



Ministry of Education
and Sports

HOME-STUDY LEARNING

PRIMARY
4

MATHEMATICS

August 2020



Save the Children





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This material has been developed as a home-study intervention for schools during the lockdown caused by the COVID-19 pandemic to support continuity of learning.

Therefore, this material is restricted from being reproduced for any commercial gains.

National Curriculum Development Centre
P.O. Box 7002,
Kampala- Uganda
www.ncdc.go.ug

FOREWORD

Following the Outbreak of the CoVID-19 Pandemic, Government of Uganda closed all schools and other educational institutions to minimize the spread of the coronavirus. This has affected more than 36,314 primary schools, 3129 secondary schools, 430,778 teachers and 12,777,390 learners.

The COVID-19 outbreak and subsequent closure of all has had drastically impacted on learning especially curriculum coverage, loss of interest in education and learner readiness in case schools open. This could result in massive rates of learner dropouts due to unwanted pregnancies and lack of school fees among others.

To mitigate the impact of the pandemic on the education system in Uganda, the Ministry of Education and Sports (MoES) constituted a Sector Response Taskforce (SRT) to strengthen the sector's preparedness and response measures. The SRT and National Curriculum Development Centre developed print Home- Study Materials, radio and television scripts for some selected subjects for all learners from Pre-Primary to Advanced level. The materials will enhance continued learning and learning for progression during this period of the lockdown, and will still be relevant when schools resume.

The materials focused on critical competences in all subjects in the curricula to enable the learners to achieve without the teachers' guidance. Therefore effort should be made for all learners to access and use these materials during the lockdown. Similarly, teachers are advised to get these materials in order to plan appropriately for further learning when schools resume, while parents/guardians need to ensure that their children access copies of these materials and use them appropriately.

I recognise the effort of National Curriculum Development Centre in responding to this emergency through appropriate guidance and the timely development of these home study materials. I recommend them for use by all learners during the lockdown.



Alex Kakooza

Permanent Secretary

Ministry of EDUCATION AND SPORTS

ACKNOWLEDGEMENTS

National Curriculum Development Centre (NCDC) would like to express its appreciation to all those who worked tirelessly towards the production of home-study materials for Pre-Primary, Primary and Secondary Levels of Education during the COVID-19 lockdown in Uganda.

The Centre appreciates the contribution from all those who guided the development of these materials to make sure they are of quality; Development partners - SESIL, Save the Children and UNICEF; all the Panel members of the various subjects; sister institutions - UNEB and DES for their valuable contributions.

NCDC takes the responsibility for any shortcomings that might be identified in this publication and welcomes suggestions for improvement. The comments and suggestions may be communicated to NCDC through P.O. Box 7002 Kampala or email admin@ncdc.go.ug or by visiting our website at <http://ncdc.go.ug/node/13>.



Grace K. Baguma
Director,
National Curriculum Development Centre

ABOUT THIS BOOKLET

Dear learner, welcome to this home-study material which has been prepared for you. The material covers content for term 1, II and III.

The content covered has been carefully written covering the different topics in the syllabus. This is an addition to what you had learnt before schools were closed due to outbreak of COVID-19. The content is arranged using simple steps for your understanding. The activities provided in each topic are organised in such a way that they will enable you to relate with your local environment.

The content is organised into lessons. Each lesson has activities and summary notes that help you to understand the concepts. Some lessons have projects that you need to carry out at home during this period. You are encouraged to work individually as you do the practical and interactive activities.

Feel free to try out all the activities in this material.

Enjoy learning

P.4 SELF-STUDY

Term One

Topic: Patterns and Sequences

Lesson 1: Common shapes

In this lesson you will:

- Recognize and name common shapes.
- Make patterns using common shapes.

You will need

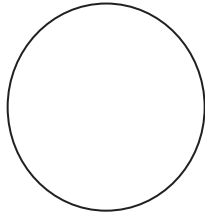
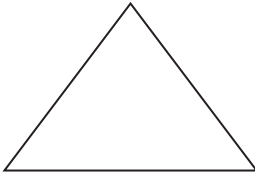
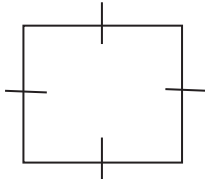

- Cut outs or models of different shapes

Introduction

The world around us is filled with different shapes. Look inside your house. Make a list of the shapes that you see.

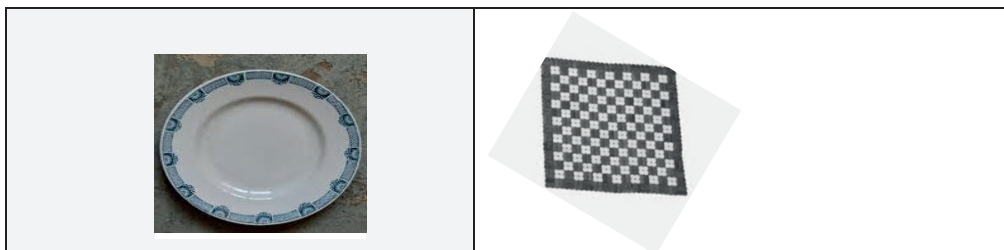
Step 1

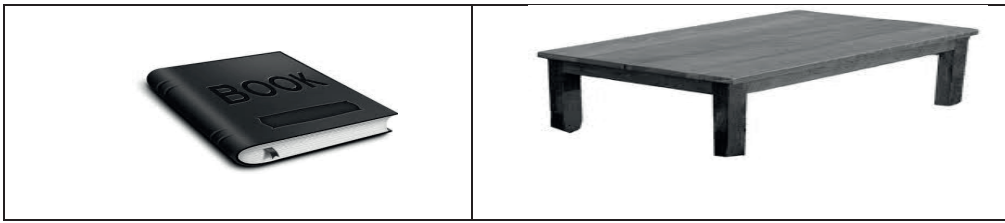
Observe and learn the common shapes

			
Circle	Triangle	Square	Rectangle

These shapes are very common in our environment.

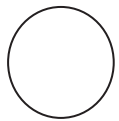
Here are some examples of objects with different shapes.



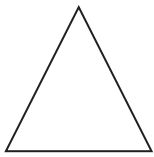


Step: 2

Now you are going to describe the shapes.



A circle is a closed plane figure in which all points are the same distance from the centre

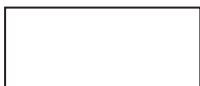


This is a triangle. It has 3 sides and 3 vertices

A vertex is a point where two sides of a shape meet. When they are many we call them vertices.



A square has 4 equal sides and 4 right angles



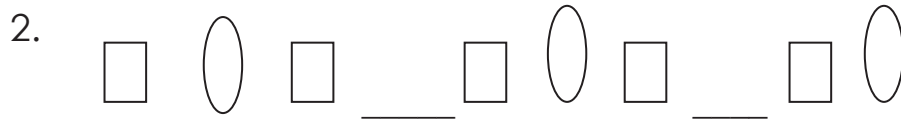
A rectangle has 4 right angles and 4 sides

Now that you know the shapes, you are going to make patterns using the shapes.

Look at these examples



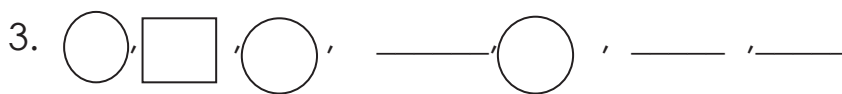
The next shapes are _____



The missing shapes are  and 

Step 3

- Copy and draw the common shapes in your book.
- Fill in the missing common shapes
- Now try this exercise



Lesson 2: Even and Odd numbers

In this lesson you will:

- Identify the even and odd numbers.
- Form patterns using even and odd numbers.

You will need counters such as

- Sticks
- Straws

- Seeds
- Bottle tops

Introduction

You were already introduced to numbers in the previous classes. You counted, added, subtracted, multiplied and even divided.

In this lesson you will identify even and odd numbers. You will also form patterns using even and odd numbers.

Even and odd numbers help us to count in twos and share fairly.

Step 1

There are many things around us that are in pairs. Here are some examples;

A pair of stockings

A pair of shoes

A pair of slippers

On our bodies, we have 2 eyes, 2 ears, 2 hands, 2 legs.

All these pairs are even numbers. When a number is exactly divisible by 2, then it is an even number.

We divide by 2 to get an even number. Look at these examples

$\begin{array}{r} 1 \\ 2 \overline{) 2} \\ - 2 \\ \hline 0 \end{array}$	$\begin{array}{r} 2 \\ 2 \overline{) 4} \\ - 4 \\ \hline 0 \end{array}$	$\begin{array}{r} 3 \\ 2 \overline{) 6} \\ - 6 \\ \hline 0 \end{array}$
$\begin{array}{r} 50 \\ 2 \overline{) 100} \\ - 100 \\ \hline \end{array}$	$\begin{array}{r} 114 \\ 2 \overline{) 228} \\ - 228 \\ \hline \end{array}$	$\begin{array}{r} 428 \\ 2 \overline{) 856} \\ - 84 \downarrow \\ \hline 16 \\ 16 \\ \hline \end{array}$

You will notice that all even numbers have 0, 2, 4, 6 and 8 in the Ones place value.

Example 2:

When we divide a number by 2 and have a remainder 1, the number is odd.

Look at these examples;

You can use counters to divide the numbers by two.

$$\begin{array}{r} 1 \\ 2 \overline{) 3} \\ \underline{- 2} \\ 1 \end{array}$$

$$\begin{array}{r} 22 \\ 2 \overline{) 45} \\ \underline{44} \\ 1 \end{array}$$

$$\begin{array}{r} 303 \\ 2 \overline{) 607} \\ \underline{- 60} \\ 7 \\ \underline{- 6} \\ 1 \end{array}$$

Note that odd numbers have 1, 3, 5, 7 and 9 in the Ones place value

Now that you can identify even and odd numbers, you are going to form patterns using the numbers.

$$2, 4, 6, 8, 10, 12, \underline{\quad}, \underline{\quad}, \underline{\quad}$$

$\underbrace{\quad} \underbrace{\quad} \underbrace{\quad} \underbrace{\quad} \underbrace{\quad} \underbrace{\quad} \underbrace{\quad}$
+2 +2 +2 +2 +2 +2 +2 +2 +2

What are the missing numbers?

You will notice that these are even numbers because they have 2, 4, 6, 8 and 0 in the ones place value.

Keep adding 2 to the even number to get the next even number. Therefore the missing numbers are 14, 16 and 18

Here is one more example!

What is the next number?

231, 233, 235, ___

These numbers have 1, 3 and 5 in the ones place value so they are odd numbers.

Keep adding 2 to the odd number. What is the next number?

$$231, 233, 235, \underline{\quad}$$

$$\begin{array}{ccc} \frown & \frown & \frown \\ +2 & +2 & +2 \end{array}$$

The next odd number is 237.

Exercise:

Divide by 2 and write Even or Odd against each number

- | | | |
|---------------|----------------|-----------------|
| 1. 9 | 6. 161 | 11. 6000 |
| 2. 10 | 7. 272 | 12. 7194 |
| 3. 11 | 8. 383 | 13. 8283 |
| 4. 27 | 9. 494 | 14. 9372 |
| 5. 150 | 10. 505 | 15. 4561 |

Fill in the missing number.

112, 114, 116, 118, 120, 122, , ,

241, 243, 245, , 249, 251, , ,

TERM II**TOPIC 1: FRACTIONS****Lesson 1: Equivalent fractions****In this lesson you will:**

- Identify simple equivalent fractions using diagrams
- Describe and name equivalent fractions
- Divide real objects to show equivalent fractions.

You will need

- Real objects to cut and make equivalent fractions
- Paper to make fraction strips

Introduction

Many times we use fractions and we do not even realize it. Fractions are very helpful when baking and when naming parts of a whole. In this lesson we shall explore equivalent fractions. Equivalent fractions are fractions that show the same amount.

If Nambuya ate one $\frac{1}{2}$ of water melon and Kabali ate $\frac{2}{4}$ of the water melon. The two children find out that they have eaten the same fraction of their water melons. Let us avoid using too many words in the introduction.

$$\text{So } \frac{1}{2} = \frac{2}{4}$$

Such fractions are called equivalent fractions.

Activity

- Get two pieces of paper.
- Fold one of the papers into two equal parts to make $\frac{1}{2}$
- The paper that you did not fold shows one whole.
Now you have 1 whole and $\frac{1}{2}$



Fold another piece of paper the same size as the $\frac{1}{2}$ paper into 4 equal parts to make quarters ($\frac{1}{4}$)



Write the fraction that is equivalent to $\frac{1}{2}$

You will notice that $\frac{2}{4}$ is equivalent to $\frac{1}{2}$ so we write $\frac{1}{2} = \frac{2}{4}$

Now study these examples



Make a model of $\frac{3}{4}$



And another model showing $\frac{6}{8}$

Make the models the same size of paper. You will notice that $\frac{3}{4}$ is the same size as $\frac{6}{8}$

These two fractions are equivalent.

Example 2

Find any two fractions that are equivalent to $\frac{2}{3}$



So $\frac{2}{3} = \frac{4}{6} = \frac{6}{9}$ Are these equal or equivalent

Exercise

Make fractions strips and show an equivalent fraction for each.

1. $\frac{1}{2} = \frac{\quad}{4}$
2. $\frac{4}{5} = \frac{\quad}{10}$
3. $\frac{2}{3} = \frac{\quad}{6}$
4. $\frac{3}{4} = \frac{\quad}{8}$
5. $\frac{3}{5} = \frac{\quad}{10}$

Lesson 2: Comparing and ordering fractions**In this lesson you will:**

- Order and compare fractions with common denominators

You will need:

- Real objects to cut and make fractions
- Paper to make fraction strips

Introduction

We use fractions in our daily life experiences and therefore there is need for us to compare the fractions. This will help us to know which is larger than and that which is less than. Comparing fraction amounts is helpful when building or cooking.

Look at this

Lydia wants to bake a big birthday cake. She mixes $\frac{3}{4}$ cup of sugar and $\frac{1}{3}$ spoon of salt. Does she use more sugar or more salt?

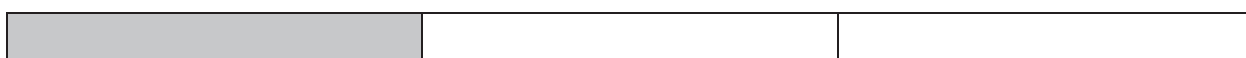
You are going to compare the fractions to solve the problem.

Use fraction strips

- Fold a piece of paper into 4 equal parts
- Shade 3 parts to make $\frac{3}{4}$



- Fold another piece of paper into 3 equal parts.
- Shade 1 part to make $\frac{1}{3}$



You will notice that $\frac{1}{3}$ is less than $\frac{3}{4}$

Compare and order the fractions in increasing order

$\frac{1}{3}$ is less than $\frac{3}{4}$ $\frac{1}{3} < \frac{3}{4}$

Lydia uses more sugar than salt.

There is more than one way!

We can rewrite the fractions with a common denominator. Here we multiply both the numerator and denominator by the same number until when the denominators are the same.

$$\frac{3}{4} \times \frac{3}{3} = \frac{9}{12} \quad \frac{1}{3} \times \frac{4}{4} = \frac{4}{12}$$

$\frac{9}{12}$ is greater than $\frac{4}{12}$

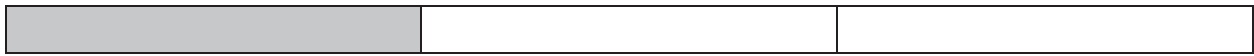
Example 2

Here is another example!

Abdu mixed $\frac{1}{3}$ a sack of sand, $\frac{1}{4}$ of a bucket of water and $\frac{1}{2}$ bag of cement to build a poultry house. Compare and order the fractions.

Use fraction strips

- Fold a piece of paper into 3 equal parts
- Shade 1 part to make $\frac{1}{3}$



- Fold another piece of paper into 4 equal parts
- Shade 1 part to make $\frac{1}{4}$

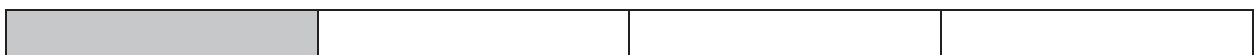
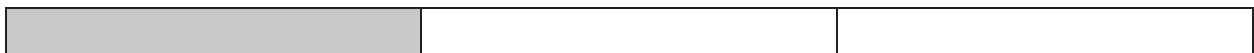


Use fraction strips

- Fold a piece of paper into 2 equal parts
- Shade 1 parts to make $\frac{1}{2}$



Now compare the fractions and order the fractions in increasing order.



$\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{2}$

Look at this example

Here you will multiply both the numerator and denominator by the same number until you get the same denominator for all the fractions.

$$\frac{1}{3} \times \frac{4}{4} = \frac{4}{12}$$

$$\frac{1}{4} \times \frac{3}{3} = \frac{3}{12}$$

$$\frac{1}{2} \times \frac{6}{6} = \frac{6}{12}$$

$$\frac{\square}{\square} \times \frac{\square}{\square} = \frac{\square}{\square}$$

Exercise:

Compare and order the fractions from the **smallest** to the **biggest**

1. $\frac{1}{3}, \frac{1}{4}, \frac{1}{2}$

6. $\frac{1}{7}, \frac{1}{2}, \frac{1}{4}$

2. $\frac{1}{4}, \frac{1}{2}, \frac{1}{6}$

7. $\frac{1}{9}, \frac{1}{5}, \frac{2}{5}$

3. $\frac{2}{3}, \frac{1}{2}, \frac{5}{8}$

8. $\frac{1}{6}, \frac{1}{4}, \frac{1}{8}$

4. $\frac{1}{9}, \frac{1}{7}, \frac{1}{5}$

9. $\frac{1}{10}, \frac{1}{9}, \frac{4}{7}$

5. $\frac{1}{8}, \frac{1}{3}, \frac{1}{5}$

10. $\frac{1}{2}, \frac{1}{6}, \frac{2}{3}$

Lesson 3: Fractions of a group

In this lesson you will:

- Find simple fractions of a group

You will need

- Real objects to make fractions
- Counters such as bottle tops

- Paper
- Pencils
- Books

Introduction

Now that you know what fractions are, you are going to find simple fractions of a group. Fractions of a group will help you to describe parts of a group.

Step 1

Activity

Look at this!

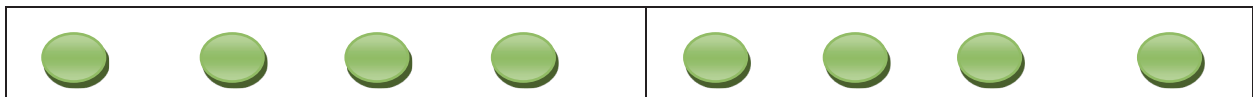
Juma picked 8 oranges from the garden. $\frac{1}{2}$ of the oranges were ripe. How many oranges were ripe?

You can use counters to solve the problem.

$\frac{1}{2}$ of 8 oranges

- Put 8 counters into 2 equal groups.
- Count and find out how many are in each group?

There are 4 in each group. 4 oranges are ripe.



$\frac{1}{2}$ of 8 = 4

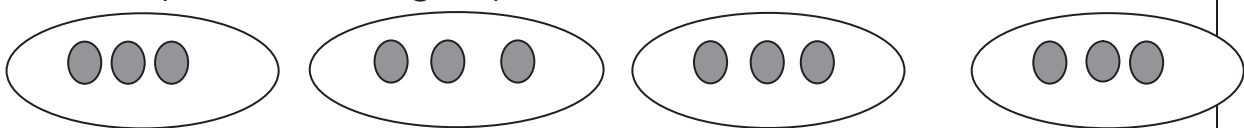
Study the examples

Example 1

Dan has 12 balls. If $\frac{1}{4}$ of them are red, how many balls are red?

Put 12 counters into 4 equal groups.

How many are in each group?



There are 3 in each group. There are 3 red balls
 So $\frac{1}{4}$ of 12 = 3

Example 2

Carol had 6 mangoes. If she ate $\frac{1}{3}$ of them, how many did she eat?

- Model the mangoes with the counters.
- Put 6 counters into 3 groups.



There are 2 counters in each group.
 Carol ate 2 mangoes

$$\frac{1}{3} \text{ of } 6 = \frac{1 \times 6}{3} = \frac{6}{3} = 2$$

Exercise:

Work out:

1. $\frac{1}{2}$ of 2

4. $\frac{1}{5}$ of 10

7. $\frac{1}{3}$ of 9

2. $\frac{1}{3}$ of 12

5. $\frac{1}{6}$ of 18

8. $\frac{1}{5}$ of 10

3. $\frac{1}{4}$ of 12

6. $\frac{1}{8}$ of 24

9. $\frac{1}{5}$ of 15

Lesson: Adding fractions

In this lesson you will:

- Add fractions with a common denominator

You will need

- Real objects to cut and add fractions

- Paper to make fraction strips

Introduction

You can identify fractions and you know that a fraction is part of a whole. Now adding fractions will help you to know how much or many there is.

For example how much time a class spends on reading activities in 2 days if each day the activity takes a quarter of an hour.

Activity

How much time does a class spends on reading activities in 2 days if each day the activity takes a quarter of an hour.

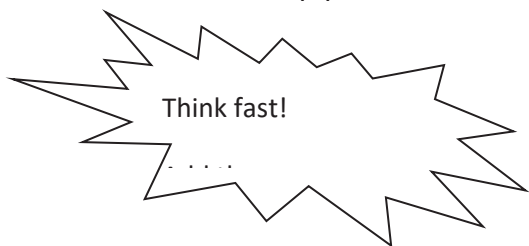
You know that the reading activity takes $\frac{1}{4}$

You want to find out the time for the 2 days

So add: $\frac{1}{4} + \frac{1}{4} = \frac{1+1}{4} = \frac{2}{4} = \frac{1}{2}$

Examples

Matayo ate $\frac{1}{5}$ of an apple and Suubi ate $\frac{2}{5}$ of the apple. What fraction of the apple did both children eat?



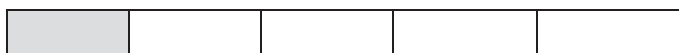
$$\frac{1}{5} + \frac{2}{5}$$

$$\frac{1}{5} + \frac{2}{5} = \frac{1+2}{5}$$

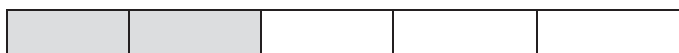
$$\frac{3}{5}$$

You can also use fraction strips to solve this!

Step 1: model $\frac{1}{5}$ and $\frac{2}{5}$



$\frac{1}{5}$



$\frac{2}{5}$

Step 2: Count how many fifths ($\frac{1}{5}$)

There are three fifths. So

$$\frac{1}{5} + \frac{2}{5} = \frac{3}{5}$$

Here are more examples

<p>Example 1</p> <p>Add: $\frac{2}{7} + \frac{4}{7}$</p> $= \frac{2+4}{7}$ $= \frac{6}{7}$	<p>Example 2</p> <p>Add: $\frac{2}{5} + \frac{2}{5}$</p> $= \frac{2+2}{5}$ $= \frac{4}{5}$
--	--

Now try this exercise

1. $\frac{1}{5} + \frac{1}{5}$

4. $\frac{5}{9} + \frac{2}{9}$

7. $\frac{5}{13} + \frac{6}{13}$

2. $\frac{3}{8} + \frac{2}{8}$

5. $\frac{2}{11} + \frac{5}{11}$

8. $\frac{1}{5} + \frac{3}{5}$

3. $\frac{1}{3} + \frac{1}{3}$

6. $\frac{4}{9} + \frac{4}{9}$

9. $\frac{2}{7} + \frac{3}{7}$

Lesson: Subtracting fractions

In this lesson you will:

- Subtract fractions with a common denominator

You will need

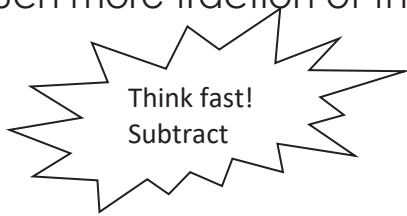
- Real objects to cut and subtract fractions
- Paper to make fraction strips

Introduction

Subtracting fractions will help you to know what is left when you remove some. You will also get to know what is missing when you have to top up to get a certain amount.

Activity

Nakku ate $\frac{3}{4}$ of the cake and Kirabo ate $\frac{1}{4}$ of the cake. Find out how much more fraction of the cake that Nakku ate than Kirabo.



$$\frac{3}{4} - \frac{1}{4}$$

Make a model of $\frac{3}{4}$ and take away $\frac{1}{4}$



$$\frac{3}{4}$$

$$\frac{1}{4}$$

From the three quarters ($\frac{3}{4}$) remove one quarter ($\frac{1}{4}$). You remain with two quarters ($\frac{2}{4}$).

Simplify: $\frac{2}{4} = \frac{2}{4} \div \frac{2}{2} = \frac{1}{2}$

$$\frac{3}{4} - \frac{1}{4}$$

$$= \frac{3-1}{4}$$

Divide the numerator and the denominator by the same factor to simplify

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

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

Work out the exercise

1. $\frac{7}{12} - \frac{5}{12}$

6. $\frac{4}{8} - \frac{3}{8}$

2. $\frac{2}{7} - \frac{5}{7}$

7. $\frac{2}{7} - \frac{6}{7}$

3. $\frac{6}{8} - \frac{5}{8}$

8. $\frac{2}{4} - \frac{3}{4}$

4. $\frac{4}{6} - \frac{3}{6}$

9. $\frac{5}{9} - \frac{2}{9}$

5. $\frac{2}{4} - \frac{2}{4}$

10. $\frac{4}{8} - \frac{5}{8}$

TOPIC 2: DATA HANDLING

Lesson 1: Tallies

You will need objects like

- Sticks
- Straws
- Books
- Pencils

Introduction

In the previous lesson you looked at pictographs. Now you are going to use tallies. Using tallies is another way of organizing data




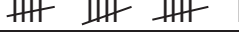
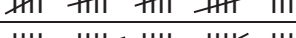
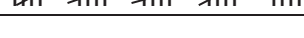
To make tallies we use tally marks.

- Mark a tally for each collection like this: I
- Make a group of 5 tally marks like this: 

Look at this!

A group of children decided to collect empty plastic bottles that were littered in their village.

They recorded their collections in a tally chart like the one below.

Days of the week	Collection
Monday	
Tuesday	
Wednesday	
Thursday	
Friday	
Saturday	

After you have recorded all the collections, look at the tallies.

1. On which day was the highest collections recorded?
2. On which day was the lowest collections recorded?

All the pieces of information collected are called **data**.

The **highest** number of collections was recorded on Saturday.

The **lowest** number of collections was recorded on Monday.

Study the examples

Example 1

Some children were asked to name their favorite fruit

The data was recorded in a tally table like the one below

Favorite fruit	Votes
Mango	
Apple	
Orange	
Melon	

Count the tallies in each row of your tally chart

Record the number for each row in a table like the one shown.

Fruit	Votes
Mango	19
Apples	12
Orange	17
Melon	10

1. Which fruit had the **highest** number of votes? **Mangoes**
2. Which fruits had the **lowest** number of votes? **Melon**
3. How many children voted mangoes as their favourite fruit? **19**

Example 2

The tally chart below shows favourite games of children in a P.4 class

Game	Vote
Running	
Skipping	

High jump	
Sack race	

1. How many children like skipping as their favourite game?
2. Which is the most favourite game?
3. Which is the least favourite game?
4. Which game was chosen by 15 children?

Draw a table and record the number for each row.

Game	Vote
Running	20
Skipping	14
High jump	10
Sack race	15

Now it is easier to read the information in the table.

1. How many children like skipping as their favourite game? **14**
2. Which is the most favourite game? **Running**
3. Which is the least favourite game? **High jump**
4. Which game was chosen by 15 children? **Sack race**

Exercise:

A group of children were asked to mention places they would like to visit during a school tour. The information was recorded in a tally chart like this one.

Places to visit	Tallies
Entebbe wildlife Centre	
Freedom City	
Jinja Sites	
Coca Cola	

1. How many children chose Entebbe wildlife Centre?
2. How many more children chose Coca Cola than Jinja Sites?
3. What is the most preferred place?
4. What is the least preferred place?

Lesson 2: Pictographs

You will:

- Organize and display data.
- Read and interpret data on a pictograph.

You will need objects like

- Rulers
- Books
- Pencils

Introduction

Many children enjoy reading story books. Sara reads a different number of books every day for a week. This information can be displayed on a pictograph.

A pictograph is a graph that compares data by using pictures














Step 1

You are going to use a pictograph to display the data

- Use a book as a symbol to represent the data
- Let each symbol represent 2 books
- Draw the correct number of books for each day.
- Sometimes you must use half of the book symbol.
- Give the paragraph a title and a key
- A title tells us what the graph is about and the key tells us what each picture stands for.

Books that Sara read last week

Monday	
Tuesday	
Wednesday	

Thursday	  
Friday	  
Saturday	   
Sunday	  

Key  = 2 books

a) What is the graph about?

The graph is about the books that Sara read last week.

b) What does each picture stand for?

Each picture stands for 2 books.

c) Find the number of story books that Sara read on each day.

Each picture of a book represents 2 books and a half of the picture represents 1 book.

So let us find the number of books that Sara read each day.

Monday		1
Tuesday	2x2	= 4
Wednesday	2x4	= 8
Thursday	(2x2) + 1	= 5
Friday	2x3	= 6
Saturday	2x4	= 8
Sunday	2x3	= 6

We can put the information in a table to solve the problems.

Days of the week	Number of books
Monday	1
Tuesday	4
Wednesday	8
Thursday	5
Friday	6
Saturday	8
Sunday	6

b) How many books did Sara read in the week?

Here you have to add at get the total number of books that Sara read in the week.

$$1 + 4 + 8 + 5 + 6 + 8 + 6 = 38$$

Step 2:

Now study the examples

Example 1:

The pictograph below shows how all the P.4 children in a primary school get to school

Walk	
Ride a bicycle	
Use a bus	
Use a car	
Ride on a motor cycle	

Key = 3 children

Draw a table for the information. This will make it easier to read and understand the data.

Type of transport	Number of children
Walk	21
Ride a bicycle	15
Use a bus	9
Use a car	3
Ride on a motor cycle	12

1. How many children walk to school?

21 Children walk to school.

2. How many children ride on a motorcycle to school?

12 children ride on a motorcycle to school








3. Find the total number of children who are in the P4 class.

$$21 + 15 + 9 + 3 + 12 = 60$$

The children in the P4 class are 60

Example 2

A farmer sold a number of eggs in a week. He drew a pictograph to record his sales

Monday	
Tuesday	
Wednesday	
Thursday	
Friday	
Saturday	
Sunday	

Key  = 5 eggs

Some time we draw a table to simplify the information.

Monday	20
Tuesday	25
Wednesday	30
Thursday	35

Friday	35
Saturday	40
Sunday	30

- How many eggs did the farmer sell on Monday? **20 eggs**
- On which day did the farmer sell the lowest number of eggs?
Monday
- On which day was the biggest number of eggs sold? **Saturday**
- Find the total number of eggs that were sold that week

$$20 + 25 + 30 + 35 + 35 + 40 + 30 = 215$$

- How many more eggs did the farmer sell on Saturday than on Friday?

$$40 - 35 = 5$$

Exercise

- Maama Namu has a restaurant. Every day she sells plates of food to her customers.

Make a pictograph to show her sales.

Days of the week	Number of plates of food sold
Monday	○○○
Tuesday	○○○○
Wednesday	○○○○○
Thursday	○○○○○
Friday	○○○○○○○
Saturday	○○○○○○○

Key: ○ = 2 plates

- How many plates of food did maama Namu sell on Monday?
- On which two days did she sell the same number of plates?
- How many more plates of food did she sell on Saturday than on Monday?
- How many plates of food did she sell altogether

2. Lydia and David kept a weather record.
They used these pictures to represent the weather for each day









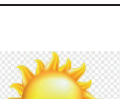





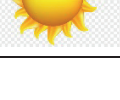
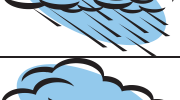

Sunny



rainy



cloudy

Types of weather

Count the number of sunny, rainy and cloudy days

Fill in this table

Weather	Sunny	Rainy	Cloudy
Number of days			

- On how many days did David and Lydia record weather?
- Which type of weather was recorded most?
- How many more sunny days were recorded than rainy days?

3. The next week, Lydia and David kept a record on children who attended school.

They used 😊 to represent 5 children

Monday	😊	😊	😊	😊	😊	😊
Tuesday	😊	😊	😊			
Wednesday	😊	😊	😊	😊	😊	😊
Thursday	😊	😊	😊			
Friday	😊	😊	😊	😊	😊	😊

- How many children were present on Monday?
- On which day was the attendance lowest?
- How many children came on Friday?
- Find the total number of children who attended school throughout the week

Lesson 2: Bar Graphs

In this lesson you will:

- Read and interpret data on bar graphs.

You will need

- Paper
- Pencil
- Ruler
- Boxes such as match boxes
- colours

Introduction

A bar graph uses bars of different lengths to show information. Bar graphs can help you to organize and compare data.

Step 1

Activity

- Work with a friend
- You will need some coloured boxes e.g. match boxes
- Arrange the boxes according to the colour.
- Put the boxes on top of each other.
- Name the colours with
 - Most boxes
 - Least boxes

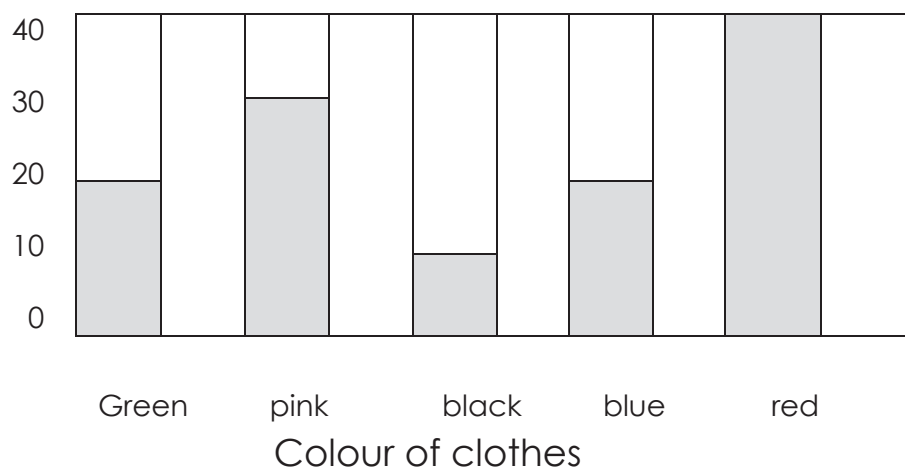
You have made a bar graph.

Remember a bar graph uses bars to record, display and make comparisons of collected data

Study these examples

Example 1

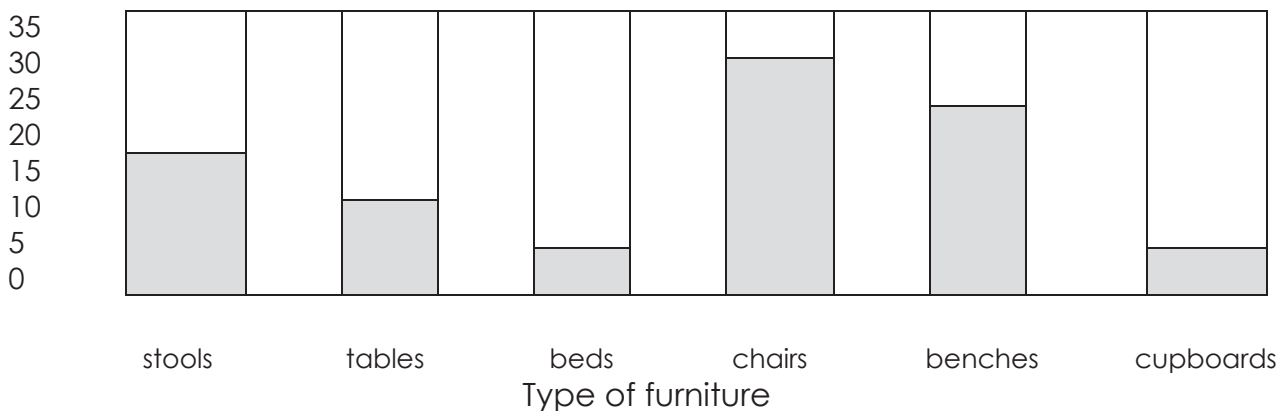
Akol's mother sells children's clothes. Akol kept a record of how many clothes were sold last month. She drew a bar graph like this one to show the information.



1. What colour of clothes was sold most?
Black clothes were sold most
2. What colour of clothes was least sold?
Yellow and green clothes were least sold.
3. How many red clothes were sold?
40 red clothes

Example 2

Okiror is a carpenter in Serere town. Every week, he makes a record of furniture sold. This is what he recorded last week.



You can draw a table for the bar graph. A table makes it easier for us to understand the information shown on the graph.

Type of furniture	Benches	Stools	Tables	Chairs	Cupboards	Beds
Number sold	25	20	15	30	5	5

- a) Which type of furniture did he sell most?
The type of furniture he sold most was chairs.
- b) Name the type of furniture least sold?
Cupboards and beds
- c) How many benches and stools were sold?

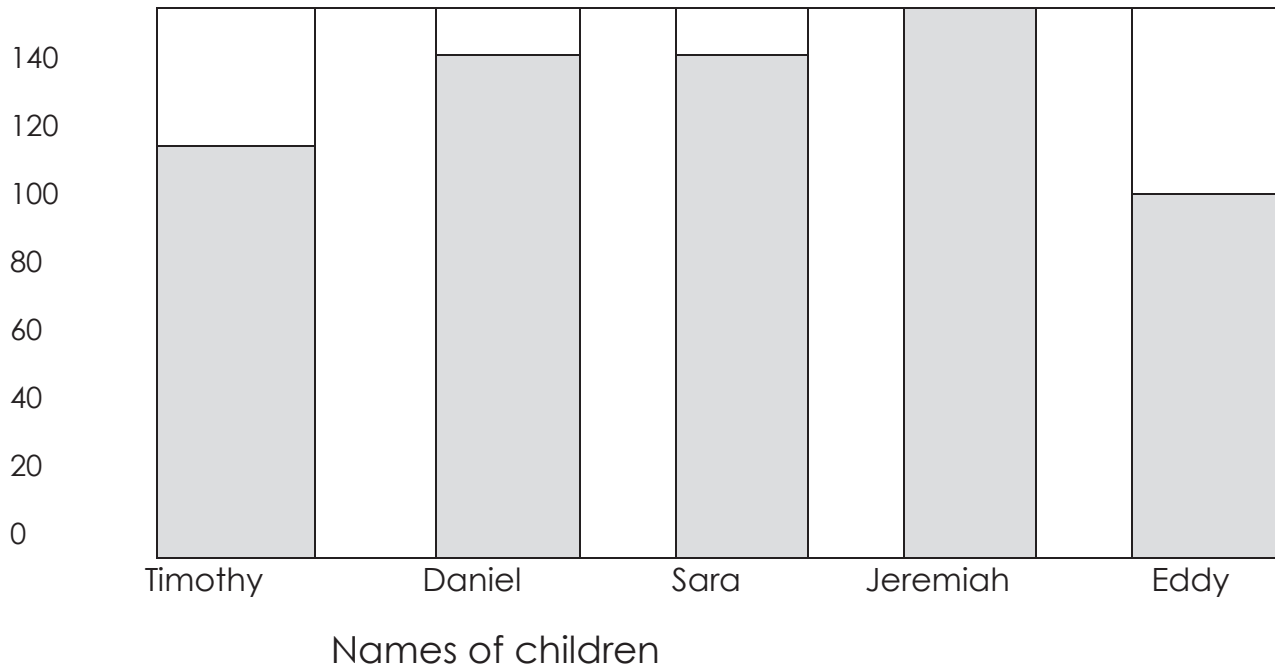
25 benches and 20 stools were sold
d) Find the total number of furniture that Okiror sold last week

$$25 + 20 + 15 + 30 + 5 + 5 = 100$$

Exercise

Now work these out

1. Timothy, Daniel, Sara, Jeremiah and Eddy made a record of their height. This is what they recorded.

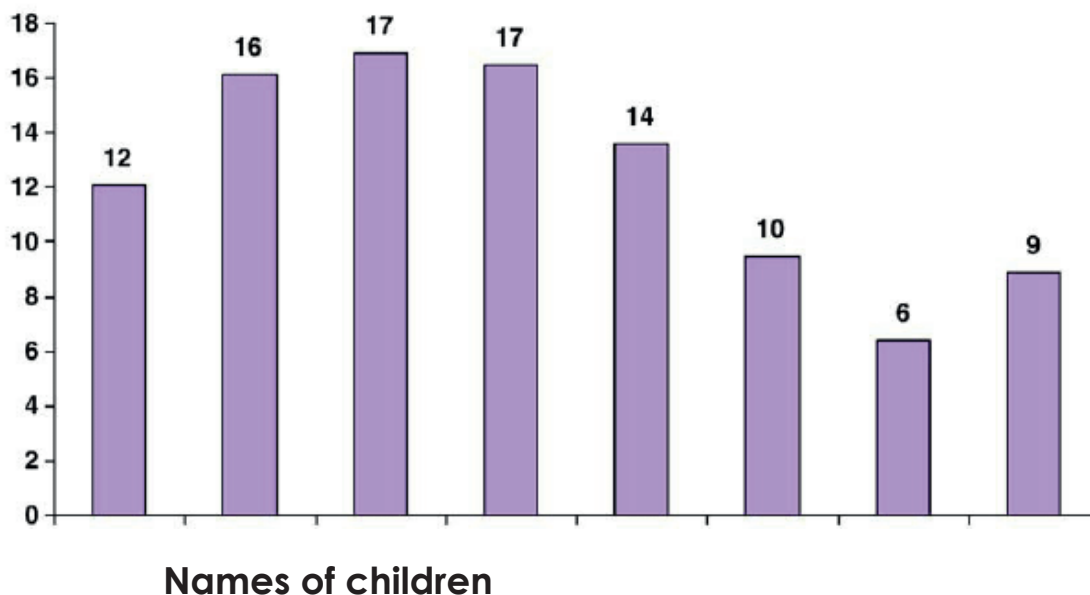


You can draw a table to simplify the information

Names of children	Tim	Daniel	Linda	Moses	Tendo
Height	120	150	140	160	140

- a. Name the tallest child
- b. Who is the shortest child?
- c. Which two children are the same height?
- d. Find the number of children whose height was recorded
- e. What is the total height of all the children?

The graph shows the mass of some children



Fill in the table

Names of children	Mass in kg
Opio	48
Isooba	52
Nabuule	38
Nankya	38
Aceng	39

- Who is the heaviest?
- Who is the lightest?
- How many children are heavier than 45 kg?
- Name the two children who have the same mass?
- Find the total mass of the five children

2. Use the table below to answer the questions

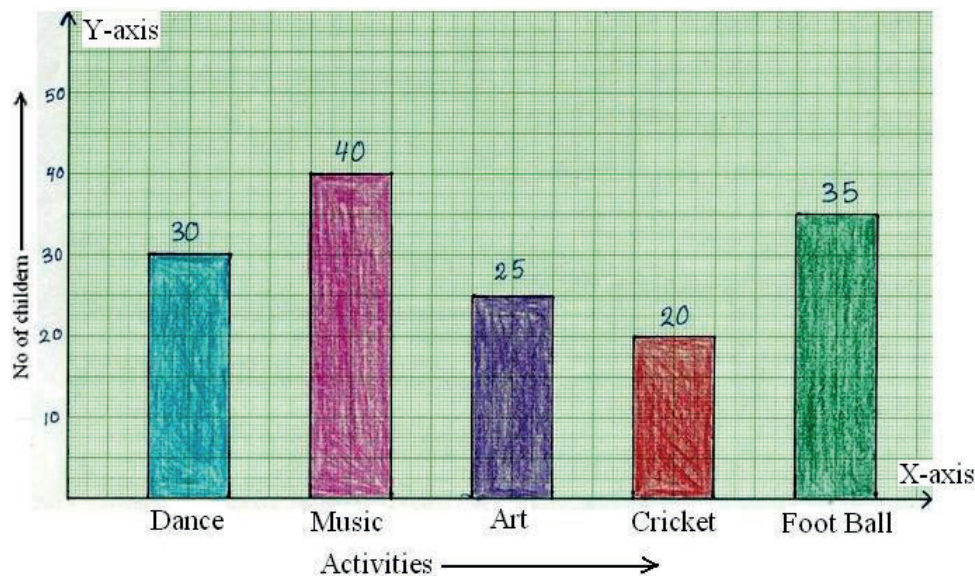
It shows the number of children in P.4B who came to school last week

Day of the week	Monday	Tuesday	Wednesday	Thursday	Friday
No. of children present	30	24	30	26	27

- How many children attended school on Wednesday?
- If there are 30 children in P.4B, how many children were absent on Thursday?
- On which two days was the same attendance recorded?
- How many children came Friday?
- Find the number of children who were absent on Friday.

3. This graph shows how Kagyaku spends his time on activities in a day

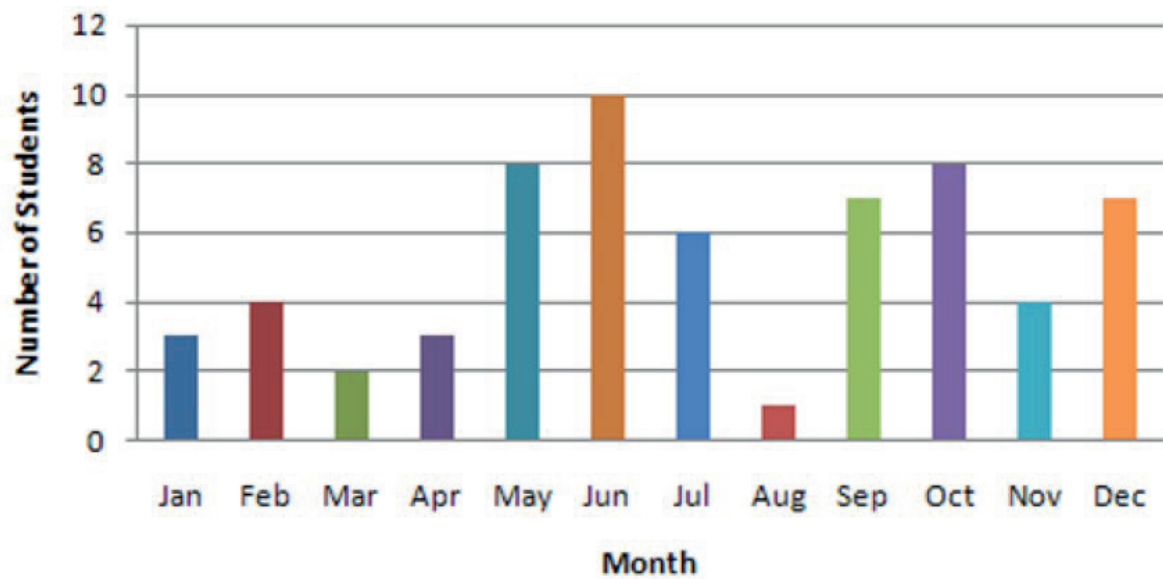
Kagyaku's time on activities in a day



- How long does Kagyaku take dancing ?
- What activities take most of Kagyaku's time?
- How many hours does Kagyaku spend playing football?
- Which activity takes the least time?

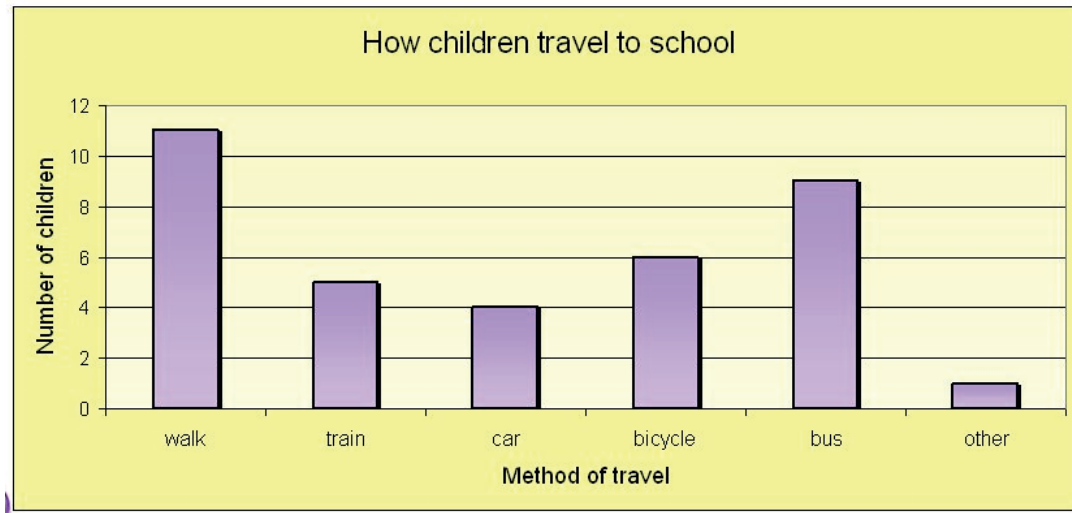
4. The graph shows children's birthdays in each month in Sara's class.

Children's birthdays in each month in Sara's class



- How many children were born in January?
- Name the two months with the highest number of birthdays.
- Which month has the least number of birthdays?
- Find the total number of children born in the month of October, November and December?
- How many children were born in the month of November?

Means of transport children use to travel to school



- How many children walk to school?
- Which means of transport is least used?
- What is the total number of children who were interviewed?
- How many children ride bicycles to school?

5. This table shows animals kept on Mukose's farm

Animal	Goats	Sheep	Cows	Pigs
Number	34	48	50	25

- Name the animals kept on the farm.
- How many goats are kept on the farm?
- What animal is least kept?
- Find the total number of animals kept on the farm

Lesson 2: Line Graphs

In this lesson you will:

- Read and interpret data on line graphs.

You will need

- Paper

- Pencil
- Ruler

Introduction

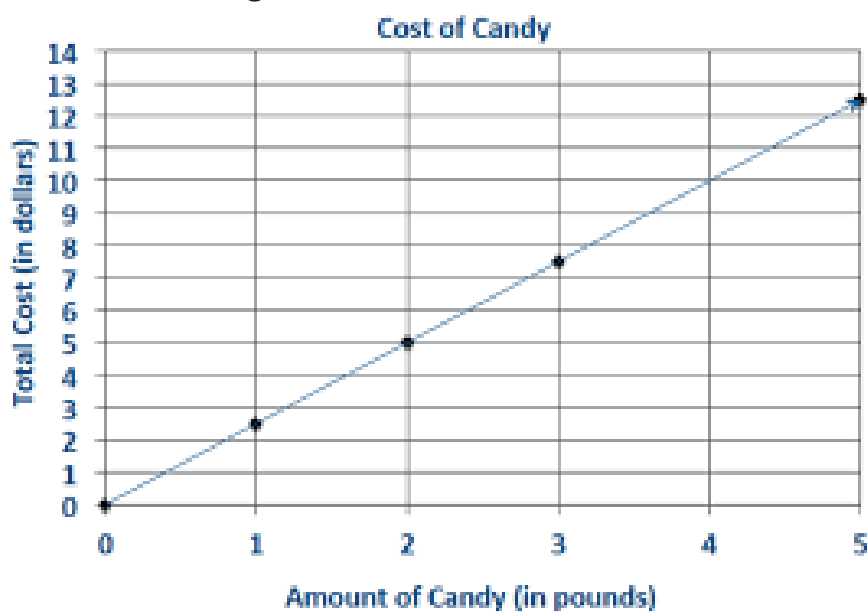
A line graph uses lines of different lengths to show information. Line graphs are used to record, display and interpret collected data. They show change over a period of time.

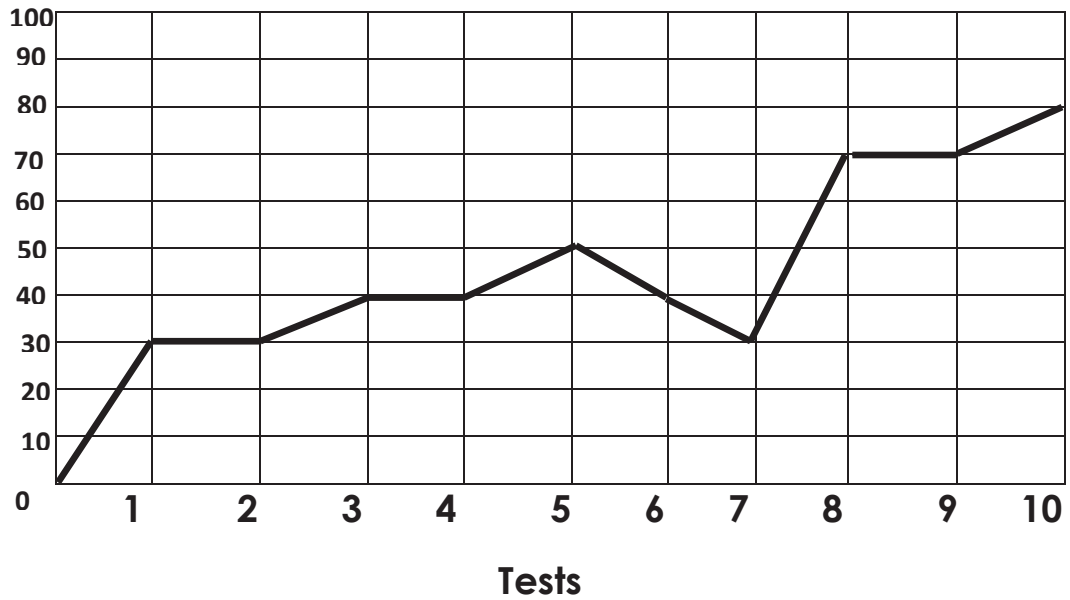
Step 1

Activity

- The graph show the relationship between sugar and its cost
- Now discuss with your neighbor the cost of 2kg, 3kg and 4kg.
- Use the straight line to show the relationship of data.

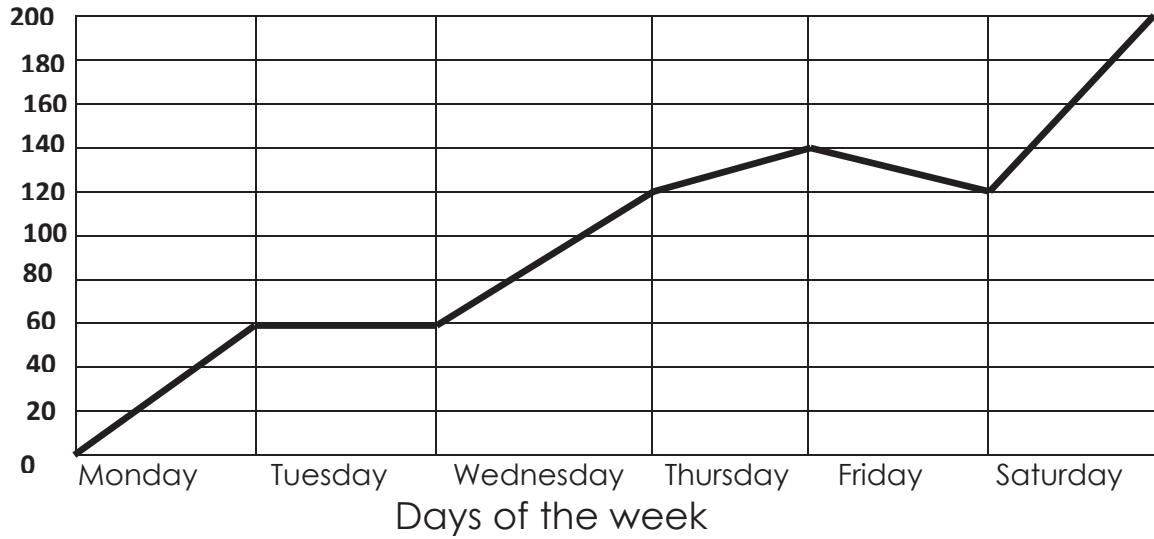
The cost of sugar



Exercise**1. The graph shows Kasule's marks for end term II****Now answer these questions;**

- What is the graph about?
- What was Kasule's highest mark?
- What was his worst mark?
- How many marks did Kasule score in the third test?
- How many more marks did Kasule score in tenth test than in the first test?
- Find the total marks that Kasule scored in all the .ten tests

2. The graph below shows number of identity cards issued at Kololo centre



- How many cards were given out on Tuesday?
- On which day was the greatest number of cards issued?
- Find the total number of cards given out on Wednesday and Saturday?
- Find out the total number of cards given out on Thursday, Friday and Monday.

TOPIC: 2-DIMENSIONAL GEOMETRY

Lesson: Perimeter

In this lesson you will:

- Find perimeter of rectangles , squares and triangles

You will need:

- Pencils
- paper
- pens
- books

Introduction

You were already introduced to shapes in the previous classes. You drew shapes such as the square, rectangle, circles and the triangle. Now you are going to find the perimeter of squares, rectangles and triangles.

Perimeter is the total distance around a closed simple polygon.

Step 1:

To find perimeter we add the lengths of all the sides of the polygon.

Here is an example

A rectangular garden is 25m wide and 55m long. What is the perimeter of this garden?

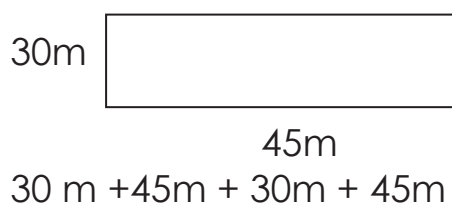


$$\text{Perimeter} = (2 \times \text{length}) + (2 \times \text{width})$$

We multiply by 2 because a rectangle has 2 equal lengths and 2 equal widths.

$$\begin{aligned} \text{So } & (2 \times 55\text{m}) + (2 \times 25\text{m}) \\ & = 110\text{m} + 50\text{m} \\ & = 160\text{m} \end{aligned}$$

A group of fish farmers want to put a fence around their fish pond. The fish pond which is rectangular, measures 30 meters wide and 45 meters long. Find out how much wire fence they will need.



The fish farmers have to find the distance around the fish pond.

$$30\text{ m} + 45\text{m} + 30\text{m} + 45\text{m}$$

$$= 75\text{m} + 75\text{m}$$

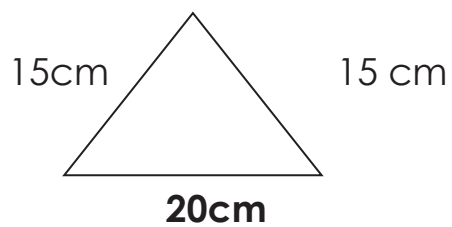
$$= 150\text{m}$$

. The farmers will need 50m of wire fence.

The total distance around the fish pond is the perimeter. Perimeter is the total distance around a plane figure.

Example 3

Find the perimeter of the triangle

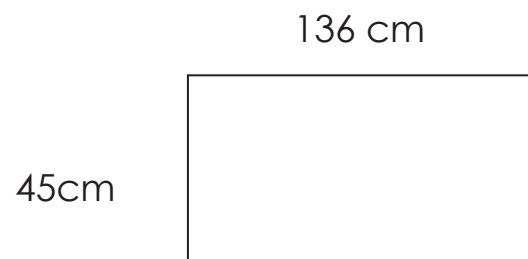
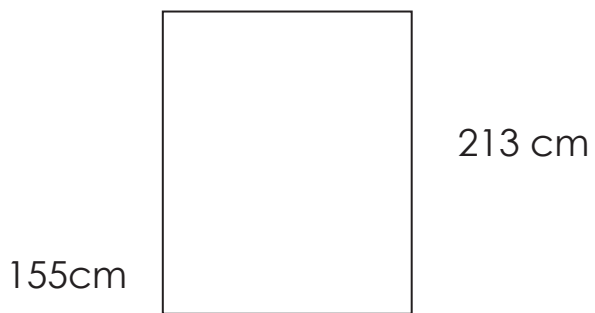
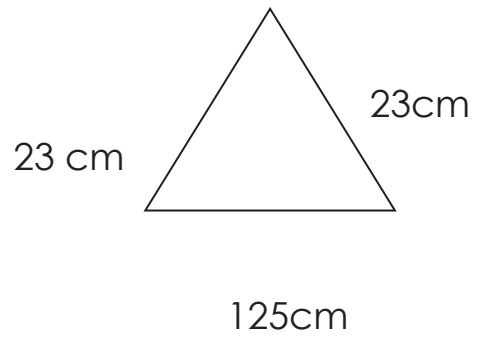
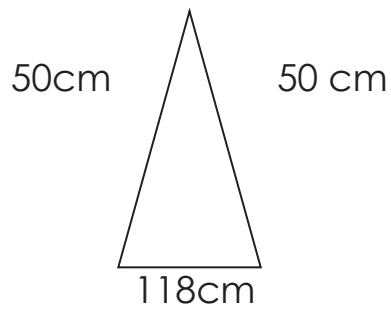
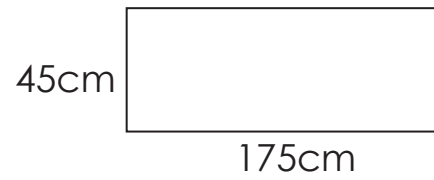
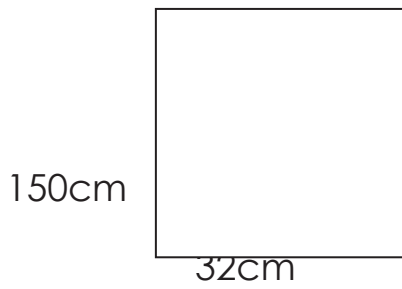
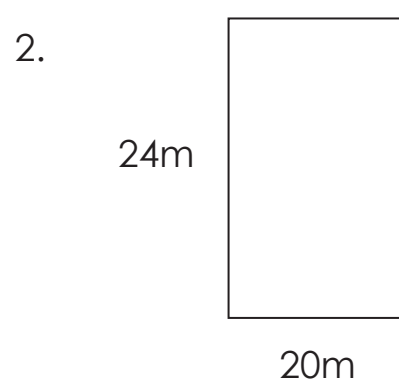
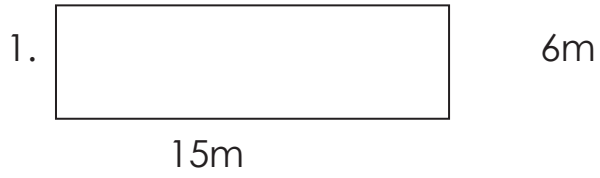


This polygon has 3 sides
so $15\text{cm} + 15\text{cm} + 20$
= 50cm

The perimeter of the triangle is 50cm

Exercise

Find the perimeter of each figure



TOPIC: 3-DIMENSIONAL GEOMETRY**Lesson: Identifying and naming solids****In this lesson you will:**

- Learn what solids are
- Identify and name common solids
- Identify parts of a solid

You will need:

- Boxes
- Fruits like oranges
- Books
- Wooden pieces in different shapes

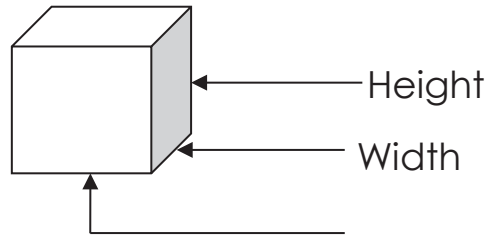
Introduction

Solid figures are everywhere around us. Solids are 3 –dimensional shapes. This means they have length, width and height. For example look at your house, book, table, ball and many other objects near you. These are examples of solids. All these solids have length, width and height.

Solids are very useful in carpentry, construction and even bakery.

Step 1**Here is an activity for you**

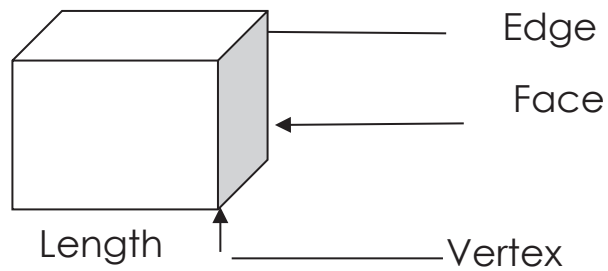
Look at the picture of a box.



It is a cube.

All its faces are squares.

The picture shows the faces, edges and vertices.



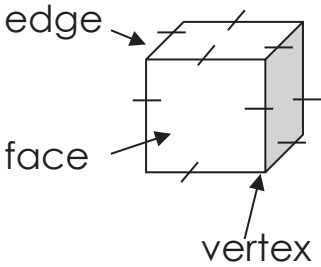
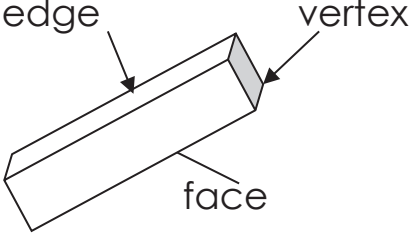
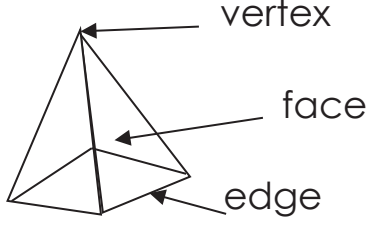
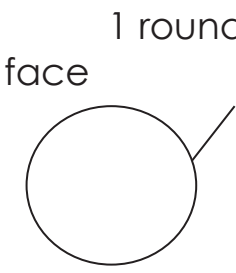
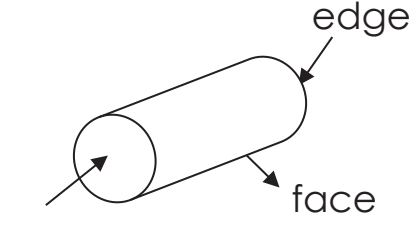
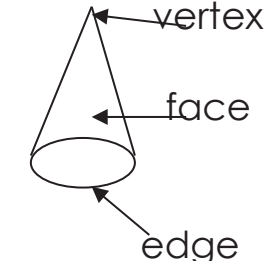
Count and find out how many faces, edges and vertices it has.

It has 6 faces, 8 vertices and 12 edges.

Step 2

A 3- Dimensional object is called a space figure or a solid. It has length, width and height.

Here are some common solids. Observe and learn their names.

 <p>edge</p> <p>face</p> <p>vertex</p> <p>Cube</p>	 <p>edge</p> <p>vertex</p> <p>face</p> <p>Cuboid</p>	 <p>vertex</p> <p>face</p> <p>edge</p> <p>Square pyramid</p>
 <p>1 round face</p> <p>Sphere</p>	 <p>edge</p> <p>face</p> <p>round face</p> <p>Cylinder</p>	 <p>vertex</p> <p>face</p> <p>edge</p> <p>Cone</p>

Exercise:

Tell which space figure each object looks like.

Show pictures

- I. Ball
- II. Dice
- III. Tin
- IV. Milk pack
- V. Ice cone
- VI. Water tank
- VII. Cupboard

What solid figure has 8 vertices?

TOPIC: MONEY**Lesson 1: Buying and selling****In this lesson you will:**

- Role- play buying and selling.

You will need:

- Money coins and notes
- Make shift shop

Introduction

There are many times when we want something from the shop or market. We don't just take what we want. We have to buy it. We use money to buy what we want from the shop. We give the shopkeeper money and sometimes he has to give us back some change. In this lesson you are going to role play buying and selling. Buying and selling helps us how to use our money.

Here is an activity for you!

Mrs. Kyobe is a shopkeeper. She sells food stuffs and other items in her shop.

Find out how much Tina will pay for 2 kg of sugar if 1 kg costs shs 3600

This is buying and selling. Mrs. Kyobe is selling and Tina is buying.

- You know that 1kg of sugar costs sh. 3600
- You can find the cost of 2kg of sugar easily by multiplying

$$\begin{array}{r} \text{So 2 kg of sugar} \longrightarrow \text{shs } 3600 \\ \quad \quad \quad \quad \quad \quad \quad \times \quad 2 \\ \quad \quad \quad \quad \quad \quad \quad \hline \text{Shs } 7200 \end{array}$$

Now study the examples

Example 1

Here is a shopping list that Abedo made. What is the cost of the items she bought?

Item	Unit Cost	Quantity	Total cost
Books	Shs 1200	10	_____
Pens	Shs 500	2	_____
Ruler	Shs 1000	1	_____
Sweets	Shs 100	10	_____

10 books → shs 1200 × 10 = 12000

2 pens → shs 500 × 2 = 1000

1 ruler → shs 1000 × 1 = 1000

10 sweets → shs 100 × 10 = 1000

How much did Abedo spend on all the items?

$$\begin{array}{r}
 \text{Shs } 12000 \\
 \text{Shs } 1000 \\
 \text{Shs } 1000 \\
 +\text{Shs } 1000 \\
 \hline
 \text{Shs } 15000
 \end{array}$$

Abedo spent shs 15000 on all the items

Example 2

Musa went to the market to buy. He bought 2 heaps which cost him shs 1000 each. How much money did he spend?

You can multiply to solve the problem

$$\begin{array}{r}
 \text{Shs } 1000 \\
 \times 2 \\
 \hline
 \text{Shs } 2000
 \end{array}$$

He spent shs 2000

There is another way!

You can add

$$\begin{array}{r}
 \text{Shs } 1000 \\
 +\text{Shs } 1000 \\
 \hline
 \text{Shs } 2000
 \end{array}$$

If Musa gave the shopkeeper a shs 5000 note, what change did he get back?

You have to think fast!

$$\begin{array}{r} \text{Shs } 5\,000 \\ - \text{Shs } 2\,000 \\ \hline \text{Shs } 3\,000 \end{array}$$

Musa was given back shs 3000

Example 3

Abalo bought 5 bottles of water. Each bottle costs shs 500. How much did Abalo pay for all the 5 bottles of water?

Step 1

You know that Abalo bought 5 bottles of water and each bottle cost shs 500

Step 2

You need to find out how much Abalo paid for all the 5 bottles of water.

You can multiply

$$\begin{array}{r} \text{shs } 5\,00 \\ \times \quad 5 \\ \hline \text{Shs } 2\,500 \end{array}$$

Another way

You can add

$$\begin{array}{r} \text{shs } 5\,00 \\ \text{Shs } 5\,00 \\ \text{Shs } 5\,00 \\ \text{Shs } 5\,00 \\ + \text{Shs } 5\,00 \\ \hline \text{Shs } 2\,500 \end{array}$$

Now try this exercise.

These are things in Mrs. Ddembe's shop. Use the list to answer the questions

		4300 shs.	
Shs. 4000			
			
Shs 6000	shs 600	shs4200	shs. 1500
			
3600 shs.	shs. 2800	shs. 2500	shs.1000

1. What is the cost of 2 kg of sugar?
2. How much will Maimuna pay for 3 bars of soap?
3. Find the total cost of 1 kg of groundnuts, 1 loaf of bread and 3 packets of milk.
4. Juma gives Mrs. Ddembe a shs 10,000 note. He buys toothpaste and 1 bar of soap. What is his change?
5. How much will I pay for 2 kg of soya?
6. Find the cost of 5 bottles of soda.
7. Stella wants to but a packet of milk but she has sh. 1000. How much more does she need to buy the packet of milk?

Lesson 1: Finding profit

In this lesson you will:

- Find profit

You will need:

- Pencils
- Tins
- Boxes
- Pencils, pens, books

Introduction

There are many times when people sell their goods and make more money than they had at first. This is making profit. Profit keeps the business growing.

Step 1

Activity

- Work together
- Use the classroom makeshift shop
- List prices of items from different places
- Role-play selling those items at a higher price
- What difference do you make?

We make **a profit** when we make gains (more money) after selling an item that cost less.

To work out profit, we subtract the cost price from the selling price.

Therefore Profit = Selling price – Cost price

Example 1

Kizito bought a rabbit for shs.20, 000. He later sold it for shs.30, 000. What was his profit?

Profit = Selling price – Cost price

Therefore; selling price = shs 30000

$$\begin{array}{r} \text{Cost price} = - \text{shs } 20000 \\ \hline \text{Shs } 10000 \end{array}$$

His profit was shs 10, 000

Example 2

Jessica sold a dress for shs. 6500 which she had bought for shs 4000. What profit did she make?

Profit = Selling price – Cost price

Selling price = shs 6500

$$\begin{array}{r} \text{Cost price} = - \text{shs } 4000 \\ \hline \text{Shs } 2500 \end{array}$$

Jessica made a profit of shs 2500

Exercise

Now try these

1. Shadia bought a hen for shs 7000 and later sold it for shs 9000. What was her profit?
2. Lubega bought a tin of tomato sauce for shs. 5000. He sold it for shs 7500. What was his profit?
3. Timothy sold his bike for shs. 80000 which he had earlier bought for 70000. What profit did he make?
4. Jordan bought 1kg of sugar for shs 3600. He sold it for shs 5000. What was his profit?
5. Justice sold a radio for shs 80000. If sh had bought it for shs 60000. What was her profit?

Lesson: Finding loss

In this lesson you will:

- Find loss

You will need:

- Boxes
- Fruits like oranges
- Books
- Pencils
- Tins

Introduction

There are many times when people sell their goods and make less money than they had at first. This is making loss. In this lesson we are going to focus on loss.

Activity

Work together in groups.

- Make a list of things that are likely to go bad
- Mention their prices
- Role-play selling them at a lower price
- What difference do you make?

We make **a loss** when we make less money after selling an item that cost us more.

Study these examples

Example 1

Charles bought a chicken for shs 7500 and sold it for shs 6000.
What was his loss?

Loss = cost price – selling price

∴ Cost price = shs 7500

Selling price = shs 6000

Loss	shs 1500
-------------	----------

Example 2

Nakku sold a bunch of matooke for shs 13000 which she had bought for shs 15000. What was her loss?

$$\begin{array}{r}
 \text{Cost price} = \text{shs } 15000 \\
 \text{Selling price} = - \text{shs } 13000 \\
 \hline
 \text{Loss} \qquad \qquad \text{shs } 4000
 \end{array}$$

To calculate loss, we subtract the selling price from the cost price.

Exercise

1. Mukasa bought a text book for shs 7000 and later sold it for shs 5500. What was his loss?
2. John bought a t-shirt for shs 12000 and later sold it for shs 9500. What was his loss?
3. Nakirya bought a tin of peas for shs 15000 and sold it for shs. 10500. What loss did she make?
4. Mr. Opio bought a birthday cake at shs 25000 and sold it for shs. 12500. What was his loss?
5. Find the loss Anna made after selling a watch for shs 8000 which she had bought for shs 16000.

TOPIC: TIME

Lesson 1: Telling time

In this lesson you will:

- Draw clock faces
- Tell time in English

You will need:

- Pencils
- Clock faces, watches
- Pencils, pens, books

Introduction

What time is it? This is a question that is frequently asked. Today you simply look at a clock and tell time! But sometimes reading the time confuses us. We need to tell time correctly so that we know when different activities will take place.

Step 1:

Activity

Tell the time when each activity is more likely to happen.

- a. Going to school
- b. Eating lunch
- c. Going back home from school

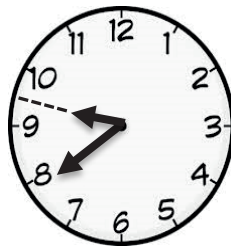
We measure time using a clock. An analogue clock has 12 numbers written on it. These numbers show the 12 hours of the day and 12 hours of the night. The clock also has hands. We shall use the **minute** and **hour** hands.

The short hand or hour hand shows hours.

It takes 60 minutes or 1 hour for the hour hand to move from one number to the next number.

The long hand or minute hand shows minutes.

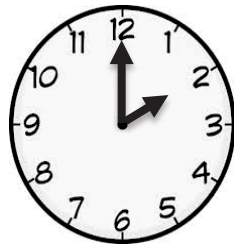
It takes 5 minutes for the minute hand to move from one number to next number.



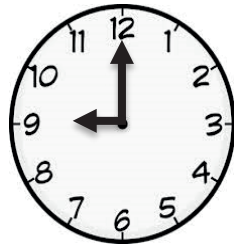
Tell the time from 12.

- So from 12 to 1, there are 5 minutes. From 12 to 2, there are 10 minutes.
- When you count all the minutes around the clock, you will notice that they are 60. This means there are 60 minutes in 1 hour.

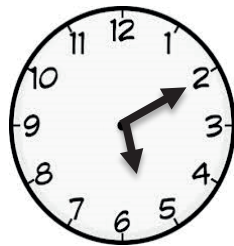
Now look at the clock faces and tell the time.



The minute hand is pointing at 12 and the hour hand is pointing at 2.
This means the time is 2 O'clock or 2:00



The minute hand is pointing at 12 and the hour hand is pointing at 9.
This means the time is 9 O'clock or 9:00

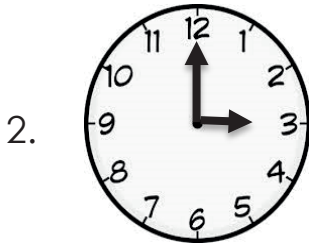
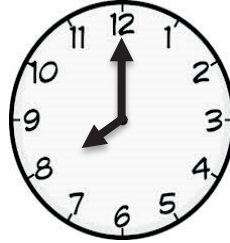
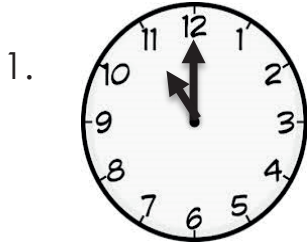


The minute hand is pointing at 2 and the hour hand is pointing at 5.
Remember we said we read and tell time starting from 12. So we read the minutes.

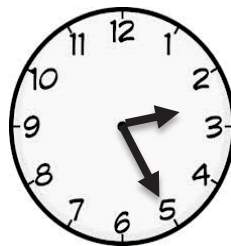
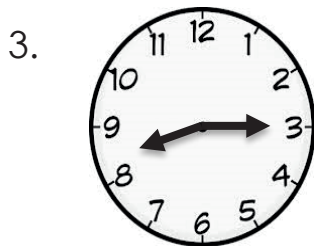
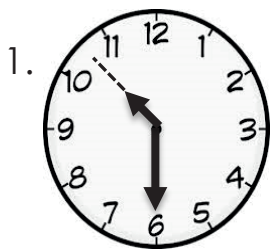
- There are 10 minutes from 12 to 2.
- This means the time is 10 minutes past 5 or 5:10

Exercise

Now tell the time shown on these clock faces



Tell the time in hours and minutes



TOPIC: LENGTH, MASS AND CAPACITY

Lesson: Measuring length

You will:

- Measure length

You will need:

- strings
- measuring tape
- ruler

Introduction

Length is the distance from one point to another. It is how long something is.

To measure length we use a ruler, a tape measure or even a string.

Activity

Mugenyi wants to measure the distance from his home to his farm. He is going to use a tape measure to find the distance.

The tape measure has small marks on it. These are centimeters (cm)

100 centimeters make 1 meter.

Mugenyi finds out that the distance from his home to the farm is 125m.



When measuring length with a ruler, put the zero mark at the edge of the object that you want to measure

Exercise

Use a ruler and measure these objects and record their lengths

Objects	Length in centimeters
Pencils	
Book	
Table	
Bag	

Object	Length in meters
Blackboard	
Door	
Veranda	
Cupboard	
House	

Lesson: Measuring mass

You will:

- Measure mass

You will need:

- Real objects such as fruits and stones

Introduction





Mass is the heaviness or lightness of something. Knowing mass helps us to know how heavy or light something is. This also helps us to compare the sizes of our goods. We can also check our mass so that we can keep healthy.

Study the examples

Musa is a fisherman on Lake Victoria. One day he caught a very big fish whose mass was 210kg



When we want to find out the heaviness or lightness of an object we find its mass. Mass is the amount of matter in an object. We can measure using kilograms and grams. Look at these items. They are measured in kilograms (kg) and grams (g)

			
<p>Tea leaves (500g)</p>	<p>Salt (500g)</p>	<p>Rice (1kg)</p>	<p>Meat (2kg)</p>

A kilogram (kg) is a unit used to measure the mass of heavier objects. A gram (g) is a unit used to measure the mass of lighter objects. There are special measuring instruments we use to measure mass.

Exercise

Use heavier, lighter, to compare the mass



Lesson: capacity

You will:

- Measure capacity

You will need containers such as:

- Cups
- Bottles
- Tins
- Jerry cans

Introduction

The amount of liquid a container holds is called its capacity

We use different containers to measure capacity. Containers can be in litres or half litres. Capacity helps us to know how much liquid is in a container for example tea in a flask.

Activity

The blue bucket can hold more water than the yellow bucket. We say that the capacity of the blue bucket is more than that of the yellow bucket.

2 yellow buckets of water can fill the blue bucket completely.
Therefore the capacity of the blue bucket = 2 yellow buckets

Study the examples

1. The kettle can hold 4 cups of tea
The capacity of the kettle cups

Step 1

Use the containers that you collected. Label each container $\frac{1}{2}$ litre or 1 litre

Step 2

Estimate how many cups of water you think each container will hold. Record your estimates on a chart like the one shown.

Container	Estimates of the cup it holds	Actual cups it holds
1 litre jerry can		
3 litre		
5 litre		
10 litre		
20 litre		
1 litre mineral bottle		
$\frac{1}{2}$ litre		
10 litre bucket		
10 litre sauce pan		
2 litre flask		

Step 3

1. Use a litre bottle to fill a 20 litre jerry can. How many bottles will you need to fill the jerry can?
2. Do containers need to have the same shape to hold the same amount?
3. You need to drink about 8 *half* litre cups of water a day to help *you* stay healthy. How many litres is that?
4. Suppose you take 4 *half litre* cups of water to fill a container. What size *of the* container will you take?
5. The bucket can be filled completely with 12 mugs of water

The capacity of the bucket = mugs.

TOPIC: ALGEBRA**Lesson 1:** Simple equations without letters**In this lesson you will:**

- Solve simple equations without letters

You will need:

- Seeds
- Fruits
- Sticks
- Pencils, pens, books

Introduction


There are many times when we want to solve a math puzzle or a problem. We can write a simple equation for the problem. For example if you want to know how much more money you need to pay for a book which costs sh. 1000 and you have sh. 700.

In this lesson, you will learn how to solve simple equations without letters

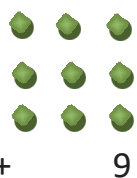
Step 1:

Activity

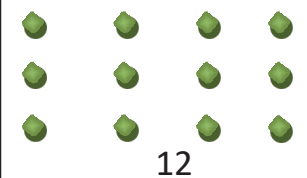
Mukisa has 9 pencils which he wants to give to 12 children. How many more does he need so that each child gets one pencil?
 You are going to write an equation.
 Let the unknown number \square
 So you write $9\square = 12$
 You can use counters and a container to solve the equation


 P

+


 9

=


 12

Use a piece of paper to represent each side of the equation.

The counters represent the numbers and the container stands for the unknown.

- Take away 9 counters from each side of the equation.

- The unknown \square is equal to the number of counters left on the right side of the equal sign
- Record your work

Now study the examples

Example 1

Here is how you can solve $\square + 3 = 18$

You can use counters and a container. The container represents the unknown



$$\square + 3 = 18$$

Remove the same number of counters from each side of the equation



You can use pencil and paper

$$\square + 3 = 18$$

Subtract three from each side of the equation

$$\square + 3 - 3 = 18 - 3$$

$$\square = 15$$

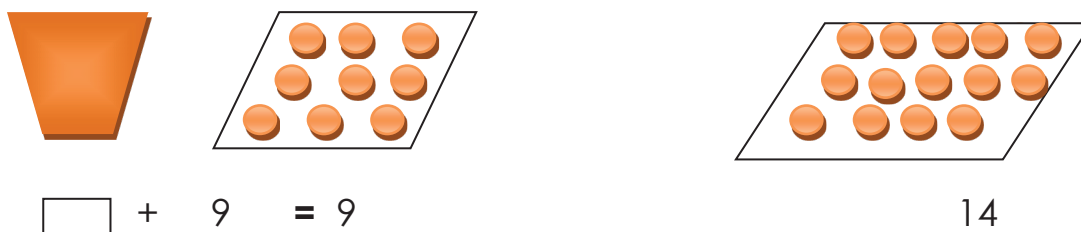
Here is another example.

Example 2

Aisha wants to bake cakes for her sister's birthday. She has 9 eggs but she needs 14 eggs altogether. How many more eggs does she need?

You can use counters and a container to solve the problem.

The container represents what we do not know.



$$\square + 9 = 9$$

14

Remove the same number of counters from each side of the equation



$$\square + 9 - 9 = 14 - 9$$

$$\square = 5$$

Aisha needs 5 more eggs to make the cakes.

Example 3

Find the unknown $\square + 8 = 21$

Sometimes we can use pen and paper. We know that addition and subtraction are opposite operations. They undo each other.

So $\square + 8 = 21$ **Subtract 8 from each side of the equation.**

$$\square + 8 - 8 = 21 - 8$$

$$\square = 13$$

The unknown is 13

Exercise

1. $\square + 4 = 13$

2. $\square + 9 = 19$

3. $\square + 8 = 17$

4. $\square + 7 = 23$

5. $16 + \square = 24$

6. $7 + \square = 16$

7. $\square + 9 = 20$

8. $\square + 2 = 21$

9. $8 + \square = 22$

10. $\square + 6 = 13$

Lesson: simple equations without letters

In this lesson you will:

- Use multiplication and division to solve problems

You will need counters such as:

- Straws
- Bottle tops
- Sticks
- Pencils
- paper
- pens
- books

Introduction

In the last lesson, you used inverse operations to solve addition and subtraction equations. You can use inverse operations to solve multiplication and division equations.

Study the examples below

Look at these examples

Example 1

$$3 \times \square = 15$$

Divide both sides by the same number

$$(3 \times \square) \div 3 = 15 \div 3$$

Simplify $\frac{3\square}{3} = \frac{15}{3}$

$$= 5$$

Check your answer

$$3 \times \square = 15$$

Example 2

$$\square \div 6 = 3$$

Multiply each side by the same number

$$(\square \div 6) \times 6 = 3 \times 6$$

Simplify $\frac{\square}{\cancel{6}} \times \cancel{6} = 18$ so $\square = 18$

Check your answer

$$\boxed{18} \div 6 = 3$$

Remember multiplication and division are inverse or opposite operations. They undo each other.

Now try this exercise

1. $\square \div 9 = 4$
2. $\square \div 8 = 5$
3. $\square \div 5 = 4$
4. $\square \div 7 = 2$
5. $\square \div 6 = 12$
6. $\square \times 3 = 12$

7. $\times 4 = 28$

8. $\times 2 = 36$

9. $\times 5 = 30$

10. $\times 7 = 72$



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