

NAME: \_\_\_\_\_

GRADE: \_\_\_\_\_

# MATHS TEXTBOOK

## TERM 3



# MEASUREMENT

## Grade 4: Term 3 - Syllabus

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**MATHLETICS: MEASUREMENT .... Pg 23**



## **LENGTH**

### **PRACTICAL MEASUREMENT**

Work with a partner and measure with a tape measure the following. Please measure in centimetres only.

	Me	My partner	The difference in cm
Around the head	_____ cm	_____ cm	_____ cm
Length of arm	_____ cm	_____ cm	_____ cm
Around the chest	_____ cm	_____ cm	_____ cm

Using a ruler, measure the following items. Measure in centimetres and then whatever is left over, put in the mm column. You will never have more than 9 mm.

Item	
Width of maths book	_____ cm _____ mm
Length of your pencil	_____ cm _____ mm
Length of pencil case	_____ cm _____ mm

## EQUIVALENT LENGTHS

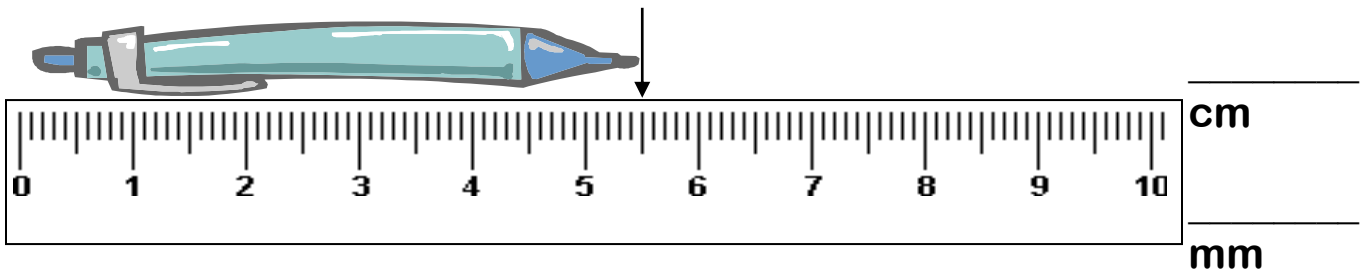
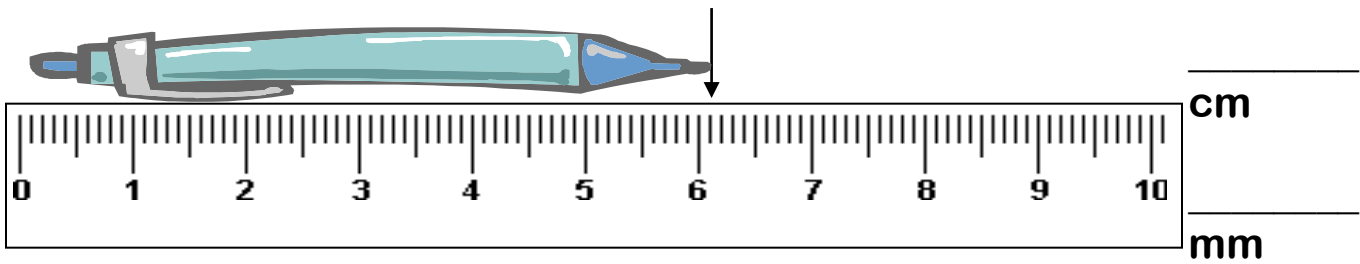
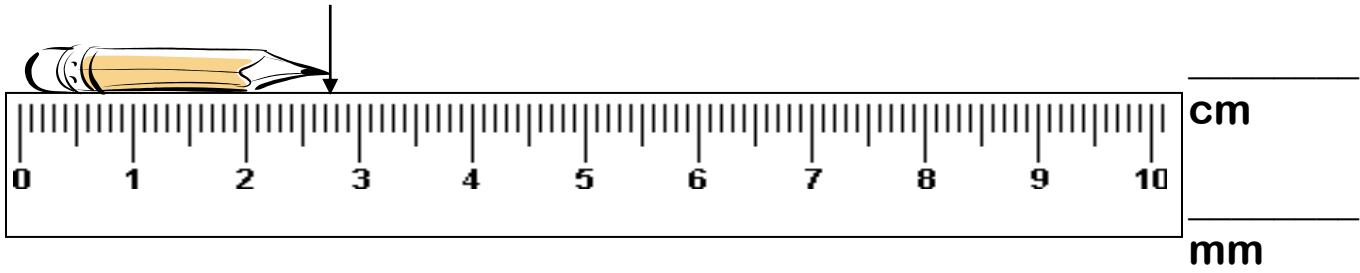
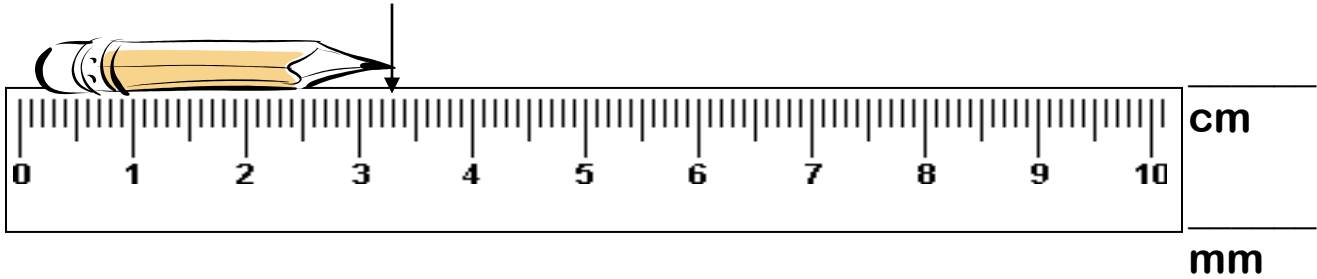
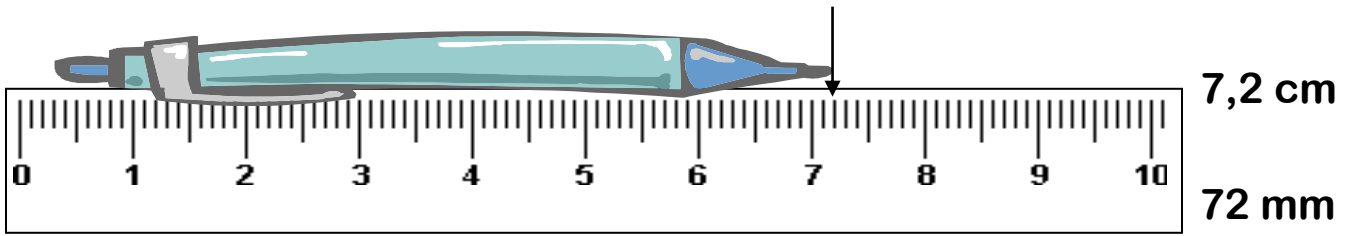
1 cm = 10 mm	1m = 1000 mm	1 m = 100 cm	1 km = 1000 m
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1. 30 mm = _____ cm	2. 13 cm = _____ mm	3. 80 mm = _____ cm
4. 40 cm = _____ mm	5. 9 m = _____ mm	6. 1 km = _____ m
7. 2000 m = _____ km	8. 6 km = _____ m	9. 6000 mm = _____ m



## Measuring length in cm and mm

*Write down the lengths marked on each ruler below.*



### MEASURING LINES IN CM

- Measure the following lines using a ruler and write the measurements in the boxes provided. Please write your answers in centimetres eg 3,6 cm. The first two have been done for you.

3 cm



10,8 cm












**INSTAMATHS EXERCISES**

<b>Length</b>	<b>Instamaths 76</b>	<b>Total 10</b>	<b>Your mark:</b>
<b>Convert, add and subtract length</b>	<b>Instamaths 77</b>	<b>Total 20</b>	<b>Your mark:</b>

**MASS**

**1 tonne (t) = 1 000 kilograms (kg)**  
**1 kilogram (kg) = 1 000 grams (g)**  
**1 gram (g) = 1 000 milligrams (mg)**

Change into kg or tonnes.

1. 2 000 kg = _____ t	2. 5 tonnes = _____ kg
3. 8 500 t = _____ t _____ kg	4. 1 250 kg = _____ t _____ kg

Change into g or mg.

2 kg = _____ g	5 kg = _____ g
6 g = _____ mg	1 g = _____ mg

Change into kilograms or grams making use of the comma if need be.

6453 g = _____ kg	5 g = _____ mg	250 g = 0,250 kg
$\frac{1}{2}$ Kg = _____ g	$\frac{3}{4}$ kg = _____ g	$\frac{1}{4}$ kg = _____ g

**Work out the answers to these sums. (Teachers: please help the boys to set these sums out properly.)**

### SECTION A

- 3455 g + 34 g + 1 kg (convert kg into g)
- 126 mm + 24 cm + 2479 mm (convert cm into mm)
- 7435 kg – 3782 kg
- 5 l – 359 ml (convert litres into ml)

### SECTION B

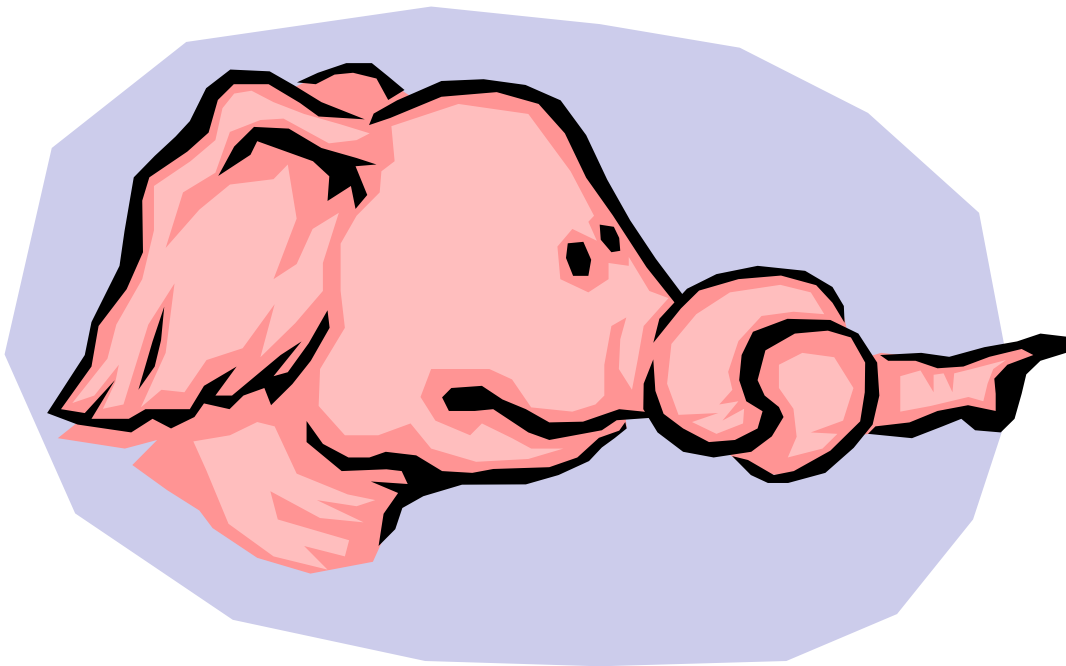
- 2467 tonnes x 7
- 682 ml x 25
- 9840 litres ÷ 4
- 7587 km ÷ 9

### PROBLEM SOLVING

1. A baby is born weighing 5 kg. He loses 100 g every week for 4 weeks. How much does he then weigh? (Hint: change the 5 kg to grams. It will be easier to work with.)
2. I sent two parcels to my friend in Australia. One parcel weighed 1kg 352 grams and the other weighed 421 grams. How much did the two parcels weigh altogether? (Hint: convert all numbers to g.)
3. I was sent two presents for my birthday! One present weighed 6 kg 436 g and the other 2 kg 750 g. What was the difference in weight between the two? (Hint: convert all numbers to g.)

### INSTAMATHS EXERCISES

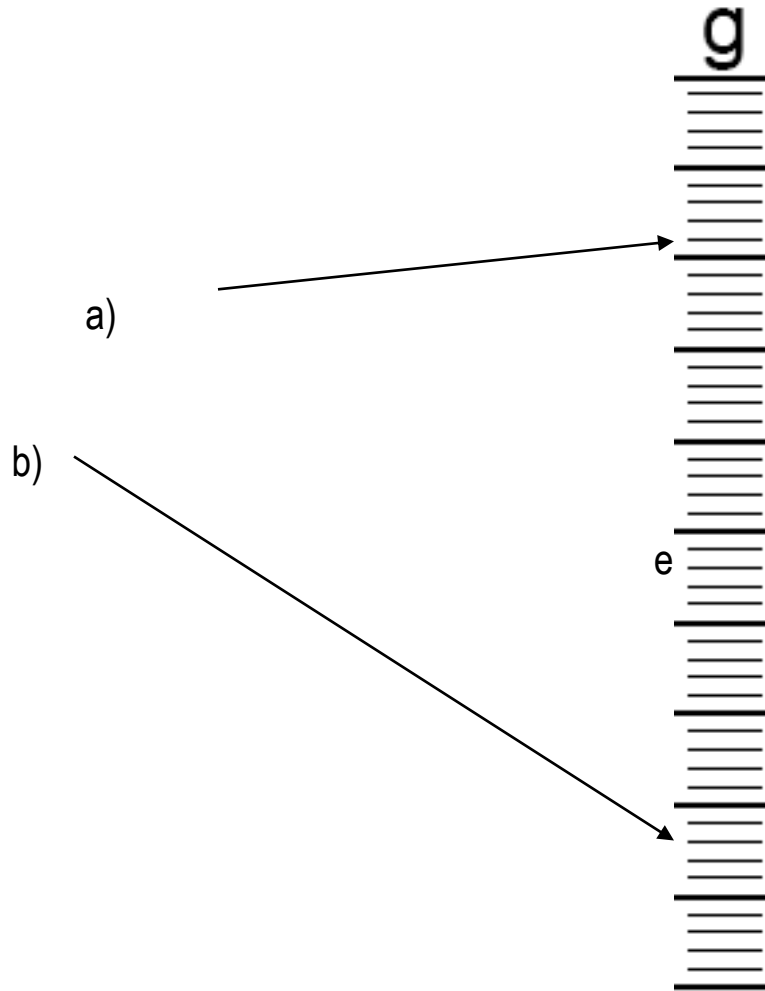
<b>Mass</b>	<b>Instamaths 78</b>	<b>Total 10</b>	<b>Your mark:</b>
<b>Mass: conversion</b>	<b>Instamaths 79</b>	<b>Total 10</b>	<b>Your mark:</b>



### READING SCALES (1)

The scale shows 1 kilogram, each big division is 100 grams, each small division is 20 grams. Please label the scale, starting at the first dark line which is 0 g. Then fill in 100g, 200 g, 300 g, 400 g, 500g right up to the bottom dark line which will read 1 kg. Please put these numbers on the right hand side of the scale – right next to the dark line.

Colour the line that you are having to read and put in the 2 answers below.



### A SPRING BALANCE SCALE

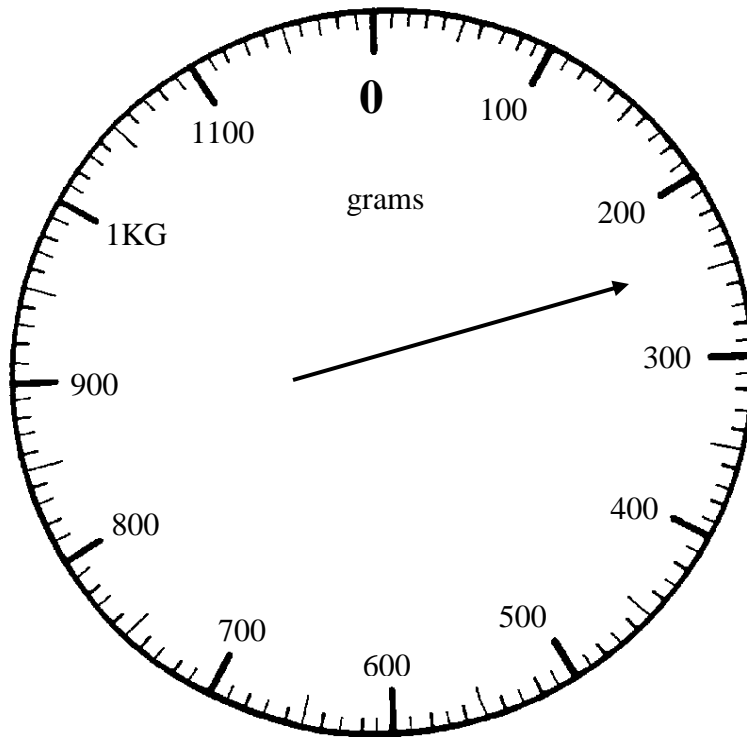
Please write the answer in grams.

a)	b)
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## READING SCALES (2)

Weighing scales can be read like a clock, the dial indicator moves as the weight increases. Each big line is 100g, each small line is 10g, and the arrow shows 240 g.



**Draw arrows on the scale to show these weights. Please use a ruler and point right up to the place you are marking.**

- a) 520g (blue)
- b) 960g (green)
- c) 1000g (red)

## PRACTICAL ACTIVITY

Get scales from the “maths department”. Each boy must weigh himself on a bathroom scale and write down his weight – you don’t have to tell anybody if you don’t want to!

Then collect 5 items each, and in your groups, estimate how much you think the items weigh. Then weigh them and see how correct you were.

## CAPACITY (PRACTICAL)

Measure 1 *litre*, then 500 *ml* to get acquainted with the amounts. Choose 3 different containers at home and list them in the first column. First estimate the capacity of the container and then measure it carefully. Write the measurements down neatly in the correct columns. Please write *ml* or *l* (as a cursive *l*) next to your answer.

Object	Estimation	Capacity
1.		
2.		
3.		

**EXECISE 1:** Please do not write a number only for your answer. You must write *litres (l)* or *ml* next to the answer. I have done the first one for you!

1. If I have 1 <i>l</i> of water and I drink half of it, how many <i>ml</i> do I have left?	_____ <i>ml</i>
2. A can of coke is 300 <i>ml</i> . I drink half of it. How much do I have left?	_____
3. I need a total of 500 <i>ml</i> to water my plants and my watering can holds 100 <i>ml</i> . How many times do I need to fill it up?	_____
4. If I have 400 <i>ml</i> in a bottle and I add 600 <i>ml</i> , how much do I now have?	_____
5. If I pour 30 <i>ml</i> of water into a bowl and 50 <i>ml</i> of milk. How much liquid is there in total.	_____
6. A cup of tea is 50 <i>ml</i> and I drink 4 cups a day. How many ml of tea do I drink in a day?	_____

## CONVERSION EXERCISES

$1 \text{ litre} = 1000 \text{ ml}$	$1 \text{ kilolitre} = 1000 \text{ litres}$
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### EXERCISE 1

Convert the following ml into *l* and *ml*. Look at the following examples

$1245 \text{ ml} = 1 \text{ l } 245 \text{ ml}$	$1034 \text{ ml} = 1 \text{ l } 34 \text{ ml}$	$2 \text{ ml} = 0 \text{ l } 2 \text{ ml}$
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1) 1237ml	___ <i>l</i> ___ <i>ml</i>	2) 97 <i>ml</i>	___ <i>l</i> ___ <i>ml</i>
3) 8 ml	___ <i>l</i> ___ <i>ml</i>	4) 5 487 <i>ml</i>	___ <i>l</i> ___ <i>ml</i>

### EXERCISE 2

Convert these capacities into *ml* and *litres* eg.  $1 \text{ l } 400 \text{ ml} = 1400 \text{ ml}$  ;  
 $6 \text{ kl } 300 \text{ l} = 6400 \text{ litre}$

1) 1 <i>l</i> 7 <i>ml</i>	_____ <i>ml</i>	2) 1 <i>l</i> 79 <i>ml</i>	_____ <i>ml</i>
3) 1 <i>l</i> 122 <i>ml</i>	_____ <i>ml</i>	4) 1 <i>l</i> 435 <i>ml</i>	_____ <i>ml</i>
5) 7 <i>kl</i> 254 <i>l</i>	_____ <i>l</i>	6) 1 <i>kl</i> 756 <i>l</i>	_____ <i>l</i>

## CAPACITY: Do these in your exercise book

1. I drink  $1344\text{ml}$  of my  $2\text{ litre}$  coke. How much is left? (Hint: change  $2\text{ litres}$  into ml) \_\_\_\_\_
2. A bath holds  $80\text{ litres}$ , a shower takes  $35\text{ litres}$  and watering the garden takes  $179\text{ litres}$ . How much would be left if my water tank at the start had  $642\text{ litres}$ ?
3. A jar has  $560\text{ ml}$  of jam.  $342\text{ml}$  is used. How much is left?
4. You have collected some rain water in a bucket. The bucket holds  $5565\text{ ml}$ . I use  $3765\text{ ml}$  to water some plants. How much is left?



## INSTAMATHS EXERCISES

Capacity	Instamaths 80	Total 10	Your mark:
Reading capacity markings	Instamaths 81	Total 10	Your mark:

Perimeter and area	Instamaths 82	Total 10	Your mark:
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**MEASUREMENT: Please highlight the correct units.**

**7am** - I had a wash in 3 (secs, *l*, *ml*) of water.

**7.30am** - For breakfast I had 200 ( kg, mg, g ) of cereal, with 100 ( **g**, *ml*, *l* ) of milk. I also had a cup of tea, with  $\frac{1}{2}$  a ( g, *l*, m ) of sugar in it.

**8.10am** - I had to run for the bus today. The bus stop is 100 (m, km, *ml*) away from my house.

**11.00am** - During break I shared out a *litre* bottle of lemonade between five glasses. We each had 200 ( *l*, *ml*, g ) of lemonade.

**3.15pm** - This afternoon we had P.E. I kicked the football 14 (m, cm, km).

**4.30pm** - My brother is running in an Athletics competition this evening. He is running in the 1 500 ( m, km, *ml* ) event. He can run that distance in 6 ( mins, hrs, secs) . My brother is taller than I am. He is 1,82 ( cm, km, m ) tall.

**7.30pm** - The road outside our house looks like a river! The main water pipe has burst and there are ( *ml*, m, *l* ) of water gushing down the road.

**7.45pm** - I am going to watch a film on TV. It is 1  $\frac{1}{2}$  ( mins, hrs, secs) long.

**9.15pm** - I have just weighed my pet hamster, Gerald. Well, I tried to weigh him, but he jumped off the scales just as the arrow reached 1 ( kg, g, mg) .

**9.30pm** – Time for bed! I have to get up in 10 ( m, mins, hrs ). Before I went to sleep I had 250 ( *l*, **mg**, *ml* ) of tea to drink.



## MONEY : SHOPPING LIST (CALCULATOR EXERCISE)

Tea	R5,50	Chocolate	R4,35
Coffee	R6,00	Hotdog	R3,25
Burger	R10,00	Doughnut	R4,95
Ice Cream	R7,55	Chips	R3,72



**1. If I went shopping:**

- a) how much would it cost me if I bought 3 tea, 2 hotdogs and 1 burger?
- b) how much change would I get from a R50 note?

Tea	$R5,50 \times 3 =$	
Hotdog	$R3,25 \times 2 =$	
Burger	$R10,00 \times 1 =$	
	TOTAL SPENT =	
Change from R50 note?	$R50,00 -$	



**2. If I went shopping:**

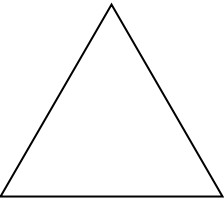
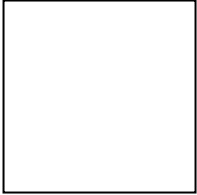

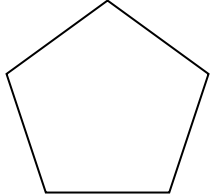
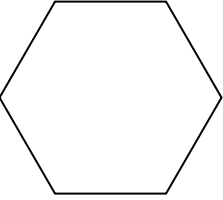
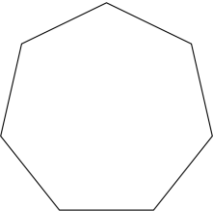
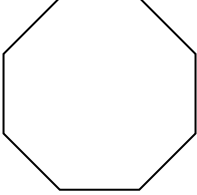
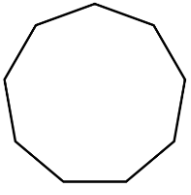
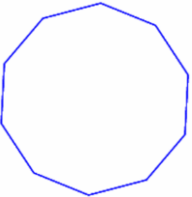
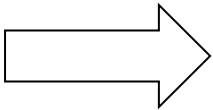
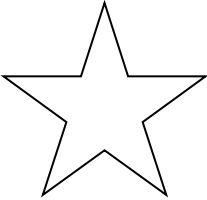
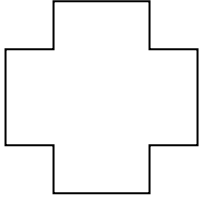
- a) how much would it cost me if I bought 4 chocolates, 2 ice-creams and 5 packets of chips/
- b) how much change would I get from a R100 note?

4 chocolates	$R4,35 \times 4 =$	
2 ice-creams	$R7,55 \times 2 =$	
5 packet of chips	$R3,72 \times 5 =$	
	TOTAL SPENT =	
Change from R100 note?	$R100,00 -$	

## SPACE AND SHAPE: 2D AND 3D SHAPES

- 2-D shapes are 2 dimensional. This means they have no thickness.
- All these 2-D shapes are polygons. **A polygon is a many sided shape with straight lines.**
- To be a **regular polygon**, all the **sides and angles must be the same.**
- An **irregular polygon** has **unequal sides and angles** ( such as the arrow, star and cross).

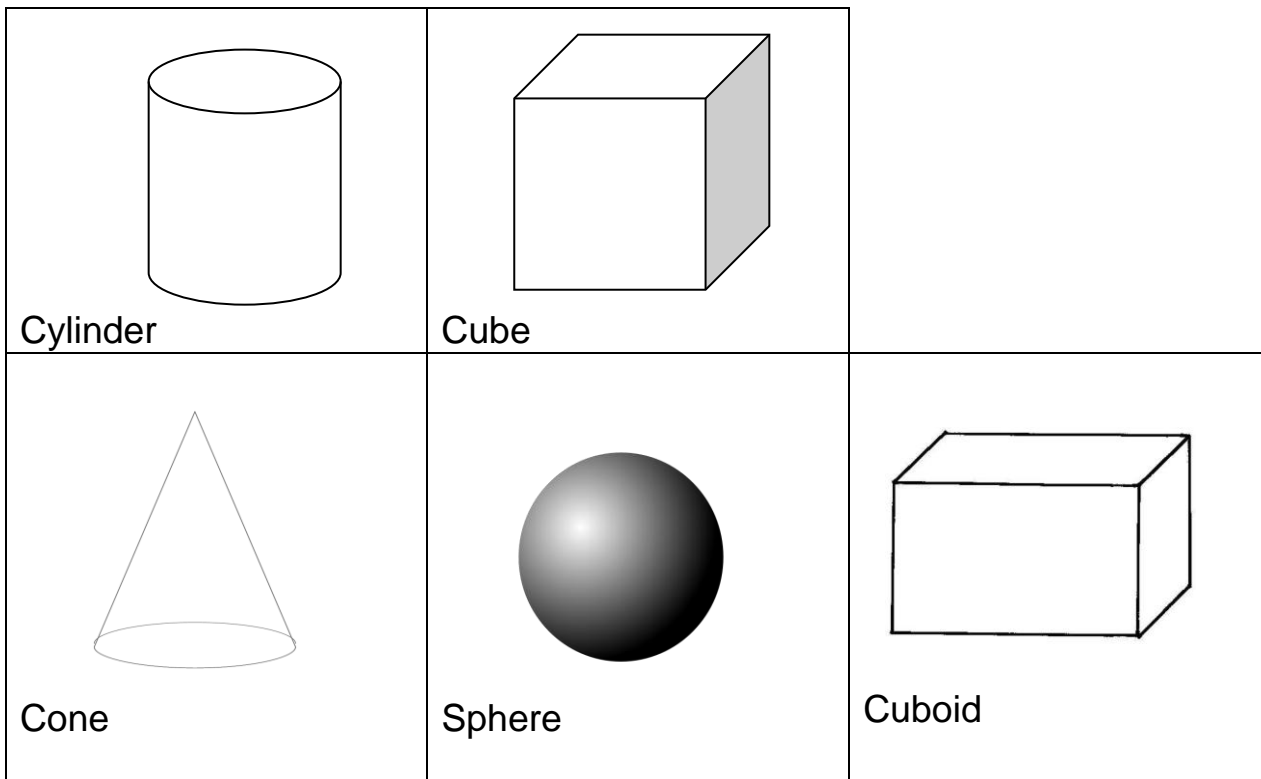
### 2-D SHAPES – POLYGONS

		Irregular polygon 	
Triangle (3)	Square (4)	Rectangle (4)	Pentagon (5)
			
Hexagon (6)	Heptagon (7)	Octagon (8)	Nonagon (9)
			
Decagon(10)	A 7 sided polygon = a heptagon (irregular polygon)	A 10 sided decagon (irregular polygon) (angles are not the same)	A 12 sided figure (dodecagon) (irregular polygon)

## INSTAMATHS EXERCISES ON 2D AND 3D FIGURES

2 D figures	Instamaths 71	Total: 20	Your mark:
3D and 2D	Instamaths 68	Total: 20	Your mark:
3D faces, edges and nets	Instamaths 70	Total: 10	Your mark:
3D volume	Instamaths 75	Total: 10	Your mark:

### 3D SHAPES



## INSTAMATHS EXERCISES ON 2D AND 3D FIGURES

### COMPUTER GAME ON QUADRILATERALS

Go to **Maths folder**

Choose **"Space Station Alert"**

Go to **Start Activity**

Choose **Quadrilaterals** an

**EXERCISE:** Make a cube



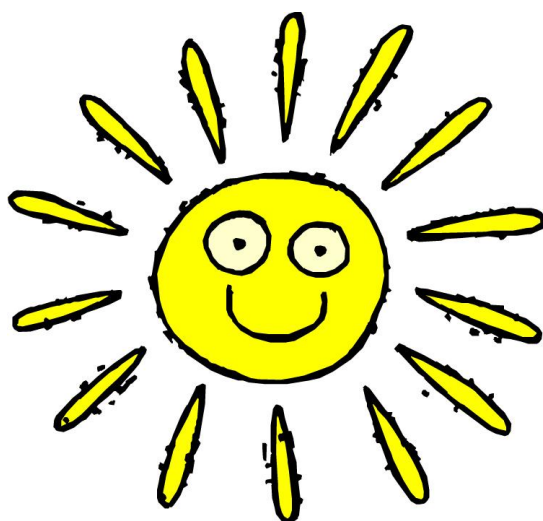
## STRAIGHT LINES /CURVED LINES

In geometry you will learn about **shapes** and **lines**. There are two main types of lines – straight lines and curved lines.

a) Draw a picture made up entirely of straight lines. Use a ruler and colour it in to make it look good. Remember everything has to be straight !

b) Now draw and colour a picture made up entirely of curved lines. Use the whole page and colour it in.

c) Use a ruler to draw a straight line pattern. Choose three colours and then colour it in. Don't make your patterns too small otherwise you will spend forever colouring them in.



## DATA HANDLING

Tally lines and frequency tables	Instamaths 91	Total 10	Your mark:
Pictographs	Instamaths 90	Total 10	Your mark:
Reading a Bar Graph	Instamaths 92	Total 10	Your mark:
Probability	Instamaths 93	Total 20	Your mark:

# TALLIES ..... A PET SURVEY (ONLY 1 ANIMAL PER BOY)

(Do Ex 91 in Instamaths before you do this exercise)

Ask 15 boys in your class what of the following pets you have at home. Show your answers in a tally table and then complete a BAR GRAPH with your results. They boys must only mention 1 animal – your totals cannot be more than 15.

Type of Pet	Tally	Total
Dog		
Birds		
Cat		
Fish		
Rats/mice		
Hamsters		
Other		

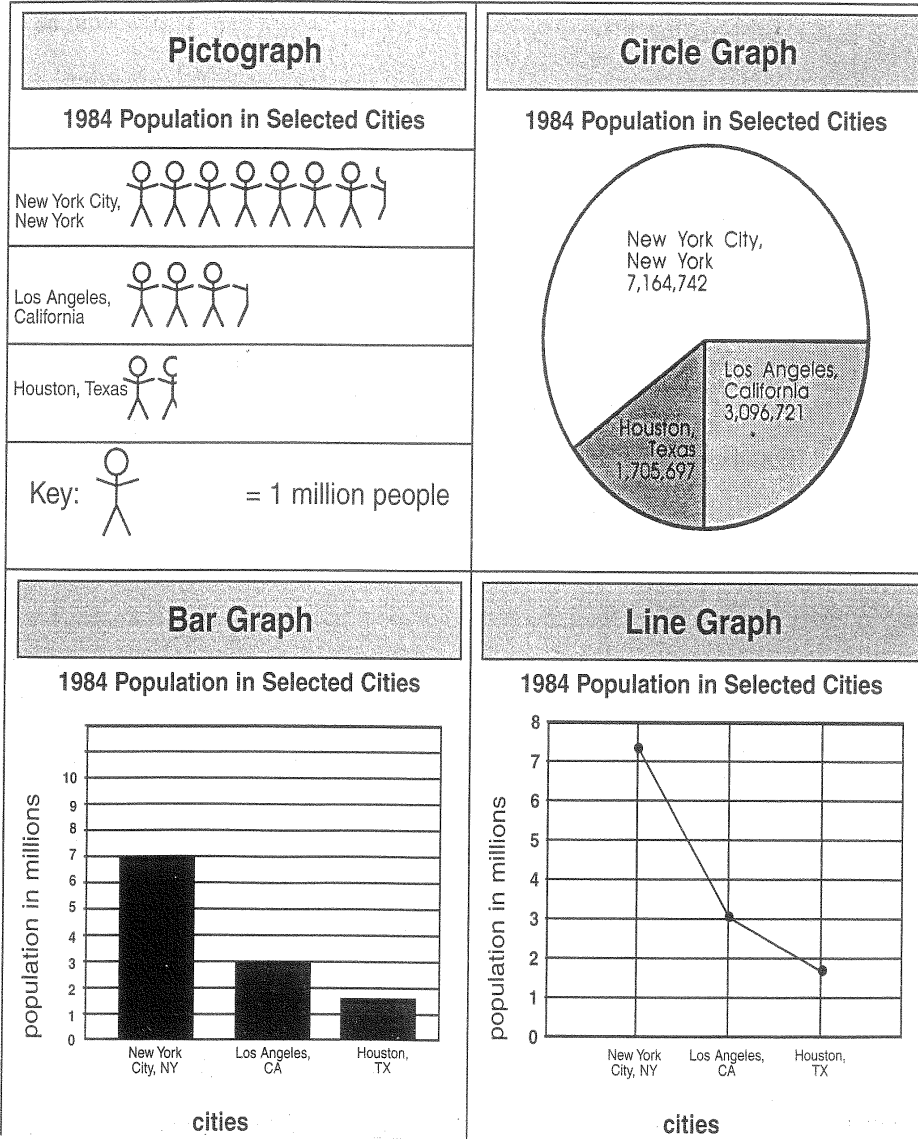
## PETS IN GRADE 4

TOTAL						
15						
14						
13						
12						
11						
10						
9						
8						
7						
6						
5						
4						
3						
2						
1						
0						
	Dog	Birds	Cat	Fish	Rats/ mice	Ham ster

Animals

## WHAT IS A GRAPH?

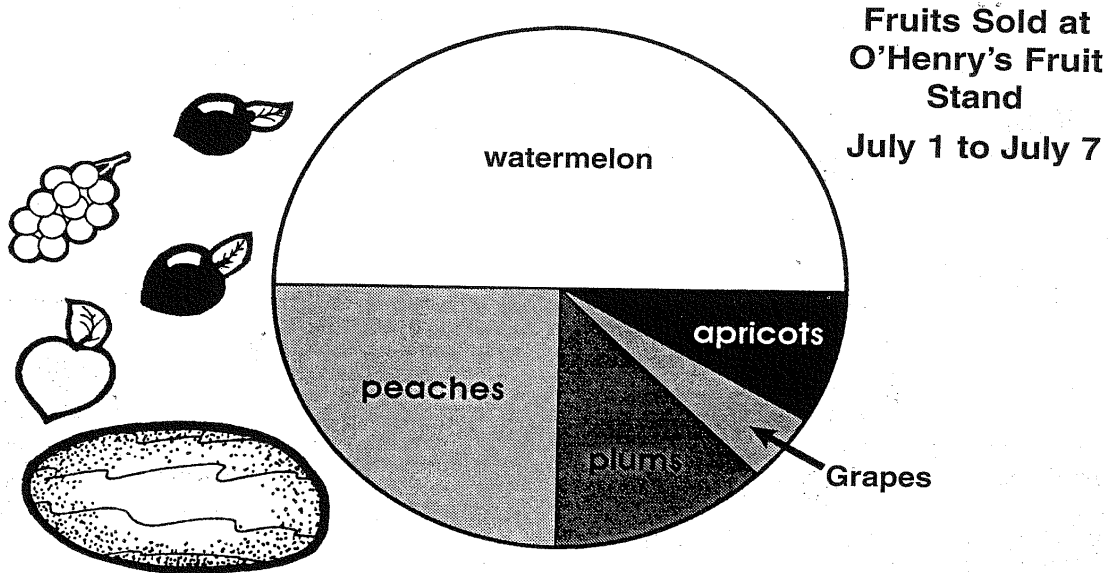
A graph is a visual tool that makes it easier to see information. It uses pictures, circles, bars and lines to show and compare information. Shown below are the 1984 populations of three USA cities in four different types of graphs.



### CIRCLE OR PIE GRAPHS

In a circle graph you can see how things are divided into the parts of a whole. In this graph we see the amounts of fruit sold at a produce stand in a week in July.

1. What fruit sold the most at Mr O' Henry's Fruit Stand? \_\_\_\_\_
  2. What fruit sold the least? \_\_\_\_\_
  3. Rank the order of the fruits that were sold. Number 1 will be the fruit that sold most, number 5, least.
- \_\_\_\_\_

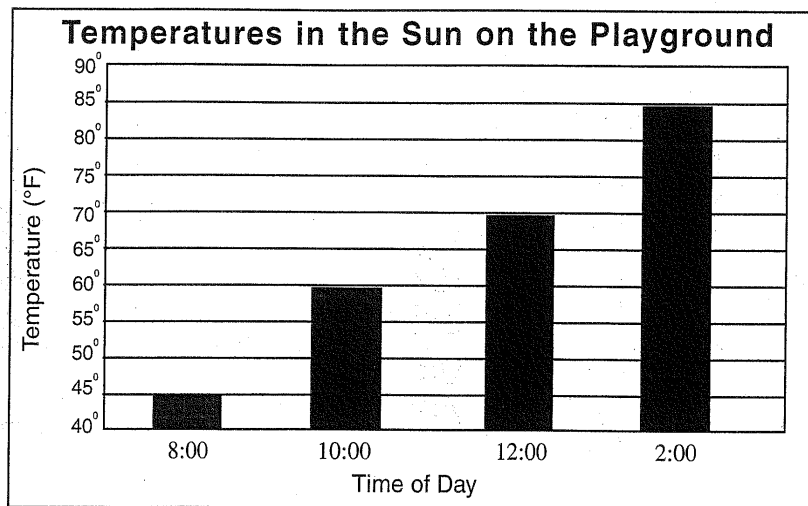


## BAR GRAPHS

A bar graph shows us many different types of things by the height of the bars.

Looking at this bar graph of temperatures on the playground, and write down:

1. The temperature at 8:00 am \_\_\_\_\_
2. The temperature at 12:00 pm \_\_\_\_\_
3. At what time of the day was the temperature 60 degrees? \_\_\_\_\_
4. At what time of the day was the temperature 85 degrees? \_\_\_\_\_



## DISTANCE CHART

	Bloemfontein	Cape Town	Durban	Johannesburg	Pretoria
Bloemfontein	/	988	658	405	465
Cape Town	988	/	1621	1390	1450
Durban	658	1621	/	565	625
Johannesburg	405	1390	565	/	60
Pretoria	465	1450	625	60	/

Kilometers

*Use the above table to work out the distance between these cities.*

- a) Bloemfontein and Durban \_\_\_\_\_ km
- b) Johannesburg and Cape Town \_\_\_\_\_ km
- c) Pretoria and Bloemfontein \_\_\_\_\_ km
- d) Cape Town and Pretoria \_\_\_\_\_ km
- e) Which cities are 658km apart? \_\_\_\_\_



## DATA HANDLING PROJECT

**PLEASE PRINT YOUR HEADINGS – DO NOT DO CURSIVE!!**

- a) Choose **5 items (vegetables, cars, foods etc)** and write them down in list form in a reporter's notepad.
- b) Ask your classmates to tell you which one of your list is their favourite item. Put a tick next to that item.
- c) Using a ruler, draw a **BAR GRAPH** making sure each column is 2 cm wide.
  - Your graph must have a **heading in capital letters eg VEGETABLE FAVOURITES**. This must be above the graph and centered.
  - Put underneath each column, what item is represented in that column (eg banana, apple, pineapple) and underneath the word, write the number of people who voted for that item.
  - Leave a line, and underneath the word and number, **write in capital letters** what this group of words represents eg **VEGETABLES. Centre it.**
  - On the left hand side, number your graph in 2's – going up to 16. Make sure that your spacing is equal to 1 line spacing in your book. You must draw a little straight line on the line where the number is to go.
  - Next to that, **in capital letters, write CLASS**. You can also write CLASS going downwards.
  - Now colour your graph in accurately.

### ALLOCATION OF MARKS

1	Bar graph drawn with a ruler.	1	
2	Columns 2 cm wide.	1	
3	Heading in capitals (above graph) – Centre it.	1	
4	5 printed names of the vegetables under each column and the numbers of the people who voted for them.	1	
5	Leave 1 line and underneath the names write the word that represents your 5 items eg VEGETABLES in capital letters. Centre it.	1	
6	Pupil numbers on left – numbers being placed right next to a line, not floating somewhere in space!!!! Going up in 2's to 14.	1	
7	On the left, write CLASS in capital letters (either vertical or straight)	1	
8	Colour your graph in accurately. Do not colour over the line you have drawn.	1	
9	Overall neatness	2	
		10	

# MATHLETICS: MEASUREMENT

<b>MEASUREMENT : TERM 3</b>
<b>ARE YOU READY?</b>
<b>24 hour time</b>
<b>Time mental</b>
<b>Measuring length</b>
<b>Converting cm and mm</b>
<b>Centimetres and metres</b>
<b>Km conversions</b>
<b>Grams and Kilograms</b>
<b>Millilitres and Litres</b>
<b>Perimeter of shapes</b>
<b>Area of shapes</b>
<b>TEST</b>
<b>SOMETHING EASIER</b>
<b>How long is that?</b>
<b>Filling fast</b>
<b>Comparing length</b>
<b>What is the time?</b>
<b>Using timetables</b>
<b>Kg conversions</b>
<b>Litre conversions</b>
<b>SOMETHING HARDER</b>
<b>Equal areas</b>
<b>Metres and Kilometres</b>
<b>Converting units of length</b>
<b>Perimeter: squares and rectangles</b>
<b>Converting units of mass</b>
<b>Australian time zones</b>
<b>What time will it be?</b>

