I'M THE BOSS OF MY BODY!
STOP SEXUAL ABUSE!

STOP SEXUAL ABUSE!
STOP TOUCHING ME!
RUN!
TELL!
REPORT TO POLICE

IT IS EVERYONE'S RESPONSIBILITY TO
STOP SEXUAL ABUSE

SEX ABUSERS OUT!
NO TO SEXUAL ABUSE!

ABUSERS MUST
BE REPORTED
AND DEALT WITH
LAWFULLY!

TALK TO PARENTS
AND EDUCATORS

TELL! REPORT TO POLICE

IT IS EVERYONE'S RESPONSIBILITY TO
STOP SEXUAL ABUSE

ABUSERS MUST
BE REPORTED
AND DEALT WITH
LAWFULLY!
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<td>130</td>
<td>More area</td>
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<td>More probability</td>
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<td>145</td>
<td>Cat, not E</td>
<td>182</td>
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</table>

Mrs Angie Motshekga, 
Minister of Basic Education

Dr Reginah Mhaule, 
Deputy Minister of Basic Education

These workbooks have been developed for the children of South Africa under the leadership of the Minister of Basic Education, Mrs Angie Motshekga, and the Deputy Minister of Basic Education, Dr Reginah Mhaule. The Rainbow Workbooks form part of the Department of Basic Education’s range of interventions aimed at improving the performance of South African learners in the first six grades. As one of the priorities of the Government’s Plan of Action, this project has been made possible by the generous funding of the National Treasury. This has enabled the Department to make these workbooks, in all the official languages, available at no cost.

We hope that teachers will find these workbooks useful in their everyday teaching and in ensuring that their learners cover the curriculum. We have taken care to guide the teacher through each of the activities by the inclusion of icons that indicate what it is that the learner should do.

We sincerely hope that children will enjoy working through the book as they grow and learn, and that you, the teacher, will share their pleasure.

We wish you and your learners every success in using these workbooks.
Which measuring instrument will you use to measure volume?

1. Colour the measuring cups that will make 1 litre
   a. 1ℓ
   b. 1ℓ
   c. 1ℓ
   d. 1ℓ
   e. 1ℓ

2. How much cool drink is in the measuring jug?
   a. 9 1/2 ℓ
   b. 
   c. 
   d. 

Think carefully when you look at these diagrams in Question 2. Remember 0 litres (empty) is the bottom of the jug. What mark is next to the liquid level? In the first one it is the mark between the 9 and 10 litre marks - so it is 9 1/2 litres or 9 litres and 500 ml.
3. Will you use ml or ℓ to measure the following?

The jug holds 1 ℓ.

a. b. c. d. e. f.

4. A teaspoonful (or teaspoon) is a unit of capacity used in cooking and medicine.
   a) How many ml does a teaspoonful hold?
   b) How many teaspoonfuls will 20 ml be?

5. Waseela used 2 ℓ of water for making tea and coffee and 60 ℓ of water for doing her washing and 3 ℓ of water for washing dishes. How much water did she use altogether?

Millilitre fun

Collect some newspapers or junk mail.

Find 10 items for which measurements are given in ml.
Look at the pictures and answer the questions below. Note that the pictures are not to the same scale.

1. Which container do you think contains the largest amount of liquid?

2. Which container do you think contains the smallest amount of liquid?

3. What is the purpose of these containers?

4. Fill in the missing information.

   a. Capacity of jug: 4 litres
      Volume of liquid: 4 litres

   b. Capacity: _________________
      Volume: _________________

Term 3
5. Answer the questions below:

a. What is capacity?

b. What is volume?
6. Sort the containers into two groups: the ones you will use to measure litres and the ones you will use to measure millilitres. Write the alphabet letter only.

7. What measuring unit will you use to measure:

<table>
<thead>
<tr>
<th>Millilitres</th>
<th>Litres</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>a. Milk for a pudding recipe</th>
<th>b. Water to fill a swimming pool</th>
<th>c. Water to mix a packet of powdered cool drink</th>
</tr>
</thead>
<tbody>
<tr>
<td>d. Glass of water</td>
<td>e. Medicine for a baby</td>
<td>f. Water to water your garden</td>
</tr>
</tbody>
</table>
8. Cut out pictures from magazines, newspapers and advertisements. Paste two or three pictures of each:

Containers that hold litres

Containers that hold millilitres

Filling the pool

A swimming pool holds 1500 ℓ of water. How many 50 ℓ buckets of water will you use to fill the pool?
67a

Even more capacity

Give the correct reading for each arrow.

1. These 1 litre bottles contain cool drink. Answer the questions.

i. What is the capacity of each set of bottles?
   a. ________ b. ________ c. ________ d. ________ e. ________

ii. How much cool drink is there?

<table>
<thead>
<tr>
<th>Litres</th>
<th>Millilitres</th>
<th>Litres and millilitres</th>
<th>Fraction</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. 1 ℓ</td>
<td>500 ml</td>
<td>1 ℓ 500 ml</td>
<td>$1\frac{1}{2}$ ℓ</td>
</tr>
<tr>
<td>b.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
2. Complete the following table.

<table>
<thead>
<tr>
<th>Litres</th>
<th>Millilitres</th>
<th>Litres and millilitres</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 ℓ</td>
<td>350 ml</td>
<td></td>
</tr>
<tr>
<td></td>
<td>= 3 ℓ 80 ml</td>
<td></td>
</tr>
<tr>
<td>2 ℓ</td>
<td></td>
<td>= 2 ℓ 755 ml</td>
</tr>
<tr>
<td>5 ℓ</td>
<td>65 ml</td>
<td>=</td>
</tr>
</tbody>
</table>

3. Write the following as litres only (Remember you will need to round off to the nearest litre.)

**Example:** 1 876 ml ≈ 2 ℓ

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a. 3 546 ml</td>
<td>b. 2 876 ml</td>
<td>c. 9 234 ml</td>
</tr>
<tr>
<td>d. 6 127 ml</td>
<td>e. 8 750 ml</td>
<td>f. 9 500 ml</td>
</tr>
</tbody>
</table>

4. Write the following as millilitres only.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a. 4 ℓ 648 ml</td>
<td>b. 6 ℓ 394 ml</td>
<td>c. 8 ℓ 732 ml</td>
</tr>
<tr>
<td></td>
<td>4 648 ml</td>
<td></td>
</tr>
<tr>
<td>c. 8 ℓ 732 ml</td>
<td>e. 7 ℓ 912 ml</td>
<td>f. 1 ℓ 500 ml</td>
</tr>
</tbody>
</table>

5. Write the following as litres and millilitres.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a. 1 543 ml</td>
<td>b. 2 876 ml</td>
<td>c. 9 234 ml</td>
</tr>
<tr>
<td>d. 6 567 ml</td>
<td>e. 8 799 ml</td>
<td>f. 7 500 ml</td>
</tr>
</tbody>
</table>
6. Look at the containers carefully and answer the question below.

Use the letters A, B, C and D to arrange the containers from the one that holds the least to the one that holds the most.

7. Solve the following problems:
   a. Thabo mixes two 1 ℓ bottles of orange juice with two 750 ml bottles of apple juice and two 1 \(\frac{1}{2}\) ℓ bottles of lemonade. How many litres of the mixture will there be?
b. Rosie has a bad cough. Her mother buys a 225 ml bottle of cough syrup, of which she drinks 45 ml a day. How long will the bottle last?

c. Dumisani wants to make juice for his soccer team. He mixes a 2 litre bottle of orange juice with four 2 litre bottles of water. How many litres of juice has he made?

d. Sharon used 2 litres of water for making tea and coffee, 50 litres of water for doing washing and 22 litres of water in her garden. How much water did she use altogether?
1. Read the measuring jug and complete the table.

<table>
<thead>
<tr>
<th></th>
<th>How many litres are there in the jug?</th>
<th>Fraction</th>
<th>Number of 500 ml units</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>4 litres 500 ml</td>
<td>4 1/2 litre</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Count</td>
<td></td>
<td>0, 1/2, 1, 1 1/2, 2, 2 1/2, 3, 3 1/2, 4, 4 1/2</td>
</tr>
<tr>
<td>b.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Count</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Count</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Count</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
2. Complete the table:

<table>
<thead>
<tr>
<th>How many kilograms?</th>
<th>Fraction</th>
<th>How many 500 g units</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 kg 500 g</td>
<td>$3 \frac{1}{2}$ kg</td>
<td>7</td>
</tr>
</tbody>
</table>

Count: $0, \frac{1}{2}, 1, 1\frac{1}{2}, 2, 2\frac{1}{2}, 3, 3\frac{1}{2}$

Find the friends and colour them the same.
Look at the fractions. Talk about them.

### Halves

1. Write an equivalent fraction for:
   a. \( \frac{1}{4} = \) 
   b. \( \frac{1}{2} = \)
   c. \( \frac{3}{8} = \)
   d. \( \frac{2}{4} = \)
   e. \( \frac{2}{2} = \)
   f. \( \frac{2}{8} = \)
   g. \( \frac{8}{8} = \)
   h. \( \frac{4}{8} = \)
   i. \( \frac{4}{4} = \)

### Quarters

2. Fill in <, > or =.
   a. \( \frac{1}{2} \quad \frac{1}{4} \)
   b. \( \frac{1}{2} \quad \frac{2}{8} \)
   c. \( \frac{1}{4} \quad \frac{3}{8} \)
   d. \( \frac{1}{2} \quad \frac{2}{4} \)
   e. \( \frac{2}{2} \quad \frac{1}{8} \)
   f. \( \frac{5}{8} \quad \frac{2}{4} \)
   g. \( \frac{2}{4} \quad \frac{8}{8} \)
   h. \( \frac{1}{4} \quad \frac{4}{8} \)
   i. \( \frac{4}{8} \quad \frac{1}{2} \)
   j. \( \frac{1}{2} \quad \frac{4}{4} \)
   k. \( \frac{1}{2} \quad \frac{1}{8} \)
   l. \( \frac{5}{8} \quad \frac{1}{2} \)
   m. \( \frac{1}{2} \quad \frac{7}{8} \)
   n. \( \frac{3}{4} \quad \frac{1}{8} \)
   o. \( \frac{1}{4} \quad \frac{6}{8} \)
3. Complete the following using the diagram to guide you:

a. One whole = \( \frac{1}{2} \) + [ ]

b. One whole = \( \frac{1}{4} \) + [ ]

c. One whole = \( \frac{1}{8} \) + [ ]

4. Draw a picture to solve the following:

Palesa had 1 quarter of the cake, and July had 2 eighths of the cake. Who had the most cake?

John had four eighths of the cool drink and Ben had half of the cool drink. Did they have the same amount of cool drink?
1. Write an equivalent fraction for each of the following.

   a. \( \frac{1}{2} = \) [ ]
   b. \( \frac{2}{6} = \) [ ]
   c. \( \frac{4}{6} = \) [ ]

   d. \( \frac{1}{3} = \) [ ]
   e. \( \frac{2}{2} = \) [ ]
   f. \( \frac{3}{6} = \) [ ]

   g. \( \frac{2}{3} = \) [ ]
   h. \( \frac{6}{6} = \) [ ]
   i. \( \frac{3}{3} = \) [ ]

2. Fill in <, > or =.

   a. \( \frac{1}{2} \) [ ] \( \frac{1}{3} \) [ ]
   b. \( \frac{1}{2} \) [ ] \( \frac{2}{6} \) [ ]
   c. \( \frac{1}{3} \) [ ] \( \frac{3}{6} \) [ ]

   d. \( \frac{1}{2} \) [ ] \( \frac{2}{3} \) [ ]
   e. \( \frac{2}{3} \) [ ] \( \frac{1}{6} \) [ ]
   f. \( \frac{5}{6} \) [ ] \( \frac{2}{3} \) [ ]

   g. \( \frac{2}{3} \) [ ] \( \frac{6}{6} \) [ ]
   h. \( \frac{1}{3} \) [ ] \( \frac{4}{6} \) [ ]
   i. \( \frac{4}{6} \) [ ] \( \frac{1}{2} \) [ ]

   j. \( \frac{1}{2} \) [ ] \( \frac{3}{3} \) [ ]
   k. \( \frac{1}{2} \) [ ] \( \frac{1}{6} \) [ ]
   l. \( \frac{5}{6} \) [ ] \( \frac{1}{2} \) [ ]
3. Complete the following using the diagram to help you:

a. One whole = $\frac{1}{2}$ + 

b. One whole = $\frac{1}{3}$ + 

c. One whole = $\frac{1}{6}$ = 

4. Write a word problem for each and solve it.

a. Mother shared the apple pie between myself, herself and my father. What fraction did we each get?

$$1 \div 3 = \frac{1}{3}$$

b. 

c. 

d. 

Thinking fractions

Three children have to share 12 oranges equally so that nothing remains. How many oranges will each child get?

You might need to make a drawing to help you to solve this.
Even more equivalent fractions

Talk about these yellow whole squares and the fractions.

1. Use two yellow squares as the whole.

   \[
   \text{= 1 whole}
   \]

   a. The yellow square is what part of the whole?

   b. The red rectangle is what part of the whole?

   c. The blue triangle is what part of the whole?

   d. The green triangle is what part of the whole?

2. Answer these questions.

   a. How many green triangles are in one blue triangle?

   b. How many green triangles are in one red rectangle?

   c. How many green triangles are in one yellow square?
d. How many blue triangles are in one yellow square?

e. How many red rectangles are in one yellow square?

3. Draw the missing fraction pieces.

Make my own sums

Make five of your own sums using the shapes on the left.

[Blank spaces for five sums]
What fraction of the diagrams below has been coloured?
What fraction of the diagrams below has not been coloured?

1. Fill in >, < or =.

<p>| | | | | | | | | | |</p>
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<tbody>
<tr>
<td>a.</td>
<td>b.</td>
<td></td>
<td></td>
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<tr>
<td><img src="image" alt="Diagram" /></td>
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</tbody>
</table>

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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>c.</td>
<td>d.</td>
<td></td>
<td></td>
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<td><img src="image" alt="Diagram" /></td>
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<td><img src="image" alt="Diagram" /></td>
</tr>
</tbody>
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<td>e.</td>
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2. What fractions are shown by the arrow?

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<td>a.</td>
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</tbody>
</table>
3. Write a sum for the number lines below and calculate the answers.

a. \[\frac{3}{8} + \frac{4}{8} = \frac{7}{8}\]

b.

c.

d.

e.

4. Draw number lines for the following sums.

a. \[\frac{1}{4} + \frac{2}{4} = \]

b. \[\frac{1}{2} + \frac{1}{4} = \]

Problem solving:
A chocolate cake is cut into 30 pieces. If a fifth has been eaten, how many pieces are left?
1. Write a sum for the following:

- \( \frac{1}{4} + \frac{1}{4} + \frac{1}{2} = 1 \) whole
- \( \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} = 1 \) whole
- \( \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} = 1 \) whole
- \( \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} = 1 \) whole
- \( \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} = 1 \) whole

Which is greater, \( \frac{1}{4} \) or \( \frac{1}{7} \)?

2. Challenge: Draw fraction circles to show the following:

a. \( \frac{1}{4} + \frac{1}{4} + \frac{1}{2} = 1 \) whole

b. \( \frac{1}{3} + \frac{1}{3} + \frac{2}{6} = 1 \) whole
3. Use the diagram to complete the sums.

a. \( \frac{1}{4} + \frac{2}{4} = \)

b. \( \frac{2}{5} + \frac{1}{5} = \)

c. \( \frac{3}{8} + \frac{2}{8} = \)

d. \( \frac{1}{6} + \frac{2}{6} = \)

e. \( \frac{3}{7} + \frac{2}{7} = \)

f. \( \frac{5}{8} + \frac{1}{8} = \)

g. \( \frac{4}{8} + \frac{3}{8} = \)

h. \( \frac{3}{5} + \frac{2}{5} = \)

i. \( \frac{1}{6} + \frac{4}{6} = \)

4. At the party I had \( \frac{1}{8} \) of the cake and my friend had \( \frac{3}{8} \). How much cake did we have altogether? Make a drawing to show your answer.
What is each picture telling you?

Think carefully with the next two.

We say that these are mixed numbers.

1. Write the following as mixed numbers:

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<td>b.</td>
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<td>c.</td>
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<td>d.</td>
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<td>e.</td>
<td>j.</td>
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Term 3

More addition of fractions

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Page 24
2. Calculate the following.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>a.</td>
<td>2/6 + 2/6 =</td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td>1/3 + 1/3 =</td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td>1/3 + 1/3 =</td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td>2/4 + 1/4 =</td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td>1/4 + 2/4 =</td>
<td></td>
</tr>
<tr>
<td>f.</td>
<td>1/5 + 3/5 =</td>
<td></td>
</tr>
<tr>
<td>g.</td>
<td>2/6 + 3/6 =</td>
<td></td>
</tr>
<tr>
<td>h.</td>
<td>4/8 + 2/8 =</td>
<td></td>
</tr>
<tr>
<td>i.</td>
<td>1/6 + 3/6 =</td>
<td></td>
</tr>
<tr>
<td>j.</td>
<td>3/8 + 2/8 =</td>
<td></td>
</tr>
</tbody>
</table>

Thinking fractions

Make a sum for each diagram.
1. Colour the following on the picture above:

a. One quarter of the red window.
b. Two quarters of the purple window.
c. Three quarters of the orange window.
d. One quarter plus one quarter of the green window.
e. Two quarters plus one quarter of the yellow window.
f. Two quarters plus two quarters of the brown window.
g. One fifth of the first tree light green and the rest dark green.
h. Two fifths of the second tree light green and the rest dark green.
i. One fifth of the third tree light green, two fifths dark green and the rest yellow.
j. Three fifths of the fourth tree green and the rest yellow.

k. Colour the fifth tree and explain it here.
2. Look at the train in the picture on the previous page and answer the following:

   a. How many passenger carriages does the train have? ___
   
   b. What fraction is yellow? ___ Orange? ___ Red? ___
   
   c. The wheels are divided into ___ parts. Write one part as a fraction. ___
   
   d. Each passenger carriage has ___ windows. Write one window as a fraction. ___
   
   e. Colour in two sixths of the yellow carriage windows, four sixths of the orange carriage windows, five sixths of the red carriage windows.

3. Answer the questions on the small trucks.

   a. How many boxes are on the blue truck? ___ What fraction is yellow? ___ What fraction is blue? ___ What fraction is brown? ___
      Write an addition sum for it: ___

   b. How many boxes are on the red truck? ___ What fraction is pink? ___ What fraction is blue? ___ What fraction is brown? ___
      Write an addition sum for it: ___

My own questions

Look at the pictures and make your own fraction questions. Remember it should be different from the questions in this worksheet.

There is an open space on the picture on the previous page (page 26). Draw something that will fit into the picture and then write a fraction question for it.
Read the comic strip.

My parents bought a lounge suite for R5 000.

Eish... it must be beautiful!

My mom dreams of this beautiful fridge for R3 000.

So, is your mom going to save?

Oh, so she needs to save another R2 000.

Yes, she already saved R1 000.

1. Find items advertised for about R4 000. Paste a picture here.

2. Calculate:
   
   a. \[1 000 + 500 + 90 + 3 = \]
   
   b. \[2 000 + 300 + 40 + 1 = \]
   
   c. \[3 000 + 800 + 20 + 9 = \]
   
   d. \[4 000 + 90 + 3 = \]
   
   e. \[4 000 + 700 = \]
3. Calculate the following:

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</thead>
<tbody>
<tr>
<td>a. $2000 + 600 + 30 + 9 = $</td>
<td>b. $4000 + 50 + 1 + 400 = $</td>
<td>c. $2 + 90 + 800 + 1000 = $</td>
<td>d. $4000 + 50 = $</td>
<td>e. $2000 + 2 = $</td>
</tr>
</tbody>
</table>

4. Change the digit 5 to zero in each number. Show your operation.

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</thead>
<tbody>
<tr>
<td>a. $4854 = $</td>
<td>b. $3521 = $</td>
<td>c. $2005 = $</td>
<td>d. $6050 = $</td>
<td>e. $5000 = $</td>
</tr>
</tbody>
</table>

5. Use any digits to make different 4-digit numbers smaller than 5000 but bigger than 2000. Say if the number is odd or even. We did the first one for you.

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<tbody>
<tr>
<td>a. $4789$ odd</td>
<td>b. $\text{ }$</td>
<td>c. $\text{ }$</td>
<td>d. $\text{ }$</td>
<td>e. $\text{ }$</td>
</tr>
</tbody>
</table>

6. Write your answers to question 5 from the biggest to the smallest number.

Number madness

Take a newspaper. Find some 4-digit numbers that are bigger than 2000 but smaller than 5000. Paste them here.
Rounding off to the nearest 1 000

Which would be easier to say?

I bought a TV for R2 050 or R2 000.

I ran 1 989 m or 2 000 m.

987 or 1 000 people attended a concert.

1. Between what two thousands are:
   a. 1 234
   b. 3 890
   c. 2 478
   d. 8 932
   e. 4 329
   f. 9 323
   g. 6 173
   h. 5 984
   i. 7 394

2. Give any number between.
   a. 2 000 and 3 000
   b. 4 000 and 5 000
   c. 3 000 and 4 000
   d. 8 000 and 9 000
   e. 1 000 and 2 000
   f. 5 000 and 6 000
   g. 6 000 and 7 000
   h. 7 000 and 8 000

3. Go back to the numbers you wrote in question 2. Underline the number that is closest to your answer.
   
   Example:
   
   **2 000 and 3 000**
   
   **2 387**
4. Round off to the nearest 1,000. Circle the number which you look at when deciding whether to round up or down to the nearest 1,000. Complete the sentences.

a. 2,000 is between 2,000 and 3,000 and would be rounded to 2,000.

b. 3,400 is between and and would be rounded to .

c. 1,900 is between and and would be rounded to .

d. 4,700 is between and and would be rounded to .

5. Round off to the nearest 1,000. Circle the number which you look at when deciding whether to round up or down to the nearest 1,000. Complete the sentences.

a. 2,150 is between 2,000 and 3,000 and would be rounded to 2,000.

b. 4,490 is between and and would be rounded to .

c. 3,680 is between and and would be rounded to .

d. 1,450 is between and and would be rounded to .

6. Round off to the nearest 1,000. Circle the number which you look at when deciding whether to round up or down to the nearest 1,000. Complete the sentences.

a. 3,412 is between 3,000 and 4,000 and would be rounded to 3,000.

b. 2,623 is between and and would be rounded to .

c. 4,499 is between and and would be rounded to .

d. 1,507 is between and and would be rounded to .

Maths artist

You want to explain to your friend, who was absent from school, what rounding off means. Make a drawing.
### How fast can you calculate the following?

<table>
<thead>
<tr>
<th>Expression</th>
<th>Answer</th>
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</thead>
<tbody>
<tr>
<td>7 000 + 300 + 40 + 6 =</td>
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</tr>
<tr>
<td>4 000 + 90 + 3 =</td>
<td></td>
</tr>
<tr>
<td>8 000 + 100 + 7 =</td>
<td></td>
</tr>
<tr>
<td>9 000 + 80 + 2 =</td>
<td></td>
</tr>
<tr>
<td>5 000 + 4 =</td>
<td></td>
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<tr>
<td>6 000 + 200 + 80 + 5 =</td>
<td></td>
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</tbody>
</table>

### 1. Write the following in expanded notation.

<table>
<thead>
<tr>
<th>Number</th>
<th>Expanded Notation</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. 1 256</td>
<td>1000 + 200 + 50 + 6</td>
</tr>
<tr>
<td>b. 8 105</td>
<td>8000 + 100 + 5</td>
</tr>
<tr>
<td>c. 5 085</td>
<td>5000 + 80 + 5</td>
</tr>
<tr>
<td>d. 9 450</td>
<td>9000 + 40 + 0</td>
</tr>
<tr>
<td>e. 6 001</td>
<td>6000 + 0 + 1</td>
</tr>
<tr>
<td>f. 8 020</td>
<td>8000 + 0 + 20</td>
</tr>
</tbody>
</table>

### 2. Calculate the following.

<table>
<thead>
<tr>
<th>Expression</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. 5 + 7 =</td>
<td></td>
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<tr>
<td>b. 50 + 70 =</td>
<td></td>
</tr>
<tr>
<td>c. 500 + 700 =</td>
<td></td>
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<tr>
<td>d. 4 + 9 =</td>
<td></td>
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<tr>
<td>e. 40 + 90 =</td>
<td></td>
</tr>
<tr>
<td>f. 400 + 900 =</td>
<td></td>
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<tr>
<td>g. 6 + 7 =</td>
<td></td>
</tr>
<tr>
<td>h. 60 + 70 =</td>
<td></td>
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<tr>
<td>i. 600 + 700 =</td>
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</table>

### 3. Calculate the following.

<table>
<thead>
<tr>
<th>Expression</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. 9 – 4 =</td>
<td></td>
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<tr>
<td>b. 90 – 40 =</td>
<td></td>
</tr>
<tr>
<td>c. 900 – 400 =</td>
<td></td>
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<tr>
<td>d. 5 – 2 =</td>
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<tr>
<td>e. 50 – 20 =</td>
<td></td>
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<tr>
<td>f. 500 – 200 =</td>
<td></td>
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<tr>
<td>g. 7 – 3 =</td>
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<tr>
<td>h. 70 – 30 =</td>
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<tr>
<td>i. 700 – 300 =</td>
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</tbody>
</table>
4. Calculate the following. We did the first one for you. Use extra paper if you need to.

a. $4898 + 3141 =$
   
   $= 4000 + 800 + 90 + 8 + 3000 + 100 + 40 + 1$
   
   $= 4000 + 3000 + 800 + 100 + 90 + 40 + 8 + 1$
   
   $= 7000 + 900 + 130 + 9$
   
   $= 7000 + 900 + 100 + 30 + 9$
   
   $= 7000 + 1000 + 30 + 9$
   
   $= 8000 + 30 + 9$
   
   $= 8039$

b. $6967 + 2052 =$

c. $6442 + 1394 =$

d. $3467 + 4292 =$

e. $8578 + 1262 =$

f. $8258 + 1869 =$
5. Calculate the following. We did the first one for you.
   a. \(8 445 - 4 372 =\)
      \[(8 000 + 400 + 40 + 5) - (4 000 + 300 + 70 + 2)\]
      \[= (8 000 - 4 000) + (400 - 300) + (40 - 70) + (5 - 2)\]
      \[= 4 000 + 100 + (40 - 70) + 3\]
      \[= 4 000 + (140 - 70) + 3\]
      \[= 4 000 + 70 + 3\]
      \[= 4 073\]

   b. \(4 624 - 1 482 =\)

   c. \(8 546 - 5 283 =\)

   d. \(5 348 - 2 195 =\)

   e. \(9 434 - 6 591 =\)

   f. \(3 358 - 1 477 =\)

6. Solve the problems by identifying the questions, the numbers and the operations (addition or subtraction); then make a drawing if necessary and write down a number sentence. Use an extra sheet of paper if needed.
b. My uncle travelled 3 520 km through Africa on a safari. His friend travelled 5 659 km on his safari. How much farther did my uncle’s friend travel?

c. The tank holds 4 500 litres of water. The community used 1 950 litres. How much water is left?

d. My mother used 1 550 grams of flour for all the cupcakes she baked. My sister used 1 800 grams of flour for all the muffins she made. How much flour did they use together?
More addition and subtraction up to 4-digit numbers: breaking down numbers

1. Calculate the following.

a. $5 354 + 2 000 =$

b. $8 663 + 200 =$

c. $2 945 + 40 =$

d. $4 263 + 20 =$

e. $3 748 + 5 000 =$

f. $5 368 + 3 =$

2. Calculate the following.

a. $5 492 – 200 =$

b. $3 947 – 1 000 =$

c. $8 687 – 500 =$

d. $8 635 – 20 =$

e. $38 473 – 400 =$

f. $6 342 – 3 000 =$

3. Complete the table by adding or subtracting to or from the number in the first column.

<table>
<thead>
<tr>
<th></th>
<th>Add 1 000</th>
<th>Subtract 1 000</th>
<th>Add 100</th>
<th>Subtract 100</th>
<th>Add 10</th>
<th>Subtract 10</th>
<th>Add 1</th>
<th>Subtract 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 754</td>
<td></td>
<td></td>
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<td>4 856</td>
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<td>7 932</td>
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<td>6 573</td>
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<td>5 863</td>
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</tbody>
</table>
4. Add the following by breaking down the number to be added.

Example: Adding by breaking down the number to be added

Calculate 5 362 + 2 486
5 362 + 2 000 → 7 362 + 400 → 7 762 + 80 → 7 842 + 6 → 7 848

a. 3 459 + 2 320 = 

b. 5 296 + 2 312 = 

c. 8 875 + 1 187 = 

d. 8 764 + 1 586 = 

5. Subtract the following by breaking down the number to be subtracted.

Example: Subtracting by breaking down the number to be subtracted

Calculate 4 687 – 2 143
4 687 – 2 000 → 2 687 – 100 → 2 587 – 40 → 2 547 – 3 = 2 544

a. 7 834 – 3 512 = 

b. 8 274 – 3 843 = 

c. 4 322 – 1 188 = 

d. 7 546 – 4 657 = 

Check your answers

Check all your answers in question 4 and 5 by doing the inverse operation.

The inverse operation for addition is subtraction and for subtraction it is addition.
Addition and subtraction up to 4-digit numbers: filling up tens by breaking down the number to be added

1. Round off the following to the nearest 10, 100 and 1 000. Underline the digit that will help you to round the number to the nearest 10 or 100 or 1 000. We did the first one for you.

<table>
<thead>
<tr>
<th>Nearest 10</th>
<th>Nearest 100</th>
<th>Nearest 1 000</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 184</td>
<td>3 184</td>
<td>3 184</td>
</tr>
<tr>
<td>3 184</td>
<td>3 184</td>
<td>3 184</td>
</tr>
<tr>
<td>a. 3 184</td>
<td>3 184</td>
<td>3 184</td>
</tr>
<tr>
<td>b. 6 758</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. 4 390</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. 4 402</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. 8 999</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. 3 184</td>
<td>3 184</td>
<td>3 184</td>
</tr>
<tr>
<td>b. 6 758</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. 4 390</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. 4 402</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. 8 999</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Fill up the tens, hundreds and thousands.

<table>
<thead>
<tr>
<th>Fill up the tens</th>
<th>Fill up the hundreds</th>
<th>Fill up the thousands</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 524</td>
<td>3 524 + 6 = 3 530</td>
<td>3 524 + 76 = 3 600</td>
</tr>
<tr>
<td>a. 3 524</td>
<td>3 524 + 6 = 3 530</td>
<td>3 524 + 76 = 3 600</td>
</tr>
<tr>
<td>b. 5 132</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. 1 213</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. 8 458</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. 4 199</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
3. Calculate the following.

Filling up the tens
Calculate 2 486 + 48
2 486 + 48
= (2 486 + 14) – 14 + 48
= 2 500 + (48 – 14)
= 2 500 + 34
= 2 534

a. 2 345 + 72 =

b. 6 872 + 34 =

c. 5 676 + 96 =

d. 6 567 + 47 =

e. 4 536 + 89 =

f. 8 671 + 51 =

Check your answers

Check all your answers in question 3 by doing the inverse operation.
1. What number comes next?
   a. 1 000, 2 000, 3 000, [ ]
   b. 3 300, 3 400, 3 500, [ ]
   c. 689, 1 689, 2 689, [ ]
   d. 2 760, 3 760, 4 760, [ ]

2. Complete the table by adding or subtracting to or from the number in the first column.

<table>
<thead>
<tr>
<th>Number</th>
<th>Add 100</th>
<th>Subtract 100</th>
<th>Add 1 000</th>
<th>Subtract 1 000</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 212</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 910</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 106</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 069</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 989</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. Estimate the answers to these sums and write them on a separate piece of paper. Then calculate these sums writing the steps you use as shown in the two examples. Use a separate piece of paper. Then compare your estimation and calculation.
4. Complete the word problems. Show your calculations.

a. There were 75 children in the music lesson, 15 went home early and 3 went to soccer lessons. How many children were left in the music lesson?

b. Andile collects 2 283 cans for recycling in the first month. He collects 3 325 cans in the second month. How many cans did he collect altogether?

I dropped my number puzzle.

I dropped my puzzle pieces. Help me to fill the spaces so that each row and column adds up to 15. You can only use each number once.
**Views**

Look at the pictures. What does front, side and top mean?

1. Complete the table by drawing the side, front and top view of each house.

<table>
<thead>
<tr>
<th>Picture</th>
<th>Side view</th>
<th>Front view</th>
<th>Top view</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="House" /></td>
<td><img src="image2" alt="Side view" /></td>
<td><img src="image3" alt="Front view" /></td>
<td><img src="image4" alt="Top view" /></td>
</tr>
<tr>
<td><img src="image5" alt="House" /></td>
<td><img src="image6" alt="Side view" /></td>
<td><img src="image7" alt="Front view" /></td>
<td><img src="image8" alt="Top view" /></td>
</tr>
<tr>
<td><img src="image9" alt="House" /></td>
<td><img src="image10" alt="Side view" /></td>
<td><img src="image11" alt="Front view" /></td>
<td><img src="image12" alt="Top view" /></td>
</tr>
<tr>
<td><img src="image13" alt="House" /></td>
<td><img src="image14" alt="Side view" /></td>
<td><img src="image15" alt="Front view" /></td>
<td><img src="image16" alt="Top view" /></td>
</tr>
</tbody>
</table>
2. Name the following views:

Where is the person standing?

Where do you think the person stood when he or she took the photograph?

In which direction was the photograph taken?
Here are the six faces of a cube:

Here are three views of the cube:

Can you deduce where the faces are in relation to each other and record them on the net of the cube?

1. Complete the table.

<table>
<thead>
<tr>
<th>Picture</th>
<th>Side view</th>
<th>Front view</th>
<th>Top view</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Picture" /></td>
<td><img src="image2" alt="Side view" /></td>
<td><img src="image3" alt="Front view" /></td>
<td><img src="image4" alt="Top view" /></td>
</tr>
<tr>
<td><img src="image5" alt="Picture" /></td>
<td><img src="image6" alt="Side view" /></td>
<td><img src="image7" alt="Front view" /></td>
<td><img src="image8" alt="Top view" /></td>
</tr>
<tr>
<td><img src="image9" alt="Picture" /></td>
<td><img src="image10" alt="Side view" /></td>
<td><img src="image11" alt="Front view" /></td>
<td><img src="image12" alt="Top view" /></td>
</tr>
<tr>
<td><img src="image13" alt="Picture" /></td>
<td><img src="image14" alt="Side view" /></td>
<td><img src="image15" alt="Front view" /></td>
<td><img src="image16" alt="Top view" /></td>
</tr>
</tbody>
</table>
2. Name the following views of the blocks:

Views

What view of the child do you see?
1. Look at the picture above. Draw an example of each of the shapes with straight sides. Name the shapes.

2. Under each shape write how many sides the shape has.

3. Look at the picture. Draw the shape with curved sides. Name the shape.

4. Add 5 polygons to the picture above.
5. Look at the picture. Write the alphabet letter of the shapes on the picture. For example for square shapes put the letter a. Complete the table.

<table>
<thead>
<tr>
<th>Shape</th>
<th>Number of sides</th>
<th>Straight or curved sides</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Square</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Hexagon</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Circle</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Triangle</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Rectangle</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**A Shape animal**

Draw your own animal using various shapes.
1. Complete the shapes by drawing a side or sides.

<table>
<thead>
<tr>
<th>Triangle</th>
<th>Square</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Triangle" /></td>
<td><img src="image2" alt="Square" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pentagon</th>
<th>Hexagon</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image3" alt="Pentagon" /></td>
<td><img src="image4" alt="Hexagon" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Triangle</th>
<th>Square</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image5" alt="Triangle" /></td>
<td><img src="image6" alt="Square" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pentagon</th>
<th>Hexagon</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image7" alt="Pentagon" /></td>
<td><img src="image8" alt="Hexagon" /></td>
</tr>
</tbody>
</table>
2. Circle the octagons.

3. Colour the pentagons blue.

4. Draw the following in the table.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Two quadrilaterals</td>
<td></td>
</tr>
<tr>
<td>b. Two pentagons</td>
<td></td>
</tr>
<tr>
<td>c. Two heptagons</td>
<td></td>
</tr>
</tbody>
</table>

5. Use only quadrilaterals, pentagons and hexagons to draw a 2-D representation of any building.
Using grid paper is an easy way to draw perfect, geometric shapes and diagrams.

6. Use a ruler and the lines on the grid paper to draw the following. Use extra grid paper if you need to.
   a. Small and large triangle
   b. Small and large square
   c. Small and large rectangle
   d. Small and large pentagon
   e. Small and large hexagon

7. What is the area of each shape?
   a. small triangle: 
   large triangle: 
   b. small square: 
   large square: 
   c. small rectangle: 
   large rectangle: 
   d. small pentagon: 
   large pentagon: 
   e. small hexagon: 
   large hexagon: 

2-D shapes continued
8. Circle the closed shapes.

9. Circle the shapes with straight sides only.

10. Draw the following shapes.

   a. Two closed shapes with curved sides only
   b. Three closed shapes with straight sides only
   c. One open with curved and straight sides

   How many shapes?
   ____________________
   ____________________
   ____________________
   ____________________
   ____________________

How many shapes can you make with these sticks? Name them.

How many shapes?
Look at the pictures. Why do we need to take part in sport?

1. In groups of six you will do the following activity. Your teacher will keep time. Write your results in the table below.

   How many times can you skip in one minute?

<table>
<thead>
<tr>
<th>Name</th>
<th>Skips in one minute</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
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<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Write five questions on the data you have collected.

   You can make a skipping rope by tying old plastic shopping bags together.
3. Each person in a group of six tries to balance on an object. Your teacher will time you to see who can stay the longest on the object. Organise and record your data.

<table>
<thead>
<tr>
<th>Name</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. Write five questions on the data you have collected.
1. Complete the frequency table on coloured cell phones.

<table>
<thead>
<tr>
<th></th>
<th>Tally</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red cell phone</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blue cell phone</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Green cell phone</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yellow cell phone</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Use the table above and draw a pictograph.

---

How many cell phones did the shop sell?
3. Draw a bar graph using the pictograph.

4. Complete the following questions:
   a. How many yellow cell phones have been sold?
   b. How many red cell phones have been sold?
   c. How many blue cell phones have been sold?
   d. How many green cell phones have been sold?
   e. What colour phone was the most popular?
   f. What colour phone was the least popular?
   g. Why do you think green is the most popular colour?
1. Write down all the types of restaurants/takeaways on the map.

<table>
<thead>
<tr>
<th>Type of Restaurant</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Design a food picture that you will use in your pictograph.
3. Show the numbers of the different types of restaurants in a pictograph using the food picture you designed.

4. Answer the following questions.

   a. How many hamburger places are there?

   b. How many take away places are there?

   c. How many restaurants are there in total?

   d. Which is the most common type of restaurant?

   e. Which is the least common type of restaurant?

Favourite restaurant

Find out what is the favourite restaurant amongst the learners in your class.
1. Answer the following questions:

   a. What are you going to collect?  
      
   b. How will you do it?  
      
   c. How will you organise your data?
2. Draw a pictograph.

3. Draw a bar graph.

I think about data.

Decide on five questions you will ask about the bar graph. Write a short paragraph on the data collected on a separate sheet of paper.
### Bags of waste collected in our school.

<table>
<thead>
<tr>
<th>Week</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1</td>
<td>![Image]</td>
<td>![Image]</td>
<td>![Image]</td>
<td>![Image]</td>
<td>![Image]</td>
</tr>
<tr>
<td>Week 2</td>
<td>![Image]</td>
<td>![Image]</td>
<td>![Image]</td>
<td>![Image]</td>
<td>![Image]</td>
</tr>
<tr>
<td>Week 3</td>
<td>![Image]</td>
<td>![Image]</td>
<td>![Image]</td>
<td>![Image]</td>
<td>![Image]</td>
</tr>
<tr>
<td>Week 4</td>
<td>![Image]</td>
<td>![Image]</td>
<td>![Image]</td>
<td>![Image]</td>
<td>![Image]</td>
</tr>
<tr>
<td>Week 5</td>
<td>![Image]</td>
<td>![Image]</td>
<td>![Image]</td>
<td>![Image]</td>
<td>![Image]</td>
</tr>
</tbody>
</table>

1. Draw a pictograph using the information above.
2. Draw a bar graph based upon your pictograph data.

3. Answer the following questions:
   a. How many bags of waste did we collect in week 1? week 2? week 3? week 4? week 5?
   b. During which week did we collect the most waste?
   c. During which week did we collect the least waste?
   d. What do you think happened on Friday?

Waste management

How many waste bags or dustbins does your class fill with rubbish each day?
These bins filled with waste were collected after a sports day at School A. Why do you think there was so much waste?

1. Use the given information to draw up a frequency table of the different bins of waste.

2. Write four sentences on the waste created during the sports day.

Example: There were eight bins full of paper waste because a lot of food was wrapped in paper or cardboard containers.
3. Another school, School B, also held a sports day. To represent the waste collected they drew a pie chart. They forgot to give it a heading. Add a heading.

![Pie chart with categories: Plastic, Paper, Glass, Metal]

a. How many waste bins of glass did they collect? 

b. How many waste bins of paper did they collect? 

c. How many waste bins of plastic did they collect? 

d. How many waste bins of metal did they collect? 

e. Compare school A’s results with school B’s? 

f. Why do you think school B collected so much plastic? 

What will you do with all this waste? 

h. What type of waste did they not collect? 

i. What will you do with this type of waste? 

---

**Mandela day:**

As part of Nelson Mandela’s birthday we give 67 minutes of our time to take action to help change the world for the better. This year the school wants to make big changes starting with the school grounds. What will you do? How will you collect the data?
1. Complete the pattern.

a. 122 124 126

b. 366 369 372

c. 155 160 165

d. 520 530 540

e. 375 400 425

f. 250 300 350

2. Complete the pattern.

a. 846 844 842

b. 456 453 450

c. 925 920 915
3. Fill in the missing numbers.
   a. 100, 102, 104, 
   b. 156, 159, 162, 
   c. 285, 290, 295, 
   d. 100, 110, 120, 
   e. 175, 200, 225, 
   f. 150, 200, 250, 

4. Fill in the missing numbers.
   a. 86, 84, 82, 
   b. 111, 108, 105, 
   c. 625, 620, 615, 
   d. 260, 250, 240, 
   e. 475, 450, 425, 
   f. 950, 900, 850, 

Pattern fun

What will the missing numbers be?

1
1 1
1 2 1
1 3 3 1
1 4 6 4 1
### More number patterns

1. Complete the flow diagrams.

<p>| | | | | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>1200</td>
<td>1350</td>
<td>1500</td>
<td>1650</td>
<td>+500</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1200</td>
<td>1349</td>
<td>1498</td>
<td>1647</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td>1120</td>
<td>1360</td>
<td>1600</td>
<td>1840</td>
<td>+1000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>9200</td>
<td>8916</td>
<td>8632</td>
<td>8348</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td>2030</td>
<td>4215</td>
<td>6400</td>
<td>8585</td>
<td>−500</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td>1200</td>
<td>1349</td>
<td>1498</td>
<td>1647</td>
<td>+125</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td>2030</td>
<td>4215</td>
<td>6400</td>
<td>8585</td>
<td>−500</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f.</td>
<td>1/6</td>
<td>2/8</td>
<td>3/8</td>
<td>4/8</td>
<td>+1/2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g.</td>
<td>2/6</td>
<td>3/6</td>
<td>4/6</td>
<td>5/6</td>
<td>+1/6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>h.</td>
<td>2/8</td>
<td>3/8</td>
<td>4/8</td>
<td>5/8</td>
<td>+1/8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
2. Complete the table.

a. 

<table>
<thead>
<tr>
<th></th>
<th>+1</th>
<th>+1</th>
<th>+1</th>
<th>+1</th>
<th>+1</th>
<th>+1</th>
<th>+1</th>
<th>+1</th>
<th>+1</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>×4</td>
<td>4</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

b. 

<table>
<thead>
<tr>
<th></th>
<th>-3</th>
<th>-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>36</td>
<td>33</td>
<td>30</td>
</tr>
<tr>
<td>+3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>-7</th>
<th>-7</th>
</tr>
</thead>
<tbody>
<tr>
<td>84</td>
<td>77</td>
<td>70</td>
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<tr>
<td>÷7</td>
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<td></td>
</tr>
</tbody>
</table>

c. 

<table>
<thead>
<tr>
<th></th>
<th>+1</th>
<th>+1</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>×8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Create your own tables like the ones above.
How fast can you calculate the output value?

A flow diagram is balanced when the input (as changed by the rule) is equal to the output.

An important fact about the rule is that the order of operations may not be changed!

1. Complete the flow diagrams.

a. Input | Rule | Output
---|---|---
1 | × 2 | 2
2 | + 3 | 5
4

b. Input | Rule | Output
---|---|---
2 | × 2 | 8
3 | + 4 | 16
5

c. Input | Rule | Output
---|---|---
3 | × 3 | 17
5 | + 5 | 26
6

d. Input | Rule | Output
---|---|---
5 | × 3 | 27
6 | + 5 | 36
8

e. Input | Rule | Output
---|---|---
4 | × 4 | 11
8 | + 3 | 43

f. Input | Rule | Output
---|---|---
3 | × 4 | 16
5 | + 3 | 19
9
2. Complete the flow diagrams.
   a. The input values are 2, 4, 6, 8 and 10. The rule is \(x \times 2 + 2\).

   
   
   
   
   

   b. The rule is \(x \times 3 + 1\) and the output values are 10, 19, 28, 37 and 46.

   
   
   
   
   

   Give the rule for the following flow diagram.

   
   
   
   
   

   Input: 4, 2, 6, 8, 3

   Output: 34, 18, 50, 66, 26
1. Calculate the following.
   a. $3000 + 80 = \underline{ }$
   b. $7000 + 100 + 70 + 4 = \underline{ }$
   c. $4000 + 7 = \underline{ }$
   d. $5000 + 90 = \underline{ }$
   e. $8000 + 500 + 20 + 8 = \underline{ }$
   f. $9000 + 2 = \underline{ }$

2. Write the following in expanded notation.
   a. $7483 = \underline{ }$
   b. $8425 = \underline{ }$
   c. $3672 = \underline{ }$

3. Calculate the following.
   a. $8 + 4 = \underline{ }$
   b. $80 + 40 = \underline{ }$
   c. $800 + 400 = \underline{ }$
   d. $6 + 7 = \underline{ }$
   e. $60 + 70 = \underline{ }$
   f. $600 + 700 = \underline{ }$
   g. $7 + 5 = \underline{ }$
   h. $70 + 50 = \underline{ }$
   i. $700 + 500 = \underline{ }$
4. Calculate the following.

a. $5 - 3 = \underline{2}$  
b. $50 - 30 = \underline{20}$  
c. $500 - 300 = \underline{200}$  
d. $7 - 2 = \underline{5}$  
e. $70 - 20 = \underline{50}$  
f. $700 - 200 = \underline{500}$  
g. $9 - 6 = \underline{3}$  
h. $90 - 60 = \underline{30}$  
i. $900 - 600 = \underline{300}$

5. Calculate the following using both methods.

Example:

Method 1:
Calculate: $3791 + 4145$

\[
\begin{align*}
&3791 + 4145 \\
=&3000 + 700 + 90 + 1 + 4000 + 100 + 40 + 5 \\
=&3000 + 4000 + 700 + 100 + 90 + 40 + 1 + 5 \\
=&7000 + 800 + 130 + 6 \\
=&7936
\end{align*}
\]

Method 2:

\[
\begin{align*}
&1 + 5 = 6 \\
&90 + 40 = 130 \\
&700 + 100 = 800 \\
&3000 + 4000 = 7000 \\
&3791 + 4145 = 7936
\end{align*}
\]

a. $3211 + 3494 = \underline{6705}$

b. $6439 + 1290 = \underline{7729}$
6. Calculate the following.

Example:
Calculate: 8 787 – 2 493
8 787 – 2 493
= (8 000 + 700 + 80 + 7) – (2 000 + 400 + 90 + 3)
= (8 000 + 600 + 180 + 7) – (2 000 + 400 + 90 + 3)
= (8 000 – 2 000) + (600 – 400) + (180 – 90) + (7 – 3)
= 6 000 + 200 + 90 + 4
= 6 294

a. 8 874 – 3 412 =
b. 6 543 – 3 281 =
c. 1 469 + 5 270 =
c. $9269 - 6189 = \text{d. }5444 - 2999 =

Solve the problems by identifying the questions, the numbers and the operations (addition or subtraction); then make a drawing if necessary and write down a number sentence.

- My mother bought a lounge set for R5 450. My father bought a bedroom set for R4 250. How much did they pay altogether?
- My brother travelled 5 320 km through Africa on his vacation. His friend travelled 6 595 km on his vacation. How much farther did his friend travel?
- The water tank holds 5 400 litres. Our household used 2 590 litres. How much water is left?
- I used 1 630 kg sugar in my bakery in January. In February I used 2 800 kg. How much sugar did I use in the two months?
More addition and subtraction: breaking down numbers

1. Complete the table by adding or subtracting to or from the number in the first column.

<table>
<thead>
<tr>
<th></th>
<th>Add 1 000</th>
<th>Subtract 1 000</th>
<th>Add 100</th>
<th>Subtract 100</th>
<th>Add 10</th>
<th>Subtract 10</th>
<th>Add 1</th>
<th>Subtract 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 459</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 572</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 197</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 475</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 216</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Calculate the following.

   a. $9 534 + 200 =$
   b. $6 543 + 20 =$
   c. $3 796 + 1 000 =$
   d. $2 014 + 2 =$
   e. $8 591 + 4 000 =$
   f. $5 699 + 500 =$
   g. $4 512 + 2 000 =$
   h. $1 853 + 400 =$

   a. $7 169 – 100 =$
   b. $4 976 – 50 =$
   c. $6 789 – 3 000 =$
   d. $3 135 – 1 000 =$
   e. $2 579 – 4 =$
   f. $8 646 – 500 =$
   g. $6 825 – 10 =$
   h. $8 839 – 30 =$

3. What do you notice?
4. Calculate the following by breaking down the number to be added.

Example: Adding by breaking down the number to be added

Calculate \(4658 + 3271\)
\[
4658 + 3000 \rightarrow 7658 + 200 \rightarrow 7858 + 70 \rightarrow 7928 + 1 \rightarrow 7929
\]

a. \(3874 + 2215 = \) 

b. \(6313 + 2847 = \) 

c. \(5322 + 3729 = \) 

d. \(7556 + 1876 = \)

5. Subtract the following by breaking down the number to be subtracted.

Example: Subtracting by breaking down the number to be subtracted

Calculate \(6478 – 3235\)
\[
6478 – 3000 \rightarrow 3478 – 200 \rightarrow 3278 – 30 \rightarrow 3248 – 5 \rightarrow 3243
\]

a. \(3275 – 1434 = \)

b. \(8745 – 4672 = \)

c. \(5432 – 2874 = \)

d. \(8159 – 3754 = \)

Sum problems

- What is the sum of R2 999 and R3 534?
- What is the difference between 4 738 m and 8 735 m?
- What is the sum of 4 983 g and 3 982 g?
- What is the sum of 4 983 km and 4 894 km?
Talk about this.

How much do I still need?

It costs R100. I have R50 in my savings account. I also sold some old toys for R30.

A budget is a plan that shows what money you plan on spending and where it is coming from.

1. How much money do you have left?
   a. I have R90. I spend R40.
   b. I have R120. I spend R50.
   c. I have R100. I spend R50.50.
   d. I have R60.75. I spend R20.
   e. I have R80.50. I spend R20.20.

2. Complete all the calculations in each of these flow diagrams.
   In the first example, I have R100, I get R30 more, I spend R20, and I then have R110 left.
3. Ann earns pocket money once a month. Her parents encourage her to keep a budget.

<table>
<thead>
<tr>
<th>Sept</th>
<th>Money I get</th>
<th>Money I spend</th>
<th>Money left</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pocket money</td>
<td>R50,00</td>
<td>R50,00</td>
</tr>
<tr>
<td>5</td>
<td>Tuck shop</td>
<td>R10,00</td>
<td>R40,00</td>
</tr>
<tr>
<td>6</td>
<td>Extra chores</td>
<td>R30,00</td>
<td>R70,00</td>
</tr>
<tr>
<td>15</td>
<td>Birthday present</td>
<td>R40,00</td>
<td>R110,00</td>
</tr>
<tr>
<td>18</td>
<td>Book</td>
<td>R30,00</td>
<td>R80,00</td>
</tr>
<tr>
<td>22</td>
<td>Extra chores</td>
<td>R30,00</td>
<td>R110,00</td>
</tr>
<tr>
<td>24</td>
<td>CD on special</td>
<td>R60,00</td>
<td>R50,00</td>
</tr>
<tr>
<td>28</td>
<td>Gift for friend</td>
<td>R30,00</td>
<td>R20,00</td>
</tr>
</tbody>
</table>

a. How much money did Ann get on the 1st of September?  
   How much money is left?  

b. How much did she spend on the 5th of September?  
   How much money is left?  

c. Did she get or spend money on the 6th of September?  
   How much?  
   How much money does she have left?  

d. When is Ann’s birthday?  
   How much money did she get?  
   How much money does Ann have now?  

e. What did Ann do on the 18th of September?  
   How much money does she have left?  

f. How much did she earn on the 22nd of September?  
   What did she do to earn it?  
   How much money does she have left?  

g. What did she buy on the 24th and 28th of September?  

h. How much money does she have left for the month?  

i. What can she do with the left over money?
1. Answer the following orally:

How many wheels will 5 cars have? Let us count 4, 8, 12, . . .

How many days will be in 8 weeks? Let us count . . .

How many fingers will 10 hands have? Let us count . . .

How many legs will 9 spiders have? Let us count . . .

How many eggs will 7 half dozen boxes hold?

How many small squares will be on 5 “Noughts and crosses boards”? Let us count . . .

2. Colour the multiples of

4 blue

5 red
3. Complete these patterns.
   a. The multiples of 2 are 2, 4, 6, 8, 10, 12, [ ] [ ] [ ] [ ] [ ] [ ]
   b. The multiples of 3 are 3, 6, 9, 12, 15, 18, [ ] [ ] [ ] [ ] [ ]

4. Complete the patterns.

5. Show the following on the number lines.
   a. Multiples of 2
      [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]
   b. Multiples of 5
      [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]
   c. Multiples of 3
      [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]
   d. Multiples of 4
      [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]
   e. Multiples of 6
      [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]
6. Give the missing multiples:

a. $\times 1 \times 2 \times 3 \times 4 \times 5 \times 6 \times 7 \times 8 \times 9 \times 10$

\[
\begin{array}{ccccccccccc}
3 & 3 & 6 & 9 & 12 & 15 & 3 \times 1 & 3 \times 2 & 3 \times 3 & 3 \times 4 & 3 \times 5 & 3 \times 6 & 3 \times 7 & 3 \times 8 & 3 \times 9 & 3 \times 10 \\
\end{array}
\]

b. $\times 1 \times 2 \times 3 \times 4 \times 5 \times 6 \times 7 \times 8 \times 9 \times 10$

\[
\begin{array}{ccccccccccc}
2 & 2 & 4 & 6 & 8 & 10 & 2 \times 1 & 2 \times 2 & 2 \times 3 & 2 \times 4 & 2 \times 5 & 2 \times 6 & 2 \times 7 & 2 \times 8 & 2 \times 9 & 2 \times 10 \\
\end{array}
\]

c. $\times 1 \times 2 \times 3 \times 4 \times 5 \times 6 \times 7 \times 8 \times 9 \times 10$

\[
\begin{array}{ccccccccccc}
6 & 6 & 12 & 18 & 24 & 30 & 6 \times 1 & 6 \times 2 & 6 \times 3 & 6 \times 4 & 6 \times 5 & 6 \times 6 & 6 \times 7 & 6 \times 8 & 6 \times 9 & 6 \times 10 \\
\end{array}
\]

d. $\times 1 \times 2 \times 3 \times 4 \times 5 \times 6 \times 7 \times 8 \times 9 \times 10$

\[
\begin{array}{ccccccccccc}
4 & 4 & 8 & 12 & 16 & 20 & 4 \times 1 & 4 \times 2 & 4 \times 3 & 4 \times 4 & 4 \times 5 & 4 \times 6 & 4 \times 7 & 4 \times 8 & 4 \times 9 & 4 \times 10 \\
\end{array}
\]

e. $\times 1 \times 2 \times 3 \times 4 \times 5 \times 6 \times 7 \times 8 \times 9 \times 10$

\[
\begin{array}{ccccccccccc}
5 & 5 & 10 & 15 & 20 & 25 & 5 \times 1 & 5 \times 2 & 5 \times 3 & 5 \times 4 & 5 \times 5 & 5 \times 6 & 5 \times 7 & 5 \times 8 & 5 \times 9 & 5 \times 10 \\
\end{array}
\]

7. Complete the multiple pattern.

8. These numbers are multiples of:

a. 3, 6, 9, 12, 15, …

b. 6, 12, 18, 24, 30, …

c. 10, 20, 30, 40, 50, 60, …

d. 5, 10, 15, 20, 25, …

e. 7, 14, 21, 28, 35, …

A riddle

I am thinking of 3 numbers.
They are all multiples of 2, 5 and 10.
They all have 2 digits.
They are all greater than 10 and less than 41.
They are all even.

What are the numbers?
More multiples

Multiples of a number can be made by multiplying the number by any whole number. The first four multiples of 2 are 2, 4, 6 and 8. You get them by doing $2 \times 1$, $2 \times 2$, $2 \times 3$ and $2 \times 4$.

Reminder: When you do multiplication you can write the numbers in any order and get the same answer. $8 \times 3$ is the same as $3 \times 8$.

1. Complete the following:
   a. The numbers you find in the 3-times table are all multiples of ___.
   b. The numbers you find in the 4-times table are all multiples of ___.
   c. Here is how to make multiples of 4. Just multiply ___ by a whole number each time.
      $$1 \times 4 = \underline{4}, \quad 2 \times 4 = \underline{8}, \quad 3 \times 4 = \underline{12}, \quad 4 \times 4 = \underline{16}.$$
   d. The numbers you find in the 5-times table are all multiples of ___.
   e. Here is how to make multiples of 5. Just multiply ___ by a whole number each time.
      $$1 \times 5 = \underline{5}, \quad 2 \times 5 = \underline{10}, \quad 3 \times 5 = \underline{15}, \quad 4 \times 5 = \underline{20}.$$
   f. Here is how to make multiples of 6. Just multiply ___ by a whole number each time.
      $$1 \times 6 = \underline{6}, \quad 2 \times 6 = \underline{12}, \quad 3 \times 6 = \underline{18}, \quad 4 \times 6 = \underline{24}.$$

2. Complete the following:
   a. Is 12 a multiple of 4? If you multiply 4 by ___, you get 12, so 12 is a multiple of ___.
   b. Is 36 a multiple of 6? If you multiply 6 by ___, you get 36, so 36 is a multiple of ___.
   c. Is 49 a multiple of 7? If you multiply 7 by ___, you get 49, so 49 is a multiple of ___.

3. Complete the following:
   a. 20 is a multiple of 5, because ___ $\times$ ___ = 20.
   b. 42 is a multiple of 6, because ___ $\times$ ___ = 42.
   c. 56 is a multiple of 7, because ___ $\times$ ___ = 56.
   d. 56 is a multiple of 8, because ___ $\times$ ___ = 56.

In real life?

What comes in multiples of these numbers in the everyday world?

Remember you can not give the same answers as before.
1. Complete the table below.

<table>
<thead>
<tr>
<th>Number</th>
<th>x 1</th>
<th>x 2</th>
<th>x 3</th>
<th>x 4</th>
<th>x 5</th>
<th>x 6</th>
<th>x 7</th>
<th>x 8</th>
<th>x 9</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>80</td>
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<td></td>
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<tr>
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<td></td>
</tr>
<tr>
<td>200</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Use both methods to solve the sums below. Write the steps you use on a separate piece of paper.

**Example 1:**
57 \times 78 = (50 \times 70) + (7 \times 70) + (50 \times 8) + (7 \times 8)
= 3500 + 490 + 400 + 56
= 3000 + 500 + 400 + 90 + 40 + 50 + 6
= 3000 + 1300 + 140 + 6
= 4000 + 400 + 40 + 6
= 4446

**Example 2:**
216 \times 6 = (200 \times 6) + (10 \times 6) + (6 \times 6)
= 1200 + 60 + 36
= 1000 + 200 + 60 + 30 + 6
= 1000 + 200 + 90 + 6
= 1296

You did 3-digit x 2-digit before but this time your answer will be bigger than 2000 and smaller than 5000. See if this is true!!!

3. Solve the problems.

a. There are 45 sweets in one packet. How many sweets are there in 12 packets?

b. The shopkeeper sells 98 litres of milk in one week. How many litres will he have sold in 12 weeks?

4. Calculate this.

\[
\begin{array}{c}
2 \times 3 \times 1 \times 2 \times 3 \times 1 \times 2 = \\
2 \times 4 \times 3 \times 2 \times 4 \times 3 \times 2 = \\
\end{array}
\]
5. What number comes next?

```
6 → 24 → 96 → 384 → ?
2 → 10 → 50 → 250 → ?
```

6. Complete the table.

<table>
<thead>
<tr>
<th>Number</th>
<th>x 10</th>
<th>x 20</th>
<th>x 30</th>
<th>x 40</th>
<th>x 50</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
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<td>45</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>50</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>55</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>60</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

7. Calculate the following:

a. \(27 \times 15 = \)

b. \(56 \times 76 = \)

c. \(456 \times 2 = \)

d. \(576 \times 9 = \)

8. Solve the problems.

a. There are 25 marbles in one bag. There are 19 bags. How many marbles are there in total?

b. The computer game costs R199. My father bought two. How much did he pay?

c. Each chicken costs R42. We need to buy 35 chickens for the function. How much will we pay for all the chickens?
### Using approximation in multiplication

**Term 3**

1. **Round off the following to the nearest ten.**

   a. 78 = 80
   b. 14 = 10
   c. 69 = 70
   d. 22 = 20
   e. 55 = 60
   f. 98 = 100
   g. 81 = 80
   h. 36 = 40
   i. 43 = 40

2. **Calculate the following by approximation using the example to guide you.**

   **Example:**
   \[
   46 \times 58 \approx 46 \times 60 (by \ approximating \ the \ second \ number) \\
   = (40 + 6) \times 60 \\
   = 40 \times 60 + 6 \times 60 \\
   = 2400 + 360 \\
   = 2760
   \]

   a. \( 23 \times 39 = \)
   b. \( 48 \times 63 = \)
   c. \( 26 \times 46 = \)

3. **Calculate the following by approximation using the example to guide you.**

   **Example:**
   \[
   46 \times 58 \approx 50 \times 58 (by \ approximating \ the \ first \ number \ in \ the \ sum) \\
   = 50 \times (50 + 8) \\
   = (50 \times 50) + (50 \times 8) \\
   = 2500 + 400 \\
   = 2900
   \]

   a. \( 38 \times 65 = \)
   b. \( 54 \times 41 = \)
   c. \( 58 \times 37 = \)

---

**Approximately how much will it cost?**

What is the approximate cost if my company wants to buy 54 pairs of shoes at R69 per pair?
1. Break down the numbers into 2s and 3s.
   a. 18 =
   b. 90 =
   c. 60 =
   d. 66 =
   e. 42 =
   f. 78 =
   g. 54 =
   h. 84 =
   i. 30 =

2. Break down the numbers into 2s/ 3s/ 5s or a combination.
   a. 210 =
   b. 90 =
   c. 180 =
   d. 120 =
   e. 270 =
   f. 30 =
   g. 60 =
   h. 150 =
   i. 240 =

3. Break down the second number into 2s and 3s.
   Example 1:
   \[ 58 \times 12 = 5 \times 2 \times 6 \]
   \[ = 5 \times 2 \times 2 \times 3 \]
   \[ = 11 \times 2 \times 3 \]
   \[ = 23 \times 3 \]
   \[ = (200 + 30 + 3) \times 3 \]
   \[ = 600 + 90 + 6 \]
   \[ = 696 \]
   Example:
   \[ 33 \times 42 = \]

4. Multiply by breaking down the second number into 2s, 3s and 5s.
   Example:
   \[ 58 \times 54 = 58 \times 9 \times 6 \]
   \[ = 58 \times 3 \times 3 \times 6 \]
   \[ = 174 \times 3 \times 6 \]
   \[ = 522 \times 6 \]
   \[ = (500 + 20 + 2) \times 6 \]
   \[ = 3000 + 120 + 12 \]
   \[ = 3132 \]
   Example:
   \[ 34 \times 90 = \]
   Example:
   \[ 46 \times 78 = \]
   Example:
   \[ 90 \times 45 = \]
   Example:
   \[ 39 \times 30 = \]
### Properties of number

#### Quick recall. How fast can you answer the following.

<table>
<thead>
<tr>
<th>Term 3</th>
<th>3 + 4</th>
<th>7 x 2</th>
<th>3 x 3</th>
<th>4 + 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 x 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 x 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 x 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 x 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 + 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Complete the following. The example will guide you.

   a. $7 + 1 = 1 + 7$
   b. $+ 3 = 3 + 2$
   c. $8 + 4 = 4 +$
   d. $1 + 6 = + 1$
   e. $4 + 2 = 2 +$

2. Look at the first example. Make your own drawings to show this.

   a. $2 \times 6 = 6 \times 2$
   b. $1 \times 7 = 7 \times 1$
   c. $9 \times 3 = 3 \times 9$
   d. $8 \times 5 = 5 \times 8$
   e. $4 \times 8 = 8 \times 4$
   f. $3 \times 3 = 3 \times 3$

### Term 4

#### 3. Complete the following:

   a. $7 + (1 + 4) = (1 + 7) + 4$
   b. $(8 + 1) + 4 = (1 + 8) + 4$
   c. $2 + (6 + 4) = (6 + 2) + 4$
   d. $1 + (3 + 4) = (1 + 3) + 4$
   e. $1 + 7 + (4 + 3) = (3 + 4) + 4$

#### 4. Complete the following:

   a. $2 \times (2 \times 3) = (2 \times 2) \times 3$
   b. $2 \times (3 \times 1) = (3 \times 2) \times 1$
   c. $3 \times (5 \times 2) = (2 \times 3) \times 5$
   d. $4 \times (3 \times 3) = (3 \times 4) \times 3$
   e. $6 \times (3 \times 2) = (2 \times 6) \times 3$

### I made a mess ...

Help me to find the numbers I messed on.

- $12 + 14 = 12 + 14$
- $+ 5 = 5 + 11$
- $16 + 8 = 16 + 8$
- $13 + 7 = 13 + 7$
Basic operations

Quick recall.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>5 000 + 6 =</td>
<td>6 000 - 400 =</td>
<td>4 000 - 80 =</td>
</tr>
<tr>
<td>250 × 4 =</td>
<td>400 × 8 =</td>
<td>800 ÷ 5 =</td>
</tr>
<tr>
<td>4 500 - 700 =</td>
<td>8 000 + 25 =</td>
<td>30 × 30 =</td>
</tr>
<tr>
<td>880 ÷ 8 =</td>
<td>5 000 ÷ 5 =</td>
<td>7 800 ÷ 6 =</td>
</tr>
<tr>
<td>9 000 + 900 =</td>
<td>50 × 60 =</td>
<td>7 500 + 150 =</td>
</tr>
</tbody>
</table>

1. Work these out in your head.
   a. 36 plus 7  
   b. 4 multiplied by 6  
   c. The sum of 15 and 32  
   d. Divide 48 by 8  
   e. The product of 10 and 11  
   f. What is the remainder of 22 is divided by 5?  
   g. What is 12 less than 4 times a hundred?  

2. Tick the correct answer.
   a. Another word for addition is:  
      i. subtraction  
      ii. product  
      iii. plus/the sum of  
   b. Minus means the same as:  
      i. subtraction  
      ii. product  
      iii. divide  
   c. Ten thousand has ___ zeros.  
   d. Ten thousand is a ___ digit number.  
      i. 2  
      ii. 3  
      iii. 4  
   e. The product of 6 and 100 is:  
      i. 106  
      ii. 600  
      iii. 94  
   f. When adding or subtracting, if a number ends in 9 round it up to the next 10, and then take away or add ___.  
      i. 10  
      ii. 9  
      iii. 1  

3. Work these out in your head.
   a. 72 ÷ 9 =    
   b. 84 ÷ 4 =    
   c. 65 ÷ 5 =    
   d. 93 ÷ 3 =    
   e. 28 ÷ 5 =    
   f. 31 ÷ 6 =    

4. Match column A with column B.
   A               B
   a. Addition  
      i. Share  
   b. Subtraction  
      ii. Product  
   c. Multiplication  
      iii. Increase by  
   d. Division  
      iv. Decrease by  

5. Fill in the correct symbol.
   a. 80 ___ 2 = 160  
   b. 10 000 ___ 400 = 10 400  
   c. 399 ___ 301 = 98  
   d. 99 ___ 9 = 11  
   e. 25 ___ 4 = 100  
   f. 2 345 ___ 214 = 2 559

Operation symbols and numbers

Fill in the correct symbol and number.

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
</table>
| 100 |  + 5 |  20 |  50 |  100 |  120  
| 60 |  10 |  40 |  50 |  20 |   
| 25 |  5 |  25 |  50 |  10 |   |
What shape is highlighted? Why do we say it has 4 sides?

What shape is highlighted? Why do we say it has 3 sides?

1. Draw on the square grid paper a shape with:
   a. 4 sides
   b. 6 sides
   c. 8 sides

3. On the triangle grid paper a shape with:
   a. 3 sides
   b. 4 sides
   c. 5 sides
   d. 6 sides

5. How many sides do these shapes have?

6. Use the grid paper to draw the following:
   a. 4-sided shape
   b. 10-sided shape
   c. 12-sided shape

7. Use the triangular paper to draw the following:
   a. 6-sided shape
   b. 9-sided shape
   c. 16-sided shape

8. Use the grid paper below to design the composite shape that you would want your bedroom to look like.
Composite shapes continued

9. Show that these shapes tessellate by tiling the floor. We started it for you.

a. 

b. 

10. Show a tessellation pattern using these shapes.

a. 

b. 

A tessellation is a combination of shapes fitting together exactly (with no gaps or overlaps between the shapes). Another word for tessellation is tiling.

A tessellation of triangles.

A tessellation of hexagons.

A tessellation of squares.

Tessellations

Will these shapes tessellate?

a. 

b. 

Term 3

1. Round off the numbers to the nearest 10, 100 and 1 000.

<table>
<thead>
<tr>
<th></th>
<th>Nearest 10</th>
<th>Nearest 100</th>
<th>Nearest 1 000</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. 587</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. 1 324</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. 4 815</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. 9 082</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Complete the following:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a. 9 000 + 300 + 20 + 5 =</td>
<td></td>
</tr>
<tr>
<td>b. 3 000 + 600 + 4 =</td>
<td></td>
</tr>
<tr>
<td>c. 1 000 + 700 =</td>
<td></td>
</tr>
<tr>
<td>d. 4 000 + 9 =</td>
<td></td>
</tr>
<tr>
<td>e. 8 + 6 000 + 80 =</td>
<td></td>
</tr>
</tbody>
</table>

3. What is the place value of the underlined digits in each number?

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a. 1 738 =</td>
<td></td>
</tr>
<tr>
<td>b. 1 324 =</td>
<td></td>
</tr>
<tr>
<td>c. 1 780 =</td>
<td></td>
</tr>
<tr>
<td>d. 1 702 =</td>
<td></td>
</tr>
<tr>
<td>e. 1 899 =</td>
<td></td>
</tr>
</tbody>
</table>

4. Circle the number that is:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a. 4 000 more than 3 415:</td>
<td>3 815; 7 145; 7 415; 7 541; 7 514</td>
</tr>
<tr>
<td>b. 3 000 more than 6 201:</td>
<td>8 201; 9 201; 9 210; 6 501; 8 210</td>
</tr>
<tr>
<td>c. 500 more than 5 126:</td>
<td>5 526; 1 126; 8 126; 5 626; 7 400</td>
</tr>
<tr>
<td>d. 8 000 more than 1 333:</td>
<td>2 133; 9 333; 9 313; 2 833; 4 987</td>
</tr>
<tr>
<td>e. 1 000 more than 948:</td>
<td>1 948; 3 948; 2 984; 12 948; 2 498</td>
</tr>
</tbody>
</table>

5. Use any of these digits to make five different 4-digit numbers smaller than 9 999 but bigger than 5 000.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td></td>
</tr>
</tbody>
</table>

6. Answer <, > or =

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a. 1 218</td>
<td>1 181</td>
</tr>
<tr>
<td>b. 1 341</td>
<td>1 341</td>
</tr>
<tr>
<td>c. 1 948</td>
<td>1 849</td>
</tr>
<tr>
<td>d. 1 020</td>
<td>1 002</td>
</tr>
<tr>
<td>e. 1 409</td>
<td>1 490</td>
</tr>
</tbody>
</table>

7. Write the following in numbers:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Four thousand nine hundred and sixteen.</td>
<td></td>
</tr>
<tr>
<td>b. Five thousand three hundred and eighty one.</td>
<td></td>
</tr>
</tbody>
</table>

8. Write the following in words and say if it an even or odd number:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a. 1 478</td>
<td></td>
</tr>
<tr>
<td>b. 8 735</td>
<td></td>
</tr>
<tr>
<td>c. 7 004</td>
<td></td>
</tr>
<tr>
<td>d. 9 620</td>
<td></td>
</tr>
</tbody>
</table>

9. How many R100 notes do you need to make R10 000?

10. How many R200 notes do you need to make R10 000?
1. Double the following numbers:
   a. 23
      - double 20 + double 3
      - 40 + 6
      - 46
   b. 36
   c. 135
   d. 1253
   e. 135 + 138
   f. 2456

2. Calculate. Make use of the example to guide you.
   a. 23 + 25
      - double 23 + 2
      - 46 + 2
      - 48
   b. 36 + 38
   c. 36 + 38
   d. 2456

Addition and subtraction using doubling and halving

Double 47 is not a double that most people know by heart.
But you can break 47 down into tens and units: 40 + 7

We can then say and show:
- double 40
- double 7
- 80 + 14
- 94

Half 58
Break 58 down in tens and units: 50 + 8
We can then say and show:
- half 50
- half 8
- 25 + 4
- 29

3. Halve the following numbers:
   a. 28
      - half 20 + half 8
      - 10 + 4
      - 14
   b. 64
   c. 468
   d. 8482
   e. 276
   f. 7770

Doubling and halving

My number is 15. I double it. I double it again. I add 100. I double it. I add 20. I double it. I add 20 again.
I halve it. I minus 50. I halve it. I minus 50 again. I halve it. What is my number? __________
Addition and subtraction of 4-digit numbers: breaking down numbers

1. Calculate the following.

   **Example:**
   \[ 8 + 9 = 17 \quad \text{and} \quad 17 = 10 + 7 \]

   a. \( 7 + 5 = \)  \( 70 + 50 = \)  \( 700 + 500 = \)  
   b. \( 9 + 6 = \)  \( 90 + 60 = \)  \( 900 + 600 = \)  
   c. \( 8 + 4 = \)  \( 80 + 40 = \)  \( 800 + 400 = \)  

2. Calculate the following.

   **Example:**
   \[ 17 - 9 = 8 \quad \text{and} \quad 170 - 90 = 80 \]

   a. \( 8 - 4 = \)  \( 80 - 40 = \)  \( 800 - 400 = \)  
   b. \( 6 - 4 = \)  \( 60 - 40 = \)  \( 600 - 400 = \)  
   c. \( 9 - 3 = \)  \( 90 - 30 = \)  \( 900 - 300 = \)  

3. Calculate the following.

   **Example:**
   \[ 7348 + 1571 \]
   \[ = 7000 + 300 + 40 + 8 + 1000 + 500 + 70 + 1 \]
   \[ = 7000 + 1000 + 300 + 500 + 40 + 70 + 8 + 1 \]
   \[ = 8000 + 800 + 110 + 9 \]
   \[ = 8919 \]

   a. \( 4588 + 3251 = \)  
   b. \( 6439 + 2280 = \)  
   c. \( 3765 + 2186 = \)  
   d. \( 5782 + 2999 = \)  
   e. \( 9524 + 3687 = \)  
   f. \( 2921 + 8651 = \)  

4. Calculate the following.

   **Example:**
   \[ 8437 - 3274 \]
   \[ = (8000 + 400 + 30 + 7) - (3000 + 200 + 70 + 4) \]
   \[ = (8000 + 300 + 130 + 7) - (3000 + 200 + 70 + 4) \]
   \[ = (8000 - 3000) + (300 - 200) + (130 - 70) + (7 - 4) \]
   \[ = 5000 + 100 + 60 + 3 \]
   \[ = 5163 \]

   a. \( 6539 - 2296 = \)  
   b. \( 9773 - 3392 = \)  
   c. \( 9269 - 4190 = \)  
   d. \( 9583 - 5392 = \)  
   e. \( 8956 - 3254 = \)  
   f. \( 4235 - 1578 = \)  

Give the answer for:

<table>
<thead>
<tr>
<th>3000 + 400 + 70 + 2 =</th>
<th>3472</th>
</tr>
</thead>
<tbody>
<tr>
<td>8000 + 200 + 90 + 4 =</td>
<td></td>
</tr>
<tr>
<td>4000 + 50 + 6 =</td>
<td></td>
</tr>
<tr>
<td>9000 + 300 + 8 =</td>
<td></td>
</tr>
<tr>
<td>7000 + 1 =</td>
<td></td>
</tr>
</tbody>
</table>
1. Calculate the following.

Example: 5678 + 3000 = 8678

a. 6435 + 40 =
   b. 3853 + 4000 =
   c. 8482 + 7 =
   d. 6634 + 60 =
   e. 9842 + 50 =
   f. 4535 + 3000 =

What do you notice?

2. Calculate the following.

Example: 5678 – 3000 = 2678

a. 7579 – 3000 =
   b. 5489 – 60 =
   c. 6634 – 500 =
   d. 5676 – 300 =
   e. 6435 – 4 =
   f. 8482 – 40 =

What do you notice?

3. Complete the table. Always start with the given number.

<table>
<thead>
<tr>
<th></th>
<th>Add 1000</th>
<th>Subtract 1000</th>
<th>Add 100</th>
<th>Subtract 100</th>
<th>Add 10</th>
<th>Subtract 10</th>
<th>Add 1</th>
<th>Subtract 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>8475</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6382</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8455</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
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<tr>
<td>5383</td>
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<td></td>
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<tr>
<td>7373</td>
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<td></td>
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</tr>
</tbody>
</table>

4. Add the following by breaking down the number to be added.

Example: Calculate 6352 + 2584
6352 + 2000 → 8352 + 500 → 8852 + 80 → 8932 + 4 → 8936

a. 5793 + 3554 =
   b. 6982 + 2075 =
   c. 6898 + 2181 =
   d. 1023 + 7169 =

5. Subtract the following by breaking down the number to be subtracted.

Example: Calculate 8936 – 3425
8936 – 3000 → 5936 – 400 → 5536 – 20 → 5516 – 5 = 5511

a. 9954 – 3512 =
   b. 5632 – 2310 =
   c. 7692 – 4451 =
   d. 3002 – 1356 =

Solve the problems by identifying the questions, the numbers and the operation (addition or subtraction). Make a drawing if necessary and write down a number sentence. Solve the problem.

- What is the sum of R4 375 and R2 999?
- What is the difference between 6 796 m and 3 785 m?
- What is 3 951 g and 5 638 g together?
- What is the total distance of 6 749 km and 4 827 km?
1. Round the following off to the nearest 10, 100 and 1 000.

   Example: Nearest ten 34 ≈ 30
   Nearest hundred 682 = 700
   Nearest thousand 8 668 ≈ 9 000

   a. 9 531 b. 4 872 c. 6 467

2. Fill up the tens.

   Example: 34 + 6 = 40
   345 + 5 = 350

   a. 1 428 b. 4 393 c. 3 783 d. 9 204

3. Fill up the hundreds.

   Example: 430 + 70 = 500
   2 360 + 40 = 2 400

   a. 4 174 b. 6 572 c. 2 908 d. 2 614

4. Fill up the thousands.

   Example: 2 300 + 700 = 3 000
   4 300 + 700 = 5 000

   a. 5 262 b. 7 423 c. 4 351 d. 2 942

5. Fill up the tens, hundreds and thousands.

   a. 8 521 + 9 = 8 530
   b. 8 394
   c. 6 182
   d. 8 945
   e. 9 473

6. Calculate the following.

   Example: Calculate 4 688 + 65
   4 688 + 65 = (4 688 + 12) – 12 + 65 = 4 700 + (65 – 12) = 4 700 + 53 = 4 753

   a. 2 768 + 97 =
   b. 2 345 + 98 =
   c. 5 734 + 97 =
   d. 7 472 + 59 =
   e. 4 436 + 85 =

Calculate more ...

Make your own word problems with the following numbers and operations.

a. R6 300, R9 450 and ‘difference’
   b. 8 040 kg, 1 860 kg and ‘altogether’
   c. ‘The sum of’ 7,650 m and 1,490 m
   d. ‘Subtract’, 9 460 millilitres and 5 379 millilitres.
1. Round off the following to the nearest 10, 100 and 1 000

Example: Nearest ten 36 = 40
Nearest hundred 531 = 500
Nearest thousand 7 429 = 7 000

a. 8 327
b. 2 067
c. 2 986

2. Fill up the tens.

Example: 73 + 7 = 80; 321 + 9 = 330

a. 9 012
b. 4 592
c. 6 124
d. 2 312

3. Fill up the hundreds.

Example: 320 + 80 = 400; 3 780 + 20 = 3 800

a. 5 778
b. 6 643
c. 2 892
d. 2 166

4. Fill up the thousands.

Example: 3 200 + 800 = 4 000; 6 400 + 600 = 7 000

a. 4 988
b. 4 512
c. 4 974
d. 7 156

5. Fill up the tens, hundreds and thousands.

<table>
<thead>
<tr>
<th>Tens</th>
<th>Hundreds</th>
<th>Thousands</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 471</td>
<td>4 471 + 9 = 4 480</td>
<td>4 471 + 29 = 4 500</td>
</tr>
<tr>
<td>4 471</td>
<td>4 471 + 529 = 4 500</td>
<td></td>
</tr>
</tbody>
</table>

6. Calculate the following.

Example: 3 648 + 85
= (3 648 + 15 + 85) – 15
= (3 648 + 100) -15
= 3 748 – 15
= 3 733

a. 9 383 + 49 =
b. 6 485 + 46 =
c. 7 399 + 36 =
d. 5 044 + 78 =
e. 2 597 + 57 =
f. 3 243 + 88 =
g. 1 252 + 69 =
h. 8 184 + 68 =
i. 4 164 + 65 =
1. Circle the lightest object.

2. Arrange from heaviest to lightest.

<table>
<thead>
<tr>
<th>Objects</th>
<th>Heaviest to lightest</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Feather, elephant, lunch box</td>
<td></td>
</tr>
<tr>
<td>b. House, apple, four chairs</td>
<td></td>
</tr>
<tr>
<td>c. Motor car, two apples, ten bricks</td>
<td></td>
</tr>
<tr>
<td>d. Tennis ball, full paint tin, empty bucket</td>
<td></td>
</tr>
<tr>
<td>e. Shoes, socks, television set</td>
<td></td>
</tr>
</tbody>
</table>

3. Study the objects below and answer the questions.

   a. Which item is the heaviest?
   b. Which item is the lightest?
   c. Which items have the same mass?
   d. If I had two boxes of washing powder, what would the mass be?
   e. If I had three packets of samp, what would the mass be?

Find pictures of three objects that have a mass less than 1 kg.
1. What would you weigh with the following measuring instruments? Would you weigh it in kilograms or grams?

<table>
<thead>
<tr>
<th>Type</th>
<th>For measuring:</th>
<th>Kilograms or grams</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kitchen scale</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bathroom scale</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spring scale</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Balance scale</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Which of these scales is digital?
- a. 
- b. 
- c. 
- d. 

3. Would you measure the mass of the following in grams or kilograms?
- a. A cow: __________
- b. Flour for baking a cake: __________
- c. Your own mass: __________
- d. A coin: __________

4. Answer the following questions.
- a. Will a bag full of feathers have a larger mass than the same size bag half filled with stones? ________
- b. We use grams (g) and kilograms (kg) when measuring mass.
  i. Which unit of measurement do you think we use to measure heavier objects? ________
  ii. Which unit of measurement do you think we use for lighter objects? ________
- c. We make use of scales to weigh objects.
  i. Is there only one type of scale? ________
  ii. Name some of the types of scales we use and what we use them for.
1. What is the maximum reading on these scales?
   a.  
   b.  

2. Fill in the intervals on these scales with a maximum reading of 10 kg.

3. How much do the objects weigh on these scales which have a maximum reading of 10 kg?
   a.  
   b.  
   c.  
   d.  

4. Calculate the total mass of all the objects in Question 3.

Your teacher will give you a variety of objects that each weigh 2 1/2 kg.

These products below or the ones your teacher gave you all weigh 2 1/2 kg. You can prove it by weighing them on a scale.

Remember that the abbreviation for kilogram is kg and for gram is g.

There are 1,000 g in 1 kg. That means 1/2 kg is 500 g.

We say each weighs 2 1/2 kg.
5. Do this practical activity using a kitchen scale and suitable objects.

We see that the apple weighs 167 g.

Find objects that weigh about:
- 20 g
- 90 g
- 35 g
- 67 g
- 500 g

The meat weighs 2 kg 850 g.

Find objects that weigh about:
- 3 kg
- 1 kg 500 g
- 3 kg 200 g
- 2 kg 900 g
- 4 kg 750 g

6. Use the information below to complete the table.

When we use a balance scale, we place the object on one side and mass pieces (weights) on the other side and balance it.

Note: one pencil has a mass of about 2 g

<table>
<thead>
<tr>
<th>Number of pencils</th>
<th>Total mass of pencils (g)</th>
<th>Mass pieces used (g)</th>
<th>Total mass (g)</th>
<th>Is it balanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. 3</td>
<td>6 g</td>
<td>5 g; 1 g</td>
<td>6 g</td>
<td>Yes</td>
</tr>
<tr>
<td>b. 10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. 22</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. 33</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. 59</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

7. What mass pieces would you use to make the following:

<table>
<thead>
<tr>
<th>Total mass</th>
<th>Mass pieces used</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 g</td>
<td>300 g</td>
</tr>
<tr>
<td>10 Kg</td>
<td>1 000 g</td>
</tr>
<tr>
<td>22 g</td>
<td>575 g</td>
</tr>
<tr>
<td>33 g</td>
<td>865 g</td>
</tr>
<tr>
<td>9 Kg</td>
<td>624 g</td>
</tr>
</tbody>
</table>

8. Draw the pointer on this scale which has a maximum reading of 10 kg to show the following.

- 2 kg
- 3 kg 500 g
- 4 kg 700 g

Write down the names of five objects that weigh more than 2 kg 500 g.

Draw a picture of each.
1. How much do the objects weigh? Write your answer in:
   i. kilograms and grams
   ii. grams

   a. [Image of an apple]
   b. [Image of a potato]
   c. [Image of tomatoes and apples]

   i. __________________________
   ii. __________________________

   i. __________________________
   ii. __________________________

2. Show the following on this 10 kg kitchen scale.
   a. 4 kg 500 g
   b. 6 kg 300 g
   c. 2 kg 100 g
   d. 9 kg 500 g
   e. 4 kg 200 g
   f. 3 kg 600 g

   a. 2 kg 250 g = __________________________
   b. 6 kg 300 g = __________________________
   c. 3 kg 500 g = __________________________
   d. 4 kg 150 g = __________________________
   e. 6 kg 750 g = __________________________
   f. 8 kg 950 g = __________________________

3. Write the following in grams.
   a. 2 kg 250 g = 2 250 g
   b. 3 kg 500 g = __________________________
   c. 4 kg 150 g = __________________________
   d. 1 kg 200 g = __________________________
   e. 6 kg 750 g = __________________________
   f. 8 kg 950 g = __________________________

4. Write the following in kilograms and grams.
   a. 4 150 g = 4 kg 150 g
   b. 6 550 g = __________________________
   c. 7 650 g = __________________________
   d. 5 250 g = __________________________
   e. 9 950 g = __________________________
   f. 8 750 g = __________________________

My mother bought 2 kg 250 g of meat and 1 500 g of vegetables for her stew. How much do the ingredients for the stew weigh?
Which measuring instruments would you use to weigh objects? What kinds of objects would you weigh with them?

1. Colour in the blocks that will make 1 kg.

2. What does each object weigh?

3. Use the objects on the left to estimate whether each object is heavier or lighter than kilogram or gram.

4. A bag of maize meal contains 10 kg. Busi used 2 kg in the first week and 3 kg the next week. She then divided the rest equally into 2 separate bags. What will be the mass each of the 2 remaining bags?

Gram fun...

Look at a newspaper or advertising mail (sometimes called ‘junk mail’).
Find 10 items for which measurements are given in grams.
Term 4

Properties of 3-D objects

Give examples of 3-D objects that slide or roll or roll and slide

<table>
<thead>
<tr>
<th>Examples of 3-D objects</th>
<th>Slide</th>
<th>Roll</th>
<th>Roll and slide</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

What determines whether an object will roll or slide?

1. Look at the 3-D objects and answer the questions.

   a.
   i. Name this object.
   ii. Does it have a flat or curved surface?
   iii. Can a 3-D object with a curved surface roll or slide?

   b.
   i. Name the objects.
   ii. Do they have flat or curved surfaces?
   iii. Can a 3-D object with a flat surface roll or slide?

   c.
   i. Name the objects.
   ii. Do they have flat or curved surfaces?
   iii. Can a 3-D object with a curved and flat surface roll or slide?

2. Colour the shapes with both flat and curved surfaces.

   [Images of 3-D objects]

3. Fill in the missing information in the table.

<table>
<thead>
<tr>
<th>3-D object</th>
<th>Name of 3-D object</th>
<th>Names of shapes that make up the faces</th>
<th>Flat or curved surfaces</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3-D objects that make your house

Think about your house (the building itself). What kinds of 3-D objects make up your house? Would your house slide or roll?
1. Look at the nets below.
   a. What shapes can you see?
   b. How many faces can you see?
   c. What 3-D object will it form?

   A. [Net]
   B. [Net]
   C. [Net]
   D. [Net]

2. Colour the shapes with only flat surfaces.

3. Match the nets and the 3-D objects.

   - A.
   - B.
   - C.
   - D.

Design your own 3-D object.
1. Use the information below to describe the fraction shapes.

a. 

i. 
ii. 
iii. 

b. 

i. 
ii. 
iii. 

2. Colour the shape according to the information given.

a. One half is coloured.
b. Two thirds are coloured.
c. Four sixths are coloured.
d. Four eighths are coloured.
e. No halves are coloured.
f. One quarter is not coloured.

3. Divide and colour the shapes according to the information given.

a. 

\[
\frac{3}{4}
\]

b. 

\[
\frac{4}{5}
\]

c. 

\[
\frac{6}{8}
\]

d. 

\[
\frac{5}{6}
\]

4. Use the fraction wall to help you. Fill in >, < or =.

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>b</td>
<td>c</td>
<td>d</td>
</tr>
<tr>
<td>1/3</td>
<td>1/4</td>
<td>2/3</td>
<td>2/5</td>
</tr>
</tbody>
</table>

Fractions in order

Order the following fractions: \( \frac{1}{2}, \frac{4}{6}, \frac{1}{3}, \frac{3}{4}, \frac{5}{8}, 1 \)
A fraction of a number

What do you think the questions will be? We did the first one for you.

My sister bought 8 lollipops. 4 lollipops are strawberry flavour. What fraction is strawberry flavour?

1. Draw a picture to solve the problems.
   a. One tenth of the 30 bananas is rotten. How many bananas are rotten?

   b. There are 18 chairs in the classroom room. One third of them are green in colour. How many chairs are not green in colour?

   c. One half of the 6 people in a taxi are going to town. What fraction of people are going to town?

   d. There are 64 children in the park, three sixths of them are wearing blue shoes. How many children in the park are wearing blue shoes?

Children at my party

Six tenths of the children at my party like chocolate ice-cream.

How many children like chocolate ice-cream? ________________

How many do not like chocolate ice-cream? ________________
Each strip represents one whole. Describe it in fractions using the colours.

1. Write which part of the fraction is coloured and which part is not.
   a. [Diagram showing fractions]
      Fraction coloured: \( \frac{2}{10} \)
      Fraction not coloured: \( \frac{8}{10} \)
   b. [Diagram showing fractions]
      Fraction coloured: [Diagram showing fractions]
      Fraction not coloured: [Diagram showing fractions]
   c. [Diagram showing fractions]
      Fraction coloured: [Diagram showing fractions]
      Fraction not coloured: [Diagram showing fractions]
   d. [Diagram showing fractions]
      Fraction coloured: [Diagram showing fractions]
      Fraction not coloured: [Diagram showing fractions]
   e. [Diagram showing fractions]
      Fraction coloured: [Diagram showing fractions]
      Fraction not coloured: [Diagram showing fractions]

2. Colour in to show that the following are equal
   a. \( \frac{5}{10} = \frac{1}{2} \)
   b. \( \frac{4}{10} = \frac{2}{5} \)
   c. \( \frac{6}{10} = \frac{3}{5} \)
   d. \( \frac{8}{10} = \frac{4}{5} \)
   e. \( \frac{9}{10} = \frac{9}{10} \)
   f. \( \frac{10}{10} = 1 \)

3. Colour in both diagrams in every box.
   - [Diagram showing fractions]
   - [Diagram showing fractions]

4. If we divide a shape into ten equal pieces we can write each piece as \( 1 \div 10 = \frac{1}{10} \). Show \( 1 \div 10 \) on each shape. We did the first one for you.

5. If \( 1 \div 10 = \frac{1}{10} \) What is:
   a. \( 1 \div 2 = \) [Blank]
   b. \( 1 \div 3 = \) [Blank]
   c. \( 1 \div 4 = \) [Blank]
   d. \( 1 \div 5 = \) [Blank]
   e. \( 1 \div 6 = \) [Blank]
   f. \( 1 \div 7 = \) [Blank]

Decimal diagrams

Draw diagrams that represent these fractions:

- \( \frac{1}{8} \)
- \( \frac{1}{4} \)
- \( \frac{1}{9} \)
- \( \frac{1}{7} \)
- \( \frac{1}{3} \)
- \( \frac{1}{2} \)

The diagrams should be different to the ones you have already used.
1. Write which part of the fraction is coloured and which fraction not. Then show the same fraction on the different shape.

a.  

b.  

c.  

d.  

e.  

2. Colour in the parts of the circle

3. Show the following by making drawings. I have 10 sweets. I divide it between ___ children. What fraction of the sweets will each child get.
   a. 2 children
   b. 5 children

4. Give a fraction that is equal to:
   a.  
   b.  
   c.  
   d.  

Ten fingers
How many fingers have got finger puppets on? Give your answer in fractions.
Fraction problems

How fast can you complete the following?

\[
\begin{align*}
\frac{1}{4} + \frac{3}{4} &= \_ \_ \\
\frac{2}{5} + \frac{3}{5} &= \_ \_ \\
\frac{3}{7} + \frac{1}{7} &= \_ \_ \\
\frac{4}{6} + \frac{1}{6} &= \_ \_ \\
\frac{1}{3} + \frac{2}{3} &= \_ \_ \\
\frac{4}{8} + \frac{1}{8} &= \_ \_ \\
\frac{3}{5} + \frac{1}{5} &= \_ \_ \\
\frac{1}{4} + \frac{1}{4} &= \_ \_ \\
\frac{2}{6} + \frac{3}{6} &= \_ \_ \\
\frac{6}{8} + \frac{1}{8} &= \_ \_ 
\end{align*}
\]

1. Use the pictures or diagrams to help you to solve the problem.

a. There are eight pieces of pizza. Sipho ate five eighths of the pizza for lunch. He ate one eighth of the pizza for supper. How much pizza has he eaten in all?

b. There were three fourths of a litre of milk in the refrigerator. There was also one fourth of a litre of chocolate milk. How much more plain milk was there than chocolate milk?

d. There were 5 bananas on the counter. Two fifths of the bananas were eaten yesterday. One fifth of the bananas were eaten today. What fraction of the bananas has been eaten in all?

c. On Monday Ben picked one sixth of a kilogram of strawberries. On Tuesday he picked three sixths of a kg of strawberries. What is the total mass of strawberries Ben picked?

Make your own problems

Look at the pictures and make your own fraction word problems.

- 1 litre
- 1 kilogram
- 1 metre
1. Solve the following by making your own drawing or diagram.

a. Bongi ate three eighths of her orange before lunch and four eighths of her orange after lunch. How much of her orange did she eat in all? Draw a picture to show your answer.

b. Ben has six rand. He spent four sixths of his money on sweets and one sixth of his money on milk. What fraction of his money did he spend altogether? Draw a picture to show your answer.

c. Muzi added four fifths of a cup of flour to the chocolate cake. He added one fifth of a cup of flour to the strawberry cake. How much more flour was needed for the chocolate cake? Draw a picture to show your answer.

d. On Friday James ate a third of a kilogram of strawberries. On Saturday he ate two thirds of a kilogram of strawberries. What was the total weight of the strawberries that James ate? Draw a picture to show your answer.

2. Cutting the cake

My mother baked a cake. She cut it into 10 equal slices. We ate 6 equal pieces.

- What fraction of the cake did we eat?
- What fraction of the cake did we not eat?
- Write it as a sum.
1. Complete the following:
   a. You have 97 objects.
      Divide them into groups of 4.
      How many do you have in a group? __________
      How many objects are left over that do not fit into a group? __________
   b. Do a division sum for 97 divided by 4.

2. Complete the table. If you need more space for your picture, use a separate sheet of paper to draw it.

<table>
<thead>
<tr>
<th>Divide 10 objects into 5 groups.</th>
<th>How many do you have in a group?</th>
<th>How many objects are left over that do not fit into a group?</th>
<th>A picture</th>
<th>Division sum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Divide 100 objects into 8 groups.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Divide 100 objects into 7 groups.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Divide 100 objects into 6 groups.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. Look at the number line and answer the questions below:
   a. How many red groups do you have from 0 – 5 000?
   b. What is the size of each group?
   c. Write a multiplication sum for the red groups.
   d. Write a division sum for the red groups.
   e. How many green groups do you have from 0 – 5 000?
   f. What is the size of each group?
   g. Write a multiplication sum for the green groups.
   h. Write a division sum for the green groups.

4. We have shown the division of 4 750 by 250 on this number line. Answer the questions.
   a. How many groups do you have?
   b. How much is left after you have made all the groups?
   c. Complete the number sentence:

   \[ 4 750 \div 250 = \underline{19} \text{ rem } \underline{\text{300}} \]
Division: 3-digits by 1-digit

Quick recall.

| 100 ÷ 2 = | 500 ÷ 5 = | 900 ÷ 9 = | 200 ÷ 2 = | 400 ÷ 4 = |
| 300 ÷ 3 = | 600 ÷ 3 = | 800 ÷ 4 = | 500 ÷ 2 = | 600 ÷ 6 = |
| 700 ÷ 2 = | 100 ÷ 5 = | 450 ÷ 5 = | 300 ÷ 2 = | 900 ÷ 3 = |
| 400 ÷ 2 = | 800 ÷ 8 = | 640 ÷ 8 = | 360 ÷ 6 = | 700 ÷ 5 = |
| 200 ÷ 5 = | 700 ÷ 7 = | 960 ÷ 3 = | 72 ÷ 6 = | 450 ÷ 9 = |

Example 1:
633 ÷ 3 = (600 ÷ 3) + (30 ÷ 3) + (3 ÷ 3)
= 200 + 10 + 1
= 211

Test the answer.

Example 2:
589 ÷ 4 = (500 ÷ 4) + (80 ÷ 4) + (9 ÷ 4)
= 125 + 20 + 2 rem 1
= 147 rem 1

Test the answer.

1. Show your calculations in your writing book:
   a. 481 ÷ 3 =
   b. 635 ÷ 3 =
   c. 744 ÷ 3 =
   d. 815 ÷ 3 =
   e. 965 ÷ 3 =

2. Show your calculations in your writing book:
   a. 267 ÷ 5 =
   b. 578 ÷ 5 =
   c. 650 ÷ 5 =
   d. 812 ÷ 5 =
   e. 942 ÷ 5 =

3. Show your calculations in your writing book:
   a. 218 ÷ 7 =
   b. 350 ÷ 7 =
   c. 482 ÷ 7 =
   d. 678 ÷ 7 =
   e. 928 ÷ 7 =

4. Show your calculations in your writing book:
   a. 150 ÷ 8 =
   b. 267 ÷ 8 =
   c. 615 ÷ 8 =
   d. 863 ÷ 8 =
   e. 941 ÷ 8 =

5. Show your calculations in your writing book:
   a. 230 ÷ 9 =
   b. 349 ÷ 9 =
   c. 487 ÷ 9 =
   d. 865 ÷ 9 =
   e. 985 ÷ 9 =

Example 3:

How fast can you calculate the sums below?

You need to go and practice some of

Make your own sum.

Example 4:

How fast can you calculate the sums below?

The farmer collected 574 eggs. He packed them in half a dozen containers.
How many containers did he fill? Were there any eggs left? Check your answer.

You need to go and practice some of

Make your own sum.
### Ratios and division

#### 1. Thami and Sipho divided their money in the following ratios. Say how much money they got each time. Colour Thami’s money red and Sipho’s money blue.

- **a.** R60 in the ratio of 4:2
- **b.** R80 in the ratio of 2:6
- **c.** R400 in the ratio 1:3
- **d.** R300 in the ratio 3:3
- **e.** R800 in the ratio 3:1
- **f.** Make your own drawing to show. R100 in the ratio 8:2

#### 2. Solve the problems

**Example:** Thandi and Lisa win R50 between them. They agree to divide the money in the ratio 2:3. How much does each person receive?

- Thandi gets 2 parts and Lisa gets 3 parts. This is a total of 5 parts.
- They have R50. R50 divided by 5 parts = 10
- Thandi gets 2 parts x R10 = R20.
- Lisa gets 3 parts x R10 = R30

**Order**

It’s important to notice what order the parts of the ratio are written in. The ratio 2:3 is not the same as 3:2.

If we swap the order to 3:2 then Thandi would get more than Lisa.

To keep it the same as in the example we could say that the ratio of Lisa’s money to Thandi’s would be 3:2.

- Thandi gets 2 parts and Lisa gets 3 parts. This is a total of 5 parts.
- They have R50. R50 divided by 5 parts = 10
- Thandi gets 2 parts x R10 = R20.
- Lisa gets 3 parts x R10 = R30

**Example:**

- John and Manoj win a prize of R800, which they agree to share in the ratio 5:3. How much does each person get?

<table>
<thead>
<tr>
<th>a.</th>
<th>R800 in the ratio 3:1</th>
</tr>
</thead>
<tbody>
<tr>
<td>b.</td>
<td>R60 in the ratio 4:2</td>
</tr>
<tr>
<td>c.</td>
<td>R400 in the ratio 1:3</td>
</tr>
<tr>
<td>d.</td>
<td>R300 in the ratio 3:3</td>
</tr>
<tr>
<td>e.</td>
<td>R800 in the ratio 3:1</td>
</tr>
<tr>
<td>f.</td>
<td>Make your own drawing to show. R100 in the ratio 8:2</td>
</tr>
</tbody>
</table>

**b.** A necklace is made using red and blue beads in the ratio 4:2. If there are 60 beads in the necklace:

- How many are red?
- How many are blue?

<table>
<thead>
<tr>
<th>i)</th>
<th>How many are red?</th>
</tr>
</thead>
<tbody>
<tr>
<td>ii)</td>
<td>How many are blue?</td>
</tr>
</tbody>
</table>
**Perimeter, length and width**

What is the distance around the field?

1. How many steps will the person walk:
   a. To the flowers?
   b. From the flowers to the dog?
   c. From the dog to the cat?
   d. From the cat to where the person started walking?
   e. What is the total distance that the person walked?

2. What is the total distance around these shapes.
   a. ________ units.
   b. ________ units.
   c. ________ units.
   d. ________ units.
   e. ________ units.
   f. ________ units.

3. Use the grid below and make drawings of shapes with the following perimeter:
   a. A blue shape with a perimeter of 16
   b. A red shape with a perimeter of 12.
   c. A green shape with a perimeter of 18.
   d. A yellow shape with a perimeter of 8.
   e. A brown shape with a perimeter of 10.

---

We call the distance around a shape its perimeter.

---

Perimeter at school

How many steps will you take around the soccer field/netball court/rugby field/tennis court?
1. How many square units are there in each of these shapes?

a. [Image of a shape with 12 square units]

b. [Image of a shape with 12 square units]

c. [Image of a shape with 14 square units]

d. [Image of a shape with 16 square units]

e. [Image of a shape with 16 square units]

f. [Image of a shape with 18 square units]

g. Any shape with 18 square units.

h. Any shape with 18 square units.

i. Any different shape with 18 square units.

2. Draw different shapes with the same area. You can use cut-out 8 squared paper for this question.

a. A rectangle with 12 square units.

b. A different rectangle with 12 square units.

c. A different rectangle with 12 square units.

d. A square with 16 square units.

e. A rectangle with 16 square units.

f. A different square with 16 square units.

g. Any shape with 18 square units.

h. Any shape with 18 square units.

i. Any different shape with 18 square units.
1. How many square units in each shape?

2. Measure and label the length and the width of the sides.

3. Use your ruler and measure the sides of the shapes. Give your answer in mm.
1. Answer the following questions:
   a. Look at the first layer. How many cubes are in this layer?
   b. How many cubes are in the:
      2nd layer? 3rd layer? 4th layer?

2. What is the total number of cubes in the box?
   a. Calculate it using addition.
   b. Calculate it using multiplication.

2. How many cubic units are there?
   a.  
   b.  
   c.  
   d.  
   e.  
   f.  
   g.  
   h.  

List the objects above in order, from the smallest to the biggest volume.
1. Show the length, width and height of each block.
   a. 
   What is the length of the block? _____
   What is the width of the block? _____
   What is the height of the block? _____
   b. 
   What is the length of the block? _____
   What is the width of the block? _____
   What is the height of the block? _____
   c. 
   What is the length of the block? _____
   What is the width of the block? _____
   What is the height of the block? _____
   d. 
   What is the length of the block? _____
   What is the width of the block? _____
   What is the height of the block? _____

2. Without counting each cube. How many cubic units are there?
   a. 
   Length = _____
   Width = _____
   Height = _____
   We can say: _____ × _____ × _____ = _____ cubic units
   b. 
   Length = _____
   Width = _____
   Height = _____
   We can say: _____ × _____ × _____ = _____ cubic units
   c. 
   Length = _____
   Width = _____
   Height = _____
   We can say: _____ × _____ × _____ = _____ cubic units
   d. 
   Length = _____
   Width = _____
   Height = _____
   We can say: _____ × _____ × _____ = _____ cubic units

What will be the length, width and height of an object with 16 cubic units?
1. Give three ways to calculate the cubic units of the object
   a. 
   Solution 1: 
   Solution 2: 
   Solution 3: 
   b. 
   Solution 1: 
   Solution 2: 
   Solution 3: 
   c. 
   Solution 1: 
   Solution 2: 
   Solution 3: 
   d. 
   Solution 1: 
   Solution 2: 
   Solution 3: 

2. More and more volume
   Talk about the 3 solutions
   The length equals 4 units
   The width equals 3 units
   The height equals 2 units
   Solution 1: 
   Solution 2: 
   Solution 3: 

3. How many cubic units are in this model of a modern building?
   Use the table to help you.

Draw your own model of a modern building using cubic units. It should have more than 100 cubic units. How many cubic units does your model have?
1. Where is the boy?

2. Draw a girl in:

3. Use the grid to answer the questions:

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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</tr>
</tbody>
</table>

Where will you find a?

a. Green hexagon
b. Yellow square
c. Green square
d. Red square
e. Orange hexagon
f. Pink pentagon
g. Purple pentagon

4. Draw the following on the grid:

   a. Blue triangle in B4
   b. Yellow circle in E9
   c. Red pentagon in C1
   d. Green rectangle in F3
   e. Purple hexagon in J10
   f. Green triangle in H8
   g. Blue hexagon in G10
   h. Blue triangle in I 6
   i. Brown square in E 5

Fun walk ...

- John walks 3 steps across and 2 steps down. What items did John get?
- John walks 1 step across and 3 steps down. What items did John get?
- John walks 3 steps across and 1 step down. What items did John get?

NB: Remember, when writing items you start by recording the item that is across before recording the items that go downwards.
Position and movement – more working with maps

1. Use the map to answer the questions. Give the map reference and province.

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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<td>5</td>
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<td></td>
</tr>
</tbody>
</table>

   a. Cow? D3 Free State
   b. Grapes?
   c. Fish?
   d. Diamond?
   e. Elephant?
   f. Banana?

2. Where will you find:
   a. North West?  
   b. Western Cape?  
   c. Eastern Cape?  
   d. Free State?  
   e. Gauteng?  
   f. Northern Cape?  
   g. KwaZulu-Natal?  
   h. Limpopo?  
   i. Mpumalanga?

3. Colour Gauteng red in the map in Question 1.

4. Draw your own map and write five questions that your friend can try to answer.
1. Answer the questions for each pattern.
   i. What shapes have been used?
   ii. Are these patterns tessellations? Why?

2. Complete the tessellation
   a. 
   b. 

3. Answer the following questions for each pattern.
   i. Are these patterns tessellations?
   ii. Give a reason for your answer.

Create your own tessellating patterns using:
- Squares and rectangles
- Triangles of different sizes
Describing patterns

These examples of patterns are made by using lines, 2-D shapes, 3-D objects and lines of symmetry. Only look at the pictures and then describe it. Do you get the same answer, as the answer below.

1. Use the words below to complete the description of the patterns.
symmetrical, 2-D shapes, tessellations, pattern, straight lines

   a. The pattern I see on the floor looks like a tessellation pattern using ________.

   b. The pattern I see is made of ________.

   c. The pattern I see on the artwork looks like a tessellations pattern using 2-D shapes. This pattern is also ________.

   d. The pattern I see on the floor looks like a pattern using 2-D shapes.

   e. The ________ I see on the artwork looks like a tessellation pattern using 2-D shapes. This pattern is also symmetrical.

2. Describe the patterns below by choosing the correct answer.
Pattern with symmetry / pattern using 3-D objects / pattern using straight lines / pattern using 2-D shapes.

   a. The pattern I see on the floor looks like a tessellation pattern using ____________________.

   b. The pattern I see is made of ______________.

   c. The pattern I see on the floor looks like a tessellation pattern using 2-D shapes. This pattern is also symmetrical.

   d. The pattern I see on the artwork looks like a tessellations pattern using 2-D shapes. This pattern is also symmetrical.

   e. The tessellate

   Let's tessellate

Tessellate a shape that you find in nature.
More on describing patterns

1. Complete the patterns and then describe each.
   a.
   ![Pattern Image]

   b.
   ![Pattern Image]

   c.
   ![Pattern Image]

   d.
   ![Pattern Image]

2. Complete the sentences to describe the patterns.
   a.
   ![Pattern Image]
   i. ______ squares have been slid along to make up the first row.
   ii. The pattern starts with one ______ square and then two ______ squares.
   iii. The pattern is repeated without ______.

   b.
   ![Pattern Image]
   i. ______ ______ are slid along to make a row.
   ii. The first row starts with ______ rectangle.
   iii. The next five rectangles will be ______.
   iv. The pattern is ______ without gaps.

   c.
   ![Pattern Image]
   i. ______ ______ are slid along to make the first ______.
   ii. All the hexagons are ______.
   iii. The pattern is ______ without ______.

   d.
   ![Pattern Image]
   i. ______ ______ ______ are slid across.
   ii. The green triangles have been flipped and used to fill the ______ between the red triangles.
   iii. The pattern is ______ without ______.

Quilt

Design your own patterned quilt. Describe it.
1. Look at the patterns and complete the table below.
   a. 
   b. 
   c. 
   d. 
   e. 
   f. 

<table>
<thead>
<tr>
<th>Pattern</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blocks</td>
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<td>Circles</td>
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</tr>
</tbody>
</table>

Pattern fun

This is a pattern. Design your own pattern and give it to a friend to solve.
More geometric patterns

1. Copy the pattern:
   a. 
   b. 
   c. 

2. Copy the patterns:

3. Copy the pattern.

Patterns

Copy and extend this pattern.
Subtraction: breaking down all numbers according to place value

1. Break up the number in four different ways. The example will guide you.

   a. 9 451
   b. 7 843
   c. 8 986
   d. 8 965
   e. 9 572
   f. 7 764
   g. 7 897
   h. 8 547
   i. 9 698

   Explain how this number was broken up:

   743 = 700 + 40 + 3
   You can borrow 100 from 700 and get:
   = 600 + 140 + 3
   You can borrow 10 from 140 and get:
   = 600 + 130 + 13
   Explain: 743 = 500 + 240 + 3

2. Calculate the following using the example to guide you. You might need some extra paper.

   Example:

   Calculate : 9 652 – 4 375

   9 652 – 4 375 = (9 000 + 600 + 50 + 2) – 4 000 – 300 – 70 – 5
   = (9 000 + 500 + 140 + 12) – 4 000 – 300 – 70 – 5
   = (9 000 – 4 000) + (500 – 300) + (140 – 70) + (12 – 5)
   = 5 000 + 200 + 70 + 7
   = 5 277

   a. 7 965 – 4 487 =
   b. 8 157 – 3 079 =
   c. 9 635 – 3 257 =

3. Solve the following. My mother had R8 000 and spent R4 578 on new furniture. What was her change?

   Problem solving

   - My mother bought 13 550 mm of ribbon. She used 2 975 mm. How much ribbon is left?
   - There was 1 650 ml juice in the bottle. My brother drank 350 ml. How much juice is left in the bottle?
   - My dog weighs 4 550 g. My sister’s dog weighs 3 785 g. What is the difference in their weight?
1. Calculate the following.

Example: 8 753 + 1 000 = 9 753

<table>
<thead>
<tr>
<th>Add 1 000</th>
<th>Subtract 1 000</th>
<th>Add 100</th>
<th>Subtract 100</th>
<th>Add 10</th>
<th>Subtract 10</th>
<th>Add 1</th>
<th>Subtract 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 459</td>
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<tr>
<td>4 572</td>
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<td>7 197</td>
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<td>5 475</td>
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<td>3 216</td>
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</tr>
</tbody>
</table>

What do you notice?

2. Calculate the following.

Example: 8 753 – 1 000 = 7 753

<table>
<thead>
<tr>
<th>Add 1 000</th>
<th>Subtract 1 000</th>
<th>Add 100</th>
<th>Subtract 100</th>
<th>Add 10</th>
<th>Subtract 10</th>
<th>Add 1</th>
<th>Subtract 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 459</td>
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<td>4 572</td>
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<td>7 197</td>
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<td>5 475</td>
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<td>3 216</td>
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</tr>
</tbody>
</table>

What do you notice?

3. Complete the table. Always start with the given number.

4. Add the following by breaking down the number to be added.

Example: Calculate 4 658 + 3 271
4 658 + 3 000 → 7 658 + 200 → 7 858 + 10 → 7 928 + 1 → 7 929

<table>
<thead>
<tr>
<th>Add 1 000</th>
<th>Subtract 1 000</th>
<th>Add 100</th>
<th>Subtract 100</th>
<th>Add 10</th>
<th>Subtract 10</th>
<th>Add 1</th>
<th>Subtract 1</th>
</tr>
</thead>
<tbody>
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</tr>
</tbody>
</table>

Example: 5 793 + 3 554 =

Example: 6 982 + 2 075 =

Example: 6 898 + 2 181 =

5. Subtract the following by breaking down the number to be subtracted.

Example: Calculate 6 478 – 3 235
6 478 – 3 000 → 3 478 – 200 → 3 278 – 30 → 3 248 – 5 → 3 243

<table>
<thead>
<tr>
<th>Add 1 000</th>
<th>Subtract 1 000</th>
<th>Add 100</th>
<th>Subtract 100</th>
<th>Add 10</th>
<th>Subtract 10</th>
<th>Add 1</th>
<th>Subtract 1</th>
</tr>
</thead>
<tbody>
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</tr>
</tbody>
</table>

Example: 3 275 – 1 438 =

Example: 8 159 – 3 754 =

Example: 5 315 – 2 946 =

Example: 4 952 – 3 966 =

Solving problems by calculating

Solve the problems by identifying the questions, the numbers and the operation (addition or subtraction), make a drawing if necessary and write down a number sentence. Solve the problem.

• What is the sum of R2 999 and R3 534?
• What is the difference between 4 738 m and 8 735 m?
• What is the sum of 4 983 g and 3 982 g?
• What is the sum of 4 983 km and 4 894 km?
1. Tick to show if the balls were sold.

<table>
<thead>
<tr>
<th>Sold</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>R150</td>
<td>R25</td>
<td>R15</td>
<td>R8</td>
<td>R50</td>
<td>R50</td>
<td>R150</td>
</tr>
<tr>
<td>R35,99</td>
<td>R12</td>
<td>R15</td>
<td>R15</td>
<td>R15</td>
<td>R30</td>
<td>R10</td>
</tr>
</tbody>
</table>

a. What would I have got if I sold all the balls?
Show your calculations here.

b. What did I actually get for selling the balls.
Show your calculations here.

2. Colour in the money you get in blue, and the money you spend in orange.

<table>
<thead>
<tr>
<th>Pocket</th>
<th>Burger</th>
<th>Tuck shop</th>
<th>Cool drink</th>
<th>Extra chores</th>
<th>Book</th>
</tr>
</thead>
<tbody>
<tr>
<td>money</td>
<td>R150</td>
<td>R25</td>
<td>R15</td>
<td>R8</td>
<td>R50</td>
</tr>
<tr>
<td>Stationary</td>
<td>R22</td>
<td>Airtime</td>
<td>R12</td>
<td>Jewellery</td>
<td>Birthday money</td>
</tr>
<tr>
<td>Extra Chores</td>
<td>R30</td>
<td>Movies</td>
<td>R25</td>
<td>Pocket money</td>
<td>R150</td>
</tr>
<tr>
<td>Magazine</td>
<td>R50</td>
<td>Tuck shop</td>
<td>R12</td>
<td>Sweets</td>
<td>R15</td>
</tr>
<tr>
<td>Extra chores</td>
<td>R30</td>
<td>Tuck shop</td>
<td>R12</td>
<td>Extra chores</td>
<td>R30</td>
</tr>
<tr>
<td>Ice skating</td>
<td>R25</td>
<td>Extra chores</td>
<td>R40</td>
<td>Sweet</td>
<td>R6</td>
</tr>
</tbody>
</table>

3. Complete this table using the information above.

<table>
<thead>
<tr>
<th>Money I get</th>
<th>Money I spend</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Did I stay within my budget?
Explain:

Budget your winnings

If you win a R1 000 prize what will you do with the money?
1. Answer: Likely or unlikely to happen.

I am going to eat supper. Likely
A three-months-old baby is going to walk. Likely
It is going to snow tomorrow. Likely
I will walk to school tomorrow. Likely
I will not go to school tomorrow. Likely
My mom is going to work tomorrow. Likely
My teacher is not coming to school tomorrow. Likely
The sun will shine tomorrow. Likely
It is going to rain this afternoon. Likely
I am going to ride a bicycle this afternoon. Likely

2. Draw a picture.

Something that will **likely** happen with you today.

Something that will **unlikely** happen with you today.

3. Use the words and write sentences on:

- play with friends
- do my homework
- play with my dog
- eat lunch
- going on holiday
- eat breakfast
- see my grandma

Something that will **likely** happen with you today.

_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________

Something that will **not likely** happen with you today.

_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________

Ask your family

Ask your family to help you to complete the diagram below.

Likely to happen

Unlikely to happen
More on probability

1. Take a non-transparent bag. Make two cards that are similar to the ones below, and place them in the bag.

   Take a card from the bag without looking. Check which card you have drawn. Put it back in the bag. Draw a card again. Is it the same or a different card?
   
   a. Did your friend draw the same cards?
   
   b. Did the people in your group all draw the same cards?

Now do this activity 50 times. (Draw a card, record your results using tallies and place the card back into the bag). Write your results in the table below.

```
This is how you tally.
<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

Compare your results with your friend’s results.
```

2. Make your own dice with the following colours and then answer the questions.

   a. What colour do you like the most on the dice?
   
   b. What colour do you like the least on the die?

   Ask your friend the same questions. What did she or he answer?

   d. Roll the dice. On what colour did it land?
   
   e. Ask your friend to roll the dice. On what colour did it land?
   
   f. Did you land on the same colour?
   
   g. Did the other children in your class land on the same colour?

3. Roll the dice 50 times and record your results in the table below using tallies.

```
<table>
<thead>
<tr>
<th>Red</th>
<th>Blue</th>
<th>Yellow</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
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</tbody>
</table>
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Compare your results with your friend’s results.