



South Sudan



# Primary Mathematics 3

Pupil's Book



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South Sudan

PRIMARY

3

# Mathematics

*Pupil's Book 3*



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# UNIT 1: NUMBERS

## 1.1 Reading numbers



### Activity 1

In groups, look at the picture below. What do you see?

NY 3 \*1.25LTR  
DDAS GET A  
COKE LUNCH BOX

Buy Blue Band 1kg get  
500gms naivas sugar

20<sup>00</sup>  
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INDOMIE CHICKEN  
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1. Are there any numbers you recognize?
2. Read them out loud.



## Activity 2

Work in pairs. Listen to your partner count numbers to 100. Take turns counting. After counting forwards, count backwards starting from 100. Use the number chart below to help you.

**Our Hundreds Chart**

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100



### Activity 3

#### Mental Math

1. Complete the following activity with a partner orally. Take turns saying the numbers.

Number	10 less	10 more	100 less	100 more
430				
128				
904				
327				
999				
254				
929				

2. Copy the table in your exercise book and fill in the spaces with the correct number.
3. With your partner think of a 4 digit number. Write it down ask your partner to work it out 100 less or 100 more and to tell you the new number. What do you notice?

## 1.2 Writing Numbers

**Look at these examples.**

- a. 21 = twenty-one
- b. 234 = two hundred and thirty-four
- c. 992 = nine hundred and ninety-two
- d. 764 = seven hundred and sixty-four
- e. 2456 = two thousand, four hundred and fifty-six



- f. 7121= seven thousand, one hundred and twenty-one



### Activity 4

---

1. In pairs, write the following in numeric form.

- a. Two hundred and three
- b. Six hundred and thirty-nine
- c. Seven hundred and four
- d. Four hundred and forty-four
- e. Eight hundred and ninety-eight
- f. One thousand, three hundred
- g. One thousand, two hundred and two



### Activity 5 a

---

In pairs, write the following in words.

- |        |         |         |
|--------|---------|---------|
| a. 3   | f. 222  | k. 4001 |
| b. 13  | g. 891  | l. 4100 |
| c. 628 | h. 999  | m. 1040 |
| d. 118 | i. 1060 |         |
| e. 449 | j. 3610 |         |



### Activity 5 b

---

Choose two numbers from activity 2a above and add them together.



## Activity 6

---

**Individually, write the numbers for the following names.**

- a. One thousand, one hundred and sixty-six.
- b. Two thousand four hundred and forty-nine.
- c. Seven hundred and ninety-five
- d. Three hundred and sixty-eight.
- e. Nine thousand five hundred and two.
- f. Six thousand three hundred and fifteen.
- g. Four thousand one hundred and fifty.
- h. Six hundred and fifty-six.
- i. Seven thousand eight hundred and seventy-four.
- j. Five thousand six hundred.



## Activity 7

---

**In groups, write the number name for the following numbers on manila paper. Hang your work for the class to see. In numeric order the highest and the lowest.**

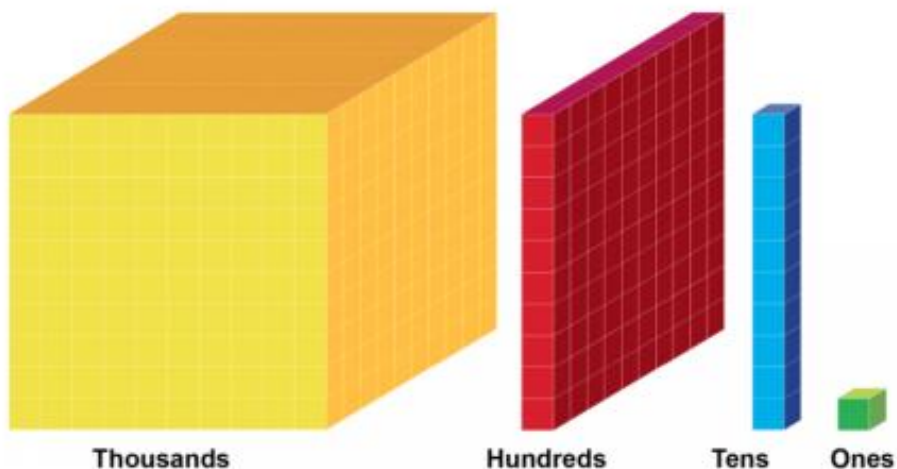
- |         |         |         |
|---------|---------|---------|
| a) 892  | g) 4110 | m) 8504 |
| b) 1122 | h) 7456 | n) 3176 |
| c) 5642 | i) 1503 | o) 2044 |
| d) 7890 | j) 1233 | p) 2018 |
| e) 3651 | k) 4561 |         |
| f) 1040 | l) 9810 |         |

Add the numbers f, g, h, and i

## 1.3 Place value

Digits have different values because they occupy different positions in a number.

Place value is the position of a digit on a number.



### Activity 8

#### Place Value Game

**Materials:** Large digits printed on paper.

#### How to play

1. You will all have one digit card from 0 – 9
2. In your group, use your cards to make a number.
3. Record all the different combinations of numbers you can make.
4. Share one number you have made, holding your digit cards together.

## Place value table

We start finding place values from our left hand to the right as shown in the table below.

NUMBER	Thousands	Hundreds	Tens	Ones
<u>8901</u>	<u>8</u>	<u>9</u>	<u>0</u>	<u>1</u>
<u>154</u>	<u>0</u>	<u>1</u>	<u>5</u>	<u>4</u>
<u>236</u>	<u>0</u>	<u>2</u>	<u>3</u>	<u>6</u>
<u>1873</u>	<u>1</u>	<u>8</u>	<u>7</u>	<u>3</u>

## Examples

- a. 125 = 1 hundred 2 tens 5 one.
- b. 68 = 0 hundred 6 tens 8 one.
- c. 7953 = 7 thousands, 9 hundreds, 5 tens.
- d. 8421 = 8 thousand, 4 hundreds, 2 tens, 1 ones.
- e. 1122 = 1 thousands, 1 hundreds, 2 tens, 2 ones.



## Activity 9

### 1. What are the numbers missing? Work in pairs.

- a. 234 = \_\_\_ hundreds \_\_\_ tens \_\_\_ ones
- b. 1236 = \_\_\_ thousands \_\_\_ hundreds \_\_\_ tens \_\_\_ ones.
- c. 3468 = \_\_\_ thousands \_\_\_ hundreds \_\_\_ tens \_\_\_ ones
- d. 705 = \_\_\_ hundreds \_\_\_ tens \_\_\_ ones



## Activity 10

**Tell your partner the number.**

- a. 4 hundreds 6 tens 3 ones =
- b. 5 hundreds 4 tens 2 ones =
- c. 1 hundreds 7 tens 3 ones =
- d. 2 hundreds 2 hundreds 2 tens 2 hundreds =
- e. 1 hundreds 4 hundreds 3 tens 1 ones =
- f. 2 thousand 2 hundreds 2 tens ones =
- g. 6 tens 2 ones =
- h. 9 hundreds 3 ten 2 one =
- i. 5 thousands, 4 hundred, 3 tens 2 ones =



## Activity 11

**In groups, write the following in expanded form. The first one is done for you. Present your work to the class.**

- a)  $319 = 300 + 10 + 9$
- b) 588
- c) 2990
- d) 4638
- e) 6724
- f) 8140
- g) 9095
- h) 2872
- i) 6412
- j) 4973

Explain what each digit represents and then order the numbers largest first.

## 1.4 Comparing numbers



### Activity 12

---

**Materials:** Plates of different sizes, beans, beads, marbles, small stones, maize etc.

**Instructions: Work in groups.**

1. Lay out two plates of different sizes.
2. Pour in the beans, beads, marbles, small pebbles, or maize into the plates.
  - a) Which holds more?
  - b) Which hold less?
  - c) How are you able to tell which holds more and which holds less?



### Activity 13

---

The following numbers have been arranged from the smallest to the largest. Read them out loud.

- a. 3, 4, 5, 6, 7, 8
- b. 5, 8, 13, 17, 21, 24
- c. 11, 15, 18, 20, 30
- d. 40, 70, 90, 120, 150

**Remember:** **Ascending order** is the same as increasing order and **descending order** is the same as decreasing order.



## Activity 14

---

Study the following examples in pairs.

**Example 1:** Arrange the following numbers in ascending order:

548, 351, 411, 269

### **Solution**

First compare the digits in the hundred place.

In 548, the place value of 5 is 500

In 351, the place value of 3 is 300

In 411, the place value of 4 is 400

In 269, the place value of 2 is 200

The ascending order is: 269, 351, 411, 548.

### **Example 2:**

Arrange the following numbers in descending order:

374, 356, 329, 381

### **Solution**

First compare the digits in the hundred place.

Since all the digits have 3 in the hundred place, compare the digits in the tens place.

In 374, the place value of 7 is 70

In 356, the place value of 5 is 50

In 329, the place value of 2 is 20

In 381, the place value of 8 is 80

**Remember:** First compare the digits at hundred place, the tens place and then the ones.



### Activity 15

---

**On a manila paper, arrange the following numbers from the smallest to the largest (ascending order). Work in pairs.**

- a. 187, 209, 712, 28, 124, 110
- b. 3, 4, 13, 17, 6, 20
- c. 40, 50, 20, 30, 10, 60
- d. 98, 14, 21, 39, 7, 24
- e. 40, 61, 25, 79, 31, 14, 2
- f. 14, 21, 28, 7, 42, 35, 84
- g. 903, 6114, 532, 9001
- h. 7303, 774, 894, 2001

Pin your work on the board for the rest of the class to see. Tell another pair how you have checked that your answers are correct.



### Activity 16

---

**On a manila paper, arrange the following numbers in descending order (largest to the smallest). Work in groups.**

- a. 7, 4, 9, 10, 6, 15, 20
- b. 2, 4, 12, 8, 16, 20, 18, 6
- c. 15, 96, 42, 13, 40, 3, 16



- d. 28, 2, 21, 90, 9
- e. 305, 315, 503, 123, 132
- f. 901, 109, 209, 991,
- g. 910, 190, 211, 112, 121
- h. 3001, 5121, 751, 512, 6032
- i. 1131, 7042, 5450, 3441
- j. 8001, 2000, 5055, 6291

Pin your work on the board for the rest of the class to see.  
Explain as you pin.



### Activity 17

In pairs, write the place value of digit 7 in each of the numbers below. Explain your answer.

- a) 8736 =
- b) 3217 =
- c) 7442 =
- d) 3711 =
- e) 9372 =

- f) 7591 =
- g) 4837 =
- h) 7519 =
- i) 1754 =
- j) 8730 =

## 1.5 Addition & Substition

$$\begin{array}{r} 4321 \\ + 3178 \\ \hline 7499 \end{array}$$

$$\begin{array}{r} 5114 \\ + 2798 \\ \hline 7912 \end{array}$$



### Activity 18

Individually, work out the following.

a.  $26 + 42 =$

b.  $98 + 41 =$

c.  $152 + 61 =$

d.  $36 - 18 =$

e.  $108 - 72 =$

f.  $120 + 32 =$

g.  $244 - 128 =$

h.  $3411 + 892 =$

i.  $2443 + 722 =$

j.  $6981 - 2221 =$

k.  $4794 - 794 =$

**How did you arrive at your answer? Tell your partner check your answers.**



### **Activity 19: Work in pair.**

---

Discuss how you will work it out.

What method will you use? Show your working out.

1. Deng had 326 cows. Abdil had 156 cows. Auma had 215 cows. How many did they have altogether?
2. Class one had 324 books. Class two had 245 books while class three had 176 books. How many books were in the three classes in total?
3. A farm had 426 mango trees. Another farm had 253 mango trees and another had 234 mango trees. How many mango trees are in the three farms?
4. There are 276 pupils in a school. There are 425 pupils in another school. If 275 schools joined the two schools how many pupils are there in the two schools altogether?
5. In town A there were 412 vehicles. Town B had 245 vehicles while town C had 251 vehicles. How many vehicles were there in the three towns altogether?



## Activity 20

---

1. There are 6457 trees in a farm. A farmer cut down 2114 trees. How many trees were left in the farm?
2. 3179 pupils were going for a tour. 2342 went by train and the others by bus. How many went by bus?
3. In an election Mutu got 9998 votes. Rukia got 5242 votes. Who won the election? How many more votes did Mutu get than Rukia?
4. Taban had 8479 cows. He sold 3241 cows. How many cows was Taban left with?
5. Subtract 4172 from 5644?

## Activity 21

---

Write a word problem for another group to work it out. Check if they got it correctly.

### 1.6 Divisibility test for 2, 5 and 10

Have you ever wondered why some numbers will divide evenly (without a remainder) into a number, while others will not?

The Divisibility Rules help us to determine if a number will divide into another number without actually having to divide. There is a divisibility rule for every number. However, some of the rules are easier to use than others. For the rest, it might just be simpler to actually divide.

**The Rule for 2:** Any whole number that ends in 0, 2, 4, 6, or 8 will be divisible by 2.



### Activity 22

---

**Look at the following numbers.**

12, 20, 44, 66, 78, 110, 104, 308, 406, 500, 842, 976, 1204, 6348.

1. Are they divisible by 2?
2. How can you determine this?

**The Rule for 5:** Number that are divisible by 5 must end in 5 or 0.



### Activity 23

---

**Look at the numbers below.**

15, 30, 45, 75, 90, 110, 15, 265, 345, 650, 925, 1225, 1750, 1900, 6550, 8755, 9500.

1. Are they divisible by 5?
2. How can you determine this?

**The Rule for 10:** Numbers that are divisible by 10 need to be even and divisible by 5, because the prime factors of 10 are 5 and 2. This means that for a number to be divisible by 10, the last digit must be a 0.



## Activity 24

---

**Look at the numbers below.**

Example; 40, 100, 300, 900, 1200, 1500, 1900, 2500, 4550, 9850, 9700.

1. Are they divisible by 10?
2. How can you determine this?

In dividing numbers such as  $8 \div 2$ , 2 is called a divisor.

A divisor that goes into a number and divides a number in an exact number of times is called a factor.

Example;  $10 \div 3 = 3 \text{ rem } 1$

$$8 \div 2 = 2$$

2 is a factor or divisor and 3 is the divisor of 10

## 1.7 Comparing simple equivalent fractions



## Activity 25

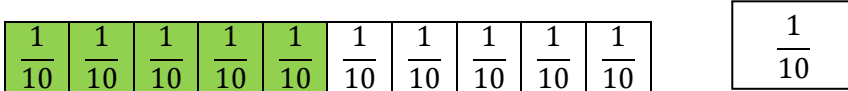
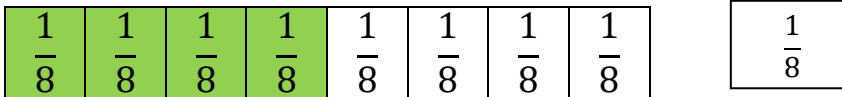
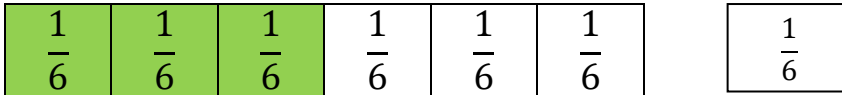
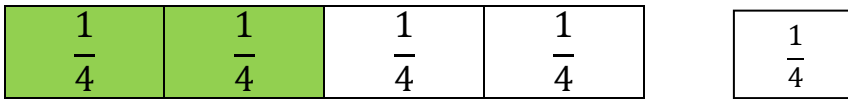
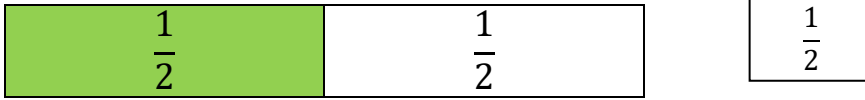
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1. In pairs, make circular paper cut-out, fold and cut it to get two halves.
2. In pairs, practice making halves using rectangular paper.
3. Draw a line to divide the shapes into two and colour one half.
4. In pairs, practice making halves using lemons or oranges.



## Activity 26

Look at the figures below. The fraction representing the coloured part is given besides each of them.



What do you observe? Tell your partner using mathematical language.



## Activity 27

Since fractions  $\frac{1}{2}, \frac{1}{4}, \frac{3}{6}, \frac{4}{8}, \frac{5}{10}$  all indicate the same part of the rectangle, we can say that these fractions name the same number.

Such fractions which represent the same part of an object though differing in numerals are called equivalent fractions.

The term 'equivalent' is derived from the words 'equal' and 'value'.

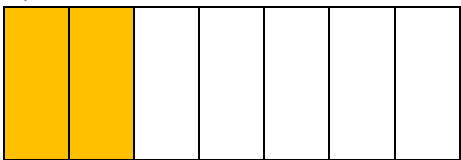
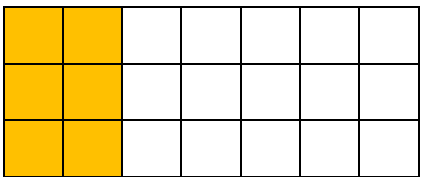
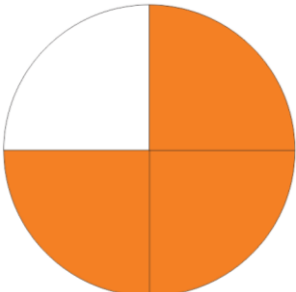
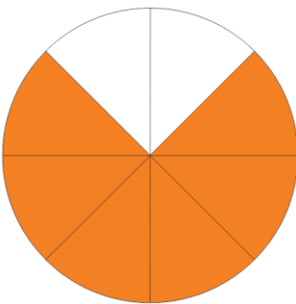
1. Can you think of any more examples or equivalent fractions?
2. How can you prove the fractions are equivalent?



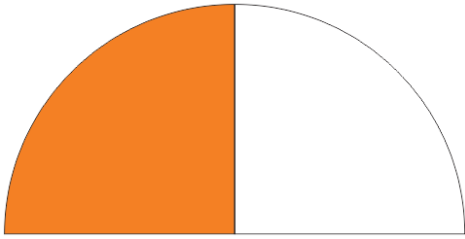
### Activity 28

Work in pairs.

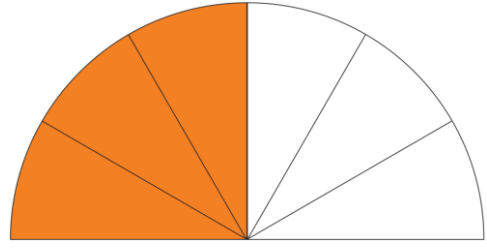
What are the equivalent fractions shown in the pictures?

<p>1.</p>  <p><math>\frac{2}{7}</math></p>	
<p>2.</p>  <p><math>\frac{3}{4}</math></p>	

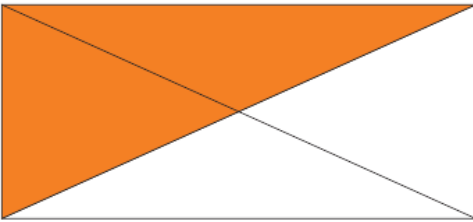
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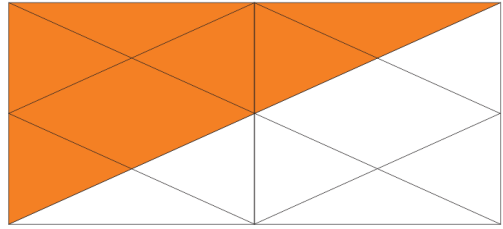
$$\frac{1}{2}$$



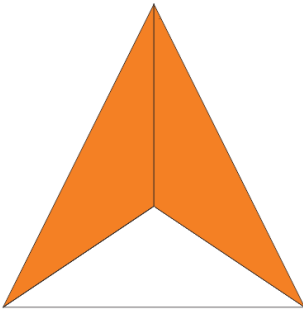
4.



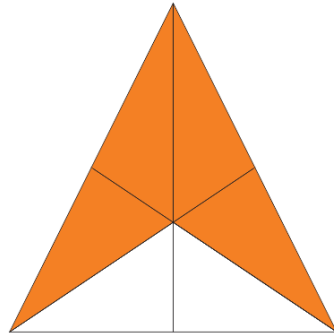
$$\frac{2}{4}$$



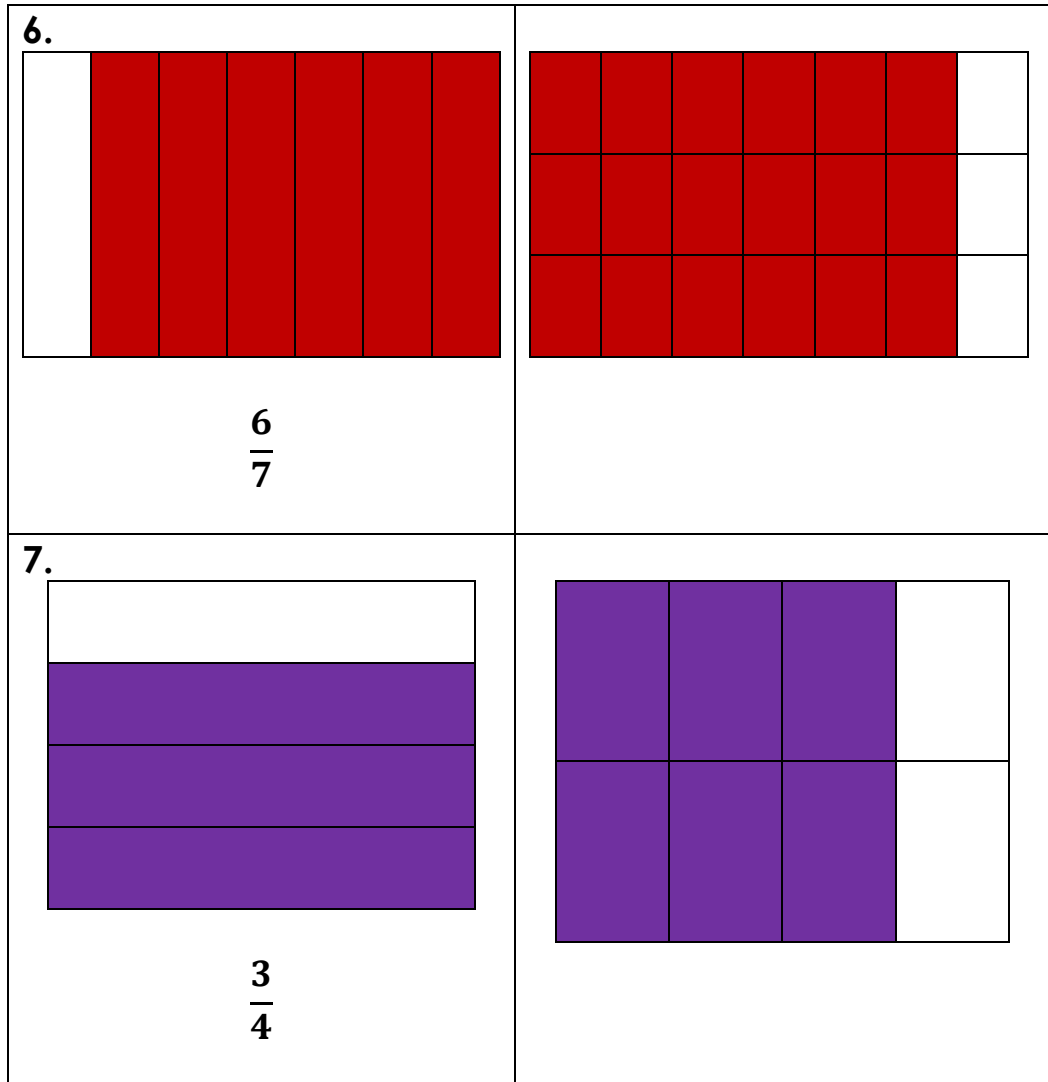
5.



$$\frac{2}{3}$$





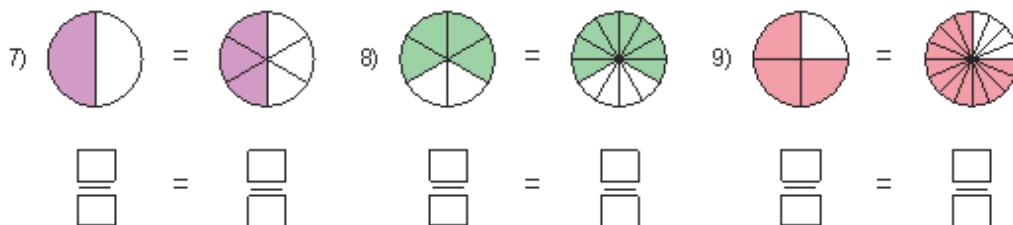
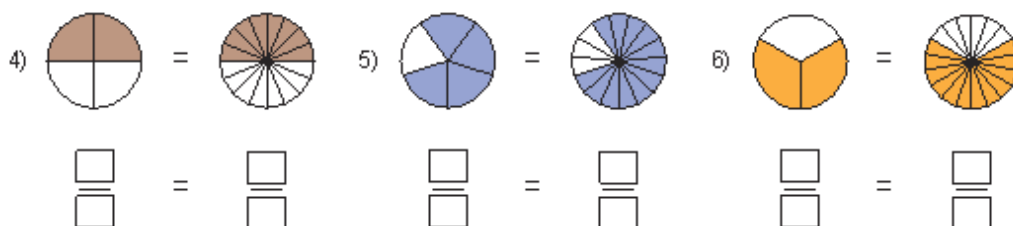
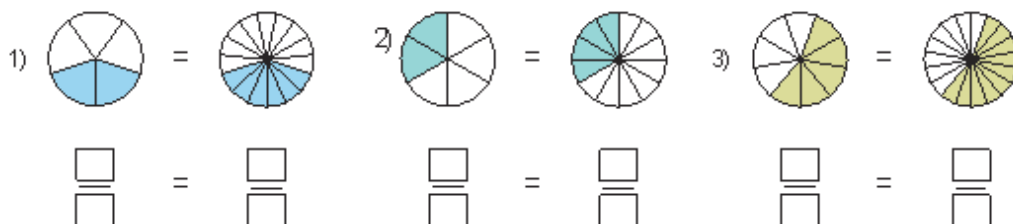


**Note:** the number above the bar is called numerator  
 The number below the bar is called denominator.

$$\frac{3 - \text{numerator}}{5 - \text{denominator}}$$

## Activity 29: Individually

Write down the equivalent fraction using the pi-charts drawn.



Check your answers with your partner

# UNIT 2: MEASUREMENT

## 2.1 Estimate and measure

An estimate is a rough idea that we make without measuring.



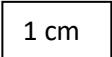
### Activity 1

Estimate and complete the activity in pairs.

Item	Estimate in metres
Length of your arm	
Your height	
Your teachers height	
Length of your desk/chair	
Width of your classroom	
Length of a car	
Width of school playground	

## 2.2 Introducing centimetres and metres

The centimetre is a standard unit of length. It is helpful in measuring small distances such as length of pencils, chalk, books, etc.

Look at this line AB: A  B

This is a length of 1 centimetre.

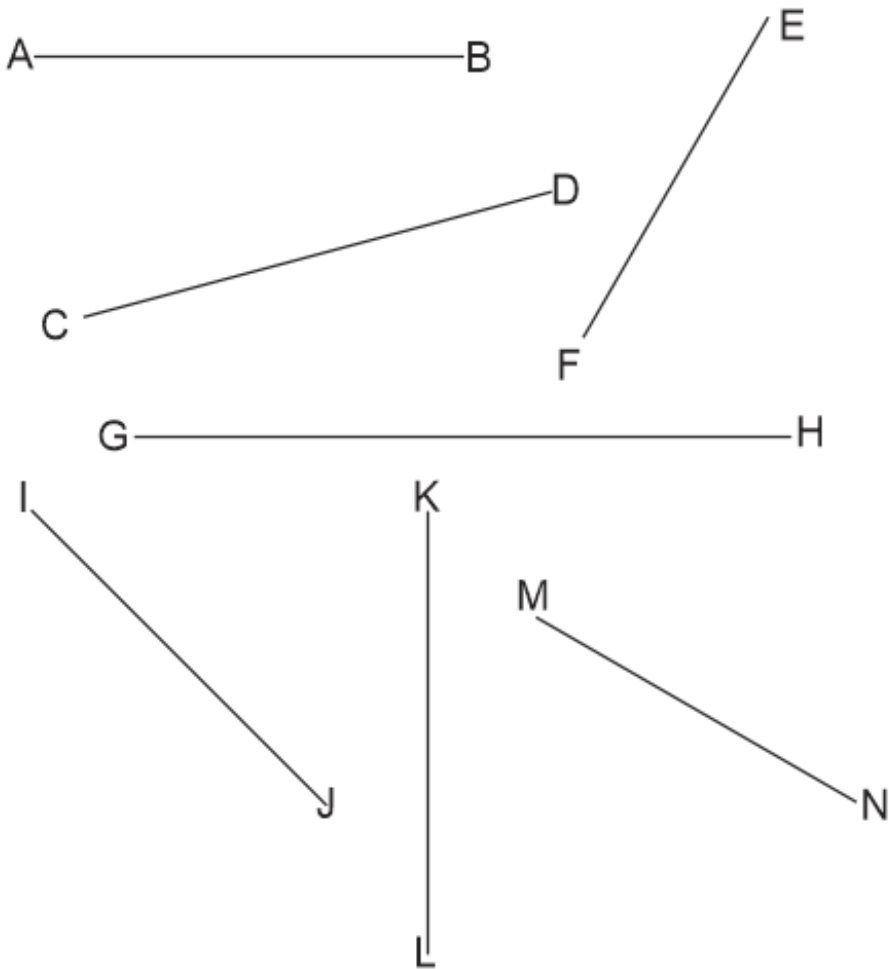
The centimetre is written as **cm**.



## Activity 2

Estimate the lines below.

Using a 15 cm ruler, measure the length of the following lines, to the nearest cm. Work in pairs.





### Activity 3

---

Work in pairs. Fill in the table with the measurements from Activity 2.

Line	Estimate length	Exact length
AB		
CD		
EF		
GH		
IJ		
KL		
MN		



### Activity 4

---

On a piece of manila paper, draw lines with the following measurements. Work in pairs.

1. 4 cm
2. 9 cm
3. 13 cm
4. 15 cm
5. 10 cm
6. 12 cm
7. 7 cm
8. 3 cm
9. 8 cm
10. 11 cm



## Activity 5

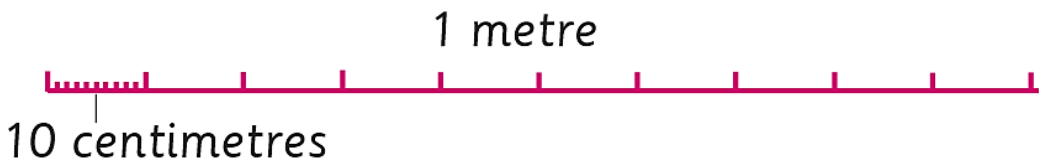
In groups, measure different objects around the classroom and the school compound. Record your measurements in a table like the one below.

Object	Length

Share your findings with the whole class.

### 2.3 Measuring lengths and distances in metres

Ask learners to look at the following scale. How many centimetres are there in a metre?



## Activity 6

### Class Activity

1. Use strides to measure the length and width of your school hall, school field and your classroom.
2. Record your measurements in a table.
3. Compare your estimates with the actual measurements.

	<b>Number of strides</b>	<b>Measurement in metres</b>
Length of school hall		
Width of school hall		
Length of football field		
Width of football field		
Length of classroom		
Width of classroom		



### **Activity 7**

Estimate the lengths of the following objects. Then compare your estimates with the actual measurement using centimetre ruler or a metre rule.

<b>Objects to be measured</b>	<b>Estimated measurement</b>	<b>Actual measurement metre/centimetre</b>
Length of the door		
Length of the desk		
Length of the blackboard		
Length of the teacher's table		

## 2.4 Conversion of centimetres to metres and metres to centimetres



### Activity 8

Study the following examples. Work in pairs.

$$1 \text{ metre} = 100 \text{ centimetres}$$

$$1\text{m} = 100\text{cm}$$

#### Example 1

Change 485 cm into metres and centimetres.

$$\begin{aligned} 485 &= 400 \text{ cm} + 85 \text{ cm} \\ &= 4 \text{ m} + 85 \text{ cm} \\ &= 4 \text{ m } 85 \text{ cm} \end{aligned}$$

#### Example 2

Convert 7 m 35 cm into centimetres.

$$\begin{aligned} 7 \text{ m } 35 \text{ cm} &= 700 \text{ cm} + 35 \text{ cm} \\ &= 735 \text{ cm} \end{aligned}$$

Look back at the measurements collected from Activity 6 and Activity 7. Convert them into either metres or centimetres.





## Activity 9

---

Work in pairs.

Convert the following into metres and centimetres. How did you work this out?

1. 660 cm

6. 484 cm

2. 258 cm

7. 104 cm

3. 850 cm

8. 514 cm

4. 329 cm

9. 701 cm

5. 206 cm

10. 906 cm



## Activity 10

---

In pairs, change the following into centimetres.

1. 2 m 35 cm

6. 6 m 71 cm

2. 3 m 58 cm

7. 9 m 86 cm

3. 4 m 45 cm

8. 26 m 8 cm

4. 5 m 84 cm

9. 8 m 24 cm

5. 8 m 24 cm

10. 20 m 31 cm

## 2.5 Addition and subtraction involving metres and centimetres

Adding metres and centimetres



### Activity 11

In pairs, study the following examples carefully.

#### Example 1

Add 60 cm and 60 cm

$$\begin{aligned}60 \text{ cm} + 60 \text{ cm} \\ &= 60 \text{ cm} + 40 \text{ cm} + 20 \text{ cm} \\ &= 100 \text{ cm} + 20 \text{ cm} \\ &= 1 \text{ m } 20 \text{ cm}\end{aligned}$$

#### Example 2

Add 2 m 36 cm and 1 m 36 cm

$$\begin{array}{r} \textcircled{1} \\ 2 \text{ m } 36 \text{ cm} \\ + 1 \text{ m } 36 \text{ cm} \\ \hline 3 \text{ m } 72 \text{ cm} \end{array}$$

#### Example 3

Add 4 m 76 cm and 3 m 34 cm.

$$\begin{array}{r} 4 \text{ m } 76 \text{ cm} \\ + 3 \text{ m } 34 \text{ cm} \\ \hline 8 \text{ m } 10 \text{ cm} \end{array}$$

Note:

$$\begin{aligned}76 \text{ cm} + 34 \text{ cm} \\ &= 100 \text{ cm} + 10 \text{ cm} \\ &= 1 \text{ m } 10 \text{ cm}\end{aligned}$$



## Activity 12

In pairs, add the following:

1.  $50 \text{ cm} + 50 \text{ cm}$
2.  $36 \text{ cm} + 74 \text{ cm}$
3.  $75 \text{ cm} + 43 \text{ cm}$
4.  $48 \text{ cm} + 45 \text{ cm}$
5.  $52 \text{ cm} + 84 \text{ cm}$



## Activity 13

In pairs, add the following:

$$\begin{array}{r} 1. \quad 6 \text{ m} \quad 28 \text{ cm} \\ \quad + 3 \text{ m} \quad 44 \text{ cm} \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 5 \text{ m} \quad 29 \text{ cm} \\ \quad + 4 \text{ m} \quad 30 \text{ cm} \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 7 \text{ m} \quad 60 \text{ cm} \\ \quad + 2 \text{ m} \quad 18 \text{ cm} \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 7 \text{ m} \quad 48 \text{ cm} \\ \quad + 1 \text{ m} \quad 26 \text{ cm} \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 6 \text{ m} \quad 38 \text{ cm} \\ \quad + 2 \text{ m} \quad 28 \text{ cm} \\ \hline \end{array}$$



Subtract metres and centimetres



### Activity 14

In pairs, study the following examples.

#### Example 1

Subtract 5 m 28 cm from 9 m 48 cm.

$$\begin{array}{r} 9 \text{ m } 48 \text{ cm} \\ - 5 \text{ m } 28 \text{ cm} \\ \hline 4 \text{ m } 20 \text{ cm} \end{array}$$

#### Example 2

Subtract 5 m 63 cm from 7 m 54 cm.

$$\begin{array}{r} 7 \text{ m } 54 \text{ cm} \\ - 5 \text{ m } 63 \text{ cm} \\ \hline 1 \text{ m } 92 \text{ cm} \end{array}$$

Convert 7 m 54 cm to 6 m 154 cm since 63 cm cannot be removed from 54 cm.



### Activity 15

In groups, subtract the following.

1. 
$$\begin{array}{r} 8 \text{ m } 60 \text{ cm} \\ - 4 \text{ m } 50 \text{ cm} \\ \hline \end{array}$$

4. 
$$\begin{array}{r} 6 \text{ m } 38 \text{ cm} \\ - 3 \text{ m } 16 \text{ cm} \\ \hline \end{array}$$

2. 
$$\begin{array}{r} 3 \text{ m } 65 \text{ cm} \\ - 2 \text{ m } 57 \text{ cm} \\ \hline \end{array}$$

5. 
$$\begin{array}{r} 5 \text{ m } 27 \text{ cm} \\ - 3 \text{ m } 18 \text{ cm} \\ \hline \end{array}$$

3. 
$$\begin{array}{r} 8 \text{ m } 65 \text{ cm} \\ - 2 \text{ m } 45 \text{ cm} \\ \hline \end{array}$$

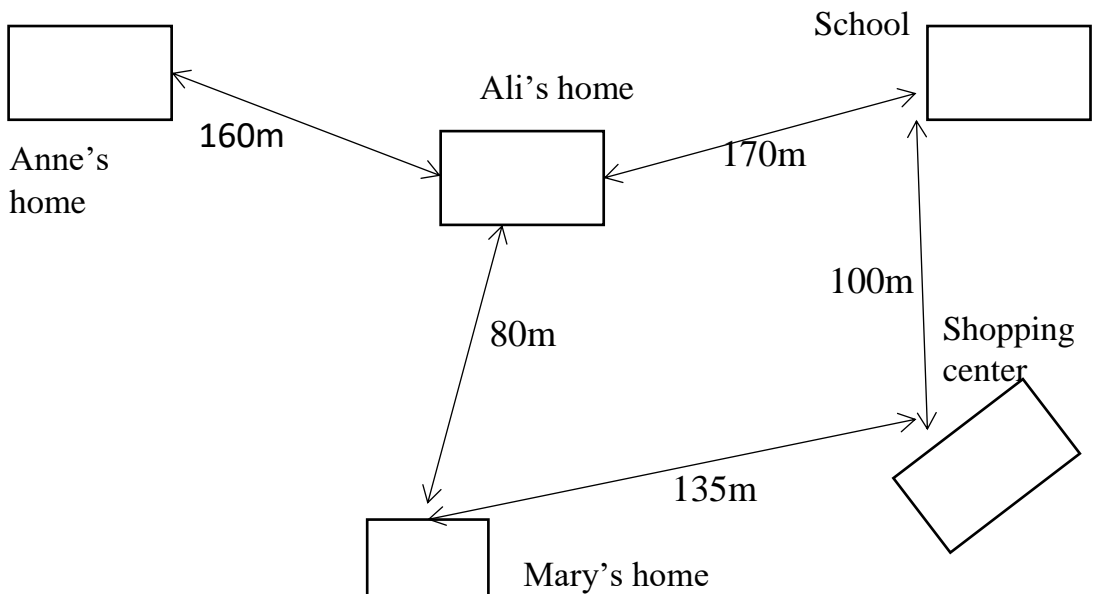
6. 
$$\begin{array}{r} 2 \text{ m } 86 \text{ cm} \\ - 1 \text{ m } 99 \text{ cm} \\ \hline \end{array}$$



## Activity 16

In groups, solve the following problems. Explain how you arrive at your answers. Show your working out.

1. A stick of 3 m 45 cm long is joined to another. The total length of the sticks is 5 m 85 cm. What is the length of the second stick?
2. A table 3 m 25 cm long is joined to another 2 m 75 cm long. What is the total length of the new table?
3. A woman sold 25 m 70 cm of ribbon on Monday and 35 m 20 cm on Tuesday. How much ribbon did she sell altogether?



4. What is the distance from Anne's house to school through the shopping centre?

5. Mary can go to school through two ways: Ali's house and through the shopping centre. Which is the shortest and by how many metres.
6. Othow is 168cm tall. His sister is 132 cm. How short is the sister?
7. The length of a barbed wire all round a homestead and the gate is 20 m. The length of the gate is 2 m. What is the length of the fence?
8. A pipe 12 m 45 cm long was cut off from another pipe 20 m 56 cm long. How much pipe is left?

## 2.6 Capacity

Capacity is the amount of liquid which a container can hold.



### Activity 17

---

In pairs, name some liquids that are found at home and in school.

### Activity 18

---

The standard unit of measurement of capacity is the litre. Litre is written as 'l' in short-form.

In groups, carry out the following:

1. Use a graduated litre bottle and fill it with water.
2. Collect some containers of different shapes and sizes.

3. Use your litre bottle to measure the capacities of these containers.
4. Record your results.
5. Present your findings to the whole class.



## Activity 19

---

### How to prepare a graduated cylinder

#### Work in groups.

1. Take a large glass or plastic jar and paste a strip of paper on it.
2. Using a litre jug, fill the jar completely with water.
3. Mark the height of the water level on the paper.
4. Now divide the height of the 1 litre level into halves and quarters.
5. Mark the  $\frac{1}{4}$  litre,  $\frac{1}{2}$  litre and  $\frac{3}{4}$  litre levels on the strip of paper.
6. Find out how many jugs of water you need to fill the measuring jar to each of the marked levels.

#### Note:

1 litre = 2 half litres

$\frac{1}{2}$  litres +  $\frac{1}{2}$  litres = 1 litre

4 quarters litres = 1 litre

$$\frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} = 1$$

## Activity 20

---

### Addition of litres

#### Examples

20 half litres + 30 half litres = 50 half litres

$30\text{ l} + 15\text{ l} = 45\text{ l}$

$250\text{ l} + 50\text{ l} = 300\text{ l}$

**Individually, complete this exercise in your book.**

1. 3 litres + 2 litres = \_\_\_\_\_ litres.
2. 4 litres + 5 litres = \_\_\_\_\_ litres.
3. 12 litres + 11 litres = \_\_\_\_\_ litres.
4. 10 litres + 20 litres = \_\_\_\_\_ litres.
5. 21 litres + 12 litres = \_\_\_\_\_ litres.
6. 12 litres + \_\_\_\_\_ litres = 25 litres.
7. 40 litres + \_\_\_\_\_ litres = 60 litres.
8. 25 litres + \_\_\_\_\_ litres = 75 litres.
9. 16 litres + \_\_\_\_\_ litres = 30 litres.
10. Irene bought 6l of paraffin. She put 2l in one of her lamps and 3l in another. How many litres are left?



## Activity 21

---

**Subtract. Work in pairs.**

a) 23 litres - 21 litres =

b) 23 litres - 18 litres =

c) 43 litres - 40 litres =

d) 27 litres - 11 litres =

e) 30 litres - 20 litres =

f) 25 litres - 12 litres =

g) 27 litres - 10 litres =

h) 14 litres - 12 litres =



## Activity 22

---

### Conversion of Units

Smaller divisions of litre are decilitres, centilitres and millilitres.

Study the following table.

Units of measurement  
10 millilitres (ml) = 1 centilitre (cl)  
10 centilitres (cl) = 1 decilitre (dl)  
10 decilitres (dl) = 1 litre

<b>When converting from ml to l</b>	<b>÷ by 1000</b>
<b>When converting from l to ml</b>	<b>x by 1000</b>



## Activity 23

---

Calculate and fill in the missing numbers

<b>MILLILITRES</b>	<b>LITRES</b>
2,000 ml	
	7.2 L
4,900 ml	
	9.4 L
10,000 ml	

<b>When converting from cl to L</b>	<b>÷ by 100</b>
<b>When converting from L to cl</b>	<b>x by 100</b>



## Activity 24

Calculate and fill in the missing numbers

Centilitres	LITRES
340cl	
	3 L
550cl	
	7.4 L
800cl	

**When converting from cl to L**

**÷ by 100**

**When converting from L to cl**

**x by 100**



## Activity 25

Convert the following from centilitres (cl) to litres (l).

I need to multiply by \_\_\_\_\_

1. 1.00L \_\_\_\_\_ cl

2. 3.5L \_\_\_\_\_ cl

3. 4.9l \_\_\_\_\_ cl

4Litres or 330cl. Which is bigger and why? Explain your working out.

Tell your partner what you have learnt about converting *ml* to *l* and *cl* to *l*.

## 2.7 Weight

Weight refers to how heavy or light an object is.

The kilogram (kg) is the standard unit of weight.

The kilogram (kg) is used as a unit when weighing heavy objects. For smaller or litres objects, we use the unit gram (g).

The weight of 1 litre of water is 1 kilogram.

There are 100 grams in 1 kilogram.

$$1 \text{ kg} = 1000 \text{ g}$$

$$\frac{1}{2} \text{ kg} = 500 \text{ g}$$

$$\frac{1}{4} \text{ kg} = 250 \text{ g}$$

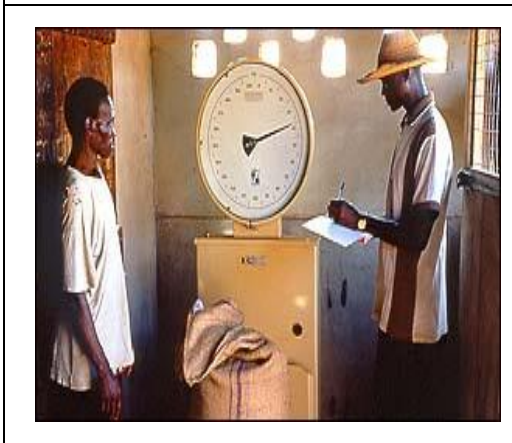
We use grams to weigh smaller or little/ light objects or things. There are 1000g in 1 kg



### Activity 26

**Look at the following pictures. What is happening? Talk in groups.**





## Activity 27

**Estimate the weight of the following.**

1. Stones of different sizes.
2. Text books of different subjects.
3. Your own weight.

## Activity 28

---

Visit a nearby market. What do the sellers use to weigh different commodities? Is their method of measuring accurate? Why do you think that? With a partner, record your findings and present them to the whole class.

### Addition and subtraction

#### Examples

$$4 \text{ kg} + 6 \text{ kg} = 10 \text{ kg}$$

$$45 \text{ kg} + 64 \text{ kg} = 109 \text{ kg}$$

$$104 \text{ kg} + 9 \text{ kg} = 113 \text{ kg}$$

$$104$$

$$+ \quad 9$$

$$\hline 113$$

$$98$$

$$-43$$

$$\hline 55 \text{ kg}$$



## Activity 29

---

1.  $105 \text{ litres} - 45 \text{ litres} =$
2.  $75 \text{ litres} + 35 \text{ litres} - 60 \text{ litres} =$
3. Kim's car used 7 litres of petrol for his home to school and then 8 litres to church. How many litres did he use altogether?
4. Mary bought 5 half – litres packets of milk on her way home one fell and burst how many litres of milk was she left with?

## 2.8 Units of time

- 1 week = 7 days
- 1 day = 24 hours
- 1 hour = 60 minutes

### Example

1. How many days are there in 3 weeks?

$$3 \times 7 = 21 \text{ days}$$

2. How many weeks are equivalent to 63 days?

$$63 \div 7 = 9 \text{ weeks}$$



### Activity 30

---

#### In pairs, work out the answers correctly.

1. I stayed in a hotel for 2 weeks and 3 days. I then moved to another one for 3 weeks, how long was my stay in the two hotels?
2. In the April holiday, I spent 12 days in Nairobi, 10 days in Cape Town and another 3 days in Paris, How long was the holiday?
3. What is the time interval from 10:00am to 11:30am?

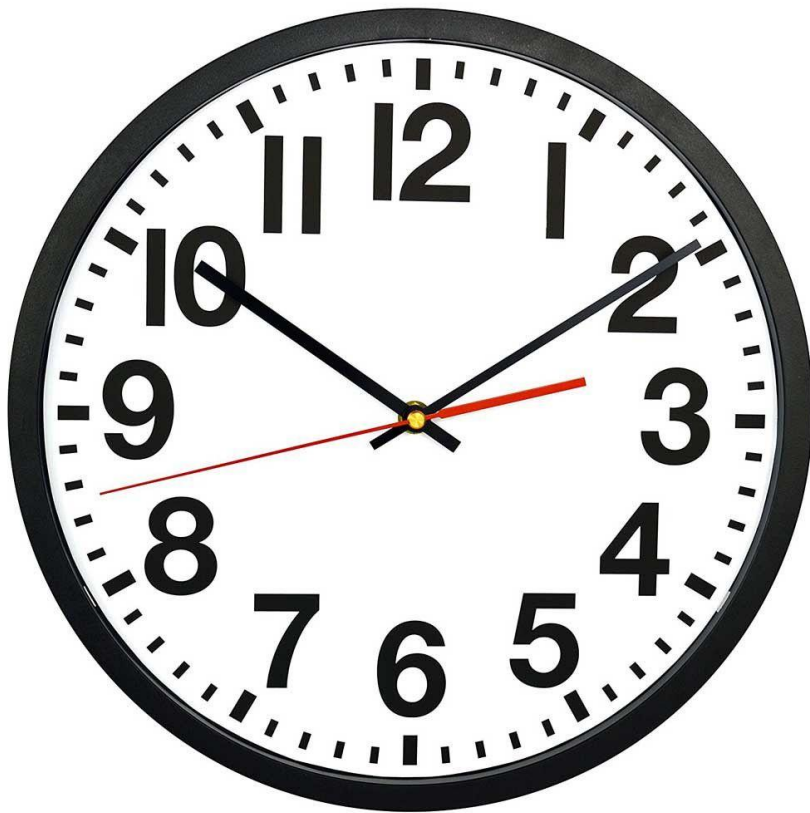
How have you worked this out?



### Activity 31

---

**We know that hours, minutes and seconds are the units, we use to measure the time. Work in pairs.**



1. What does the long hand of a clock show?
2. What does the short hand of a clock show?
3. What does the long and thin hand of a clock which moves faster show?
4. How many seconds are there in 10 minutes?
5. How many seconds are there in half an hour?
6. How many minutes are there in three hours?
7. How many hours are there in two days?
8. How many days are there in 5 weeks?
9. How many weeks are there in two years?
10. How many months are there in one and a half years?

**1 hour = 60 minutes.**

**60 minutes = 1 hour**

**1 minute = 60 seconds.**

**60 seconds = 1 minute**



### **Activity 32**

---

If 1 hour is 60 minutes, how many minutes is 3 hours? Show your working.



### **Activity 33**

---

If you took 520 minutes to travel to your school. How many hours did it take you to get to school?



### **Activity 34**

---

**1 minute is made up of 60 seconds.**

**Convert into seconds: Work in groups.**

1. 1 hours 24 seconds
2. 20 minutes 45 seconds
3. 18 minutes 28 seconds
4. 2 hours 12 seconds
5. 36 minutes 17 seconds
6. 15 hours 19 seconds

**How did you arrive at your answers?**





### Activity 35

---

Use a.m. or p.m. Work in groups.

- |                        |                        |
|------------------------|------------------------|
| 1. 7:35 in the morning | 5. 8:48 in the morning |
| 2. 6:45 in the evening | 6. 12:50 afternoon     |
| 3. 2:20 midnight       | 7. 5:05 in the evening |
| 4. 4:35 in the evening | 8. 11:27 at night      |
| 9. 8:36 in the morning | 10. 9:17 at night      |



### Activity 36

---

What was the time before 6 hours? Work out in groups.

- |              |                |
|--------------|----------------|
| 1. 3:20 a.m. | 4. 12 midnight |
| 2. 5:45 p.m. | 5. 12 noon     |
| 3. 9:15 a.m. | 6. 2:15 p.m.   |

How did you arrive at your answers?



### Activity 37

---

What will be the time after 4 hours? Work out in groups.

- |              |              |              |
|--------------|--------------|--------------|
| 1. 5:40 a.m. | 3. 1:25 a.m. | 6. 2:30 p.m. |
| 2. 8:30 p.m. | 4. 5:20 a.m. |              |
|              | 5. 3:05 p.m. |              |

How did you arrive at your answers?

## 2.9 Money



### Activity 38



In groups, visit a nearby shop. Find out the prices of the various items sold in the shop. Record your data in a table and present it to the whole class.

1. What is the cheapest item in the shop?
2. What is the most expensive item in the shop?
3. Which item is bought the most at the shop?
4. How does the shopkeeper determine the price of the various items?



## Activity 39

In groups, visit a market.



Find out the prices of the various items sold in the market. Record your data in a table and present it to the whole class.

1. What kind of items are sold at the market?
2. Compare the price of the same item at different stalls. Is it the same? Is there a difference? By how much?
3. Which item is readily available at the market?
4. Which item is scarce at the market? What is its price?
5. If you went to the market with SSP 100, how much would you be able to buy? Write down the list of the items together with their quantity and prices.



## Activity 40: in pairs

---

Explain how you will work it out, show your working.

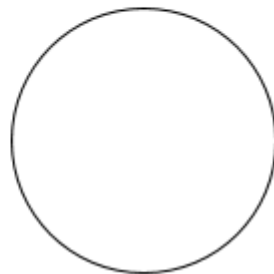
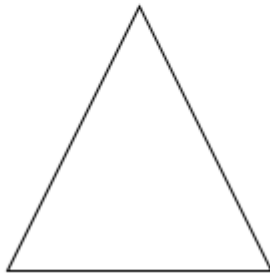
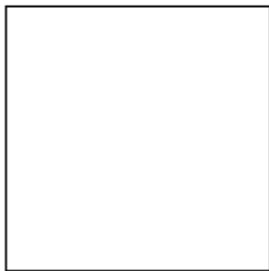
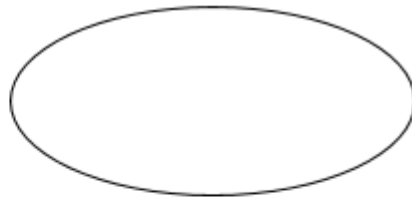
1. After buying some tickets for SSP8.00, Willie has SSP2.00 left. How much money did Willie have to begin with?
2. Bonnie gives SSP400 to Roy. If Bonnie started with SSP1 600, how much money does she have left?
3. Carlos has SSP700 and Karen has SSP600. How much more does Carlos have than Karen?
4. Thomas has SSP1700 and Sandra has SSP1300. How much more does Thomas have than Sandra?
5. Donna has SSP1300 and Jack has SSP200. How much more does Donna have than Jack?
6. Susan has SSP6700 and Joshua has SSP300. How much more does Susan have than Joshua?
7. After buying some bottle caps for SSP9000, Arthur has SSP700 left. How much money did Arthur have to begin with?
8. After buying some marbles for SSP5500, Linda has SSP900 left. How much money did Linda have to begin with?

# UNIT 3: GEOMETRY

We are familiar with the following shapes from primary 2:

1. Rectangles
2. Squares
3. Triangles
4. Ovals
5. Circles.

Where have you seen these? Tell your partner.



## Activity 1: In pairs

Your teacher will take you outside the classroom to find objects which have the shapes as the ones listed above. You can also check the objects in the classroom. For example: table, books, desk etc. Draw the objects that you find in the environment and compare them with the shapes they resemble.

## Sketching and drawing shapes accurately.

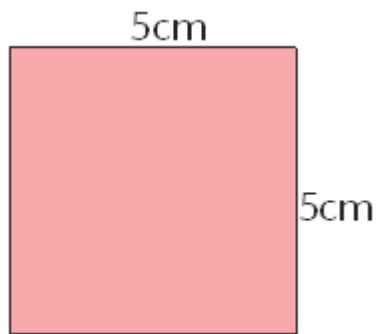


### Activity 2: Work in pairs.

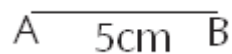
#### Square

A square is a quadrilateral with four right angles and four congruent/ equal sides. It is very easy to draw.

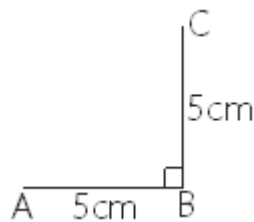
Draw a square measuring 5cm by 5cm. Follow the steps and draw in your exercise book.



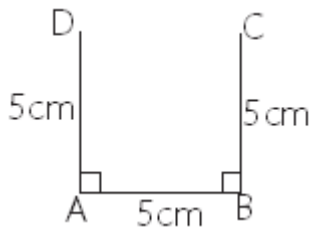
1. Draw a line using a ruler measuring 5cm, which is one side of the square. Label the line AB.



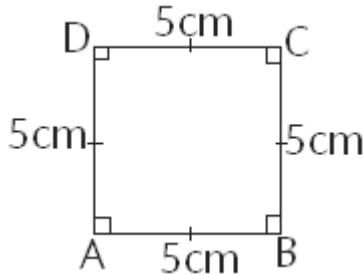
2. Considering the side drawn in the previous step as one of the arms, construct a right angle on one end of it. Label it C



Repeat the previous step on the other arm of the line.



4. Join the points C and D to make the square complete.



5. We have drawn a perfect square which is 5cm by 5cm.

All the sides are equal and the angles are equal too.

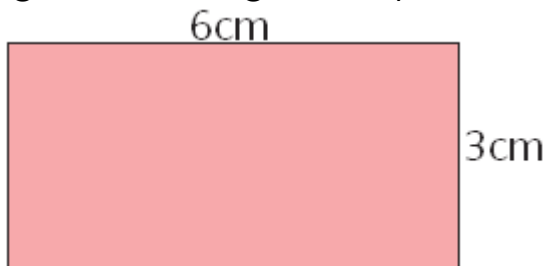


### Activity 3: Work in pairs.

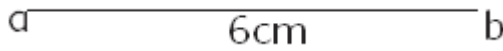
#### Rectangle

A rectangle is a plane figure with four straight sides and four right angles, especially one with unequal adjacent sides, in contrast to a square.

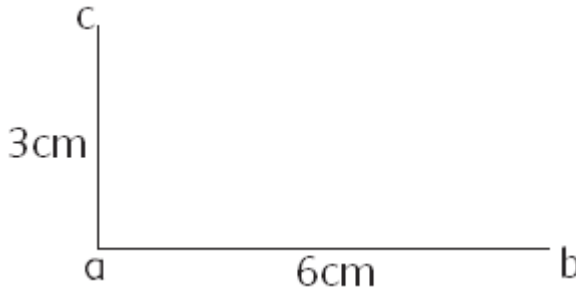
Draw a rectangle measuring 6cm by 3cm.



1. Draw a line using a ruler measuring 6cm, which is one side of the rectangle. Label then line ab



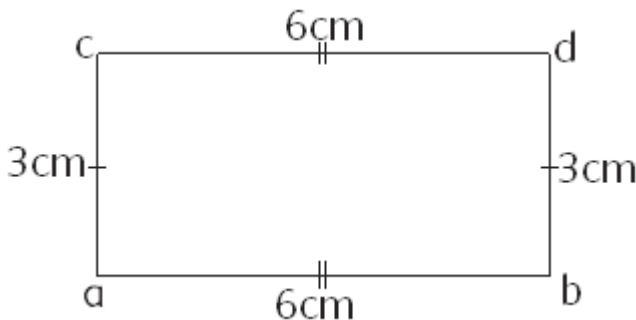
2. Considering the side drawn in the previous step as one of the arms, construct a right angle at one end of it and the line measuring 3cm. Label it c.



3. Repeat the previous step on the other side of the line. Label it d.



4. Join the points c and d to make the square complete.



5. We have drawn a rectangle measuring 6cm by 3cm.



6. A rectangle has 2 of its sides equal and all the angles are right angles.
7. Follow the above steps and draw a rectangle in your exercise book.



#### Activity 4: Work in pairs.

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### Triangle

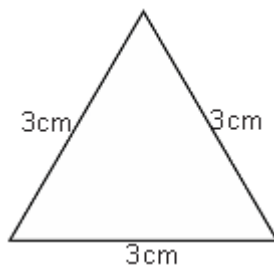
A triangle is a plane figure with three straight sides and three angles.

There are various types of triangles.

In this level we are going to study about:

1. Equilateral triangle.
2. Right angled triangle.
3. Isosceles triangle.
4. Scalene triangle.

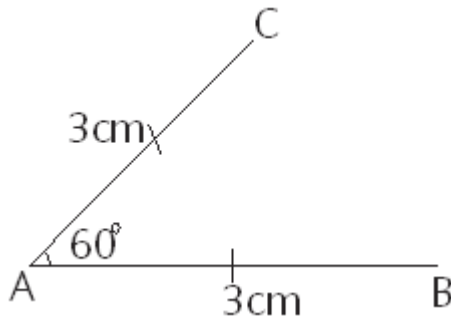
Draw an equilateral triangle measuring 3cm by 3cm by 3cm.



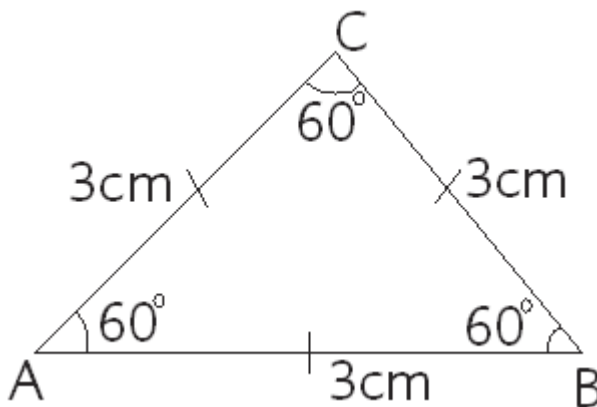
1. Lay your ruler on the paper, then trace a pencil along the straight edge. This line segment will form one side of your equilateral triangle, which means that you will need to draw two more lines of exactly the same length, each reaching toward a point at a  $60^\circ$  angle from the first line. Label it AB.



2. Draw another line from one of the points. Estimate an angle of  $60^\circ$ . Label the line C.



3. From the other point B, draw another line to meet at C.



4. We have drawn an equilateral triangle with all sides equal and all angles equal.
5. Draw the equilateral triangle in your exercise book following the above steps.



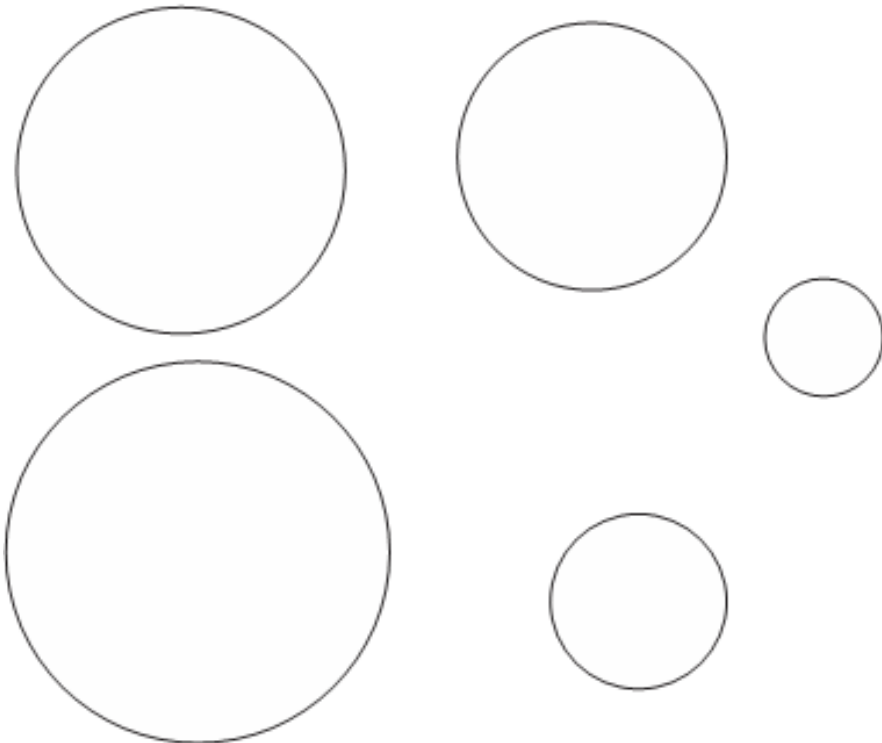
## Activity 5: Work in pairs.

---

### Circle

A circle is a round plane figure whose boundary (the circumference) consists of points of the same distance from a fixed point (the centre).

1. Draw an accurate circle.
2. The teacher will provide with various round objects which you can use to draw a perfect circle.
3. For example, a glass of water for a bigger circle, a coin, a bottle, a cup etc.
4. Draw different sizes of circles. Like the ones below.

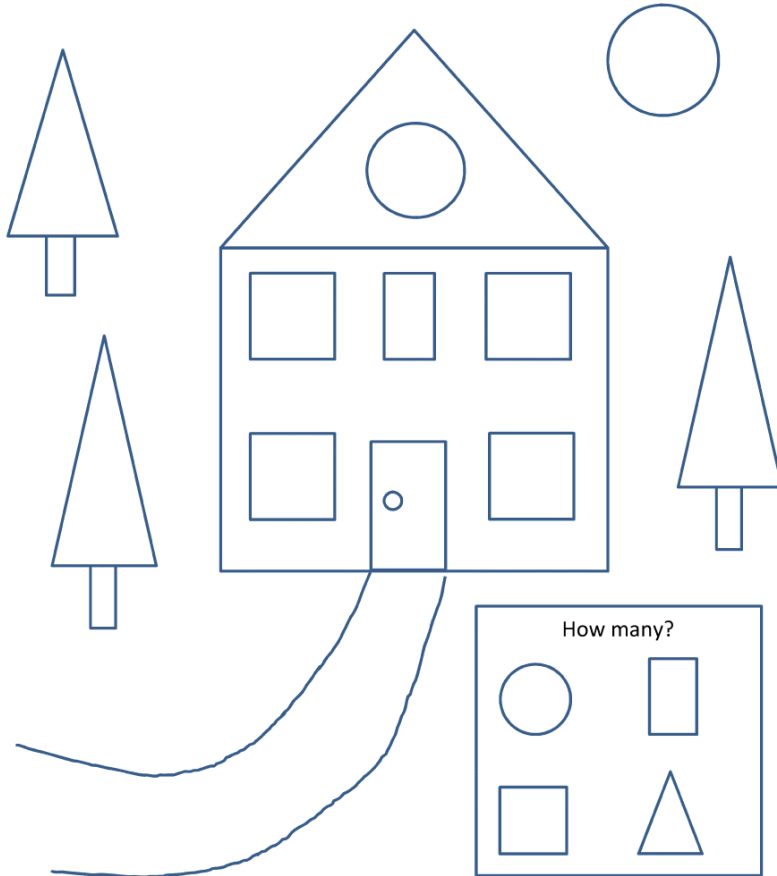




## Activity 6

### Work in groups.

1. Count the shapes in the diagram on the following page.



1. How many triangles?
2. How many rectangles?
3. How many squares?

## Activity 7: Individually

---

1. Draw the following geometric shapes accurately as instructed.
  - a. A rectangle measuring 4cm by 7cm.
  - b. A square of length 5cm.
  - c. A triangle measuring 4cm by 5cm by 3cm

## 3.1 Properties of Geometric shapes



### Activity 8: Work in pairs.

---

#### Guess my shape game

Guess who I am. I am thinking of a shape, it has 4 right angles opposite sides are equal and the perimeter is 12 cm



### Activity 9: Work in pairs.

---

Make a fact book showing properties of a square, rectangle, triangle and a circle.

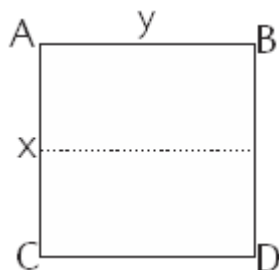


### Activity 10: Work in pairs.

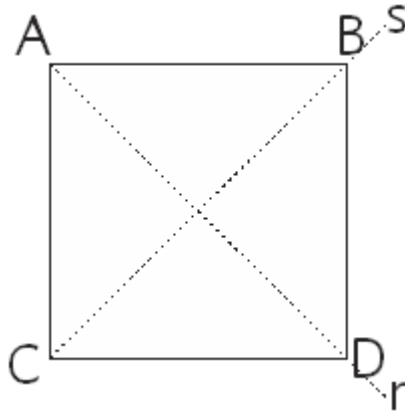
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#### Square

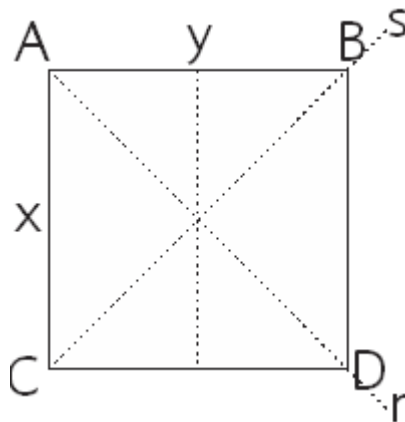
1. Make a paper cut out of a square ABCD.



2. Fold it so that corner B fits to corner A and D to C.
3. Press the fold to show the dotted line x and y.
2. Open the cut out and fold again so that A fits to D and C to B. This will give you the dotted lines s and r.



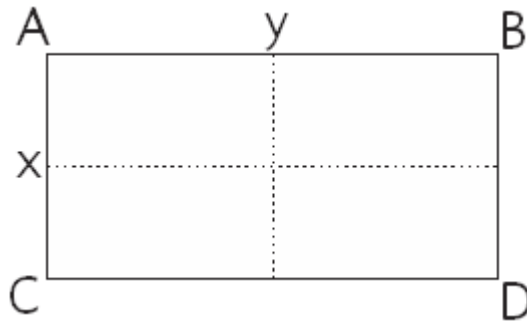
**Observation:** A square has 4 lines of symmetry.



### Activity 11: Work in pairs.

#### Rectangle

1. Make a paper cut out of a rectangle ABCD.



2. Fold it so that corner B fits to corner A and D to C.
3. Press the fold to show the dotted line x and y.

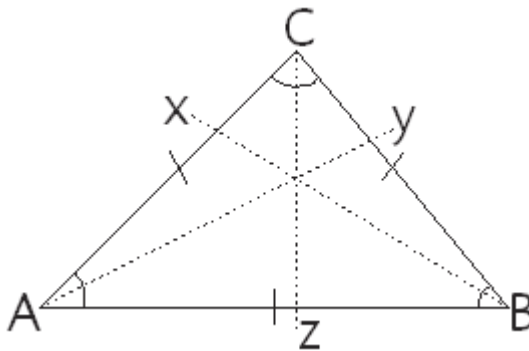
**Observation:** A rectangle has two lines of symmetry.



### Activity 12: Work in pairs.

#### Triangle

1. Make a paper cut out of an equilateral triangle ABC.



Fold it so that corner B fits to corner A and C is the tip top.

2. Press the fold to show the dotted line z.
3. Fold it again, so that C lies at the centre of the line AB.

4. Fold it again, so that C fits to corner A and B is the tip top.

**Observation:** An equilateral triangle has 3 lines of symmetry.



### Activity 13: Work in pairs.

---

With the help of your teacher work on the other types of triangles, considering that:

1. An isosceles triangle has 1 line of symmetry.
2. A right angled triangle has no line of symmetry.
3. A scalene triangle has no line of symmetry.

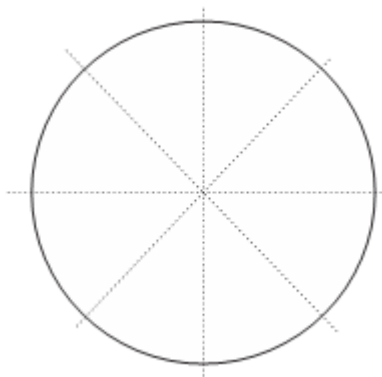


### Activity 14: Work in pairs.

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#### Circle

1. Make a circular cut out.
2. Fold into half.
3. Fold into as many halves as possible.



**Observation:** All the diameters of a circle are lines of symmetry.

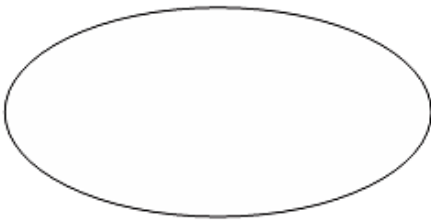
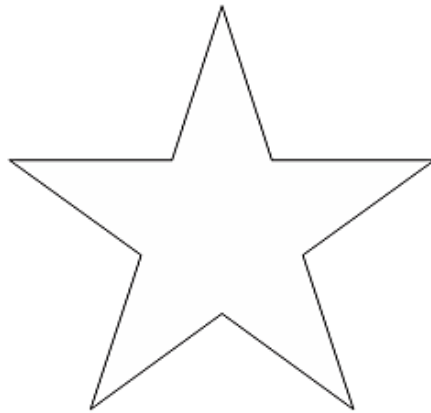
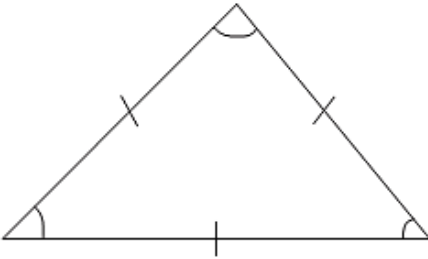
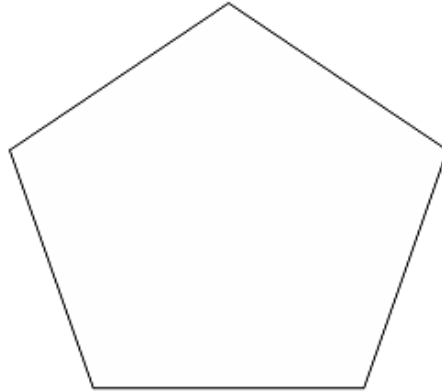
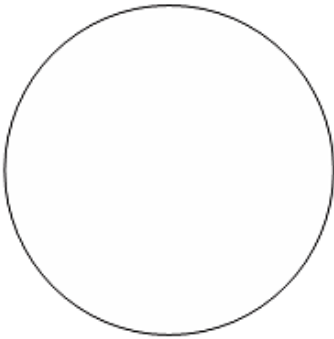
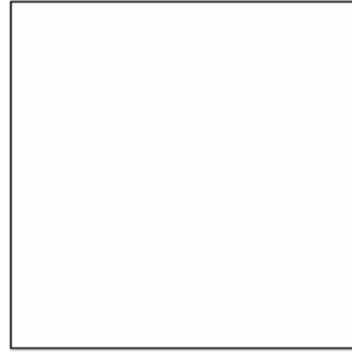




### Activity 15: Work in pairs.

---

Draw the lines of symmetry in the following shapes.



# UNIT 4: ALGEBRA

## 4.1 Inequalities

An inequality is the relation between two expressions that are not equal, employing a sign such as “not equal to,”  $>$  “greater than,” or  $<$  “less than.”

Symbol	Words	Example
$>$	Greater than	$x > 2$
$<$	Less than	$x < 4$
$\geq$	Greater than or equal to	$x \geq 10$
$\leq$	Less than or equal to	$x \leq 3$

Greater than means that the starting number is bigger in value than the other number.

Example:  $50 > 15$

This means that 50 is greater than 15.

Less than means that the starting number is smaller in value than the other number.

Example:  $15 < 50$

This means 15 is less than 50.

## Activity 1

---

In pairs, choose numbers and place them correctly in the grid below.

			<			
--	--	--	---	--	--	--

			>			
--	--	--	---	--	--	--

1. What number do you have on your right?
2. How did you decide to put your number?

## Activity 2

---

1. Copy and write the correct inequality sign.

a)  $3 \underline{\hspace{1cm}} 2$

f)  $30 \underline{\hspace{1cm}} 30$

b)  $4 \underline{\hspace{1cm}} 7$

g)  $45 \underline{\hspace{1cm}} 20$

c)  $30 \underline{\hspace{1cm}} 40$

h)  $61 \underline{\hspace{1cm}} 72$

d)  $60 \underline{\hspace{1cm}} 110$

i)  $31 \underline{\hspace{1cm}} 20$

e)  $72 \underline{\hspace{1cm}} 40$

j)  $24 \underline{\hspace{1cm}} 17$

## Activity 3

---

True or false?

a)  $4 > 2 + 1$

b)  $2 + 3 < 4$

c)  $3 + 5 < 6$

d)  $1 + 3 > 2$

e)  $6 > 5 + 4$

## Activity 4

---

### 1. Indicate whether true or false

a)  $2 + 2 < 3 + 3$

b)  $5 - 2 < 7 + 8$

c)  $8 - 6 > 3 + 7$

d)  $2 + 6 < 4 + 6$

### 2. Determine which number is greater than the other.

1. 100 and 22

2. 569 and 920

3. 17 and 77

4. 718 and 19

5. 28 and 16

6. 1000 and 918

Explain how you did it.

# UNIT 5: STATISTICS

## 5.1 Pictographs

When some information is represented by using picture symbols, we say that the picture has been represented pictorially.



Pictorial representation is a method of representing information in a visual form.

The table below show the number of leaners in a class on different days.

Monday	Tuesday	Wednesday	Thursday	Friday
20	30	10	30	10

The above information can be shown by a pictograph:


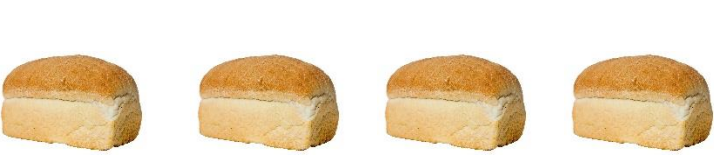

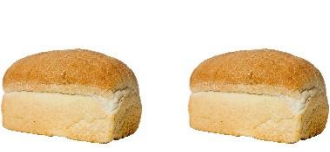




Thursday	
Friday	

One  represents 10 learners.

### Activity 1

The number of loaves of bread baked by a baker in 6 days is depicted below by a pictograph.





Monday	
Tuesday	
Wednesday	
Thursday	



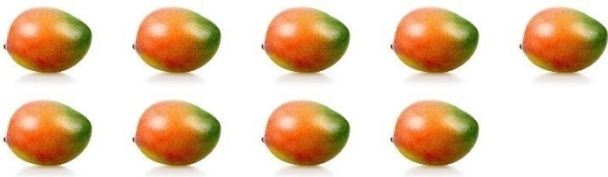
Friday	
Saturday	

How many loaves of bread are baked each day? Discuss with your partner.

## Activity 2

Given below is a pictogram showing mangoes sold by a fruit vendor in a week. Let  represent 10 mangoes.

Sunday	
Monday	
Tuesday	
Wednesday	

Thursday	
Friday	
Saturday	

In groups, answer the following questions using the pictogram above.







1. How many mangoes were sold on each day?
2. On which day there was a maximum number of mangoes sold?



### Activity 3

The pictogram below shows how many shirts sold in a week. In pairs, study the pictogram and complete the following information. Work in groups.



Monday	
Tuesday	
Wednesday	
Thursday	
Friday	
Saturday	



= 5 shirts

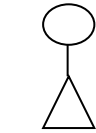
1. On which day of the week 10 shirts were sold?
2. How many shirts were sold on Tuesday?
3. Which was the day that the least shirts were sold?
4. What is the difference between the no of shirts sold on Tuesday and on Friday?



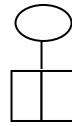
## Activity 4

Work in groups.

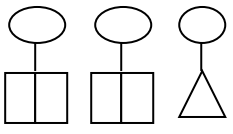
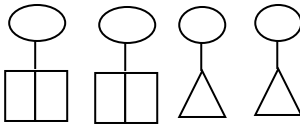
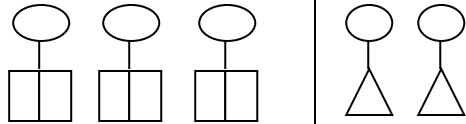
Number of boys and girls in a class.



10 Girls



10 Boys

Primary 1		
Primary 2		
Primary 3		

Use the pictograph above to answer the questions that follow.

1. How many learners are in primary 1?
2. How many girls are in primary 1?
3. How many boys are in primary 2?
4. How many girls are in primary 2?
5. What is the total number of girls in the school?
6. How many girls are in primary 3?
7. How many boys are in primary 1, 2 and 3?
8. How many girls are in primary 1, 2 and 3?



## Activity 5

---

In pairs, draw a pictograph on a manila paper for the following data. Give a key of what each picture represents. Present your work to the class.

Number of houses built in Juba in 5 years.

Year	2013	2014	2015	2016	2017
Number of houses built	160	330	550	720	890



## Activity 6

---

### Work in groups.

Conduct a school survey about sports in your own class.

1. Prepare a table and record your results.
2. Use the data in your table to prepare a pictograph.
3. Give a key of what each picture represents.

## 5.2 Block graphs







The information in a pictograph can be represented in a block graph.

### Activity 7: Class activity

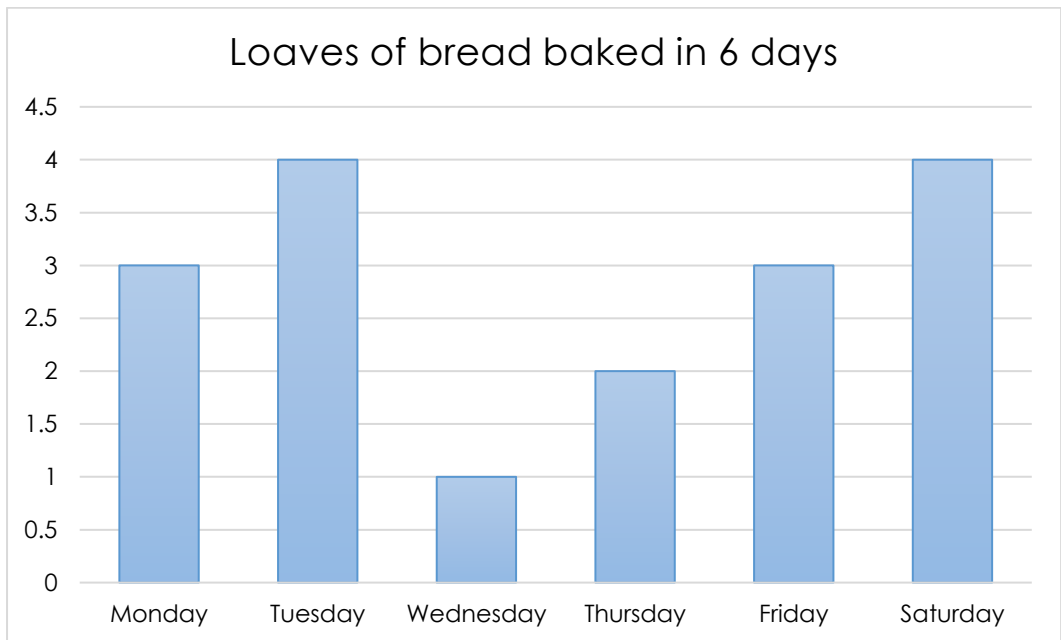
---

Let us revisit the information provided in Activity 1.

The number of loaves of bread baked by a baker in 6 days is depicted below by a pictograph.

Monday	
Tuesday	
Wednesday	
Thursday	
Friday	
Saturday	

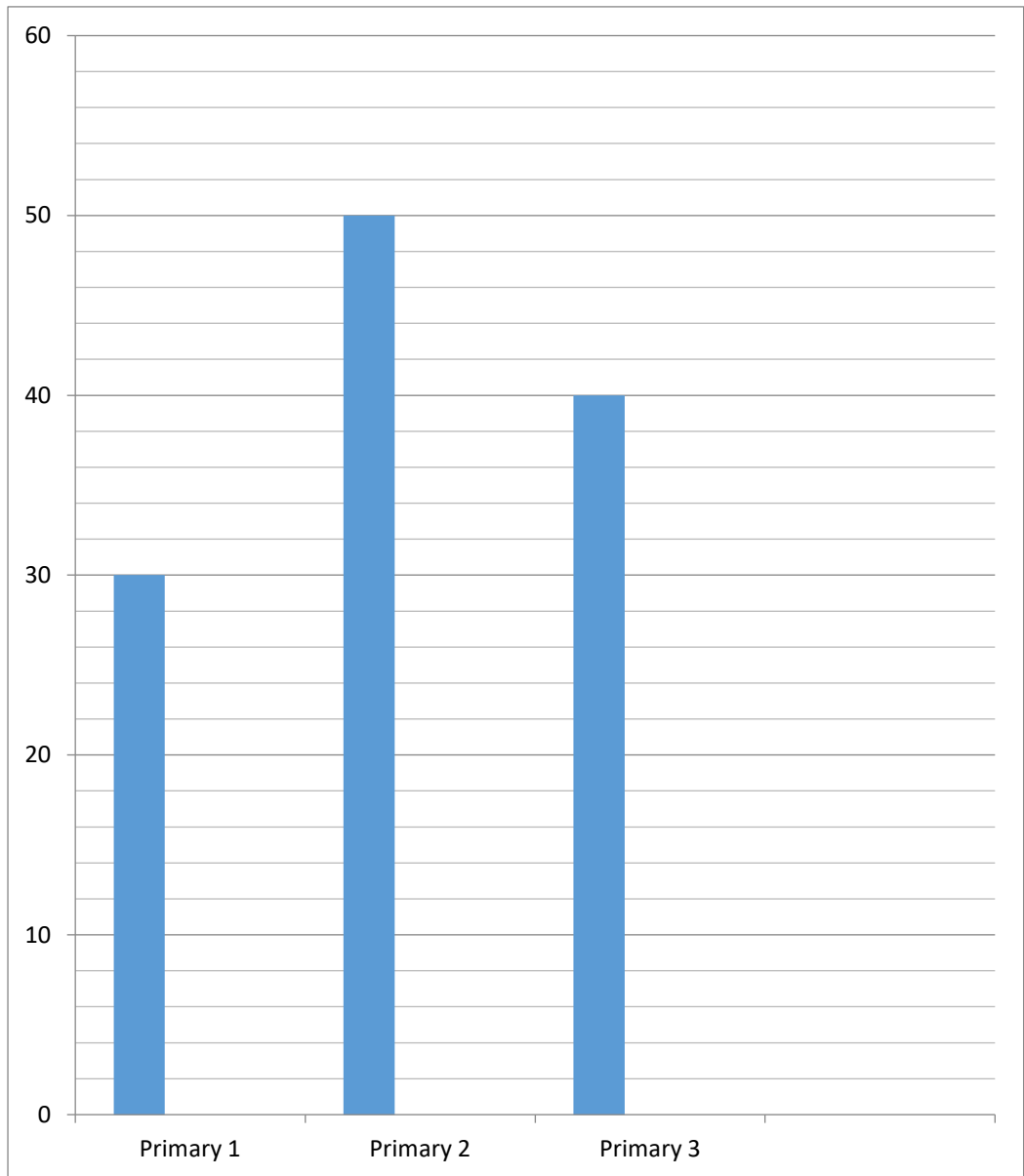
This can be represented in a block graph as follows. What do you notice about the graph? Talk with your partner.



## Activity 8

---

Graph below shows the number of pupils in a class. Together with your partner, study it and answer the questions that follow.



- a) How many pupils are there in primary 1? \_\_\_\_\_
- b) How many pupils are there in primary 2? \_\_\_\_\_
- c) How many pupils are there in primary 3? \_\_\_\_\_



## Activity 9

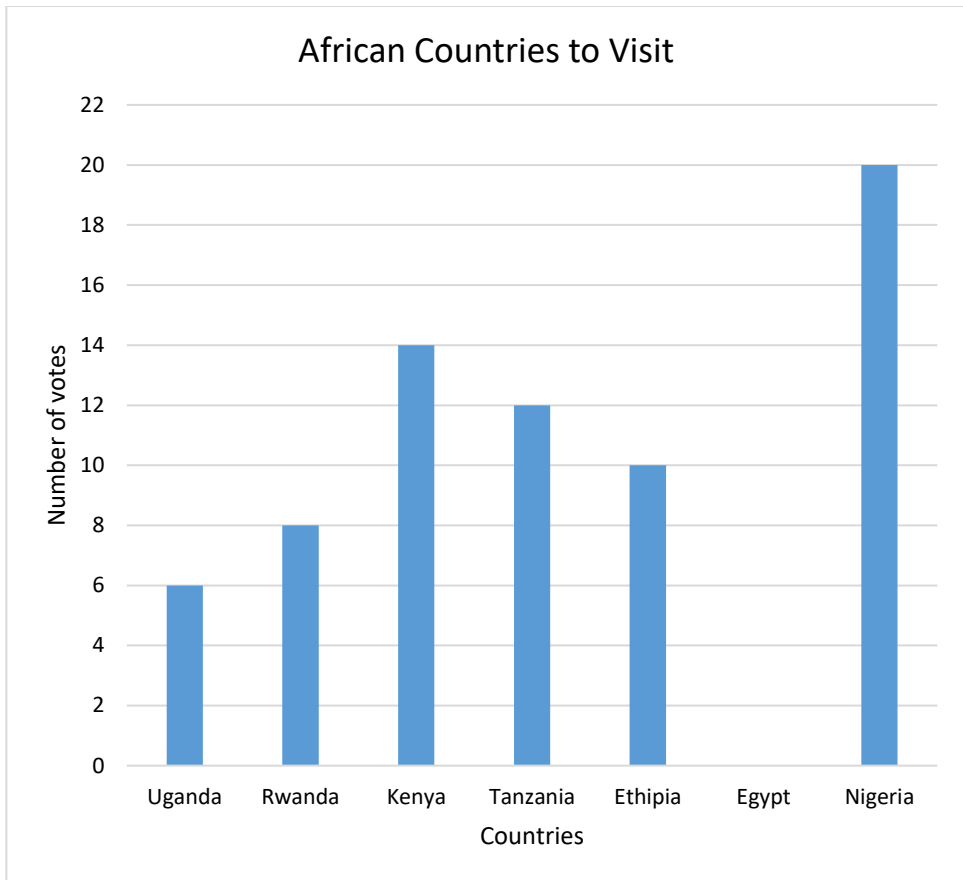
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### Work in groups.

Each child in Primary 3 selects two African countries they would like to visit.

Country	Votes
Uganda	6
Rwanda	8
Kenya	
Tanzania	12
Ethiopia	10
Egypt	16
Nigeria	

This information is represented in the block graph below.

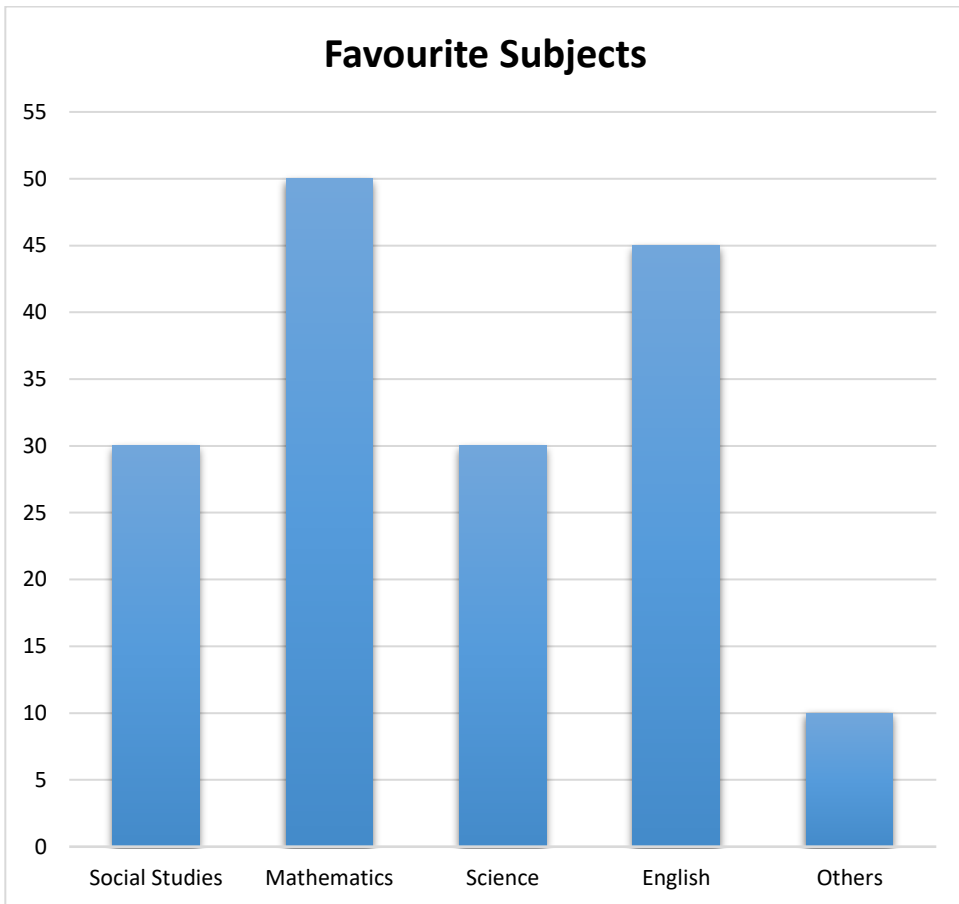


1. Fill in the missing data in the table for Kenya and Nigeria.
2. Draw a bar to show how many votes Egypt got.
3. Which was the most popular country to visit?
4. How many more votes did Tanzania get than Rwanda?
5. How many more votes did Ethiopia get than Rwanda?



## Activity 10

Mrs Ogalla, a teacher, recorded the favourite subjects of her students in the block graph below. Use the graph to answer the questions. Work in pairs.



1. Which subject is the second most popular?
2. Which subject is less popular?
3. Which subject is a favourite for 50 students?
4. Which subjects have the same number of votes?
5. What unit of scale is used to display the popularity of subjects among the students?





## Activity 11

---

In groups, collect and count classroom objects such as books, dusters, erasers, pencils etc. Count the items, record the data and create a block graph.

## Activity 12: Work in pairs



---




Take a survey among your friends and family on their favourite colour. Display your findings in a block paragraph.

## Activity 13: Work in pairs

---

Othow took a survey about the pets kept by his friends and recorded the data. Using the information, write the title of the block graph, label the axis, make appropriate scale and graph the data?

cat	 8
dog	 14

goat	 <p>12</p>
rabbit	 <p>4</p>
sheep	 <p>18</p>



South Sudan

# Primary Mathematics 3

**Primary Mathematics** has been written and developed by Ministry of General Education and Instruction, Government of South Sudan in conjunction with Subjects experts. This course book provides a fun and practical approach to the subject of mathematics, and at the same time imparting life long skills to the pupils.

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