. Ask learners to show their answers by drawing the counters and by writing down the numbers in any way that think is a good way. Here are some ways that learners could record 7 groups of counters:

Method 1:



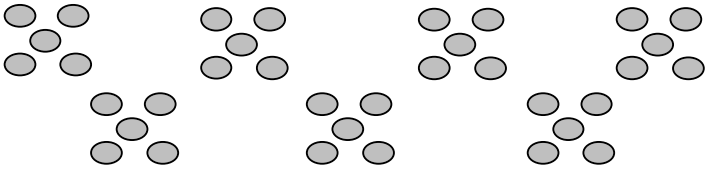
7 groups 5 + 5 + 5 + 5 + 5 + 5 + 5 = 35 counters

Method 2:



5 + 5 = 10.
There are two more 10s after that. That makes 10, 20, 30.
30 + 5 = 35

Method 3:



5, 10, 15, 20, 25, 30, 35

- Make sure each learner has access to paper, writing tools, counters and a number square. Ask them two different word problems which they solve by talking about them, drawing pictures and so on. Use the number range 1 to 150. Let each learner tell the group how s/he solved the problem. On Monday the word problems will be 1 addition and 1 sharing with a remainder and on Wednesday you will ask 2 multiplication problems.

GROUP 2

*On **Tuesday** and **Thursday** this group works with the teacher for 25 minutes.*

- Give each pair of learners between 30 and 40 counters. Ask them to estimate how many there are and then to count them. Did they estimate too many or too few?

- Using the counters they group them in groups of 2. If you have eggboxes or similar containers they can put their groups of 2 into the containers. Ask each group how many groups of 2 they have and how many counters were left over. Then ask how many counters there are in 2 groups, 3 groups, 4 groups and up to 7 groups of counters. Ask learners to show their answers by drawing the counters and by writing down the numbers in any way that think is a good way.
  Tip: *This activity is similar to Group 1's activity, but this group will count in 2s.Their recording will be similar to that of Group 1.*
- Make sure each learner has access to paper, writing tools, counters and a number square. Ask them two different word problems which they solve by talking about them, drawing pictures and so on. Use the number range 1 to 100. Let each learner tell the group how s/he solved the problem. On Tuesday the word problems will be 1 addition and 1 sharing with a remainder and on Thursday you will ask 2 multiplication problems.

GROUP 3

This group works with the teacher ***every day*** *for 25 minutes.*

- Put 6 or 7 buttons (with 2 holes each) in the middle of the group. Let them look at them quickly and then cover the buttons. Each learner must say, or write down, how many holes they estimate there are. Count the holes in 2s and ask who estimated too many and who estimated too few. Ask if there is another way that they can find out the number of holes. If no ones thinks of it, ask if they counted the number of buttons and doubled that number, would they have the correct number of holes?
  Tip: *If this is a new concept for the learners, you will need to do more work of this. Learners must be able to develop the understanding that counting in 2s and doubling give the same answer.*
- Let learners set out their flard cards and build two digit numbers. They should also add 10 to the numbers they make and then make the new number e.g. first number is 28→20+8. Add 10 to 28 and the new number is 38→20+10 is 30 so 28+10 is 38. You need to give your learners a lot of practise with this.
- Make sure each learner has access to paper, writing tools, counters and a number square. Ask them two different word problems which they solve by talking about them, drawing pictures and so on. Use the number range 1 to 75. Let each learner tell the group how s/he solved the problem. On Monday and Tuesday the word problems will be 1 addition and 1 sharing with a remainder and on Wednesday and Thursday you will ask 2 multiplication problems.

Assessment	**Formal:** No formal, recorded Assessment. **Informal:** Unrecorded assessment of learners' oral responses and ability to solve problems.

FIRST TERM: WEEK 6

COMPONENT	MILESTONES	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5
COUNTING LO 1 AS 1, 2	• Counts out objects to 100 • Counts in multiples of 2 and 20 to 200, 5 and 50 to 500, 10 and 100 to 1000 • Count in 10 starting at any number e.g. 2, 12, 22, 32 etc	Daily : • Rote counting in 1s to 300. • Rote counting in multiples to 300. • Counting in 1s from 199 to 306 • Counting in 5s and 50s forwards and backwards to 500.				
NUMBER SENSE AND MENTAL LO 1 AS 3, 8, 9, 10 LO 2 AS 2 LO 4 AS5	• Recognises the pattern of counting in 10 starting at any number • Identifies the numerosity of numbers 34 • Calculates multiplication of 2,5,10 • Doubles and halves numbers to 50 • Estimates, measures and compares length using non-standard and standard measures	Daily : • Recognise and complete number patterns of 10 • Build up concept of numerosity of numbers to 34 • Repeated addition and subtraction of 2, 5 and 10 • Multiplication of 2, 5, and 10				
		DAY 1	**DAY 2**	**DAY 3**	**DAY 4**	**DAY 5**
		Number patterns Double and halve numbers fro 26 to 50 Measurement : length using non-standard measurements	Number patterns Measurement : length using non-standard measurements	Double and halve numbers from 26 to 50 Calculates multiplication of 2,5,10	Number patterns Calculates multiplication of 2,5,10	Number patterns
GROUP TEACHING LO 1 AS5, 7, 8, 11, 12	• Decomposes two-digit numbers as expanded notation i.e. 26=20+6 using flard cards • Is able to add and subtract two two-digit numbers where one number is a whole 10 e.g. 24+10=? • Solve problems, and explains solutions, using number charts and counters if needed with numbers up to 200 • Solves problems using grouping and sharing where the remainder is a fraction	Ask each group the same problems. They can be solved using counters, drawings, etc. Number range: Group 1 works in 1-150; Group 2 works in 1-100; Group 3 works in 1-75.				WHOLE CLASS ACTIVITY Game to reinforce addition, subtraction and multiplication.
		Groups 1 and 3 work with teacher, one group at a time. *Ask 1 subtraction and 1 sharing with a remainder as a fraction word problem* Group 2 works on their own.	Groups 2 and 3 work with teacher, one group at a time. *Ask 1 subtraction and 1 sharing with a remainder as a fraction word problem* Group 1 works on their own.	Groups 1 and 3 work with teacher, one group at a time. *Ask 1 addition and 1 grouping with a remainder word problems* Group 2 works on their own.	Groups 2 and 3 work with teacher, one group at a time. *Ask 1addition and 1 grouping with a remainder word problems* Group 1 works on their own.	

WEEK 6: WHOLE CLASS

WEEK 6	WHOLE CLASS COMPONENT (Counting and Mental/Number sense)

Notes to the teacher:

- Counting at the beginning of the day helps learners focus on numbers. Every day you will let your learners do rote counting (to develop the vocabulary of numbers) as well as rational counting (thinking what they are doing) activities. Counting at the beginning of the lesson is done with the whole class every day.
- Daily activities indicate activities that should be done every day. The specific concepts being developed are indicated every day e.g. Day 1.
- During the counting and mental math activities of this day, you will gain some understanding about the learners' ability to count up to 500 and their understanding of the numbers up to 500. It is early in the year to be able to distinguish which learners are still struggling, but even these learners will benefit from extending the counting to 500 because the patterning of the numbers continues in the same way.
- The best activities for measurement are those that have a real purpose. For example:
  - We have to move this desk into the storeroom. Will it fit through the door?
  - We must put the learners' books in a pile on the shelf. Will they fit in one pile or shall we put them in two piles?
  - We want to make a birthday chart for all our birthdays. What will be a good size for the chart?
- Whenever possible, use measuring activities that learners may find useful in their daily lives.
- Some learners may still need to compare two things at a time to see which is longer or shorter. Give them activities that allow them to move into **transitive** thinking about length – where they need to make indirect comparisons between measurements. To develop an understanding of measurement, it is important for learners to have opportunities like these to think about what they know and how they worked things out. Repeated measuring of objects doesn't necessarily give learners this opportunity.
- It is important for learners to have some experiences in measuring length (and mass, area and capacity) with non-standard units. This allows them to understand the concept of length and measurement before introducing the unit of measurement. Although it is just as easy (or easier sometimes!) to measure in centimetres than in non-standard units, learners benefit from an experience of measurement without worrying about metres, centimetres and millimetres.

DAILY ACTIVITIES

COUNTING AND MENTAL/NUMBER SENSE

Daily Activities.(to take no more than 10 minutes)

Do be done daily:

- Learners' rote count in 1s from 200 to 300.
- Learners' rote count in multiples of 2, 5 and 10 in the number range 1 to 300.
- Count in1s from 199 to 306, forwards and backwards, using a number line or number grid.

Choose from the following (to make up the 10 mins.):

- Ask learners to work with a partner to practise counting in 50s up to 500. When they can do it, they can count in 50s with their whole group. Finally, you can count with the whole class in 50s up to 500.
- Ask learners to count backwards in 50s from 500 as well.
- Ask learners if the numbers 130, 30, 40 and 140 will be in the 20s pattern. See if learners can explain how they know which numbers are in the pattern and which are not

DAY 1 (to take no more than 30 minutes)

- Ask learners to complete this table. They must work out how many 100s, 50s etc go into the numbers in the left column. They can use their number squares and counters if they like.

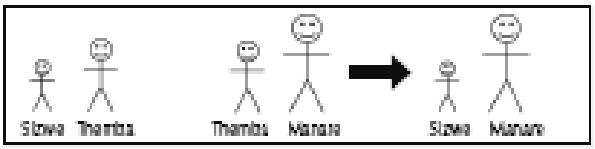
How many?					
100s	**50s**	**25s**	**20s**	**10s**	**5s**
100	1	2			
200					
300					
400					
500					

Once the table is complete, tell learners you are going to clap a number and they must find it. Start off by telling them each clap is 100. Therefore if you clap 4 times, that is 100 4 times, so they point to 400. Try this with the other numbers e.g. a clap is 20, so 5 claps are 100.
Tip: *Use this as one of the activities for Assessment Task 2 at the end of Week 7.*

- Learners need to have experiences of comparing lengths and heights to each other. We learn about measurement when we have something to compare the length of an object with or against.
- Start by calling any two learners to the front. Let them stand back to back so that the class can decide which one is taller. Now call a third learner to the front. Compare his/her height with only one of the other learners. Decide who is taller. Now ask the question, "B (use their names) is taller than A. But you saw that C is taller than B. What does this tell us about A and C? Which learner is taller?" Some learners will struggle to see that, without putting learner C next to learner A, we know that C is taller than A. This is called transitive thinking.

B taller than A. C taller than B. Then C taller than A.

In order to represent the same idea for learners who don't understand the concept, you can draw stick figures on the board such as in this example:



Draw the first two stick figures and ask who is shorter, A or B. Draw the next two figures a short distance away from the first two and ask who is shorter, B or C. Without making another drawing, ask learners who is shorter, A or C. Ask them to explain how they know this. Repeat the activity a few times using the learners themselves.

DAY 2 (to take no more than 30 minutes)

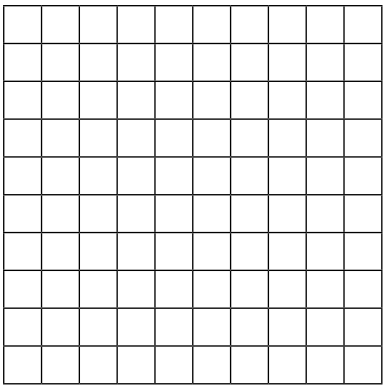
- Ask learners to put these numbers in the right order from biggest to smallest. You could write them on the board. Let them write the numbers down in the right order. Also ask some questions that ask for the order from smallest to biggest.

  180; 150; 130; 200; 110
  140; 104; 44; 40
  112; 123; 113; 122; 133
  159; 168; 173; 198
  150; 105; 115; 151

  Ask learners which is bigger: 198 or 189? 145 or 154? 154 or 146? They can look on their number boards if they need to.
- Ask learners to use a blank number square that represents 1 to 100. Ask them to put a counter on the block for 25 (for example). Then ask them to count 13 more blocks on from there and put a counter on that block. Work out what number there should be on that block. Ask a few more of these kinds of questions using the numbers 1 to 100.
- Provide each group with measurement 'units' to measure objects. Things that work well are paper clips, unifix cubes, sticks of the same length, straws or playing cards. They could play this game inside the classroom or outside. In their groups (as they sit), they must collect the objects listed below (or something similar) and tick them off as they go along. You could offer a small prize (sweets) or 5 minutes free playtime for the group that collects everything first.
  1. Find something the same length as a paper clip.
  2. Find something longer than a paper clip but shorter than a straw.
  3. Find something the same length as a unifix cube.
  4. Find something shorter than a unifix cube.
  5. Find something longer than a pencil but shorter than a book.
  6. Find something that is 10 paper clips long.
  7. Find something that is 10 matchboxes long.
  8. Measure a book with paper clips. How many paper clips in the length of the book? ____ paper clips
  9. Measure the same book with a matchbox. How many matchboxes in the length of the book? _____ matchboxes

DAY 3 (to take no more than 30 minutes)

- Each pair of learners needs to have a 1 to 100 number square, a 101 to 200 number square and three blank number squares, if possible. Or you could use only blank number squares.



Let learners work out where different numbers will be on the blank number square for themselves. For example, ask them:

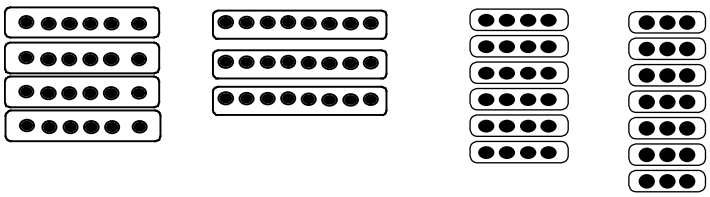
- "Put a counter on the block for 199. What number will be on the next block after this?"
- "Now if you have another number square after 200 on this square, what will the first number on the square be?" (201)
- "The next number after 200 is 201. What do you think the next number after 300 is?" And after 400? And after 500?"

  Tip: Watch out for the mistake many learners make. For example, they think that 300 comes after 200, and 400 comes after 300!

- Ask learners what is the next number after 201? And the next number? Now let's count from 200 to 210. As you count together, learners can point to the blocks of the blank number square. What can they say about the pattern of the numbers? (That it is the same pattern as the numbers 1, 2, 3 up to 9). Ask learners to continue to point to the blocks of their number squares and count up to 220. Then learners can write in the numbers from 201 to 220 on their number squares.
- Choose 4 learners to stand in front of the class. Ask what you must do to double the number of learners, or halve the number of learners. Repeat a few times always choosing an even number of learners. Now choose an odd number e.g. 7 learners. Ask what you must do to halve the number learners. Discuss how 7 can be halved. Ask if anyone knows how to write "a half" using symbols i.e. ½. Do this a few times with different odd numbers. Encourage discussion about the difference when halving odd and even numbers. Depending on your class, either restrict the numbers to single digit odd numbers for the moment, or work with two-digit odd numbers as well.

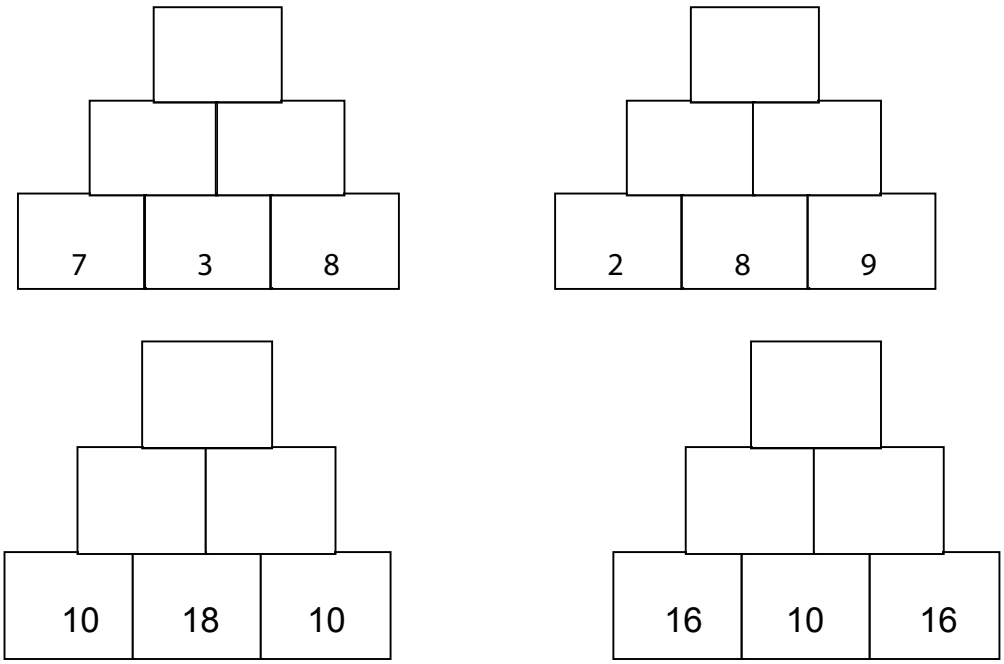
DAY 4 (to take no more than 30 minutes)

- Working in groups of 4, learners count out 24 counters from a pile. Encourage learners to find different patterns of grouping 24 counters. Here are some ways:



Discuss with learners what is the same and what is different about the patterns. Encourage learners to notice the shapes made, or the length of the rows and the number of counters in each row or group. Learners need opportunities to use the language of grouping as much as possible. Ask if they can write down number sentences for the groups they have made using either repeated addition or multiplication. If there is time, do the same using 36 counters.

- Use an activity such as this one as a different way to build up numbers from 10s. Each number in the tower is made by adding the two numbers below it.



DAY 5 (whole lesson with whole class)

- Make sure each learner has a pencil and a piece of paper to write on. Take them outside and put them into 4 random groups. Explain the game as follows:
  - Each group has a waste-paper basket (or bucket), a sheet of newspaper, a ruler and 5 bean-bags.
  - The basket is placed on the newspaper in the middle. The leader counts 5 big steps from the edge of the newspaper and places the ruler on the group. The group sits around the newspaper, but not touching it.
  - The leader starts the game. S/he stands behind the ruler and throws the 5 bean-bags, one at a time, into the basket. Some land in the basket and some may land on the paper or even on the grass.
  - Scoring is as follows: Each bean bag counts 10. If it lands in the basket, the value doubles. If it lands on the newspaper, the value remains the same. If it lands off the newspaper and on the ground, the value is halved.
  - All the other learners record the scores as check to see if they all got the same.
  - Learners take turns until everyone has had a turn to throw the bean-bags and record a score.
  - The learner with the highest score gets a 'prize' – can be first out for break, can be the leader of the boys or girls going back into the classroom, can chose a book for you to read, etc.

ASSESSMENT	**Formal :** No formal, recorded Assessment **Informal :** Unrecorded assessment of learners oral responses and ability to participate

WEEK 6: GROUP TEACHING

Week 6	GROUP TEACHING COMPONENT (Concept Development and Problem Solving)

Notes to teacher:

- By now you have established 3 groups. Every day you will work with 2 different groups in a small group situation e.g. sitting on the mat together. During this time you will do activities to develop number concepts at the level of the learners in the group. A number of types of activities are provided and you should do ALL the types each time you work with that group; but remember, although examples are provided, you should look for your own examples that will suit your learners. You will also give the learners at least 2 different word problems to solve every time you work with them. It is through solving problems and discussing the solutions that learners develop a sense of number, an understanding of the operations and the ability to reflect on their thinking.
- While you are working with a group, the rest of the class will be working independently. You need to provide them with a variety of activities which reinforce and consolidate concepts already learnt. Try to vary the activities e.g. giving a practical activity (counting counters in counting bags), a written activity (filling in numbers, sequencing, etc.) and a fun activity (dot-to-dot pictures, puzzles, etc.)
- Learners **must do** the work set. Once they have completed this they may choose any mathematical activity e.g. jigsaw puzzle

Examples of activities to be done independently. *Work from a Learner's Book, worksheets, workcards, etc.*

- Activities for number patterns for 2s, 5s, 10s, 20s, and 50s.
- Complete 2; 4; 6; ... 20 and compare counting in 2s with counting in 20s. How are the patterns the same? How are they different?
- Complete 5; 10; 15; ... 50. Compare counting in 5s with counting in 50s. How are the patterns the same? How are they different?
- Expanded notation of two and three-digit numbers.
- Adding and subtracting whole tens onto any two-digit number.
- This activity draws on previous work with building and breaking numbers. The numbers are represented by shapes e.g. a circle for a 10 and a triangle for a 2. Learners count the number of each kind of shape and exchange them for the values. You can use **Annexure 5** or make your own examples. They count the values of the shapes and write down the numbers they represent.
- Ask learners to use a sorting table to sort numbers by two rules (criteria). Draw the sorting table on the board and provide tables for the learners to fill in: *Sort the numbers from 50 to 70 into numbers that are odd or even, and numbers that are or are not in the 10s counting pattern*.

  This is the answer you would expect.

	Odd	**Even**
In the 10s pattern		50, 60, 70
Not in the 10s pattern	51, 53, 55, 57, 59, 61, 63, 65, 67, 69	52, 54. 56, 58, 62, 64, 66, 68

Working with the group

GROUP 1

*On **Monday** and **Wednesday** this group works with the teacher for 25 minutes.*

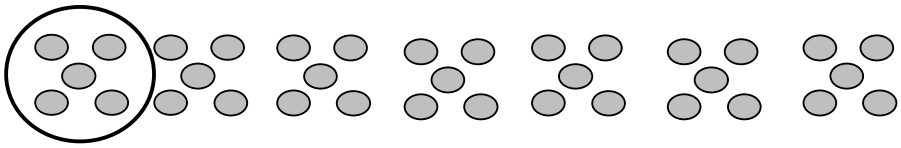
- Place some pictures of people on the floor in the middle of the group. Let learners look at the pictures for a few moments and then cover them. Ask the learners to estimate how many fingers there are. Once everyone has committed themselves to a number, uncover the pictures and count the people. Each person has 10 fingers, so that is the correct number. Check who estimated too many and who estimated too few.
- Give each learner a packet of flard cards and tell them to set them out in order. Once everyone is ready ask learners to make two and three-digit numbers. Check the numbers each time to make sure the learners have the correct cards i.e. 268 needs 200 and 60 and 8. Ask learners to make two or three-digit numbers and add whole tens to the number, each time showing which number changed. i.e. 268+20 is 288 because the 60 changed to 80. Now ask learners to make two-digit numbers and then add a single digit e.g. 24 plus 5 The new number is 29 – ask which number changed and why. Learners should be able to tell you that the 4 changed because 4+5 is 9. Depending on the level of your learners, now ask numbers such as 28+7. Each time learners need to be able to tell you what they did and which numbers changed i.e. 28+7 is 35 so both the 20 and the 8 have to change and the new numbers are 30 and 5.
- Make sure each learner has access to paper, writing tools, counters and a number square. Ask them two different word problems which they solve by talking about them, drawing pictures and so on. Use the number range 1 to 150. Let each learner tell the group how s/ hesolved the problem. On Monday the word problems will be 1 subtraction and 1 sharing with a remainder as a fraction and on Wednesday you will ask 1 addition and 1 grouping with a remainder problem.

GROUP 2

*On **Tuesday** and **Thursday** this group works with the teacher for 25 minutes.*

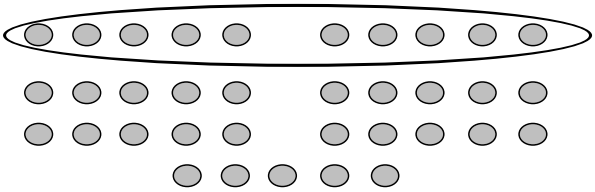
- Give each pair of learners between 30 and 40 counters. Ask them to estimate how many there are and then to count them. Did they estimate too many or too few?
- Using the counters they group them in groups of 5. If you have eggboxes or similar containers they can put their groups of 5 into the containers. Ask each group how many groups of 5 they have and how many counters were left over. Then ask how many counters there are in 2 groups, 3 groups, 4 groups and up to 7 groups of counters. Ask learners to show their answers by drawing the counters and by writing down the numbers in any way that think is a good way. Here are some ways that learners could record 7 groups of counters:

Method 1:



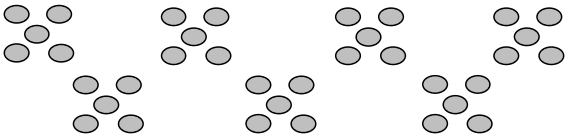
7 groups 5 + 5 + 5 + 5 + 5 + 5 + 5 = 35 counters

Method 2:



5 + 5 = 10.
There are two more 10s after that. That makes 10, 20, 30.
30 + 5 = 35

Method 3:



5, 10, 15, 20, 25, 30, 35

- Make sure each learner has access to paper, writing tools, counters and a number square. Ask them two different word problems which they solve by talking about them, drawing pictures and so on. Use the number range 1 to 100. Let each learner tell the group how s/he solved the problem. On Tuesday the word problems will be 1 subtraction and 1 sharing with a remainder as a fraction and on Thursday you will ask 1 addition and 1 grouping with a remainder problem.

GROUP 3

*This group works with the teacher **every day** for 25 minutes.*

- Using a number of counters learners group them in groups of 2. If you have eggboxes or similar containers they can put their groups of 2 into the containers. Ask each group how many groups of 2 they have and how many counters were left over. Then ask how many counters there are in 2 groups, 3 groups, 4 groups and up to 7 groups of counters. Ask learners to show their answers by drawing the counters and by writing down the numbers in any way that think is a good way.
  Tip: *This activity is similar to Group 2's activity, but this group will count in 2s.Their recording will be similar to that of Group 2.*
- Skip count from any number in 20s. Learners may need a number square. Place a counter on the first number asked for (e.g. 7) and count 20 blocks or 2 rows down from there to get 27. Continue to get 7; 27; 47; 67. Using the same pattern, work out the 20s from 17 (answer: [17; 37; 57; 77]), then 27 and 37.
- Make sure each learner has access to paper, writing tools, counters and a number square. Ask them two different word problems which they solve by talking about them, drawing pictures and so on. Use the number range 1 to 75. Let each learner tell the group how s/he solved the problem. On Monday and Tuesday the word problems will be 1 subtraction and 1 sharing with a remainder as a fraction and on Wednesday and Thursday you will ask 1 addition and 1 grouping with a remainder problem.

Assessment	**Formal:** No formal, recorded Assessment. **Informal:** Unrecorded assessment of learners' oral responses and ability to solve problems.

FIRST TERM: WEEK 7

COMPONENT	MILESTONES	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5
COUNTING LO 1 AS 1	• Counts out objects to 100 • Counts in multiples of 2 and 20 to 200, 5 and 50 to 500, 10 and 100 to 1000	Daily : • Rote counting in 1s to 300. • Rote counting in multiples to 300. • Counting in 1s from 199 to 306 • Counting in multiples of 2 and 20 to 200, 5 and 50 to 500, 10 and 100 to 1000				
NUMBER SENSE AND MENTAL LO 1 AS 3, 8, 10 LO 2 AS2 LO 4 AS 5 LO5 AS 1, 2, 3	• Recognises the pattern of counting in 10 starting at any number • Is able to add and subtract two two-digit numbers where one number is a whole 10 e.g. 24+10=? • Identifies the numerosity of numbers 34 • Doubles and halves numbers to 50 • Building up the 10 when adding and subtracting i.e. 9+4 = 9+1 +3 19+4=19+1 +3 29+4=29+1 +3 • Estimates, measures and compares length using non-standard and standard measures • Sorts, orders and organizes own data according to two attributes	Daily : • Recognise and complete number patterns of 10 • Multiplication of 2, 5, and 10				
		DAY 1	**DAY 2**	**DAY 3**	**DAY 4**	**DAY 5**
		Double and halve numbers from 1 to 50 Numerosity of numbers to 34 Data Handling	Double and halve numbers from 1 to 50 Numerosity of numbers to 34 Data Handling	Addition and subtraction of two two-digit numbers where the one number is a whole 10 Measurement : length using non-standard measurements	Addition and subtraction of two two-digit numbers where the one number is a whole 10 Measurement : length using non-standard measurements	Addition and subtraction of two two-digit numbers where the one number is a whole 10 Introduce building up the whole 10 when adding and subtracting
GROUP TEACHING LO 1 AS 7, 11, 12	• Decomposes two-digit numbers as expanded notation i.e. 26=20+6 using flard cards • Solve problems, and explains solutions, using number charts and counters if needed with numbers up to 200 • Solves problems using grouping and sharing where the remainder is a fraction	Ask each group the same problems. They can be solved using counters, drawings, etc. Number range: Group 1 works in 1-200; Group 2 works in 1-150; Group 3 works in 1-100				WHOLE CLASS ACTIVITY Measurement : length using non-standard measurements
		Groups 1 and 3 work with teacher, one group at a time. *Ask 1 subtraction and 1 grouping with a remainder word problem* Group 2 work on their own.	Groups 2 and 3 work with teacher, one group at a time. *Ask 1 subtraction and 1 grouping with a remainder word problem* Group 1 work on their own.	Groups 1 and 3 work with teacher, one group at a time. *Ask 2 different types of addition word problems* Group 2 work on their own.	Groups 2 and 3 work with teacher, one group at a time. *Ask 2 different types of addition word problems* Group 1 work on their own.	

WEEK 7: WHOLE CLASS

WEEK 7	WHOLE CLASS COMPONENT (Counting and Mental/Number sense)

Notes to the teacher:

- Counting at the beginning of the day helps learners focus on numbers. Every day you will let your learners do rote counting (to develop the vocabulary of numbers) as well as rational counting (thinking what they are doing) activities. Counting at the beginning of the lesson is done with the whole class every day.
- Daily activities indicate activities that should be done every day. The specific concepts being developed are indicated every day e.g. Day 1.
- Learners will enjoy guessing the sorting rule and making sorting rules. These are important skills to develop for the data handling process. So, although it might appear that learners are just having fun, these activities build their reasoning skills.
- Data handling is a useful new part of the curriculum because it gives learners skills of sorting, organising and representing information. These are important for building research skills later in life.
- Your learners need opportunities to sort real things in their lives, objects in your classroom (shapes, collections of things that they can sort in their own ways), pictures of things like animals, foods etc.
- Later in the year, learners will make and draw graphs to represent their collections. They need to make concrete graphs first, using the actual objects that need sorting; then move onto pictographs (also called pictograms) to represent the concrete objects. It is only after this, that learners can begin to work with symbol graphs (e.g. ticks represent the objects) and bar graphs. Give learners opportunities to:
  - sort in their own ways and then decide what sorting rule was used;
  - sort according to a rule you give them;
  - guess the sorting rule when you give them objects already sorted;

Examples of each of these ways to sort are provided in the lessons.

- **Activities for Assessment Task 2** will be found as part of the everyday teaching and learning activities.

DAILY ACTIVITIES

COUNTING AND MENTAL/NUMBER SENSE

Daily Activities.(to take no more than 10 minutes)

Do be done daily:

- Learners' rote count in 1s from 200 to 300.
- Learners' rote count in multiples of 2, 5 and 10 in the number range 1 to 300.
- Let learners choose any number between 1 and 34. Each learner in the class tells a different number fact about that number. If your class is large, choose a number and let ten learners tell you facts about the number, then choose another number and let another ten learners have a chance. You may have to choose 3 or 4 different numbers each day otherwise it becomes too difficult for the learners if the class is big.

  Tip: *This is an assessment activity, so make sure everyone has a turn each day. Don't always let the same learner start! The activity should not take long – about 5 minutes – as learners know these numbers very well by now.*

Choose from the following (to make up the 10 mins.):

- Count with the learners using the number square from 199 to 306. You could start with 199 to 250.

- Ask individuals to count, each taking turns, from say, 250 to 260, then 261 to 271, then 272 to 278, then 279 to 288 until you reach 300.
- Ask the groups to take turns counting from 199 to 306. A group may only count 10 numbers before it is the next group's turn. So Group 1 will count 250 to 259, Group 2 will count 260 to 269 etc until the last group counts 290 to 306.
- Ask learners questions about doubling and halving up to 50, such as: "*What is double 21?", "What is double 17?", "What is half of 46?", and "What is half of 34?"* You can also extend this to include questions like: "*What is double 50?", "What is double 100?", and "What is half of 400?"*

DAY 1 (to take no more than 30 minutes)

- Use a sorting table to sort numbers by two rules (criteria). Draw the table on the board for the whole class. Here is an example: *Sort the numbers from 1 to 20 into numbers that are odd or even, and numbers that are or are not in the 5s counting pattern.* Give each learner an empty table to work in. They can do one sorting table **each day** this week. This is the answer to the example:

	Odd	**Even**
In the 5s pattern	5, 15	10, 20
Not in the 5s pattern	1, 3, 7, 9, 11, 13	2, 4. 6, 8, 12, 14, 16, 18

Tip: *Use this activity for assessing whether learners can sort according to two criteria.*

- Take learners outside and ask them to get into the groups you call out e.g. make groups of double 4, half of 20, 6 multiplied by 2, 10 more than 1, etc.

DAY 2 (to take no more than 30 minutes)

- Ask about 10 learners to stand in front of the class. Sort them without telling the class how you have sorted them. Then they must guess what your sorting rule is. For example, an easy rule would be boys and girls. You could also sort by:
  - who is facing the class and who is facing the blackboard (you'll have to ask learners to stand in particular positions);
  - who is wearing a jersey or tracksuit and who isn't;
  - who has had a birthday this year and who hasn't (refer to your birthday calendar);
  - whose name starts with M and whose name doesn't start with M;
  - who is tall and who is short;
  - who is sitting on the floor and who is kneeling down etc?

After you have done a few of these, ask learners to come and sort the group in front by a secret rule. The rest of the class must guess the rule.

Tip: *Use this activity for assessing whether learners can sort according to two criteria.*

- Randomly divide the class into equal size teams – 5 or 6 teams should be enough. Tell them they are going to have a relay race to see which team knows their doubles and halves. Call 1 learner from each team to stand facing the chalk board, each with a piece of chalk. You will give the instruction and the learners will write down the answer. The first one finished will get the maximum points and the last one finished will get the fewest points. The points will depend on how many teams you have. If, for example, you have 5 teams, the first one finished will get 5, the second one finished will get 4, the third one will get 3, the fourth one finished will get 2 and the last one finished will get 1. The team will keep a record of the points they earn, but you need to keep an eye that they are recording correctly! Call out instructions involving doubling and halving e.g. *double 50, half of 28, double 25, half of 46, etc.* Make sure each time that the points are recorded. Once everyone has had a turn, add up the scores and see which team won. If there is time, play the game again.

  Tip: *Use this activity for assessing whether learners can double and halve.*

DAY 3 (to take no more than 30 minutes)

- Learners work in groups for this activity. Each group is given a different length of 'measuring unit' to measure things. Don't let them know that their measures are different. If you have 6 groups in the class, give 2 groups a cardboard strip that is 3 cm long; give 2 groups strips of 4,5 cm and 2 groups strips of 7 cm long. Here are templates you could use:

Put about 5 objects on each group's table. The objects need to be the same for each group. You could use a magazine, a toilet roll, a 2 litre bottle, cardboard or plastic shapes, glue sticks. As well as these measurements, you could also ask them to use their strip to measure the height of the door of the classroom. Learners must write the measurements into a table like this:

Object to measure	Measurement in cardboard strips
Magazine	
Toilet roll	
2 litre bottle	
Shape	
Glue stick	
Door of classroom	

- Let learners from different groups compare their measurements for one object at a time. They will find that they have very different answers. Can they work out why their own answers are so different yet they were measuring the same things? (*It is because their measuring tools were different. The smaller the unit of measurement, the more units they fitted into the length of the objects measured.)* Discuss the need for a standard unit of measurement. Ask if anyone knows what the measurements of lengths used in South Africa are called. Make sure learners know the vocabulary kilometres, metres, centimetres and millimetres. You can write these words on the board for interested learners, but learners don't need to be able to spell them.
- Let learners look at their rulers and find the milimetres and centimeters. Let them measure their books, their feet, their desks, etc. using their rulers. At this stage you are not looking for accurate measurements, rather just practise in using a ruler for measuring. If you have a metre stick, or a tape measure, learners can use that as well to measure longer items such as your table, or the chalk board, etc.

DAY 4 (to take no more than 30 minutes)

- Revise the vocabulary for units of measurement used in South Africa. Ask questions like: *Would you measure a soccer field in centimetres, metres or kilometres? And this blackboard? What about a sharpener or an eraser?* Ask learners, if they had to *estimate* their own heights, would the estimate be closer to 1 metre or to 1 centimetre? Would it be closer to 1 metre or to 2 metres? Which of these measuring tools would be useful to measure their own heights?

a paper clip	a unifix cube	a strip of paper of 10 cm	a metre stick
a tape measure	a ruler	a straw	a height chart

  Discuss how it is difficult to be accurate with small units like the cubes, but it is also difficult to be accurate with a metre stick – it can only tell you that you are more than a metre tall and less than 2 metres tall.
- Learners are going to make a metre strip. Give each learner some centimetre grid paper. Make sure the squares on the grid are exactly 1 cm by 1 cm. What things can they find that are about 1 cm in length? Then learners can cut a strip of 10 squares from the grid – that should be exactly 10 cm in length. Then they find something that is exactly the length of the strip (10 cm long). You can tell them that there is a name given to 10 centimetres. It is a **decimetre**. This is not a measurement often used, so it is not necessary for learners to know the name. Now learners cut out 10 of these 10 cm strips from their grid. They colour them different colours and join them together carefully with cellotape, end to end. The tricky part of this is that the strips shouldn't overlap when they are stuck together. Learners will need to work in pairs to help each other with joining the strips. When they have done this, discuss the length they have made. They have made a metre. One learner can stick his or her metre strip up in the front of the classroom, with the one end touching the floor. Help him or her to place it vertically and not at a slant. Compare this length to a metre stick if you have one.

DAY 5 (whole lesson)

- Ask learners to work in groups of 6-8 learners. Ask them to find out:
  - Are any of them less than a metre tall?
  - Is anyone exactly one metre tall?
  - How tall are they? They can put two of their metre strips together and measure their heights against this. Learners can describe their heights as 'one and a half metres', or 'one and a little bit', or 'one and a quarter metres'. They don't need to read their heights in centimetres.

  Then they can measure how 'wide' they are! This measurement is with arms outstretched, from the tips of their fingers on one hand, to the tips of fingers on the other hand, stretched out horizontally. Using these two measurements of their height and 'arm span', they should decide what kind of 'shape' they make – a square, a tall rectangle or a wide rectangle?
- Learners can use their metre strips for this activity or they can use a tape measure. If learners are all using their own metre strips, you should also show them a tape measure and measure their metre strips against the tape measure. When working with a tape measure or with a ruler, make sure learners start their measurements from the point marked '0' and not before that. Working in pairs and using a thick wax crayon, learners trace their partner's outline onto a large piece of paper and then cut out the outline. Now they must measure parts of this cut-out. Can they find something on the outline that is 1 cm long (e.g. across a finger), something that is 10 cm long and then something that is 1 metre long, or about 1 metre long.
- Let learners work on their own to choose which is the best measurement for each of the following questions. When they have finished choosing an answer they can measure to see how accurate their answer is.

  Write down the best answer for each question.

  1. The length of your hand is
     A. about 1 metre long
     B. about half a long ruler
     C. about half a short ruler
     D. about one short ruler long
  2. The length of your finger is
     A. about as long as a short ruler
     B. about as long as a long ruler
     C. about half of one of the 10 cm strips
  3. The length of your foot is
     A. between 1 and 2 of the 10 cm strips you made in class
     B. about 2 cm
     C. about 1 metre

4. The length of one of your paces is
   A. about 2 metres
   B. a bit less than 1 metre
   C. about 1 of the 10 cm strips
5. When you stretch your arms up above your head, you can reach up to
   A. about 1 metre
   B. about 1½ metres
   C. about 5 metres

Tip: *Use all these activities for Assessment Task 2. Observe the learners and then record your observations.*

ASSESSMENT	**Formal : Recorded Assessment Task 2:** During the whole class and group teaching activities as indicated rate the learners against the following milestones, recording specific problems: • Counts in multiples of 2 and 20 to 200, 5 and 50 to 500, 10 and 100 to 1000 • Is able to add and subtract two two-digit numbers where one number is a whole 10 e.g. 24+10=? • Identifies the numerosity of numbers 34 • Doubles and halves numbers to 50 • Estimates, measures and compares length using non-standard and standard measures • Sorts, orders and organizes own data according to two attributes

WEEK 7: GROUP TEACHING

Week 7	GROUP TEACHING COMPONENT (Concept Development and Problem Solving)

Notes to teacher:

- By now you have established 3 groups. Every day you will work with 2 different groups in a small group situation e.g. sitting on the mat together. During this time you will do activities to develop number concepts at the level of the learners in the group. A number of types of activities are provided and you should do ALL the types each time you work with that group; but remember, although examples are provided, you should look for your own examples that will suit your learners. You will also give the learners <u>at least 2 different word problems to solve every time you work with them.</u> It is through solving problems and discussing the solutions that learners develop a sense of number, an understanding of the operations and the ability to reflect on their thinking.
- While you are working with a group, the rest of the class will be working independently. You need to provide them with a variety of activities which reinforce and consolidate concepts already learnt. Try to vary the activities e.g. giving a practical activity (counting counters in counting bags), a written activity (filling in numbers, sequencing, etc.) and a fun activity (dot-to-dot pictures, puzzles, etc.)
- **Assessment Task 2** will be done this week.

<u>Examples of activities to be done independently.</u> *Work from a Learner's Book, worksheets, workcards, etc.*

- Give learners a worksheet or a textbook activity for number patterns for 2s, 5s, 10s, 20s, and 50s.
- Expanded notation of two and three-digit numbers. ***Tip:*** *Use as an assessment activity.*
- Adding and subtracting whole tens onto any two-digit number. ***Tip:*** *Use as an assessment activity.*

- Ask learners to use a sorting table to sort numbers by two rules (criteria). Draw the sorting table on the board and provide tables for the learners to fill in: *Sort the numbers from 50 to 70 into numbers that are odd or even, and numbers that are or are not in the 5s counting pattern*.
  This is the answer you would expect.

	Odd	**Even**
In the 5s pattern	55, 65	50, 60, 70
Not in the 5s pattern	51, 53, 57, 59, 61, 63, 67, 69	52, 54. 56, 58, 62, 64, 66, 68

- Learners keep adding or subtracting 10, 20 or 50 until they reach 200, 500, 1000, e.g.

20 **+20** → 40 **+20** → 60 **+20** → ___ **+20** → ___ **+20** → ___

500 **-50** → ___ **-50** → ___ **-50** → ___ **-50** → ___ **-50** → ___

  Tip: *Use as an assessment activity.*
- Repeated addition and subtraction number sentences.
- Doubling and halving activities. ***Tip:*** *Use as an assessment activity.*
- Fill in the numbers you would use when counting in 2s, 5s and 10s on a number line or number square.

Working with the group

GROUP 1

*On **Monday** and **Wednesday** this group works with the teacher for 25 minutes*.

- Put some buttons (with 2 holes each) in the middle of the group. The number will depend on the level of the group. Let them look at them quickly and then cover the buttons. Each learner must say, or write down, how many holes they estimate there are. Count the holes in 2s and ask who estimated too many and who estimated too few. Ask if there is another way that they can find out the number of holes (by doubling).
  Tip: *Use this as an assessment activity for counting in 2s as well as doubling.*
- Let learners set out their flard cards and build two or three- digit numbers, depending on the level of the group. They should then add whole tens to the numbers they make and then make the new number e.g. first number is 28→20+8. Add 10 to 28 and the new number is 38 20+10 is 30 so 28+10 is 38. Another example is 68+20 is 88 because the 60 changed to 80 but the 8 stayed the same. An example of subtraction would be 62-20→ 60-20 is 40 so 62-20 is 42.
  Tip: *Use this as an assessment activity for adding and subtracting two-digit numbers where one number is a whole ten.*

- Make sure each learner has access to paper, writing tools, counters and a number square. Ask them two different word problems which they solve by talking about them, drawing pictures and so on. Use the number range 1 to 200. Let each learner tell the group how s/he solved the problem. On Monday the word problems will be 1 subtraction and 1 grouping with a remainder and on Wednesday you will ask 2 different types of addition word problems.

GROUP 2

*On **Tuesday** and **Thursday** this group works with the teacher for 25 minutes.*

- Put some buttons (with 2 holes each) in the middle of the group. The number will depend on the level of the group. Let them look at them quickly and then cover the buttons. Each learner must say, or write down, how many holes they estimate there are. Count the holes in 2s and ask who estimated too many and who estimated too few. Ask if there is another way that they can find out the number of holes (by doubling).
  ***Tip:** Use this as an assessment activity for counting in 2s as well as doubling.*
- Let learners set out their flard cards and build two or three- digit numbers, depending on the level of the group. They should then add whole tens to the numbers they make and then make the new number e.g. first number is 28→20+8. Add 10 to 28 and the new number is 38 20+10 is 30 so 28+10 is 38. Another example is 68+20 is 88 because the 60 changed to 80 but the 8 stayed the same. An example of subtraction would be 62-20→ 60-20 is 40 so 62-20 is 42.
  ***Tip:** Use this as an assessment activity for adding and subtracting two-digit numbers where one number is a whole ten.*
- Make sure each learner has access to paper, writing tools, counters and a number square. Ask them two different word problems which they solve by talking about them, drawing pictures and so on. Use the number range 1 to 150. Let each learner tell the group how s/he solved the problem. On Tuesday the word problems will be 1 subtraction and 1 grouping with a remainder and on Thursday you will ask 2 different types of addition word problems.

GROUP 3

*This group works with the teacher **every day** for 25 minutes.*

- Put some buttons (with 2 holes each) in the middle of the group. The number will depend on the level of the group. Let them look at them quickly and then cover the buttons. Each learner must say, or write down, how many holes they estimate there are. Count the holes in 2s and ask who estimated too many and who estimated too few. Ask if there is another way that they can find out the number of holes (by doubling).
  ***Tip:** Use this as an assessment activity for counting in 2s as well as doubling.*
- Let learners set out their flard cards and build two or three- digit numbers, depending on the level of the group. They should then add whole tens to the numbers they make and then make the new number e.g. first number is 28→20+8. Add 10 to 28 and the new number is 38 20+10 is 30 so 28+10 is 38. Another example is 68+20 is 88 because the 60 changed to 80 but the 8 stayed the same. An example of subtraction would be 62-20→60-20 is 40 so 62-20 is 42.
  ***Tip:** Use this as an assessment activity for adding and subtracting two-digit numbers where one number is a whole ten.*

• Make sure each learner has access to paper, writing tools, counters and a number square. Ask them two different word problems which they solve by talking about them, drawing pictures and so on. Use the number range 1 to 100. Let each learner tell the group how s/he solved the problem. On Monday and Tuesday the word problems will be 1 subtraction and 1 grouping with a remainder and on Wednesday and Thursday you will ask 2 different types of addition word problems.	
Assessment	**Formal : Recorded Assessment Task 2:** During the whole class and group teaching activities as indicated rate the learners against the following milestones, recording specific problems: • Counts in multiples of 2 and 20 to 200, 5 and 50 to 500, 10 and 100 to 1000 • Is able to add and subtract two two-digit numbers where one number is a whole 10 e.g. 24+10=? • Identifies the numerosity of numbers 34 • Doubles and halves numbers to 50 • Estimates, measures and compares length using non-standard and standard measures • Sorts, orders and organizes own data according to two attributes

SUGGESTED ASSESSMENT TASKS: GRADE 3 NUMERACY FIRST TERM

TASK 2: WEEK 7

COMPONENT	MILESTONES	WKS	TASKS
COUNTING AND MENTAL/NUMBER SENSE	• Counts in multiples of 2 and 20 to 200, 5 and 50 to 500, 10 and 100 to 1000 • Is able to add and subtract two two-digit numbers where one number is a whole 10 e.g. 24+10=? • Identifies the numerosity of numbers 34 • Doubles and halves numbers to 50 • Estimates, measures and compares length using non-standard and standard measures • Sorts, orders and organizes own data according to two attributes	Wk 6 Wk 7	• Use the practical and recorded activity on Day 1 and 2 to observe learners' ability to count in 20s, 50s and 100s. • Use the oral activity during the week to assess learners' ability to identify the numerosity of numbers to 34. • Use the recorded activity on Day 1 and the practical activity on Day 2 to assess learners understanding of sorting according to two criteria. • Use the recorded activity on Day 2 to assess learners' knowledge of doubling and halving. • Use practical work on Day 5 to assess knowledge of measurement.
PROBLEM SOLVING	• Is able to add and subtract two two-digit numbers where one number is a whole 10 e.g. 24+10=?	Wk 7	• Written work done independently during the group teaching time can also be used for assessment purposes. • Flard card work during group teaching time will be used to assess the addition and subtraction of two two-digit numbers.

FIRST TERM: WEEK 8

COMPONENT	MILESTONES	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5
COUNTING LO 1 AS 1, 2, 3	• Count in 10 starting at any number e.g. 2, 12, 22, 32 etc • Recognises the pattern of counting in 10 starting at any number • Counts in multiples of 2 and 20 to 200, 5 and 50 to 500, 10 and 100 to 1000	Daily : • Rote counting in 1s between 85 and 220. • Rote counting in multiples to 300. • Counting in multiples of 2 and 20 to 200, 5 and 50 to 500, 10 and 100 to 1000 using number cards etc. • Count in 10s starting at any number				
NUMBER SENSE AND MENTAL LO AS LO AS	• Counts out objects to 100 • Recognises the pattern of counting in 10 starting at any number • Decomposes two-digit numbers as expanded notation i.e. 26=20+6 using flard cards • Is able to add and subtract two two-digit numbers where one number is a whole 10 e.g. 24+10=? • Building up the 10 when adding and subtracting i.e. 9+4 = 9+1 +3 19+4=19+1 +3 29+4=29+1 +3 • Determines the line of symmetry in 2-D shapes	Daily : • Multiplication of 2, 5, and 10 • Count out objects in 2s in the number range 1-200 • Numerosity of numbers to 100				
		DAY 1	**DAY 2**	**DAY 3**	**DAY 4**	**DAY 5**
		Building up the whole 10 when adding and subtracting Recognise and complete number patterns of 10	Building up the whole 10 when adding and subtracting Number patterns	Building up the whole 10 when adding and subtracting Addition and subtraction of two two-digit numbers where the one number is a whole 10	Building up the whole 10 when adding and subtracting Symmetry in 2-D shapes	Working with fractions
GROUP TEACHING **LO** **AS**	• Decomposes two-digit numbers as expanded notation i.e. 26=20+6 using flard cards • Solves problems using grouping and sharing where the remainder is a fraction	Ask each group the same problems. They can be solved using counters, drawings, etc. Number range: Group 1 works in 1-200; Group 2 works in 1-150; Group 3 works in 1-100.				WHOLE CLASS ACTIVITY Symmetry in 2-D shapes
		Groups 1 and 3 work with teacher, one group at a time. *Ask 1 sharing with a remainder and 1 grouping with a remainder word problem* Group 2 works on their own.	Groups 2 and 3 work with teacher, one group at a time. *Ask 1 sharing with a remainder and 1 grouping with a remainder word problem* Group 1 works on their own.	Groups 1 and 3 work with teacher, one group at a time. *Ask 1 grouping with a remainder and 1 sharing with the remainder as a fraction word problem* Group 2 works on their own.	Groups 2 and 3 work with teacher, one group at a time. *Ask 1 grouping with a remainder and 1 sharing with the remainder as a fraction word problem* Group 1 works on their own.	

WEEK 8: WHOLE CLASS

WEEK 8	WHOLE CLASS COMPONENT (Counting and Mental/Number sense)

Notes to the teacher:

- Counting at the beginning of the day helps learners focus on numbers. Every day you will let your learners do rote counting (to develop the vocabulary of numbers) as well as rational counting (thinking what they are doing) activities. Counting at the beginning of the lesson is done with the whole class every day.
- Daily activities indicate activities that should be done every day. The specific concepts being developed are indicated every day e.g. Day 1.
- Over the next two weeks you will be dealing with symmetry. Be aware that if there are lines of symmetry in regular triangles, squares, regular pentagons etc, this does not mean that *irregular* triangles, rectangles, pentagons etc have the same lines of symmetry. Learners need to investigate the symmetry of regular shapes that have seen often, but they also need to investigate irregular shapes.

DAILY ACTIVITIES

COUNTING AND MENTAL/NUMBER SENSE

Daily Activities.(to take no more than 10 minutes)

Do be done daily:

- Rote count from a given number to a given number e.g. from 87 to 146, or from 198 to 123.
- Count in 100s to 1000.

Choose from the following (to make up the 10 mins.):

- Ask how many fingers and toes there are in each group. Learners count the actual fingers and toes if they need to. Ask questions so that learners build up an understanding of the relationship of the numbers e.g. there are 8 learners in the group, so there are 80 fingers and 80 toes, making 160 altogether. How do you know? Did you have to count each finger and each toe? And so on.
- Have a number pattern ready for use each day. Use a variety of patterns and ask them in different ways. Some learners may want to use counters or number boards to help them.
    - Write the pattern on the board and ask learners to complete it in their books, e.g. 70; 80; 90; ...
    - Ask learners to call out the pattern as a class, or as groups, or as individuals, e.g. “Starting at 52, count in tens up to 142.”
    - Use number squares to place counters on 27 and every 10th number after it up to 107.
- Learners ask each other to complete number patterns with tens. They must choose a number between 1 and 9 to start at and increase by tens
- Let learners work in groups of about 6, not as a whole class. Each group needs to have 100 objects to count. You can use counters, but it is good to have different objects as well. The group counts together up to 100, while learners take turns to be the one who actually picks up the objects one by one while they count. For example, you can say, “The first learner must count to 13. Ready ... count. ... stop there. Now, the next one must count from 14 to

32." Continue in this manner up to 100. Learners can repeat this counting, this time with a group leader who says how far each one must count.

- Give learners a list of about 10 numbers to put in order. The number range can be from 1 to 500. They have not used so many numbers before, so you might need to suggest e.g. grouping all the numbers below 100, 101-200, 201-300 etc first. Then learners can sort within each 100 first.

DAY 1 (to take no more than 30 minutes)

- Take the class outside. Let them sit in a large circle so that everyone can see each other. Place a hoop (or a circle of string or wool) in the middle. Tell the learners that the hoop is a taxi and only 10 people (or objects) can be inside the hoop at one time. This becomes a problem when there are more than 10 people wanting to catch the taxi! Call out 14 learners – they all want to catch the taxi. Give 9 learners each a green piece of paper and 5 learners a red piece of paper. The taxi will only go when it is full. Ask the class to help solve the problem. Encourage them to find more than one solution. Check the solution by letting the learners stand in the hoop as well as outside the hoop. Some solutions will be:
  - The 9 learners with green pieces of paper stand in the hoop as well as 1 learner with a red piece of paper. The other 4 learners with red pieces of paper stand outside the hoop and have to wait for the next taxi. Learners are encouraged to talk about the solution – 9 plus 1 plus 4
  - The 5 learners with red pieces of paper stand in the hoop together with 5 learners who have green pieces of paper. The other 4 learners with green pieces of paper stand outside the hoop and have to wait for the next taxi. Learners are encouraged to talk about the solution – 5 plus 5 plus 4

  Do this again a few times, each time changing the number of learners with green and red pieces of paper e.g. 8 and 3 or 7 and 6 or 6 and 9, etc.

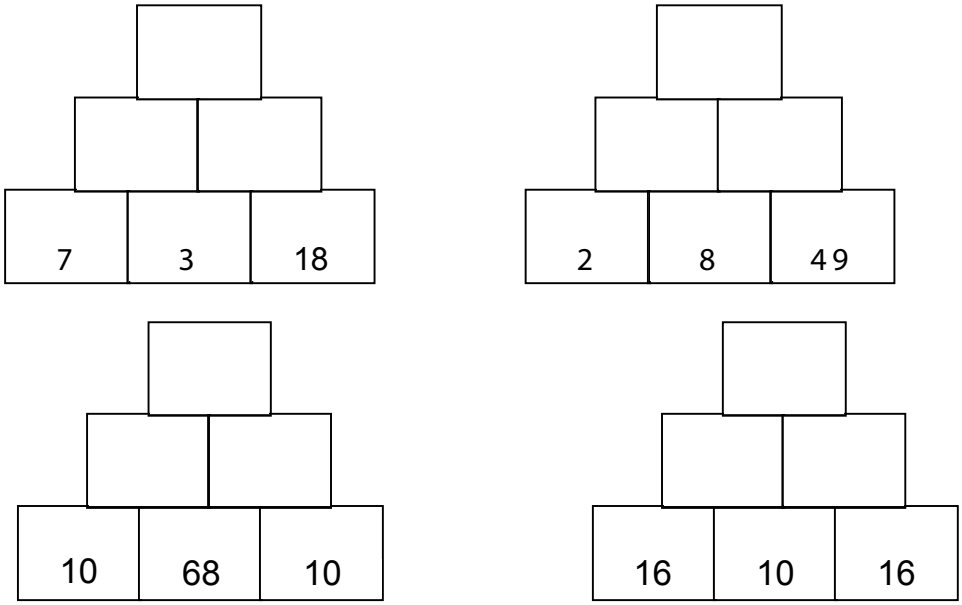
DAY 2 (to take no more than 30 minutes)

- Repeat the activity you did on Day 1 with the hoop as the taxi. This time ask learners to record the numbers each time e.g. 8+6=8+2 →10+4 or 7+9=7+3 →10+6.
- Learners can complete a table such as this one. You may need to help them with a few examples first. They can work out the answers by counting in 20s, 50s or 100s and it is not necessary to refer to 'multiply' at all. Some numbers will have 'left over' parts. Some learners may want to use number grids to help them. The answers are provided in the table for you (not for the learners!)

How many for each number?				
	100s	**50s**	**25s**	**20s**
475	4 75 left over	9 25 left over	19	23 15 left over
450	4 50 left over	9	18	22 10 left over
330	3 30 left over	6 30 left over	13 5 left over	16 10 left over
270	2 70 left over	5 20 left over	10 20 left over	13 10 left over
180	1 80 left over	3 30 left over	7 5 left over	9

DAY 3 (to take no more than 30 minutes)

- Use an activity such as this one as a different way to build up numbers from 10s. Each number in the tower is made by adding the two numbers below it.

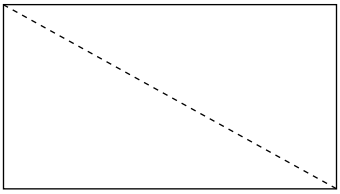


- Let the learners work in the groups as they are sitting and solve the problems you give them. Give each group a different combination of single digit numbers, saying these are the people who want to get in the taxi. Learners must write down the solutions.

DAY 4 (to take no more than 30 minutes)

- Learners work on their own or in pairs to fill in the lines of symmetry on shapes. They can cut each shape out and fold it to check where the lines of symmetry are. There is a suggested worksheet as **Annexure 6** which uses only regular shapes (except for the rectangle), otherwise the activity can become too complicated for now. Once learners have

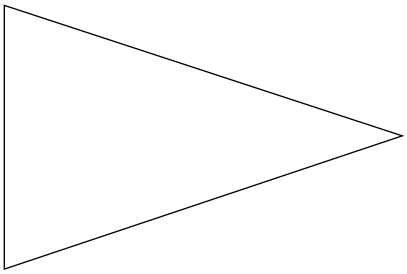
- tested a shape by folding and they have found the symmetry, they can stick the shapes into their exercise books and draw the lines of symmetry on the shapes using a ruler. The rectangle looks as if it should have 4 lines of symmetry, just as the square does. As you work with the learners, show them that the rectangle can't be folded onto itself on the diagonal lines.



  Learners who are struggling should leave out the circle. Very few learners will realise that a circle can have many, many lines of symmetry. In fact, it has an infinite number of lines of symmetry.
- Let the learners work in the groups as they are sitting and solve the problems you give them. Give each group a different combination of single digit numbers, saying these are the people who want to get in the taxi. Learners must write down the solutions.

DAY 5 (the whole lesson.)

- Show learners the regular (equilateral) triangle from the previous activity. They should have found 3 lines of symmetry for it. Compare it with an (isosceles) triangle like this one. You can use **Annexure 7** for this lesson. Learners do not need to know the names of different triangles, but they do need to see that this one has 2 equal sides, not 3. Let all learners cut it out from the day's worksheet and test it for symmetry. With careful folding, they should see that it has only one line of symmetry.



  Learners cut out shapes and test them for symmetry as they did yesterday. Warn them that some of the shapes don't have any symmetry. Learners can use a new table for recording the number of lines of symmetry of each shape. As the names of the shapes are not the focus of the activity, you can ask learners to just label them Shape A to Shape J (as shown on the worksheet). Learners stick the shapes into their books and draw in the line(s) of symmetry over the fold line(s). *Tip: This activity can be used as part of* ***Assessment Task 3****.*

ASSESSMENT	**Formal:** No formal, recorded Assessment. **Informal:** Unrecorded assessment of learners oral responses and ability to participate.

WEEK 8: GROUP TEACHING

Week 8	GROUP TEACHING COMPONENT (Concept Development and Problem Solving)

Notes to teacher:

- By now you have established 3 groups. Every day you will work with 2 different groups in a small group situation e.g. sitting on the mat together. During this time you will do activities to develop number concepts at the level of the learners in the group. A number of types of activities are provided and you should do ALL the types each time you work with that group; but remember, although examples are provided, you should look for your own examples that will suit your learners. You will also give the learners at least 2 different word problems to solve every time you work with them. It is through solving problems and discussing the solutions that learners develop a sense of number, an understanding of the operations and the ability to reflect on their thinking.
- While you are working with a group, the rest of the class will be working independently. You need to provide them with a variety of activities which reinforce and consolidate concepts already learnt. Try to vary the activities e.g. giving a practical activity (counting counters in counting bags), a written activity (filling in numbers, sequencing, etc.) and a fun activity (dot-to-dot pictures, puzzles, etc.)
- Learners must complete ALL the work that you have set for the lesson.

DAILY ACTIVITIES

Examples of activities to be done independently. *Work from a Learner's Book, worksheets, workcards, etc.*

- Write the number names for various numbers, e.g. 463; 207; 89; 399.
- Write the number symbols for number names, e.g. four hundred and seventy eight; three hundred and two; forty four. Do about 15 examples of number symbols and names.
- Learners who have coped well with the symmetry work can also investigate the symmetry of some of the letters of the alphabet. For example, A, B, C, K, M below have one line of symmetry, but G has no symmetry; X, O and H have 2 lines of symmetry.

A B X C O G H K M

- Give a table like this one to complete. The answers in the first row have been done for you:

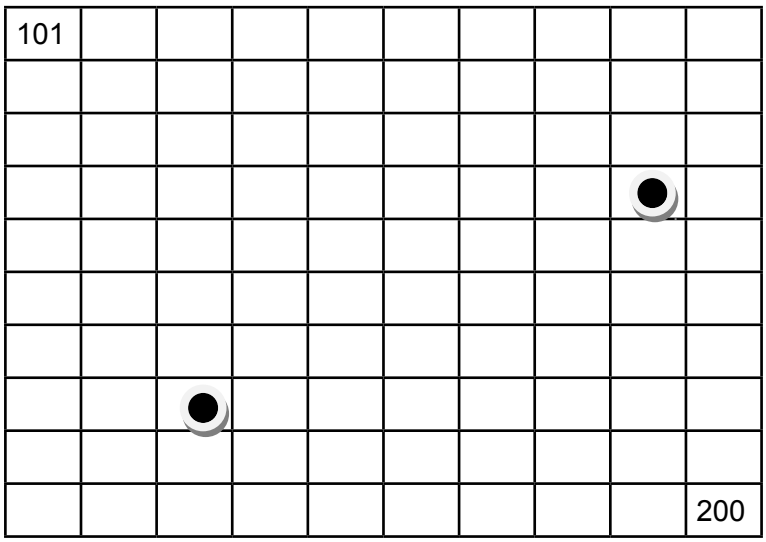
	+3	comes before	halve	-10	comes after	double	add 4	+ 0	x 2
5	8	7	14	4	5	10	14	14	28
7									
9									
11									

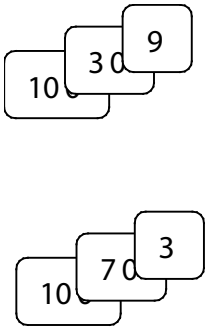
Working with the group

GROUP 1

*On **Monday** and **Wednesday** this group works with the teacher for 25 minutes.*

- Ask learners to set out their flard cards and then to use them to show you numbers that you put onto a blank number board using counters. Here is an example:





- Place a ruler and some paper clips/buttons/bean seeds etc. in front of the group. Ask learners to estimate how many paper clips/buttons etc. are needed to make a chain as long as the ruler. They then investigate to see how many are needed. If you have enough rulers and paper clips/buttons give them to each learner so that **every** learner is actively involved in the activity and not just sitting watching someone else.
- Make sure each learner has access to paper, writing tools, counters and a number square. Ask them two different word problems which they solve by talking about them, drawing pictures and so on. Use the number range 1 to 200. Let each learner tell the group how s/he solved the problem. On Monday the word problems will be 1 sharing with a remainder and 1 grouping with a remainder and on Wednesday you will ask 1 grouping with a remainder and 1 sharing with a remainder as a fraction word problems.

GROUP 2

*On **Tuesday** and **Thursday** this group works with the teacher for 25 minutes.*

- Place some pictures of people on the floor in the middle of the group. Let learners look at the pictures for a few moments and then cover them. Ask the learners to estimate how many fingers there are. Once everyone has committed themselves to a number, uncover the pictures and count the people. Each person has 10 fingers, so that is the correct number. Check who estimated too many and who estimated too few.
- Give each learner a packet of flard cards and tell them to set them out in order. Once everyone is ready ask learners to make two and three-digit numbers. Check the numbers each time to make sure the learners have the correct cards i.e. 268 needs 200 and 60 and 8. Ask learners to make two or three-digit numbers and add whole tens to the number, each time showing which number changed. i.e. 268+20 is 288 because the 60 changed to 80. Now ask learners to make two-digit numbers and then add a single digit e.g. 24 plus 5 The new number is 29 – ask which number changed and why. Learners should be able to tell you that the 4 changed because 4+5 is 9. Depending on the level of your learners, now ask numbers such as 28+7. Each time learners need to be able to tell you what they did and which numbers changed i.e. 28+7 is 35 so both the 20 and the 8 have to change and the new numbers are 30 and 5.

- Make sure each learner has access to paper, writing tools, counters and a number square. Ask them two different word problems which they solve by talking about them, drawing pictures and so on. Use the number range 1 to 150. Let each learner tell the group how s/he solved the problem. On Tuesday the word problems will be 1 sharing with a remainder and 1 grouping with a remainder and on Thursday you will ask 1 grouping with a remainder and 1 sharing with a remainder as a fraction word problems.

GROUP 3

*This group works with the teacher **every day** for 25 minutes.*

- Put a container of counters in the middle of the group. Ask the learners to take out counters and put them in a pile until they think there are 100 counters in the pile. Then ask the group to count the counters and see if they estimated correctly!
  Tip: *Observe how learners count the number in the pile e.g. do they put the counters in groups of 2? 5? 10? or do they count them in 1s? This will provide you with information as to the level the learners are at.*
- Give each learner a packet of flard cards and tell them to set them out in order. Once everyone is ready ask learners to make two and three-digit numbers. Check the numbers each time to make sure the learners have the correct cards i.e. 268 needs 200 and 60 and 8. Ask learners to make two or three-digit numbers and add whole tens to the number, each time showing which number changed. i.e. 268+20 is 288 because the 60 changed to 80. Now ask learners to make two-digit numbers and then add a single digit e.g. 24 plus 5 The new number is 29 – ask which number changed and why. Learners should be able to tell you that the 4 changed because 4+5 is 9.
- Make sure each learner has access to paper, writing tools, counters and a number square. Ask them two different word problems which they solve by talking about them, drawing pictures and so on. Use the number range 1 to 100. Let each learner tell the group how s/he solved the problem. On Monday and Tuesday the word problems will be 1 sharing with a remainder and 1 grouping with a remainder and on Wednesday and Thursday you will ask 1 grouping with a remainder and 1 sharing with a remainder as a fraction word problems

Assessment	**Formal:** No formal, recorded Assessment. **Informal:** Unrecorded assessment of learners' oral responses and ability to solve problems.

FIRST TERM: WEEK 9

COMPONENT	MILESTONES	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5
COUNTING LO 1 AS 1, 2, 3	• Count in 10 starting at any number e.g. 2, 12, 22, 32 etc • Counts in multiples of 2 and 20 to 200, 5 and 50 to 500, 10 and 100 to 1000	Daily : • Rote counting in 1s between 197 and 289. • Rote counting in multiples to 300. • Counting in multiples of 2 and 20 to 200, 5 and 50 to 500, 10 and 100 to 1000 using number cards etc. • Count in 10s starting at any number				
NUMBER SENSE AND MENTAL LO AS LO AS	• Recognises the pattern of counting in 10 starting at any number • Decomposes two-digit numbers as expanded notation i.e. 26=20+6 using flard cards • Is able to add and subtract two two-digit numbers where one number is a whole 10 e.g. 24+10=? • Building up the 10 when adding and subtracting i.e. 9+4 = 9+1 +3 19+4=19+1 +3 29+4=29+1 +3 • Determines the line of symmetry in 2-D shapes	Daily : • Multiplication of 2, 5, and 10 • Numerosity of numbers to 100				
		DAY 1	**DAY 2**	**DAY 3**	**DAY 4**	**DAY 5**
		Building up the whole 10 when adding and subtracting Fractions	Building up the whole 10 when adding and subtracting Fractions	Building up the whole 10 when adding and subtracting Fractions	Building up the whole 10 when adding and subtracting Symmetry in 2-D shapes	Symmetry in 2-D shapes
GROUP TEACHING **LO** **AS**	• Decomposes two-digit numbers as expanded notation i.e. 26=20+6 using flard cards • Solves problems using grouping and sharing where the remainder is a fraction • Solve problems, and explains solutions, using number charts and counters if needed with numbers up to 200	Ask each group the same problems. They can be solved using counters, drawings, etc. Number range: Group 1 works in 1-200; Group 2 works in 1-150; Group 3 works in 1-100				WHOLE CLASS ACTIVITY Symmetry in 2-D shapes
		Groups 1 and 3 work with teacher, one group at a time. *Ask 1 multiplication and 1 grouping with a remainder word problem* Group 2 works on their own.	Groups 2 and 3 work with teacher, one group at a time. *Ask 1 multiplication and 1 grouping with a remainder word problem* Group 1 works on their own.	Groups 1 and 3 work with teacher, one group at a time. *Ask 1 addition and 1 sharing with the remainder as a fraction word problem* Group 2 works on their own.	Groups 2 and 3 work with teacher, one group at a time. *Ask 1 addition and 1 sharing with the remainder as a fraction word problem* Group 1 works on their own.	

WEEK 9: WHOLE CLASS

WEEK 9	WHOLE CLASS COMPONENT (Counting and Mental/Number sense)

Notes to the teacher:

- Counting at the beginning of the day helps learners focus on numbers. Every day you will let your learners do rote counting (to develop the vocabulary of numbers) as well as rational counting (thinking what they are doing) activities. Counting at the beginning of the lesson is done with the whole class every day.
- Daily activities indicate activities that should be done every day. The specific concepts being developed are indicated every day e.g. Day 1.
- During Weeks 8 and 9 you will be dealing with symmetry. Be aware that if there are lines of symmetry in regular triangles, squares, regular pentagons etc, this does not mean that *irregular* triangles, rectangles, pentagons etc have the same lines of symmetry. Learners need to investigate the symmetry of regular shapes that have seen often, but they also need to investigate irregular shapes.
- By now learners have been given many opportunities to develop their own understanding (logico-mathematical knowledge) of fractions. They have solved problems where there is a remainder (7 shirts shared between 3 boys) and where the remainder is a fraction (7 biscuits shared between 3 boys). Many learners will already have the social knowledge of how to write fractions, but this week you will expose all learners to this social knowledge and do practical activities involving fractions in different contexts.
- Activities for **Assessment Task 3** will be done this week.

DAILY ACTIVITIES

COUNTING AND MENTAL/NUMBER SENSE

Daily Activities.(to take no more than 10 minutes)

Do be done daily:

- Rote count from a given number to a given number e.g. from 197 to 246, or from 237 to 289.
- Count in 10s to 100 and in 100s to 1000.

Choose from the following (to make up the 10 mins.):

- Tell learners to count in 2s but every time they say a number which is a multiple of 5, they clap their hands e.g. 2, 4, 6, 8, 10 (clap). Make it fun, but observe who manages and who doesn't.
- Have a number pattern ready for use each day. Use a variety of patterns and ask them in different ways. Some learners may want to use counters or number boards to help them.
    - Ask learners to call out the pattern as a class, or as groups, or as individuals, e.g. "Starting at 52, count in tens up to 142."
    - Use number squares to place counters on 27 and every 10th number after it up to 107.
- Use a sorting table to sort numbers by two rules (criteria). Sort these numbers into numbers that are or are not in the 20s pattern; and the numbers that are or are not in the 50s pattern: The numbers are 10, 20, 30, 40, 50, 60, 70, 80, 90 and 100. Learners complete the tables that you have provided for them. Write the unsorted numbers on the board.
  Here is the answer:

	In the 50s pattern	NOT in the 50s pattern
In the 20s pattern	100	20, 40, 60, 80
NOT in the 20s pattern	50	10, 30, 70, 90

- Play games with different multiples. Here are some examples:
  "Work out the secret number. My number is more than 315 and less than 330. It is in the 20s pattern. What is my number?"
  "Work out the secret number. My number is more than 315 and less than 330. It is in the 25s pattern. What is my number?"
  "Work out the secret number. My number is more than 315 and less than 360. It is in the 50s pattern. What is my number?"

DAY 1 (to take no more than 30 minutes)

- Working in pairs, each pair has a number grid and some counters. Tell them you want them to work out 8+5, but that they must work on the grid to the number 10. Start off by putting a counter on the number 8. Ask how 5 can be broken up so that they reach 10 first, then add the rest (2+3). Ask one learner to write the number sentence on the board 8+2 10+3=13. Do this a few times with other numbers, always working to the 10 then adding the rest.
  Tip: *This activity is part of Assessment Task 3. Observe some of the learners during this practical session today for assessment purposes. Do this activity every day until you have assessed every learner's ability to build up a whole 10 when adding.*
- Bring an unsliced loaf of bread to the classroom, or a strip of liquorice, or a large sausage roll etc. Something long will be better than something round (like an apple) as it is easier to cut it into equal sections. Ask learners how you can cut the object so that two children can each have the same amount. How could it be cut if there were 3 children? 4 children? 5 children? Discuss whether there can be a bigger or smaller half. Discuss why a remainder is sometimes simply a remainder when at other times it becomes a fraction. Through questioning, see if learners can use the vocabulary for the fractions i.e. a half, a quarter, a third, etc. Ask if anyone knows how to write the symbols for the fractions. If not, show them how to write the different fractions.

DAY 2 (to take no more than 30 minutes)

- Working in pairs, each pair has a number grid and some counters. Tell them you want them to work out 8+5, but that they must work on the grid to the number 10. Start off by putting a counter on the number 8. Ask how 5 can be broken up so that they reach 10 first, then add the rest (2+3).
  Ask one learner to write the number sentence on the board 8+2→10+3=13. Do this a few times with other numbers, always working to the 10 then adding the rest. Extend this activity by asking: if 8+5 is 8+2→10+3=13, then what is 18+5? (18+2→20+3=23)
  Tip: *This activity is part of Assessment Task 3. Observe some of the learners during this practical session today for assessment purposes. Do this activity every day until you have assessed every learner's ability to build up a whole 10 when adding.*
- Give each learner a square piece of paper approximately 20cm x20cm. Allow them to investigate different ways of folding the paper into equal halves. Encourage them to discuss their findings. Now let them investigate different ways of folding it into 4 equal pieces. Again, make sure discussion takes place. Give each learner another square piece of paper. Let them fold and cut it in half. They write 'half' and '½' on the paper then paste it into their

books. Now discuss what will happen if they fold the half again in half – they get a quarter of the original square. Let them write 'a quarter' and '¼' on each quarter and paste the two quarters next to the half in their books.

DAY 3 (to take no more than 30 minutes)

- Give each learner a worksheet with activities to assess numerosity, number patterns and the pattern of counting in 10 starting from any number. Here is a suggested example of the work

1. Complete the following by working with a whole 10:
   9+7= 19+7= 29+7=
   6+8= 16+8= 26+8= etc.

2. What am I counting in? Fill in the missing numbers.

222	224	226			232	234			

   What am I counting in? Fill in the missing numbers.

420		430			445	450			465

3. Put the numbers in the correct order starting from the smallest to biggest

152	192	122	182	202	142	162	172	132	112

   What am I counting in?

4. 147+10= 157+10= 167+10= 177+10=

Tip: *If you are not able to Photostat worksheets you can write the work on the board and learners can copy it into their books. Remember this is part of Assessment Task 3.*

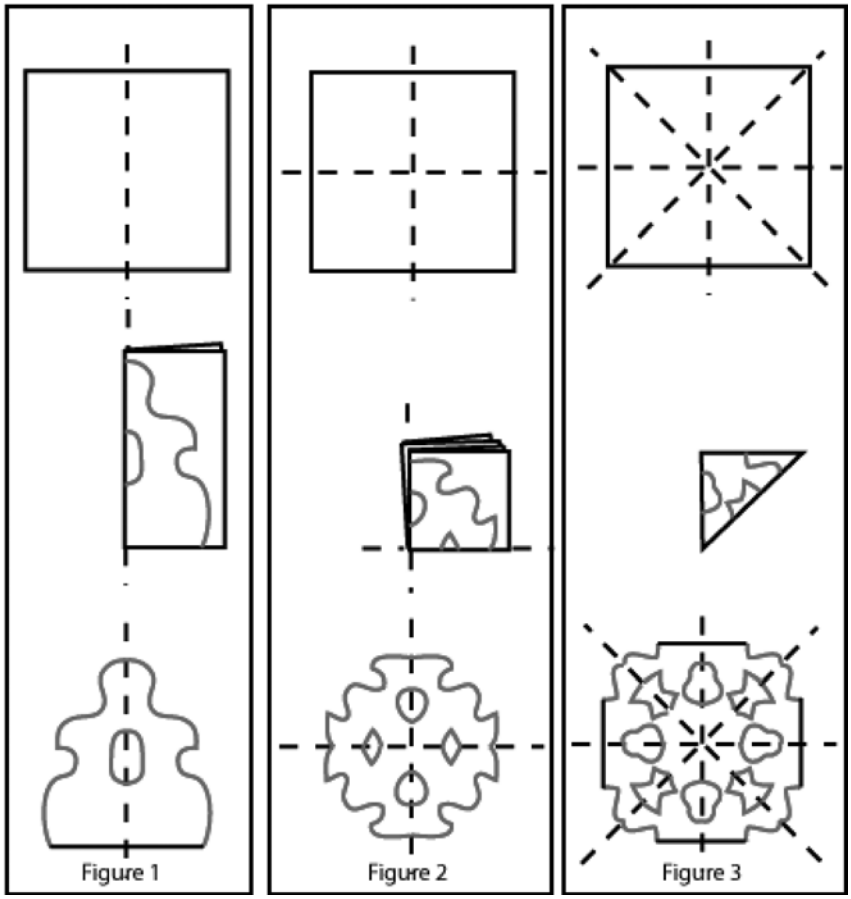
- Revise the fractions done on Day 2. Give learners pieces of paper to fold and cut according to your instructions e.g. fold the paper in half. How many pieces are there? (2). Now fold the paper again. How many pieces are there now? (4). Can you fold your paper into 3 equal pieces?

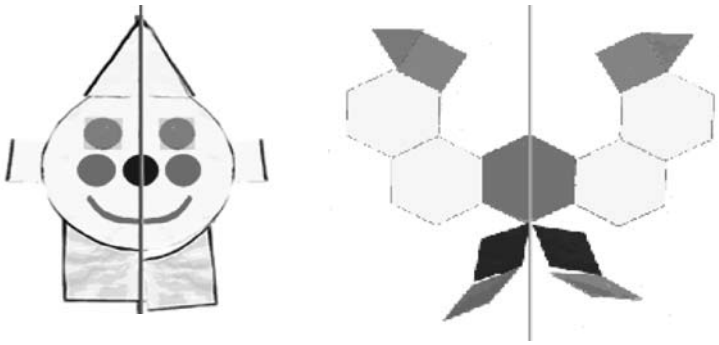
DAY 4 (to take no more than 30 minutes)

- Working in pairs, each pair has a number grid and some counters. Tell them you want them to work out 8+5, but that they must work on the grid to the number 10. Start off by putting a counter on the number 8. Ask how 5 can be broken up so that they reach 10 first, then add the rest (2+3). . Ask one learner to write the number sentence on the board 8+2 10+3=13. Do this a few times with other numbers, always working to the 10 then adding the rest.

  Tip: *This activity is part of Assessment Task 3. Observe some of the learners during this practical session today for assessment purposes. Do this activity every day until you have assessed every learner's ability to build up a whole 10 when adding.*

- Before the lesson, prepare an example of a symmetrical design to show the learners. Learners make their own symmetrical designs. To start, show them how to fold a paper exactly in half. It can be done across the length or the width of the paper. Then they must draw a design, a shape or a picture of their own on the one side of the folded paper. The picture should be simple and touch the fold line a few times. Then learners cut out the design, making sure to cut through both sides of the folded paper and they shouldn't cut away all of the fold line. The shape they have made will have one line of symmetry. **Figure 1** below shows an example of this. Learners who managed this well can make a second pattern. This time, they fold the paper in half twice, to make a square. It is not necessary to draw a design. They can simply try to cut out a design, again making sure that the fold line is not cut off. When they unfold their designs, they will have a design with two lines of symmetry. See **Figure 2**. A third design can be made folding the previous square of paper along a diagonal fold line to make a triangle. See **Figure 3** below. This design will have four fold lines, which are the four lines of symmetry of the design. Discuss with learners and demonstrate how any of their designs can be folded back onto the fold lines to confirm that they are symmetrical about these lines – the two halves match fit exactly onto each other. Learners can stick these designs onto a background of coloured cardboard, so that the colour shows through the holes of their designs. Give learners a chance to display their finished designs in the classroom.





DAY 5 (the whole lesson)

- Give each learner a sheet of shapes to cut out. There must be an even number of each shape on the sheet (There is an example of this on **Annexure 8**). Learners fold an A4 sheet of paper down the middle. They can also draw in the line of symmetry on the fold line using a ruler. Now they need to choose shapes for their design, cut them out, colour them and plan their design. For every shape they put on one side of the symmetry line, they must put the same shape on the other side, the same distance from the line to keep the symmetry. When they have completed the whole design, then they can glue the pieces into place.
- Learners complete symmetrical patterns in a worksheet. **Annexure 8** has some examples, but you will find more examples in textbook activities. ***Tip:*** *Use these activities for Assessment Task 3.*

ASSESSMENT	**Formal : Recorded Assessment Task 3:** During the whole class and group teaching activities as indicated rate the learners against the following milestones, recording specific problems: • Recognises the pattern of counting in 10 starting at any number • Building up the 10 when adding and subtracting i.e. 9+4 = 9+1 +3 19+4=19+1 +3 29+4=29+1 +3 • Determines the line of symmetry in 2-D shapes • Solves problems using grouping and sharing where the remainder is a fraction • Solve problems, and explains solutions, using number charts and counters if needed with numbers up to 200

WEEK 9: GROUP TEACHING

Week 9	GROUP TEACHING COMPONENT (Concept Development and Problem Solving

Notes to teacher:

- By now you have established 3 groups. Every day you will work with 2 different groups in a small group situation e.g. sitting on the mat together. During this time you will do activities to develop number concepts at the level of the learners in the group. A number of types of activities are provided and you should do ALL the types each time you work with that group; but remember, although examples are provided, you should look for your own examples that will suit your learners. You will also give the learners at least 2 different word problems to solve every time you work with them. It is through solving problems and discussing the solutions that learners develop a sense of number, an understanding of the operations and the ability to reflect on their thinking.
- While you are working with a group, the rest of the class will be working independently. You need to provide them with a variety of activities which reinforce and consolidate concepts already learnt. Try to vary the activities e.g. giving a practical activity (counting counters in counting bags), a written activity (filling in numbers, sequencing, etc.) and a fun activity (dot-to-dot pictures, puzzles, etc.)
- Activities for **Assessment Task 3** will be done this week.

Examples of activities to be done independently. *Work from a Learner's Book, worksheets, workcards, etc.*

- Ask learners to write the number names for various numbers, e.g. 463; 207; 89; 399.
- Ask learners to write the number symbols for number names, e.g. four hundred and seventy eight; three hundred and two; forty four. Do about 15 examples of number symbols and names.
- Learners who have coped well with the symmetry work can also investigate the symmetry of some of the letters of the alphabet. For example, A, B, C, K, M below have one line of symmetry, but G has no symmetry; X, O and H have 2 lines of symmetry.

A B X C O G H K M

- Give learners practice with the ordering of numbers and working with numbers flexibly by giving them a table like this one to complete. The answers in the first row have been done for you:

	+3	comes before	halve	-10	comes after	double	add 4	+ 0.	x 2
5	8	7	14	4	5	10	14	14	28
7									
9									
11									

Working with the group

GROUP 1

*On **Monday** and **Wednesday** this group works with the teacher for 25 minutes.*

- Give each learner a pile of counters and small, blank pieces of paper. Learners first estimate how many piles of 10 they can make. They then put the counters out in 10s, and count them. Now ask them to write all the tens (e.g. 10, 20, 30, etc.) on the papers and arrange the numbers under the groups in sequence. Learners may have different numbers, depending on how many counters in their pile. Once this has been done, tell the group that you have 3/4/8 etc. counters in your hand. How would they count if they started from the number in your hand? (e.g. 3, 13, 23, etc.) Give each learner a chance to count from a different number. While one learner is counting the others check the numbers on their number grids so see if it is correct.

  Tip: *This is one of the activities for Assessment Task 3. You will be assessing their ability to count in 10s as well as their knowledge of number patterns. Do not limit the number of counters for each learner. Some learners will work with big numbers in the time, while others may only reach 20.*
- Make sure each learner has access to paper, writing tools, counters and a number square. Ask them two different word problems which they solve by talking about them, drawing pictures and so on. Use the number range 1 to 150. Let each learner tell the group how s/he solved the problem. On Monday the word problems will be 1 multiplication and 1 grouping with a remainder and on Wednesday you will ask 1 addition and 1 sharing with a remainder as a fraction word problems.

  Tip: *These problem solving activities form part of Assessment Task 3. As you observe the learners you will assess them against your chosen criteria.*

> Here is an example of a sharing problem:
> The farmer picked 71 apples to feed to his 4 horses. Each horse has a basket for food. The farmer put the same number of apples in each of the baskets. How many apples did he put in each basket?
>
> Here is an example of a grouping problem.
> The farmer picked 71 apples to feed his horses. Each horse has a basket for food. If the farmer puts 17 apples in each basket, how many baskets are there?
> Did the farmer use all the apples? He wants to use all the apples for his horses, so what can he do?

GROUP 2

*On **Tuesday** and **Thursday** this group works with the teacher for 25 minutes.*

- Give each learner a pile of counters and small, blank pieces of paper. Learners first estimate how many piles of 10 they can make. They then put the counters out in 10s, and count them. Now ask them to write all the tens (e.g. 10, 20, 30, etc.) on the papers and arrange the

numbers under the groups in sequence. Learners may have different numbers, depending on how many counters in their pile. Once this has been done, tell the group that you have 3/4/8 etc. counters in your hand. How would they count if they started from the number in your hand? (e.g. 3, 13, 23, etc.) Give each learner a chance to count from a different number. While one learner is counting the others check the numbers on their number grids so see if it is correct.

Tip: *This is one of the activities for Assessment Task 3. You will be assessing their ability to count in 10s as well as their knowledge of number patterns. Do not limit the number of counters for each learner. Some learners will work with big numbers in the time, while others may only reach 20.*

- Make sure each learner has access to paper, writing tools, counters and a number square. Ask them two different word problems which they solve by talking about them, drawing pictures and so on. Use the number range 1 to 150. Let each learner tell the group how s/he solved the problem. On Tuesday the word problems will be 1 multiplication and 1 grouping with a remainder and on Thursday you will ask 1 addition and 1 sharing with a remainder as a fraction word problems.

  Tip: *These problem solving activities form part of Assessment Task 3. As you observe the learners you will assess them against your chosen criteria.*

GROUP 3

This group works with the teacher ***every day*** *for 25 minutes.*

- Give each learner a pile of counters and small, blank pieces of paper. Learners first estimate how many piles of 10 they can make. They then put the counters out in 10s, and count them. Now ask them to write all the tens (e.g. 10, 20, 30, etc.) on the papers and arrange the numbers under the groups in sequence. Learners may have different numbers, depending on how many counters in their pile. Once this has been done, tell the group that you have 3/4/8 etc. counters in your hand. How would they count if they started from the number in your hand? (e.g. 3, 13, 23, etc.) Give each learner a chance to count from a different number. While one learner is counting the others check the numbers on their number grids so see if it is correct.

  Tip: *This is one of the activities for Assessment Task 3. You will be assessing their ability to count in 10s as well as their knowledge of number patterns. Do not limit the number of counters for each learner. Some learners will work with big numbers in the time, while others may only reach 20.*

- Make sure each learner has access to paper, writing tools, counters and a number square. Ask them two different word problems which they solve by talking about them, drawing pictures and so on. Use the number range 1 to 200. Let each learner tell the group how s/he solved the problem. On Monday and Tuesday the word problems will be 1 multiplication and 1 grouping with a remainder and on Wednesday and Thursday you will ask 1 addition and 1 sharing with a remainder as a fraction word problems.

  Tip: *These problem solving activities form part of Assessment Task 3. As you observe the learners you will assess them against your chosen criteria.*

Assessment	**Formal : Recorded Assessment Task 3:** During the whole class and group teaching activities as indicated rate the learners against the following milestones, recording specific problems: • Recognises the pattern of counting in 10 starting at any number • Building up the 10 when adding and subtracting i.e. 9+4 = 9+1 +3 19+4=19+1 +3 29+4=29+1 +3 • Determines the line of symmetry in 2-D shapes • Solves problems using grouping and sharing where the remainder is a fraction • Solve problems, and explains solutions, using number charts and counters if needed with numbers up to 200

SUGGESTED ASSESSMENT TASKS: GRADE 3 NUMERACY FIRST TERM

TASK 3: WEEK 9

COMPONENT	MILESTONES	WKS	TASKS
COUNTING AND MENTAL/NUMBER SENSE	• Recognises the pattern of counting in 10 starting at any number • Building up the 10 when adding and subtracting i.e. 9+4 = 9+1 +3 19+4=19+1 +3 29+4=29+1 +3 • Determines the line of symmetry in 2-D shapes • Solves problems using grouping and sharing where the remainder is a fraction • Solve problems, and explains solutions, using number charts and counters if needed with numbers up to 200	Wk 9	• Use the practical activity on Day 1, 2 and 4 and the written work on Day 3 to observe learners' understanding of building up the 10 when adding and subtracting. • Use the written activity on Day 3 to assess learners' ability to recognise the pattern of counting in 10. • Use practical work on Day 5 to assess knowledge of symmetry.
PROBLEM SOLVING	• Recognises the pattern of counting in 10 starting at any number • Solves problems using grouping and sharing where the remainder is a fraction • Solve problems, and explains solutions, using number charts and counters if needed with numbers up to 200	Wk 9	• Written work done independently during the group teaching time can also be used for assessment purposes. • Problem solving is assessed during group teaching throughout the week.

FIRST TERM: WEEK 10

COMPONENT	MILESTONES	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5
COUNTING LO 1 AS 1, 2, 3	• Count in 10 starting at any number e.g. 2, 12, 22, 32 etc • Counts in multiples of 2 and 20 to 200, 5 and 50 to 500, 10 and 100 to 1000	Daily : • Rote counting in 1s between 243 and 301. • Rote counting in multiples to 300. • Counting in multiples of 2 and 20 to 200, 5 and 50 to 500, 10 and 100 to 1000 using number cards etc. • Count in 2s, 5s and 10s starting at any number				
NUMBER SENSE AND MENTAL LO AS LO AS	• Counts in multiples of 3 to 100 • Recognises and orders numbers to 500 • Doubles and halves odd and even numbers to 100 • Identifies number patterns using addition, subtraction and multiplication to 500	Daily : • Expanded notation of 2 digit numbers • Numerosity of numbers to 100				
		DAY 1	**DAY 2**	**DAY 3**	**DAY 4**	**DAY 5**
		Number lines Patterns Number names to 100	Doubles and halves of odd and even numbers to 50 Patterns Number names to 100	Doubles and halves of odd and even numbers to 50 Orders numbers to 100	Number lines Revision	Game involving addition, subtraction and multiplication.
GROUP TEACHING **LO** **AS**	• Decomposes two-digit numbers as expanded notation i.e. 26=20+6 using flard cards • Solve problems, and explains solutions, using number charts and counters if needed with numbers up to 200	Ask each group the same problems. They can be solved using counters, drawings, etc. Number range: Group 1 works in 1-250; Group 2 works in 1-200; Group 3 works in 1-150				WHOLE CLASS ACTIVITY Game
		Groups 1 and 3 work with teacher, one group at a time. *Ask 1 addition and 1 subtraction word problem* Group 2 works on their own.	Groups 2 and 3 work with teacher, one group at a time. *Ask 1 addition and 1 subtraction word problem* Group 1 works on their own.	Groups 1 and 3 work with teacher, one group at a time. *Ask 2 word problems using more than 1 operation* Group 2 works on their own.	Groups 2 and 3 work with teacher, one group at a time. *Ask word problems using more than one operation.* Group 1 works on their own.	

WEEK 10: GROUP TEACHING

WEEK 10	WHOLE CLASS COMPONENT (Counting and Mental/Number sense)

Notes to the teacher:

- Counting at the beginning of the day helps learners focus on numbers. Every day you will let your learners do rote counting (to develop the vocabulary of numbers) as well as rational counting (thinking what they are doing) activities. Counting at the beginning of the lesson is done with the whole class every day.
- Daily activities indicate activities that should be done every day. The specific concepts being developed are indicated every day e.g. Day 1.
- This week is mainly revision of work done during the term, but in different contexts. However, you will introduce learners to counting in multiples of 3. It will only be an introduction as this will be done in more depth next term.

DAILY ACTIVITIES

COUNTING AND MENTAL/NUMBER SENSE

Daily Activities.(to take no more than 10 minutes)

Do be done daily:

- Rote count from a given number to a given number e.g. from 197 to 246, or from 237 to 289.
- Count in 10s to 100, 20s to 200, 50s to 500 and in 100s to 1000.

Choose from the following (to make up the 10 mins.):

- Use this sorting table to sort numbers by two rules (criteria). Sort the numbers from 100 to 120 into numbers that are more than 109 or less than 109, and numbers that are odd or even. Is there a place to put 109? (NO! 109 is not *more* than 109 and it's not *less* than 109!) This is the answer.

	Odd	**Even**
More than 109	111, 113, 115, 117, 119	110, 112, 114, 116, 118, 120
Less than 109	101, 103, 105, 107	100, 102, 104, 106, 108

- Ask learners to write down and complete these sums in their exercise books. Discuss the patterns in the answers they find.

  96 + 4 = ____ 196 + 4 = ____ 296 + 4 = ____ continue up to 996 + 4 =
  96 + 7 = ____ 196 + 7 = ____ 296 + 7 = ____ continue up to 996 + 7 =

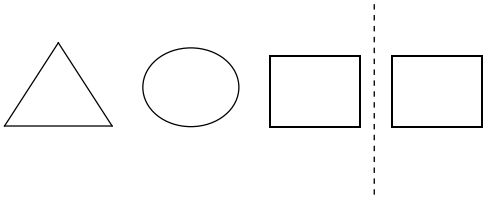
- Tell learners you are going to count in a pattern. They must identify the pattern as well as fill in the missing numbers. Count:

  2; 4; _____; ____; ____; 12; 14; ____; ____; ____.
  65; 70; 75; ____; ____; ____; _____; 100.
  400; 390; 380; ____; ____; ____; 340; 330; ____; ____; 300.

DAY 1 (to take no more than 30 minutes)

- Give each learner a piece of paper. They must design a number line (using their own pattern), but not complete the number line. Learners write their names on the back of the piece of paper. Collect the number lines for use on Day 2.
- Ask learners to complete these patterns so that they are symmetrical. The line of symmetry is shown.

1.



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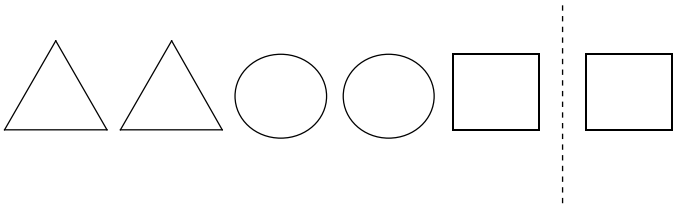

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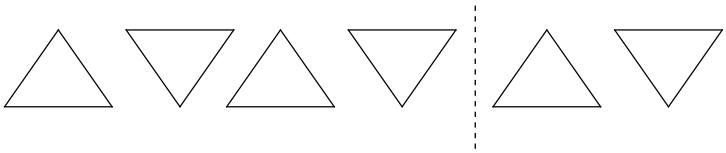

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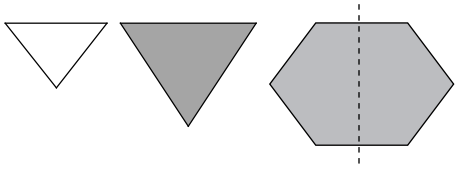
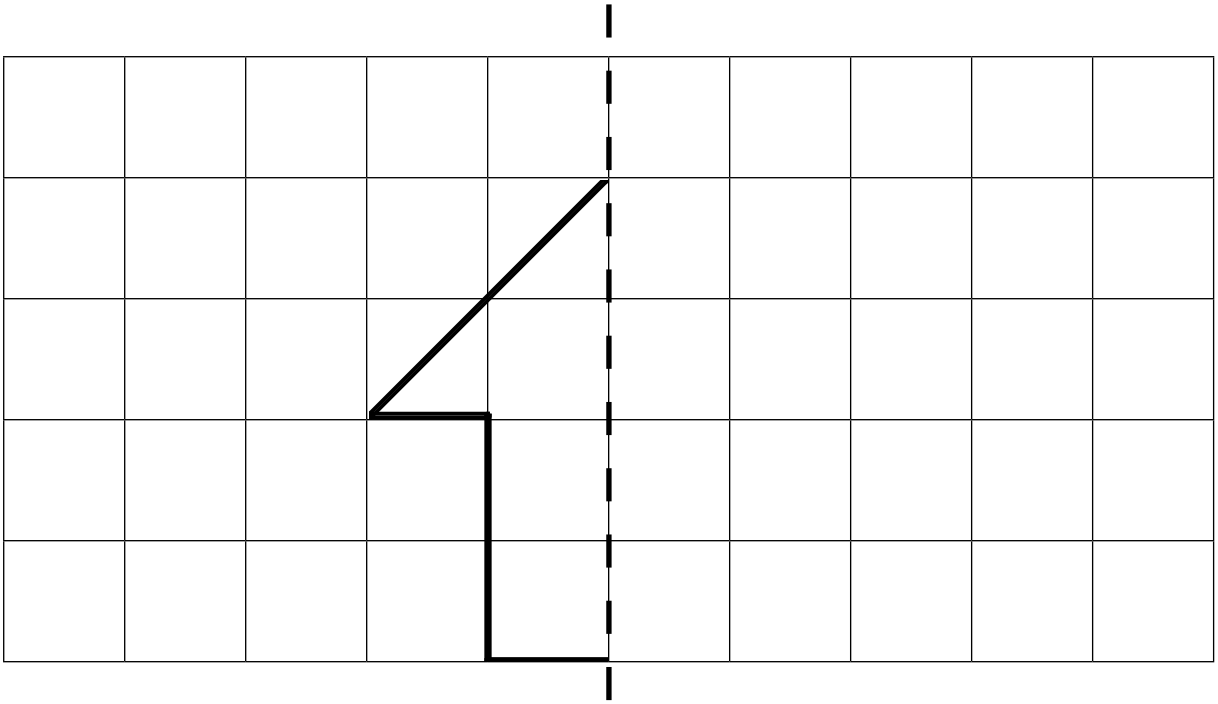




- Play a game with the learners involving number names and words. Call 3 learners to the board and say “write the number for three hundred and forty-five”, or “write the number word for three hundred and forty-five”. Do this a few times giving as many learners as possible a chance to be involved. You could also make it a team game and give points for the first one to write correctly on the board.

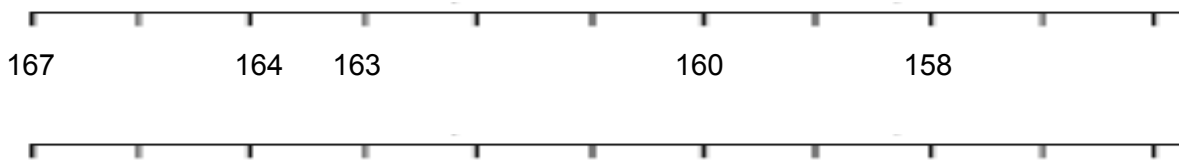
DAY 2 (to take no more than 30 minutes)

- Use the number lines from Day 1. Put them in a box and let each learner chose one and complete it. Once all the number lines have been completed, they get put back in the box.
- Give learners a table of doubling of numbers like this example. Some learners will need to use counters or drawings to work out their answers. Let them work across the table on the 2s first. They should realise that they are counting in 2s across, or that they are doubling each number. When they get to the 4s, they should realise that this each number is double the amount of 2s.
  For example, 2 x 3 = 6; double 6 is 12, so 4 x 3 = 12. When they work with the 8s, this is double the 4s. So for example, double 12 is 24 and 8 x 3 = 24. Encourage learners to make use of doubling. The activity is not intended to get learners to work with the multiplication tables for 4 and 8 at this stage, but rather to allow learners to identify number patterns.

	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**
2s			6										
4s			12										
8s			24										

DAY 3 (to take no more than 30 minutes)

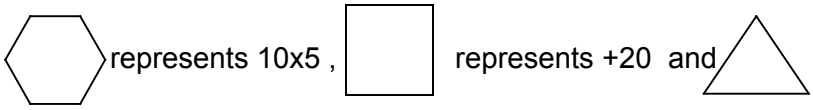
- Using the groups as learners are seated, give each group a list of about 10 numbers to put in order. The number range can be from 1 to 500, e.g. 279, 111, 463, 436, 321, 123, etc. If space is limited, allow some groups to work on the floor, or just outside the classroom, etc. Once all the groups have completed the task, let the learners walk around and check that the other groups have done the ordering correctly.
- Ask learners to fill in the missing numbers on a number line. Use number lines that use numbers in the range 1 – 500. For example, a number line going from 167 down to 156, or from 143 up to 153.



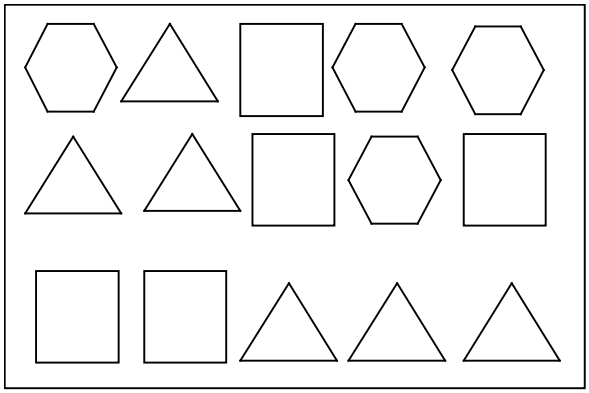
DAY 4 (to take no more than 30 minutes)

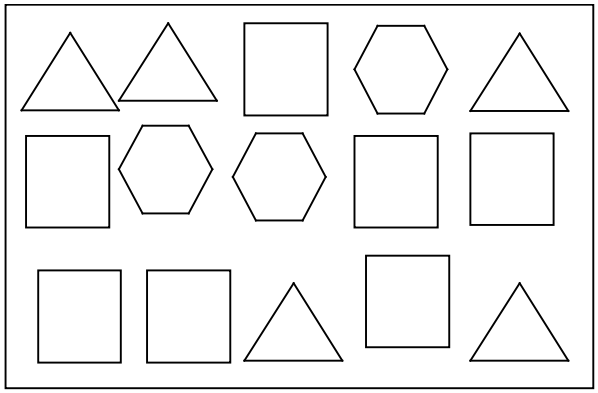
- Give learners worksheets or textbook activities that require them to use their understanding of addition, subtraction and multiplication to solve problems where shapes represent numbers. Here is an example:

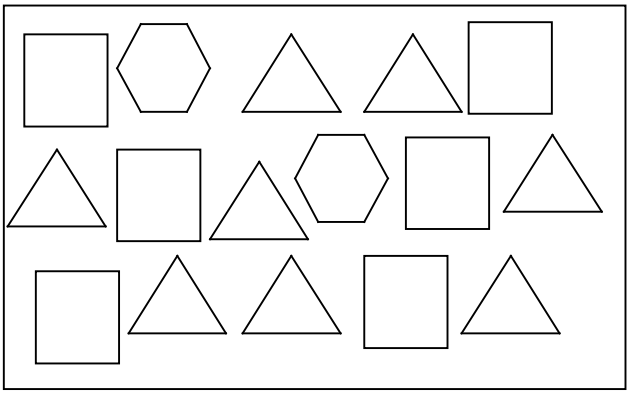
  1. In these drawings,



  Work out the number for each box of shapes:







  2. Write down the number names for each of these numbers.

- Hand out the number lines from Day 1 and Day 2 to the learner whose name is written on the back of the piece of paper. The designer of the number line marks it and gives it to the person who completed it.
- Learners who are ready for a challenge can try to complete this adding grid.
  The first one, 14 + 5 has been done for you.

+	7	14	17	28
8				
5		19		
12				
9				

DAY 5 (the whole lesson)

- Make sure each learner has a pencil and a piece of paper to write on. Take them outside and put them into 4 random groups. Explain the game as follows:
  - Each group has a waste-paper basket (or bucket), a sheet of newspaper, a ruler and 5 bean-bags.
  - The basket is placed on the newspaper in the middle. The leader counts 5 big steps from the edge of the newspaper and places the ruler on the group. The group sits around the newspaper, but not touching it.
  - The leader starts the game. S/he stands behind the ruler and throws the 5 bean-bags, one at a time, into the basket. Some land in the basket and some may land on the paper or even on the grass.
  - Scoring is as follows: Each bean bag counts 100. If it lands in the basket, the value doubles plus 5. If it lands on the newspaper, the value stays the same, less 5. If it lands off the newspaper and on the ground, the value is halved.
  - All the other learners record the scores as check to see if they all got the same.
  - Learners take turns until everyone has had a turn to throw the bean-bags and record a score.

The learner with the highest score gets a 'prize' – can be first out for break, can be the leader of the boys or girls going back into the classroom, can chose a book for you to read, etc.

ASSESSMENT	**Formal :** No formal, recorded Assessment **Informal :** Unrecorded assessment of learners oral responses and ability to participate

WEEK 10: GROUP TEACHING

Week 10	**GROUP TEACHING COMPONENT (Concept Development and Problem Solving)**

Notes to teacher:

- By now you have established 3 groups. Every day you will work with 2 different groups in a small group situation e.g. sitting on the mat together. During this time you will do activities to develop number concepts at the level of the learners in the group. A number of types of activities are provided and you should do ALL the types each time you work with that group; but remember, although examples are provided, you should look for your own examples that will suit your learners. You will also give the learners <u>at least 2 different word problems to solve every time you work with them.</u> It is through solving problems and discussing the solutions that learners develop a sense of number, an understanding of the operations and the ability to reflect on their thinking.
- While you are working with a group, the rest of the class will be working independently. You need to provide them with a variety of activities which reinforce and consolidate concepts already learnt. Try to vary the activities e.g. giving a practical activity (counting counters in counting bags), a written activity (filling in numbers, sequencing, etc.) and a fun activity (dot-to-dot pictures, puzzles, etc.)

<u>Examples of activities to be done independently.</u> *Work from a Learner's Book, worksheets, workcards, etc.*

- Ask learners to write the number names for various numbers, e.g. 463; 207; 89; 399.
- Ask learners to write the number symbols for number names, e.g. four hundred and seventy eight; three hundred and two; forty four. Do about 15 examples of number symbols and names.
- Give learners practice with working with numbers flexibly by giving them a table like this one to complete. The answers in the first row have been done for you:

	+3	**comes before**	**halve**	**-10**	**comes after**	**double**	**add 4**	**+ 0**	**x 2**
5	8	7	14	4	5	10	14	14	28
7									
9									
11									

- Give activities where learners have to write the number symbol, number name and expanded notation e.g.

thirty two	32	30+2
	45	
		8+70
sixty nine		

Working with the group

GROUP 1

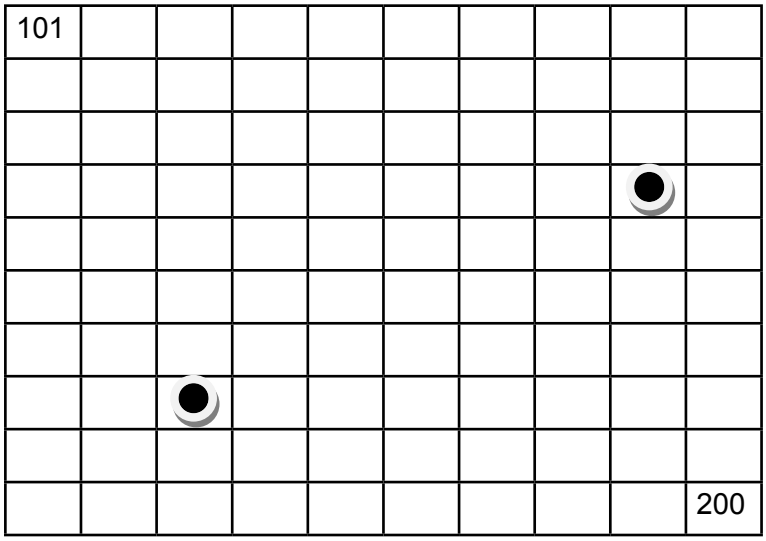
*On **Monday** and **Wednesday** this group works with the teacher for 25 minutes.*

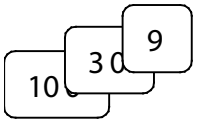
- Place a handful of beans and a matchbox in front of the learners. Ask them to estimate how many beans will fit into the matchbox. Taking turns, let them check their estimations.
- Give each learner a handful of beans/buttons/toothpicks etc. Let them count how many objects they have – each one may be different. Ask them to put their objects into groups of 3 and then to see if they can count in threes. You may have to facilitate this by saying 3 and 3 more – how many? Add another 3, how many? and so on.
- Make sure each learner has access to paper, writing tools, counters and a number square. Ask them two different word problems which they solve by talking about them, drawing pictures and so on. Use the number range 1 to 250. Let each learner tell the group how s/he solved the problem. On Monday the word problems will be 1 addition and 1 subtraction and on Wednesday you will ask 2 word problems, each using more than one operation.

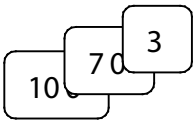
GROUP 2

*On **Tuesday** and **Thursday** this group works with the teacher for 25 minutes.*

- Place a ruler and some paper clips/buttons/bean seeds etc. in front of the group. Ask learners to estimate how many paper clips/buttons etc. are needed to make a chain as long as the ruler. They then investigate to see how many are needed. If you have enough rulers and paper clips/buttons give them to each learner so that **every** learner is actively involved in the activity and not just sitting watching someone else.
- Ask learners to set out their flard cards and then to use them to show you numbers that you put onto a blank number board using counters. Here is an example:







- Make sure each learner has access to paper, writing tools, counters and a number square. Ask them two different word problems which they solve by talking about them, drawing pictures and so on. Use the number range 1 to 200. Let each learner tell the group how s/he solved the problem. On Tuesday the word problems will be 1 addition and 1 subtraction and on Thursday you will ask 2 word problems, each using more than one operation.

GROUP 3

*This group works with the teacher **every day** for 25 minutes.*

- Place some pictures of people on the floor in the middle of the group. Let learners look at the pictures for a few moments and then cover them. Ask the learners to estimate how many fingers there are. Once everyone has committed themselves to a number, uncover the pictures and count the people. Each person has 10 fingers, so that is the correct number. Check who estimated too many and who estimated too few.
- Give each learner a packet of flard cards and tell them to set them out in order. Once everyone is ready ask learners to make two and three-digit numbers. Check the numbers each time to make sure the learners have the correct cards i.e. 268 needs 200 and 60 and 8. Ask learners to make two or three-digit numbers and add whole tens to the number, each time showing which number changed. i.e. 268+20 is 288 because the 60 changed to 80. Now ask learners to make two-digit numbers and then add a single digit e.g. 24 plus 5 The new number is 29 – ask which number changed and why. Learners should be able to tell you that the 4 changed because 4+5 is 9. Depending on the level of your learners, now ask numbers such as 28+7. Each time learners need to be able to tell you what they did and which numbers changed i.e. 28+7 is 35 so both the 20 and the 8 have to change and the new numbers are 30 and 5.
- Make sure each learner has access to paper, writing tools, counters and a number square. Ask them two different word problems which they solve by talking about them, drawing pictures and so on. Use the number range 1 to 200. Let each learner tell the group how s/he solved the problem. On Monday and Tuesday the word problems will be 1 addition and 1 subtraction and on Wednesday and Thursday you will ask 2 word problems, each using more than one operation.

ASSESSMENT	**Formal:** No formal, recorded Assessment. **Informal:** Unrecorded assessment of learners' oral responses and ability to solve problems.

Annexures

Annexure 1: An example of one day's Numeracy lesson

Annexure 2: Quick reference

Annexure 3: Word problem types

Annexure 4: Counting worksheets

Annexure 5: Shape sum cards

Annexure 6: Symmetry

Annexure 7: Symmetry

Annexure 8: Symmetry

Annexure 9: Definitions of core terms

Annexure 1 : An exemplar of one day's Numeracy lesson

This is an example of a single day's lesson from a teacher, showing how the different components can integrate with each other.

1. **Oral work**
   At the beginning of each lesson the whole class should be involved in oral work. Oral work is essential for learning number facts and developing the ability to transform numbers. There are many activities that can be done as oral work
   - **Counting**
   This is probably the most essential skill of all. Learners can count using counters, a bead frame (or abacus), a number square, a number line, skip counting and so on. It does not matter if the counting is not at the level of all the learners – the slower learners will be learning the language of the numbers, while the quicker learners will be reinforcing known facts.
   - **Doubling and halving**
   Known facts are used to construct new knowledge e.g. if 3+3 is 6, what is 4+3? or 3+4?
   - **Recognising number patterns**
   This is done by counting, for example, in 2's then 20's then 200's.
   - **Match the word and symbol**
   - **Questioning around the counting**
   Other than rote counting, learners should always think about what they are counting and this is best achieved when you ask questions. For example, when counting in 5's, stop during the counting at 25 and ask questions such as how many 5's in 25? If five 5's are 25, how much are six 5's? If six fives are 30, how much are twelve fives?

2. **Organising the groups**
   Bring the group you want to work with to the mat and set the other groups activities to complete. These activities must be designed to help learners explore number concepts **with which they are already familiar**. The activities can be practical, such as counting counters in a counting bag, or written, such as work from the board/worksheet/learner's book etc.. The activities should require the learners to actually do something and to learn from the doing.

3. **Group teaching on the mat**
   If possible, have the group sit in a circle on a mat so that you can observe each individual. The mat session usually consists of
   - General number development such as counting within the range and ability of the group
   - Specific number concept development activities, such as doubling and halving, numerosity of numbers, adding and subtracting using a number chart, etc.

   Word problems which are posed to the group to solve. The problems should be relevant and realistic and may be solved in any way the learner wishes. Encourage learners to discuss the problem as well as their solutions. Do not interfere with the learners' thinking.

Annexure 2 : Quick reference

1. Worksheets
   - These are sheets of paper with activities on, and learners do the work on the piece of paper itself.
   - Each worksheet can only be used once.
   - Language must be simple, and as little as possible. Remember, learners are not yet able to read much by themselves.
   - They are used for specific purposes e.g. to colour in a drawing, or do a dot-to-dot activity.
   - They provide practice in essential skills.
   - Learners must write their name and the date on every worksheet.
   - Worksheets should be placed in the learner's portfolio.

2. Work cards
   - These usually contain sums which the learner must copy into their book and then write the answer.
   - Cards can be used over and over, year after year. It is a good idea to cover them with plastic to keep them clean.
   - Cards give the learner practice in work they can already do.
   - Make sets of cards about the concept being taught.
   - They need to be colourful and attractive.

3. Dot-to-dot
   - Learners join the dots, always starting with the lowest number and joining the numbers in the correct order till the largest number is reached.
   - It is a self-corrective activity because if the dots are joined correctly, a picture will appear.

4. Dice
   - Use small blocks of wood, or foam rubber, as dice.
   - Write your own numbers or signs to meet the needs of the learners.
   - The learner throws two dice and writes the corresponding sum.
   - Later add a die with signs and the learners use three dice and write the corresponding sum.

5. Number lines
   - These provide practice in counting forwards and backwards as well as the ordinal value.
   - They take many shapes and can start and end at any number.

6. Patterns
   - These provide practice in sequencing.
   - Shapes, size, numbers and so on can all provide practice in recognizing patterns. * * *11**
   - Two or more numbers (shapes etc) are always given so that learners can work out the missing parts of the sequence. e.g. 1,2, ... , ... ,5, ... , ...
   - Patterns also indicate relationships

     5+1=, 6+1=, 7+1= etc 5-1=, 4-1=, 3-1=, etc.

7. Number Sentences
   - Addition: 3+2= ☐ 5=3+☐ ☐+2=5 ☐+☐+☐=9
   - Subtraction: 7-2= ☐ ☐-2=5 7-☐=5 7=9-☐

.

8. Spider sums
   - These consist of an input number, an operator and an output number.
   - Start by providing the input number and the operator. Learners must find the output number.
   - Once learners are familiar with this, provide the operator and the output number. Learners must find the input number.
   - Then provide the input and output numbers and learners must find the operator.

9. Counting bags
   - Use any container, or bag to keep the counters in.
   - Each container has a different number of objects.
   - Learners take one bag at a time, count the objects and record the number.
   - If learners work in pairs they can check each other's counting.
   - This activity can be extended in a number of ways e.g. estimate the number, then count, count out objects then add 5 count out objects then take away how old you are.

Annexure 3 : Addition and Subtraction Problem Types.

Change

Join

1. Mary has 5 marbles. Jim gave her 8 more. How many marbles does Mary have now?
3. Mary has 5 marbles. How many more marbles does she need to have 13 marbles?
5. Mary had some marbles. Jim gave her 8 more marbles. Now she has 13 marbles. How many marbles did Mary have to start with?

Separate

2. Mary had 13 marbles. She gave 5 marbles to Jim. How marbles does she have left?
4. Mary had 13 marbles. She gave some to Jim. Now she has 8 marbles left. How many marbles did Mary give to Jim?
6. Mary had some marbles. She gave 5 to Jim. Now she has 8 marbles left. How many marbles did Mary have to start with?

Combine

7. Mary has 5 red marbles and 8 blue marbles. How many marbles does she have?
8. Mary has 13 marbles. Five are red and the rest are blue. How many blue marbles does Mary have?

Compare

9. Mary has 13 marbles. Jim has 5 marbles. How many more marbles does Mary have than Jim?
10. Mary has 13 marbles. Jim has 8 marbles. How many fewer marbles does Jim have than Mary?
11. Jim has 5 marbles. Mary has 8 more than Jim. How many marbles does Mary have?
12. Jim has 5 marbles. He has 8 fewer marbles than Mary. How many marbles does Mary have?
13. Mary has 13 marbles. She has 8 more marbles than Jim. How many marbles does Jim have?
14. Mary has 13 marbles. Jim has 8 fewer marbles than Mary. How many marbles does Jim have?

Equalize

15. Mary has 13 marbles. Jim has 5 marbles. How many marbles does Jim have to get to have as many marbles as Mary?
16. Mary has 13 marbles. Jim has 5 marbles. How many marbles does Mary have to lose to have the same number of marbles as Jim?

17. Jim has 5 marbles. If he gets 8 marbles he will have the same number of marbles as Mary. How many marbles does Mary have?

18. Jim has 5 marbles. If Mary loses 8 marbles, she will have the same number of marbles as Jim. How many marbles does Mary have?

19. Mary has 13 marbles. If Jim gets 8 marbles, he will have the same number of marbles as Mary. How many marbles does Jim have?

20. Mary has 13 marbles. If she loses 8 marbles she will have the same number of marbles as Jim. How many marbles does Jim have?

Multiplication and Division Problem Types

Repeated Addition

21. Mother buys 4 bags of apples. Each bag contains 8 apples. How many apples did she buy?
    I fill 10 cups with 200ml cool-drink each. How much cool-drink did I have before filling the cups?

22. Mother buys 32 apples that are packed in 4 bags. If each bag contains the same number of apples, how many apples are in each bag?
    2l of cool-drink is poured into 10 cups so that each cup holds the same amount. How many millilitres of cool-drink is in each cup?

23. Mother buys 32 apples. She wants to pack them into plastic bags, with 8 apples in each bag. How many bags does she need?
    How many cups each holding 200ml can be filled from a 2l bottle of cool-drink?

Rate

24. A man walks at 6km per hour. How far does he walk in 3 hours?
    Tomatoes are sold at R12 per kilogram. If I but 3 kilograms of tomatoes, how much will I have to pay?

25. A man walks at 6km per hour. How long will it take him to walk 18 kilometres?
    The price of tomatoes is R12 per kilogram. If I have R36, how many kilograms can I buy?

26. A man must walk 18 kilometres in 3 hours. How many kilometers per hour must he walk to achieve this?
    I but 3 kilograms of tomatoes for R36. What is the price per kilogram?

Comparison (Times as many as)

27. Mary has 4 marbles. Jim has 3 times as many marbles as Mary. How many marbles does Jim have?
    The length of a car in a photograph is 4cm. If the photograph is enlarged 3 times, what will the length of the car be on the enlargement?

28. Jim has 12 marbles, which is 3 times as many marbles as Mary has. How many marbles does Mary have?
    If a photograph is enlarged 3 times, the length of a car on the enlargement is 12cm. How long is the car in the original photograph?

29. Mary has 4 marbles. Jim has 12 marbles. How many times are Jim's marbles more than Mary's?
    The length of a car on a photograph is 4cm. On the enlargement of the photograph the car is 12cm long. How many times has the photograph been enlarged?

Arrays (Arrangements)

30. A slab of chocolate has 4 pieces along the shorter side and 6 pieces along the longer side. How many pieces does the slab contain?
    A vegetable patch has 12 rows of onion plants, with 6 plants in each row. How many onion plants are there in the patch?

31. A slab of chocolate has 24 pieces. There are 4 pieces along the shorter side of the slab. How many pieces are along the longer side?
    A vegetable patch has 12 rows of onion plants, with an equal number of plants in each row. If there are a total of 48 plants, how many plants are in each row?

Combinations

32. Mary has 3 skirts of different colours and 4 tops of different colours. All the colours match. In how many different ways can she dress?
33. Mary is on holiday for 12 days. She wants to dress differently on each day. She has 3 different skirts. How many different tops that match with the skirts should she pack?
34. Mary has 4 tops. How many skirts does she need for 12 different outfits?

Sharing – with and without remainders, leading to fractions

35. My brother and I found 5 marbles. We each took the same number. How many did we each take?

36. Mom bought 8 sausages and her 4 children shared them equally. How many sausages did each child eat?
37. Mom bought 10 sausages and her 4 children shared them equally. How many sausages did each child eat?

Grouping – with and without remainders

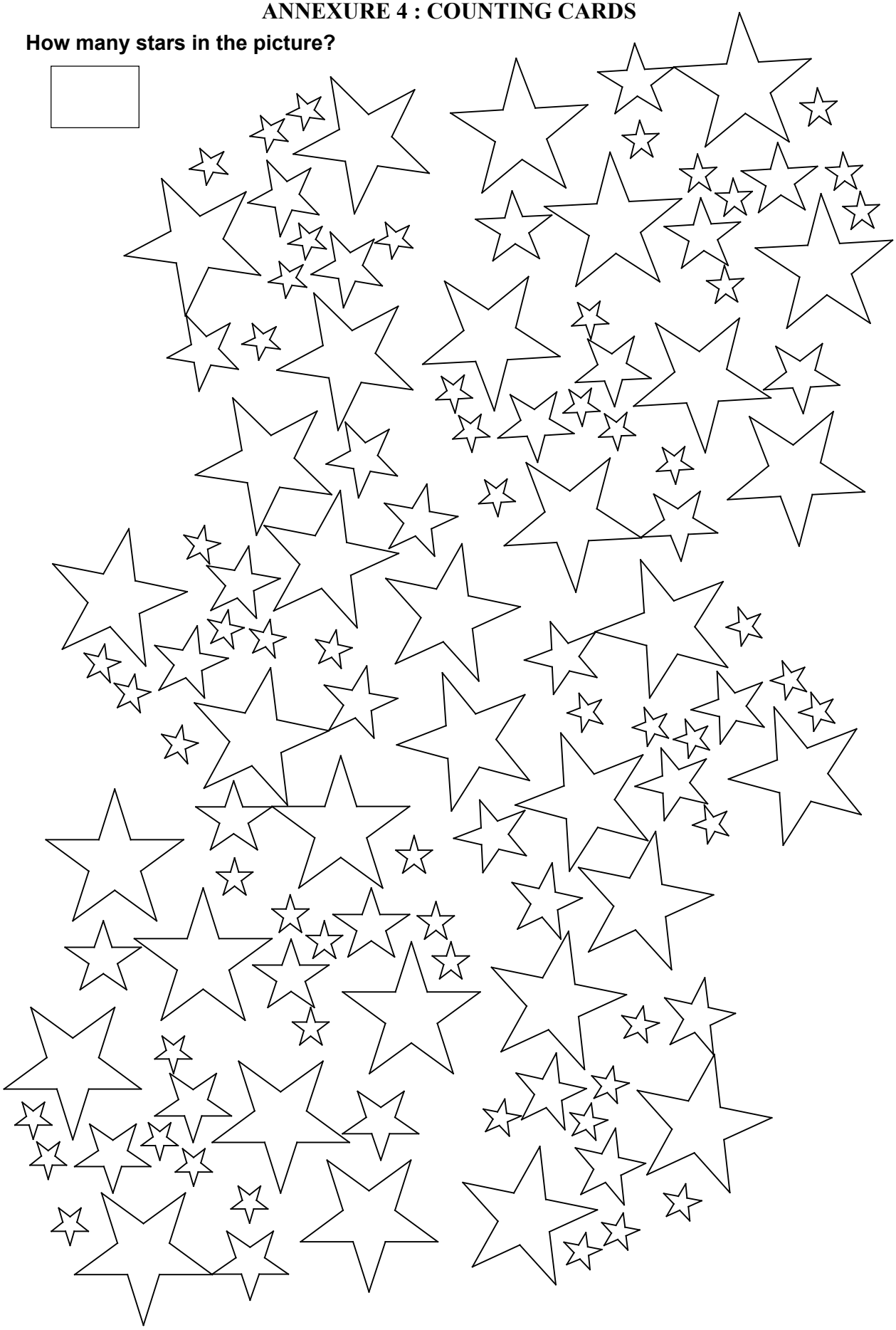
38. I have 12 apples and put them into 3 baskets. How many apples are in each basket?
39. Mom bought 14 apples. How many packets of 4 apples can she make?

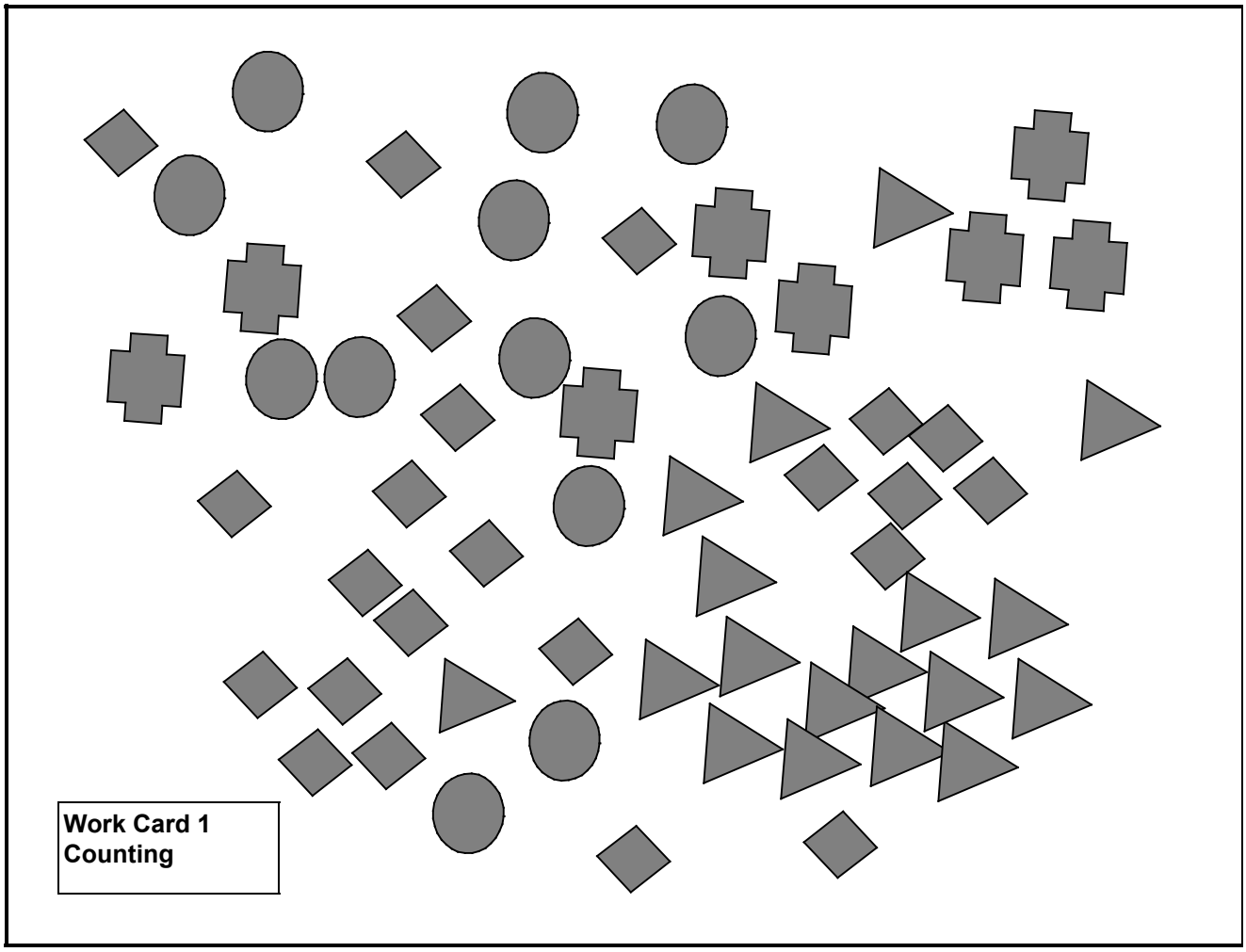
Repeated addition and subtraction.

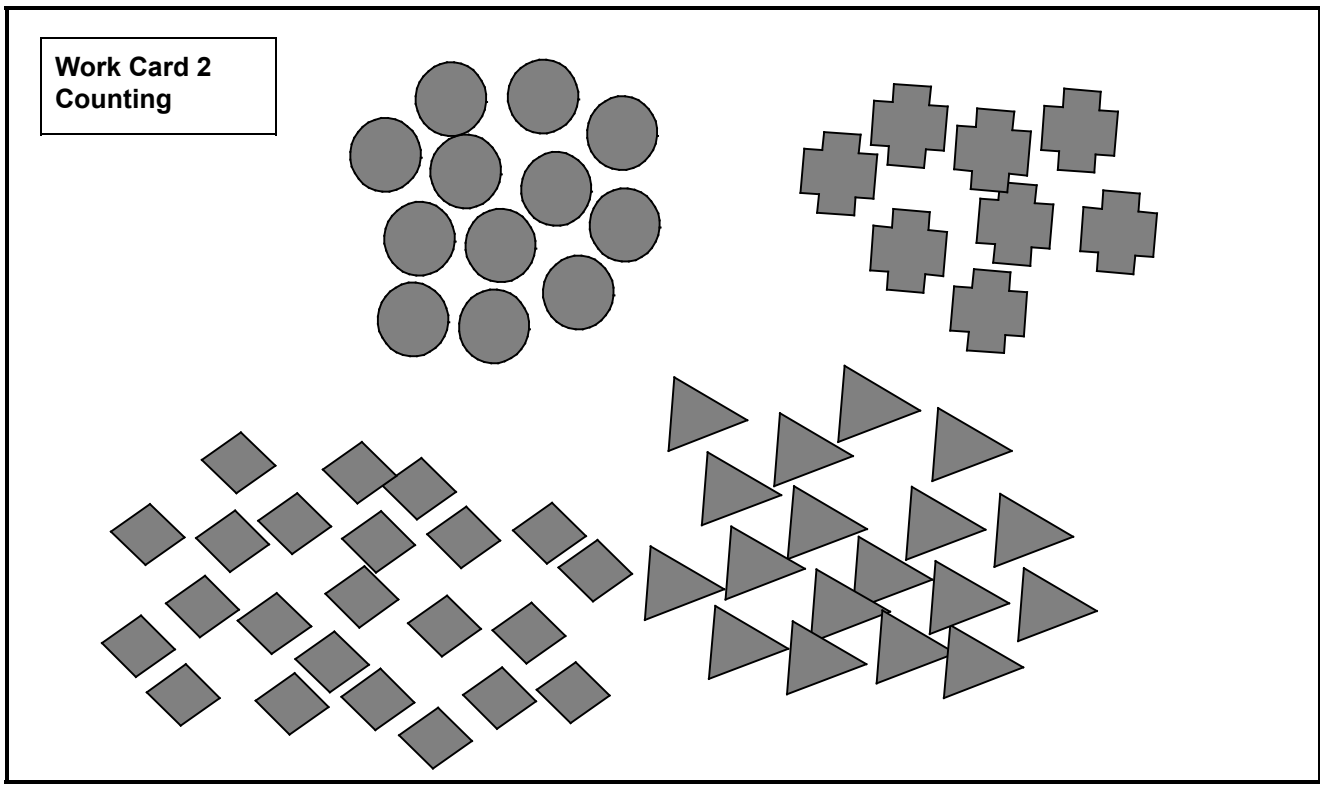
40. How many wheels do 4 bicycles have?
41. Father has R20. He gives R5 to each of his three children. How much money will he have left?

ANNEXURE 4 : COUNTING CARDS

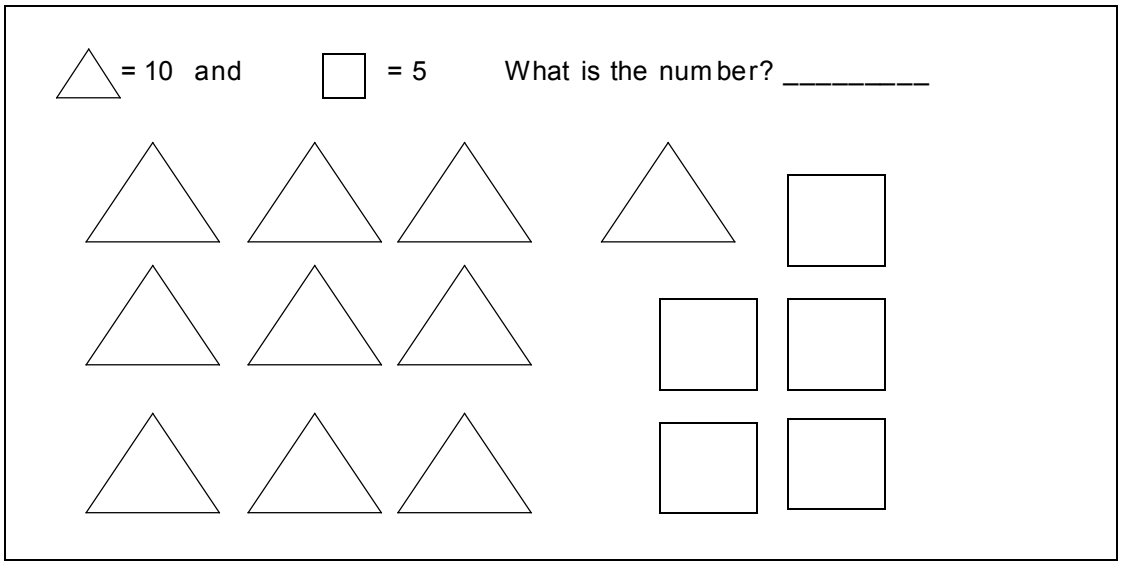
How many stars in the picture?

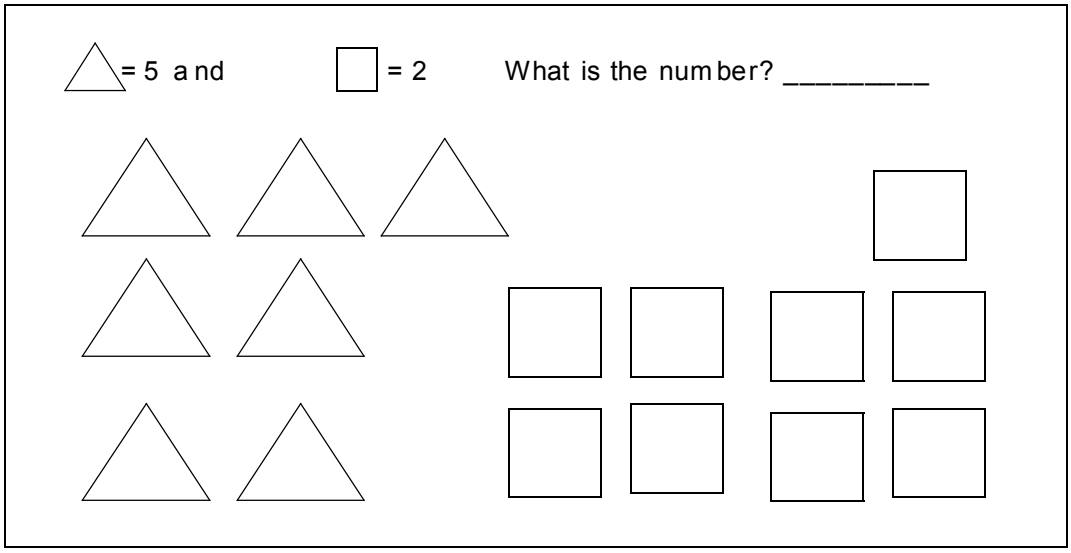


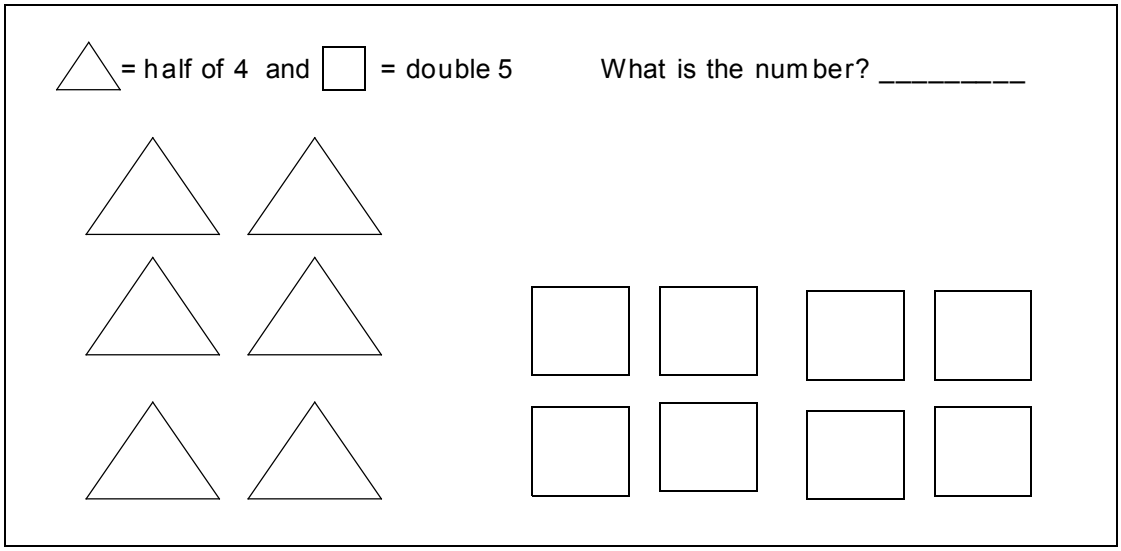

Work Card 1
Counting


Work Card 2
Counting

Annexure 5

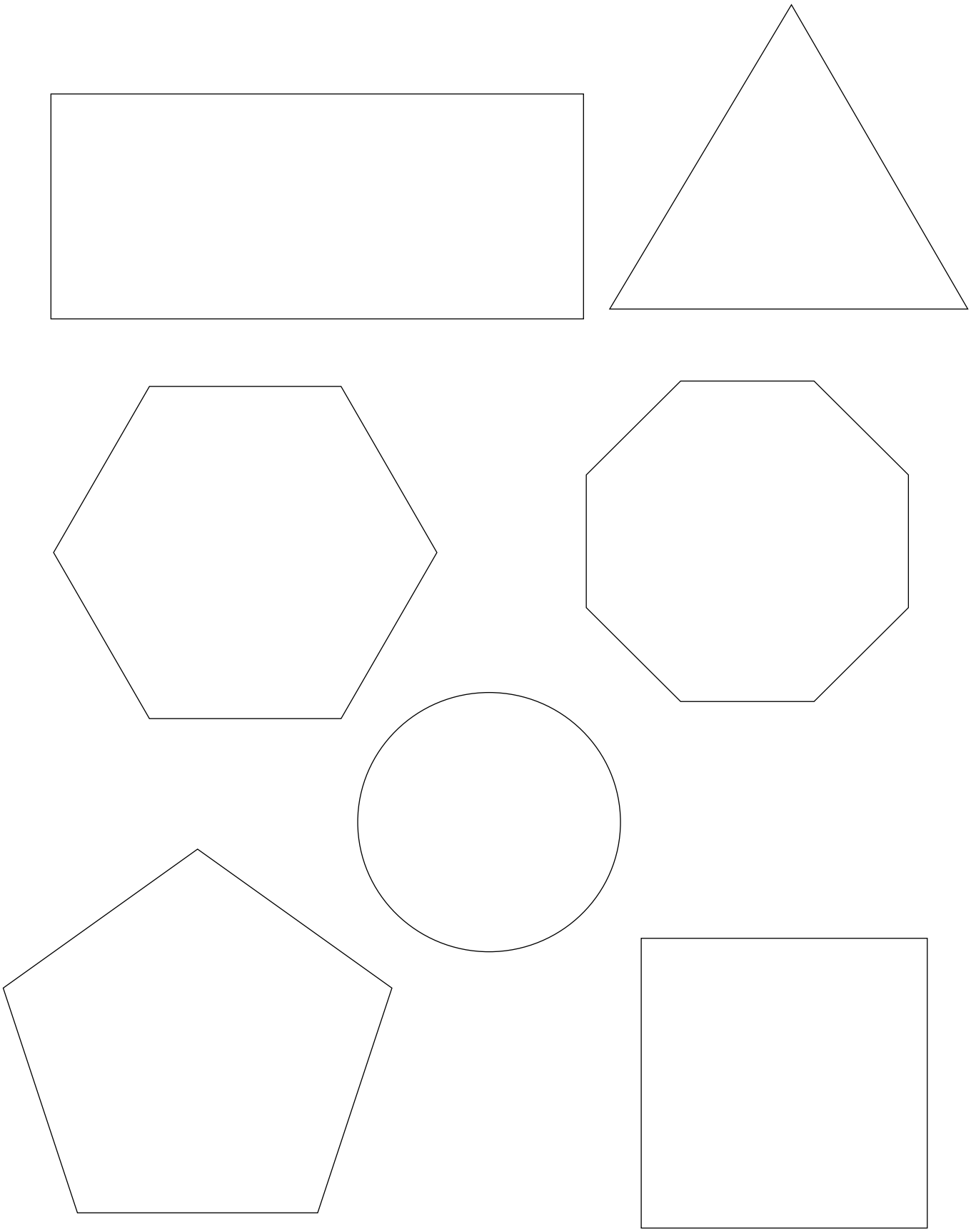

= 10 and
= 5
What is the number? _____


= 5 and
= 2
What is the number? _____


= half of 4 and
= double 5
What is the number? _____

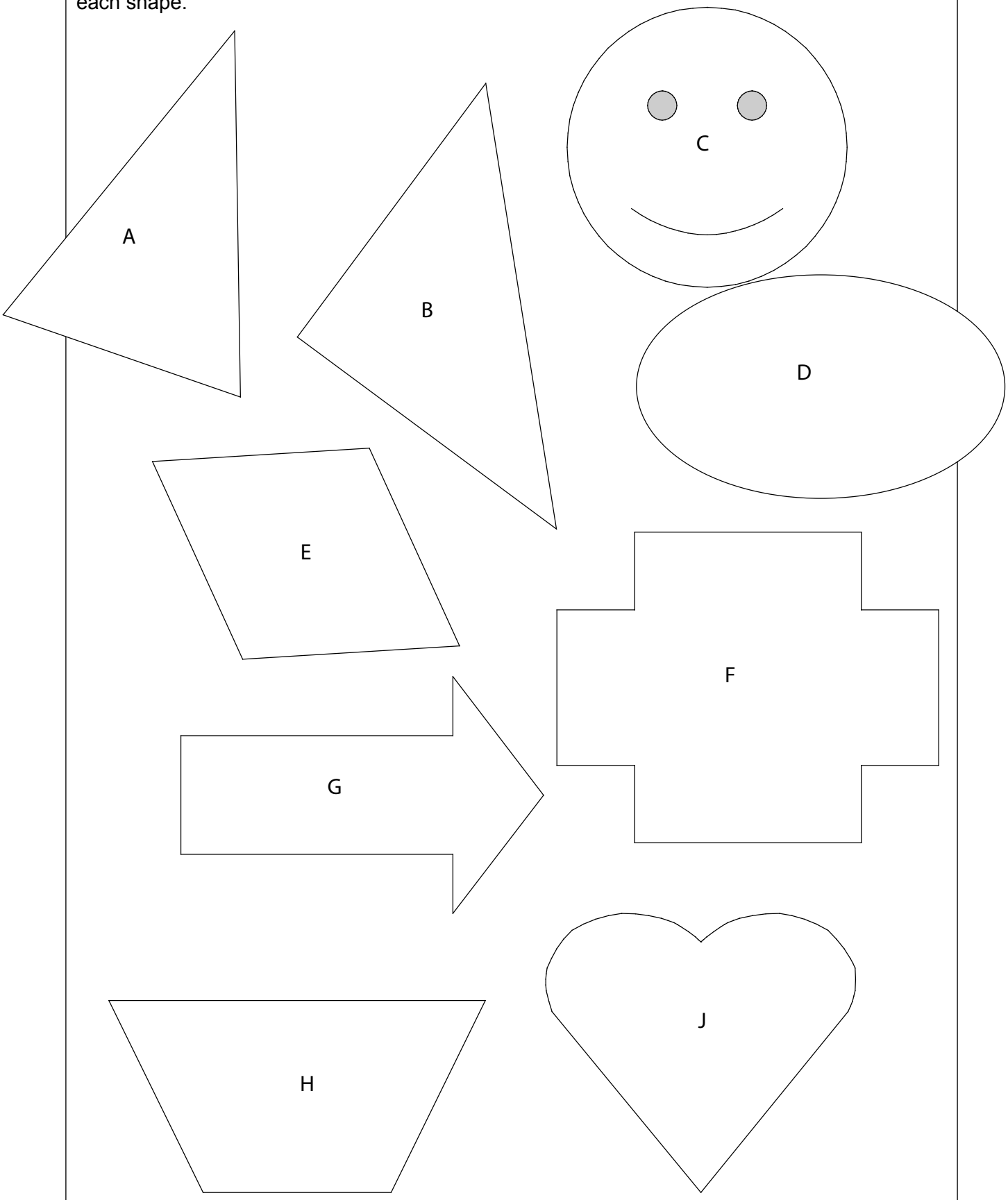
ANNEXURE 6

Cut out each shape, test for symmetry by folding the shape and draw in the lines of symmetry on each shape.



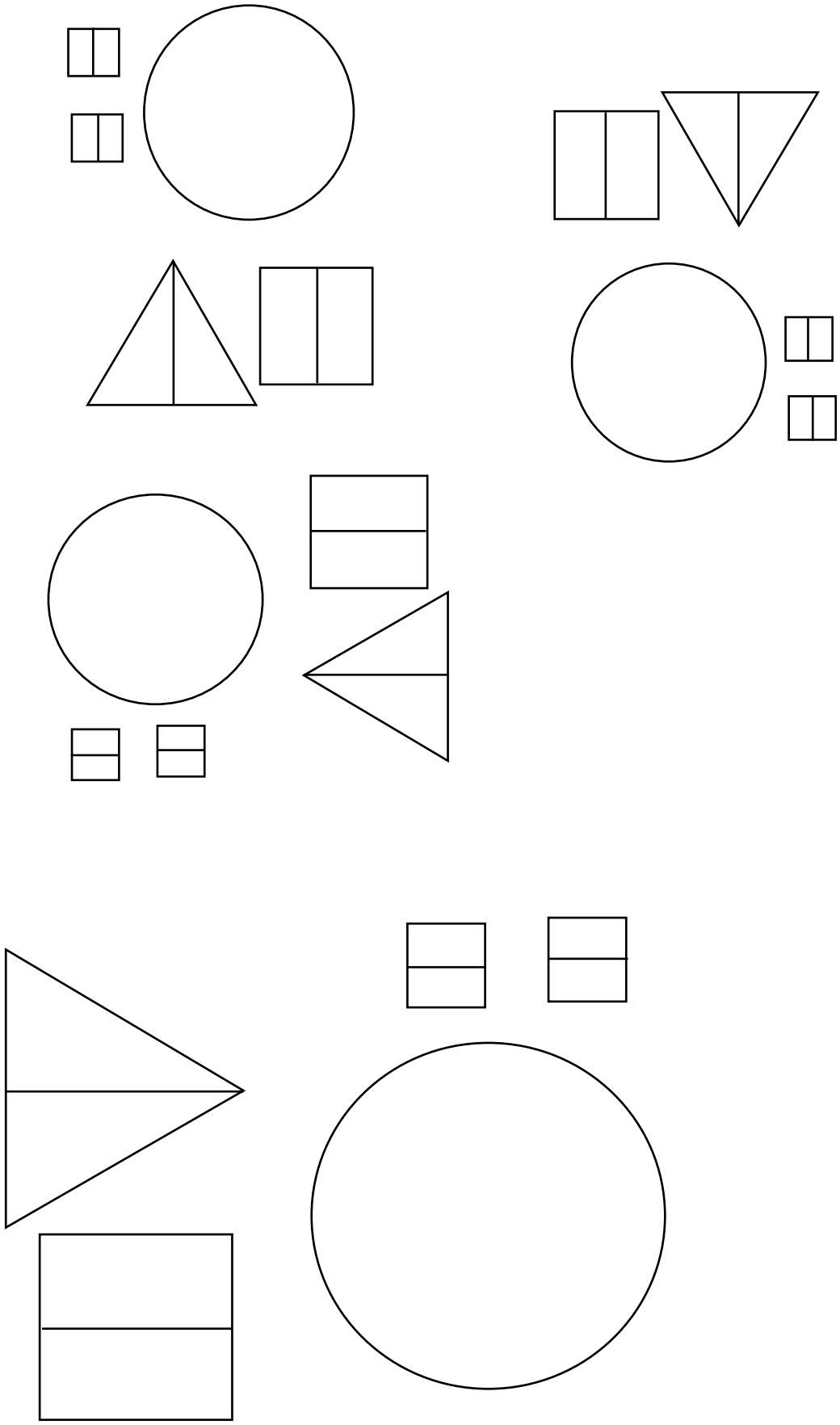
ANNEXURE 7

Cut out each shape, test for symmetry by folding the shape and draw in the lines of symmetry on each shape.



ANNEXURE 8

cut-out shapes for making designs



ANNEXURE 9

DEFINITION OF SOME CORE TERMS FOR SCHOOL READINESS

Word	Definiton
1. Perception	Using the senses to acquire information about the surrounding environment or situation
2. Visual perception	Acquiring and interpreting information through the eyes. Accurate visual perception enables the child to read, write and do mathematics
3. Visual discrimination	The ability to see similarities, differences and details of objects accurately
4. Visual memory	The ability to remember what the eyes have seen and the correct sequence in which things have been perceived
5. Auditory perception	Acquiring and interpreting information through the ears. Accurate auditory perception enables the child to give meaning to what is heard
6. Auditory discrimination	The ability to hear similarities and differences in sounds
7. Auditory memory	The ability to remember what the ears have heard and the correct sequence in which things have been perceived
8. Gross motor movements	Movement of the large muscles of the body e.g. walking, kicking, throwing
9. Fine motor movements	Movements of the small muscles of the body e.g. tasks that involve using the fingers like holding a pencil or tying bows
10. Eye-hand co-ordination	The hands and eyes working together when performing a movement e.g. catching a ball
11. Body image	A complete awareness of ones's own body i.e. how it moves and how it functions
12. Laterality	Showing awareness of each side of the body e.g. which hand is waving
13. Dominance	Preferring to use one hand or one side of the body i.e either right or left dominant
14. Crossing the mid-line	Being able to work across the vertical mid-line of the body e.g. being able to draw a line from one side of the page to the other without changing the tool form one hand to the other
15. Figure-ground perception	Being able to focus attention on a specific object or aspect while ignoring all other stimuli. The object of attention is therefore in the foreground of the perceptual field while all the rest in the background e.g. being able to read one word in a sentence
16. Form perception	The ability to recognise forms, shapes, symbols, letters, etc. regardless of position, size, background, etc. e.g. can recognise a circle because of its unique shape
17. Spatial orientation	The ability to understand the space around the body, or the relationship between the object and the observer e.g. the hat is on my head

Notes: