



education

Department:  
Education

PROVINCE OF KWAZULU-NATAL

## Foundation phase

**Just-in-Time Training Workshop  
2020 : No 1**

# Resources Handout

## Maths



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what I do matters

Endorsed by:



Jika iMfundo: Foundation Phase JIT Workshop 1  
Mathematics January 2020  
Lesson plan extracts and other support material

Contents

Session 2 Activity 1: Extracts from the FP Maths CAPS .....	3
Session 2 Activity 1: Extracts from the IP Maths CAPS .....	5
Session 3b Activity 8: Lesson plan extracts – contents pages.....	7
Session 3b Activity 8: Lesson plan extracts – lesson activities.....	8
Grade 1 Term 1 Lesson 11 .....	8
Grade 2 Term 3 Lesson 4 .....	9
Grade 3 Term 3 Lesson 2 .....	10
Session 3a Activities: Ten frames (working with ones and tens – smaller numbers to about 30) .....	11
Session 3a Activities: Printed tens and hundreds (Learner size).....	13
Session 3a Activities: Flard cards .....	15

Session 2 Activity 1: Extracts from the FP Maths CAPS

TOPICS	GRADE R	GRADE 1	GRADE 2	GRADE 3
<b>NUMBER CONCEPT DEVELOPMENT: Represent whole numbers</b>				
	Say and use number names in familiar context.			
<b>1.3</b> <b>Number symbols and number names</b>	<b>Recognise, identify and read number symbols</b> <ul style="list-style-type: none"> <li>Recognise, identify and read number symbols 1 to 10</li> <li>Recognise, identify and read number names 1 to 10</li> </ul>	<b>Recognise, identify and read number symbols</b> <ul style="list-style-type: none"> <li>Recognise, identify and read number symbols 1 to 100</li> <li>Write number symbols 1 to 20</li> <li>Recognise, identify and read number names 1 to 10</li> <li>Write number names 1 to 10</li> </ul>	<b>Recognise, identify and read number symbols</b> <ul style="list-style-type: none"> <li>Recognise, identify and read number symbols 0 to 200</li> <li>Write number symbols 0 to 200</li> <li>Recognise, identify and read number names 0 to 100</li> <li>Write number names 0 to 100</li> </ul>	<b>Recognise, identify and read number symbols</b> <ul style="list-style-type: none"> <li>Recognise, identify and read number symbols 0 to 1 000</li> <li>Write number symbols 0 to 1 000</li> <li>Recognise, identify and read number names 0 to 1 000.</li> <li>Write number names 0 to 1 000</li> </ul>
<b>NUMBER CONCEPT DEVELOPMENT: Describe, compare and order whole numbers</b>				
<b>1.4</b> <b>Describe, compare and order numbers</b>	<b>Describe, compare and order collection of objects up to 10.</b> <ul style="list-style-type: none"> <li>Describe whole numbers up to 10</li> <li>Compare which of two given collection of objects is big, small, smaller than, greater than, more than, less than, equal to, most, least, fewer up to 10.</li> <li>Order more than two given collections of objects from smallest to greatest up to 10</li> </ul>	<b>Describe, compare and order objects up to 20</b> <ul style="list-style-type: none"> <li>Describe and compare collections of objects according to most, least, the same as</li> <li>Describe and order collections of objects from most to least and least to most</li> </ul>		

TOPICS	GRADE R	GRADE 1	GRADE 2	GRADE 3
<b>NUMBER CONCEPT DEVELOPMENT: Describe, compare and order whole numbers</b>				
<b>1.4</b> <b>Describe, compare and order numbers</b>	<p>Use ordinal numbers to show order, place or position</p> <p>Develop an awareness of ordinal numbers e.g. first, second, third up to sixth and last</p>	<p><b>Describe, compare and order numbers to 20</b></p> <ul style="list-style-type: none"> <li>Describe and compare whole numbers according to smaller than, greater than and more than, less than, is equal to</li> <li>Describe and order numbers from smallest to greatest and greatest to smallest</li> </ul> <p>Use ordinal numbers to show order, place or position</p> <p>Position objects in a line from first to tenth or first to last e.g. first, second, third ... tenth</p>	<p><b>Describe, compare and order numbers to 99</b></p> <ul style="list-style-type: none"> <li>Describe and compare whole numbers up to 99 using smaller than, greater than, more than, less than and equal to</li> <li>Describe and order whole numbers up to 99 from smallest to greatest, and greatest to smallest</li> </ul> <p>Use ordinal numbers to show order, place or position</p> <p>Position objects in a line from first to twentieth or first to last e.g. first, second, third ... twentieth</p>	<p><b>Describe, compare and order numbers to 999</b></p> <ul style="list-style-type: none"> <li>Describe and compare whole numbers up to 999 using smaller than, greater than, more than, less than and equal to</li> <li>Describe and order whole numbers up to 999 from smallest to greatest, and greatest to smallest</li> </ul> <p>Use ordinal numbers to show order, place or position</p> <p>Use, read and write ordinal numbers, including abbreviated form (1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> up to 31<sup>st</sup>)</p>
<b>NUMBER CONCEPT DEVELOPMENT: Place value</b>				
<b>1.5</b> <b>Place value</b>		<p><b>Begin to recognise the place value of at least two-digit numbers to 20</b></p> <ul style="list-style-type: none"> <li>Decompose two-digit numbers into multiples of 10 and ones/units</li> </ul>	<p><b>Recognise the place value of at least two-digit numbers to 99</b></p> <ul style="list-style-type: none"> <li>Decompose two-digit numbers up to 99 into multiples of 10 and ones/units</li> <li>Identify and state the value of each digit</li> </ul>	<p><b>Recognise the place value of three-digit numbers to 999</b></p> <ul style="list-style-type: none"> <li>Decompose three-digit numbers up to 999 into multiples of 100, multiples of 10 and ones/units</li> <li>Identify and state the value of each digit</li> </ul>

Session 2 Activity 1: Extracts from the IP Maths CAPS

SPECIFICATION OF CONTENT (PHASE OVERVIEW)			
NUMBERS, OPERATIONS AND RELATIONSHIPS			
<ul style="list-style-type: none"> <li>The main progression in Numbers, Operations and Relationships happens in three ways:               <ul style="list-style-type: none"> <li>the number range increases</li> <li>different kinds of numbers are introduced</li> <li>the calculation techniques change.</li> </ul> </li> <li>The number range for doing calculations is different from the number range for ordering numbers and for finding multiples and factors.</li> <li>As the number range for doing calculations increases up to Grade 6, learners should develop more efficient techniques for calculations, including using columns and learning how to use the calculator. These techniques however should only be introduced and encouraged once learners have an adequate sense of place value and understanding of the properties of numbers and operations.</li> <li>Contextual problems should consider the number range for the grade as well as the calculation competencies of learners.</li> <li>Contexts for solving problems should build awareness of other subject and content areas, as well as social, economic and environmental issues.</li> </ul>			
TOPICS	GRADE 4	GRADE 5	GRADE 6
<b>1.1</b> <b>Whole numbers</b>	<b>Mental calculations involving:</b> <ul style="list-style-type: none"> <li>Addition and subtraction of:               <ul style="list-style-type: none"> <li>units</li> <li>multiples of 10</li> <li>multiples of 100</li> <li>multiples of 1 000</li> </ul> </li> <li>Multiplication of whole numbers to at least 10 x 10</li> <li>Multiplication facts of:               <ul style="list-style-type: none"> <li>units by multiples of 10</li> <li>Units by multiples of 100</li> </ul> </li> </ul>	<b>Mental calculations involving:</b> <ul style="list-style-type: none"> <li>Addition and subtraction of:               <ul style="list-style-type: none"> <li>units</li> <li>multiples of 10</li> <li>multiples of 100</li> <li>multiples of 1 000</li> </ul> </li> <li>Multiplication of whole numbers to at least 10 x 10</li> <li>Multiplication facts of:               <ul style="list-style-type: none"> <li>units by multiples of 10</li> <li>units by multiples of 100</li> <li>units by multiples of 1 000</li> <li>units by multiples of 10 000</li> </ul> </li> </ul>	<b>Mental calculations involving:</b> <ul style="list-style-type: none"> <li>Addition and subtraction of:               <ul style="list-style-type: none"> <li>units</li> <li>multiples of 10</li> <li>multiples of 100</li> <li>multiples of 1 000</li> </ul> </li> <li>Multiplication of whole numbers to at least 12 x 12</li> <li>Multiplication facts of:               <ul style="list-style-type: none"> <li>units and tens by multiples of 10</li> <li>units and tens by multiples of 100</li> <li>units and tens by multiples of 1 000</li> <li>units and tens by multiples of 10 000</li> </ul> </li> </ul>

Session 2 Activity 1: Extracts from the IP Maths CAPS (Continued)

TOPICS	GRADE 4	GRADE 5	GRADE 6
<p><b>1.1</b> <b>Whole numbers</b></p>	<p><b>Number range for counting, ordering, comparing and representing, and place value of digits</b></p> <ul style="list-style-type: none"> <li>• Count forwards and backwards in 2s, 3s, 5s, 10s, 25s, 50s, 100s between 0 and at least 10 000.</li> <li>• Order, compare and represent numbers to at least 4-digit numbers</li> <li>• Represent odd and even numbers to at least 1 000.</li> <li>• Recognize the place value of digits in whole numbers to at least 4-digit numbers</li> <li>• Round off to the nearest 10, 100, 1 000</li> </ul> <p><b>Number range for calculations</b></p> <ul style="list-style-type: none"> <li>• Addition and subtraction of whole numbers of at least 4 digits</li> <li>• Multiplication of at least whole 2-digit by 2-digit numbers</li> <li>• Division of at least whole 3-digit by 1-digit numbers</li> </ul>	<p><b>Number range for counting, ordering, comparing, representing and place value of digits</b></p> <ul style="list-style-type: none"> <li>• Count forwards and backwards in whole number intervals up to at least 10 000</li> <li>• Order, compare and represent numbers to at least 6-digit numbers</li> <li>• Represent odd and even numbers to at least 1 000.</li> <li>• Recognize the place value of digits in whole numbers to at least 6 digit numbers.</li> <li>• Round off to the nearest 5, 10, 100 and 1 000</li> </ul> <p><b>Number range for calculations</b></p> <ul style="list-style-type: none"> <li>• Addition and subtraction of whole numbers of at least 5 digits</li> <li>• Multiplication of at least whole 3-digit by 2-digit numbers</li> <li>• Division of at least whole 3-digit by 2-digit numbers</li> </ul>	<p><b>Number range for counting, ordering, comparing, representing and place value of digits</b></p> <ul style="list-style-type: none"> <li>• Order, compare and represent numbers to at least 9-digit numbers</li> <li>• Represent prime numbers to at least 100</li> <li>• Recognizing the place value of digits in whole numbers to at least 9-digit numbers</li> <li>• Round off to the nearest 5, 10, 100, 1 000, 100 000, and 1 000 000</li> </ul> <p><b>Number range for calculations</b></p> <ul style="list-style-type: none"> <li>• Addition and subtraction of whole numbers of at least 6 digits</li> <li>• Multiplication of at least whole 4-digit by 3-digit numbers</li> <li>• Division of at least whole 4-digit by 3-digit numbers</li> <li>• Multiple operations on whole numbers with or without brackets</li> </ul>

## Session 3b Activity 8: Lesson plan extracts – contents pages

NOTE: Week 1 is not shown here. In week 1 baseline assessment is provided for.

Grade 1 Weeks 1-6	Grade 2 Weeks 1-6	Grade 3 Weeks 1-6
<b>Week 2</b> _____ 18	<b>Week 2</b> _____ 18	<b>Week 2</b> _____ 18
Lesson 1: Zero and one _____ 18	Lesson 1: Numbers up to 20 _____ 18	Lesson 1: Numbers 0 to 99 _____ 18
Lesson 2: The number 2 _____ 21	Lesson 2: Numbers 11 to 20 _____ 21	Lesson 2: Place value up to 99 _____ 21
Lesson 3: The number 3 _____ 24	Lesson 3: Numbers 1 to 20 (place value) _____ 24	Lesson 3: Compare and order numbers up to 99 _____ 24
Lesson 4: Compare and order numbers 1 to 3 _____ 27	Lesson 4: Numbers 1 to 25 (place value) _____ 27	Lesson 4: Numbers between 100 and 200 _____ 27
<b>Week 3</b> _____ 30	<b>Week 3</b> _____ 30	<b>Week 3</b> _____ 30
Lesson 5: The number 4 _____ 30	Lesson 5: Numbers 20 to 25 (place value) _____ 30	Lesson 5: Numbers 200 to 300 _____ 30
Lesson 6: The number 5 _____ 33	Lesson 6: Length _____ 33	Lesson 6: Numbers 300 to 400 _____ 33
Lesson 7: Numbers 1 to 5 _____ 36	Lesson 7: Length _____ 36	Lesson 7: Numbers 400 to 500 _____ 36
Lesson 8: Addition up to 4 _____ 39	Lesson 8: Counting on and back: addition and subtraction _____ 39	Lesson 8: Addition on a number line _____ 39
<b>Week 4</b> _____ 42	<b>Week 4</b> _____ 42	<b>Week 4</b> _____ 42
Lesson 9: Addition up to 5 _____ 42	Lesson 9: Number bonds and family facts to 20 _____ 42	Lesson 9: Subtraction on a number line _____ 42
Lesson 10: Counting on – add up to 5 _____ 45	Lesson 10: Building up and breaking down numbers _____ 45	Lesson 10: Addition and subtraction _____ 45
Lesson 11: Breaking down and building up numbers to 5 _____ 48	Lesson 11: Addition doubles: 1 to 20 _____ 48	Lesson 11: Money _____ 48
Lesson 12: Addition doubles – 1 to 5 _____ 51	Lesson 12: Near doubles _____ 51	Lesson 12: Fives and repeated addition _____ 51
<b>Week 5</b> _____ 54	<b>Week 5</b> _____ 54	<b>Week 5</b> _____ 54
Lesson 13: Addition up to 5 _____ 54	Lesson 13: Mass – starting to understand kilograms _____ 54	Lesson 13: Fives arrays _____ 54
Lesson 14: Subtraction up to 4 _____ 57	Lesson 14: Building through 10 and working in tens _____ 57	Lesson 14: Fives – sharing and grouping _____ 57
Lesson 15: Subtraction up to 5 _____ 60	Lesson 15: Tens and counting in tens _____ 60	Lesson 15: Twos and repeated addition _____ 60
Lesson 16: Counting back – subtract up to 5 _____ 63	Lesson 16: Tens arrays _____ 63	Lesson 16: Twos arrays _____ 63
<b>Week 6</b> _____ 66	<b>Week 6</b> _____ 66	<b>Week 6</b> _____ 66
Lesson 17: Add and subtract – number bonds and family facts _____ 66	Lesson 17: Tens sharing and grouping _____ 66	Lesson 17: Twos – sharing and grouping _____ 66
Lesson 18: Numbers 6 to 10 – recognition _____ 69	Lesson 18: Number patterns: 10 _____ 69	Lesson 18: 2-D shapes _____ 69
Lesson 19: Number patterns to 10 _____ 72	Lesson 19: Patterns of 10 _____ 72	Lesson 19: 2-D shapes: straight or round edges _____ 72
Lesson 20: Numbers 11 to 15 – recognition _____ 75	Lesson 20: Geometric patterns _____ 75	Lesson 20: Data – tally tables _____ 75



**Session 3b Activity 8: Lesson plan extracts – lesson activities**

Grade 1 Term 1 Lesson 11

**Lesson Vocabulary:** Break down numbers, number sentence, number bonds, number facts, addition, subtraction

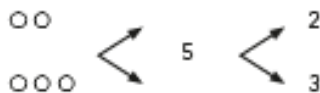
**Activity 1: Learners work in groups**

- Give the learners five counters and ask them, **How many different ways can you break the number 5 down?**

- ○○○ ○○      3 and 2 is 5
- ○○ ○○○      2 and 3 is 5
- ○ ○○ ○○      1 and 2 and 2 is 5, etc.

**Activity 2: Learners work in pairs**

- Give them the number cards.
- Ask them to show you all the combinations that will give you five e.g. 1 4, 2 3, 1 2 2, etc.
- Ask the learners to draw the combinations e.g. ○○○ ○○



**Activity 3: Whole class activity**

- Use counters and number lines to do the following activities with the learners.
- Encourage them to give you as many number sentences as they can, with an answer of five.
- Learners can add pairs of number – for example  $2 + 2 = 4$ .
- Learners can also combine three numbers at a time – for example  $1 + 2 + 2 = 5$ .
- Draw the sums on the board using number lines and counters to demonstrate the addition, especially when more than two numbers are combined.

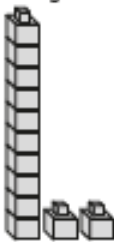
<p>3 and 2 is 5      ○○○ ○○</p>	<p>1 and 4 is 5      ○ ○○○○</p>
<p>1 and 2 and 2 is 5      ○ ○○ ○○</p>	<p>3 and 1 and 1 is 5      ○○○ ○ ○</p>



*Lesson vocabulary:* Tens, units, digits, biggest, smallest, more, less, after, estimate, add, subtract, equal to, place value

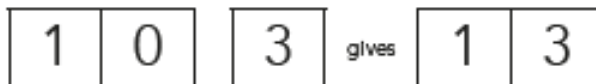
### Activity 1: Whole class activity

- Have the Unifix cubes and flard cards ready to give to the class. This activity should be brief – it allows a recap of the previous lessons on place value.
- Start the lesson by recapping how to recognise the place value of two-digit numbers to 20 and knowing what each digit represents. Recap the following:
  - Single-digit numbers represent different numbers of units.
  - Two-digit numbers represent numbers that have tens and units.
  - The digit on the right is in the units place and shows the number of units.
  - The digit on the left is in the tens place and shows the number of tens.
- Using the Unifix cubes, demonstrate 12, 15 and 19.



(1 ten and 2 units – so we write this as 12)

- Using the flard cards, show 13, 17 and 20, e.g.  $13 = 10 + 3 = 13$



### Activity 2: Whole class activity

- Write the numbers 16 to 25 on the board. This activity extends the numbers to 22 and it is the main activity of the lesson.
- Discuss with learners what makes one number bigger than another. (Check the tens and the units digits – the number with the highest number of tens and units is the biggest number.)
- For example, compare the numbers 15 and 25. Ask: **Which is bigger and why?** (25 is bigger by 10 – it has 2 tens and 5 units while 15 has 1 ten and 5 units.)
- Discuss with learners what makes one number smaller than another. (Check the tens and the units digits – the number with the lowest number of tens and units is the smallest number.)
- For example, compare the numbers 12 and 22. Ask: **Which is smaller and why?** (12 is smaller by 10 – it has 1 ten and 2 units while 22 has 2 tens and 2 units.)
- Ask the learners to show 19, 23 and 25 first with their base ten blocks and then their flard cards.
- Ask the learners which is the biggest number. (25)
- Repeat using other numbers from 0–25.
- Ask the learners which is the smallest number. (19)
- Repeat using other numbers from 0–25.
- Ask the learners to show you which number is one less than 23. Repeat using different numbers.
- Ask the learners to show you which number is one more than 21. Repeat using different numbers.

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

### **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 swapped the 40 card for a 50 card because I wanted to change the tens digit from a 4 to a 5. 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 0 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.

**Session 3a Activities: Ten frames (working with ones and tens – smaller numbers to about 30)**

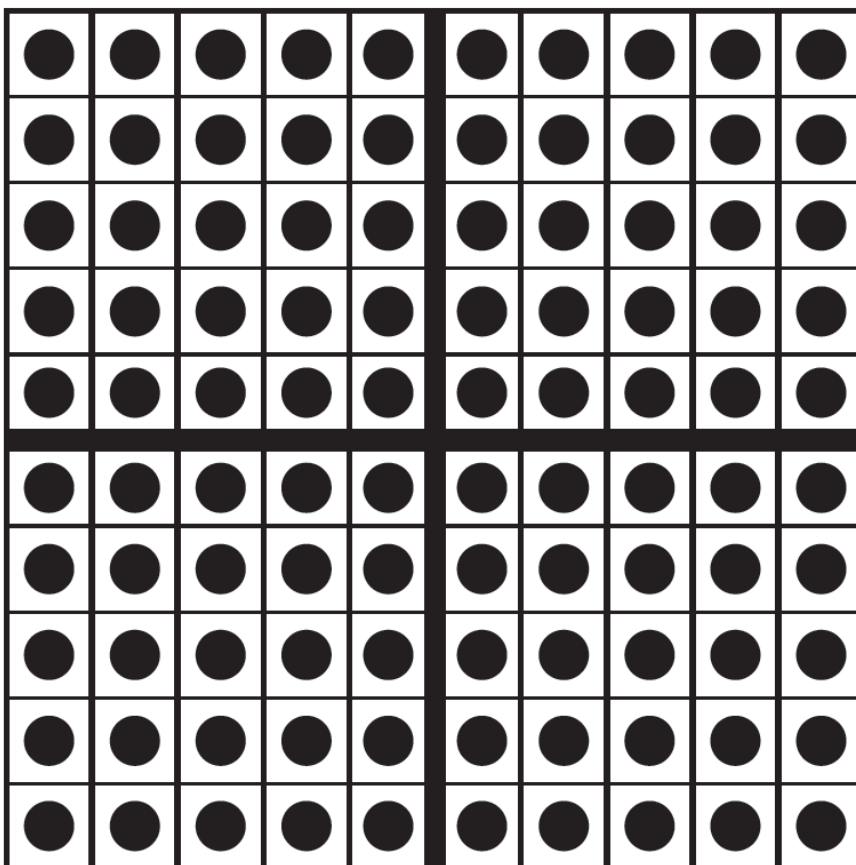
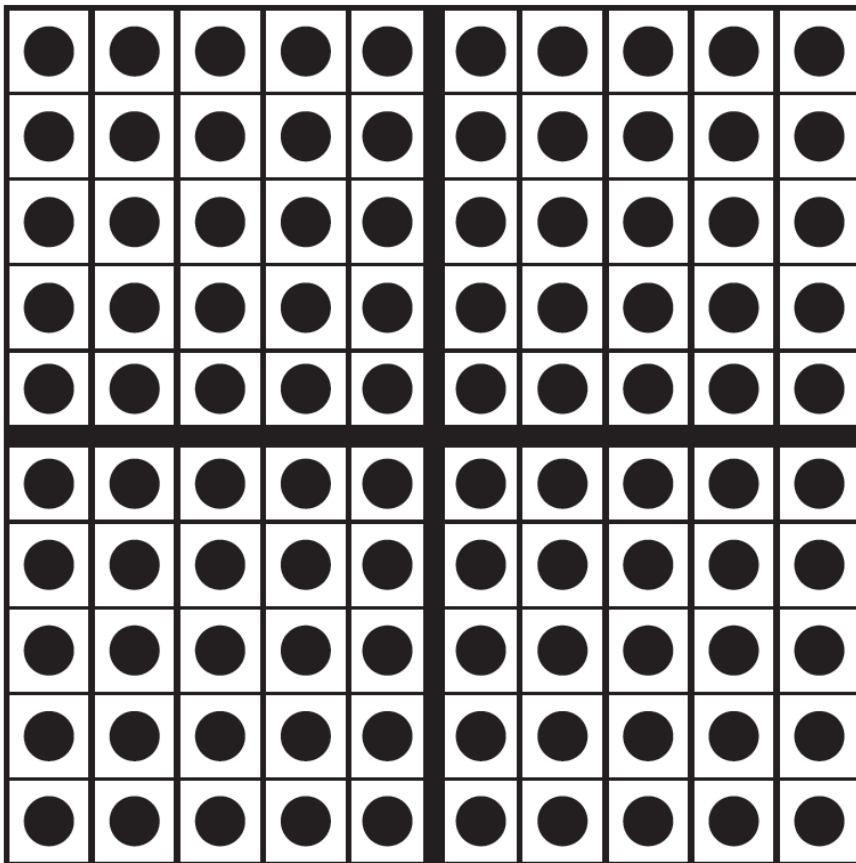
**Double decker ten frame** GRADE 1 only)


**Straight ten frame** (GRADE 1, 2 and 3 when the number range goes beyond 10)

Cut this and join it to make the straight ten frame.


**Blank page so ten frames (double decker and straight) can be cut**

Session 3a Activities: Printed tens and hundreds (Learner size)



**Blank page so printed tens and hundreds can be cut**

Session 3a Activities: Flard cards

<b>1</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>
<b>2</b>	<b>2</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>
<b>3</b>	<b>3</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>
<b>4</b>	<b>4</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>0</b>
<b>5</b>	<b>5</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>0</b>
<b>6</b>	<b>6</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>0</b>
<b>7</b>	<b>7</b>	<b>0</b>	<b>7</b>	<b>0</b>	<b>0</b>
<b>8</b>	<b>8</b>	<b>0</b>	<b>8</b>	<b>0</b>	<b>0</b>
<b>9</b>	<b>9</b>	<b>0</b>	<b>9</b>	<b>0</b>	<b>0</b>
		<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>



