

**GRADE 3**

# **Mathematics**

Teacher Toolkit:  
CAPS Aligned Lesson Plans

**TERM 1**



# A MESSAGE FROM THE NECT

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## NATIONAL EDUCATION COLLABORATION TRUST (NECT)

### Dear Teachers

This learning programme and training is provided by the National Education Collaboration Trust (NECT) on behalf of the Department of Basic Education (DBE)! We hope that this programme provides you with additional skills, methodologies and content knowledge that you can use to teach your learners more effectively.

### What is NECT?

In 2012 our government launched the National Development Plan (NDP) as a way to eliminate poverty and reduce inequality by the year 2030. Improving education is an important goal in the NDP which states that 90% of learners will pass Maths, Science and languages with at least 50% by 2030. This is a very ambitious goal for the DBE to achieve on its own, so the NECT was established in 2015 to assist in improving education.

The NECT has successfully brought together groups of people interested in education so that we can work collaboratively to improve education. These groups include the teacher unions, businesses, religious groups, trusts, foundations and NGOs.

### What are the learning programmes?

One of the programmes that the NECT implements on behalf of the DBE is the 'District Development Programme'. This programme works directly with district officials, principals, teachers, parents and learners; you are all part of this programme!

The programme began in 2015 with a small group of schools called the Fresh Start Schools (FSS). The FSS helped the DBE trial the NECT Maths, Science and language learning programmes so that they could be improved and used by many more teachers. NECT has already begun this scale-up process in its Provincialisation Programme. The FSS teachers remain part of the programme, and we encourage them to mentor and share their experience with other teachers.

Teachers with more experience using the learning programmes will deepen their knowledge and understanding, while some teachers will be experiencing the learning programmes for the first time.

Let's work together constructively in the spirit of collaboration so that we can help South Africa eliminate poverty and improve education!

[www.nect.org.za](http://www.nect.org.za)



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# ABOUT THE LESSON PLANS AND RESOURCES

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The lesson plans and resources in this book are part of the Teacher Toolkit for Mathematics Grade 3 Term 1. The other documents in the toolkit are:

- a CAPS aligned Planner, Tracker and Assessment Resources

**A variety of printable resources that you can copy for yourself and/or your learners are included at the end of the lesson plans in this book. They include:**

- Resource sheets:** These comprise a variety of teaching and learning aids that are needed in certain lessons. The specific resource sheet and the number of copies needed is noted in the relevant lesson plan and in the tracker, so that you can prepare them in advance.
- Mental mathematics challenge cards:** A pack of eight mental mathematics challenge cards (solutions are provided) are included to allow for routine weekly mental mathematics activities that you can record.
- Enrichment activity cards:** A pack of 32 enrichment activity cards (solutions are provided) are included for learners who complete the day's classwork activities ahead of the class.
- Written tests and memos:** These are provided for each of the assessment tasks for the term.

## A. About the lesson plans

The lesson plans give detailed information about how to teach a CAPS-aligned lesson every day. By following the lesson plans, you will ensure that you cover the content and assessment tasks specified in the curriculum and give your learners the best possible chance of developing the knowledge and skills required for Mathematics in this grade.

### 1. Curriculum alignment

The lessons are sequenced according to the topics in the CAPS and weighted according to requirements given there, and the programme of assessment is accommodated. Every lesson shows the CAPS content and skill being focussed on in the lesson.

### 2. Links to the DBE workbooks

Links are given in the lessons to all appropriate DBE worksheets. Note that the pages referred to are all from the 2017 edition of the DBE workbook. This changes very little from year to year, but if you use a different edition of the workbook, you should check that the worksheet on the same page in this different edition is still appropriate for your purpose.

Bilingual learner material is provided in the LoLT of the school in accordance with the Foundation Phase language policy.

### 3. Broad overview of the content of the lesson plans

Each lesson plan provides a set of steps to guide you in delivering the lesson. In addition, it contains learner activities that will help learners develop the concepts and skills set for the lesson. These include the required daily mental mathematics activity, whole class oral activities led by the teacher, classwork and homework activities, as well as answers for these. All the classwork and homework activities are given in the lesson plans, learners must either copy these into their books or teachers can photocopy the activity.

### 4. Assessment

The programme of assessment suggested in the lesson plans and tracker is adaptable and can be adjusted to comply with the CAPS as amended by Circular S1 of 2017 and provincial responses to this. The lesson plans and tracker provide a number of resources to support both formal and informal assessment in this programme, as noted below:

- Oral and practical activities which you can use to assess learners as you observe and interact with them in class are provided in the tracker. Rubrics and checklists with criteria for this assessment are provided in the tracker, at the end of the table for the week in which the assessment is suggested.

- There is an item bank of written assessment questions, with marking memos in the tracker. Items that are relevant to a specific lesson are noted in the resources column for the lesson in the tracker.
- A complete overview of the programme of assessment for the term is given in the tracker. This shows you when it is suggested you carry out both formal (and informal) assessment tasks which are oral, practical and written. This will assist you in planning and monitoring your assessment programme.
- There is also a recommended mark record sheet in the tracker. This has been drawn up to assist you as you record your marks on SA-SAMS.

## 5. *Managing the lesson programme*

A set of orientation activities on eight different topics aligned with the CAPS baseline assessment requirements is provided for the start of the term. You should use all or a selection of these activities in the first week of term before the formal teaching of the numbered lesson plans begins.

The formal curriculum for Term 1 of Grade 3 is covered in a set of 40 numbered, fully developed lesson plans, paced to cover a 50-day teaching term. There are four such lesson plans each week for ten weeks of the term. There is no formal numbered lesson plan for the fifth lesson each week; instead, it is assigned for you to use for a variety of purposes. You can use this time to catch up, remediate or consolidate the content covered in the week's formal lessons. Learners can complete the worksheets from the DBE workbook related to topics taught in the week if they did not manage to do them in the course of the week.

Each lesson is designed to last 90 minutes. If your school's timetable has different period lengths, you will have to adjust the amount of work done in each lesson to accommodate this. However, each school should allow seven hours for Mathematics each week, and it should be possible to fit in all the work for the week, even if the lengths of periods are not the same as in the lesson plans.

## 6. *Sequence adherence and pacing*

Each lesson and its contents have been carefully sequenced. It is therefore important that lessons are

not skipped. Should you miss a Mathematics lesson for any reason, you should continue the next day from where you last left off. Do not leave a lesson out. You may need to speed up the pace of delivery to catch up a missed lesson by covering the lesson concept content of two consecutive days in one day. To do this you could cut out or cut back on some of the routine activities like mental mathematics or homework reflection to save time until you are back on track with the expected delivery of the plans. You need to prepare very well as this will help you to manage the full set of lessons at the appropriate pace.

## 7. *Lesson preparation*

The lesson plans provide a detailed lesson design for you to follow. However, to deliver the lessons successfully **you must do the necessary preparation yourself**. The information below outlines some key aspects of preparation.

- Term focus:** Start by looking at the CAPS document and **orientating** yourself to the CAPS content focus for the term. It is important that you are clear about the content focus, as this will frame everything you do in your Mathematics lessons during the term.
- Prepare resources:** The resources needed for each lesson are listed in each lesson plan and in the tracker. It is very important that you check what is required for each lesson ahead of time, so that you have all your resources ready for use every day (e.g. counters, number boards, paper cut-outs, examples of shapes, etc.).
  - **Your lessons will not succeed if you have not prepared properly for them.**
  - If you do not have all the necessary resources readily available, see how best you can improvise, e.g. get learners to collect bottle tops or small stones to be used for counting, or make your own flard cards/number boards using pieces of cardboard and a marker pen.
  - Collect empty cool drink cans, cereal boxes, washing powder boxes, plastic bottles, etc. for the **shop activity** in the week long in advance, so that you have all the necessary goods to stock your shop.
  - Use newspapers and magazines to cut out pictures that could be used in your teaching. If you have access to the internet, search for and print out pictures that you may need to use as

illustrations in your lessons.

- c) **Prepare for the written classwork and homework activities:** When preparing your lessons, check the lesson activity requirements. In some instances you will need to write information or draw some diagrams on the board that you will use while you do the interactive whole-class-teaching component of the lesson. Also mark the homework activities as often as you can, so that you can give useful feedback to the learners each day, and be aware of any difficulties learners are having as soon as they become apparent.
- d) **Prepare to teach the concepts and skills associated with the lesson topic:** Think carefully about what it is that you will teach your learners in the lesson. Prepare a short introduction to the topic, so that you can explain it in simple terms to your learners. Make sure you have prepared for the teaching of the concepts before you teach – you need to be able to explain new Mathematics content and skills to the learners. Be sure you have gone through the oral teaching activities provided in the lesson plans. Also make sure that you have thought about how to use the resources in the lesson effectively. This preparation needs to be done in advance, so that you do not waste time during the lesson. Be sure you are familiar with the sequence of activities in the lesson plan. Prepare yourself to assist learners with any questions they might have during the lesson. Also give some thought to how you will accommodate learners with barriers to learning.
- e) **Lesson pace:** Think about how much time you will spend on each activity. It is important to plan how you will manage the pace of the lesson carefully; otherwise you will not manage to cover all the lesson content. Not all learners work at the same pace. You need to determine the pace – be guided by the average learner and the recommendations in the lesson plans. Be careful not to slow down to the pace of the slowest learners as this will disadvantage the other learners.
- f) **Organisation of learners:** Think about how you will organise learners when they do the classwork activities. Will they work alone, in pairs or in small groups? How will you organise the pairs or groups if you choose to use them? You need to organise the learners quickly at the beginning of the lesson, so that you do not waste too much time

on this.

- g) **Inclusive education:** Consider the needs of any learners with barriers to learning in your class, and how best you can support them. The DBE has published some excellent materials to support you in working with learners with learning barriers. Two such publications are:
- Directorate Inclusive Education, Department of Basic Education (2011) *Guidelines for Responding to Learner Diversity in the Classroom Through Curriculum and Assessment Policy Statements*. Pretoria. [www.education.gov.za](http://www.education.gov.za), [www.thutong.doe.gov.za/InclusiveEducation](http://www.thutong.doe.gov.za/InclusiveEducation).
  - Directorate Inclusive Education, Department of Basic Education (2010) *Guidelines for Inclusive Teaching and Learning. Education White Paper 6. Special needs education: Building an inclusive education and training system*. Pretoria. [www.education.gov.za](http://www.education.gov.za), [www.thutong.doe.gov.za/InclusiveEducation](http://www.thutong.doe.gov.za/InclusiveEducation).

# LESSON PLAN OUTLINE

Lesson Plan Outline	
<p>Each lesson plan has several components. Information about each is given in the table below. This information tells you how to use each of the components of the lesson plans and how they fit together to create a well-paced and properly scaffolded Mathematics lesson each day. You need to read this outline as you prepare each lesson until you are fully familiar with the general lesson plan components, pace and structure.</p>	
<b>Lesson topic</b>	Each lesson has a topic with specific detail about the day's lesson.
<b>CAPS topics</b>	The CAPS content related to the day's lesson is given here, together with the reference number for this content in the expansion of content section in the CAPS document for this term. You are encouraged to look at the CAPS to read about the selected curricular topics for the day.
<b>Lesson vocabulary</b>	A list of all mathematical terms used in the lesson is given here. Go through the lesson vocabulary each day as you prepare for the lesson. These terms are important, as they are the language of Mathematics that each learner needs to learn and understand in order to build a solid foundation and understanding of this subject. It is important to explain these words to your learners and to practise using them with your learners during the lesson.
<b>Prior knowledge and lesson concept</b>	<p>The prior knowledge and lesson concept section gives information about content that learners should have learnt in earlier grades that will be built on in this lesson.</p> <ul style="list-style-type: none"> <li>You need to read through this section when you do your lesson preparation.</li> <li>No time is allocated to this part of the plan because it does not form part of the teaching of the day's lesson.</li> <li>The information about prior knowledge may help you to assist learners who struggle to understand the content of the lesson because there are gaps in the prior knowledge on which the lesson is based. You can use the information about prior knowledge to help you identify such gaps and to diagnose learners' needs in relation to content they do not yet know that may be preventing them from understanding the day's lesson.</li> <li>Remediation may be needed on prior knowledge that you notice is not properly in place.</li> </ul>
<b>Assessment</b>	<p>A reminder to refer to the tracker for the formal oral, practical or written assessment activity for the day is given here.</p> <ul style="list-style-type: none"> <li>On-going formal oral and practical assessment should be done virtually every day in your class. This means you will record a mark for a few learners for a certain criterion from the curriculum each day. Decide how many learners to assess every day, so that you assess your whole class in the time allocated to each assessment activity.</li> <li>Rubrics and checklists to guide you in giving ratings for the oral and practical assessments are given in the tracker at the end of the tracker table for each week. Each day you need to use the appropriate rubric or checklist for the assessment activity of that day.</li> <li>Written test items and their memos are provided in the tracker. Links to these items are given in the resources column of the tracker to show you in which lesson they should best be used.</li> <li>A <i>Suggested Assessment Record Sheet</i> that you can use to record your term marks is given in the tracker. This sheet aligns with the SA-SAMS.</li> </ul>
<b>Remediation</b>	<p><b>Optional as required.</b> You could use these activities to assist slower learners. You need to decide, based on your observation of the learners while you are teaching the lesson content, whether to use this content and with which learners. It will be done with a smaller group of learners/individual learners while the rest of the class is working through the classwork activity.</p>

## Lesson Plan Outline

<b>Enrichment</b>	<p><b>Optional as required.</b> You could use these activities as extra work for fast learners or others interested in doing them.</p> <p>Activities that you can use for enrichment opportunities for learners who have completed the lesson activities are provided in a set of enrichment activity cards at the end of the lesson plan set. Ideally, you should photocopy the enrichment cards, paste them onto cardboard and laminate them, so that they can be used as a resource, not only this year, but in the future as well.</p> <p>Learners should work on these cards independently or with their peers who have also completed the classwork. They may work through the cards in any order. You may need to explain some of the activities to the learners who use them. You should tell them to ask questions if they have any.</p> <p>All learners who show an interest in the enrichment activities should be encouraged to work through the cards.</p>
<b>Mental mathematics (15 minutes)</b>	<p>This is the first component of the lesson. We recommend that you take at most 15 minutes to do the mental mathematics activity. There are two parts to the mental mathematics activity, a counting activity and a set of questions to drill recall and basic mathematical strategies.</p> <p>Mental mathematics is not a concrete activity (as the title suggests). However, if there are learners who need concrete aids to complete the mental mathematics activities, we suggest that you allow them to use their fingers to count on.</p> <ul style="list-style-type: none"> <li>• Observe which learners struggle with mental activities, and make sure you spend time to assist them to reach the required level of competence by offering remediation activities using concrete aids.</li> <li>• The answers to the ten mental mathematics questions are given in the answer column in the lesson plans.</li> <li>• It would be far better to do all ten questions per day, but if you find that your learners struggle to finish these in ten minutes, do a minimum of five questions.</li> </ul> <p>There is a set of mental mathematics challenge cards at the end of the lesson plans. Learners write the answers to the questions given on these cards. We recommend that learners only do written mental mathematics once a week and oral mental mathematics on all the other days. You can use this work to obtain a mental mathematics activity mark each week.</p>
<b>Homework/corrections (15 minutes)</b>	<p>This is the second component of the lesson. We recommend that you take 15 minutes to remediate and correct the previous day's homework. Read out answers to all of the homework questions. Let learners/peers mark the work. Also try to check homework yourself as often as you can.</p> <p>Choose one or two activities that you realise were problematic to work through in full with the whole class. In this part of the lesson you may reflect on the previous day's work. Allow learners the opportunity to write corrections as needed.</p>
<b>Lesson content – concept development (30 minutes)</b>	<p>This is the third component of the lesson. It is the body of the lesson, in which learners are introduced to the new work planned for the day. We recommend that you actively teach your class for 30 minutes – going through the activities interactively with your learners.</p> <ul style="list-style-type: none"> <li>• Activities on the content that you will teach with worked examples and suggested explanations are given. These activities have been carefully sequenced and scaffolded so that they support the teaching of the concepts for the day. You should work through each of these with your class.</li> <li>• It is important to manage the pace of the lesson carefully otherwise you will not manage to cover all the lesson content. Once you have introduced the new concept, work through Activity 1 of the lesson with the whole class (or with learners in groups). Then immediately move on to the next activity, and provide a reasonable time for the learners to complete Activity 2, but do not wait for the last learner to finish before moving on. If there are further activities, continue pacing yourself in this way, so that you work through all of the activities in each lesson. A few activities are marked as <i>optional</i> – these need only be done if you have sufficient time.</li> </ul>

## Lesson Plan Outline

<b>Classwork activity (25 minutes)</b>	<p>This is the fourth component of the lesson. We recommend that you allocate 25 minutes to classwork. You could go over one or two of the classwork activities orally with the whole class before allowing the class to complete the activities independently (individually or in groups).</p> <ul style="list-style-type: none"><li>• Learners do most of the activities in their Mathematics books (an exercise book for learner Mathematics writing activities). Some activities are done in the DBE workbook.</li><li>• You should allow the learners opportunities to do these activities alone, in pairs and in groups so that they experience working alone as well as with their peers.</li><li>• Wrap up the lesson each day by giving the learners the answers to the classwork, and allow time for corrections to be written if and when necessary.</li></ul>
<b>Homework activity (5 minutes)</b>	<p>This is the fifth and final component of the lesson. We have allocated five minutes to give you time to tell the learners about the homework each day. Here you find a set of activities on the day's content that you can set for your class to do for homework. This is to consolidate the Mathematics that you have taught them that day. Homework also promotes learner writing and development of their mathematical knowledge.</p>
<b>Reflection</b>	<p>Each day there is a reminder to note your thoughts about the day's lesson. You will use these notes as you plan and prepare for your teaching.</p>

# WEEK 1: REVISION LESSON ACTIVITIES

The lesson activities given below are for you to use on the first few days of school when the learners are still settling down and you are not quite ready to start the formal CAPS lesson plans that follow. These revision lesson activities will help you to keep learners occupied in a meaningful way at the beginning of the term and to make observation notes on their mathematical knowledge development. The observation notes that you make will inform your intervention strategies. It will also help you get to know the learners.

Activities are provided relating to eight CAPS topics. You do not need to use all of these activities.

- Choose the ones that you think would be best for your learners to work on in order to revise/recap on work done in the previous year.
- You can do it in the order of your choice.
- For some of the activities you need to work with your learners interactively while learners can do the others independently or in groups.

Keep a notebook where you write your observations on learners' knowledge.

## The CAPS baseline framework

Criteria: Can the learner	Yes	No
Write numbers symbols up to 100		
Write number names up to 100		
Count in 2s, 10s and 5s from any given number		
Build numbers up to 99 using 10s and units		
Decompose numbers up to 99 using tens and units		
Add and subtract numbers to 20 mentally		
Add and subtract numbers to 20		
Start to notice that subtraction is the inverse of addition		
Solve addition and subtraction problems in context (money) up to 99		
Count in groups of 10 up to 100		
Read the number symbols 1 to 100		
Recognise halves and quarters		
Describe if a 3-D object can roll or slide		
Describe the edges of a 3-D object		
Describe the position of a 3-D object		
Estimate and measure length using non-standard measures		
Estimate and measure capacity using non-standard measures		
Estimate and measure mass using non-standard measures		
Organise data using a table		
Complete a pictograph		

## Topic 1: Number concept

### Concepts and skills for today

- Count in **2s**, **5s** and **10s** up to **100**.
- Complete number sequences for counting forwards and backwards in **2**, **5s** and **10s** up to **100**.
- Extend **2s**, **3s**, **4s**, **5s** and **10s** number sequences up to **100**.
- Write numbers in symbols and words up to **100**.

### Warm-up activity

Give learners their DBE workbooks. Revise how we should look after a book, how we page through it and where to find the DBE worksheet number and page number. Spend some time discussing why we should look after our books well. Ask learners to complete the number grid on DBE worksheet 3a, Question 1 (p. 6). Remind the learners to work neatly and in the blocks.

Draw a large 100 square on the board (or point to it if you have one hanging on the wall). Call on different learners to come to the front and show you some different numbers.

- Choose pairs of numbers that you can discuss in terms of similarities and differences.
- Show 24. Ask: **How many tens?** (2) **How many units?** (7)
- Show 42. Ask: **How many tens?** (4) **How many units?** (2) **How are 24 and 42 the same?** (They are written using the same two digits.) **How are they different?** (The tens and the units digits are different to each other.)
- Show 16. Ask: **How many tens?** (1) **How many units?** (6)
- Show 61. Ask: **How many tens?** (6) **How many units?** (1) **Which is bigger? 16 or 61?** (61) **Why?** (Because it has 6 tens while 16 only has 1 ten.)
- Show 70. Ask: **How many tens?** (7) **How many units?** (0)
- Show 17. Ask: **How many tens?** (1) **How many units?** (7) **How are 70 and 17 different?** (They sound the same but they are different numbers.)
- Etc.

### Activities

Activity	Can the learners	Observation
1. Ask the learners to say all the numbers in the yellow squares on DBE worksheet 3a, Question 1 (p. 6) (counting in 4s).	<ul style="list-style-type: none"> <li>• Write number symbols up to <b>100</b>?</li> <li>• Write number names up to <b>100</b>? (See classwork activity.)</li> </ul>	
2. Ask learners to cut out sheet 1 (counters) and sheet 2 (number grid) from the back of the DBE workbook.	<ul style="list-style-type: none"> <li>• Count in <b>2s</b>, <b>10s</b> and <b>5s</b> from any given number?</li> </ul>	
3. On your 100 square worksheet, starting from 1, count 10 squares and place the counter on the 10th square. Count on 10 squares again and place another counter. Do the same until you reach the end. Now let's say the numbers aloud where the counters are. Ask: <b>What do you notice?</b> (We are counting in 10s.) (DBE worksheet 3b, p. 8.)		
4. Ask learner to start from a given number, e.g. 9, and count on 10, then place the counter. Each time count on 10 and place the counter. They continue this pattern till the end of the worksheet. Ask: <b>When we count in this way are we counting on in 10s?</b> (Yes, we can count in 10s from any number.)		
5. Do the same counting on 2s and 5s.		

## Topic 2: Place value

### Concepts and skills for today

- Decompose 2-digit numbers up to **99** into multiples of 10 and units/ones.
- Ordering numbers up to **99**.

### Warm-up activity

Ask learners to cut out the number cards (flard cards) from cut-out sheet 3 at the back of the DBE workbook in the cut-out section. Tell learners that they will use these cards often during this term and should look after them and place them in a container or bag to keep them safe. Ask the learners to sort the cards by placing the units in one group and the tens in another group.

Use your own set of flard cards to revise place value in 2-digit numbers with the class. Make your set large enough so that learners at the back of the class can also read them easily.

- Hold up a number, such as **79**, using flard cards. Ask different learners questions to revise place value.
- **What is the value of this number?** (79)
- **What is the value of the 7 in the number?** (70)
- **What is the value of the 9 in the number?** (9)
- **What is the tens digit in the number?** (7)
- **What is the units digit in the number?** (9)
- **Give me another 2-digit number.** (Ask different learners to volunteer. One might say 54. You then discuss the place value and values of the digits in the number 54 with the class.)
- **Arrange from smallest to biggest: 62, 26, 43, 34.** (Use tens and units to help you decide on the order. 26, 34, 43, 62.)
- Etc.

### Activities

Activity	Can the learners	Observation
1. Ask the learners to build the numbers in DBE worksheet 4, question 2 (p. 10) using their number cards. Example. $25 \rightarrow \begin{array}{ c c } \hline 2 & 0 \\ \hline \end{array} \begin{array}{ c } \hline 5 \\ \hline \end{array} \rightarrow \begin{array}{ c c } \hline 2 & 5 \\ \hline \end{array}$	<ul style="list-style-type: none"> <li>• Build numbers up to <b>99</b> using tens and units?</li> </ul>	
2. Ask the learners to break down the numbers in DBE worksheet 4, question 2 (p. 10), into tens and units using base ten blocks and number cards to support their answers. Example: $25 = 20 + 5 = 25$ (Learners might make a drawing to support their answers.)	<ul style="list-style-type: none"> <li>• Decompose numbers up to <b>99</b> using tens and units?</li> </ul>	

## Topic 3: Addition and subtraction

### Concepts and skills for today

- Solve word problems in context (money) involving addition and subtraction up to **99**.
- Addition and subtraction up to **99**.
- Write addition and subtraction number sentences using +, -, = and  $\square$ .
- Double and halve numbers up to **99**.

### Warm-up activity

Write the two operation symbols (+ and -) on the board and a few 2-digit numbers. Ask two groups of learners to come to the front – a few learners in each group.

- Ask the class: **When we count altogether, then we add.** (Tell them to stand together and work out how many of them there are altogether.) **When we count altogether, then we add.**
- **So, adding means putting everything together to find the total.**
- **What is the symbol for addition? (+) Show me the symbol addition by writing it in the air.**
- **Let's add 49 and 34.** Ask one learner from the front to show the working on the board. The others in front can help. ( $49 + 34 = 83$ )
- Learners from the front go and sit at their desks.
- Ask: **What do we do when we subtract?** (We take away from a given number.)
- **What is the symbol for subtraction? (-) Show me the symbol subtraction by writing it in the air.**
- **Let's subtract 51 from 87.** Ask a learner to show the working on the board. ( $87 - 51 = 36$ )
- Talk about the way in which learners have shown their working and the way in which place value comes into play when you add and subtract. You have to start adding/subtracting from the units position in the number. The units work together and the tens work together, but sometimes we have to 'carry' or 'borrow' depending on the numbers in the question.

Learners work in pairs to solve the word sum from DBE worksheet 5, question 1 (p. 12). Remind learners how to behave when working in pairs. Discuss the ways in which learners will solve the word sum. You could use the following questions: **What is the question?** (How many packets does Lebo sell?). **What are the numbers?** (19 packets and 13 packets) **What is the key word?** (*left, how many*) **What operation must I use?** (*subtraction/minus*). After the discussion the learners should write a number sentence to express the solution of the problem:  $19 - 13 = \square$ . They should use the number sentence to find the solution to the problem.

### Activities

Activity	Can the learners	Observation
1. Do the number drill from DBE worksheet 5, question 2 (p. 12) orally with your learners, and then write the answers on the board. Ask learners: <b>How did you get the answer?</b> Encourage them to explain how they worked out the answer mentally.	<ul style="list-style-type: none"> <li>• Add and subtract numbers to <b>20</b> mentally?</li> </ul>	
2. Work through DBE worksheet 5, question 3 (p. 12) orally with your learners. Ask learners to give you other family facts (in pairs).	<ul style="list-style-type: none"> <li>• Add and subtract number to <b>20</b>?</li> <li>• Start to notice that subtraction is the inverse of addition?</li> </ul>	
3. Learners solve DBE worksheet 8, questions 1, 2 and 4 (pp. 18 and 19) in pairs. Allow a few pairs to explain how they got their answers.	<ul style="list-style-type: none"> <li>• Solve addition and subtraction problems in context (money) up to <b>99</b>?</li> </ul>	

## Topic 4: Repeated addition leading to multiplication

### Concepts and skills for today

- Estimate and count out **200** objects reliably in groups.
- Count in **1s, 2s, 5s and 10s**.
- Complete number sequences of counting in **1s, 2s, 5s and 10s** up to **200**.
- Solve word problems in context involving repeated addition.
- Write repeated addition number sentences using +, = and  $\square$
- Write multiplication number sentences using  $\times$ , = and  $\square$ .

### Warm-up activity

Write the two operation symbols (+ and  $\times$ ) on the board.

- Ask the class: **What do these symbols mean?** (+ means add and  $\times$  means multiply.)
- **What is the difference between + and  $\times$ ?** (Discuss the meaning of the signs and what we do when we do each of the operations. Use examples to demonstrate what you are saying.)
- For example: + means add. When we add we combine two numbers at a time and we find the sum of those two numbers. We find how much we have altogether. We can also add more than 2 numbers together, but to do this we add them in pairs.
- If we just had a few items, this would mean we count how many we have altogether. But if we are working with bigger numbers, we work with the numbers and place value to find out how much we have altogether.  $4 + 5 = 9$ ;  $34 + 61 = 95$ ;  $17 + 27 = 44$ ; etc.
- $\times$  means multiply. When we multiply we also find out how much we have altogether. But this involves multiplication of two numbers which can also be written as repeated addition.  $4 \times 5 = 5 + 5 + 5 + 5 = 20$ . We don't have to write the repeated addition – it's better and quicker, once we know it, just to be able to say  $4 \times 5 = 20$ .
- Motivate your learners. Explain to them: **In Grade 3 you are going to learn how to add 3-digit numbers and multiply 2-digit numbers. You need to know your basic bonds and multiples really well to do this – start learning them now!**

Learners work in groups of **4**. Learners write their names in the table from DBE worksheet 1, question 2 (p. 2). They then estimate and count the stars shown in DBE worksheet 1, question 1 (p. 2). Learners should complete the table. Have a class discussion in which learners share their estimations, counts and the differences between these numbers. In the same groups of four, learners choose a character from question 3 on p. 2. They should discuss the different ways the stars have been counted.

### Activities

Activity	Can the learners	Observation
1. Learners answer the questions in DBE worksheet 2, questions 1 and 2 (p. 4). Ask the learners: <b>What is an easy way to count the pumpkins? Did you all count it in this way? How many bags could you fill with pumpkins? How did you work this out?</b>	<ul style="list-style-type: none"> <li>• Count in groups of <b>10</b> up to <b>100</b>?</li> </ul>	
2. Ask the learners to go to DBE worksheet 2, question 3. Ask: <b>How many bags with pumpkins do you see in question 3?</b> There are <b>3</b> bags with <b>10</b> pumpkins in each bag. We can also say there are <b>3</b> groups of <b>10</b> pumpkins. We can write it as an addition number sentence: $10 + 10 + 10 = \square$ . Explain that since we also say that this is 3 groups of 10, we can write it in a number sentence as: $3 \times 10 = \square$ .	<ul style="list-style-type: none"> <li>• Read the number symbols <b>1-100</b>?</li> </ul>	

## Topic 5: Shapes and fractions

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### Concepts and skills for today

- Name 2-D shapes (triangle, circle, square and rectangle).
- Describe 2 shapes using size and sides.
- Recognise and use fractions as part of a whole.
- Recognise and use fractions a part of a set.
- Recognise fractions in diagrammatic form.
- Name fractions as one half and one quarter (unitary fractions).

### Warm-up activity

Draw a triangle, circle, square and rectangle on the board, and ask learners to name each shape.

- Call on several individual learners to name the shape. While you do this, try to see if all of the learners are able to identify the shapes.
- Rub off the shapes that you have drawn and call up several learners to come and draw shapes – there can be more than one of each shape drawn. Each learner must be able to name the shape they have drawn.
- Ask some of the other learners to tell you what they notice about the different shapes that have been drawn: **How are they the same and how are they different?** (The triangle, square and rectangle all have straight sides. The circle has a curved side. The triangle, square and rectangle have different numbers of sides – count them. Etc.)
- Give the learners some time to do the activity on 2-D shapes in DBE worksheet 11, Question 2 (p. 24). Make this a fun activity where groups compete against each other counting the shapes. Learners then go to Question 4 (p. 25) and describe each shape in terms of straight or curved sides.

### Activities

Activity	Can the learners	Observation
1. Ask learners to identify the shapes that are divided into halves in DBE worksheet 7, question 1 (p. 16). Ask: <b>What does it mean to divide a shape into halves?</b> Look at question 2. Ask: <b>What does it mean to divide a shape into quarters?</b>	<ul style="list-style-type: none"><li>• Recognise halves and quarters?</li></ul>	
2. Ask learners to identify the shapes in DBE worksheet 7, questions 3 and 4. Ask: <b>How many squares are there?</b> What is a half of 6 squares? Do the same with the circles and rectangles.	<ul style="list-style-type: none"><li>• Read the number symbols 1-100?</li></ul>	

## Topic 6: 3-D objects

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### Concepts and skills for today

- Recognise 3-D objects: balls (spheres), boxes (prisms) and cylinders.
- Describe 3-D objects.
- Describe the position of the 3-D object.

### Warm-up activity

Collect as many different 3-D objects as you can to use in this lesson. You will be able to use them many times in your lessons so it is worth the effort taken in collecting the shapes. Learners will understand and remember the names and properties of the shapes much better if they have seen real examples of these shapes.

- Give each group of learners at least one ball shape (sphere), one cylinder and one box (prism) shape.
- Ask the learners in their groups to hold and feel the edges and vertices of the shapes so that they can tell you about the properties of the shapes. Practice the vocabulary with the learners and try to see who already knows it and who is struggling.
- **Which shapes have straight edges?** (prisms)
- **Which shapes have round edges?** (sphere and cylinder)
- **Which shapes have pointed corners (vertices)?** (prism) **How many?** (Depends on the prism you gave them.)
- **What is the name of each of your shapes?** (Name them one by one.)
- Etc.

Ask the learners to go to DBE worksheet 10 (p. 22), and ask them to describe the pictures. As the learner says the words **ball** and **box** write them on the board. Ask the learners to look at question 1 and identify all the balls and boxes. Ask: Do you see any other objects? (cylinders) **Do you see any cylinders in the classroom?** (Identify other shapes in your classroom.)

### Activities

Activity	Can the learners:	Observation
1. For this activity you need a ball, a box and a cylinder (cool drink can). Revise characteristics of shapes with learners by showing them how a box can slide, a cylinder can roll and slide and a ball can roll.	<ul style="list-style-type: none"><li>• Say if a 3-D object can <i>roll</i> or <i>slide</i>?</li></ul>	
2. Hold up a box. Ask: <b>What is an edge of a shape?</b> Write <i>curved</i> and <i>straight edge</i> on the board. Ask: <b>Which words can be used to describe a ball/box/cylinder?</b> Discuss.	<ul style="list-style-type: none"><li>• Describe the <i>edges</i> of a 3-D object?</li></ul>	
3. Ask learners to describe the <i>position</i> of the balls in relation to the boxes in DBE worksheet 10, question 4 (p. 23). Discuss.	<ul style="list-style-type: none"><li>• Describe the <i>position</i> of a 3-D object?</li></ul>	

## Topic 7: Measurement

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### Concepts and skills for today

- Estimate, measure, compare, order and record length using non-standard measures.
- Estimate, measure, compare, order and record mass using non-standard measures.
- Estimate, measure, compare, order and record capacity using non-standard measures.

### Warm-up activity

Prepare a collection of some objects for this lesson that you can use to talk about length, mass and capacity to revise the vocabulary. (For example, a large empty bottle; a large full bottle and cup; some books of different thickness and size; etc.) You will first do a quick revision of some of the vocabulary and then allow your learners to do the group work, using the objects that you have used while revising the vocabulary.

Place a few different objects on the tables of each group of learners. Ask the learners to show you some of the objects according to different criteria that you name. For example:

- **Show me a full bottle. Show me an empty bottle.** (This is the vocabulary of capacity.)
- **Show me two books – one should be heavier and one lighter than the other.** (This is the vocabulary of mass.)
- **Please can two learners in your group stand up – one shorter and one taller than the other.** (This is the vocabulary of length.)
- Etc.

Tell learners that for this lesson you are going to divide them into three groups. The groups will each work on a different measuring concept and then rotate. The topics are length, capacity and mass. While they are working in different groups, you need to move between the groups to support them.

### Activities

Tell the learners that they are going to do hands-on activities. You need to recap with learners what to do when they do hands-on activities: The table describes the three group stations. (Learners rotate in groups so that each group has a chance to do all of the activities.)

Activity	Can the learners	Observation
1. <b>Group 1:</b> Give the group an A4 page, and ask them to use a pencil to measure the lengths of the sides of the page. Learners first estimate and then measure. They should record their findings.	<ul style="list-style-type: none"><li>• Estimate and measure length using non-standard measures?</li></ul>	
2. <b>Group 2:</b> Give the group an empty 2-litre bottle of water and a cup (250 ml). Ask: <b>How many cups do you think will fill the bottle?</b> (Do not use words such as <i>litres</i> and <i>millilitres</i> .) Learners first estimate and then measure. They should record their findings.	<ul style="list-style-type: none"><li>• Estimate and measure capacity using non-standard measures?</li></ul>	
3. <b>Group 3:</b> Give the group a ruler and a book, and ask them to make a balance scale. (You might have to help.) Give them two objects with a similar mass. Ask them to estimate which object is heavier. Learners place the two objects on the balance scale to check their estimation. They record their findings.	<ul style="list-style-type: none"><li>• Estimate and measure mass using non-standard measures?</li></ul>	

## Topic 8: Data handling

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### Concepts and skills for today

- Collect and organise data.
- Complete a table.
- Draw a pictograph.
- **Answer** questions about data.

### Warm-up activities

Ask the learners to go to DBE worksheet 16, question 1 (p. 34). Ask them to read the story and then read it through together with the class.

- Ask the learners to call out their shoe sizes one by one, and write these on the board.
- Ask: **Now that we have collected the shoe sizes, how should we sort them?**
- Give learners enough time to think how they will organise the data, and then discuss their ideas.

### Activities

Activity	Can the learners	Observation
1. Following on from the warm-up activity, learners should now organise the data by filling in the table on DBE worksheet 16, question 1 (p. 34). After the learners have filled the table, ask them, <b>How did the table help you to organise the data?</b> Discuss their ideas as a class.	<ul style="list-style-type: none"><li>• Organise data using a table?</li></ul>	
2. Tell the learners that Mrs Khoza's class started the pictograph for them on DBE worksheet 16, question 2 (p. 35). Ask: <b>Do you know what a pictograph is?</b> Explain that a pictograph is a way of representing data (drawing a graph to show what data you have collected). Ask: <b>What does the picture of the shoe = to one learner mean?</b> It is the key of the pictograph. Explain the meaning and use of a key in a pictograph.	<ul style="list-style-type: none"><li>• Complete a pictograph?</li></ul>	

# WEEK 2

## LESSON 1: NUMBERS 0 TO 99

### Teacher's notes

**CAPS topics:** 1.2 Count forwards and backwards, 1.3 Number symbols and number names

**Lesson vocabulary:** Number symbols, number names, base ten, digit, units, tens

**Prior knowledge:**

In Grade 2 the learners should have learnt how to:

- Recognise, identify, read and write numbers symbols 0-200.
- Recognise, identify, read and write numbers names 0-100.

**Concepts:**

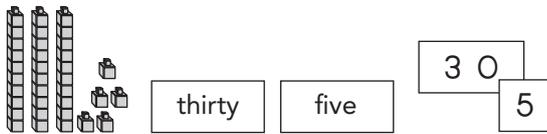
- Recognise, identify, read and write numbers symbols 0-99.
- Recognise, identify, read and write numbers names 0-99.

**Resources:** 100 square (see *Printable Resources*) flashcards with number names **zero** to **nineteen**, twenty to ninety flash cards, flard cards (see *Printable Resources*), base ten blocks (see *Printable Resources*)

**DBE workbook activities relevant to this lesson:** n/a

**Assessment:** Refer to the tracker for today's formal/informal oral, practical or written assessment activity

**Remediation:** For learners who confuse the *tens* and the *teens* begin by revising the teens thoroughly before proceeding with the tens. Use base ten blocks (see *Printable Resources*) and unit blocks, flash cards and flard cards (see *Printable Resources*) to make *teens* and *tens*, e.g.



**Enrichment:** See enrichment activity cards.

### 1. Mental mathematics 15 minutes

#### 1.1 Counting (5 minutes)

- Count forwards and backwards in 1s from any number between **0** and **100**.

#### 1.2 Recall and strategies (10 minutes)

Which is the bigger number?

		Answer			Answer
1.	34 or 43	43	6.	67 or 76	76
2.	27 or 72	72	7.	81 or 18	81
3.	44 or 55	55	8.	69 or 96	96
4.	53 or 35	53	9.	85 or 58	85
5.	24 or 42	42	10.	56 or 65	65

### 2. Homework/corrections (15 minutes)

Reflection/remediation based on previous day's work/homework.

### 3. Lesson content – concept development (30 minutes)

## Activity 1: Whole class activity

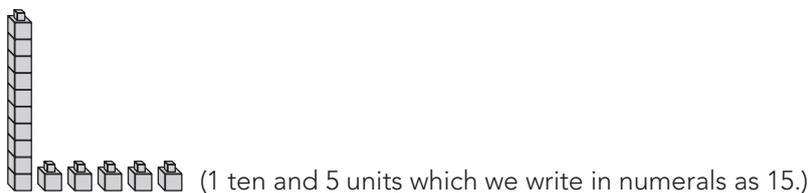
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- Learners use their 100 square (see *Printable Resources*).
- Call out number names randomly, and ask learners to point to the correct symbols. Include pairs of numbers where the digits have been reversed, e.g. 19 and 91, 57 and 75 and teen and ten numbers that sound similar, e.g. 19 and 90, 70 and 17.

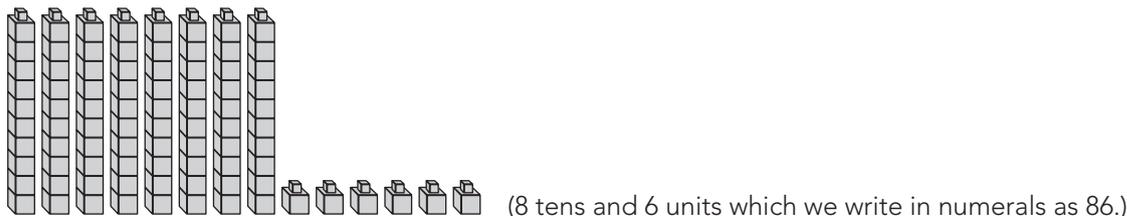
## Activity 2: Whole class activity

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- Use flash cards to revise the following number names – **show the cards and read the names together.**
  - **zero to nineteen**
  - **twenty to ninety**
- Demonstrate the break-down of 2-digit numbers into tens and units, using base ten blocks. Be sure to demonstrate a range of numbers, with different digits in the tens and units positions.
- For example: 15 represented (shown) using base ten blocks is:



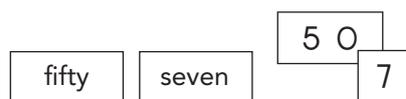
- 86 represented (shown) using base ten blocks is:



## Activity 3: Learners work in groups

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- Give each group a set of 0–99 flard cards and a set of cards with number names as follows: **zero to nine, ten to ninety** (multiples of **10**) and **eleven to nineteen**.
- Ask the groups to show the number **fifty-seven** using flard cards and number name cards, e.g.



- Show how the flard cards can be used to reveal the tens digit as a tens number. For example in the example above, 5 in the tens place is shown using a '50' card since 5 tens is 50.
- Do the same with the other numbers, e.g. **eighty-nine, twenty-six, seventy-seven, seventy, forty, fourteen, thirty-nine, ninety-three**, etc.
- Make sure that you use the *ten* numbers together with the *teen* numbers and look out for learners who confuse these. Discuss the differences and how to read the numbers correctly and interpret what their values are.

### 4. Classwork activity (25 minutes) (See next page)

### 5. Homework activity (5 minutes) (See next page)

### 6. Reflection on lesson

## Term 1 Lesson 1: Numbers 0 to 99

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### Classwork

- Write the following as number names.
  - 46 (forty-six)
  - 18 (eighteen)
  - 50 (fifty)
  - 37 (thirty-seven)
  - 73 (seventy-three)
- Write the following as number symbols.
  - fifteen (15)
  - ninety-one (91)
  - sixty-six (66)

### Homework

- Write the following as number names.
  - 39 (thirty-nine)
  - 11 (eleven)
- Write the following as number symbols.
  - sixty eight (68)
  - eighty (80)

## LESSON 2: PLACE VALUE UP TO 99

### Teacher's notes

**CAPS topics:** 1.2 Count forwards and backwards, 1.3 Number symbols and number names, 1.5 Place value

**Lesson vocabulary:** Place value, digit, number, tens, units, greatest

**Prior knowledge:**

In Grade 2 the learners should have learnt how to:

- Build up and break numbers up to 99.

**Concepts:**

- Recognise the place value of numbers to 99.

**Resources:** Flard cards (see *Printable Resources*), base ten blocks (see *Printable Resources*)

**DBE workbook activities relevant to this lesson:**

- DBE worksheet 18 (pp. 38 and 39)

**Assessment:** Refer to the tracker for today's formal/informal oral, practical or written assessment activity

**Remediation:** For learners who struggle with this area of work, do more revision with concrete apparatus. Ask learners to show the following numbers with their base ten blocks (see *Printable Resources*): 14, 26, 60, 7 and 99.

**Enrichment:** See enrichment activity cards.

### 1. Mental mathematics

#### 1.1 Counting (5 minutes)

- Count forwards in 1s from any number between **0** and **200**.
- Count backwards in 1s from any number between **200** and **0**.

#### 1.2 Recall and strategies (10 minutes)

Write down the numbers from the smallest to the greatest

		Answer			Answer
1.	8, 5, 9	5, 8, 9	6.	39, 9, 29	9, 29, 39
2.	14, 11, 15	11, 14, 15	7.	34, 43, 33	33, 34, 43
3.	21, 19, 23	19, 21, 23	8.	29, 11, 37	11, 29, 37
4.	40, 14, 41	14, 40, 41	9.	50, 38, 47	38, 47, 50
5.	24, 42, 41	24, 41, 42	10.	24, 31, 9	9, 24, 31

### 2. Correction/reflection on homework (15 minutes)

Reflection/remediation based on previous day's work/homework.

### 3. Lesson content – concept development (30 minutes)

## Activity 1: Whole class activity

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- Place flard cards up to **99** on the learners' desks.
- Ask the learners to show you **43**. Ask the learners to show you **53**.
- Ask the learners what they did to change the **43** into **53** and why. (Possible answer: **I swopped the 40 card for a 50 card because I wanted to change the tens digit from a 5 to a 4. I know that 40 is ten less than 50.**)
- Do the same with **75** and **55/63** and **66/40** and **30**.

## Activity 2: Whole class activity

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- Revise breaking down of numbers into tens and units – writing out the tens and units.
- **53 = 5 tens and 3 units.**
- **70 = 7 tens and 3 units.**
- Etc.

## Activity 3: Whole class activity

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- Write 72 on the board and ask:
  - **What is the value of the 7 in 70? (7 tens or 70)**
  - **What is the value of the 2? (2 units or 2)**
- Do the same with **60, 46, 78**.

## Activity 4: Learners work in groups

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- Ask the learners to show the following numbers using flard cards and to give you the total value of the number they have shown:
  - **8 tens and 3 units (83)**
  - **6 tens and 1 unit (61)**
  - **9 tens and 3 units (93)**
  - Etc.

**4. Classwork activity (25 minutes) (See next page)**

**5. Homework activity (5 minutes) (See next page)**

**6. Reflection on lesson**

## Term 1 Lesson 2: Place value up to 99

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### Classwork

- Copy and complete the following.
  - $45 = (40) + (5)$
  - $45 = (4) \text{ tens} + (5) \text{ units}$
  - $5 \text{ units} + 3 \text{ tens} = (35)$
  - $3 \text{ tens} + 0 \text{ units} = (30)$
  - $0 \text{ tens} + 8 \text{ units} = (8)$
  - $(2) \text{ tens} + (4) \text{ units} = 24$
  - $(7) \text{ tens} + (0) \text{ units} = 70$
  - $(0) \text{ tens} + (8) \text{ units} = 8$
- What is the value of the underlined digit?
  - $\underline{7}5$  (7) tens = (70)
  - $3\underline{4}$  (4) units = (4)
  - $9\underline{2}$  (9) units = (9)

### Homework

- Copy and complete the following.
  - $38 = (30) + (8)$
  - $64 = (6) \text{ tens} + (4) \text{ units}$
  - $3 \text{ units} + 9 \text{ tens} = (39)$
  - $4 \text{ tens} + 0 \text{ units} = (40)$
  - $(1) \text{ ten} + (7) \text{ units} = 17$
  - $(7) \text{ tens} + (0) \text{ units} = 70$
- What is the value of the underlined digit?
  - $\underline{6}4$  (6) tens = (60)
  - $\underline{5}$  (5) units = (5)

## LESSON 3: COMPARE AND ORDER NUMBERS UP TO 99

### Teacher's notes

**CAPS topics:** 1.1 Count objects 1.2 Count forwards and backwards 1.4 Describe, compare and order numbers

**Lesson vocabulary:** Smaller than, greater than, more than, less than, equal, comparing, ordering, biggest, largest, smallest, least, bigger, greatest, number line, forwards, backwards

**Prior knowledge:**

In Grade 2 the learners should have learnt how to:

- Compare whole numbers up to 99 using smaller than, greater than, more than, less than and is equal to.
- Order whole numbers from 0 to 99 from smallest to greatest, and greatest to smallest.

**Concepts:**

- Describe and compare whole numbers up to 99 using smaller than, greater than, more than, less than and is equal to.
- Describe and order whole numbers up to 99 from smallest to greatest, and greatest to smallest.

**Resources:** Base ten blocks (see *Printable Resources*) (remediation only), blank 100 square (see *Printable Resources*)

**DBE workbook activities relevant to this lesson:**

- DBE worksheet 17 (pp. 36 and 37).

**Assessment:** Refer to the tracker for today's formal/informal oral, practical or written assessment activity

**Remediation:** Give learners base ten blocks (see *Printable Resources*). Ask them to show you **39** and then **36**. Ask them which group is *smaller*. (Possible answer: **Thirty-six blocks, because this group has less ones/units than that group.**) Do the same with the numbers that follow by asking which numbers are *bigger* or which numbers are *smaller* (39 and 59, 34 and 43, 19 and 91).

**Enrichment:** See enrichment activity cards.

### 1. Mental mathematics

#### 1.1 Counting (5 minutes)

- Count forwards in 1s from any number between **110** and **300**.
- Count backwards in 1s from any number between **300** and **110**.

#### 1.2 Recall and strategies (10 minutes)

What is one more than...?

		Answer			Answer
1.	16	17	6.	33	34
2.	25	26	7.	78	79
3.	45	46	8.	91	92
4.	66	67	9.	89	90
5.	49	50	10.	100	101

### 2. Correction/reflection on homework (15 minutes)

Reflection/remediation based on previous day's work/homework.

### 3. Lesson content – concept development (30 minutes)

## Activity 1: Whole class activity

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Draw a number line from 30, 31, 32...40 on the board.



Circle number **34**. Ask the learners to read the number. Ask them to give you a number that is:

- Smaller than **34** (possible answer: **33**) and then a number that is bigger than **34** (possible answer: **35**).
- Ask: **Are those the only two answers?** (No, those are not the only two answers. Thirty, 31 and 32 are smaller than 34, and 36, 37, 38, 39 and 40 are *greater than* 34.)
- Cover the number line. Write **30** to **40** randomly on the board. Ask the learners to give you the numbers from the *smallest* to the *greatest*. (Uncover the number line for learners to check their answers.) Then do the same from the greatest to the smallest.

## Activity 2: Learners work in groups

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- Give each group of learners a blank 100 grid
- Write **42** and **24** on the board.
- Ask learners to place these numbers on a blank grid.

			24						
	42								

- Ask learners how they decided on where to put the numbers. (Their explanations must describe the values of the *tens* digits and the *units* digits and how this helped them find the position on the grid.)
- Do the same with **71** and **17**, **38** and **83**, **45** and **54**.
- Compare the numbers in terms of their make-up of tens and units.

### 4. Classwork activity (25 minutes) (See next page)

### 5. Homework activity (5 minutes) (See next page)

### 6. Reflection on lesson

## Term 1 Lesson 3: Compare and order numbers up to 99

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### Classwork

- Which number is smaller? 92 or 29? (29)  
Why do you say so? (92 has 9 tens, and 29 has 2 tens. 9 tens are more than 2 tens)
- Which number is greater? 28 or 82? (82)  
Why do you say so? (28 has 2 tens and 82 has 8 tens. 2 tens are less than 8 tens)
- Write these numbers from the smallest to the biggest: 34, 37, 35, 36, 33  
(33, 34, 35, 36, 37)
- Which answer is smaller?  $30 + 4 = (34)$  or  $4 + 30 = (34)$ ?  
What do you notice? (They are both the same.)
- Give two numbers that are more than 167 but less than 175. (various e.g. 169, 174)
- Copy this table into your Mathematics book and complete.

	one more	one less	ten more	ten less
53	(54)	(52)	(63)	(43)
67	(68)	(66)	(77)	(57)
89	(90)	(88)	(99)	(79)
30	(31)	(29)	(40)	(20)

### Homework

- Fill in  $>$ ,  $<$  or  $=$ 
  - $18 (<) 81$
  - $45 (=) 45$
  - $73 (>) 37$
- Write the numbers from the greatest to the smallest: 62, 26, 2, 20, (62, 26, 20, 2)
- Which number is smaller? 73 or 79? (73)
- Which number is greater? 59 or 50? (59)
- Which number is greater? 10 tens or 1 hundred? (1 hundred)

# LESSON 4: NUMBERS BETWEEN 100 AND 200

## Teacher's notes

**CAPS topics:** 1.2 Count forwards and backwards 1.3 Number symbols and number names

1.5 Place value

**Lesson vocabulary:** Number name, number word, number symbols, hundreds, tens, units, place value, build up, break down

**Prior knowledge:**

In Grade 2 the learners should have learnt how to:

- Identify, recognise, read and write number symbols 0 to 200.

**Concepts:**

- Recognise, identify, read and write number symbols from 100 to 200.

**Resources:** Number board (101–200), flard cards (see *Printable Resources*)

**DBE workbook activities relevant to this lesson:**

- DBE worksheet 33 (pp. 76 and 77).

**Assessment:** Refer to the tracker for today's formal/informal oral, practical or written assessment activity

**Remediation:**

- Prepare a hand-out for each learner with the numbers **113, 114, 115...119 and 130,140, 150...190** written randomly on the page. Call these numbers out in no particular order, and ask learners to point to the relevant number. Then point to the numbers on the board, and get learners to read the numbers. Ask them to write down what they have read.
- Learners who still need to use their flard cards (see *Printable Resources*) can do so.

**Enrichment:** See enrichment activity cards.

## 1. Mental mathematics

### 1.1 Counting (5 minutes)

- Count forwards in 1s from any number between **165** and **400**.
- Count backwards in 1s from any number between **400** and **165**.

### 1.2 Recall and strategies (10 minutes)

What is one less than...?

		Answer			Answer
1.	16	15	6.	33	32
2.	25	24	7.	78	77
3.	45	44	8.	91	90
4.	66	65	9.	89	88
5.	49	48	10.	69	68

## 2. Correction/reflection on homework (15 minutes)

Reflection/remediation based on previous day's work/homework.

## 3. Lesson content – concept development (30 minutes)

## Activity 1: Learners work in groups

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- Place a 101–200 number board and some counters on each group's table.
- Talk to the class about 3-digit numbers (hundreds). In this lesson you are formally introducing hundreds.
- Ask the learners to count from: **101 to 110, 116 to 124, 129 to 135, 146 to 156 and 189 to 199.**
- Ask learners to put a green counter on number **144**, then a blue counter on **104** and a red counter on **141**. (If you don't have coloured counters don't worry about the colours, just use the counters that you have.)
- Talk about the place values in the three different places – there are tens and units which they should be familiar with from Grade 2, but now there is a third place, the hundreds place. Numbers in that place are hundreds. All of the numbers that you are working with in this lesson have a 1 in the hundreds place and so the value of the digit in the hundreds place is 100.
- Take note if learners recognise the number symbols and their values according to their place.
- Do the same with **171, 117, 170, 107 and 177** using a different colour for each number. (If you have different coloured counters, use them as it helps with checking.)
- Ask learners to tell you the values of the digits in the different places each time.
- Take special care with the number 107. Allow learners the chance to say it out loud: **one hundred and seven** (not 'ten seven'). Make up other similar numbers to give learners more practice.

## Activity 2: Whole class activity

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- Write the following number symbols and names randomly on the board: **161, 114, 175, 137, 149, 109** and **190 one hundred and sixty-one, one hundred and fourteen, one hundred and seventy-five, one hundred and thirty-seven, one hundred and forty-nine, one hundred and nine and one hundred and ninety.** (Prepare flash cards with these numbers and use them in this activity if you are able to. This will save time in the lesson.)
- Ask the learners to match the number symbols with the number names. Make sure that learners read the numbers correctly – they should read the total values, not just the face values of the digits that they see.

## Activity 3: Whole class activity

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- Write the following on the board and ask the learners to build up or break down the numbers as required. Here learners are using expanded notation – writing out the number using a sum of hundreds, tens and units.
- Each time, ask the learners to show the numbers using their flash cards to help them to write the expanded notation.

$$\begin{array}{ll} 200 + 30 + 4 = \dots & (234) \\ 200 + 40 + 9 = \dots & (249) \\ \dots + \dots + \dots = 276 & (200 + 70 + 6) \\ 100 + \dots + 3 = 173 & (70) \\ 40 + 3 + 200 = \dots & (243) \end{array}$$

### 4. Classwork activity (25 minutes) (See next page)

### 5. Homework activity (5 minutes) (See next page)

### 6. Reflection on lesson

## Term 1 Lesson 4: Numbers between 100 and 200

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Note that number 3 in this activity goes beyond the number range – it anticipates the next lesson in which 200s are introduced. You might allow your learners to skip this question if you think it will confuse them.

### Classwork

- Write the following as number symbols:
  - one hundred and eight (108)
  - one hundred and eighteen (118)
  - one hundred and eleven (111)
- Write the following as number names:
  - 106 (one hundred and six)
  - the number between 178 and 180 (one hundred and seventy-nine)
  - the number that is one more than 199 (two hundred)
  - the number that is one less than 100 (ninety-nine)
- Complete:
  - $200 + 50 + 4 = (254)$
  - $200 + 60 + 5 = (265)$
  - $200 + 70 + 9 = (279)$
  - $(200) + (80) + (1) = 281$
  - $(200) + (0) + (2) = 202$

### Homework

- Write the following as number names:
  - 145 (one hundred and forty-five)
  - 106 (one hundred and six)
- Write the following as number symbols:
  - One hundred and fifty-four (154)
  - One hundred and twelve (112)
  - One hundred and one (101)

# WEEK 3

## LESSON 5: NUMBERS 200 TO 300

### Teacher's notes

**CAPS topics:** 1.2 Count forwards and backwards, 1.3 Number symbols and number names, 1.5 Place value

**Lesson vocabulary:** Number symbols, number names, tens, units, digit, backwards, forwards, match, more than, before, less than, even number, most, least

**Prior knowledge:**

In Grade 2 the learners should have learnt how to:

- Recognise, identify, read and write number symbols up to 300.

**Concepts:**

- Recognise, identify, read and write number symbols from **200** to **300**.
- Recognise, identify, read and write number names from **200** to **300**.

**Resources:** Number cards and number name cards 200–300, flard cards (see *Printable Resources*)

**DBE workbook activities relevant to this lesson:**

- DBE worksheet 23 (pp. 52 and 53).

**Assessment:** Refer to the tracker for today's formal/informal oral, practical or written assessment activity

**Remediation:** For learners who struggle to read three-digit numbers, use flard cards (see *Printable Resources*). Ask the learner to make a number, e.g. **two hundred and sixty-eight**. Expand the cards. Point to the hundreds, tens and units, asking each time what the learner sees. Ask the learner to write the number using symbols. The learner should write **268**. Point to each digit (in each place) asking for the total value of the numbers according to their place values (uncover the flard cards to show the total values if necessary). Ask the learner to read the number name.

**Enrichment:** See enrichment activity cards.

### 1. Mental mathematics

#### 1.1 Counting (5 minutes)

- Count forwards in 10s from any number between **100** and **200**, e.g. **120, 130, 140...** and **121, 131, 141...** etc.
- Count backwards in 10s from any number between **100** and **200**.

#### 1.2 Recall and strategies (10 minutes)

Write down the next numbers in order from the most to the least.

		Answer			Answer
1.	8, 5, 9	9, 8, 5	6.	134, 136, 135	136, 135, 134
2.	14, 11, 15	15, 14, 11	7.	156, 158, 157	158, 157, 156
3.	21, 19, 23	23, 21, 19	8.	134, 143, 123	143, 134, 123
4.	12, 14, 10	14, 12, 10	9.	179, 199, 189	199, 189, 179
5.	67, 50, 82	82, 67, 50	10.	129, 130, 131	131, 130, 129

### 2. Homework/corrections (15 minutes)

Reflection/remediation based on previous day's work/homework.

### 3. Lesson content – concept development (30 minutes)

## Activity 1: Learners work in groups

---

- Place a few different 3-digit numbers with values between 200 and 300 written on cards randomly on each group's table.
- Ask the learners questions about their cards, e.g. **Which group has number 245?** (Be careful to say the number correctly and do not say two forty-five or two four five.) Ask the group/learners to lift up the card to show the class. Ask the rest of the class if the card is correct. Ask: **How do you know? Can anybody write the number name on the board? Is this correct?**
- Ask questions until each group has had the chance to respond to a question relating to at least one card on their desks.

## Activity 2: Whole class activity

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- Ask learners to write the following numbers on their whiteboards/scrap paper.
- For each pair of numbers: Discuss the difference in the values of the two numbers using place value to speak about the difference between the digits in each of the three places and how the position of the digits affects the value of the number being shown.
  - **219** and **290**
  - 219 and 291, etc.
  - the number that is **five** more than **160** (165)
  - the number just before **300** (299)
  - **ten** less than **271** (261)

## Activity 3: Whole class activity

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- Ask learners to write down any numbers between 200 and 300, guided by the following prompts.
- Each time, discuss the answers as there are MANY different options. Learners can use place value to talk about their different choices of examples.
- The number should have:
  - **6** as the *units* digit (various options, e.g. 206, 266, 296)
  - no *tens* (various options, e.g. 200, 201, 202)
  - no *units* (various options, e.g. 200, 210, 220)
  - a *ten* that is an even number (various options, e.g. 220, 240)
  - etc.

### 4. Classwork activity (25 minutes) (See next page)

### 5. Homework activity (5 minutes) (See next page)

### 6. Reflection on lesson

## Term 1 Lesson 5: Numbers 200 to 300

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### Classwork

- Write the following as number names:
  - 274 (two hundred and seventy-four)
  - 290 (two hundred and ninety)
  - the number between 241 and 243 (two hundred and forty-two)
  - the number that is one more than 215 (two hundred and sixteen)
  - the number that is one less than 297 (two hundred and ninety-six)
- Write the following as number symbols:
  - two hundred and eighteen (218)
  - two hundred and eighty (280)
  - two hundred and eight (208)
- Complete the following
  - $200 + 30 + 6 =$  (236)
  - $200 + (70) + 4 =$  274
  - $(200) + (10) + (1) =$  211

### Homework

- Write the following as number names:
  - 208 (two hundred and eight)
  - 219 (two hundred and nineteen)
  - 288 (two hundred and eighty-eight)
- Write the following as number symbols:
  - the number one less than two hundred and forty (239)
  - the number ten less than two hundred and forty (230)
  - the number ten more than two hundred and forty (250)
  - the number twenty more than two hundred and forty (260)
  - the number thirty more than two hundred and forty (270)

## LESSON 6: NUMBERS 300 TO 400

### Teacher's notes

**CAPS topics:** 1.2 Count forwards and backwards, 1.3 Number symbols and number names, 1.5 Place value

**Lesson vocabulary:** Number symbol, number name, digits, odd, even, match, between, tens, units, less than

**Prior knowledge:**

In Grade 2 the learners should have learnt how to:

- Recognise, identify, read and write number symbols up to 300.

**Concepts:**

- Recognise, identify, read and write number symbols from **300** to **400**.
- Recognise, identify, read and write number names from **300** to **400**.

**Resources:** Number cards and number name cards 200–300, flard cards (see Printable Resources)

**DBE workbook activities relevant to this lesson:** n/a

**Assessment:** Refer to the tracker for today's formal/informal oral, practical or written assessment activity

**Remediation:** For learners who struggle to read three-digit numbers, use base ten blocks (see *Printable Resources*). Ask the learner to make a number, e.g. **three hundred and seventy-six**. Show the number using the blocks. Point to the hundreds, tens and units, asking each time what the learner sees. Ask the learner to write the number using symbols. The learner should write **376**. Point to each digit (in each place) asking for the total value of the numbers according to their place values. Ask the learner to read the number name (three hundred and seventy-six).

**Enrichment:** See enrichment activity cards.

### 1. Mental mathematics

#### 1.1 Counting (5 minutes)

- Count forwards in 10s from any number between **100** and **300**, e.g. **120, 130, 140...** and **121, 131, 141**.
- Count backwards in 10s from any number between **100** and **300**.

#### 1.2 Recall and strategies (10 minutes)

Which number is bigger?

		Answer			Answer
1.	244 or 188	244	6.	278 or 287	287
2.	128 or 282	282	7.	398 or 389	398
3.	213 or 243	243	8.	337 or 373	373
4.	363 or 336	363	9.	230 or 233	233
5.	320 or 230	320	10.	307, 377 or 337	377

### 2. Correction/reflection on homework (15 minutes)

Reflection/remediation based on previous day's work/homework.

### 3. Lesson content – concept development (30 minutes)

## Activity 1: Learners work in groups

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- Place a few different 3-digit numbers with values between 300 and 400 written on cards randomly on each group's table.
- Ask the learners: **Which group has number 367?** (Remember to say the number correctly: three hundred and sixty-seven.)
- Ask the learner to lift up the card. Ask the rest of the class if the card is correct. How do they know? Ask: **Can anybody write the number name on the board? Is this correct?**

## Activity 2: Whole class activity

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- Write the following number symbols and names randomly on the board.
- **309, 311, 319, 343, 367: three hundred and nine, three hundred and eleven, three hundred and nineteen, three hundred and forty-three and three hundred and sixty-seven.**
- Ask the learners to match the number symbols with the number names.
- Then ask the learners to show the number using their flard cards.
- Ask the learners to read the number, and as they read the number point to the number name on the board. Make sure that learners read the numbers correctly – they should read the total values (for example, three hundred and nine), **not** just the face values of the digits that they see (for example, three zero nine).

## Activity 3: Whole class activity

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- When you do this activity you should discuss the answers as you did before since there are MANY different options. Learners can use place value to talk about their different choices of examples.
- Ask learners to write down a number between **300** and **400** that has:
  - **6** as the units digit (various options, e.g. **306, 366, 396**)
  - no *tens* (various options, e.g. **300, 301, 303**)
  - no *units* (various options, e.g. **300, 310, 330**)
  - a *unit* that is an *odd number* (various options, e.g. **331, 345, 377**) etc.

### 4. Classwork activity (25 minutes) (See next page)

### 5. Homework activity (5 minutes) (See next page)

### 6. Reflection on lesson

## Term 1 Lesson 6: Numbers 300 to 400

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### Classwork

- Write the following as number names:
  - 395 (three hundred and ninety-five)
  - the number between 387 and 389 (three hundred and eighty-eight)
  - the number that is one more than 399 (four hundred)
  - the number that is ten less than 399 (three hundred and eighty-nine)
  - the number that is twenty less than 310 (two hundred and ninety)
  - the number that is four tens + 3 hundreds (three hundred and forty)
- Write down a number between 300 and 400 that has:
  - 8 as the units digit (various e.g. 398)
  - no tens (various e.g. 306)
  - units that end with an even number (various e.g. 368)
- Fill in the blanks:
  - $300 + 50 + 3 =$  (353)
  - $300 + (70) + (8) =$  378
  - $(300) + (0) + (9) =$  309

### Homework

- Write the following as number names:
  - 308 (three hundred and eight)
  - the number that has 6 tens and 3 hundreds (three hundred and sixty)
- Write the following as number symbols:
  - three hundred and twelve (312)
  - the number between 369 and 371 (370)
  - the number that is one less than 400 (399)
  - the number that is ten less than 319 (309)
  - the number that is twenty less than 319 (299)

# LESSON 7: NUMBERS 400 TO 500

## Teacher's notes

**CAPS topics:** 1.2 Count forwards and backwards, 1.3 Number symbols and number names, 1.5 Place value

**Lesson vocabulary:** Number symbols, number name, digit, smallest, biggest, match, greatest, hundreds, tens, units, order, sequence, odd, even

**Prior knowledge:**

In Grade 2 the learners should have learnt how to:

- Recognise, identify, read and write number symbols up to 400.

**Concepts:**

- Recognise, identify, read and write number symbols from **400** to **500**.
- Recognise, identify, read and write number names from **400** to **500**.

**Resources:** Number cards and number name cards 400–500, flard cards (see *Printable Resources*)

**DBE workbook activities relevant to this lesson:** n/a

**Assessment:** Refer to the tracker for today's formal/informal oral, practical or written assessment activity

**Remediation:** Allow learners who struggle with this concept to use their base ten blocks; a comparison with concrete apparatus will clearly show the differences in quantities for each digit.

**Enrichment:** See enrichment activity cards.

## 1. Mental mathematics

### 1.1 Counting (5 minutes)

- Count forwards in 10s from any number between **100** and **300**, e.g. **183, 193, 203...** etc.
- Count backwards in 10s from any number between **300** and **100**.

### 1.2 Recall and strategies (10 minutes)

What is ten more than...?

		Answer			Answer
1.	51	61	6.	37	47
2.	43	53	7.	71	81
3.	77	87	8.	40	50
4.	63	73	9.	23	33
5.	48	58	10.	54	64

## 2. Correction/reflection on homework (15 minutes)

Reflection/remediation based on previous day's work/homework.

## 3. Lesson content – concept development (30 minutes)

## Activity 1: Learners work in groups

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- Place a few different 3-digit numbers with values between 400 and 500 written on cards randomly on each group's table.
- Ask the learners: **Which group has number 450?** (Remember to say the number correctly and in full.)
- Ask one learner from the group to lift up the card. Ask the rest of the class to say the number.
- Write the number in words on the board: **four hundred and fifty** and say the words as you write.

## Activity 2: Whole class activity

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- Write the following number symbols and names randomly on the board:  
**495, 415, 405, 425, 435, four hundred and ninety-five, four hundred and fifteen, four hundred and five, four hundred and twenty-five** and **four hundred and thirty-five**.
- Ask the learners to match the number symbols with the number names. Ask learners to show the number using their flard cards.
- Ask the learners to read the number, and as they read the number point to the number name on the board. Make sure that learners read the numbers correctly – they should read the total values, **not** just the face values of the digits that they see.

## Activity 3: Whole class activity

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- Ask: **Is there a way to work out how we write 3-digit numbers from the smallest to the greatest?** (We look at the three digits in the two numbers, and compare them one at a time. First we look at the hundreds digits and compare them, then we look at the tens digits and compare them and then we look at the units digits and compare them. As soon as we find one which is greater, we know which number is the greater one.)
- For the first example, compare two numbers – such as 458 and 429.
- Look at the hundreds digits – they are the same – both numbers have 4 hundreds. So now we look at the tens digits. One is 5 and one is 2. The number with 5 in the tens place is bigger than the number with 2 in the tens place because 50 is bigger than 20.
- So we can put the numbers in order – 429 is smaller than 458. (The units do not influence the comparison because tens are bigger than units – or you could say that 29 is smaller than 58.)
- Compare some more pairs of 3-digit numbers to practice the comparison activity. E.g. 399 and 401, 357 and 289, 437 and 435.
- Write **495, 415, 425, 435** and **416** on the board.
- Say: **We are now going to write the numbers from the smallest to the greatest. First we look at the hundreds digits– they are all the same, so we next look at the tens. These are all different except for 415 and 416, which both have the same number of tens. So we can use the tens digits to decide on the order for 495, 425 and 435. The order is 425, 435, 495 from smallest to biggest.**
- Now ask: **How will we know which number is bigger – between 415 and 416? We have to look at the units. Four hundred and sixteen has 6 units, which is more units than 415 which only has 5 units. This means that 416 is more than 415.**
- Now we can sequence all of the numbers from smallest to biggest. (415, 416, 425, 435, 495)
- Compare some other lists of numbers. For example, write from biggest to smallest: 409, 39, 399, 490.

### 4. Classwork activity (25 minutes) (See next page)

### 5. Homework activity (5 minutes) (See next page)

### 6. Reflection on lesson

## Term 1 Lesson 7: Numbers 400 to 500

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### Classwork

- Write the following as number names:
  - 413 (four hundred and thirteen)
  - the even numbers between 440 and 450 (four hundred and forty-two, hundred and forty-four, four hundred and forty-six, four hundred and forty-eight)
  - the number that is one hundred more than 400 (five hundred)
  - the number that is one less than 500 (four hundred and ninety-nine)
  - the number that is ten less than 500 (four hundred and ninety)
  - the number that is eleven less than 500 (four hundred and eighty-nine)
- Write the following as number symbols:
  - four hundred and fifty (450)
  - four hundred and nineteen (419)
  - 4 hundreds, 5 tens and 6 units (456)
  - four units, 6 tens and 4 hundreds = (464)
- Complete the following:  
 $95 = (0)$  hundreds +  $(9)$  tens +  $(5)$  units

### Homework

Complete the following:

- Write 498 as a number name. (four hundred and ninety-eight)
- Write four hundred and sixty-one as a number symbol. (461)
- 5 units, 0 tens and 3 hundreds = (305)
- $35 = (0)$  hundreds +  $(3)$  tens +  $(5)$  units

## LESSON 8: ADDITION ON A NUMBER LINE

### Teacher's notes

**CAPS topics:** 1.1 Count objects ,1.2 Count forwards and backwards, 1.6 Problem-solving techniques

**Lesson vocabulary:** Number line, add, jumps, next to, middle, left, right, tens (10s), ones (1s), number sentence, multiple, bigger, first, equidistant, between, calculate, forwards

**Prior knowledge:**

In Grade 2 the learners should have learnt how to use the following techniques when performing calculations:

- Building up and breaking down numbers.
- Number lines.

**Concepts:**

- Use a number line to add on in 10s and 1s.

**Resources:** Number lines (see *Printable Resources*)

**DBE workbook activities relevant to this lesson:**

- DBE worksheet 19 (pp. 40 and 41).

**Assessment:** Refer to the tracker for today's formal/informal oral, practical or written assessment activity

**Remediation:** For learners who struggle with this concept, work with simpler numbers, e.g.  $21 + 10 = \dots$ ,  $21 + 30 = \dots$ ,  $21 + 50 = \dots$ , etc. Only after addition with multiples of 10 has been established, introduce addition of numbers with 10s and 1s.

**Enrichment:** See enrichment activity cards.

### 1. Mental mathematics

#### 1.1 Counting (5 minutes)

- Count forwards in 10s from any number between **100** and **400**, e.g. **187, 197, 207**.
- Count backwards in 10s from any number between **400** and **100** e.g. **285, 275, 265...**

#### 1.2 Recall and strategies (10 minutes)

Calculate

		Answer			Answer
1.	$51 + 10 =$	61	6.	$77 + 10 + 1 =$	88
2.	$51 + 10 + 1 =$	62	7.	$63 + 10 =$	73
3.	$43 + 10 =$	53	8.	$63 + 10 + 1 =$	74
4.	$43 + 10 + 1 =$	54	9.	$48 + 10 =$	58
5.	$77 + 10 =$	87	10.	$48 + 10 + 1 =$	59

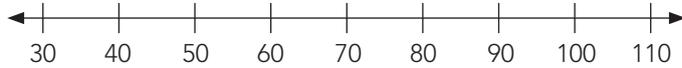
### 2. Correction/reflection on homework (15 minutes)

Reflection/remediation based on previous day's work/homework.

### 3. Lesson content – concept development (30 minutes)

## Activity 1: Whole class activity

- Draw a number line on the board. Point out the two arrowheads as you draw the number line.
- Mark the number line in equidistant markings, and write the numbers in multiples of ten from **30** to **110**.



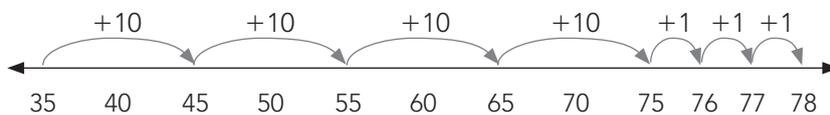
- Ask learners to tell you where you should write the following numbers:
  - **45** (exactly between the **40** and the **50**)
  - **59** (on the left of **60**, right next to it)
  - **67** (between **60** and **70** but more towards the right of where the **65** would go)
  - **32, 86, 101, 105**, etc.

## Activity 2: Whole class activity

- **This activity consolidates learners' skills of adding multiples of ten and ones on a number line.**
- Write the following number sentence on the board:  $35 + 43 = \dots$  Draw an open number line on the board.
- Ask: **What is the first number in the number sentence?** (35)
- Ask: **Where should we write 35 on the number line?** (Since the number sentence is addition, and the numbers will get bigger when we add, it should be somewhere on the left hand side.) Find a place for **35**, mark the place and write **35**.



- Say: **So we need to add. How many jumps of 10s and 1s will we take from 35? (4 tens and 3 ones)**
- As you take the jump, say aloud the numbers aloud and point to them.
- Say: **We needed to add 43. First we added 4 tens. We jumped from 35, to 45, to 55, to 65 and then to 75. We still need to add the 3 ones. We take one jump at a time. The first jump gets us to 76, the second jump gets us to 77 and the third jump gets us to 78.**



- Say: **Let's complete the number sentence:  $35 + 43 = 78$**  (Write the number sentence on the board.)
- Do the same with:  $27 + 42 = (69)$ ,  $56 + 24 = (80)$ ,  $27 + 47 = (74)$ ,  $56 + 25 = (81)$

## 4. Classwork activity (25 minutes) (See next page)

## 5. Homework activity (5 minutes) (See next page)

## 6. Reflection on lesson

## Term 1 Lesson 8: Addition on a number line

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### Classwork

1. Draw a 10s number line from 50 to 100 in your Mathematics books.  
(Learners draw the number line with equal spaces between the numbers marked. The number line is shown below, with the other numbers labelled in their correct places between the tens.)

2. Write the following numbers in their correct places on the number line:

- a) 55
- b) 78
- c) 81
- d) 93
- e) 97
- f) 64



3. Draw and use number lines to calculate.

(Number line solutions are not drawn here – check that learners position the numbers correctly on the number lines and show the jumps on the number line to indicate the addition. Learners must write a correct number sentence to give the solution.)

- a)  $56 + 10 = (66)$
- b)  $56 + 30 = (86)$
- c)  $56 + 35 = (91)$
- d)  $47 + 24 = (71)$
- e)  $37 + 42 = (79)$

### Homework

Solutions not drawn here – as above.

Draw and use number lines to calculate:

- 1.  $78 + 10 = (88)$
- 2.  $78 + 20 = (98)$
- 3.  $78 + 22 = (100)$
- 4.  $36 + 12 = (48)$
- 5.  $49 + 36 = (85)$

# WEEK 4

## LESSON 9: SUBTRACTION ON A NUMBER LINE

### Teacher's notes

**CAPS topics:** 1.1 Count objects, 1.2 Count forwards and backwards, 1.6 Problem-solving techniques

**Lesson vocabulary:** Number line, subtract, jumps, tens, ones, number sentence, multiple, smaller, first, equidistant, between, calculate, backwards

**Prior knowledge:**

In Grade 2 the learners should have learnt how to use the following techniques when performing calculations:

- Building up and breaking down numbers.
- Number lines.

**Concepts:**

- Use a number line to subtract numbers.

**Resources:** Number lines (see *Printable Resources*)

**DBE workbook activities relevant to this lesson:**

- DBE worksheet 20a & 20b (pp. 42 and 45).

**Assessment:** Refer to the tracker for today's formal/informal oral, practical or written assessment activity

**Remediation:** For learners who struggle with this concept, work with simpler numbers, e.g.  $24 - 10 = \dots$ ,  $54 + 30 = \dots$ ,  $84 + 50 = \dots$ . Only after subtraction with multiples of 10 has been established, introduce subtraction of numbers with tens and ones.

**Enrichment:** See enrichment activity cards.

### 1. Mental mathematics

#### 1.1 Counting (5 minutes)

- Count forwards in 2s from any number between **100** and **400**, e.g. **230, 232, 234...** etc.
- Count backwards in 2s from any number between **100** and **400**, e.g. **184, 182, 180...** and **389, 387, 385...** etc.

#### 1.2 Recall and strategies (10 minutes)

What is eleven more than...?

		Answer			Answer
1.	51	62	6.	37	48
2.	43	54	7.	71	82
3.	77	88	8.	40	51
4.	63	74	9.	23	34
5.	48	59	10.	54	65

### 2. Correction/reflection on homework (15 minutes)

Reflection/remediation based on previous day's work/homework.

### 3. Lesson content – concept development (30 minutes)

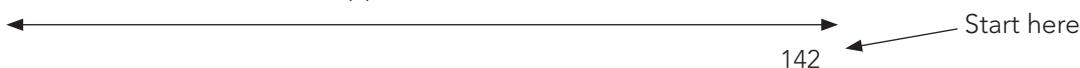
## Activity 1: Whole class activity

- **Subtraction with multiples of ten on a number line:**

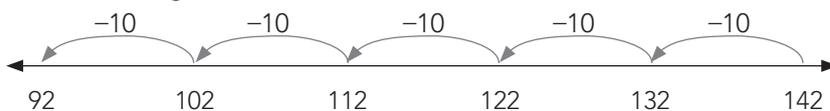
- Write the following number sentence on the board:  $142 - 50 = \dots$
- Tell learners that they are going to use a number line to solve this problem. Draw an open number line (a number line with no numbers).



- Ask: **What is the first number in the number sentence?** (142)
- Ask: **Where should we write 142 on the number line?** (Since the number sentence is subtraction, and the numbers will get smaller when we subtract, the number **142** should be somewhere on the right hand side.) Find a place for **142**, mark the place, and write **142**.
- Ask learners to read the rest of the number sentence. ( $- 50 = \dots$ )
- Say: **We need to subtract. This means that we are jumping backwards. How many jumps of 10 will we take backwards from 142?** (5)



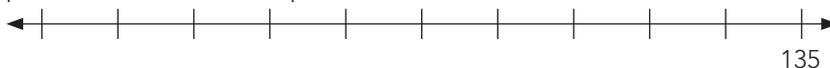
- As you take the jump, say the numbers aloud and point to them, e.g. **That's one jump of 10 backwards from 142. It gets us to... (132), then another jump of ten, and we landed on... (122)** (Write down the next number in the appropriate spaces below the number line as you jump.) **Another jump takes us to... (112).** Continue until you have taken **5** jumps of **ten**. Also write the **-10** above the jumps to show that you are subtracting.



- Write down the answer to  $142 - 50$ . (92)
- Do the same with  $135 - 40$  (95) and  $165 - 60$ . (105)

## Activity 2: Whole class activity

- Write the following number sentence on the board:  $135 - 46 = \dots$  Draw an open number line on the board.
- Ask: **What is the first number in the number sentence?** (135)
- Ask: **Where should we write 135 on the number line?** (It should be somewhere on the right hand side since the number sentence is a subtraction one, and the numbers will get smaller when we subtract.) Find a place for **135**, mark the place, and write **35**.



- Ask learners to read the rest of the number sentence. ( $- 46 = \dots$ )
- Say: **We need to subtract. How many jumps of 10s and 1s will we take from 135?** (4 tens and 6 ones)



- Say: **Let's complete the number sentence  $135 - 46$ .** (89)
- Do the same with  $156 - 24$  (70),  $127 - 42$  (69) and  $127 - 49$  (74).

### 4. Classwork activity (25 minutes)

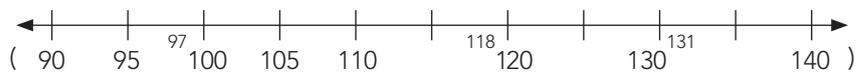
### 5. Homework activity (5 minutes)

### 6. Reflection on lesson

## Term 1 Lesson 9: Subtraction on a number line

### Classwork

1. Draw a 10s number line from 90 to 130 in your Mathematics books.  
(Learners draw the number line with equal spaces between the numbers marked. The number line is shown below, with the other numbers labelled in their correct places between the tens.)
2. Write the following numbers in their correct places on the number line:
  - a) 105
  - b) 95
  - c) 97
  - d) 131
  - e) 118



3. Draw and use number lines to calculate:  
(Number line solutions are not drawn here – check that learners position the numbers correctly on the number lines and show the jumps on the number line to indicate the addition. Learners must write a correct number sentence to give the solution.)
  - a)  $56 - 10 = (46)$
  - b)  $56 - 30 = (26)$
  - c)  $56 - 35 = (21)$
  - d)  $147 - 30 = (117)$
  - e)  $147 - 38 = (109)$

### Homework

Solutions not drawn here – as above.

Draw and use number lines to calculate:

1.  $78 - 10 = (68)$
2.  $78 - 20 = (58)$
3.  $78 - 22 = (56)$
4.  $149 - 30 = (119)$
5.  $149 - 36 = (113)$

# LESSON 10: ADDITION AND SUBTRACTION

## Teacher's notes

**CAPS topics:** 1.2 Count forwards and backwards, 1.16 Mental mathematics, 1.6 Problem-solving techniques, 1.12 Techniques (methods or strategies), 1.13 Addition and subtraction

**Lesson vocabulary:** Add, subtract, break down, build up, breaking down, building up, smallest, greatest, hundreds, tens, units, number sentence, minus

**Prior knowledge:**

In Grade 2 the learners should have learnt how to:

- Use appropriate symbols (+, −, =, □).
- Use the following techniques when performing calculations: building up and breaking down numbers, number lines and drawings or concrete apparatus.

**Concepts:**

- Add and subtract from 99, and use appropriate symbols (+, −, =, □).
- Building up and breaking down numbers.

**Resources:** n/a

**DBE workbook activities relevant to this lesson:**

- DBE worksheet 21a and 21b (pp. 46–49).

**Assessment:** Refer to the tracker for today's formal/informal oral, practical or written assessment activity

**Remediation:**

- Give the learners base ten blocks (see Printable Resources) – tens and units.
- Tell them that they are going to add 63 and 19. Ask: **Is it easier to add 19 or 20?**

**Enrichment:** See enrichment activity cards.

## 1. Mental mathematics

### 1.1 Counting (5 minutes)

- Count forwards in 2s from any number between **100** and **400**, e.g. **230, 232, 234...** and **231, 233, 235...** etc.
- Count backwards in 2s from any number between **100** and **400**, e.g. **184, 182, 180...** and **389, 387, 385** etc.

### 1.2 Recall and strategies (10 minutes)

Write down the numbers in order from the smallest to the greatest.

		Answer			Answer
1.	103, 105, 104	103, 104, 105	6.	167, 165, 166	165, 166, 167
2.	113, 112, 114	112, 113, 114	7.	176, 178, 177	176, 177, 178
3.	131, 133, 132	131, 132, 133	8.	182, 181, 183	181, 182, 183
4.	145, 147, 146	145, 146, 147	9.	199, 197, 198	197, 198, 199
5.	155, 157, 156	155, 156, 157	10.	139, 138, 140	138, 139, 140

## 2. Correction/reflection on homework (15 minutes)

Reflection/remediation based on previous day's work/homework.

## 3. Lesson content – concept development (30 minutes)

## Activity 1: Whole class activity

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- This activity is about addition using breaking down of numbers. It builds on learners' knowledge of place value when adding numbers.
- Write the following on the board, and do it step by step with your learners:  $136 + 23 = \dots$
- Ask: **How can we break these numbers into tens and units?**  $(100 + 30 + 6) + (20 + 3)$
- Then write  $= (100) + (30 + 20) + (6 + 3)$  and say: **First, let's add the tens and then add the units.**  
 $= (100) + 50 + 9 = 159.$
- Do some more practice examples on the board, e.g.  $123 + 10 = \dots$ ,  $40 + 42 = \dots$  etc.

## Activity 2: Whole class activity

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- **This activity is about subtraction using breaking down of numbers.** (Once learners understand the addition strategy, you can do the same with subtraction.)
- Write  $168 - 20 = \dots$  on the board.
- Then say: **Break up each number into tens and units.**  $= (100 + 60 + 8) - (20 + 0)$ . Group the tens and the units for subtraction (there is only one hundred, it remains unchanged).
- Write  $= (100) + (60 - 20) + (8 - 0)$  on the board. Say: **Now first let's subtract the tens and then subtract the units.** This gives us  $100 + 40 + 8 = 148.$
- Do some more practice examples on the board, e.g.  $78 - 10 = \dots$ ,  $155 - 140 = \dots$ , etc.

## Activity 3: Whole class activity

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- In this activity you spend time working on addition using the technique of rounding off.
- Say: **Now let's look at another way of breaking down the numbers. WE do this by looking at the numbers and changing them (or one of them) in a way that makes the operation easier.**
- Write the following number sentence on the board:  $58 + 19 = \square$ .
- Ask: **Is it easier to say  $58 + 19$  or  $58 + 20$ ?** (Learners should say  $58 + 20$  – why? Because 20 is a round number.)
- Then say: **But the number sentence on the board says  $58 + 19$ . I have added too much. What should I do? We know that 19 less one is 20, so can I say 78 minus 1 is 77? So my answer is 77.** Write on the board  $58 + 19 = 77.$
- Do some other examples, asking learners to identify the change that you should make to make the operation (addition or subtraction) easier.
- E.g.  $63 + 19$ ;  $85 - 49$ ;  $27 + 48$ ;  $46 - 28$ .

### 4. Classwork activity (25 minutes) (See next page)

### 5. Homework activity (5 minutes) (See next page)

### 6. Reflection on lesson

## Term 1 Lesson 10: Addition and subtraction

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### Classwork

Calculate:

- a)  $56 + 30 = (86)$
- b)  $85 + 70 = (155)$
- c)  $187 - 50 = (137)$
- d)  $147 + 40 = (187)$
- e)  $85 + 72 = (157)$
- f)  $147 - 44 = (103)$
- g)  $147 + 56 = (203)$
- h)  $167 - 35 = (132)$

### Homework

Calculate:

- a)  $43 + 30 = (73)$
- b)  $35 + 60 = (95)$
- c)  $172 + 50 = (222)$
- d)  $172 - 50 = (122)$
- e)  $56 - 30 = (26)$

# LESSON 11: MONEY

## Teacher's notes

**CAPS topics:** 1.1 Count objects, 1.2 Count forwards and backwards, 1.16 Mental mathematics, 1.11 Money

**Lesson vocabulary:** Money, rand, cents, change, afford, total (cost)

**Prior knowledge:**

In Grade 2 the learners should have learnt how to:

- Recognise and identify the SA coins and bank notes up to R50.
- Solve money problems involving totals and change in cents up to 90c and rand to R99.

**Concepts:**

- Recognise and identify the South African coins and bank notes.
- Solve money problems involving totals and change in rand or cents.

**Resources:** Goods/products for shop, e.g. empty containers (cereal boxes, cool drink cans, tins, washing powder boxes, plastic milk bottles, etc.); pictures and cut-outs from supermarket fliers; range of play coins and notes to the value of R50.

**DBE workbook activities relevant to this lesson:**

- DBE worksheet 26 (pp. 60 and 61).

**Assessment:** Refer to the tracker for today's formal/informal oral, practical or written assessment activity.

**Remediation:**

- Give learners coins and notes to recognise.
- Ask learners to show you combinations of rand and cents that would make up the following amounts: R70 (Example: Only notes: R50, R10, R10. Notes and coins: R50, R10, R5, R2, R2, R1.) R100 (Example: Only notes: R50, R20, R20 and R10. Notes and coins: R50, R20, R20, R5 and R5.)
- Practise calculating the total cost of the purchase using breaking down of numbers and doubling as strategies. Learners can make purchases to the value of R20.

**Enrichment:** See enrichment activity cards.

## 1. Mental mathematics

### 1.1 Counting (5 minutes)

Count forwards and backwards in 5s: 5, 10, 15...50.

### 1.2 Recall and strategies (10 minutes)

Calculate:

		Answer			Answer
1.	$6 + \square = 20$	14	6.	$5 + \square = 20$	15
2.	$3 + \square = 20$	17	7.	$9 + \square = 20$	11
3.	$2 + \square = 20$	18	8.	$4 + \square = 20$	16
4.	$1 + \square = 20$	19	9.	$0 + \square = 20$	20
5.	$7 + \square = 20$	13	10.	$8 + \square = 20$	12

## 2. Correction/reflection on homework (15 minutes)

Reflection/remediation based on previous day's work/homework.

## 3. Lesson content – concept development (30 minutes)

## Activity 1: Learners work in groups

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- Set up a shop in your classroom.
- Give each group a range of play coins and notes to the value of R50,00.
- Prepare and mark products as follows: R4; R42,50; R5; R10; R30,50; R20; R1; R7,60; R9; R5 and R25. (Note that the products do not have to represent real life prices, but they should give the learners the chance to shop within the known number range.)
- You will be the shopkeeper.
- Learners will come in groups to shop. Each group should buy products for R50. Each group must make sure that their products do not exceed R50.
- Each group should add up the cost of their items and calculate their change and report back.
- Ask questions such as:
  - **What was the total cost of all your products?**
  - **Do you have enough money to pay for everything?**
  - **If you do not have enough money, what can you do?**
  - **If you can afford everything you want to buy, will you get any change from your R50?**
  - **How much?**
  - **How did you calculate that?**
  - **Etc.**

**4. Classwork activity (25 minutes) (See next page)**

**5. Homework activity (5 minutes) (See next page)**

**6. Reflection on lesson**

## Term 1 Lesson 11: Money

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### Classwork

1. Write 325c in rand and cents. (R3,25)
2. What national symbol is on the 20c coin? (protea)
3. Write down all the different ways you can make R400 using only bank notes.  
(various e.g. R200 + R100 + R50 + R20 + R20 + R10)  
How do you know whether you have all the solutions? (various e.g. make a list)
4. If a school tracksuit costs R150, what will 2 tracksuits cost? (R300)
5. Toffees cost R1,10 each. Neo has one 50c coin and four 20c coins.
  - a) Which coins should Neo use to pay for one toffee? (one 50c coin and three 20c coins)
  - b) How much money will he have left? (10c)
6. These are the prices of sweets in the tuck shop:
  - choc chuckles R2,70;
  - gums R1,80;
  - sour worms R1,40;
  - peach treats R1,60;
  - magic mints R2,20;
  - toffees R1,20.Pedro's granny gave him R5. Which 3 sweets can he buy with his money?  
(various, e.g. sour worms, peach treats and toffees)

### Homework

1. Nora bought three books at R80 each. She paid with R300. How much change will she get? (R60)
2. One chewing gum costs 44c. Mavis has R8. She wants to buy 20 chewing gums for her party.  
How much more does she need to save? (80c)
3. Which animal is on the R20 note? (elephant)

# LESSON 12: FIVES AND REPEATED ADDITION

## Teacher's notes

**CAPS topics:** 1.2 Count forwards and backwards, 1.16 Mental mathematics, 1.6 Problem-solving techniques, 1.8 Repeated addition leading to multiplication, 1.12 Techniques (methods or strategies), 1.14 Repeated addition leading to multiplication

**Lesson vocabulary:** Repeated addition, group(s), fives (5s), multiply, multiplication, add, altogether, number sentence, calculate, calculation, number line

**Prior knowledge:**

In Grade 2 the learners should have learnt how to:

- Do repeated addition and multiplication of 5 up to 50.
- Use a multiplication symbol.

**Concepts:**

- Solve repeated addition problems up to **50** using 5s.
- Multiply numbers **1** to **10** by **5** and use appropriate symbols ( $\times$ ,  $=$ ,  $\square$ ).

**Resources:** Counters

**DBE workbook activities relevant to this lesson:**

- DBE worksheet 24 (p. 54).

**Assessment:** Refer to the tracker for today's formal/informal oral, practical or written assessment activity

**Remediation:**

- Give learners **6** bundles with **5** sticks in each bundle. (Use matchsticks and rubber bands to make these.)
- Ask learners what they see. (Possible answer: **Six bundles with sticks.**)
- Ask: **How many sticks are in each bundle?** (5) Say: **We can say 6 bundles of 5 sticks or 6 groups of 5 sticks.** (Get learners to say this out aloud after you.) **Let us add it all together.** (Point while you add.)  **$5 + 5 + 5 + 5 + 5 + 5 = 30$ .** Point and say: **We have 6 groups of 5. Can you see that we have 5, six times?** (Point and count **6** times.) **We can write it as  $6 \times 5 = \square$ .** ( $6 \times 5 = 30$ )
- Note: Repeat these steps with 3 groups, 5 groups, 4 groups, etc. Only introduce the ' $\times$ ' sign when the learner understands the concept of multiplication as being repeated addition.

**Enrichment:**

See enrichment activity cards.

## 1. Mental mathematics

### 1.1 Counting (5 minutes)

- Count forwards in 5s from any number between **0** and **200**, e.g. 160, 165, 170...
- Count backwards in 5s from any number between **200** and **0**.

### 1.2 Recall and strategies (10 minutes)

Which two numbers are after...?

		Answer			Answer
1.	121	122, 123	6.	188	189, 190
2.	130	131, 132	7.	197	198, 199
3.	138	139, 140	8.	262	263, 264
4.	159	160, 161	9.	279	280, 281
5.	270	271, 272	10.	390	391, 392

## 2. Correction/reflection on homework (15 minutes)

Reflection/remediation based on previous day's work/homework.

## 3. Lesson content – concept development (30 minutes)

## Activity 1: Whole class activity

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Give each learner **5** counters/stones, or get them to imagine counters or stones, depending on their level of understanding. Build up a table on the board as you go along.

- Ask the first learner, **How many counters do you have?** (5)
- Ask the second learner the same question. (5)
- Ask: **How many counters do both of you have altogether?** Explain: **We can say  $5 + 5 = 10$ . Two learners have 10 counters altogether. We can also say 2 groups of 5, or we can say  $2 \times 5$ .** Write it on the board.
- Keep on asking learners until you get to **10** learners. Here is an example of what it could look like on the board:

1 child	5	1 group of 5	$1 \times 5 = 5$
2 children	$5 + 5 = 10$	2 groups of 5	$2 \times 5 = 10$
3 children	$5 + 5 + 5 = 15$	3 groups of 5	$3 \times 5 = 15$
4 children	$5 + 5 + 5 + 5 = 20$	4 groups of 5	$4 \times 5 = 20$
5 children	$5 + 5 + 5 + 5 + 5 = 25$	5 groups of 5	$5 \times 5 = 25$
6 children	$5 + 5 + 5 + 5 + 5 + 5 = 30$	6 groups of 5	$6 \times 5 = 30$
7 children	$5 + 5 + 5 + 5 + 5 + 5 + 5 = 35$	7 groups of 5	$7 \times 5 = 35$
8 children	$5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 = 40$	8 groups of 5	$8 \times 5 = 40$
9 children	$5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 = 45$	9 groups of 5	$9 \times 5 = 45$
10 children	$5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 = 50$	10 groups of 5	$10 \times 5 = 50$

- Ask: **What does 4 groups of 5 mean?** (There are 4 groups and each group has 5. Make sure learners know what this means. They could come and write out a number sentence to show what it means or draw an array (5 by 5) to represent the number.)
- **What can we get in groups of five?** (Fingers on one hand, school days in a week, peaches on my plate, R5...)
- **What does  $4 \times 5 = 20$  mean?** (If we take 5 and add it four times, we will get 20.)
- **How can we write  $4 \times 5 = 20$  as an addition number sentence?** ( $5 + 5 + 5 + 5 = 20$ )
- **How can we write  $5 + 5 + 5 + 5 = 20$  as a multiplication number sentence?** ( $4 \times 5 = 20$ )

## Activity 2: Whole class activity

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- Write this word problem on the board: I have 6 bags. There are 5 sweets in each bag. How many sweets do I have altogether?
- Ask: **How many bags?** (6) **How many in each bag?** (5)
- Each bag is a group, so how many groups do we have? (6) How many in each group? (5)
- Ask the learners how they would write this as an addition number sentence ( $5 + 5 + 5 + 5 + 5 + 5 = 30$ ) and as a multiplication number sentence ( $6 \times 5 = 30$ ).
- Ask a few learners to make up a story that leads to multiplication of 5 by another number. Share the problems and write the solutions on the board as repeated addition and as multiplication.

### 4. Classwork activity (25 minutes) (See next page)

### 5. Homework activity (5 minutes) (See next page)

### 6. Reflection on lesson

## Term 1 Lesson 12: Fives and repeated addition

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### Classwork

- Write a multiplication number sentence and calculate.  
 $5 + 5 + 5 + 5 = 20$                        $(\square(4) \times \square(5) = 20)$   
 $5 + 5 + 5 + 5 + 5 + 5 = 30$          $(\square(6) \times \square(5) = 30)$   
3 groups of 5                               $(\square(3) \times \square(5) = 15)$
- Write the addition number sentence and calculate.  
 $4 \times 5 = 20$      $(5 + 5 + 5 + 5 = 20)$
- Calculate the following:
  - $2 \times 5 = \square(10)$
  - $10 \times 5 = \square(50)$
  - $8 \times \square = \square(40)$
- I have 9 bags. There are 5 sweets in each bag. How many sweets do I have altogether? (45 sweets)
- Show these calculations on a number line, and complete the number sentences.  
 $5 + 5 + 5 + 5 = \square(20)$  or  $\square(4) \times \square(5) = \square(20)$

### Homework

- I have 7 bags. There are 5 sweets in each bag. How many sweets do I have altogether? (35 sweets)
- Use a multiplication number sentence to calculate.  
 $5 + 5 + 5 + 5 + 5 = \square(5 \times 5 = 25)$
- Show these calculations on a number line, and complete the number sentences.  
 $10 \times 5 = 50$  or  $(5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 = 50)$

# WEEK 5

## LESSON 13: FIVES ARRAYS

### Teacher's notes

**CAPS topics:** 1.1 Count objects, 1.2 Count forwards and backwards, 1.16 Mental mathematics, 1.6 Problem-solving techniques, 1.8 Repeated addition leading to multiplication, 1.12 Techniques (methods or strategies), 1.14 Repeated addition leading to multiplication

**Lesson vocabulary:** Repeated addition, arrays, grid, fives (5s), times tables, number sentence, row, number line, multiplication

**Prior knowledge:**

In Grade 2 the learners should have learnt how to:

- Solve word problems in context and explain own solutions to problems involving repeated addition and to multiplication with answers up to 50.

In the previous lesson, the learners should have learnt how to:

- Use repeated addition, groups and multiplication by 5 up to 50.

**Assessment:** Refer to the tracker for today's formal/informal oral, practical or written assessment activity

**Concepts:**

- Solve repeated addition problems up to **50** using 5s.
- Multiply numbers **1** to **10** by **5** and use appropriate symbols ( $\times$ ,  $=$ ,  $\square$ ).

**Resources:** n/a

**DBE workbook activities relevant to this lesson:**

- DBE worksheet 24 (p. 55).

**Assessment:** Refer to the tracker for today's formal/informal oral, practical or written assessment activity

**Remediation:**

- Give learners **15** counters. Ask them to take **5** counters and pack them in a row. Ask: **How many counters do you have?**
- Ask the learners to add another row below the first row. Ask: **How many counters do you have now?** Then say: **Let us count: 5, 10...** Carry on until there are **3** rows. Then say: **Let us count: 5, 10, 15. How many rows do we have? (3) We can say we have 3 rows of 5.**
- Write it as an addition number sentence:  $5 + 5 + 5 = \square$ .
- Repeat and say: **We have 3 rows of 5. Let us write it as a multiplication number sentence: 3 (rows)  $\times$  5 (counters) =  $\square$ .**

**Enrichment:** See enrichment activity cards.

### 1. Mental mathematics

#### 1.1 Counting (5 minutes)

- Count forwards in 5s from any number between **0** and **400**, e.g. 305, 310, 315... etc.
- Count backwards in 5s from any number between **400** and **0** e.g. 400, 395, 390... etc.

#### 1.2 Recall and strategies (10 minutes)

Which number is 10 less than...?

		Answer			Answer
1.	34	24	6.	54	44
2.	45	35	7.	99	89
3.	13	3	8.	95	85
4.	22	12	9.	70	60
5.	29	19	10.	50	40

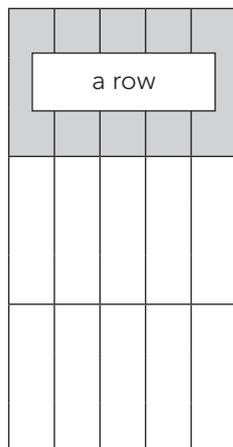
### 2. Correction/reflection on homework (15 minutes)

Reflection/remediation based on previous day's work/homework.

### 3. Lesson content – concept development (30 minutes)

CAPS talks about *arrays*. These are number grids, like the one used in this lesson to show repeated addition of 5.

## Activity 1: Whole class activity

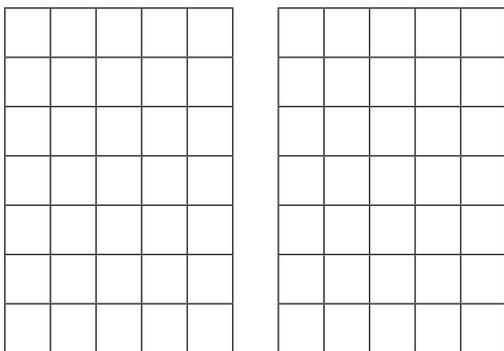


Remind learners about how they worked out their five times tables on the previous day. Explain that we can also use a grid to work out our tables.

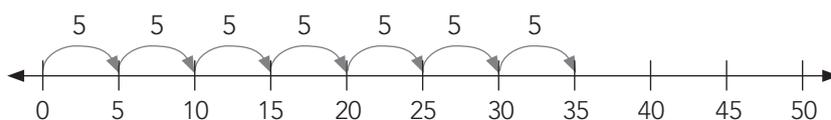
- Draw a grid like this on the board. Shade the top row.
- Show the learners what a row is, and ask them to count the rows. (3)
- Ask them to count the squares in each row. (5)
- On the board write an addition number sentence:  $5 + 5 + 5 = \square$ .
- Ask: **How many squares are there altogether? How did you get the answer?**
- Say: **We can say: 3 rows of 5. How can we write it as a multiplication number sentence?  $3 \times 5 = \square$ .**
- Ask: **What is the answer?** (15). Learners can check the answer by counting: 5, 10, 15. or by adding  $5 + 5 + 5 = 15$ .
- Do the same with  $6 \times 5$ .

## Activity 2: Whole class activity

- Write this problem on the board: Mrs Pink plants **7** rows of potatoes. There are **5** plants in a row.
- Draw a grid to show how many potato plants there are altogether.



- Write two number sentences. ( $7 \times 5 = 35$  and  $5 + 5 + 5 + 5 + 5 + 5 + 5 = 35$ )
- Draw a number line to show how many potato plants there are altogether.



- Write the number sentence. ( $7 \times 5 = 35$  or  $5 + 5 + 5 + 5 + 5 + 5 + 5 = 35$ )
- Count the jumps to show the multiplication and the repeated addition.

### 4. Classwork activity (25 minutes)

### 5. Homework activity (5 minutes)

### 6. Reflection on lesson

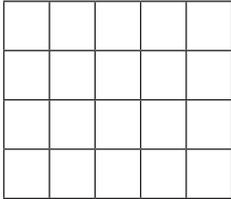
## Term 1 Lesson 13: Fives arrays

### Classwork

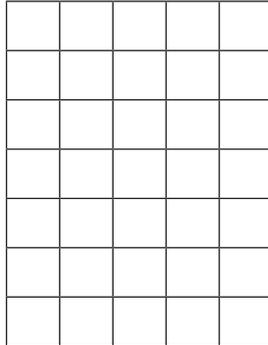
1. Using the tables below, answer the questions for each one:

- a) Number of rows: (1. 4 rows      2. 7 rows      3. 5 rows)  
b) Squares per row: (1. 5 squares      2. 5 squares      3. 5 squares)  
c) Write a multiplication number sentence: (1.  $4 \times 5 = 20$       2.  $7 \times 5 = 35$       3.  $5 \times 5 = 25$ )

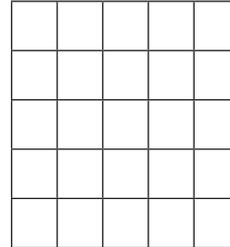
1.



2.



3.



2. Mr Tshabalala plants 10 rows of cabbage plants.

There are 5 plants in a row.

a) Draw a grid to show how many cabbage plants there are altogether.

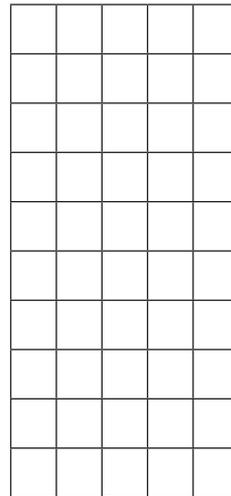
Write the number sentence.

$$(10 \times 5 = 50 \text{ cabbages})$$

b) Draw a number line to show how many cabbage plants there are altogether.

Write the number sentence.

$$(10 \times 5 = 50 \text{ cabbages})$$



### Homework

1. My grandmother tiles her floor. She has 9 rows with 5 tiles in each row.

How many tiles does she use? (45 tiles)

a) Draw a grid to show how many tiles she uses altogether.

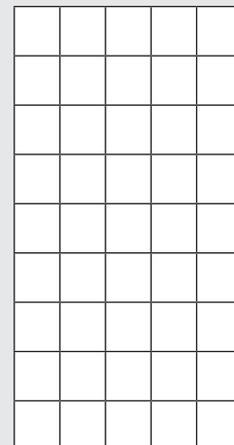
Write the number sentence.

$$(9 \times 5 = 45 \text{ tiles})$$

b) Draw a number line to show how many tiles she uses altogether.

Write the number sentence.

$$(9 \times 5 = 45 \text{ tiles})$$



# LESSON 14: FIVES – SHARING AND GROUPING

## Teacher’s notes

**CAPS topics:** 1.1 Count objects, 1.2 Count forwards and backwards, 1.16 Mental mathematics, 1.6 Problem-solving techniques, 1.9 Grouping and sharing leading to division, 1.12 Techniques: methods or strategies, 1.15 Division

**Lesson vocabulary:** Sharing, share, dividing, groups, fives (5s), remainder(s), remaining, left, left over, grouping, division, symbol (division), calculate

**Prior knowledge:**

In Grade 2 the learners should have learnt how to:

- Divide by sharing and grouping.

**Concepts:**

- Solve and explain solutions to practical problems that involve equal sharing and grouping up to **50**.
- Divide numbers up to **50** by **5**, and use appropriate symbols ( $\div$ ,  $=$ ,  $\square$ ).

**Resources:** Counters

**DBE workbook activities relevant to this lesson:** n/a

**Assessment:** Refer to the tracker for today’s formal/informal oral, practical or written assessment activity

**Remediation:** Give learners **17** counters. Ask them to share these equally into **five** groups. They do this by picking up **five** counters and then distributing them equally amongst the **five** groups. They then pick up another handful of five counters and again distribute these as above. They continue until a full set of five counters cannot be picked up.

Ask: **How many counters in each group?** (3) **How many groups?** (5) **Are there any counters left?** (Yes, 2). Then say: **We can say 17 counters make 5 groups with 3 counters in each group and 2 counters will be left. To write this as a number sentence, let’s look at how many counters you started with. (17). Let us write:  $17 \div$**

**How many groups did you make?  $5 =$**  . **How many counters in each group? 3. Are you left with any counters? How many? 2 counters are left. I can write it as  $17 \div 5 = \square \rightarrow 17 \div 5 = 3$  remainder 2.**

**Enrichment:** See enrichment activity cards.

## 1. Mental mathematics

### 1.1 Counting (5 minutes)

- Count forwards in 5s from any number between **0** and **300**, e.g. 205, 210, 215... etc.
- Count backwards in 5s from any number between **300** and **0**, e.g. 300, 295, 290... etc.

### 1.2 Recall and strategies (10 minutes)

Calculate.

		Answer			Answer
1.	$19 - 2 =$	17	6.	$19 - 11 =$	8
2.	$13 - 5 =$	8	7.	$20 - 10 =$	10
3.	$20 - 2 =$	18	8.	$13 - 2 =$	11
4.	$11 - 4 =$	7	9.	$14 - 5 =$	9
5.	$18 - 10 =$	8	10.	$20 - 11 =$	9

## 2. Correction/reflection on homework (15 minutes)

Reflection/remediation based on previous day’s work/homework.

## 3. Lesson content – concept development (30 minutes)

In this lesson learners consolidate their understanding developed in Grades 1 and 2 of division with and without remainders. The two division strategies, grouping and sharing, are also consolidated. Learners should ultimately be able to think of division using either strategy comfortably. They should be able to read a word problem and choose the appropriate strategy in order to find the solution to the problem. This skill will be developed through lots of practice doing division using both strategies.

## Activity 1: Whole class activity

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- Prepare **40** counters on your desk. Ask **5** learners to come to the front of the class. Ask another learner to come to the front and share the 40 counters among the 5 learners who are standing in front.
- Ask: **How did we share the counters among the learners? (5) How many counters/stones does each learner get? (8)**
- Then say: **We can say 40 divided by 5 is 8.**
- Write this on the board: **40 divided by 5 is 8.**
- Explain to learners that the symbol for *divided by* is  $\div$  by writing it on the board.
- Discuss what it looks like. Learners write it in the air. Say: **Instead of using the words divide or share, we will use the division symbol from now on.**
- Go back to the board and write  **$40 \div 5 = 8$**  below **40 divided by 5 is 8.**
- Write this word problem on the board, and guide the learners' thinking by asking questions. **You have 30 sweets. Share them among five learners. How many sweets does each learner get? Are there any leftovers?**
- Ask: **What is the question asking you to do? (share the sweets) What are the numbers? (30 and 5) Will you multiply or divide? (divide) Which word helped you to decide this? (share) What symbol will you use? ( $\div$ ) What will the number sentence be? ( $30 \div 5 = 6$ )**
- Read the question again. **How many sweets does each learner get? (6) Are there any sweets left? (There are no sweets left. We say there is no remainder.)**

## Activity 2: Whole class activity

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- Write this word problem on the board: You have **40** sweets. You want to put them into packets with 5 sweets in each packet. How many packets of 5 can you make? Are there any remainders/leftovers?
- Use the same 40 counters that you used in the first sharing activity for this grouping activity.
- Ask one learner to come to the front of the class and put the counters into groups of 5 on a desk in the front of the class that everyone can see.
- Ask: **How many groups did you make? (8) How many counters are left? (0)**
- Then say: **We can say 40 divided by 5 is 8, and there is no remainder. We can write this as  $40 \div 5 = 8$ .**
- **Do you see that you get the same answer if you do division by grouping or sharing? This is because division is division – if you divide a number by another number, you have to get the same answer whichever way you do it.**

## Activity 3: Learners work in groups

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- Write these questions on the board. Learners work them out in their groups, using grouping and sharing. Learners should talk about the division they are doing and write a number sentence to show the solution of each question. Remind learners that if some counters are left that cannot be shared, this is called a remainder.
- $30 \div 5 = \square$  (6)
- $23 \div 5 = \square$  (4 remainder 3)

### 4. Classwork activity (25 minutes) (See next page)

### 5. Homework activity (5 minutes) (See next page)

### 6. Reflection on lesson

## Term 1 Lesson 14: Fives – sharing and grouping

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Learners can do the following questions practically using grouping or sharing. They should be able to explain what they have done and write the number sentence to show the solution. Question 2 is a word problem that calls on sharing division. Question 3 is a question that calls on grouping division. All of the homework questions call on sharing division. Several questions have remainders – remind learners how to write the answer when there is a remainder, like they did in Grade 2.

### Classwork

- Calculate the following:
  - $10 \div 5 = \square$  (2)
  - $35 \div 5 = \square$  (7)
  - $25 \div 5 = \square$  (5)
  - $50 \div 5 = \square$  (10)
  - $45 \div 5 = \square$  (9)
  - $46 \div 5 = \square$  (9 rem 1)
  - $11 \div 5 = \square$  (2 rem 1)
  - $34 \div 5 = \square$  (6 rem 4)
  - $53 \div 5 = \square$  (10 rem 3)
  - $42 \div 5 = \square$  (8 rem 2)
- You have 38 sweets. Share them amongst 5 children.
  - How many sweets does each child get? (7 sweets)
  - How many sweets are left over? (3 sweets are left over)
- Anna has R42. Chocolates cost R5 each.
  - How many chocolates can she buy? (8 chocolates)
  - How much will she have left over? (R2 will be left over)

### Homework

- Your mother buys 47 sweets. She shares them amongst 5 children. Does she have any sweets left over? (Yes, 2 sweets are left over.)
- Share 30 sweets among the following children and write down the number sentence.
  - 3 children.  $30 \div 3 = \square$  (10 sweets)
  - 5 children.  $30 \div 5 = \square$  (6 sweets)
  - 2 children.  $30 \div 2 = \square$  (15 sweets)
  - 6 children.  $30 \div 6 = \square$  (5 sweets)
- Practise counting in 5s at home.

# LESSON 15: TWOS AND REPEATED ADDITION

## Teacher's notes

**CAPS topics:** 1.1 Count objects, 1.2 Count forwards and backwards, 1.16 Mental mathematics, 1.6 Problem-solving techniques, 1.8 Repeated addition leading to multiplication, 1.12 Techniques (methods or strategies), 1.14 Repeated addition leading to multiplication

**Lesson vocabulary:** Repeated addition, groups, twos (2s), multiply, multiplication, add, altogether, number sentence, calculate, sum

### Prior knowledge:

In Grade 2 the learners should have learnt how to:

- Do repeated addition and multiplication of 2 up to 50.
- Use a multiplication symbol.

### Concepts:

- Solve repeated addition problems up to **50** using 2s.
- Multiply numbers **1** to **10** by **2**, and use appropriate symbols ( $\times$ ,  $=$ ,  $\square$ ).

**Resources:** Counters

### DBE workbook activities relevant to this lesson:

- DBE worksheet 25a (pp. 56–57).

**Assessment:** Refer to the tracker for today's formal/informal oral, practical or written assessment activity

**Remediation:** Give learners **7** bundles with **2** sticks in each bundle. (Use matchsticks and rubber bands to make these.) Ask learners what they see. (Possible answer: 7 bundles with sticks.) Ask: **How many sticks are in each bundle?** (2) Then say: **We can say 7 bundles of 2 sticks or 7 groups of 2 sticks.** (Get learners to say this out loud after you.) **Let us add it all together** (point while you add)  $2 + 2 + 2 + 2 + 2 + 2 + 2 = 14$ . Point and say: **Yes, we have 7 groups of 2. Can you see that we have 2 seven times? We can write it as  $7 \times 2 = \square$ . ( $7 \times 2 = 14$ )**

Note: Repeat these steps with **4** groups, **6** groups, **9** groups etc. Only introduce the ' $\times$ ' sign when the learner understands the concept of multiplication as being repeated addition.

**Enrichment:** See enrichment activity cards.

## 1. Mental mathematics

### 1.1 Counting (5 minutes)

- Count forwards in 5s from any number between **0** and **400**, e.g. 275, 280, 285... etc.
- Count backwards in 5s from any number between **400** and **0**, e.g. 285, 280, 275... etc.

### 1.2 Recall and strategies (10 minutes)

Which number is between these two numbers?

		Answer			Answer
1.	106 and 108	107	6.	310 and 312	311
2.	102 and 104	103	7.	313 and 315	314
3.	215 and 217	216	8.	109 and 111	110
4.	318 and 320	319	9.	99 and 97	98
5.	219 and 217	218	10.	43 and 45	44

## 2. Correction/reflection on homework (15 minutes)

Reflection/remediation based on previous day's work/homework.

## 3. Lesson content – concept development (30 minutes)

## Activity 1: Whole class activity

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- Give each learner 5 counters/stones, or get them to imagine counters or stones, depending on their level of understanding. Build up a table on the board as you go along.
- Ask the first learner: **How many counters do you have?** (2)
- Ask the second learner the same question. (2)
- Ask: **How many counters do both of you have altogether?** (4)
- Explain: **We can say  $2 + 2 = 4$ . Two learners have 4 counters altogether. We can also say 2 groups of 2, or we can say  $2 \times 2$ .** Write it on the board.
- Keep on asking learners until you get to **10** learners. Here is an example of what it could look like on the board:

1 child	2	1 group of 2	$1 \times 2 = 2$
2 children	$2 + 2 = 4$	2 groups of 2	$2 \times 2 = 4$
3 children	$2 + 2 + 2 = 6$	3 groups of 2	$3 \times 2 = 6$
4 children	$2 + 2 + 2 + 2 = 8$	4 groups of 2	$4 \times 2 = 8$
5 children	$2 + 2 + 2 + 2 + 2 = 10$	5 groups of 2	$5 \times 2 = 10$
6 children	$2 + 2 + 2 + 2 + 2 + 2 = 12$	6 groups of 2	$6 \times 2 = 12$
7 children	$2 + 2 + 2 + 2 + 2 + 2 + 2 = 14$	7 groups of 2	$7 \times 2 = 14$
8 children	$2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 = 16$	8 groups of 2	$8 \times 2 = 16$
9 children	$2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 = 18$	9 groups of 2	$9 \times 2 = 18$
10 children	$2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 = 20$	10 groups of 2	$10 \times 2 = 20$

- Ask: **What does 5 groups of 2 mean?** (There are 5 groups, and each group has 2.)
- **What can we get in groups of two?** (eyes, ears, two peaches on my plate, R2...)
- **What does  $5 \times 2 = 10$  mean?** (five times two... 2 and 2 and 2 and 2 and 2 altogether that gives us 10)
- **How can we write  $5 \times 2 = 10$  as an addition number sentence?** ( $2 + 2 + 2 + 2 + 2 = 10$ )
- **How can we write  $2 + 2 + 2 + 2 + 2 = 10$  as a multiplication number sentence?** ( $5 \times 2 = 10$ )

## Activity 2: Whole class activity

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- Write this word problem on the board: I have 6 bags. There are 2 sweets in each bag. How many sweets do I have altogether?
- Ask: **How many groups?** (6). **How many in each group?** (2)
- Ask the learners how they would write this as an addition number sentence ( $2 + 2 + 2 + 2 + 2 + 2 = 12$ ) and as a multiplication number sentence ( $6 \times 2 = 12$ ).

### 4. Classwork activity (25 minutes) (See next page)

### 5. Homework activity (5 minutes) (See next page)

### 6. Reflection on lesson

## Term 1 Lesson 15: Twos and repeated addition

### Classwork

- Write a multiplication number sentence and calculate:
  - $2 + 2 + 2 + 2 = 8$  ( $\square (4) \times (2) = 8$ )
  - $2 + 2 + 2 + 2 + 2 + 2 = (12)$  ( $\square (6) \times (2) = 12$ )
  - 3 groups of 2 ( $\square (3) \times (2) = 6$ )
- Write the addition number sentence and calculate  $4 \times 2 = 8$ . ( $2 + 2 + 2 + 2 = 8$ )
- Calculate the following:
  - $2 \times 2 = \square (4)$
  - $5 \times 2 = \square (10)$
  - $10 \times 2 = \square (20)$
- I have 10 bags. There are 2 sweets in each bag. How many sweets do I have altogether? ( $10 \times 2 = 20$  sweets)
- Draw and complete this table. Use the example to guide you.

	Group the socks into pairs	How many pairs?	How many left over?
12		6	0
16		(8)	(0)
11		(5)	(1)
29		(14)	(1)
18		(9)	(0)
14		(7)	(0)
21		(10)	(1)

### Homework

- I have 9 bags. There are 2 sweets in each bag. How many sweets do I have altogether? (18 sweets)
- Show this sum on a number line and complete.  
 $2 + 2 + 2 + 2 + 2 = \square (10)$  or  $\square (5) \times \square (2) = \square (10)$
- Write how many socks and a number sentence each time:
 

Think in 2s	Number sentence
a) 1 pair = 2 socks	( $1 \times 2 = 2$ )
b) 3 pairs = $\square (6)$ socks	( $3 \times 2 = 6$ )
c) 5 pairs = $\square (10)$ socks	( $5 \times 2 = 10$ )
d) 7 pairs = $\square (14)$ socks	( $7 \times 2 = 14$ )
e) 9 pairs = $\square (18)$ socks	( $9 \times 2 = 18$ )
f) 11 pairs = $\square (22)$ socks	( $11 \times 2 = 22$ )

# LESSON 16: TWOS ARRAYS

## Teacher's notes

**CAPS Topic:** 1.2 Count forwards and backwards, 1.16 Mental mathematics, 1.6 Problem-solving techniques, 1.8 Repeated addition leading to multiplication, 1.12 Techniques (methods or strategies), 1.14 Repeated addition leading to multiplication

**Lesson vocabulary:** Repeated addition, arrays, grid, twos (2s), times tables, number sentence, row, number line, multiplication

**Prior knowledge:**

In Grade 2 the learners should have learnt how to:

- Do repeated addition, groups and multiplication by 3 and 2 up to 30.

**Concepts:**

- Solve repeated addition problems up to **50** using 3s.
- Multiply numbers **1** to **10** by **2**, and use appropriate symbols. ( $\times$ ,  $=$ ,  $\square$ ).

**Resources:** n/a

**DBE workbook activities relevant to this lesson:**

- DBE worksheet 25b (pp. 58 to 59).

**Assessment:** Refer to the tracker for today's formal/informal oral, practical or written assessment activity

**Remediation:**

- Give learners **8** counters. Ask them to take **2** counters and pack them in a row. Ask: **How many counters do you have?** (2)
- Ask the learners to add another row below the first row. Ask: **How many counters do you have now?** Then say: Let us count: 2, 4.
- Carry on until there are **4** rows. Then say: **Let us count: 2, 4, 6, 8.** Ask: **How many rows do we have?** (4)  
Then say: **We can say we have 4 rows of 2. Let's write it as an addition number sentence:**  $2 + 2 + 2 + 2 = \square$ .  
Repeat: **We have 4 rows of 2. Let's write it as a multiplication number sentence:**  $4 \text{ (rows)} \times 2 \text{ (counters)} = \square$ .

**Enrichment:** See enrichment activity cards.

## 1. Mental mathematics

### 1.1 Counting (5 minutes)

Count forwards and backwards in 2s from any number between **200** and **0**, e.g. 200, 198, 196... etc.

### 1.2 Recall and strategies (10 minutes)

	What is eleven more than...?	Answer			Answer
1.	100	111	6.	188	199
2.	123	134	7.	199	210
3.	130	141	8.	176	187
4.	153	164	9.	169	180
5.	167	178	10.	157	168

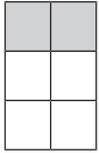
## 2. Correction/reflection on homework (15 minutes)

Reflection/remediation based on previous day's work/homework.

## 3. Lesson content – concept development (30 minutes)

## Activity 1: Whole class activity

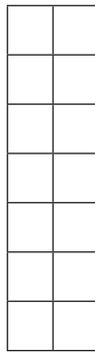
Remind learners about how they worked out their two times tables the previous day. Remind learners that we can also use a grid to work out our tables.



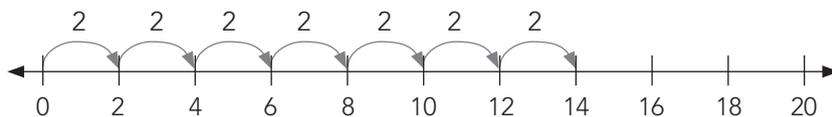
- Draw a grid like this on the board. Shade the top row.
- Show the learners what a row is, and ask them to count the rows. (3)
- Ask them to count the squares in each row. (2)
- On the board, write an addition number sentence:  $2 + 2 + 2 = \square$ .
- Then say: **We can say: 3 rows of 2. How can we write it as a multiplication number sentence?** ( $3 \times 2 = \square$ )
- Ask: **What is the answer?** (6) Learners check by counting: 2, 4, 6.
- Do the same with  $5 \times 2$ .

## Activity 2: Whole class activity

- Write this problem on the board: Mrs Pink plants 7 rows of potatoes. There are 2 plants in a row.



- Write two number sentences to show how you worked out the number of potato plants. ( $7 \times 2 = 14$  and  $2 + 2 + 2 + 2 + 2 + 2 + 2 = 14$ )
- Draw a number line to show how many potato plants there are altogether.



- Write the number sentence. ( $7 \times 2 = 14$  or  $2 + 2 + 2 + 2 + 2 + 2 + 2 = 14$ )
- Count the jumps to show the multiplication and repeated addition.

**4. Classwork activity from LAB (25 minutes) (See next page)**

**5. Homework activity from LAB (5 minutes) (See next page)**

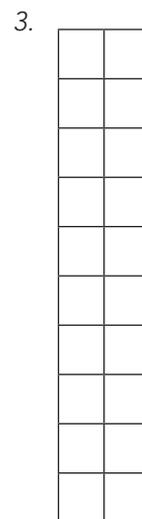
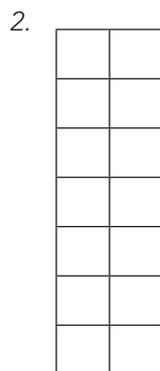
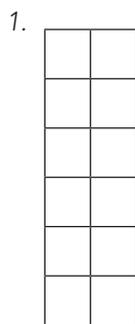
**6. Reflection on lesson**

## Term 1 Lesson 16: Twos arrays

### Classwork

1. Count:

- |  |                       |                      |                         |
|--|-----------------------|----------------------|-------------------------|
| a) Number of rows:                         | (1. 6 rows            | 2. 7 rows            | 3. 10 rows)             |
| b) Squares per row:                        | (1. 2 squares         | 2. 2 squares         | 3. 2 squares)           |
| c) Write a multiplication number sentence: | (1. $6 \times 2 = 12$ | 2. $7 \times 2 = 14$ | 3. $10 \times 2 = 20$ ) |



2. There are 9 rows of trees. There are 2 trees in each row. How many trees are there altogether?

- a) Draw a grid to show how many trees there are altogether.  
(Drawing of grid with 9 rows and 2 squares in each row)  
Write the number sentence. ( $9 \times 2 = 18$  trees)
- b) Draw a number line to show how many trees there are altogether. Write the number sentence.  
( $9 \times 2 = 18$  trees)

### Homework

In the egg box there are 6 rows with 2 eggs in each row. How many eggs are in the egg box?

- a) Draw a grid to show how many eggs there are altogether.  
(Drawing of grid with 6 rows and 2 squares in each row).  
Write the number sentence. ( $6 \times 2 = 12$ )
- b) Draw a number line to show how many eggs there are altogether. Write the number sentence.  
( $6 \times 2 = 12$ )

# WEEK 6

## LESSON 17: TWOS – SHARING AND GROUPING

### Teacher's notes

**CAPS Topic:** 1.2 Count forwards and backwards, 1.16 Mental mathematics, 1.6 Problem-solving techniques, 1.9 Grouping and sharing leading to division, 1.12 Techniques (methods or strategies), 1.15 Division

**Lesson vocabulary:** Sharing, dividing, fives (5s), equal, sharing, grouping, remainder, division, symbol (division), calculate

**Prior knowledge:**

In Grade 2 the learners should have learnt how to:

- Divide by sharing and grouping.

**Concepts:**

- Solve and explain solutions to practical problems that involve equal sharing and grouping up to **50**.
- Divide numbers up to **50** by **2** and use appropriate symbols ( $\div$ ,  $=$ ,  $\square$ ).

**Resources:** Counters

**DBE workbook activities relevant to this lesson:**

- DBE worksheet 30 (pp. 68 to 71).

Assessment: Refer to the tracker for today's formal/informal oral, practical or written assessment activity

**Remediation:**

- Give learners **11** counters. Ask them to share these equally into two groups. They do this by picking up **two** counters and then distributing them equally amongst the **two** groups. Then get them to pick up another handful of five counters and again distribute these as above. Continue until a full set of two counters cannot be picked up.
- Ask: **How many counters in each group? (2) How many groups? (5) Are there any counters left? (1)** Then say: **We can say 11 counters will make 2 groups with 5 counters in each group, and 1 counter will be left. To write this as a number sentence, let's look at how many blocks you started with. (11) Let us write  $11 \div$  . How many groups did you make?  $2 =$  . How many counters in each group? **5. Are you left with any counters? How many? 1 counter is left. I can write it as  $11 \div 2 = \square \rightarrow 11 \div 2 = 5$  remainder 1.****

**Enrichment:** See enrichment activity cards.

### 1. Mental mathematics

#### 1.1 Counting (5 minutes)

- Count forwards in 2s from any number between **0** and **200**, e.g. 16, 18, 20... etc.
- Count backwards in 2s from any number between **200** and **0**, e.g. 184, 182, 180... etc.

#### 1.2 Recall and strategies (10 minutes)

Calculate the following:

		Answer			Answer
1.	$11 + 3 =$	14	6.	$11 + 8 =$	19
2.	$20 - 2 =$	18	7.	$18 - 8 =$	10
3.	$14 + 6 =$	20	8.	$12 + 7 =$	19
4.	$20 - 10 =$	10	9.	$12 - 7 =$	5
5.	$19 - 11 =$	8	10.	$5 + 11 =$	16

### 2. Correction/reflection on homework (15 minutes)

Reflection/remediation based on previous day's work/homework.

### 3. Lesson content – concept development (30 minutes)

This is the second lesson in which learners consolidate their understanding developed in Grades 1 and 2 of division with and without remainders. The two division strategies, grouping and sharing are also consolidated. Learners should ultimately be able to think of division using either strategy comfortably. This skill will be developed through lots of practice doing division using both strategies.

## Activity 1: Whole class activity

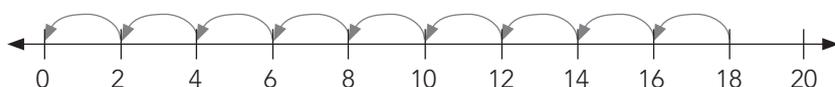
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- Write this word problem on the board and guide the learners' thinking by asking questions:  
**You have 14 sweets. Share them between 2 learners. How many sweets does each learner get? Are there any sweets left?**
- Ask: **What is the question asking you to do?** (share the sweets) **What are the numbers?** (14 and 2) **Will you multiply or divide?** (divide) **Which word helped you to decide this?** (share) **What symbol will you use?** ( $\div$ ) **What will the number sentence be?** ( $14 \div 2 = 7$ ) **Are there any sweets left?** (There are no sweets left.)

## Activity 2: Whole class activity

---

- This activity involves division on a number line. On the number line you will jump along in groups according to the division in the question. Thus it is a grouping division activity.
- Write the following number sentence on the board:  $18 \div 2 = \dots$
- Show this calculation on a number line:  $18 \div 2 = (9 - \text{nine jumps of } 2 \text{ from } 18 \text{ to } 0)$



- Write a subtraction number sentence:  $(18 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 = 0)$
- Ask: **How many groups of twos did we take away from 18?**
- Ask: **What is  $18 \div 2$ ?** ( $18 \div 2 = 9$  with no remainder.)

## Activity 3: Learners work in groups

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- This activity involves sharing division with a remainder.
- Give each group of learners **31** counters.
- Ask them to share them between **2** friends.
- Ask: **How many counters does each friend get?** (15) **How many counters are left?** (1)
- Then say: **We can say 31 divided by 2 is 15, remainder 1. We can write it as  $31 \div 2 = 15$  remainder 1.**

**4. Classwork activity (25 minutes) (See next page)**

**5. Homework activity (5 minutes) (See next page)**

**6. Reflection on lesson**

## Term 1 Lesson 17: Twos – sharing and grouping

### Classwork

1. Calculate the following:

$$10 \div 2 = \square \quad (5)$$

$$36 \div 2 = \square \quad (18)$$

$$26 \div 2 = \square \quad (13)$$

$$0 \div 2 = \square \quad (0)$$

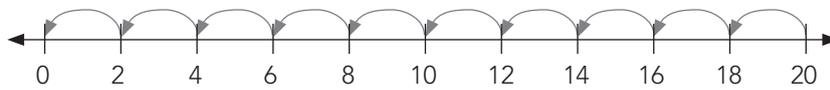
$$46 \div 2 = \square \quad (23)$$

$$47 \div 2 = \square \quad (23 \text{ rem } 1)$$

$$11 \div 2 = \square \quad (5 \text{ rem } 1)$$

2. You have 49 sweets. Share them amongst 2 learners. How many does each learner get? (24 rem 1)

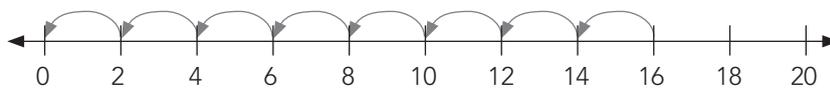
3. Look at the number line below and then write the number sentences:



a) Write a subtraction number sentence. ( $20 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 = 0$ )

b) Write a division number sentence. ( $20 \div 2 = 10$ )

4. Look at the number line below, and then write the number sentences:



a) Write a subtraction number sentence. ( $16 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 = 0$ )

b) Write a division number sentence. ( $16 \div 2 = 8$ )

### Homework

1. Your mother buys 17 oranges. She divides them into 2 bags. Does she have any oranges left?  
(Yes, she has 1 orange left.)

2. Calculate the following:

a)  $12 \div 2 = \square$  (6)

b)  $34 \div 2 = \square$  (17)

c)  $48 \div 2 = \square$  (24)

d)  $49 \div 2 = \square$  (24 rem 1)

3. Practise counting in 2s at home.

# LESSON 18: 2-D SHAPES

## Teacher's notes

**CAPS topics:** 2 Count forwards and backwards 1.16 Mental mathematics, 3.3 2-D shapes

**Lesson vocabulary:** 2-D shapes, rectangle, triangle, circle, square, straight, round, side(s), corner(s), length, size

**Prior knowledge:**

In Grade 2 the learners should have learnt how to:

- Recognise and name 3-D objects in the classroom and pictures – ball shapes (spheres), box shapes (prisms), cylinders.
- Describe, sort and compare 3-D objects in terms of: size, objects that roll and objects that slide.

**Concepts**

- Describe, sort and compare 2-D shapes in terms of: shape, straight sides and round sides.

**Resources:** Labels and cut-outs of a rectangle, triangle, circle, square; a bag/pillowcase to put the shapes into.

**DBE workbook activities relevant to this lesson:**

- DBE worksheet 10 (pp. 22 and 23).

**Assessment:** Refer to the tracker for today's formal/informal oral, practical or written assessment activity

**Remediation:**

- Work with **2 shapes** at a time, e.g. a *square* and a *triangle*. Get the learners to compare and describe the similarities and differences between the shapes. For example: The *square* has **4 sides** and **4 corners**. The *triangle* has **3 sides** and **3 corners**. The **four sides** of the *square* are all exactly the same size. For the *triangle* **2 or 3 sides** can be the same length, or all the *sides* can be different.
- Once this is understood introduce the *rectangle*.
- Only after the similarities and differences between the rectangle and square are thoroughly understood introduce the *circle*.
- Ensure that the learners get a chance to use the language to describe the shapes correctly.

**Enrichment:** See enrichment activity cards.

## 1. Mental mathematics

### 1.1 Counting (5 minutes)

- Count **10** steps forwards in 2s from **140**.  
Ask: **How far did you count?** (160)
- Ask: **If I count in 4s, how many steps will I need to get to 160?** (5) **How do you know?**  
( $2 \times 5 = 10$ )

### 1.2 Recall and strategies (10 minutes)

	Calculate the following:	Answer		Calculate the following:	Answer
1.	$6 \div 2 =$	3	6.	$12 \div 2 =$	6
2.	$16 \div 2 =$	8	7.	$14 \div 2 =$	7
3.	$8 \div 2 =$	4	8.	$2 \div 2 =$	1
4.	$18 \div 2 =$	9	9.	$20 \div 2 =$	10
5.	$10 \div 2 =$	5	10.	$4 \div 2 =$	2

## 2. Correction/reflection on homework (15 minutes)

Reflection/remediation based on previous day's work/homework.

## 3. Lesson content – concept development (30 minutes)

## Activity 1: Whole class activity

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- Describe a *square* by saying, **I am thinking about a *shape*. It has 4 *sides* and 4 *corners*. All the *sides* are the same length and all the *corners* are the same size. What *shape* am I thinking about? (a square)**
- Do the same for a *triangle*, *rectangle* and *circle*.
- Ensure that you model the correct use of vocabulary.

## Activity 2: Whole class activity

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- Use Prestik to stick cut-outs of the following shapes on the board: *rectangle*, *triangle*, *circle*, *square*.
- Get the learners to identify the labels that belong to the cut-outs of the shapes and place them below the correct shapes.
- Point to one shape e.g. the *rectangle*, and ask the learners to each contribute one sentence towards describing the shape, e.g. It has **4 *sides***/All the *sides* are straight/There are **4 *corners***/All the *corners* are the same size, etc.
- Do the same for the remaining shapes. Try to ensure that everyone gets a chance to say something using the correct vocabulary.

## Activity 3: Whole class activity

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- Have a bag/pillowcase with cut-outs of shapes. Give the bag to one learner. Tell the learner that he/she may not look inside the bag. Ask the learner to find a circle by feeling the shapes.
- The learner will need to hold up the shape and say how he/she knows that the shape is a circle, e.g. **I know that this is a *circle* because it does not have any *corners*.**
- Pass the bag along to give other learners a chance to identify shapes through touch.

### 4. Classwork activity (25 minutes) (See next page)

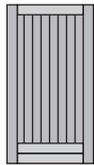
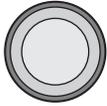
### 5. Homework activity (5 minutes) (See next page)

### 6. Reflection on lesson

## Term 1 Lesson 18: 2-D shapes

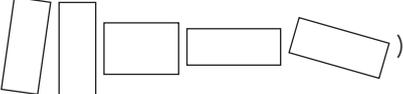
### Classwork

1. Copy this table into your classwork book. Fill in only column 2 and 3.

	Object	Drawing of shape	Name of shape
a)		(  )	(rectangle)
b)		(  )	(square)
c)		(  )	(circle)
d)		(  )	(triangle)

2. Draw five of each of these shapes. They must all look different.

Triangles (various e.g. )

Rectangles (various e.g. )

3. Find and cut triangles of different sizes from a magazine or newspaper. Stick them into your book, in all different positions.

How many sides does each one have? (3 sides)

Are the sides straight or round? (straight)

### Homework

1. Draw and complete this table.

	Name of shape	Drawing of shape	Number of sides
a)	(square)		(4)
b)	(circle)		(1)
c)	(triangle)		(3)
d)	(rectangle)		(4)

# LESSON 19: 2-D SHAPES: STRAIGHT OR ROUND EDGES

## Teacher's notes

**CAPS topics:** 1.1 Count objects, 1.2 Count forwards and backwards, 1.16 Mental mathematics, 3.3 2-D shapes

**Lesson vocabulary:** 2-D shape(s), straight side(s), curved side(s), cylinder, cone, pyramid, sphere, prism/box

### Prior knowledge:

In Grade 2 the learners should have learnt how to:

- Count forwards and backwards from 0 to 200.
- Recognise and name 3-D objects in the classroom and pictures – ball shapes (spheres), box shapes (prisms), cylinders.
- Describe, sort and compare 3-D objects in terms of: size, objects that roll and objects that slide.

### Concepts

- Describe, sort and compare 2-D shapes in terms of: *shape, straight sides and round sides.*

**Resources:** Scrap paper, 2-D shapes and shape name cards, old magazines/adverts, 3-D shapes: cylinder, cone, pyramid, sphere, prism/box (collect and keep as resources)

### DBE workbook activities relevant to this lesson:

- DBE worksheet 11 (pp. 24 and 25).

**Assessment:** Refer to the tracker for today's formal/informal oral, practical or written assessment activity

### Remediation:

- Give learners old magazines. Ask them to cut out the following shapes: a *triangle, square* and a *rectangle*.
- Ask them to use their fingers to show you the *straight sides*. Ask them to now cut out a shape that only has *round sides*. (circle)

**Enrichment:** See enrichment activity cards.

## 1. Mental mathematics

### 1.1 Counting (5 minutes)

- Count **12** steps forwards in 2s from **140**. How far did you count? (164)
- Ask: **If I count in 4s, how many steps will I need to get to 160? (6) How do you know? ( $2 \times 6 = 12$ )**

### 1.2 Recall and strategies (10 minutes)

Calculate the following:

		Answer			Answer
1.	$10 \times 10 = \square$	100	6.	$100 \div 10 = \square$	10
2.	$10 \times \square = 100$	10	7.	$90 \div 10 = \square$	9
3.	$\square \times 10 = 100$	10	8.	$10 \times 9 = \square$	90
4.	$100 \div \square = 10$	10	9.	Half of 100	50
5.	$\square \div 10 = 10$	100	10.	Double 100	200

## 2. Correction/reflection on homework (15 minutes)

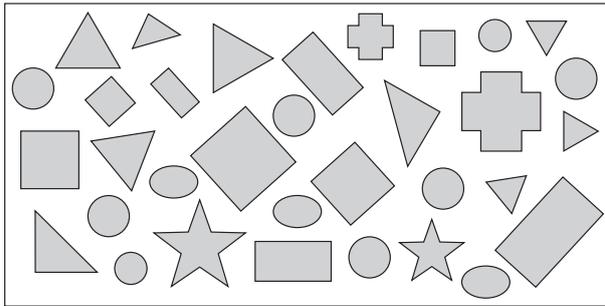
Reflection/remediation based on previous day's work/homework.

## 3. Lesson content – concept development (30 minutes)

This activity is intended to make children aware that shapes come in different sizes and can be put into different positions. *If you have time* you should do the optional activity in this lesson plan, to consolidate the teaching of the other lesson activities.

## Activity 1: Learners work in groups

- Give each group a sheet of paper to draw on.
- Ask learners to draw as many *shapes* as they can think of with *straight sides* on the paper.
- Every learner in the group should get a chance to draw a shape.
- Compare each group's shapes to see if there are any other shapes that they didn't think of.
- Add those shapes to your group's picture.
- Give each group a turn to call out one shape and a colour. The whole class now colours that shape (e.g. triangles – red). If a group does not have the shape, they draw it in.
- Carry on until all the shapes are coloured in.



## Activity 2: Whole class activity

- Revise by asking: **If a shape does not have straight sides, what will it have?** (curved sides)
- Draw the following shapes on the board, and ask learners to identify the number of *straight* and *curved* sides on each one.

Drawing of shape	Number of curved and straight sides
	One curved side
	Three straight sides
	Four straight sides
	Two curved and two straight sides

## Activity 3: Whole class activity OPTIONAL

- If you have time, take the opportunity to make the connection between 2-D and 3-D shapes.
- Revise the names of 3-D objects that learners should know: *cylinder*, *cone*, *pyramid*, *sphere*, *prism/box*.
- Show the class the different examples of the 3-D objects that you have brought to class. Try to have as many objects as you can so that you can give each group one of each kind of shape. If you don't have enough, pass the shapes around the class so that all learners have a chance to hold and feel the shapes for themselves. If you don't have actual 3-D objects show the learners pictures of them.
- Ask learners to identify the 2-D shapes on the faces of the 3-D objects. (They will find rectangles, squares, triangles and circles.)
- Touch the shapes and say whether the sides are *straight* or *curved*.

### 4. Classwork activity (25 minutes) (See next page)

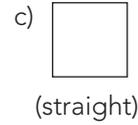
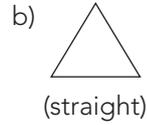
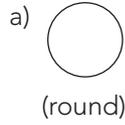
### 5. Homework activity (5 minutes) (See next page)

### 6. Reflection on lesson

## Term 1 Lesson 19: 2-D shapes: straight or round edges

### Classwork

1. Say if the following shapes have round or straight sides:



2. Draw as many shapes as you can think of with straight sides.  
(Learner answers will vary.)

3. Draw a table like the one below in your book. Find three of each type of pictures in a magazine or newspaper, and stick them into your book. (Learners answers will vary.)

straight sides	round sides	straight and round sides
(various e.g. door)	(various, e.g. clockface)	(various, e.g. tin of beans)

### Homework

(Learner answers will vary.)

1. Find something in your room that has only straight sides.
2. Find something in your kitchen that has round sides.
3. Draw a picture of a tree. You may use one shape with straight sides and one shape with round sides.
4. Draw a picture of a car. You may use two shapes with straight sides and four shapes with round sides.

# LESSON 20: DATA – TALLY TABLES

## Teacher's notes

**CAPS topics:** 5.5 Represent data

**Lesson vocabulary:** Tally, tally table, frequency, frequency table, column, table, record

**Prior knowledge:**

In Grade 2 the learners should have learnt how to:

- Make individual pictographs with one-to-one correspondence from data provided in either picture form or tables.

**Concepts:**

- Represent data in a table.
- Represent data in a graph.

**Resources:** n/a

**DBE workbook activities relevant to this lesson:** n/a

**Assessment:** Refer to the tracker for today's formal/informal oral, practical or written assessment activity

**Remediation:**

- Let learners who struggle with counting tallies work with counting sticks in one colour to make groups of 5 and lay them flat on the carpet/table. Replace every fifth counting stick with a stick of a different colour (e.g. red), and place this stick diagonally over the group of 4 sticks (a group of 5 altogether). Then show learners how to count in 5s by only counting the red counting sticks.
- Add one more stick at a time, and get the learners to count on in 1s from the multiple of 5, e.g. for 28 counting sticks count 5, 10, 15, 20, 25, 26, 27, 28. 
- Learners need to understand how much quicker and more convenient it is to count in 5s and 1s than to count in 1s only.

**Enrichment:** See enrichment activity cards.

## 1. Mental mathematics

### 1.1 Counting (5 minutes)

Count forwards and backwards in 5s from any number between 0 and 400.

### 1.2 Recall and strategies (10 minutes)

		Answer			Answer
1.	$1 + 15 = \dots$	16	6.	$3 + 35 = \dots$	38
2.	$2 + 25 = \dots$	27	7.	$1 + 42 = \dots$	43
3.	$3 + 19 = \dots$	22	8.	$2 + 55 = \dots$	57
4.	$4 + 45 = \dots$	49	9.	$4 + 65 = \dots$	69
5.	$5 + 78 = \dots$	83	10.	$4 + 78 = \dots$	82

## 2. Correction/reflection on homework (15 minutes)

Reflection/remediation based on previous day's work/homework.

## 3. Lesson content – concept development (30 minutes)

In this lesson you will create tally and frequency tables together with the learners and then analyse the data that you found.

## Activity 1: Whole class activity

- Ask the learners to think about their favourite colour.
- Create a table on the board, and make a tally mark as each learner names her/his favourite colour.

Favourite colour	Tally	
Red		
Green		

The examples illustrate the steps for teaching tally tables. Your class' responses will differ based on their favourite colours.

- As you mark the learners' choices on the table, show them how to bundle the 4 loose tally marks. One bundle of 4 tally marks crossed out by the fifth makes a count of 5 (||||). Explain to the class that is how tallying works.

Favourite colour	Tally	
Red		
Green		

- Discuss why this approach is useful for counting quickly.
- After you have shown every learner's favourite colour with a tally, let them help you to count the tallies. Show learners how we count in 5s and 1s.
- Record this information in number symbols in the *frequency* column. Explain that *frequency* means how often something happens, e.g. When we look at the table, we can see that 10 people chose red as their favourite colour.

Favourite colour	Tally	Frequency
Red		10
Green		11
Yellow		4
Blue		5

## Activity 2: Whole class activity

- Ask questions based on the tally table, e.g.
  - Which colour is the most popular? (Green)
  - Which colour is the least popular? (Yellow)
  - How many learners are there in our class? (30)
  - Etc.

### 4. Classwork (Group/independent work) (25 minutes)

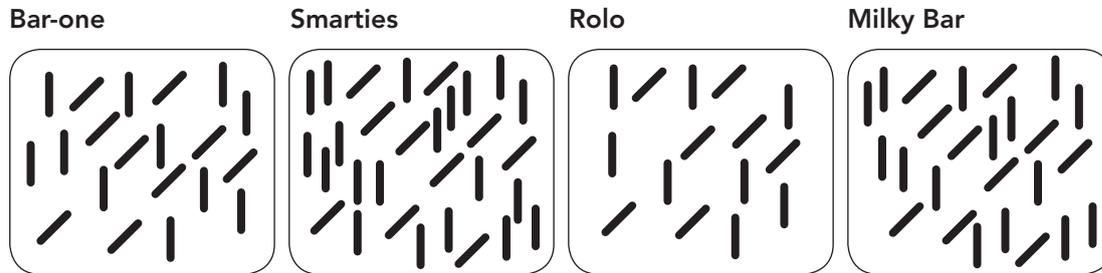
### 5. Homework activity (5 minutes) (See next page)

### 6. Reflection on lesson

## Term 1 Lesson 20: Data – tally tables

### Classwork

1. You have collected the following information on some people's favourite chocolates.



- Complete the tally table.
- Check if the tallies are correct, and then fill in the frequency.

Favourite chocolate	Tally	Frequency
Bar-One	(                           )	(20)
Smarties	(   )	(30)
Rolo	(                    )	(15)
Milky Bar	(                                  )	(25)

- Which chocolate is the most popular? (Smarties)
- Which chocolate is the least popular? (Rolo)

### Homework

(Learner answers will vary.)

- On a piece of paper make a list of all the people who live in your home.
- Ask each person to tell you how many slices of bread they ate today and record this against their names. Call this 'Day 1'.
- Paste this list into your homework book.

# WEEK 7

## LESSON 21: DATA - BAR GRAPHS AND TABLES

### Teacher's notes

**CAPS topics:** 5.5 Represent data

**Lesson vocabulary:** Bar graph, tally, tally table, frequency, frequency table, horizontal, vertical, label, most, least

**Prior knowledge:**

In Grade 2 the learners should have learnt how to:

- Make tally tables to show data collected.

**Concepts:**

- Represent data in a table with tallies and frequencies.
- Represent data in a graph.

**Resources:** n/a

**DBE workbook activities relevant to this lesson:**

- DBE worksheet 22 (pp. 50 and 51).

**Assessment:** Refer to the tracker for today's formal/informal oral, practical or written assessment activity

**Remediation:**

- Let learners draw tallies and count them as they draw.
- Give learners a bar graph template to complete.

**Enrichment:** See enrichment activity cards.

### 1. Mental mathematics

#### 1.1 Counting (5 minutes)

- Count forwards in 3s from any number between 0 and 200
- Count forwards in 5s from any number between 0 and 300

#### 1.2 Recall and strategies (10 minutes)

What is eleven more than...?

		Answer			Answer
1.	54	65	6.	57	68
2.	47	58	7.	75	86
3.	27	38	8.	2	13
4.	44	55	9.	88	99
5.	28	39	10.	14	25

### 2. Correction/reflection on homework (15 minutes)

Reflection/remediation based on previous day's work/homework.

### 3. Lesson content – concept development (30 minutes)

This is the second Data handling lesson. It gives you another opportunity to consolidate the mathematical language of Data handling.

## Activity 1: Whole class activity

This is a whole-class activity.

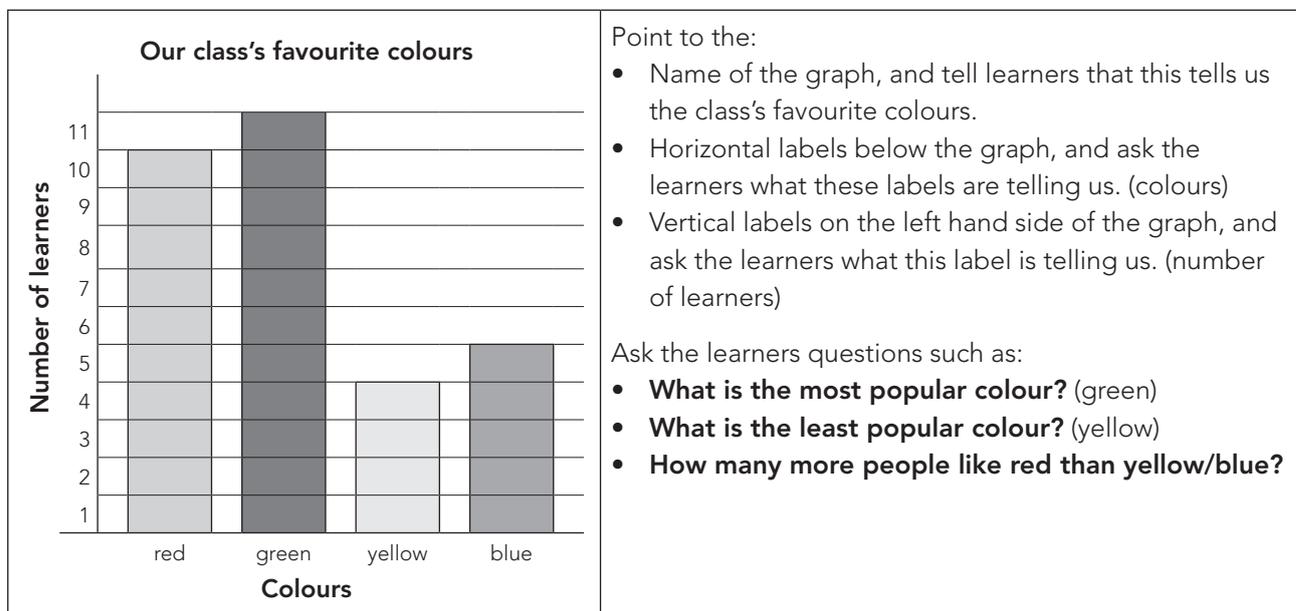
- Draw the tally table below on the board.
- Ask learners what their favourite colours are.
- Mark these on the tally table.
- Remind the learners how tallies are counted.
- Fill in the *frequency* on the table.

The examples illustrate the steps for teaching tally tables. Your class' responses will differ based on their favourite colours.

Explain that the *frequency* is the total of tallies written in a number.

Favourite colour	Tally	Frequency
Red		10
Green		11
Yellow		4
Blue		5

- Using the information in the tally table, draw an appropriate bar graph interactively with the learners. Show the learners how to draw and label a bar graph using the table.



**4. Classwork activity (25 minutes) (See next page)**

**5. Homework activity (5 minutes) (See next page)**

**6. Reflection on lesson**

## Term 1 Lesson 21: Data – bar graphs and tables

### Classwork

1. The learners in your class have these dogs, cats, spiders, fish and birds as pets.

a) Use the tally table to sort the data and find the number of each type of pet.

Pet	Tally	Frequency
Dogs	(  )	(11)
Cats	(  )	(12)
Spiders	(  )	(1)
Fish	(  )	(5)
Birds	(  )	(3)

- What is the most popular pet? (cats)
- What is the least popular pet? (spiders)
- How many learners are there in the class? (32)
- What is the difference between the number of dogs and the number of birds as pets (8)
- What is the difference between the number of cats and the number of spiders as pets? (11)
- What else do you notice that is interesting about the information? (Various, e.g. Nobody has a tortoise.)

### Homework

(Learner answers will vary.)

- Ask each person who lives in your home to tell you how many slices of bread they ate today.
- Write this number on the list you created yesterday next to each person's name. Call this 'Day 2'.

# LESSON 22: DATA – TALLIES AND TABLES

## Teacher's notes

**CAPS topics:** 1.1 Count objects, 1.2 Count forwards and backwards, 1.16 Mental mathematics, 5.4 Collect and organise data

**Lesson vocabulary:** Tallies, tally table, frequency, frequency table, bar graph, label

**Prior knowledge:**

In Grade 2 the learners should have learnt how to:

- Draw bar graphs and tables from tallies.
- Make individual pictographs with one-to-one correspondence from data provided in either picture or table form.

**Concepts:**

- Collect data about the class to answer a question posed by the teacher.
- Use tallies to record data in categories provided.

**Resources:** n/a

**DBE workbook activities relevant to this lesson:**

- DBE worksheet 36 (pp. 84 and 85).

**Assessment:** Refer to the tracker for today's formal/informal oral, practical or written assessment activity

**Remediation:**

- Revise counting in 5s.
- Now show learners how to count the tallies by giving them strips of paper and glue to make bundles of five. Ask the learners to paste four strips next to one another. Then ask them to paste the fifth strip horizontally across them. Count the tallies, e.g. 5, 10, 15, 20, 25... etc. Now ask learners to draw tallies showing: **45, 50** and **25**.
- Revise one-to-one correspondence (matching one thing with another one, so that every item can have a partner if possible).
- Show learners that every item corresponds with a tally mark and that the 5th item in a group is always shown with a horizontal line over the four vertical lines (like in their paper bundles above).

**Enrichment:** See enrichment activity cards.

## 1. Mental mathematics

### 1.1 Counting (5 minutes)

Count forwards in 3s from any number between **0** and **200**.

### 1.2 Recall and strategies (10 minutes)

What number should you add to the number to make it 20?

		Answer			Answer
1.	15	5	6.	13	7
2.	8	12	7.	12	8
3.	7	13	8.	10	10
4.	16	4	9.	19	1
5.	14	6	10.	17	3

## 2. Correction/reflection on homework (15 minutes)

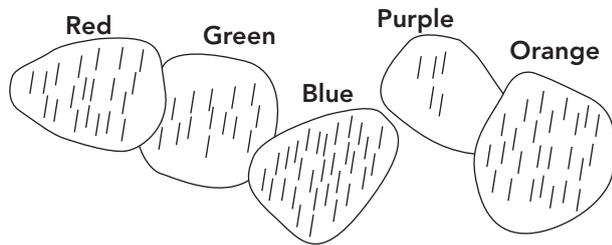
Reflection/remediation based on previous day's work/homework.

## 3. Lesson content – concept development (30 minutes)

This is the third and final Data handling lesson for the term. Allow the learners many opportunities to use the mathematical language of Data handling to check that they have learned it over the past three days.

## Activity 1: Whole class activity

Draw the following sketch on the board before the lesson.



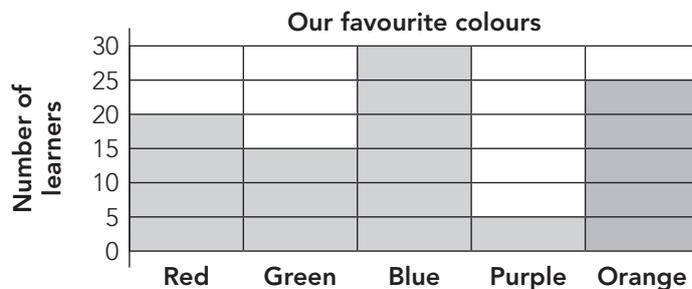
- Tell the learners that you asked some learners what their favourite colours were and that the sketch on the board shows what they said.
- Explain that together you are going to use the information in the sketch to fill in the information on the tally table and then to complete the frequency table, which will show the learners' favourite colours.

### Learners' favourite colours

Colour	Tally	Frequency
Red	(                   )	(20)
Green	(              )	(15)
Blue	(                             )	(30)
Purple	(    )	(5)
Orange	(                        )	(25)

## Activity 2: Whole class activity

- Use the information in the tally table to draw an appropriate bar graph interactively with the learners.
- Discuss the way in which you will label the vertical axis choosing the number. (Explain to learners why the numbers you choose will be in multiples of 5. This must be made clear – it links to the tallies.)
- Show the learners how to draw and label a bar graph using the table.



## Activity 3: Whole class activity

- Ask learners to tell you anything that is interesting about the graph, e.g. Purple is the least popular colour/ For every person who likes green, two people like blue/Orange is the second most popular colour... etc.

### 4. Classwork activity (25 minutes) (See next page)

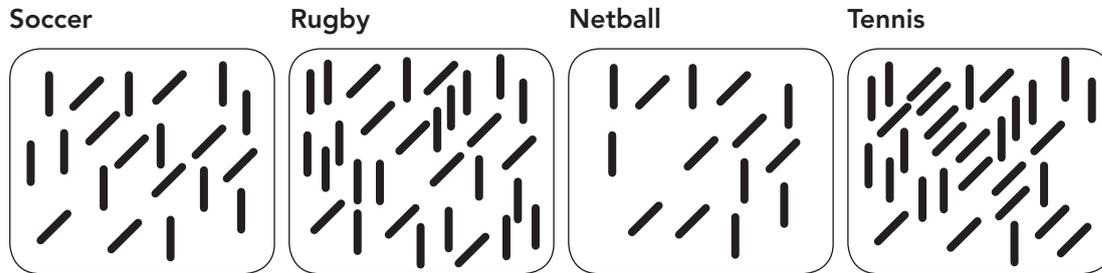
### 5. Homework activity (5 minutes) (See next page)

### 6. Reflection on lesson

## Term 1 Lesson 22: Data – tallies and tables

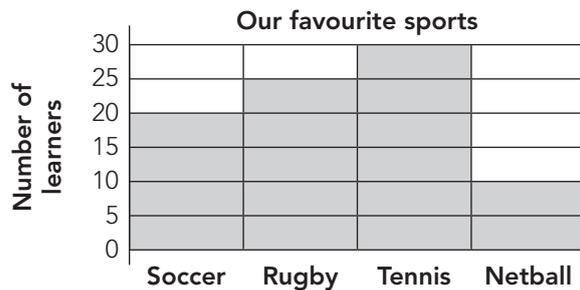
### Classwork

1. Use the information given below to draw a tally table of our favourite sports.



Colour	Tally	Frequency
Soccer	(      )	(20)
Rugby	(                                  )	(25)
Netball	(             )	(10)
Tennis	(   )	(30)

2. Now show this information on a bar graph.



3. Which is the most popular sport? (tennis)
4. List the sports in order from the least popular to the most popular. (netball, soccer, rugby, tennis)

### Homework

(Learner answers will vary.)

1. Ask each person who lives in your home to tell you how many slices of bread they ate today.
2. Write this number on the list you created yesterday next to each person's name. Call this 'Day 3'.
3. Count up the number of slices of bread eaten by each person over the three days.
4. Draw a tally table to show your results.

# LESSON 23: THREES AND REPEATED ADDITION

## Teacher's note

**CAPS Topic:** 1.2 Count forwards and backwards, 1.16 Mental mathematics, 1.6 Problem-solving techniques, 1.8 Repeated addition leading to multiplication, 1.12 Techniques (methods or strategies), 1.14 Repeated addition leading to multiplication

**Lesson vocabulary:** Repeated addition, group, threes (3s), multiply, multiplication, add, altogether, number sentence, calculate, calculation, number line

### Prior knowledge:

In Grade 2 the learners should have learnt how to:

- Do repeated addition and multiplication of 3 up to 48.
- Use a multiplication symbol.

### Concepts:

- Solve repeated addition problems up to **30** using 3s.
- Multiply numbers **1** to **10** by **3** and use appropriate symbols ( $\times$ ,  $=$ ,  $\square$ ).

**Resources:** Counters

### DBE workbook activities relevant to this lesson:

- DBE worksheet 27 (p. 62).

**Assessment:** Refer to the tracker for today's formal/informal oral, practical or written assessment activity

### Remediation:

- Give learners **6** bundles with **3** sticks in each bundle. (Use matchsticks and rubber bands to make these.)
- Ask learners what they see. (Possible answer: **6** bundles with sticks.)
- Ask: **How many sticks are in each bundle?** (3) Then say: **We can say 6 bundles of 3 sticks or 6 groups of 3 sticks.** (Get learners to say this out aloud after you.) **Let us add it all together** (point while you add)  $3 + 3 + 3 + 3 + 3 + 3 = 18$ . Point and say: **We have 6 groups of 3. Can you see that we have 3 six times?** (Point and count the 3 six times.) **We can write it as  $6 \times 3 = \square$  or  $6 \times 3 = 30$ .**
- Note: Repeat these steps with **3** groups, **4** groups etc. Only introduce the ' $\times$ ' sign when the learner understands the concept of multiplication as being repeated addition.

**Enrichment:** See enrichment activity cards.

## 1. Mental mathematics

### 1.1 Counting (5minutes)

- Count forwards and backwards in 3s from any number between **0** and **45**, e.g. 15, 18, 21... and 30, 27, 24 etc.
- Count backwards in 2s from any number between **300** and **0** e.g. 184, 182, 180... etc.

### 1.2 Recall and strategies (10 minutes)

Double these numbers

		Answer			Answer
1.	5	10	6.	30	60
2.	10	20	7.	4	8
3.	2	4	8.	40	80
4.	20	40	9.	5	10
3.	3	6	10.	50	100

## 2. Correction/reflection on homework (15 minutes)

Reflection/remediation based on previous day's work/homework.

## 3. Lesson content – concept development (30 minutes)

## Activity 1: Whole class activity

- Give each learner **5** counters/stones or get them to imagine counters or stones, depending on their level of understanding. Build up a table on the board as you go along.
- Ask the first learner: **How many counters do you have?** (3)
- Ask the second learner the same question.
- Ask: **How many counters do both of you have altogether?** (6). Explain: **We can say  $3 + 3 = 6$ . Two learners have 6 counters altogether. We can also say 2 groups of 3, or we can say  $2 \times 3$ .**
- Write it on the board.
- Keep on asking learners until you get to **10** learners. Here is an example of what it could look like on the board:

1 child	3	1 group of 3	$1 \times 3 = 3$
2 children	$3 + 3 = 6$	2 groups of 3	$2 \times 3 = 6$
3 children	$3 + 3 + 3 = 9$	3 groups of 3	$3 \times 3 = 9$
4 children	$3 + 3 + 3 + 3 = 12$	4 groups of 3	$4 \times 3 = 12$
5 children	$3 + 3 + 3 + 3 + 3 = 15$	5 groups of 3	$5 \times 3 = 15$
6 children	$3 + 3 + 3 + 3 + 3 + 3 = 18$	6 groups of 3	$6 \times 3 = 18$
7 children	$3 + 3 + 3 + 3 + 3 + 3 + 3 = 21$	7 groups of 3	$7 \times 3 = 21$
8 children	$3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 = 24$	8 groups of 3	$8 \times 3 = 24$
9 children	$3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 = 27$	9 groups of 3	$9 \times 3 = 27$
10 children	$3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 = 30$	10 groups of 3	$10 \times 3 = 30$

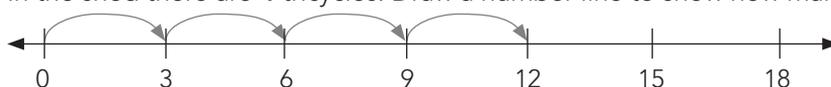
- Ask:
  - **What does 4 groups of 3 mean?** (There are 4 groups, and each group has 3.)
  - **What can we get in groups of three?** (sides/corners in a triangle, wheels in a tricycle, peaches on my plate...)
  - **What does  $4 \times 3 = 12$  mean?** (If we take 3 and add it four times we will get 12...  $3 + 3 + 3 + 3 = 12$ .)
  - **How can we write  $4 \times 3 = 12$  as an addition number sentence?** ( $3 + 3 + 3 + 3 = 12$ )
  - **How can we write  $3 + 3 + 3 + 3 = 12$  as a multiplication number sentence?** ( $4 \times 3 = 12$ )

## Activity 2: Learners work in groups

- Write this word problem on the board: I have **6** bags. There are **3** sweets in each bag. How many sweets do I have altogether?
- Learners solve the problem in their groups. The discuss:
- Ask: **How many groups?** (6). **How many in each group?** (3)
- Ask the learners how they would write this as an addition number sentence ( $3 + 3 + 3 + 3 + 3 + 3 = 18$ ) and as a multiplication number sentence ( $6 \times 3 = 18$ ).

## Activity 3: Learners work in groups

- Write this word problem on the board:
- In the shed there are **4** tricycles. Draw a number line to show how many wheels there are altogether.



- Write two number sentences. ( $3 + 3 + 3 + 3 = 12$ ) and ( $4 \times 3 = 12$ ). There are 12 wheels altogether.

### 4. Classwork activity (group/independent work) (25 minutes) (See next page)

### 5. Homework activity (5 minutes) (See next page)

### 6. Reflection on lesson

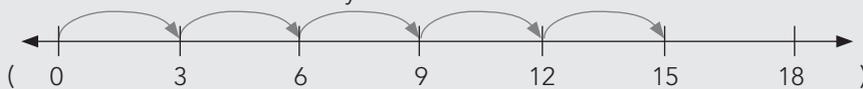
## Term 1 Lesson 23: Threes and repeated addition

### Classwork

- Write a multiplication number sentence and calculate:
  - $3 + 3 + 3 + 3 = 12$                       ( $\square(4) \times \square(3) = 12$ )
  - $3 + 3 + 3 + 3 + 3 + 3 = (18)$             ( $\square(6) \times \square(3) = 18$ )
  - 7 groups of 3                              ( $\square(7) \times \square(3) = 21$ )
- Write the addition number sentence and calculate  $5 \times 3 = 15$  ( $3 + 3 + 3 + 3 + 3 = 15$ )
- Calculate the following:
  - $2 \times 3 = \square(6)$
  - $10 \times 3 = \square(30)$
  - $8 \times 3 = \square(24)$
- Complete the following. Use the example to guide you.
  - 4 triangles have 12 corners.            ( $3 + 3 + 3 + 3 = 4 \times 3 = 12$ )
  - 6 triangles have (18) corners.        ( $3 + 3 + 3 + 3 + 3 + 3 = 6 \times 3 = 18$ )
  - 9 triangles have (27) corners.        ( $3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 = 9 \times 3 = 27$ )
  - 10 triangles have (30) corners.       ( $3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 = 10 \times 3 = 30$ )
  - 11 triangles have (33) corners.       ( $3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 = 11 \times 3 = 33$ )
  - 12 triangles have (36) corners.       ( $3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 = 12 \times 3 = 36$ )

### Homework

- Use a multiplication number sentence to calculate  $3 + 3 + 3 + 3 + 3 = \square$ . ( $5 \times 3 = 15$ )
- I have 9 bags. There are 3 sweets in each bag. How many sweets do I have altogether? (27 sweets)
- In the shed there are five tricycles. Draw a number line to show how many wheels there are altogether.



Write the number sentence. ( $5 \times 3 = 15$ . There are 15 wheels altogether)

- Practise counting in 3s at home.

# LESSON 24: THREES ARRAYS

## Teacher's notes

**CAPS topics:** 1.2 Count forwards and backwards, 1.16 Mental mathematics, 1.6 Problem-solving techniques, 1.8 Repeated addition leading to multiplication, 1.12 Techniques (methods or strategies), 1.14 Repeated addition leading to multiplication

**Lesson vocabulary:** Repeated addition, array, grid, threes (3s), multiply, times tables, number sentence, row, number line, multiplication

**Prior knowledge:**

In Grade 2 the learners should have learnt how to:

- Do repeated addition, groups and multiplication by 3 up to 30.

**Concepts:**

- Solve repeated addition problems up to **50** using 3s.
- Multiply numbers **1** to **10** by **3** and use appropriate symbols ( $\times$ ,  $=$ ,  $\square$ ).

**Resources:** n/a

**DBE workbook activities relevant to this lesson:**

- DBE worksheet 27 (p. 63).

**Assessment:** Refer to the tracker for today's formal/informal oral, practical or written assessment activity

**Remediation:**

- Give learners **12** counters. Ask them to take **3** counters and pack them in a row. Ask: **How many counters do you have?** Ask the learners to add another row below the first row. Ask: **How many counters do you have now?** Then say: **Let us count: 3, 6.** Carry on until there are **4** rows. Then say: **Let us count: 3, 6, 9, 12.** Ask: **How many rows do we have?** (4) Say: **We can say we have 4 rows of 3. Let's write it as an addition number sentence:  $3 + 3 + 3 + 3 = \square$ .** Repeat, **We have 4 rows of 3. Let's write it as a multiplication number sentence:  $4 \text{ (rows)} \times 3 \text{ (counters)} = \square$ .**

**Enrichment:** See enrichment activity cards.

## 1. Mental mathematics

### 1.1 Counting (5 minutes)

- Count forwards in 2s from any number between **0** and **300**, e.g. 16, 18, 20... etc.
- Count backwards in 2s from any number between **300** and **0**, e.g. 184, 182, 180... etc.

### 1.2 Recall and strategies (10 minutes)

	Double these numbers:	Answer		Halve these numbers:	Answer
1.	10	20	6.	14	7
2.	100	200	7.	140	70
3.	20	40	8.	12	6
4.	40	80	9.	120	60
5.	30	60	10.	400	200

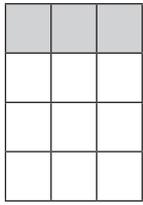
## 2. Homework (15 minutes)

Reflection/remediation based on previous day's work/homework.

## 3. Lesson content – concept development (30 minutes)

## Activity 1: Whole class activity

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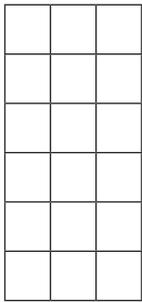
Remind learners about how they worked out their five times tables. Explain that we can also use a grid to work out our tables.

- Draw a grid like this on the board. Shade the top row.
- Ask them to count the rows. (4)
- Ask them to count the squares in each row. (3)
- On the board, write an addition number sentence:  $3 + 3 + 3 + 3 = \square$ .
- Then say: **We can say: 4 rows of 3. How can we write it as a multiplication number sentence?** ( $4 \times 3 = \square$ )
- Ask: **What is the answer?** (12). Learners can check the answer by counting: 3, 6, 9, 12.
- Do the same with  $3 \times 3$  and  $8 \times 3$ .

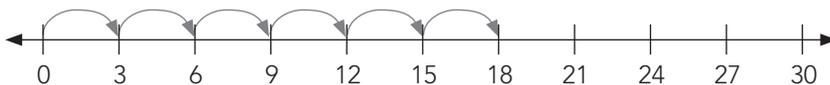
## Activity 2: Learners work in groups

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- Write this problem on the board: Mrs Pink plants **6** rows of potatoes. There are **3** plants in a row.
- Learners work in their groups to solve the problem. Then discuss the solution using two different methods.
- Draw a grid to show how many potato plants there are altogether.



- Write two number sentences. ( $6 \times 3 = 18$  and  $3 + 3 + 3 + 3 + 3 + 3 = 18$ )
- Draw a number line to show how many potato plants there are altogether.



- Write two number sentences. ( $6 \times 3 = 18$  and  $3 + 3 + 3 + 3 + 3 + 3 = 18$ )
- Count the jumps to show the multiplication and the repeated addition.

**4. Classwork activity (25 minutes) (See next page)**

**5. Homework activity (5 minutes) (See next page)**

**6. Reflection**

## Term 1 Lesson 24: Threes arrays

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### Classwork

- Write a multiplication number sentence and calculate.
  - $3 + 3 + 3 + 3 = 12$       (  $4 \times 3 = 12$  )
  - $3 + 3 + 3 + 3 = \square$       (  $4 \times 3 = 12$  )
  - 4 groups of 3      (  $4 \times 3 = 12$  )
- Write the addition number sentence and calculate  $6 \times 3 = 18$     ( $3 + 3 + 3 + 3 + 3 + 3 = 18$ )
- Calculate the following:
  - $2 \times 3 = \square$  (6)
  - $10 \times 3 = \square$  (30)
  - $8 \times 3 = \square$  (24)
- I have 7 books. There are 3 stickers in each book. How many stickers do I have altogether?
  - Draw a grid to show how many stickers there are altogether. (Drawing of grid with 7 rows and 3 squares in each row). Write the number sentence. ( $7 \times 3 = 21$ )
  - Draw a number line to show how many stickers there are altogether. Write the two number sentences. ( $3 + 3 + 3 + 3 + 3 + 3 + 3 = 21$  and  $7 \times 3 = 21$ )

### Homework

- Use a multiplication number sentence to calculate  $3 + 3 + 3 + 3 + 3 = \square$     ( $5 \times 3 = 15$ )
- I have 8 bags. There are 3 sweets in each bag. How many sweets do I have altogether? ( $8 \times 3 = 24$  sweets)
- Mom has 10 vases. Each vase has 3 roses.
  - Draw a grid to show how many roses there are altogether. (Drawing of grid with 10 rows and 3 squares in each row). Write the number sentence. ( $10 \times 3 = 30$ )
  - Draw a number line to show how many roses there are altogether. Write the two number sentences. ( $3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 = 30$  and  $10 \times 3 = 30$ )
- Practise counting in 3s at home.

# WEEK 8

## LESSON 25: THREES - SHARING AND GROUPING

### Teacher's notes

**CAPS topics:** 1.1 Count objects, 1.2 Count forwards and backwards, 1.16 Mental mathematics, 1.6 Problem-solving techniques, 1.9 Grouping and sharing leading to division, 1.12 Techniques (methods or strategies), 1.15 Division

**Lesson vocabulary:** Sharing, dividing, threes (3s), groups, remainders, grouping, division, symbol (division), calculate

#### Prior knowledge:

In Grade 2 the learners should have learnt how to:

- Do sharing and grouping, leading to division.

#### Concepts:

- Solve and explain solutions to practical problems that involve equal sharing and grouping up to **30**.
- Divide numbers up to **30** by **3** and use appropriate symbols ( $\div$ ,  $=$ ,  $\square$ ).

**Resources:** Counters

#### DBE workbook activities relevant to this lesson:

- DBE worksheet 30a (pp. 68 and 69).

**Assessment:** Refer to the tracker for today's formal/informal oral, practical or written assessment activity

#### Remediation:

- Give learners **17** counters. Ask them to share these equally into **three** groups. They do this by picking up **three** counters and then to distributing them equally amongst the **three** groups. They then pick up another handful of three counters and again distribute these as above. They continue until a full set of **three** counters cannot be picked up.
- Ask: **How many counters in each group?** (5) **How many groups?** (3) **Are there any counters left?** (Yes, 2)  
Explain: **We can say 17 counters will make 3 groups with 5 counters in each group, and 2 counters will be left. To write this as a number sentence, let's look at how many counters you started with. (17) Let's write  $17 \div$  (How many groups did you make?)  $3 =$  . How many counters in each group? 5. Are you left with any counters? How many? 2 counters are left. I can write it as  $17 \div 3 = \square \rightarrow 17 \div 5 = 5$  remainder 2.**

**Enrichment:** See enrichment activity cards.

### 1. Mental mathematics

#### 1.1 Counting (5 minutes)

- Count forwards in 3s from any number between **0** and **45**, e.g. 36, 39, 42... and 45, 42, 39... etc.
- Count backwards in 2s from any number between **400** and **0**, e.g. 384, 382, 380... and 129, 127, 125... etc.

#### 1.2 Recall and strategies (10 minutes)

Which number is before and which number is after ... ?

	Which number is before...?	Answer		Which number is after...?	Answer
1.	120	119	6.	182	183
2.	134	133	7.	199	200
3.	145	144	8.	100	101
4.	167	166	9.	179	180
5.	172	171	10.	188	189

### 2. Correction/reflection on homework (15 minutes)

Reflection/remediation based on previous day's work/homework.

### 3. Lesson content – concept development (30 minutes)

This is the third lesson in which learners consolidate their understanding developed in Grades 1 and 2 of division with and without remainders. The two division strategies, grouping and sharing are also consolidated. Learners should ultimately be able to think of division using either strategy comfortably. This skill will be developed through lots of practice doing division using both strategies.

## Activity 1: Whole class activity

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- This activity involves sharing division with no remainder.
- Ask learners to take **36** counters and share them amongst **3** friends.
- Ask: **How many groups do we have?** (3) **How many counters does each friend get?** (12)
- Then say: **We can say 36 divided by 3 is 12. We can write it as  $36 \div 3 = \square$  or  $36 \div 3 = 12$ .**
- Write this word problem on the board, and guide the learners' thinking by asking questions: You have **30** sweets. Share it amongst **3** learners. How many sweets does each learner get? Are there any remainders/leftovers? Ask: **What is the question asking you to do?** (share the sweets). **What are the numbers?** (30 and 3) **Will you multiply or divide?** (divide) **Which word helped you to decide this?** (share) **What symbol will you use?** ( $\div$ ) **What will the number sentence be?** ( $30 \div 3 = 10$ ) Read the question again. Ask: **Are there any remainders/leftovers?** (There are no sweets left.)

## Activity 2: Whole class activity

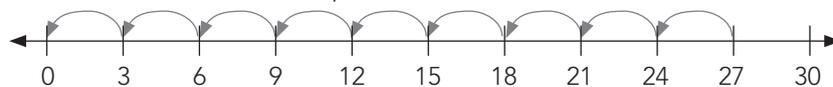
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- This activity involves sharing division with no remainder.
- Ask learners to take **31** counters.
- Ask them to share them among **3** friends.
- Ask: **How many counters/stones does each friend get? How many counters are left?**  
Then say: **We can say 31 divided by 3 is 10, remainder 1. We can write it as  $31 \div 3 = 10$  remainder 1.**

## Activity 3: Whole class activity

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Look at the number line below, and then write the number sentences:



- Write a subtraction number sentence. ( $27 - 3 - 3 - 3 - 3 - 3 - 3 - 3 - 3 - 3 = 0$ )
- Write a division number sentence. ( $27 \div 3 = 9$ )

**4. Classwork activity (25 minutes) (See next page)**

**5. Homework activity (5 minutes) (See next page)**

**6. Reflection on lesson**

## Term 1 Lesson 25: Threes – sharing and grouping

### Classwork

- Calculate the following:
  - $12 \div 3 = \square$  (4)
  - $36 \div 3 = \square$  (12)
  - $24 \div 3 = \square$  (8)
  - $48 \div 3 = \square$  (16)
  - $39 \div 3 = \square$  (13)
  - $47 \div 3 = \square$  (15 rem 2)
  - $11 \div 3 = \square$  (3 rem 2)
  - $34 \div 5 = \square$  (6 rem 4)
  - $49 \div 2 = \square$  (24 rem 1)
  - $25 \div 3 = \square$  (8 rem 1)
- You have 49 sweets. Share them amongst 3 learners.
  - How many sweets does each learner get? (16)
  - Are there any sweets left over? (Yes, there is 1 sweet left over.)
- Complete the following. Use the example to guide you:
  - (5) tricycles have 15 wheels.  $(15 - 3 - 3 - 3 - 3 - 3 = 0)$   $\rightarrow 15 \div 3 = 5$
  - (4) tricycles have 12 wheels.  $(12 - 3 - 3 - 3 - 3 = 0)$   $\rightarrow 12 \div 3 = 4$
  - (3) tricycles have 9 wheels.  $(9 - 3 - 3 - 3 = 0)$   $\rightarrow 9 \div 3 = 3$
  - (7) tricycles have 21 wheels.  $(21 - 3 - 3 - 3 - 3 - 3 - 3 - 3 = 0)$   $\rightarrow 21 \div 3 = 7$
  - (8) tricycles have 24 wheels.  $(24 - 3 - 3 - 3 - 3 - 3 - 3 - 3 - 3 = 0)$   $\rightarrow 24 \div 3 = 8$
  - (6) tricycles have 18 wheels.  $(18 - 3 - 3 - 3 - 3 - 3 - 3 = 0)$   $\rightarrow 18 \div 3 = 6$

### Homework

- You have 44 marbles. You share them amongst 3 friends.
  - How many marbles does each friend get? (14 marbles)
  - Do you have any marbles left? (Yes, there are 2 marbles left.)
- Dad has 15 wheels. How many tricycles can he make? (5 tricycles)
- Look at the number line below and then write the number sentences:



- Write a subtraction number sentence.  $(24 - 3 - 3 - 3 - 3 - 3 - 3 - 3 - 3 = 0)$
- Write a division number sentence.  $(24 \div 3 = 8)$

# LESSON 26: FOURS AND REPEATED ADDITION

## Teacher's notes

**CAPS topics:** 1.2 Count forwards and backwards, 1.16 Mental mathematics, 1.6 Problem-solving techniques, 1.8 Repeated addition leading to multiplication, 1.12 Techniques (methods or strategies), 1.14 Repeated addition leading to multiplication

**Lesson vocabulary:** Repeated addition, groups, fours (4s), multiply, multiplication, add, altogether, number sentence, calculate, calculation, number line

### Prior knowledge:

In Grade 2 the learners should have learnt how to:

- Do repeated addition and multiplication of 4 up to 48.
- Use the multiplication symbol.

### Concepts:

- Solve repeated addition problems up to **40** using 4s.
- Multiply numbers **1** to **10** by **4** and use appropriate symbols ( $\times$ ,  $=$ ,  $\square$ ).

**Resources:** Counters

### DBE workbook activities relevant to this lesson:

- DBE worksheet 28 (p. 64).

**Assessment:** Refer to the tracker for today's formal/informal oral, practical or written assessment activity

### Remediation:

- Give learners **3** bundles with **4** sticks in each bundle. (Use matchsticks and rubber bands to make these.)
- Ask: **What do you see?** (Possible answer: 3 bundles with sticks.) **How many sticks are in each bundle?** (4) Then say: **We can say 3 bundles of 4 sticks or 3 groups of 4 sticks.** (Get learners to say this out aloud after you.) **Let us add it all together.** (Point while you add.)  $4 + 4 + 4 = 12$ . Point and say: **We have 3 groups of 4. Can you see that we have 4 three times?** (Point and count the '3' four times.) **We can write it as  $3 \times 4 = \square$  or  $3 \times 4 = 12$ .**
- Note: Repeat these steps with **2** groups, **7** groups, **10** groups, etc. Only use the ' $\times$ ' symbol when the learners understand the concept of multiplication as being repeated addition.

**Enrichment:** See enrichment activity cards.

## 1. Mental mathematics

### 1.1 Counting (5 minutes)

- Count forwards in 4s from any number between **0** and **60**, e.g. 12, 16, 20... etc.
- Count backwards in 2s from any number between **400** and **0**, e.g. 284, 282, 280... etc.

### 1.2 Recall and strategies (10 minutes)

Calculate:

		Answer			Answer
1.	$17 + 3 = \dots$	20	6.	$20 - 3 = \dots$	17
2.	$27 + 3 = \dots$	30	7.	$30 - 3 = \dots$	27
3.	$37 + 3 = \dots$	40	8.	$40 - 3 = \dots$	37
4.	$47 + 3 = \dots$	50	9.	$50 - 3 = \dots$	47
5.	$57 + 3 = \dots$	60	10.	$60 - 3 = \dots$	57

## 2. Correction/reflection on homework (15 minutes)

Reflection/remediation based on previous day's work/homework.

## 3. Lesson content – concept development (30 minutes)

## Activity 1: Whole class activity

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- Give each learner **4** counters/stones or get them to imagine counters or stones, depending on their level of understanding. Build up a table on the board as you go along.
- Ask the first learner: **How many counters do you have?** (4)
- Ask the second learner the same question. (4)
- Ask: **How many counters do both of you have altogether?** (8) Explain: **We can say  $4 + 4 = 8$ . Two learners have 8 counters altogether. We can also say 2 groups of 4 or we can say  $2 \times 4$ .** Write it on the board.
- Keep on asking learners until you get to **10** learners. Here is an example of what it could look like on the board:

1 child	4	1 group of 4	$1 \times 4 = 4$
2 children	$4 + 4 = 8$	2 groups of 4	$2 \times 4 = 8$
3 children	$4 + 4 + 4 = 12$	3 groups of 4	$3 \times 4 = 12$
4 children	$4 + 4 + 4 + 4 = 16$	4 groups of 4	$4 \times 4 = 16$
5 children	$4 + 4 + 4 + 4 + 4 = 20$	5 groups of 4	$5 \times 4 = 20$
6 children	$4 + 4 + 4 + 4 + 4 + 4 = 24$	6 groups of 4	$6 \times 4 = 24$
7 children	$4 + 4 + 4 + 4 + 4 + 4 + 4 = 28$	7 groups of 4	$7 \times 4 = 28$
8 children	$4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 = 32$	8 groups of 4	$8 \times 4 = 32$
9 children	$4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 = 36$	9 groups of 4	$9 \times 4 = 36$
10 children	$4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 = 40$	10 groups of 4	$10 \times 4 = 40$

- Ask: **What do 5 groups of 4 mean?** (There are 5 groups, and each group has 4.)
- **What can we get in groups of four?** (sides/corners in a square/rectangle, wheels of a car, peaches on my plate, legs on a chair/dog, etc.)
- **What does  $5 \times 4 = 20$  mean?** (If we take **4** and add it **five** times we will get 20 or  $4 + 4 + 4 + 4 + 4 = 20$ )
- **How can we write  $5 \times 4 = 20$  as an addition number sentence?** ( $4 + 4 + 4 + 4 + 4 = 20$ )
- **How can we write  $4 + 4 + 4 + 4 + 4 = 20$  as a multiplication number sentence?** ( $5 \times 4 = 20$ )

## Activity 2: Whole class activity

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- Write this word problem on the board: I have **6** bags. There are **4** sweets in each bag. How many sweets do I have altogether?
- Ask: **How many groups?** (6). **How many in each group?** (4)
- Ask the learners how they would write this as an addition number sentence ( $4 + 4 + 4 + 4 + 4 + 4 = 24$ ) and as a multiplication number sentence ( $6 \times 4 = 24$ ).

### 4. Classwork activity (25 minutes) (See next page)

### 5. Homework activity (5 minutes) (See next page)

### 6. Reflection on lesson

## Term 1 Lesson 26: Fours and repeated addition

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### Classwork

- Write a multiplication number sentence and calculate.
  - $4 + 4 + 4 + 4 + 4 = 20$                        $(5) \times (4) = 20$
  - $4 + 4 + 4 + 4 + 4 + 4 = \square$                        $(6) \times (4) = 24$
  - 7 groups of 4                       $(7) \times (4) = 28$
- Write the addition number sentence and calculate  $6 \times 4 = 24$  ( $4 + 4 + 4 + 4 + 4 + 4 = 24$ )
- Calculate the following:
  - $2 \times 4 = \square$  (8)
  - $10 \times 4 = \square$  (40)
  - $8 \times 4 = \square$  (32)
- There are 8 tables. Each table has 4 legs. How many legs altogether? ( $8 \times 4 = 32$  legs)
- Complete the following. Use the example to guide you:
  - 3 dogs have 12 legs                       $(4 + 4 + 4 = 4 \times 3 = 12)$
  - 4 dogs have (16) legs                       $(4 + 4 + 4 + 4 = 4 \times 4 = 16)$
  - 6 dogs have (24) legs                       $(4 + 4 + 4 + 4 + 4 + 4 = 6 \times 4 = 24)$
  - 8 dogs have (32) legs                       $(4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 = 8 \times 4 = 32)$
  - 12 dogs have (48) legs                       $(4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 = 12 \times 4 = 48)$

### Homework

- Use a multiplication number sentence and calculate:  
 $4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 = \square$  ( $9 \times 4 = 36$ )
- I have 10 bags. There are 4 sweets in each bag. How many sweets do I have altogether?  
( $10 \times 4 = 40$  sweets)
- Show the multiplication calculation on the number line and complete.
  - $5 \times 4 = \square$  (20)
  - $7 \times 4 = \square$  (28)
- Practise counting in 4s at home.

# LESSON 27: FOURS ARRAYS

## Teacher's notes

**CAPS topics:** 1.1 Count objects, 1.2 Count forwards and backwards, 1.16 Mental mathematics, 1.6 Problem-solving techniques, 1.8 Repeated addition leading to multiplication, 1.12 Techniques (methods or strategies), 1.14 Repeated addition leading to multiplication

**Lesson vocabulary:** Repeated addition, arrays/grids, fours, times tables, number sentence, row number line, multiplication

**Prior knowledge:**

In Grade 2 the learners should have learnt how to:

- Do repeated addition, groups and multiplication by 4 up to 40.

**Concepts:**

- Solve repeated addition problems up to 50 using 4s.
- Multiply numbers 1 to 10 by 4, and use appropriate symbols ( $\times$ ,  $=$ ,  $\square$ ).

**Resources:** n/a

**DBE workbook activities relevant to this lesson:**

- DBE worksheet 28 (p. 65).

**Assessment:** Refer to the tracker for today's formal assessment activity.

**Remediation:**

- Give learners 20 counters. Ask them to take 4 counters and pack them in a row. Ask: **How many counters do you have?** (4)
- Ask the learners to add another row below the first row. Ask: **How many counters do you have now? Let's count: 4, 8.** Carry on until there are 5 rows. Say, **Let's count: 4, 8, 12, 16, 20. How many rows do we have?** (5) **We can say we have 5 rows of 4. Let's write it as an addition number sentence:  $4 + 4 + 4 + 4 + 4 = \square$ .** Repeat: **We have 5 rows of 4. Let's write it as a multiplication number sentence:  $5 \text{ (rows)} \times 4 \text{ (counters)} = \square$ .**

**Enrichment:** See enrichment activity cards.

## 1. Mental mathematics

### 1.1 Counting (5 minutes)

- Count forwards in 4s from any number between 0 and 60, e.g. 12, 16, 20... etc.
- Count backwards in 2s from any number between 400 and 0, e.g. 284, 282, 280... etc.

### 1.2 Recall and strategies (10 minutes)

Put number in the box to make 100.

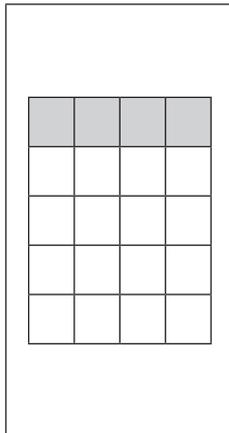
		Answer			Answer
1.	$\square + 70 = 100$	30	6.	$90 + \square = 100$	10
2.	$\square + 50 = 100$	50	7.	$\square + 30 = 100$	70
3.	$20 + \square = 100$	80	8.	$\square + 80 = 100$	20
4.	$40 + \square = 100$	60	9.	$\square + 20 + 100$	80
5.	$60 + \square = 100$	40	10.	$10 + \square = 100$	90

## 2. Homework/corrections (15 minutes)

Reflection/remediation based on previous day's work/homework.

## 3. Lesson content – concept development (30 minutes)

## Activity 1: Whole class activity

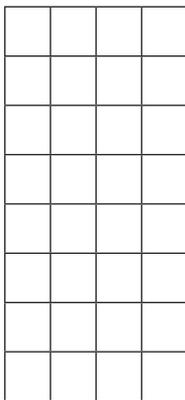


- Remind learners that for homework they had to do repeated addition, groups and multiplication by 4. Say, **Today we are going to do more examples like those.**
- Ask learners in what other way they can work out tables. (grids)
- Draw a grid like this on the board. Shade the top row.
- Ask the learners to show what a row is and ask them to count the rows. (5)
- Ask them to count the squares in each row. (4)
- On the board, write an addition number sentence:  $4 + 4 + 4 + 4 + 4 = \square$
- Say, **We can say: 5 rows of 4. How can we write it as a multiplication number sentence?** ( $5 \times 4 = \square$ )
- Ask, **What is the answer?** (20). Learners check by counting: 4, 8, 12, 16, 20.
- Do the same with  $7 \times 4$  and  $9 \times 4$

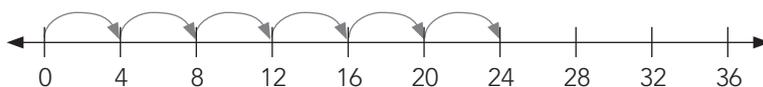
## Activity 2: Whole class activity

Write this problem on the board: Mrs Black plants **8** rows of potatoes. There are **4** plants in a row.

- Draw a grid to show how many potato plants there are altogether.



- Write two number sentences. ( $8 \times 4 = 32$ ) and ( $4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 = 32$ )
- Draw a number line to show how many potato plants there are altogether.



- Write two number sentences. ( $8 \times 4 = 32$ ) and ( $4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 = 32$ )
- Count the jumps to show the multiplication and the division.

### 4. Classwork activity (25 minutes) (See next page)

### 5. Homework activity (5 minutes) (See next page)

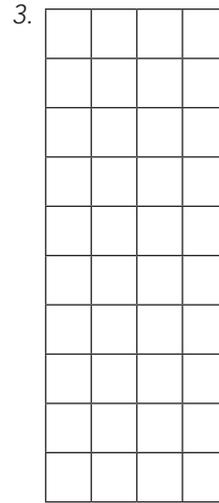
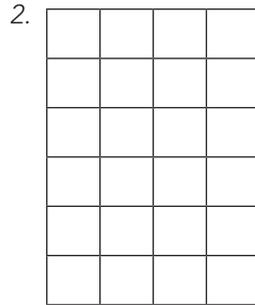
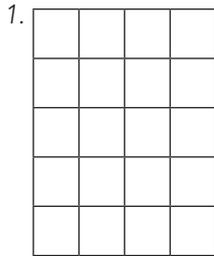
### 6. Reflection on lesson

## Term 1 Lesson 27: Fours arrays

### Classwork

1. Count:

- a) Number of rows: (1. 5 rows      2. 6 rows      3. 10 rows)  
b) Squares per row: (1. 4 squares      2. 4 squares      3. 4 squares)  
c) Write a multiplication number sentence: (1.  $5 \times 4 = 20$       2.  $6 \times 4 = 24$       3.  $10 \times 4 = 40$ )



2. There are 8 rows of suckers in the sweet stand. There are 4 suckers in a row. How many suckers are there altogether? ( $8 \times 4 = 32$  suckers)
3. There are 9 rectangles. Each rectangle has 4 corners.
- a) Draw a grid to show how many corners there are altogether.  
(Drawing of grid with 9 rows and 4 squares in each row)
- b) Write the number sentence. ( $9 \times 4 = 36$  corners)  
Draw a number line to show how many corners there are altogether.
- c) Write the two number sentences.  
( $4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 = 36$ ) and ( $9 \times 4 = 36$ )

### Homework

1. There are 7 rows with 4 bottles of cold drinks in each row in the fridge. How many bottles of cold drink are in the fridge? ( $7 \times 4 = 28$  bottles)
- a) Draw a grid to show how many bottles of cold drinks there are altogether.  
(Drawing of grid with 7 rows and 4 squares in each row)  
Write the number sentence. ( $7 \times 4 = 28$  bottles)
- b) Draw a number line to show how many bottles of cold drinks there are altogether.  
Write the two number sentences. ( $4 + 4 + 4 + 4 + 4 + 4 + 4 = 28$ ) and ( $7 \times 4 = 28$ )
2. Arrange these numbers from biggest to smallest.  
44, 12, 32, 8, 16, 24, 20, 40. (44, 40, 32, 24, 20, 16, 12, 8)

# LESSON 28: FOURS – SHARING AND GROUPING

## Teacher’s notes

**CAPS topics:** 1.2 Count forwards and backwards, 1.16 Mental mathematics, 1.6 Problem-solving techniques, 1.9 Grouping and sharing leading to division, 1.12 Techniques (methods or strategies), 1.15 Division

**Lesson vocabulary:** Sharing, dividing, fours 4s, grouping, division, symbol (division), calculate

**Prior knowledge:**

In Grade 2 the learners should have learnt how to:

- Do sharing and grouping leading to division.

**Concepts:**

- Solve and explain solutions to practical problems that involve equal sharing and grouping up to **50**.
- Divide numbers up to **50** by **4** and use appropriate symbols ( $\div$ ,  $=$ ,  $-$ ,  $\square$ ).

**Resources:** Counters

**DBE workbook activities relevant to this lesson:**

- DBE worksheet 30b (pp. 70 and 71).

**Assessment:** Refer to the tracker for today’s formal/informal oral, practical or written assessment activity

**Remediation:** Give learners **23** counters. Ask them to share these equally into **four** groups. They do this by picking up four counters and then distributing them equally amongst the four groups. Then pick up another handful of four counters and again distribute these as above. Continue until a full set of four counters cannot be picked up.

Ask: **How many counters in each group?** (5) **How many groups?** (4) **Are there any counters left?** (Yes, 3)

Say: **We can say 23 counters will make 5 groups with 4 counters in each group, and 3 counters will be left.**

**To write this as a number sentence, let’s look at how many counters you started with. (23) Let’s write  $23 \div$**

**How many groups did you make?  $5 =$**

**How many counters in each group? 4. Are you left with any counters? How many? 3 counters are left. I can write it as  $23 \div 4 = \square \rightarrow 23 \div 4 = 5$  remainder 3.**

**Enrichment:** See enrichment activity cards.

## 1. Mental mathematics

### 1.1 Counting (5 minutes)

Count forwards in 3s from any number between **0** and **200**.

### 1.2 Recall and strategies (10 minutes)

Write down what is two after...

		Answer			Answer
1.	99	101	6.	34	36
2.	156	158	7.	89	91
3.	175	177	8.	165	167
4.	189	191	9.	179	181
5.	190	192	10.	143	145

## 2. Correction/reflection on homework (15 minutes)

Reflection/remediation based on previous day’s work/homework.

## 3. Lesson content – concept development (30 minutes)

This is the fourth lesson in which learners consolidate their understanding developed in Grades 1 and 2 of division with and without remainders. The two division strategies, grouping and sharing are also consolidated. Learners should ultimately be able to think of division using either strategy comfortably. This skill will be developed through lots of practice doing division using both strategies.

## Activity 1: Whole class activity

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- This activity involves sharing division with no remainder.
- Write this word problem on the board, and guide the learners' thinking by asking questions: **You have 32 sweets. Share them among 4 learners. How many sweets does each learner get? Are there any remainders/leftovers?**
- Ask: **What is the question asking you to do?** (share the sweets). **What are the numbers?** (32 and 4) **Will you multiply or divide?** (divide) **Which word helped you to decide this?** (share) **What symbol will you use?** ( $\div$ ) **What will the number sentence be?** ( $32 \div 4 = 8$ ). **Are there any sweets left?** (There are no sweets left.)

## Activity 2: Whole class activity

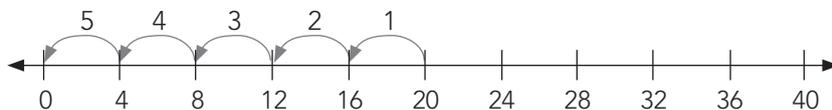
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- This activity involves sharing division with a remainder.
- Ask learners to take **35** counters/Unifix cubes and share them among **4** friends.
- Ask: **How many counters/Unifix cubes does each friend get?** (8) **How many counters are left?** (3)
- Say: **We can say 35 divided by 4 is 8, remainder 3. We can write it as  $35 \div 4 = 8$  remainder 3.**

## Activity 3: Whole class activity

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- Draw a number line to show how many cars have 20 wheels.
- Ask: **What do you know?** (One car has 4 wheels. There are 20 wheels.) **How can we work out how many cars there are?** (We need to work out how many 4s there are in 20.) Let's use a number line to work this out. Count the number of jumps of 4 it takes to get from 20 to 0.



- Use a subtraction number sentence to work out how many cars have 20 wheels altogether.  
( $20 - 4 - 4 - 4 - 4 - 4 = 0$ ) (5 cars)
- Use a division number sentence to work out how many cars have 20 wheels altogether.  
( $20 \div 4 = 5$ ) (5 cars)

### 4. Classwork activity (25 minutes) (See next page)

### 5. Homework activity (5 minutes) (See next page)

### 6. Reflection on lesson

## Term 1 Lesson 28: Fours – sharing and grouping

### Classwork

- Calculate the following:
  - $12 \div 4 = \square$  (3)
  - $36 \div 4 = \square$  (9)
  - $24 \div 4 = \square$  (6)
  - $48 \div 4 = \square$  (12)
  - $40 \div 4 = \square$  (10)
  - $47 \div 4 = \square$  (11 rem 3)
  - $11 \div 4 = \square$  (2 rem 3)
  - $34 \div 4 = \square$  (8 rem 2)
  - $50 \div 4 = \square$  (12 rem 2)
  - $25 \div 4 = \square$  (6 rem 1)
- You have 49 balls. Share them amongst 4 learners.
  - How many balls does each learner get? (12)
  - Do you have any balls left or not? (Yes, there is 1 ball left over.)
- Complete the following. Use the example to guide you.

a) (5) cars have 20 wheels.	$(20 - 4 - 4 - 4 - 4 - 4 = 0$	$\longrightarrow$	$20 \div 4 = 5)$
b) (3) cars have 12 wheels.	$(12 - 4 - 4 - 4 = 0$	$\longrightarrow$	$12 \div 4 = 3)$
c) (6) cars have 24 wheels.	$(24 - 4 - 4 - 4 - 4 - 4 - 4 = 0$	$\longrightarrow$	$24 \div 4 = 6)$
d) (8) cars have 32 wheels.	$(32 - 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4 = 0$	$\longrightarrow$	$32 \div 4 = 8)$
e) (10) cars have 40 wheels.	$(40 - 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4 = 0$	$\longrightarrow$	$40 \div 4 = 10)$
f) (7) cars have 28 wheels.	$(28 - 4 - 4 - 4 - 4 - 4 - 4 - 4 = 0$	$\longrightarrow$	$28 \div 4 = 7)$

### Homework

- The teacher has 45 pencils. S/he shares them amongst 4 friends. Does s/he have any pencils left? (Yes, s/he has 1 pencil left.)
- Use number lines to calculate the following.
  - $24 \div 3 = \square$  (8)
  - $24 \div 4 = \square$  (6)
  - $24 \div 2 = \square$  (12)
- A loaf of bread has 20 slices. If I eat 4 slices of bread a day, how long will the loaf of bread last? (5)  
Write the subtraction number sentence to show your working.  
 $(20 - 4 - 4 - 4 - 4 = 0)$

# WEEK 9

## LESSON 29: SHARING LEADING TO FRACTIONS

### Teacher's notes

**CAPS topics:** 1.1 Count objects, 1.2 Count forwards and backwards, 1.16 Mental mathematics, 1.17 Fractions

**Lesson vocabulary:** Sharing, fractions, halves, quarters, three quarters, thirds, sixths, unitary, non-unitary

**Prior knowledge:**

In Grade 2 the learners should have learnt how to:

- Use and name fractions in familiar contexts including halves, quarters, thirds and fifths.
- Recognise fractions in diagrammatic form and write fractions as 1 half, 2 thirds, etc.

**Concepts:**

- Solve and explain solutions to practical problems that involve equal sharing leading to solutions that include unitary fractions, e.g.  $\frac{1}{2}$ ,  $\frac{1}{4}$ ,  $\frac{3}{4}$ ,  $\frac{2}{5}$ , etc.
- Use and name fractions in familiar contexts including *halves, quarters, eighths, thirds, sixths, fifths*.

**Resources:** Cones, sharing circles, hula-hoops, counters, printable worksheet (sharing to find fractions)

**DBE workbook activities relevant to this lesson:** n/a

**Assessment:** Refer to the tracker for today's formal/informal oral, practical or written assessment activity

**Remediation:** Work with smaller numbers, e.g. **6** shared into *thirds* and **4** shared into *quarters*.

**Enrichment:** See enrichment activity cards.

### 1. Mental mathematics

#### 1.1 Counting (5 minutes)

Count forwards in 2s, 5s and 10s from any number between **0** and **100**.

#### 1.2 Recall and strategies (10 minutes)

Calculate:

		Answer			Answer
1.	$42 + 10 = \square$	52	6.	$62 + 10 - 1 = \square$	71
2.	$42 + 10 - 1 = \square$	51	7.	$72 + 10 = \square$	82
3.	$52 + 10 = \square$	62	8.	$72 + 10 - 1 = \square$	81
4.	$52 + 10 - 1 = \square$	61	9.	$82 + 10 = \square$	92
5.	$62 + 10 = \square$	72	10.	$82 + 10 - 1 = \square$	91

### 2. Correction/reflection on homework (15 minutes)

Reflection/remediation based on previous day's work/homework.

### 3. Lesson content – concept development (30 minutes)

## Activity 1: Whole class activity

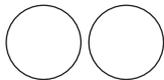
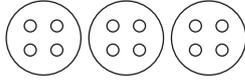
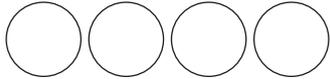
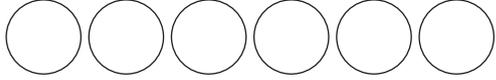
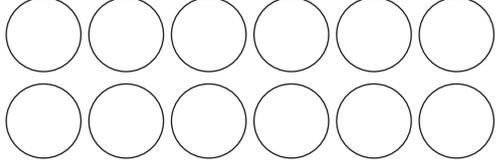
Take your learners outside and do the following activities.

- Divide the class into groups of even numbers. Give each group two hula-hoops. Ask the groups to divide themselves into two equal smaller groups by stepping inside the hoops one at a time. When they are finished, ask them to describe what they had just done. (Our group has **6** learners. If we divided ourselves equally between the **2** hoops, there are **3** learners in each hoop. We can also say that one half of our group is **3**.)

## Activity 2: Whole class activity

Take the learners back to the class.

- Give each pair a worksheet with sharing circles and **12** counters as shown below.
- Each row calls on learners to share the 12 counters in a different way. Each time learners should share the 12 counters into the given number of parts and record their findings.
- The findings for the second row (division into three equal parts) is shown in the table below. You should work through this example with the class, showing how to share the counters into the given number of parts.
- Ask each pair to take **twelve** counters and share them equally into 3 parts. Remind learners about how they shared counters when they were doing division. Draw the three big circles on the board and demonstrate the sharing (so that each circle gets four counters) when you share 12 counters into 3 equal parts.
- Discuss what they find – 12 shared into 3 equal parts gives 4 counters in each part.
- Show the learners how to complete the third row of the worksheet. Let the learners do the rest of the worksheet by themselves.

Name:		Date:
Share twelve counters equally in each row. ○○○○ ○○○○ ○○○○	What did you do?	What did you find?
		
	I shared __ counters into __ groups of equal size. Each group had __ counters. __ is _____ of 12.	$\frac{1}{3}$ of 12 is _4_ $\frac{2}{3}$ of 12 is _8_ $\frac{3}{3}$ of 12 is _12_
		
		
		

Do this example with the learners. They will do the rest by themselves.

**4. Classwork activity (25 minutes) (See next page)**

**5. Homework activity (5 minutes) (See next page)**

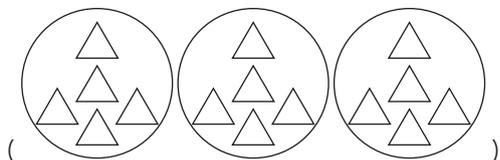
**6. Reflection on lesson**

## Term 1 Lesson 29: Sharing leading to fractions

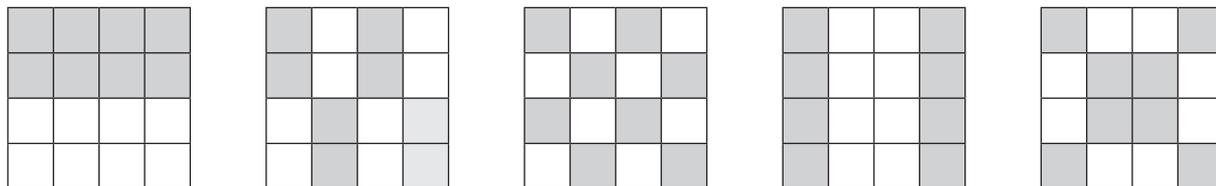
You should circulate while learners do this activity and check that they are able to follow the instructions. Check especially Question 2 – sharing 15 into 3 circles. Ask questions to prompt learners if necessary – such as: **If I share counters into three groups of equal size what fraction do I find?** (thirds)

### Classwork

- Write as a fraction symbol.
  - one half ( $\frac{1}{2}$ )
  - one quarter ( $\frac{1}{4}$ )
  - one third ( $\frac{1}{3}$ )
- Draw three circles like these into your book. Share 15 triangles between the circles. What is one third of 15? (5)



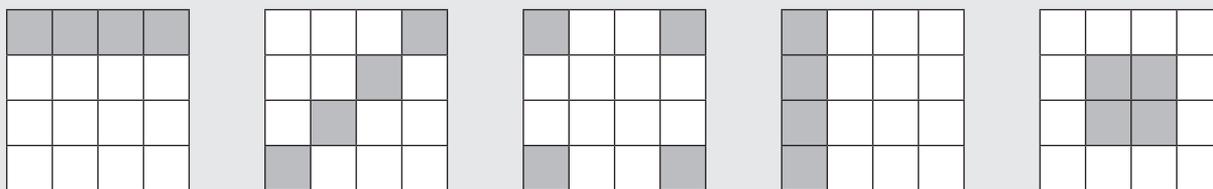
- Colour in a half of each shape below in a different way. (various)



- Draw 4 circles in your book and label each one as 1 fourth, 2 fourths, etc.
- Share 24 beads amongst the 4 circles. (Similar to Q2 above)
- Copy the sentences and fill in the missing words:
  - One fourth of 24 counters is (6 counters)
  - Two fourths of 24 counters is (12 counters)
  - Three fourths of 24 counters is (8 counters)
  - Four fourths of 24 counters is (24 counters)

### Homework

- Colour in a quarter of each shape below in a different way. (various)



# LESSON 30: FRACTIONS AS PARTS OF A GROUP

## Teacher's notes

**CAPS topics:** 1.1 Count objects, 1.2 Count forwards and backwards, 1.16 Mental mathematics, 1.17 Fractions

**Lesson vocabulary:** Sharing, fractions, half/halves, quarter(s), eighth(s), third(s), sixth(s), fifth(s)

**Prior knowledge:**

In Grade 2 the learners should have learnt how to:

- Use and name fractions in familiar contexts including halves, quarters, thirds and fifths.
- Recognise fractions in diagrammatic form and write fractions as 1 half, 2 thirds, etc.

**Concepts:**

- Use and name fractions in familiar contexts including *halves, quarters, eighths, thirds, sixths, fifths.*

**Resources:** n/a

**DBE workbook activities relevant to this lesson:**

- DBE worksheet 31 (p. 72 and 73).

**Assessment:** Refer to the tracker for today's formal/informal oral, practical or written assessment activity

**Remediation:**

- Give the learners **two** green and **four** orange beads.
- Ask them the following questions: **How many beads are there?** (6) **What fraction is green?** (Two sixths are green.) **What fraction is orange?** (Four sixths are orange.)
- Ask similar questions for: **four** green and **four** orange beads; **one** green and **three** orange beads.

**Enrichment:** See enrichment activity cards.

## 1. Mental mathematics

### 1.1 Counting (5 minutes)

- Count forwards in 3s from any number between **0** and **100**.
- Count backwards in 3s from **30** to **3**.

### 1.2 Recall and strategies (10 minutes)

Calculate:

		Answer			Answer
1.	$42 + 9 = \square$	51	6.	$42 + 11 = \square$	53
2.	$52 + 9 = \square$	61	7.	$52 + 11 = \square$	63
3.	$62 + 9 = \square$	71	8.	$62 + 11 = \square$	73
4.	$72 + 9 = \square$	81	9.	$72 + 11 = \square$	83
5.	$82 + 9 = \square$	91	10.	$82 + 11 = \square$	93

## 2. Correction/reflection on homework (15 minutes)

Reflection/remediation based on previous day's work/homework.

## 3. Lesson content – concept development (30 minutes)

## Activity 1: Whole class activity

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- Call three girls and two boys to the front of the class.
- Explain to the class that you are now going to talk about fractions using the number of learners (boys and girls) that you have called to the front.
- Ask: **How many children are there in front of the class?** (5)
- **How many of them are boys?** (2)
- **What fraction of the whole group of learners are boys?** (2 fifths)
- **How many of them are girls?** (3)
- **What fraction of the whole group of learners are girls?** (3 fifths)
- Allow the five learners to return to their seats. Now call up two girls and one boy.
- Ask: **How many children are there?** (three)
- **How many of them are boys?** (1)
- **What fraction of the whole group of learners are boys?** (1 third)
- **How many of them are girls?** (2)
- **What fraction of the whole group of learners are girls?** (2 thirds)
- Allow the three learners to return to their seats. Now call up 5 boys and 3 girls.
- Ask: **How many children are there?** (eight)
- **How many of them are boys?** (5)
- **What fraction of the whole group of learners are boys?** (5 eighths)
- **How many of them are girls?** (3)
- **What fraction of the whole group of learners are girls?** (3 eighths)
- Do other example(s) if you think the class needs more practice naming fraction parts.

### 4. Classwork activity (25 minutes) (See next page)

### 5. Homework activity (5 minutes) (See next page)

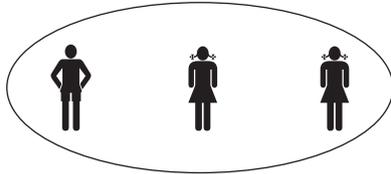
### 6. Reflection on lesson

## Term 1 Lesson 30: Fractions as parts of a group

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### Classwork

1. There are 1 boy and 2 girls standing together.



- a) How many children are there altogether? (3)  
b) How many boys are there? (1)  
c) What fraction of the children are boys? ( $\frac{1}{3}$ )  
d) How many girls are there? (2)  
e) What fraction of the children are girls? ( $\frac{2}{3}$ )
2. There are 12 boys and 3 girls.
- a) How many children are there altogether? (15)  
b) How many boys are there? (12)  
c) What fraction of the children are boys? ( $\frac{12}{15}$ )  
d) How many girls are there? (3)  
e) What fraction of the children are girls? ( $\frac{3}{15}$ )
3. Draw 4 green and 2 orange beads in your book. What fraction of the beads is orange? ( $\frac{2}{6}$ )
4. Draw eight squares. Colour four of the squares. What fraction did you colour? ( $\frac{4}{8}$  or  $\frac{1}{2}$ )
5. Draw four green and four orange beads in your book. What fraction of the beads is orange? ( $\frac{4}{8}$  or  $\frac{1}{2}$ )

### Homework

1. Draw five green and three orange beads in your book.
- a) What fraction of the beads is green? ( $\frac{5}{8}$ )  
b) What fraction of the beads is orange? ( $\frac{3}{8}$ )
2. Draw six circles. Colour three of the circles. What fraction of the circles did you colour? ( $\frac{3}{6}$  or  $\frac{1}{2}$ )

# LESSON 31: FRACTION SHAPES

## Teacher's notes

**CAPS topics:** 1.1 Count objects, 1.2 Count forwards and backwards, 1.16 Mental mathematics, 1.17 Fractions

**Lesson vocabulary:** Sharing, fractions, halves, quarter, eighths, equal, fraction wall, bigger than, smaller than, equal

**Prior knowledge:**

In Grade 2 the learners should have learnt how to:

- Use and name fractions in familiar contexts including halves, quarters, thirds and fifths.
- Recognise fractions in diagrammatic form and write fractions as 1 half, 2 thirds.

**Concepts:**

- Solve and explain solutions to practical problems that involve equal sharing leading to solutions that include unitary fractions, e.g.  $\frac{1}{2}$ ,  $\frac{1}{4}$ ,  $\frac{3}{4}$ ,  $\frac{2}{5}$  etc.
- Begin to recognise that *two halves* or *three thirds* make one whole and *two quarters* are equivalent to one half.
- Use and name fractions in familiar contexts including *halves, quarters, eighths, thirds, sixths, fifths*, and recognise fractions in diagrammatic form.

**Resources:** Scrap paper, fraction circles, fraction wall (see *Printable Resources*)

**DBE workbook activities relevant to this lesson:** n/a

**Assessment:** Refer to the tracker for today's formal/informal oral, practical or written assessment activity

**Remediation:**

- Make fraction circles (showing *halves, quarters* and *eighths*).
- Do the same activity as in the lesson but focusing only on *wholes, halves* and *quarters* before moving onto eighths.
- Learners physically place the cut-outs on the whole shape to establish relationships.

**Enrichment:** See enrichment activity cards.

## 1. Mental mathematics

### 1.1 Counting (5 minutes)

- Count forwards in 3s from any number between 0 and 100
- Count backwards in 3s from 30 to 3.

### 1.2 Recall and strategies (10 minutes)

Use what you know about doubling to work these out.

		Answer			Answer
1.	10 + 10 =	20	6.	20 + 21 =	21
2.	10 + 11 =	21	7.	50 + 50 =	100
3.	10 + 9 =	19	8.	50 + 49 =	99
4.	20 + 20 =	20	9.	50 + 51 =	101
5.	20 + 19 =	39	10.	100 + 101 =	201

## 2. Correction/reflection on homework (15 minutes)

Reflection/remediation based on previous day's work/homework.

## 3. Lesson content – concept development (30 minutes)

## Activity 1: Whole class activity

- Give learners **4** strips of paper of the same size. (You can use scrap paper folded/cut into strips.) Use the illustration on the right to guide you with these steps.
- Ask learners to stick the first strip (Row 1) into their Mathematics books. Label this *1 whole*.
- Take the 2nd strip (Row 2). Fold in the middle. Label each part *1 half*. Stick into Mathematics books.
- Discuss the relationships between the half and the whole (by looking at the vertical dividing lines between the two). For example, two halves make one whole, one whole makes two halves, 3 quarters is bigger than 1 half, etc. Encourage learners to verbalise their thoughts by using the correct vocabulary.
- Take another piece (Row 3) and fold into 4 pieces. Stick in Mathematics books and label each part *1 quarter*.
- Discuss relationships, e.g. two quarters make one half; four quarters make one whole, 3 quarters is bigger than 1 half, etc.
- Do the same for eighths. Learners stick it into their mathematics books and discuss the relationships between the fraction parts they can see, e.g. 3 eighths is bigger than one quarter, etc.
- Explain to the learners that they have made a fraction wall that shows the whole, halves, quarters and eighths. They will use this fraction wall in the next lesson activity.

Row 1	1 whole							
Row 2	$\frac{1}{2}$				$\frac{1}{2}$			
Row 3	$\frac{1}{4}$							
Row 4	$\frac{1}{8}$							

## Activity 2: Learners work in groups

- Ask learners to use their fraction walls to find fractions that are the same size.
  - 1 whole =  $\square$  (4) quarters
  - one half =  $\square$  (2) quarters
  - 4 quarters =  $\square$  (2) halves
  - $\square$  (4) eighths = one half
  - $\frac{3}{4} = \square$  (6) eighths

## Activity 3: Whole class activity OPTIONAL

- Use the printable fraction circles to repeat Activities 1 and 2 above, if you have time.

### 4. Classwork activity (25 minutes) (See next page)

### 5. Homework activity (5 minutes) (See next page)

### 6. Reflection on lesson

## Term 1 Lesson 31: Fraction shapes

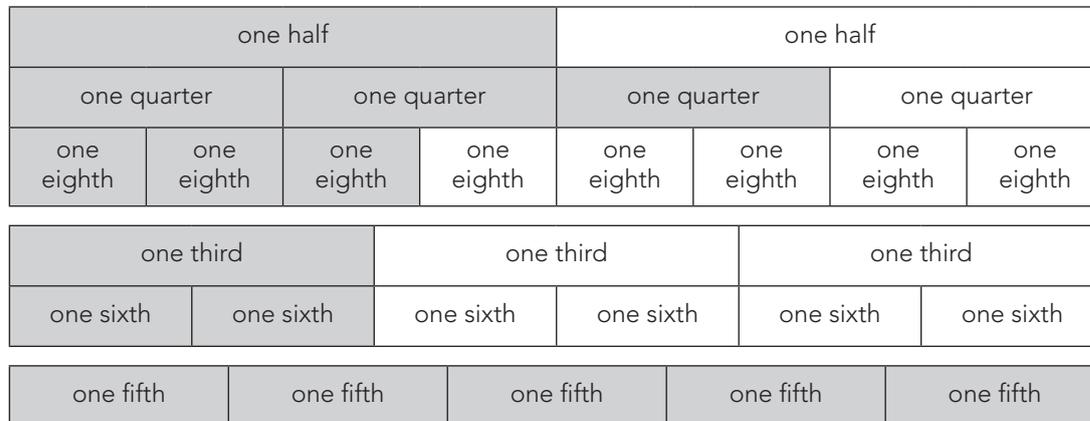
In this activity the learners are asked to shade in a fraction wall. You need to print copies of the fraction wall for them if possible to save them time. Learners also need to know the meanings of the signs  $>$  (bigger than),  $<$  (smaller than) and  $=$  (equal to). Refer to the Mathematics dictionary if necessary.

To answer question 2 they need to look at the fraction wall.

### Classwork

1. Draw a fraction board in your book. Colour the following fractions:

- one half
- one third
- three quarters
- five fifths
- two sixths
- three eighths



2. Fill in  $>$  or  $<$  or  $=$

- one half ( $<$ ) five fifths
- five fifths ( $>$ ) three quarters
- two sixths ( $=$ ) one third
- three eighths ( $<$ ) two sixths

### Homework

1. A rectangle, divided into sixths has four parts that are coloured.

- What fraction is coloured? ( $\frac{2}{3}$  or  $\frac{4}{6}$ )
- What fraction is not coloured? ( $\frac{1}{3}$  or  $\frac{2}{6}$ )

2. A circle, divided into fifths has four parts that are coloured.

- What fraction is coloured? ( $\frac{4}{5}$ )
- What fraction is not coloured? ( $\frac{1}{5}$ )

## LESSON 32: CAPACITY/VOLUME

### Teacher's notes

**CAPS topics:** 1.1 Count objects, 1.2 Count forwards and backwards, 1.6 Problem-solving techniques, 4.4 Capacity/volume

**Lesson vocabulary:** Capacity, volume, compare, estimate, estimation, measure, measurement, record, standard unit, non-standard unit, litre, millilitre, calculate, calculation

**Prior knowledge:**

In Grade 2 the learners should have learnt how to:

- Read markings on jugs where the volume is near to a 1-litre or 2-litre gradation line.

**Concepts:**

- Estimate measure, compare and order the capacity of containers by using non-standard measures, e.g. spoons and cups.
- Describe the capacity of the container by counting and stating how many of the informal units it takes to fill the container, e.g. the bottle has a capacity of four cups.

Remember:

- *Capacity* refers to how much a container, e.g. an ice-cream container, can hold when it is full. A 2-litre ice cream container has a capacity of 2 litres.
- *Volume* refers to how much space something, e.g. 1 litre ice cream, occupies in the container. There can be 1 litre of ice cream in a 2-litre container.

**Resources:** Spoons; clear/see-through cups (2 cups for each group and an extra set for the teacher for demonstration); various other containers, e.g. jugs, 1, 2 and 3-litre plastic bottles, margarine containers

**DBE workbook activities relevant to this lesson:**

- DBE worksheet 14 (p. 30).

**Assessment:** Refer to the tracker for today's formal/informal oral, practical or written assessment activity

**Remediation:** Help learners who are struggling to improve their skills of using non-standard units more effectively. Use smaller containers with clearer variation in size and visible liquid, e.g. water with food colouring. Learners must use what they already know to solve a new problem, e.g. the measurement of a smaller container measured previously.

**Enrichment:** See enrichment activity cards.

### 1. Mental mathematics

#### 1.1 Counting (5 minutes)

Count forwards in 4s from any number between **0** and **100**.

#### 1.2 Recall and strategies (10 minutes)

Use what you know about doubling to work these out.

		Answer			Answer
1.	10 + 10 =	20	6.	25 + 24 =	49
2.	10 + 11 =	21	7.	50 + 50 =	100
3.	10 + 9 =	19	8.	50 + 49 =	99
4.	25 + 25 =	50	9.	50 + 51 =	101
5.	25 + 26 =	51	10.	100 + 101 =	201

### 2. Correction/reflection on homework (15 minutes)

Reflection/remediation based on previous day's work/homework.

### 3. Lesson content – concept development (30 minutes).

In this activity you will use non-standard units. The non-standard units suggested in the lesson activities are spoons (which you will use to fill up cups with sand). Working with the non-standard unit gives you the opportunity to introduce the language for measuring capacity and the concept of capacity (*how much something can hold*).

First you demonstrate to the whole class how to fill the containers to do the measuring activity; and then they work in groups to experience the measuring themselves. If you do not have enough resources for learners to work in groups for this lesson, you will have to do the whole lesson as a demonstration. Make sure that you involve learners in the demonstration so that they do feel engaged in the activity.

Learners should have measured using non-standard units in Grade 2. While you do this activity with the class you are revising the process of measuring by counting a certain number of units. Estimation is an important part of this activity. Learners need to develop the ability to make a good approximation (near answer) of a measurement.

## Activity 1: Whole class activity

---

Draw the table shown below on the board before the lesson.

- Place a cup and a small margarine tub on the table.
- Ask the learners to estimate how many spoons of sand it will take to fill each of the containers.
- Record the class's estimation of the measurement using non-standard units.
- Use the sand and teaspoons to measure the capacity of the cup in spoons.
- Ask: **What is the capacity of this cup?** (Learners count with you the number of spoons of sand used to fill the cup.)
- Record the class's actual measurement of the capacity of the cup using non-standard units. (... spoons of sand)
- Learners should now copy this table from the board to record the findings and to compare the estimations with the measurements when they measure capacity of the other containers in the group activity that follows.

	Capacity in spoons		
	I estimate	I measure	Difference
Cup			
Margarine tub			
Other small containers			

## Activity 2: Learners work in groups

---

- Continuation of whole class activity in small groups. Learners now work in groups and each group needs a few small containers, some sand and some spoons.
- Each group must:
  - Estimate how many spoons of sand will fill each of the containers to the brim and record the estimation.
  - Measure how many spoons of sand will fill each of the containers to the brim and record the measurement.
  - Calculate the difference between the estimation and the actual measurement. The group must record the difference.
  - Complete the columns in the table, for all of the containers provided for this activity.

## Activity 3: Whole class activity

---

- Discuss the findings as a class. Learners' estimates and measurements might differ.
- Discuss the importance of good estimates. Estimates should be close to the actual measurements.

### 4. Classwork activity (25 minutes) (See next page)

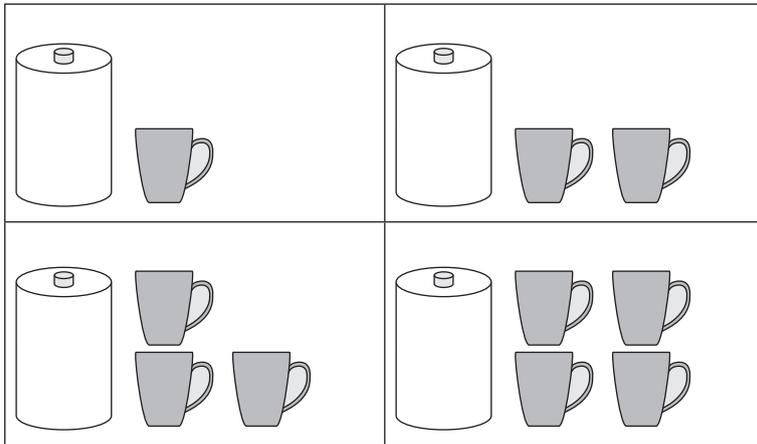
### 5. Homework activity (5 minutes) (See next page)

### 6. Reflection on lesson

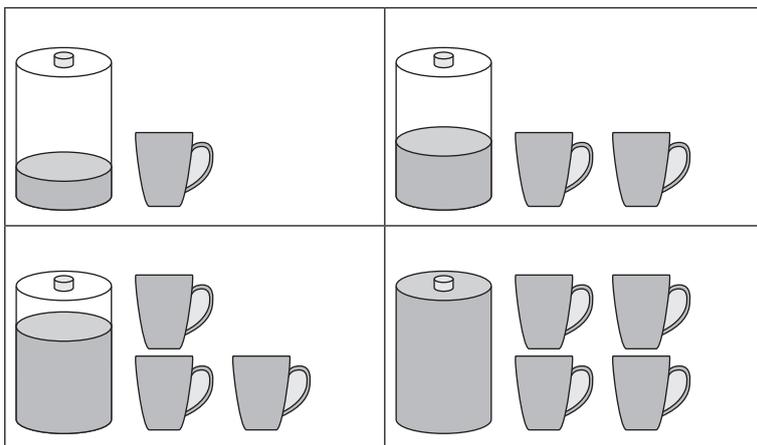
## Term 1 Lesson 32: Capacity/volume

### Classwork

1. Divide a page in your Mathematics books into four equal blocks.
2. Draw these pictures on your page.



3. Draw up to where you think the cups will fill each bottle.



### Homework

(Learners answers will vary.)

1. Find pictures of two containers that have different capacities.
  - a) Large capacity
  - b) Small capacity
2. Draw pictures of the containers.

# WEEK 10

## LESSON 33: CAPACITY/VOLUME

### Teacher's notes

**CAPS topics:** 1.2 Count forwards and backwards, 1.16 Mental Mathematics, 4.4 Capacity

**Lesson vocabulary:** Capacity, litres, millilitres, most, least, more than, less than, compare, record, standard cup, teaspoon, fill, full, container

#### Prior knowledge:

In Grade 2 the learners should have learnt how to:

- Estimate, measure, compare, order and record the capacity of objects.
- Compare, order and record the capacity of commercially packaged objects whose capacity is stated in litres.

#### Concepts

- Compare, order and record the capacity of commercially packaged objects whose capacity is stated in litres.
- Know that a standard cup is 250 ml and that a teaspoon is 5 ml.

**Resources:** Containers on which you can see the capacity, e.g. 250 ml cup, teaspoon, an empty 1 litre bottle; pictures of products on which you can see the capacity, e.g. 250 ml cup, teaspoon, an empty 1 litre bottle

#### DBE workbook activities relevant to this lesson:

- DBE worksheet 14 (p. 31).

**Assessment:** Refer to the tracker for today's formal/informal oral, practical or written assessment activity

#### Remediation:

- Show learners a standard cup. Ask them how much it can hold. (250 ml) Say: **A standard cup can hold 250 ml.**
- Demonstrate that four standard cups will fill a 1-litre container. Empty the 1-litre container. Pour in one cup of liquid. Ask: **Is the bottle almost filled up to 1 litre?** (No) Pour in another cup of liquid. Say: **The 1 litre bottle is now filled halfway.** Pour in another cup of liquid. Ask: **Is the bottle almost filled up to 1 litre?** (No – needs one more cup.)

**Enrichment:** See enrichment activity cards.

## 1. Mental mathematics

### 1.1 Counting (5 minutes)

Count forwards in 2s and 4s from any number between **0** and **100**.

### 1.2 Recall and strategies (10 minutes)

Put the number in the box to make 100.

		Answer			Answer
1.	$\square + 70 = 100$	30	6.	$90 + \square = 100$	10
2.	$\square + 50 = 100$	50	7.	$\square + 30 = 100$	70
3.	$20 + \square = 100$	80	8.	$\square + 80 = 100$	20
4.	$40 + \square = 100$	60	9.	$\square + 20 + 100$	80
5.	$60 + \square = 100$	40	10.	$10 + \square = 100$	90

## 2. Homework – 15 minutes

Reflection/remediation based on previous day's work/homework.

## 3. Lesson content – concept development (30 minutes)

## Activity 1: Whole class activity

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- Explain to the class that yesterday they used non-standard measurements (teaspoons of sand) in the estimation activity. Because of this there might have been differences between the measurements learners found. Today they are going to learn about some of the standard units of measurement for capacity.
- Tell them about the litre and the millilitre – the standard units that we use to measure capacity.
- 1 litre = 1 000 millilitres. We often use abbreviations (shortened forms) to write the standard units of measurement.  $1 \ell = 1\,000 \text{ ml}$
- A standard cup holds 250 ml and a teaspoon holds 5 ml. Learners need to know these standard measurements.
- In the next two activities (and in the classwork and homework activities) you will work with these units.

## Activity 2: Learners work in a group

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- Give each group cut-out pictures of products or empty containers on which they can see the capacity, e.g.



- Discuss the capacity of each of the containers for which they have pictures. (For example, the capacity of the water bottle is 3 l, etc.)
- Ask the learners to order the containers from the one that holds the least to the one that holds the most.
- Give another set of pictures, where learners have to order and compare products whose capacity is stated only in millilitres. For example, 200 ml cool drink, 500 ml milk, 400 ml sunlight liquid, 150 ml shampoo, etc.

## Activity 3: Whole class activity

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- Talk about filling from the smaller container into the bigger container. When you do this, work out how many times you will need to pour from the smaller one into the bigger one in order to fill it. (Use your product pictures and measurements if they are different to what is pictured here.)
- Ask: **How many Pepsi bottles (500ml) will fill the milk container? (10); the yoghurt container? (2)**
- **How many standard cups (250ml) will fill the Pepsi container? (2); the oil container? (8).**

### 4. Classwork activity (25 minutes) (See next page)

### 5. Homework activity (5 minutes) (See next page)

### 6. Reflection on lesson

## Term 1 Lesson 33: Capacity/volume

In this activity learners must work with litres (ℓ) and millilitres (ml). Refer to your Mathematics dictionary if necessary for definitions and examples.

### Classwork

1. If one cup fills a jug up to the 250 ml mark, how many cups do you need to fill the jug to:
  - a) 500 ml (2 cups)
  - b) 250 ml (1 cup)
  - c) 750 ml (3 cups)
  - d) 1 000 ml (4 cups)
  - e) 1 litre (4 cups)
2. Look at the items below and complete the sentences.



- a) The capacity of the Sunlight Liquid container is  (5 litres/5 ℓ)
- b) The capacity of the milk container is  (1 litre/1 ℓ)
- c) The capacity of the Vanish container is  (3 litres/3 ℓ)
- d) The capacity of the Dettol container is  (5 litres/5 ℓ)
- e) The capacity of the green milkshake bottles is  (500 ml)
- f) The capacity of the Fanta container is  (340 ml)
- g) The capacity of the  (Sunlight Liquid/Dettol) container is largest. It contains  (5 litres/5 ℓ)

### Homework

(Learner answers will vary.)

1. Find three containers at home that have capacities of the following amounts.
  - a) one litre
  - b) 500 ml
  - c) 250 ml
2. Draw pictures of the containers.
3. Label them according to their capacities.

# LESSON 34: TIME - CALENDARS

## Teacher's notes

**CAPS topics:** 1.2 Count forwards and backwards, 1.16 Mental mathematics, 4.1 Time

**Lesson vocabulary:** Calendar, date, religious festivals, public holiday, historical events, day, week, month, year

### Prior knowledge:

In Grade 2 the learners should have learnt how to:

- Use calendars to calculate and describe length of time in days or weeks.
- Place birthdays, religious festivals, public holidays, historical and school events on a calendar.

### Concepts:

- Read dates on calendar.
- Place birthdays, religious festivals, public holidays, historical and school events on a calendar.

**Resources:** Current calendar (1 per pair)

### DBE workbook activities relevant to this lesson:

- DBE worksheet 12 (pp. 26 and 27).

**Assessment:** Refer to the tracker for today's formal/informal oral, practical or written assessment activity

### Remediation:

- Give learners a monthly calendar, for example one for April.
- Ask: **How many days are there in April? How many Sundays/Tuesdays are there in April? What is the date on the second Sunday in April? Tell me something about the 12th of April.** (It comes after the 11th/before the 13th/it is a Friday.) **Show me the 19th of April. On what day is this? Which public holidays are in this month?**

**Enrichment:** See enrichment activity cards.

## 1. Mental mathematics

### 1.1 Counting (5 minutes)

- Count forwards in 2s from any number between **0** and **100**.
- Count forwards in 4s from any number between **0** and **100**.
- Count **8** steps forwards in 2s from **20**. How far did you count? (36)
- Count **4** steps forwards in 4s from **20**. How far did you count? (36)

### 1.2 Recall and strategies (10 minutes)

Calculate the following:

		Answer			Answer
1.	$10 + 10 =$	20	6.	$19 - 8 =$	11
2.	$20 - 10 =$	10	7.	$18 - 8 =$	10
3.	$13 + 3 =$	16	8.	$17 + 2 =$	19
4.	$15 + 5 =$	20	9.	$12 + 6 =$	18
5.	$16 + 4 =$	20	10.	$11 - 7 =$	4

## 2. Correction/reflection on homework (15 minutes)

Reflection/remediation based on previous day's work/homework.

## 3. Lesson content – concept development (30 minutes)

## Activity 1: Learners work in pairs

---

- Give each pair of learners a copy of the current year's calendar.
- Revise all the public holidays.
- Get the pairs of learners to circle their dates of birth on the calendar.
- While the learners are doing this, write all the public holidays and historical days on the board. Add any other religious festivals that relates to learners in your school. (You might have this information on a wall chart as a reference chart.)
- The calendar below is from 2013, by way of an example.
- You should use a current calendar (if possible) and ask the suggested questions in relation to a current calendar.

Public holidays 2013	Public holidays
1 January	New Year's Day
21 March	Human Rights Day
29 March	Good Friday (Friday before Easter Sunday)
1 April	Family Day (Monday after Easter Sunday)
27 April	Freedom Day
1 May	Workers' Day
16 June	Youth Day
17 June	Public holiday
9 August	National Women's Day
24 September	Heritage Day
16 December	Day of Reconciliation
25 December	Christmas Day
26 December	Day of Goodwill

Source: <http://www.info.gov.za/aboutsa/holidays.htm>

- Ask learners to use a different colour to circle the days on their copy of the current year's calendar as you discuss them.
- Ask learners:
  - What happens on the 27th of April? Show me the date on the calendar.
  - What happens on the 9th of August? Show me the date on the calendar.
  - Which religious day is important for your family? Show it on the calendar, and share it with your friends.
  - How many days between Christmas and New Year?
  - When is Good Friday this year?
  - Which public holiday is 3 days after Good Friday?
  - How many school days until the end of the term?
  - Etc.
- Ask as many questions as you are able to, engaging the learners in meaningful discussion while learners get used to reading dates from a calendar.

### 4. Classwork activity (25 minutes) (See next page)

### 5. Homework activity (5 minutes) (See next page)

### 6. Reflection on lesson

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## Term 1 Lesson 34: Time – calendars

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### Classwork

- Complete:
  - 1 week =  (7) days
  - (4) weeks =  28 days
  - The longest months are \_\_\_\_\_  
(January, March, May, July, August, October, December)
  - The eighth month of the year is \_\_\_\_\_ (August). It has \_\_\_\_\_ days (31).
- Look at the yearly calendar. What do you notice when a public holiday is on a Sunday?  
(Monday is also a public holiday.)
- Are there any public holidays on a Sunday this year? (Answers will vary depending on the year.)
- On what day is the 12th of April? What day is before the 12th and what day is after the 12th of April?  
(Answers will vary depending on the year.)

### Homework

(Learner answers will vary depending on the year.)

- Draw a calendar like the one below for this month, and fill in the dates.

Month						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday

- How many Sundays are there in this month?
- How many school days are there in this month?

# LESSON 35: ANALOGUE TIME

## Teacher's notes

**CAPS topics:** 1.2 Count forwards and backwards, 1.16 Mental mathematics, 4.1 Time

**Lesson vocabulary:** Analogue time, digital time, hour(s), half hour(s), quarter hour(s), minute(s), clock, o'clock, analogue clock, digital clock, am, pm

**Prior knowledge:**

In Grade 2 the learners should have learnt how to:

- Tell 12-hour time in: hours, half hours, quarters and minutes on analogue clocks.

**Concepts:**

- Tell 12-hour time in: *hours, half hours, quarters* on *analogue* clocks and *digital* clocks and other digital instruments that show time, e.g. cell phones.

**Resources:** Analogue (see *Printable Resources*) and digital clocks

**DBE workbook activities relevant to this lesson:**

- DBE worksheet 32 (pp. 74 and 75).

**Assessment:** Refer to the tracker for today's formal/informal oral, practical or written assessment activity

**Remediation:**

- Begin by revising the *o'clock*. Use your demonstration clock to show learners that the short hand remains on the twelve. Set various times and the learners read. Follow this with learners setting the time on their own clock faces (made with cardboard, split pins and paper plates) as you call out various times.
- Follow this with *half past*. Use a real clock to show that as the long hand moves to *half past*, the short hand too begins its very slow journey to the next hour. Continue with the steps as for *o'clock*.
- Do the same for *quarter past*. Then for *quarter to*.

**Enrichment:** See enrichment activity cards.

## 1. Mental mathematics

### 1.1 Counting (5 minutes)

- Count **8** steps forwards in 2s from **40**. How far did you count? (56)
- Count **4** steps forwards in 4s from **40**. How far did you count? (56)
- Ask: **What did you notice?** (It takes twice as many steps to get to 56 if I count in 4s.)

### 1.2 Recall and strategies (10 minutes)

If we are counting in 10s on a number line, how many jumps do we need to get to 100?

		Answer			Answer
1.	10	(20, 30, 40, ..., 100)	9	6.	60
2.	30	7		7.	50
3.	40	6		8.	0
4.	90	1		9.	20
5.	70	3		10.	100

## 2. Correction/reflection on homework (15 minutes)

Reflection/remediation based on previous day's work/homework.

## 3. Lesson content – concept development (30 minutes)

## Activity 1: Whole class activity

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- In this activity you will revise analogue time. You should have an analogue clock to show to your class. Tell them it is called an analogue clock and compare it to a digital clock, which you will talk about in the next activity of this lesson. Talk about the differences between the two kinds of clocks.
- Ask questions such as: **How many minutes in an hour?** (60). **What do we mean when we say 4 o'clock?** (That the time is exactly on the hour – not before or after). **Show me 4 o'clock on this clock.**
- You can also Ask: **How many minutes in half an hour?** (30). **When we read time, how do we say half an hour from the full hour or the o'clock?** (half past.) **On this clock show any time that shows half past and read the time to me.** (e.g. half past three.) **Do the same for quarter past and quarter to.**

## Activity 2: Whole class activity

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- Compile a table like the one below either on chart paper or on the board before the lesson. The digital clock column will be filled during the lesson. Ask if any learners can read the time on cell phones, microwave ovens, etc. Discuss digital clocks by covering the following points:
  - Digital clocks can work in 24-hour cycles – day and night. So we see any hour only once. On an analogue clock we have 12 hours for a.m. (morning) and 12 hours for p.m. (afternoon) but on the 24-hour digital clock these are put together, and we have 24 hours.
  - There are also 12-hour digital clocks, where day and night times do not look different: 08:00 could be 8 o'clock in the morning or night. Explain: **We will write times using a 12-hour digital format.**
- If you had two watches, one analogue and one digital, and you need to show 8 o'clock in the morning, this is how it would look. (First show this on actual clocks, and then draw a clock face showing 8 o'clock for the analogue clock, and write 08:00 to show digital time next to it.)
- Use analogue and digital clocks to show every hour, and ask learners to have a go at helping you to complete a table on the board from 01:00–12:00.

Time in words	Digital clock
midnight	12:00
quarter past twelve	12:15
half past twelve	12:30
quarter to one	12:45
one o'clock	01:00
midday	12:00
etc.	

## Activity 3: Whole class activity

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- Ask learners how we write these times in digital time: half past three (3:30), quarter past three (3:15).
- Ask: **How do we write these times in analogue time: 07:45** (quarter to 8) **and 12:00?** (twelve o'clock)

### 4. Classwork activity (25 minutes) (See next page)

### 5. Homework activity (5 minutes) (See next page)

### 6. Reflection on lesson

## Term 1 Lesson 35: Analogue time

### Classwork

These activities relate to a digital clock which is a 12 hour clock, so there is not a difference between morning and afternoon.

1. Write these times in digital time:

- a) Half past seven (7:30)
- b) Quarter past seven (7:15)
- c) Quarter to 4 (3:45)
- d) Quarter past four (4:15)
- e) Half past 5 (5:30)

2. Write these times in analogue time:

- a) 05:30 (half past 5)
- b) 02:00 (two o'clock)
- c) 12:00 (twelve o'clock)
- d) 07:00 (seven o'clock)

3. Draw a clock showing quarter past two.



(2:15 or quarter past two)

- a) Write the time below the clock
- b) How many minutes is it before 3 o'clock? (45 minutes)
- c) Where is the hour hand pointing? (just after 2)
- d) Where is the minute hand pointing? (at 3)

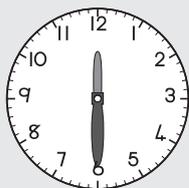
### Homework

1. Draw clock faces for:

- a) ten o'clock
- b) twelve o'clock
- c) six o'clock

2. Write down the times shown on these clocks:

a)



(6 o'clock)

b)



(half past eight)

c)



(half past six)

# LESSON 36: TIME PASSED

## Teacher's notes

**CAPS topics:** 1.1 Count objects, 1.2 Count forwards and backwards, 1.16 Mental mathematics, 4.1 Time

**Lesson vocabulary:** Analogue time, digital time, hours, half hours, quarter hours, minutes, day(s), week(s), month(s), year(s), number line, breaking down

**Prior knowledge:**

In Grade 2 the learners should have learnt how to:

- Tell 12-hour time in: hours, half hours, quarters and minutes on analogue clocks.
- Calculate length of time and passing of time.

**Concepts:**

- Calculate *length of time* and *passing of time*.

**Resources:** Analogue clock (see *Printable Resources*), digital clock

**DBE workbook activities relevant to this lesson:** n/a

**Assessment:** Refer to the tracker for today's formal/informal oral, practical or written assessment activity

**Remediation:** Begin by revising that there are **60 minutes** in *one hour*, **30 minutes** in *half an hour* and **15 minutes** in *a quarter of an hour*. Use a demonstration clock or clocks that the learners have made to count forwards and backwards in whole hours and **60 minutes**,  $\frac{1}{2}$  hours and **30 minutes**,  $\frac{1}{4}$  hours and **15 minutes**.

**Enrichment:** See enrichment activity cards.

## 1. Mental mathematics

### 1.1 Counting (5 minutes)

- Count **6** steps forwards in 2s from **40**. How far did you count? (52)
- Count **3** steps forwards in 4s from **40**. How far did you count? (52) Ask: **What did you notice?** (It takes twice as many steps to get to 52 if I count in 2s.)

### 1.2 Recall and strategies (10 minutes)

Listen carefully for the larger number, then count on from the larger number to find the answer.

		Answer			Answer
1.	$2 + 12 =$	$12 + 2 = 14$	6.	$17 + 2 =$	$17 + 2 = 19$
2.	$3 + 11 =$	$11 + 3 = 14$	7.	$11 + 9 =$	$11 + 9 = 20$
3.	$12 + 5 =$	$12 + 5 = 17$	8.	$4 + 16 =$	$16 + 4 = 20$
4.	$7 + 9 =$	$9 + 7 = 16$	9.	$3 + 31 =$	$31 + 3 = 34$
5.	$5 + 9 =$	$9 + 5 = 14$	10.	$32 + 2 =$	$32 + 2 = 34$

## 2. Correction/reflection on homework (15 minutes)

Reflection/remediation based on previous day's work/homework.

## 3. Lesson content – concept development (30 minutes)

In this lesson you show learners three different ways to calculate time that has passed. You should show learners all three different ways but allow them to use the way they choose to do their own calculation in the classwork activity that follows.

## Activity 1: Whole class activity

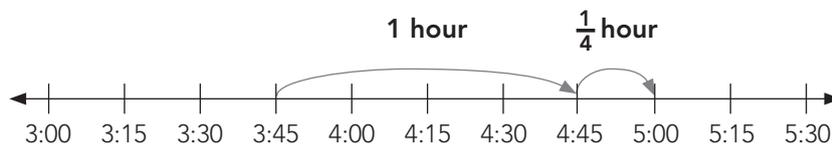
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- Method 1 demonstration – using a clock to calculate.
- Write these questions on the board: At what time does school start each day? (8:00) At what time does school end each day? (1:30)
- Now ask: **How many hours are we at school?**
- Learners use clock faces that they have made. Ask them to place the hands of their clocks on 8 o'clock. They then count:  
the hours from 8 o'clock to 1 o'clock: 8:00, 9, 10, 11, 12, 1 → 5 hours  
then the minutes from 1:00 to 1:30 → half an hour
- The time spent at school is 5 hours + half an hour =  $5\frac{1}{2}$  hours.

## Activity 2: Whole class activity

---

- Method 1 demonstration – using a number line to calculate.
- Write this question on the board: Mom puts a cake into the oven at 3:45. It needs to bake for  $1\frac{1}{4}$  hours. At what time must she take the cake out of the oven?



- Mum needs to take the cake out of the oven at 5:00.

## Activity 3: Whole class activity

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- Method 1 demonstration – breaking down to calculate.
- Write this question on the board: Mpho takes  $1\frac{1}{2}$  hours to do her homework. Jenny takes half that amount of time. How long does Jenny take?

$$\begin{aligned} 1\frac{1}{2} \text{ hours} &= 1 \text{ hour} + \frac{1}{2} \text{ hour} \\ \text{Half of } 1\frac{1}{2} \text{ hours} &= \text{half of 60 minutes} + \text{half of 30 minutes} \\ &= \text{half of 90 minutes} \\ &= 45 \text{ minutes} \end{aligned}$$

Jenny takes 45 minutes.

### 4. Classwork activity (25 minutes) (See next page)

### 5. Homework activity (5 minutes) (See next page)

### 6. Reflection on lesson

## Term 1 Lesson 36: Time Passed

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### Classwork

- Write these times in digital time:
  - Half past eight (8:30)
  - Quarter to six (5:45)
  - Quarter to 9 (8:45)
  - Quarter past 2 (2:15)
  - Half past four (4:30)
- Write these times in analogue time
  - 05:15 (quarter past five)
  - 02:45 (quarter to three)
  - 12:15 (quarter past twelve)
  - 07:30 (half past seven)
- How many minutes in one hour? (60 minutes)
- How many hours in one day? (24 hours)
- How many days in one week? (7 days)
- How many months in one year? (12 months)
- Diksha leaves home at 7:15 and arrives at school at 7:45. Rebone leaves home at 7 o'clock and arrives at school at a quarter to eight. How much longer does it take Rebone to reach school than Diksha? (15 minutes)

### Homework

- How many minutes in 2 hours? (120 minutes)
- How many hours in 2 days? (48 hours)
- How many days in 2 weeks? (14 days)
- How many months in 2 years? (24 months)

# WEEK 11

## LESSON 37: GEOMETRIC PATTERNS

### Teacher's notes

**CAPS topics:** 1.16 Mental mathematics, 2.1 Geometric patterns

**Lesson vocabulary:** Geometric patterns, sequences, repeat, repetitive, copy, extend, describe, line(s), shape(s), object(s), circle, triangle, rectangle, square, pattern

**Prior knowledge:**

In Grade 2 the learners should have learnt how to:

- Copy, extend and describe in words simple patterns made with physical objects and with drawings of lines, shapes or objects.
- Create own geometric patterns with physical objects and drawings of lines, shapes or objects.
- Identify, describe in words and copy geometric patterns in nature, from everyday life and from our cultural heritage.

**Concepts:**

- Copy, extend describe in words simple patterns made with physical objects and with drawings of lines, shapes or objects.
- Create own geometric patterns with physical objects and drawings of lines, shapes or objects.

**Resources:** Four sets of 4-5 identical items, e.g. pictures of 4 apples, 4 oranges, 4 pears and 4 bananas per group

**DBE workbook activities relevant to this lesson:**

- DBE worksheet 9 (p. 21) and DBE worksheet 47 (p. 109).

**Assessment:** Refer to the tracker for today's formal/informal oral, practical or written assessment activity

**Remediation:** Begin with two concrete items, e.g. ruler, pen, ruler, pen... etc. Only once this has been established introduce a third item. Once the learner has established the idea of repeating patterns with three items, introduce variations in size and finally repetitive patterns with the same item in different orientations.

**Enrichment:** See enrichment activity cards.

### 1. Mental mathematics

#### 1.1 Counting (5 minutes)

- Count forwards in 4s from any number between **100** and **400**.
- Count **10** steps forwards in 4s from **50**. How far did you count? (90)
- Count **3** steps backwards in 4s from **20**. How far did you count? (8)

#### 1.2 Recall and strategies (10 minutes)

Which number is bigger?

		Answer			Answer
1.	156 or 165	165	6.	189 or 198	198
2.	25 or 52	52	7.	165 or 166	166
3.	79 or 97	97	8.	155 or 154	155
4.	121 or 120	121	9.	176 or 167	176
5.	189 or 190	190	10.	99 or 199	199

### 2. Correction/reflection on homework (15 minutes)

Reflection/remediation based on previous day's work/homework

### 3. Lesson content – concept development (30 minutes)

## Activity 1: Learners work in groups

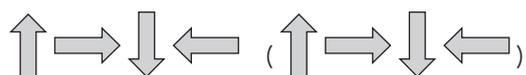
- In this activity learners will create and describe patterns.
- Give each group **4** sets of 4-5 identical items, e.g. cut out pictures of **4** triangles, **4** squares, **4** rectangles and **4** circles.
- Learners take turns to place these objects in repetitive patterns using **2** or more types of items, e.g.  

- After the learner has created the pattern, s/he describes it to the group. The description should be as clear as possible using the characteristics of the items to explain the progression as necessary.
- The whole group copies the pattern onto their whiteboards/scrap paper.

## Activity 2 (extend patterns):

- In this activity learners will extend patterns
- Draw the following pattern on the board:  

- Ask: **What is the next shape in the pattern?** (circle) **How do you know?** (Because the pattern goes circle, circle, triangle. After the first circle we need another one.)
- Invite a learner to draw the shape in the correct place on the board. Ask: **What comes after the circle?** (triangle)
- Invite a learner to draw the shape in the correct place on the board. Ask: **Who can give us the next two shapes?** (circle, circle)
- Again invite a learner to draw the shape in the correct place on the board.
- Now draw each of the following patterns on the board and through questioning and interacting get the learners to complete the patterns by drawing at least three more items on the board. Draw other patterns if you prefer and allow learners to draw pattern which they make up.



**4. Classwork activity (25 minutes) (See next page)**

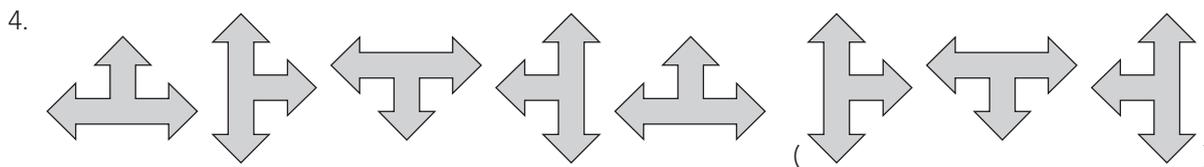
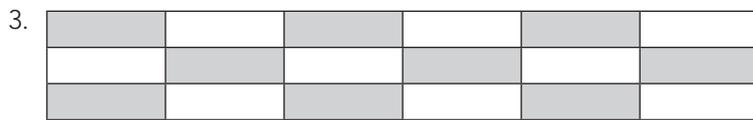
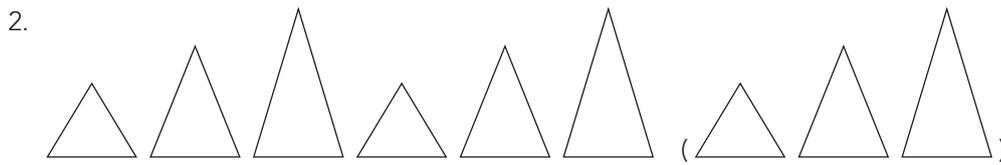
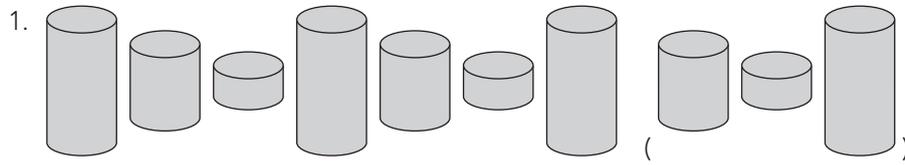
**5. Homework activity (5 minutes) (See next page)**

**6. Reflection on lesson**

## Term 1 Lesson 37: Geometric patterns

### Classwork

Copy and extend these patterns.



### Homework

(Learner answers will vary.)

1. Find 3 different objects (2 of each) in your kitchen, like glasses, plates and bowls.
2. Use your objects to make a pattern.
3. Draw and extend your pattern in your book.

# LESSON 38: NUMBER PATTERNS IN FIVES

## Teacher's notes

**CAPS topics:** 1.1 Count objects, 1.2 Count forwards and backwards, 1.16 Mental mathematics, 2.2 Number patterns

**Lesson vocabulary:** Number patterns, pattern, fives, 5s, extend, describe, forwards, backwards, jumps, number line, between, complete, copy

**Prior knowledge:**

In Grade 2 the learners should have learnt how to:

- Work with number sequences up to 200.

**Concepts:**

- Copy, extend and describe number sequences of **5** between **0** and **200**. (The number patterns in lessons 37, 38 and 39 are called growing patterns because the numbers grow bigger or smaller.)

**Resources:** 1-200 number board (see *Printable Resources*), counters

**DBE workbook activities relevant to this lesson:**

- DBE worksheet 29 Question 1a (p. 66).

**Assessment:** Refer to the tracker for today's formal/informal oral, practical or written assessment activity

**Remediation:**

- Use a number board up to **100**. Ask the learners to place a counter on **5**.
- Ask learners to add on **five** and place a counter on the next number. Continue until **50**.
- Ask: **Did you notice a pattern?** Now ask the learners to count aloud but this time try to hear themselves counting and look out for a sound pattern. Ask them to fill the number board with counting in 5s without counting in 1s this time.

**Enrichment:** See enrichment activity cards.

## 1. Mental mathematics

### 1.1 Counting (5 minutes)

- Count forwards in 5s from any number between **100** and **400**.
- Count backwards in 5s from any number between **100** and **200**.
- Count **6** steps forwards in 5s from **40**. How far did you count? (70)

### 1.2 Recall and strategies (10 minutes)

Calculate the following:

		Answer			Answer
1.	$5 \times 5 = \square$	25	6.	$50 \div 5 = \square$	10
2.	$5 \times \square = 50$	10	7.	$50 \div 10 = \square$	5
3.	$\square \times 5 = 50$	10	8.	$5 \times 10 = \square$	50
4.	$50 \div \square = 5$	10	9.	Half of 50	25
5.	$\square \div 5 = 5$	25	10.	Double 50	100

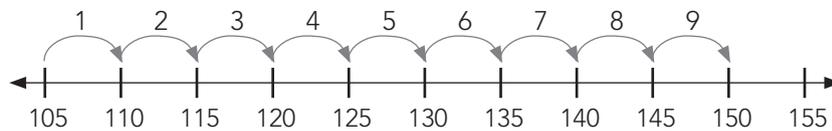
## 2. Correction/reflection on homework (15 minutes)

Reflection/remediation based on previous day's work/homework.

## 3. Lesson content – concept development (30 minutes)

## Activity 1: Whole class activity

- Give learners a 1-200 number board and some counters.
- Ask them to place a counter on **105, 110, 115, 120, 125** and **130**.
- Ask learners to extend the pattern up to **200**. Ask them what they notice. Ask: **Why was it easy to put counters on the board to show the rest of the pattern?** (The counters are placed in two straight lines – the 5s line and the 10s line.)
- Ask learners to remove the counters from their number boards. Ask questions like these based on counting in 5s: **If you are counting forwards in 5s, what number comes after 100?** (105, 110, 115... etc.) **If you are counting backwards in 5s, what numbers come after 130?** (125, 120, 115... etc.)
- Draw the following number line on the board. Tell the learners that they are going to count in 5s again, but this time on the number line. Write the number **105** below the number line. Ask the learners to count on in 5s, and as they do so, you write down the numbers for the intervals below the number line. Ask them to count again while you draw the jumps.
- Ask: **How many jumps of 5 are there from 105 to 150?** (9) Show them how you count the jumps.  
Ask: **Did you count the jumps forwards or backwards?** (forwards)



- Also ask how many jumps from 110 to 145 (7 jumps forwards), from 135 to 110 (5 jumps backwards).  
Do more examples if necessary.

## Activity 2: Whole class activity

- Note: The table below is for you to organise your thoughts and to give you ideas of questions that you will ask the learners. You will not draw the table on the board for the learners.
- Copy the number patterns from Column 1, one at a time on the board. For each pattern ask the questions in the table to help the learners to develop their understanding. Make sure the learners clearly understand the strategy to complete the pattern before moving to the next example.

Number patterns	What pattern do you notice?	How did you work that out?	Are the numbers moving forwards or backwards?	Which part is missing?	How would you complete the pattern?	What are the missing numbers
135, 125, 115..., ..., ...	10s pattern	The size of the jump from 135 to 125 is 10 backwards, and the size of the jump from 125 to 115 is 10 backwards	Backwards	The last three numbers	Fill in the numbers that come after 215 when I count backwards in 10s	105, 95, 85
125, 130, 135..., ..., ...						
..., ..., ..., 135, 125, 115						
..., ..., ..., 125, 130, 135						
145, ..., ..., ..., 185	<i>Note: This type of question is quite difficult and therefore optional.</i>					

### 4. Classwork activity (25 minutes) (See next page)

### 5. Homework activity (5 minutes) (See next page)

### 6. Reflection on lesson

## Term 1 Lesson 38: Number patterns in fives

### Classwork

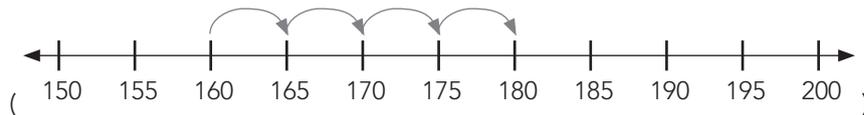
1. Extend the pattern:

a) 85, 90, 95, (100, 105, 110)

b) 175, 170, 165, (160, 155, 150)

2. Show the following numbers with jumps on a number line:

160, 165, 170, 175, 180



3. Complete the pattern:

a) (215, 210, 215), 210, 215, 210

b) (190, 180, 170), 160, 150, 140

c) (145, 155, 165), 175, 185, 195

d) (235, 225, 215), 205, 195, 185

4. Which numbers between 150 and 200 belong to both the 5s and the 10s pattern? (160, 170, 180, 190)

5. Copy and underline the numbers that do not belong to the patterns.

a) 160, 180, 120, 150, 190, 103, 140 (160, 180, 120, 150, 190, 103, 140 because it is not a multiple of 10)

b) 160, 165, 170, 145, 175, 188, 150, 155 (160, 165, 170, 145, 175, 188, 150, 155 because it is not a multiple of 5)

c) 165, 180, 122, 150, 190, 155, 140, 175 (165, 180, 122, 150, 190, 155, 140, 175 because it is not a multiple of 5)

### Homework

1. Complete the pattern:

a) 125, 130, 135, (140, 145, 150)

b) 110, 105, 100, (95, 90, 85)

c) (225, 220, 225), 220, 225, 220

d) (145, 155, 165), 175, 185, 195

e) 145, (155, 165, 175), 185

f) 145, 150, 155, (160, 165, 170)

# LESSON 39: NUMBER PATTERNS IN THREES

## Teacher's notes

**CAPS topics:** 1.1 Count objects, 1.2 Count forwards and backwards, 1.16 Mental mathematics, 2.2 Number patterns

**Lesson vocabulary:** Number pattern(s), pattern, threes, 3s, forwards, backwards, jumps, extend, describe, number line, between, complete, copy

**Prior knowledge:**

In Grade 2 the learners should have learnt how to:

- Work with number sequences up of 3 between 0 and 200.

**Concepts:**

- Copy, extend and describe number sequences of **3** between **0** and **200**.

**Resources:** 1-200 number board (see *Printable Resources*), counters

**DBE workbook activities relevant to this lesson:**

- DBE worksheet 29 Question 1c (p. 66).

**Assessment:** Refer to the tracker for today's formal/informal oral, practical or written assessment activity

**Remediation:**

- Use a number board up to **100**. Ask the learners to place a counter on **5**. Ask learners to add on **five** and place a counter on the next number. Continue until **50**.
- Ask: **Did you notice a pattern?** Now ask them to count aloud, but this time to listen to themselves counting and look out for a sound pattern. Ask them to fill the number board with counting in 5s without counting in 1s this time.

**Enrichment:** See enrichment activity cards.

## 1. Mental mathematics

### 1.1 Counting (5 minutes)

- Count forwards in 3s from any number between **100** and **400**.
- Count backwards in 3s from any number between **100** and **200**.
- Count 6 steps forwards in 3s from **30**. How far did you count? (48)

### 1.2 Recall and strategies (10 minutes)

Calculate the following:

		Answer			Answer
1.	$3 \times 10 = \square$	30	6.	$30 \div 3 = \square$	10
2.	$3 \times \square = 30$	10	7.	$30 \div 10 = \square$	3
3.	$30 \times 3 = 30$	10	8.	$3 \times 10 = \square$	30
4.	$30 \div \square = 3$	10	9.	Half of 30	15
5.	$\square \div 3 = 10$	30	10.	Double 30	60

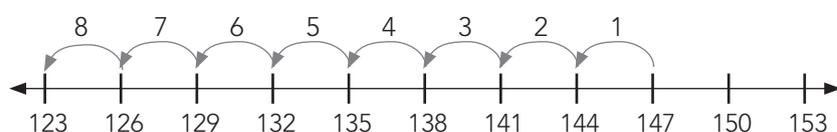
## 2. Correction/reflection on homework (15 minutes)

Reflection/remediation based on previous day's work/homework.

## 3. Lesson content – concept development (30 minutes)

## Activity 1: Whole class activity

- Give learners a 1-200 number board and some counters.
- Ask them to place a counter on **3, 6, 9, 12, 15, 18, 21** and **24**.
- Ask them to extend the pattern up to **200**. Ask them what they notice. Ask: **Why was it easy to put counters on the board to show the rest of the pattern?** (The counters are placed in diagonal lines.)
- Ask learners to remove the counters from their number boards. Ask questions like these based on counting in 3s: **If you are counting forwards in 3s, what numbers will come after 51?** (54, 57, 60... etc.) **If you are counting backwards in 3s, what numbers will come after 108?** (105, 102, 99... etc.)
- Draw the following number line on the board. Tell the learners that they are going to count in 3s again but this time on the number line. Write number **123** below the number line. Ask the learners to count on in 3s, and as they do so, write down the numbers for the intervals below the number. Now ask the learners to count again while you draw the jumps.
- Ask: **How many jumps of 3 are there from 147 to 126?** (7). Show them how you count the jumps. Ask: **Did you count the jumps forwards or backwards?** (backwards)



- Ask: **How many jumps from: 123 to 147** (8 jumps forwards), **150 to 138** (4 jumps backwards) etc.
- Do as many examples as necessary to ensure that the learners understand.

## Activity 2: Whole class activity

- Use this table in the same way as explained in Lesson 38.

Number patterns	What pattern do you notice?	How did you work that out?	Are the numbers moving forwards or backwards?	Which part is missing?	How would you complete the pattern?	What are the missing numbers?
..., ..., ..., 147, 150, 153	3s pattern	The size of the jump from 147 to 150 is 3, and the jump from 150 to 153 is 3	Forwards	The first three numbers	Count backwards in 3s from 147: 144, 141, 138	138, 141, 144
..., ..., ..., 180, 177, 174						
162, 165, 168..., ..., ...						
150, 147, 144..., ..., ...						

**4. Classwork activity (25 minutes) (See next page)**

**5. Homework activity (5 minutes) (See next page)**

**6. Reflection on lesson**

## Term 1 Lesson 39: Number patterns in threes

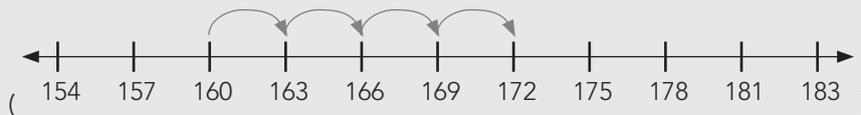
### Classwork

- Complete the pattern:
  - 93, 96, 99, (102, 105, 108)
  - 69, 66, 63, (60, 57, 54)
  - 102, 105, 108, (111, 114, 117)
  - (159, 162, 165), 168, 171, 174
  - 150, (153, 156, 159), 162
- Which numbers between 40 and 60 belong to both the 2s and the 3s pattern? (42, 48, 54)
- Copy and underline the numbers that do not belong to the patterns.
  - 165, 185, 125, 155, 195, 153, 145 (165, 185, 125, 155, 195, 153, 145 because it is not a multiple of 5)
  - 33, 21, 28, 27, 30, 36, 24 (33, 21, 28, 27, 30, 36, 24 because it is not a multiple of 3)
  - 80, 100, 20, 140, 60, 120, 160, 40, 150 (80, 100, 20, 140, 60, 120, 160, 40, 150 because it is not a multiple of 20)

### Homework

- Show the following numbers with jumps on a number line:

160, 163, 166, 169, 172



- Complete the pattern:
  - 127, 130, 133, (136, 139, 142)
  - 108, 105, 102, (99, 96, 93)
  - (207, 204, 201), 198, 195, 192
  - 38, 40, 42, (44, 46, 48)
  - 140, (142, 144, 146), 148

# LESSON 40: NUMBER PATTERNS IN FOURS

## Teacher's notes

**CAPS topics:** 1.1 Count objects, 1.2 Count forwards and backwards, 1.16 Mental mathematics, 2.2 Number patterns

**Lesson vocabulary:** Number pattern(s), pattern, fours 4s, forwards, backwards, jumps, extend, describe, number line, between, complete, match, copy

### Prior knowledge:

In Grade 2 the learners should have learnt how to:

- Work with number sequences up to 200 by counting forwards and backwards.
- Copy, extend, describe and create own number patterns.

### Concepts:

- Copy and extend and describe number sequences of **4** between **0** and **200**.

**Resources:** 101-200 number board (see *Printable Resources*), counters

### DBE workbook activities relevant to this lesson:

- DBE worksheet 29 Question 1d (p. 66).
- DBE worksheet 9 (p. 20 and 21).

**Assessment:** Refer to the tracker for today's formal/informal oral, practical or written assessment activity

### Remediation:

- Use a number board up to **100**. Ask the learners to place a counter on **4**. Ask learners to add on four and place a counter on the next number. Continue until 40. Ask the learners to describe the pattern.
- Now ask them to count aloud but this time to listen to themselves counting and look out for a sound pattern.
- Ask them to fill the number board with counting in 4s without counting in 1s this time.

**Enrichment:** See enrichment activity cards.

## 1. Mental mathematics

### 1.1 Counting (5 minutes)

- Count forwards in 3s from any number between **100** and **400**.
- Count backwards in 3s from any number between **100** and **200**.
- Count **5** steps forwards in 4s from **20**.  
How far did you count? (40)

### 1.2 Recall and strategies (10 minutes)

Calculate the following:

		Answer			Answer
1.	$4 \times 10 = \square$	40	6.	$40 \div 4 = \square$	10
2.	$4 \times \square = 40$	10	7.	$40 \div 10 = \square$	4
3.	$\square \times 4 = 40$	10	8.	$4 \times 10 = \square$	40
4.	$40 \div \square = 4$	10	9.	Half of 40	20
5.	$\square \div 4 = 10$	40	10.	Double 40	80

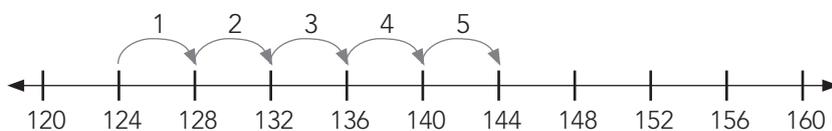
## 2. Correction/reflection on homework (15 minutes)

Reflection/remediation based on previous day's work/homework

## 3. Lesson content – concept development (30 minutes)

## Activity 1: Whole class activity

- Give learners a 1-200 number board and some counters.
- Ask them to place a counter on **4, 8, 12, 16** and **20** and to extend the pattern up to **200**. Ask them if this pattern reminds them of any other patterns they have already done. (Some learners may realise the relationship to the 2s pattern.)
- Ask learners to remove the counters from their number boards. Ask questions like these based on counting in 4s: **If you are counting forwards in 4s, what numbers come after 156?** (160, 164, 168... etc.) **If you are counting backwards in 4s, what numbers come after 132?** (128, 124, 120...etc.)
- Draw the following number line on the board. Tell the learners that they are going to count in 4s again but this time on the number line. Write number **124** below the number line. Ask the learners to count on in 4s, and as they do so, write down the numbers for the intervals below the marking. Now ask the learners to count again while you draw the jumps.
- Invite a learner to come to the board and show you how many jumps there are from 124 to 144. (5) The learner will draw and count the jumps on the number line. Ask: **Did you count the jumps forwards or backwards?** (forwards)



- Also ask: **How many jumps from 160 to 132?** (7 jumps backwards), **from 136 to 152?** (4 jumps forwards). Do more examples if necessary.

## Activity 2: Whole class activity

- Use this table in the same way as explained in Lesson 38.

Number patterns	What pattern do you notice?	How did you work that out?	Are the numbers moving forwards or backwards?	Which part is missing?	How would you complete the pattern?	What are the missing numbers?
120 ..., ..., 136	4s pattern	There are 4 jumps from 120 to 136. The size of the 4 jumps is 16. So each jump is 4.	Forwards	The middle three numbers	Fill in the numbers that come after 120 when I count forwards in 10s	124, 128, 132
153..., ..., 165						

## Activity 3: Whole class activity

- Ask learners to write down all the numbers in the 2s pattern. (40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60)
- Ask learners to write down all the numbers in the 4s patterns starting from **40** between **40** and **60**. (40, 44, 48, 52, 56, 60)
- Now find all the numbers between **40** and **60** that belong to the both patterns. Do this by looking at every number in the 2s pattern to see if there is a match with a number in the 4s pattern. (The following numbers are in both patterns: 40, 44, 48, 52, 56, 60)
- Write the following numbers on the board: **40, 44, 48, 50, 52, 56, 60**. Ask: **Is there any number that does not belong in the pattern?** (50) **How do you know?** (All other numbers are in the 2s pattern *and* in the 4s patterns. Fifty is only in the 2s pattern. There could be other reasons, e.g. 50 is not a multiple of 4; all the other numbers are multiples of 4)

### 4. Classwork activity (25 minutes) (See next page)

### 5. Homework activity (5 minutes) (See next page)

### 6. Reflection on lesson

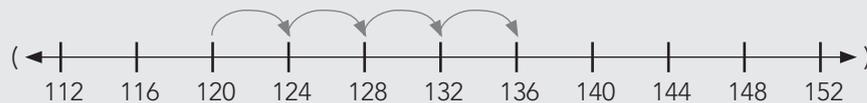
## Term 1 Lesson 40: Number patterns in fours

### Classwork

- Extend the pattern:
  - 112, 116, 120, (124, 128, 132)
  - 116, 112, 108, (104, 100, 96)
  - (148, 152, 156), 160, 164, 168
  - 124, (128, 132, 136), 140
- Which numbers between 20 and 40 belong to the following patterns?
  - the 2s pattern and the 4s pattern (24, 28, 32, 36)
  - the 2s pattern and the 3s pattern (24, 30, 36)
  - the 3s pattern and the 4s pattern (24, 36)

### Homework

- Show the following with jumps/hoops on a number line: 120, 124, 128, 132, 136



- Complete the pattern:
  - 92, 94, 96, (98, 100, 102)
  - 200, 196, 192, (188, 184, 180)
  - 100, 104, 108, (112, 116, 120)
  - (100, 104, 108), 112, 116, 120
  - 38, 40, 42, (44, 46, 48)
  - 148, (144, 140, 136), 132