



PRIMARY FIVE ENGLISH

NAME _____ STREAM _____

TOPIC: PRINT MEDIA

The Past simple Tense

This is used to indicate an action completed in the past.

- It is formed by adding -d, ed, or ied to the verbs.

Examples.

ed, ied regular

irregular

present	Past	Present	Past
dance	danced	speak	spoke
open	opened	eat	ate
try	tried	write	wrote
walk	walked	hurt	hurt
ty	tied	put	put
carry	carried	choose	chose
cry	cried	sit	sat
stop	stopped	ring	rang
mop	mopped	fight	fought.

Assignment

Write these sentences in Past Simple Tense

1. Rema writes to his mother every week.

2. The wind blows furiously.

3. She sings sweetly.

4. All the reporters tell the same story.

5. He spends his time in idleness

6. The child clings to her mother.

7. He tells lies in order to escape a punishment.

Rewrite the sentences beginning with underlined words.

1. The bus knocked the young girl.

2. My father bought sugar last week.

3. That cartoonist drew nice pictures.

4. The teacher marked our books.

CONTENT: The Past Perfect

It describes an action which is completed before a certain moment in the Past.

It also shows the action which happened earlier than the other.

Examples.

1. I had seen him five years before.

2. I had done my revision when he came in.

3. We had read the newspaper when the teacher brought a magazine.
4. Juma had called him on his phone before I wrote a letter.

Assignment.

Use the correct form of the word in the brackets to complete the sentences.

1. Joy had already _____ him before he drew closer. (see)
2. Jesca entered when we had _____ the food (eat).
3. Before we had _____ the syllabus, the schools were closed. (complete)
4. Mr. Lubwama had _____ the thief before people gathered. (slap)

Begin these sentences with: Having.....

1. Alice completed the test, she went out at once.

2. Agnes tore her uniform. She went to the tailor.

3. We ate food and went to bed.

4. Judith wrote the letter and sent it.

CONTENT: The Future Tense

It talks about situations which will happen in future.

Examples.

1. I shall be twenty next Saturday.
2. We shall know our exam results in May.
3. It is going to rain
4. She is going to buy a newspaper.

Negative forms.

Will	will not	won't
Shall	shall not	shan't

Passive voice in the future tense

1. We shall write articles.

Articles will be written.

2. Mr. Mukiibi will report the news at 9 o'clock.

The news will be reported by Mr. Mukiibi at 9 o'clock.

Assignment

Form ten sentences in future tense.

1. Rewrite these sentences beginning with the underlined words.

- They will print articles about culture tomorrow.

- He will send the information at night.

- I shall read the newspaper tomorrow.

- She will read the brochure in the evening.

- Peter will bring the magazine on Monday.

Forms sentences in if 1 and 2.

Use the given conjunction.

Usingincase.....

Examples.

1. We shall buy newspapers in case we meet the vendor.
2. Peter will write an article in case he gets time.
3. Revision of conditional clause 1 and 2.

Assignment.

Re-write the sentences using.....would.....

1. If I meet Joshua, I will tell him that story.

2. If Peter comes, he will lend me his newspaper.

3. We shall write articles if our teacher for English comes.

4. Stella will read those articles if she is invited.

Re-write the sentences beginning withincase.....

5. If we get time. We will read that magazine.

6. if the pupils come late, we will not go to the library.

7. We will not read the newspapers today if the vendor doesn't come.

8. Apologise to the teacher if you miss any lesson.

PASSAGE

Reading Newspapers

Every Tuesday, we receive The Daily Monitor and The New Vision newspapers from the media agents. The newspapers not only carry exciting headlines but also shocking ones. Our teachers encourage us to read these newspapers. By reading the newspapers, we get to know what is happening in the country. We also learn new words and improve on our grammar. Sometimes our teachers tell us to construct sentences using the new words noted in the newspapers. They also encourage us to complete the junior word puzzles. My friends and I have different interests in the newspapers. My friend Kiprotech likes completing cross word puzzles. He uses the dictionary to get answers to the puzzles. My other friend, Hope likes reading the pullouts because they have many stories written by children. I love sports, so each time I get a newspaper I always start with the backpage where the sports news is written.

During assembly, the teacher-on-duty picks some pupils to read out articles to the whole school. Some articles tell very sad stories. Others tell exciting stories like the one the head prefect read to us last week. It was about the candidates who had excelled in the Primary Leaving Examination. Five of our pupils had scored aggregate four and had been rewarded. All newspapers reported about them.

Assignment

1. When does the school get newspapers?

2. Which newspapers are given to this school?

3. Why do the teachers encourage pupils to read newspapers?

4. Why were the pupils rewarded?

5. What does Hope like reading?

6. Which kind of headlines do the newspapers carry?

7. What shows that the writer loves sports?

8. Write an article of your choice and read it to the rest of the class.

Poetry

Newspapers

Friends, listen and pay attention,
Here is the needed information,
About what is going on here and there,
The good and bad things everywhere.

Let us be strong supporters,
Of our journalists and news reporters,
Who are committed to moving far and near,
Covering stories about what we need to hear,

They bring back different insights,
To the editors who spend sleepless nights,
Deciding on which articles to publish,
And fulfill what readers wish.

Bravo to all media houses!
For promoting different causes,
Through your daily headlines, cartoons, sports news.
The print media shapes readers' views.

Assignment

1. How many stanzas are in the poem?

2. To whom is the writer talking?

3. Which stanza talks about the journalists?

4. Why are the editors important?

5. Who are the people that cover stories?

6. What would interest you to read in the newspaper?

7. Why do you think editors spend sleepless nights?

8. Who wrote this poem?

Writing articles

Write a composition entitled.

“My Favorite column in the New Vision”

- Follow the following steps.

1. The title
2. Introduction
3. Body
4. Conclusion.

Study the dialogue and fill in the correct response.

Reading Newspapers.

Assignment.

Uncle Ali: Tim could you please get me my newspaper?

Tim : _____

Uncle Ali: The New vision paper.

Tim _____

Uncle Ali : I like the New vision paper because it is more detailed than others?

Tim: But you also read Bukedde, why?

Uncle Ali: _____

Tim: Oh, it is written in your local language. May I read one of them?

Uncle Ali: _____

Tim : Thanks uncle. Which one can I read?

Uncle Ali: _____

Tim : Many interesting stories in the New vision! That's great

Use the words in sentences.

CONTENT: Vocabulary

Land	arrival
Take off	departure
Arrive	passenger
Depart	travel
Seat	luggage
a.m	heavy
tax	ride

Examples of sentences

1. John travelled to Nairobi by Kenya Airways.
2. The departure time for this bus is 6:00am
3. The steward gave us a warm hospitality while on a ship.
4. Bushenyi is my destination.

Assignment

Construct six sentences using any of the above words to show that you understand their meaning.

1. _____
2. _____
3. _____
4. _____
5. _____

Vocabulary

- | | |
|---------------|-------------|
| - destination | - by |
| - speed | - reduce |
| - leave | - canoe |
| - coach | - p.m |
| - wagon | - high |
| - entrance | - conductor |
| - near | |
| - about | |

Examples of sentences.

1. There has to be a conductor in every taxi.
2. The seats of that bus are comfortable
3. The entrance fee was five thousand shillings.

Assignment

Correct the words and complete the sentences.

1. They always _____ by school bus (ravelt)
2. The _____ which the student used to travel to Hoima broke down. (achoc)
3. After paying the fare, I was given a _____ (ticetk)
4. We always put our _____ in the boot. (lugegag)
5. When I reached my _____, I got off the bus. (tiontinades)
6. The passengers told the driver to _____ the speed. (redecu).

Give the opposite of the following.

- | | |
|------------|-------|
| - reduce | _____ |
| - entrance | _____ |
| - depart | _____ |
| - take off | _____ |

- departure _____
- high _____
- heavy _____
- farther _____

CONTENT: Adverbs.

a. Adverbs of time.

These answer the question when,

Examples: soon, yesterday, often, always, later, now, immediately, tomorrow.

b. Adverbs of place

These answer the question where:

Examples: inside, above, there, here, far, everywhere, outside, in front, within, backward.

c. Adverbs of frequency.

These answer the question of; How often,

Examples; twice, once, often, always, usually, seldom, rarely, seldom, frequently occasionally.

d. Adverbs of degree or quantity.

These show how much or what extent

Examples; quite, too, much, almost, only, very.

Examples of sentences.

1. They have almost reached their destination
2. Let us travel now.
3. The faithful dog follows its master everywhere.

Assignment

Underline the Adverbs in the sentences.

1. I surely expect him tomorrow
2. Do not walk so fast.
3. I see things differently now.
4. That man is too shy.
5. He often makes mistakes
6. I have heard this before.
7. My brother is out.
8. They frequently travel by bus.

Adverbs of manner

Most adverbs are formed by adding ly to the adjective.

Examples:

Adjectives

Clear

Quick

Regular

Proper

Cheap

Anxious

Kind

Swift

Skilful

Playful

Merciful

Adverbs

clearly

quickly

regularly

properly

cheaply

anxiously

kindly

Some adverbs are formed by changing **Y** to **i** then add, **ly** e.g.

Adjectives

adverbs

Heavy

heavily

Shabby

shabbily

Steady

Stealthy

Easy

Noisy

Clumsy

Some adverbs are formed by dropping 'e'

adjective

adverb

true

truly

probable

probably

able

terrible

sensible

suitable

comfortable

some adverbs do not change e.g.

- hard

- well

- fast

- late

Assignment

Complete the following sentences using the correct form of the word in brackets.

1. The motorist drove.....along the muddy road. (careful)
2. We did not go out because it was raining.....(heavy)

3. All the passenger waited.....for the bus. (patient)
4. We were.....worn out by the time we reached home.(complete)
5. Vivian got out the car.....(quick)
6. Betty greeted all the passengers.....(nice)
7. All buses going to Nairobi move.....(slow)

Comparison of adverbs

Positive	Comparative	Superlative
Fast	faster	fastest
Soon	sooner	soonest
Long	longer	longest
Slowly	more slowly	most slowly
Clearly	more clearly	most clearly
Cleverly	more cleverly	most cleverly
Wisely	more wisely	most wisely
Truly	more truly	most truly.

Irregular adverbs

These adverbs do not have a uniform ending from one degree to another.

Positive	comparative	superlative
ill	worse	worst
well	better	best
little	less	least
near	nearer	nearest
far	farther	farthest
late	later	latest

Assignment

Use the correct form of the words in brackets to complete the sentences.

1. Alex works.....than John (slow)
2. Richard writes..... (good)
3. Liz writes the.....of all the pupils in our class (well)
4. Sandra answered the questions.....than Allan. (wise)
5. They.....come here these days (seldom).
6. The street child ate the food.....of all the children at the party. (hungry)
7. Ronado sometimes plays.....than the other players. (skill)
8. Kimuli walksthan Joel but Moses the.....of three. (fast)
9. My mother prepares the meal.....than your mother but my aunties does it the(nicely)
10. Our school choir sings.....than yours but Peter's does it the.....of all. (beautiful)

Using.....since andfor.....

Since; Is used to show the point of time an action started taking place.

Examples

- Peter has been sick since last year.
- The passengers have been eating since they boarded this bus.

For – is used to show the length of time an action has taken.

Examples

- I have been away for a month
- Julie has been travelling for three months.

Assignment.

Complete the following sentence using – since or for....

1. Allen has been playing.....thirty minutes.

2. We have been singing_____morning.
3. We have been learning English_____morning.
4. They travelled from Kampala to Bushenyi_____five hours.
5. The parents have been waiting the headteacher_____last week.

B. Join these sentences using since or for.

Examples.

1. My father came to school at 8:00am.
It is now 12:00noon and he is still here.
 - My father has been at school since morning.
 - My father has been at school for four hours.
2. The mad man started climbing the tree at 7:00am. It is midday and he is still climbing.
 - The madman has been climbing the tree since 7:00am.
 - The madman has been climbing tree for five hours.

Activity.

1. The lady came here at 8:00pm. It is now 11:00p.m.

2. Isabirye started teaching in 2013. He is still teaching.

3. The patient began talking to the doctor an hour ago.

CONTENT: The Past Continuous Tense.

We use the past continuous tense to talk about something which happened in past but before it could end something else happened.

- We use helping verbs.

Were /was + ing.

Examples.

1. She was playing when she lost her money.
2. We were playing our breakfast when the bus arrived.
3. When my parents were travelling to Kotido, their car tyre got a puncture.
4. The plane was taking off when it developed an engine problem.
5. I saw a snake as I was going to school.

Activity.

Construct 5 sentences in the past continuous tense.

1. _____
2. _____
3. _____
4. _____
5. _____

Passage.

Thembo's Journey.

Read the passage and answer the questions about it in full sentences.

Last month, our cousin Thembo won the essay writing competitions.

The organizers offered him a trip to Kalangala island. He was very excited about it. This was going to be his first time to go to an island. Thembo was to travel by bus then board a ferry to Kalangala.

That morning, three of us accompanied him to the bus park. We got there a few minutes to departure time. There were many passengers going to Thembo's destination. The bus fares were a little high. The conductor charged Thembo thirty thousand shillings. He also paid an extra charge for his luggage. It was two thousand shillings. The turn boy helped him to put the luggage in the boot.

On getting the ticket, Thembo said goodbye to us and got on the bus. At exactly 9:00am. The driver started the engine. Thembo hurried to take up his seat. He sat near the window. He wanted to see everything on the way clearly. That evening, Thembo rang and told us about his journey, He said that he was having good time on the island. He promised to tell us more about his journey by ferry to Kalangala when he gets back.

Questions

1. Where did Thembo go last month?

2. How did he get the opportunity to go to Kalangala?

3. How much people accompanied Thembo to the bus park?

4. How much did Thembo pay for the luggage?

5. Who gives tickets to passengers on a bus?

6. When did the driver start the engine?

7. Why did Thembo sit near the window?

8. What means of transport did Thembo use to get to Kalangala island?

THE TRAVELLER

Welcome on board,
The conductor politely says,
Luggage into the racks,
Passengers on to your seats.

Remember to fasten your seat belts.
A life saviour it is,
A ticket I give you,
For the fare you paid.

Departure time knocks.
Our driver is never late,
Through hills and valleys,
His coach speeds past.

Stage after stage,
Passengers alight,
At their last destination,
To rest and last.

Joy K.

Questions.

1. What is the poem about?

2. Who welcomes the passengers on board?

3. How does he welcome them?

4. Why should the passengers wear a seat belt?

5. What does the conductor give to the passengers?

6. When do the passengers alight?

7. How many stanzas does the poem have?

8. Where should the luggage be put?

9. Who wrote the poem?

10. Where does the coach pass?

CONTENT: Picture Composition

Activity

Put the picture story.

Study the picture about Ruth's journey and describe what is happening in each picture.

A – F. You may use those words below. Working, stopping, paying, taxi, showing, destination. **(Refer to St. Bernard Book 5 page 62)**

- A _____
- B _____
- C _____
- D _____
- E _____
- F _____

Questions.

1. What do you think was Ruth's destination?

2. Who was waving to Ruth?

3. Which means of transport did Ruth use?

4. To whom did Ruth pay the fare?

5. What shows that Ruth was loved by her family?

CONTENT: Using.....while.....as.....when.

- We use the above conjunctions when talking about a particular action which was taking place as another was going on.

Examples.

1. As they were sailing in a boat, a strong wind blew it.

While they were sailing in a boat, a strong wind blew it.

2. The farmers were digging. They sweated a lot.

When the farmers were digging, they sweated a lot.

Activity.

Use as, while and when in the sentences.

1. The boy was watching a television. His friends called him.

2. I witnessed an accident. I was going to school.

3. The train was passing the bridge. It hooted.

4. It started raining. I was going to the zoo.

5. The ambulance was taking the casualties to hospital. The traffic police escorted it.

CONTENT: Using.....often.....

Often is an adverb of frequency used to mean that something happens many times.

Examples.

1. She often goes to the village.

2. They often use the morning bus to Arua.

3. Suzan often reaches school before 8:00am.

4. Passengers often put their luggage in the boot.

Related adverbs of frequency”

Always, usually, sometimes opp. (seldom, rarely)

Activity.

Complete the sentences below correctly using the words in the brackets.

1. Dan often_____to Nairobi by Kenya Airways (travel).

2. They coach often_____Kampala at 9:00am. (leave)

3. The post Bus often_____mails to this town. (deliver)

4. That market vendor often _____ the luggage on her head. (carry)
5. Hakim often _____ the fare before entering the bus. (pay).

CONTENT: Using.....prefer.....

Prefer is a verb. It can be.

Prefers, preferring, preferred.

Examples.

Re-write the sentences usingprefer.....

1. She likes singing more than dancing.

2. Jim liked swimming more than travelling.

3. He likes eating goat's meat more than eating beef.

4. I don't like playing table tennis. I like playing volley ball.

5. Irene is more interest in reaching novels than reading bibles.

Usemore interested.....in these sentences.

1. I prefer writing mathematics to writing English.
2. Joel prefers watching cartoons to watching news.
3. They prefer dancing to singing.

CONTENT: Using :Either.....or.....

Eitheroris used in affirmative.

- When dealing with different subjects. We use it at the beginning.

Examples.

1. Moses will travel to Mbarara. Simon will travel to Mbarara.

Either Moses or Samuel will travel to Mbarara.

If the subject is the same, use it will come within the sentence.

Examples.

1. Jane eats fish. Jane eats meat everyday.

Jane eats either fish or meat everyday.

2. Joseph travelled by bus. He travelled by taxi.

Joseph travelled by either bus or taxi.

Activity. Join the sentences using.....either.....or.

1. She keeps her luggage in the rack while on bus. She keeps her luggage in the boot while on the bus. _____

2. Resty enjoys reading books. Jane enjoys reading books. _____

3. The girls will sing well at the concert. The boys will sing well at the concert. _____

4. I dreamt getting free money. I dreamt getting free cows. _____

5. The mechanic will repair my father's car. He will repair my father's bicycle. _____

6. Dogs are dangerous. Cats are dangerous. _____



PRIMARY FIVE MATHEMATICS

NAME _____ STREAM _____

SUBTRACTION OF FRACTIONS WITH DIFFERENT DENOMINATORS

USING THE L.C.M

Examples

1. Subtract: $\frac{2}{3} - \frac{1}{2}$

$$\frac{2}{3} - \frac{1}{2} = \frac{4 - 3}{6}$$

6

$$= \frac{1}{6}$$

L.C.M OF 3 and 3

$$M_3 = \{3, \textcircled{6}, 9, _, _, _ \}$$

$$M_2 = \{2, 4, \textcircled{6}, 8, _, _, _ \}$$

L.c.m = 6

$$\frac{2}{3} \times \frac{2}{2} = \frac{4}{6}$$

$$= 4$$

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

$$= 3$$

2. A baby was given $\frac{5}{6}$ litres of milk and it drank $\frac{7}{12}$ litres. How much milk remained?

Solution

L.C.M of 6 and 12

$$\frac{5}{6} \times \frac{2}{2} = \frac{10}{12}$$

$$\frac{5}{6} - \frac{7}{12} = \frac{10 - 7}{12}$$

12



$$= \frac{3}{12}$$

$$m_6 = \{6, \textcircled{12}, 18, _, _, _ \}$$

$$\frac{7}{12} \times \frac{1}{1} = \frac{7}{12}$$

$$m_{12} = \{\textcircled{12}, 24, _, _, _ \}$$

$$= \textcircled{7} = 7$$

L.C.M = 12

3. Takeaway $\frac{1}{2}$ from $\frac{4}{5}$

L.C.M of 5 and 2

$$\frac{4}{5} \times \frac{2}{2} = \frac{8}{10}$$

$$\frac{4}{5} - \frac{1}{2} = \frac{8 - 5}{10}$$

10

$$= \frac{3}{10}$$

$$m_5 = \{5, \textcircled{10}, 15, _, _, _ \}$$

$$m_2 = \{2, 4, 6, 8, \textcircled{10}, _, _, _ \}$$

L.C.M = 10

$$\frac{1}{2} \times \frac{5}{5} = \frac{5}{10}$$

$$= 5 = 5$$

Activity

1. Workout the following using the L.C.M

a) $\frac{2}{3} - \frac{1}{5}$

d) subtract 3.5 from 1

b) $\frac{3}{7} - \frac{1}{4}$

e) $\frac{7}{8} - \frac{2}{3}$

c) $\frac{8}{9} - \frac{2}{5}$

f) $\frac{5}{6} - \frac{1}{4}$

2. A basket is $\frac{7}{12}$ full of fruits. If $\frac{3}{6}$ of them are still green. What fraction of the fruits is ripe?

3. Alex was given $\frac{3}{4}$ of a sugarcane, He gave $\frac{1}{6}$ of it to his friends. What fraction of the sugarcane did he remain with?

5. What is the difference between $\frac{9}{10}$ and $\frac{2}{5}$?

SUBTRACTION OF FRACTIONS WITH DIFFERENT DENOMINATORS

USING EQUIVALENT FRACTIONS

Examples .

1. Subtract $\frac{4}{6} - \frac{1}{4}$

$$\begin{aligned} \frac{4}{6} - \frac{1}{4} &= \frac{8}{12} - \frac{3}{12} \\ &= \frac{8 - 3}{12} \\ &= \frac{5}{12} \end{aligned}$$

$$\frac{4}{6} = \frac{4}{6}, \boxed{\frac{8}{12}}, \frac{12}{12}, \frac{18}{18}$$

$$\frac{1}{4} = \frac{1}{4}, \frac{2}{8}, \boxed{\frac{3}{12}}, \frac{4}{16}$$

$$\text{L.C.D} = 12$$

2. A farmer had to plant $\frac{2}{9}$ of the garden, she planted $\frac{1}{6}$ of in the morning. What fraction was left for planting?

Solution

$$\frac{2}{9} - \frac{1}{6} = \frac{4}{18} - \frac{3}{18}$$

$$= \frac{4 - 3}{18}$$

$$= \frac{1}{18} \text{ was left for planting}$$

$$\frac{2}{9} = \frac{2}{9}, \frac{4}{18}, _, _, _$$

$$\frac{1}{6} = \frac{1}{6}, \frac{2}{12}, \frac{3}{18}, _, _, _$$

$$\text{L.C.D} = 18$$

3. Subtract $\frac{1}{8}$ from $\frac{3}{4}$

$$\frac{3}{4} - \frac{1}{8} = \frac{6}{8} - \frac{1}{8}$$

$$= \frac{6 - 1}{8}$$

$$= \frac{5}{8}$$

$$\frac{3}{4} = \frac{3}{4}, \frac{6}{8}, \frac{9}{12}$$

$$\frac{1}{8} = \frac{1}{8}, \frac{2}{16}$$

$$\text{L.C.D} = 8$$

Activity

1. Workout the following using equivalent fractions.

a) $\frac{7}{5} - \frac{4}{6}$

b) $\frac{5}{6} - \frac{2}{9}$

c) $\frac{3}{2} - \frac{3}{4}$

d) $\frac{3}{4} - \frac{2}{6}$

e) $\frac{3}{7} - \frac{1}{14}$

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

2. Subtract $\frac{3}{4}$ from $\frac{7}{8}$

3. Dad bought $\frac{3}{4}$ kg of rice, he gave $\frac{1}{5}$ kg to Aunt. What fraction did he remain with?

4. A bucket is $\frac{3}{6}$ full of water. If $\frac{3}{8}$ of it is used to mop the house. What fraction of water was left?

5. What should be added to $\frac{1}{6}$ to make $\frac{2}{3}$?

SUBTRACTION OF MIXED FRACTIONS

Guidelines.

- Change mixed fractions to improper fractions.
- Change the answer back to mixed fractions.

Examples.

1. Subtract $3\frac{1}{2}$ from $5\frac{1}{4}$ $5\frac{1}{4} - 3\frac{1}{2}$ $= \frac{(4 \times 5) + 1}{4} - \frac{(2 \times 3) + 1}{2}$ $= \frac{20 + 1}{4} - \frac{6 + 1}{2}$ $= 2\frac{1}{4} - 7\frac{1}{2}$	$= 2\frac{1}{4} - 7\frac{1}{2}$ $\frac{21 - 14}{4}$ $= 7\frac{1}{4}$ $= 1\frac{3}{4}$	L.C.M OF 4 and 2 M4 = {<u>4</u>, <u>8</u>, 12, __, __, __} M2 = {2, <u>4</u>, 6, <u>8</u>, __, __, __} L.C.M = 4 $2\frac{1}{4} \times 4 = 21 \times 1$ $7\frac{1}{2} \times 4 = 7 \times 2$ $= 14$		
<table border="0" style="width: 100%;"> <tr> <td style="width: 60%;"></td> <td style="width: 40%; text-align: right;"> $7\frac{1}{4} = 4\overline{)7}$ $= 1\frac{3}{4}$ $\begin{array}{r} 7 \\ -4 \\ \hline 3 \end{array}$ </td> </tr> </table>				$7\frac{1}{4} = 4\overline{)7}$ $= 1\frac{3}{4}$ $\begin{array}{r} 7 \\ -4 \\ \hline 3 \end{array}$
	$7\frac{1}{4} = 4\overline{)7}$ $= 1\frac{3}{4}$ $\begin{array}{r} 7 \\ -4 \\ \hline 3 \end{array}$			

2. There $5\frac{1}{4}$ bars of soap in the box. If $2\frac{1}{3}$ bars were used. How many bars remained?

Solution.

$5\frac{1}{4} - 2\frac{1}{3}$ $= \frac{(4 \times 5) + 1}{4} - \frac{(3 \times 2) + 1}{3}$ $= \frac{20 + 1}{4} - \frac{6 + 1}{3}$ $= 2\frac{1}{4} - 7\frac{1}{3}$	$2\frac{1}{3} - 7\frac{1}{3}$ $= \frac{63 - 28}{12}$ $= 3\frac{5}{12}$ $= 2\frac{11}{12}$	L.C.M of 4 and 3 M4 = {4, 8, <u>12</u>, 16, __, __, __} M3 = {3, 6, 9, <u>12</u>, __, __, __} L.C.M = 12 $2\frac{1}{4} \times 12 = 21 \times 3$ $= 63$ $7\frac{1}{3} \times 12 = 7 \times 4$ $= 28$		
<table border="0" style="width: 100%;"> <tr> <td style="width: 60%;"></td> <td style="width: 40%; text-align: right;"> $3\frac{5}{12} = 3\overline{)35}$ $= 2\frac{11}{12}$ $\begin{array}{r} 35 \\ -28 \\ \hline 7 \end{array}$ </td> </tr> </table>				$3\frac{5}{12} = 3\overline{)35}$ $= 2\frac{11}{12}$ $\begin{array}{r} 35 \\ -28 \\ \hline 7 \end{array}$
	$3\frac{5}{12} = 3\overline{)35}$ $= 2\frac{11}{12}$ $\begin{array}{r} 35 \\ -28 \\ \hline 7 \end{array}$			

$2\frac{11}{12}$ bars remained

Activity

1. Workout the following.

a) $5\frac{1}{2} - 1\frac{1}{3}$

d) $3\frac{2}{5} - 1\frac{1}{4}$

b) $2\frac{1}{3} - 1\frac{2}{5}$

e) $10\frac{3}{4} - 4\frac{3}{10}$

c) $5\frac{2}{3} - 1\frac{1}{2}$

f) $8\frac{3}{4} - 3\frac{7}{20}$

2. Dad bought $5\frac{1}{4}$ kg of meat and $1\frac{1}{2}$ kg were given to Aunt. How many kg remained?

3. Peter and Paul were given $3\frac{1}{4}$ cakes. If Peter took $2\frac{1}{3}$, What fraction did Paul take?

ADDITION AND SUBTRACTION OF FRACTIONS.

Note:- BODMAS is used to workout numbers with 2 or more operations.

In addition and subtraction of numbers, we first add and then subtract.

BODMAS in full

B _ Brackets (1^{st})

O _ Of (2^{nd})

D _ Division (3^{rd})

M _ Multiplication (4^{th})

A – Addition (5^{th})

S_ Subtraction (6^{th})

Examples

1. Workout: $2/5 - 3/10 + 1/4$

$$2/5 (-3/10 (+1/4 = 2/5 \pm 1/4 - 3/10$$

$$= \frac{(8+5)-6}{20}$$

$$= \frac{13-6}{20}$$

$$20$$

$$= 7/20$$

L.C.M of 4, 5 and 10

$$M_4 = \{4, 8, 12, 16, \textcircled{20}, _, _, _$$

$$M_5 = \{5, 10, 15, \textcircled{20}, _, _, _$$

$$M_{10} = \{10, \textcircled{20}, _, _, _$$

$$\text{L.C.M} = 20$$

$$2/5^1 \times 20^4 = 2 \times 4 = 8$$

$$1/4^1 \times 20^5 = 1 \times 5 = 5$$

$$3/10^1 \times 20^2 = 3 \times 2 = 6$$

2. Workout:- $1/2 + 1/3 - 1/4$

$$1/2 + 1/3 - 1/4 = \frac{(6+4)-3}{12}$$

$$= \frac{10-3}{12}$$

$$12$$

$$= 7/12$$

L.C.M 2, 3, and 4

$$M_2 = \{2, 4, 6, 8, 10, \textcircled{12}, _, _, _$$

$$M_3 = \{3, 6, 9, \textcircled{12}, _, _, _$$

$$M_4 = \{4, 8, \textcircled{12}, 16, _, _, _$$

$$\text{L.C.M} = 12$$

$$1/2^1 \times 12^6 = 1 \times 6 = 6$$

$$1/3^1 \times 12 = 1 \times 4 = 4$$

$$1/4^1 \times 12^3 = 1 \times 3 = 3$$

3. Workout: $3^{1/4} - 5^{1/2} + 4^{1/3}$

$$3^{1/4} (-5^{1/2} (+4^{1/3} = 3^{1/4} + 4^{1/3} - 5^{1/2}$$

$$= \frac{(4 \times 3)+1}{4} + \frac{(3 \times 4)+1}{3} - \frac{(2 \times 5)+1}{2}$$

$$= \frac{12+1}{4} + \frac{12+1}{3} - \frac{10+1}{2}$$

$$= 13/4 + 13/3 - 11/2$$

$$= \frac{(39+52)-66}{12}$$

$$= \frac{91-66}{12}$$

L.C.M of 2, 3, and 4

$$M_2 = \{2, 4, 6, 8, 10, 12, _, _, _$$

$$M_3 = \{3, 6, 9, 12, _, _, _$$

$$M_4 = \{4, 8, 12, _, _, _$$

$$\text{L.C.M} = 12$$

$$13/4^1 \times 12^3 = 39$$

$$13/3^1 \times 12^4 = 52$$

$$11/2^1 \times 12^6 = 66$$

$$\begin{array}{r} 39 \\ + 52 \\ \hline 91 \\ 98 \end{array}$$

$$\begin{array}{r} 91 \\ - 66 \\ \hline 25 \end{array}$$

$$\begin{array}{r} 98 \\ - 11 \\ \hline 87 \end{array}$$

$$\begin{array}{r} 87 \\ - 11 \\ \hline 76 \end{array}$$

$$\begin{array}{r} 76 \\ - 11 \\ \hline 65 \end{array}$$

$$\begin{array}{r} 65 \\ - 11 \\ \hline 54 \end{array}$$

$$25/12$$

$$M_{12}$$

$$12$$

$$\textcircled{24}$$

$$36$$

$$= 1^{1/12}$$

$$x2^w$$

$$= 12 \overline{25}$$

$$\overline{24}$$

$$1n$$

$$= 1^{1/12}$$

$$= 25/12$$

$$2^{1/12}$$

Activity.

1. Workout: $\frac{1}{2} - \frac{7}{10} + \frac{4}{5}$

2. Workout: $\frac{2}{3} - \frac{5}{6} + \frac{3}{4}$

3. Workout: $\frac{1}{3} - \frac{3}{4} + \frac{1}{2}$

4. Workout: $\frac{3}{5} + \frac{1}{10} - \frac{1}{5}$

5. Workout: $2\frac{1}{5} - 3\frac{3}{4} + 4\frac{2}{5}$

6. Workout: $2\frac{1}{6} - 3\frac{1}{2} + 5$

MULTIPLYING A FRACTION BY A FRACTION.

Guidelines.

- Find numerator product, and reduce if possible
Denominator product.
- cancel numerator and denominator vertically or diagonally if possible.

Examples.

1. Multiply: $\frac{2}{3} \times \frac{1}{4}$

$$\frac{2}{3} \times \frac{1}{4} = \frac{\cancel{2}^1}{3} \times \frac{1}{\cancel{4}_2}$$

$$= \frac{1 \times 1}{3 \times 2}$$

$$= \frac{1}{6}$$

ALT $\frac{2}{3} \times \frac{1}{4} = \frac{2 \times 1}{3 \times 4}$

$$= \frac{2}{12}$$

$$= \frac{2}{12} \div \frac{2}{2}$$

$$= \frac{2}{12} \div \frac{2}{2}$$

$$= \frac{1}{6}$$

2	<u>6</u> ²	<u>20</u> ¹²
	<u>3</u> ¹	<u>10</u> ⁶

G.C.F = 2

2. workout: $\frac{3}{5} \times \frac{2}{4}$

$$\frac{3}{5} \times \frac{2}{4} = \frac{3}{5} \times \frac{\cancel{2}^1}{\cancel{4}_2}$$

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

$$= \frac{3}{10}$$

ALT: $\frac{3}{5} \times \frac{2}{4} = \frac{3 \times 2}{5 \times 4}$

$$= \frac{6}{20}$$

$$= \frac{6}{20} \div \frac{2}{2}$$

$$= \frac{6}{20} \div \frac{2}{2}$$

$$= \frac{3}{10}$$

2	<u>6</u>	<u>20</u>
	<u>3</u>	<u>10</u>

G.C.F = 2

Activity

1. Workout the following fractions.

a) $\frac{2}{7} \times \frac{3}{5}$

d) $\frac{3}{4} \times \frac{2}{3} \times \frac{4}{9}$

b) $\frac{1}{2} \times \frac{2}{3}$

e) $\frac{1}{2} \times \frac{2}{3} \times \frac{3}{4}$

$$c) \frac{3}{4} \times \frac{2}{6}$$

$$f) \frac{5}{6} \times \frac{3}{4}$$

MULTIPLYING A FRACTION BY A WHOLE NUMBER

Guidelines

- Make the whole number out of 1
- Find numerator product

$\frac{\text{Denominator product}}{\text{Denominator product}}$

 and reduce if possible.
- Cancel numerator and denominator vertically or diagonally whole possible.

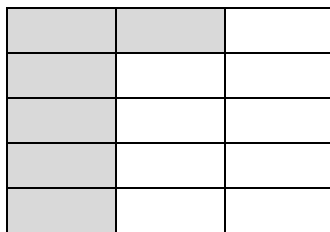
Examples.

1. Multiply: $\frac{2}{3} \times 12$	ALT $\frac{2}{3} \times 12 = \frac{2}{3} \times \frac{12}{1}$	12	M3
$\frac{2}{3} \times 12 = \frac{2}{3} \times \frac{12}{1}$	$= \frac{2 \times 12}{3 \times 1}$	$\times 2$	3
$= \frac{2}{3} \times \frac{12}{1}$	$= \frac{24}{3}$	<u>24</u>	6
$= \frac{2 \times 4}{1 \times 1}$	$= 8$		9
$= \frac{8}{1}$			12
$= 8$			15
			18
			21
			24

2. What is $\frac{3}{5}$ of 15	ALT. $\frac{3}{5} \times 15 = \frac{3}{5} \times \frac{15}{1}$	15	M5
$\frac{3}{5} \times 15 = \frac{3}{5} \times 15$	$= \frac{3 \times 15}{5 \times 1}$	$\times 3$	5
$= \frac{3}{5} \times \frac{15}{1}$		<u>45</u>	10
3			
	38		

$$\begin{aligned}
 &= \frac{3}{5} \times \frac{15}{1} & & 15 \\
 &= \frac{3 \times 3}{1 \times 1} & & 20 \\
 &= \frac{9}{1} & & 25 \\
 &= 9 & & 30 \\
 & & & 35 \\
 & & & 45
 \end{aligned}$$

3. Shade $\frac{2}{5}$ of the figure below.



$\frac{2}{5}$ of 15 parts

$$\frac{2}{5} \times 15 = 2 \times 3$$

$$= 6$$

$$M_5 = \{5, 10, 15\}$$

Activity

1. Multiply $\frac{3}{5}$ by 35

2. Workout $\frac{2}{4}$ of 20

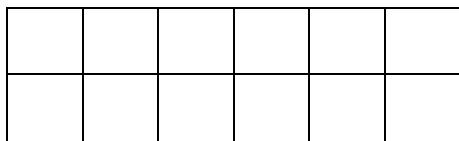
3. Simplify: $1\frac{2}{3} \times 18$

4. What is $\frac{5}{7}$ of 42

5. What is $\frac{1}{3}$ of 1 hour

6. Multiply $\frac{3}{8}$ by 24

7. Shade $\frac{2}{3}$ of the figure below.



MULTIPLYING A WHOLE NUMBER BY A FRACTION

Guidelines

- Make the Whole number out of 1
- Find numerator product
_____ and reduce if possible.
Denominator product

- Cancel numerator and denominator vertically or diagonally where possible.

Examples

1. Workout: $10 \times \frac{2}{5}$

$$\begin{aligned} 10 \times \frac{2}{5} &= \frac{10}{1} \times \frac{2}{5} \\ &= \frac{10 \cancel{2}}{1 \times \cancel{5} 1} \\ &= \frac{2 \times 2}{1 \times 1} \\ &= \frac{4}{1} \\ &= \underline{4} \end{aligned}$$

ALT: $10 \times \frac{2}{5}$

$$\begin{aligned} 10 \times \frac{2}{5} &= \frac{10}{1} \times \frac{2}{5} \\ &= \frac{10 \times 2}{1 \times 5} \\ &= \frac{20}{5} \\ &= \underline{4} \end{aligned}$$

2. Workout: $3 \times 1\frac{1}{6}$

$$\begin{aligned} 3 \times 1\frac{1}{6} &= \frac{3}{1} \times \frac{(6 \times 1) + 1}{6} \\ &= \frac{3}{1} \times \frac{7}{6} \\ &= \frac{3 \cancel{1} \times 7}{\cancel{6} 2} \\ &= \frac{1 \times 7}{1 \times 2} \\ &= \frac{7}{2} \\ &= 3\frac{1}{2} \end{aligned}$$

ALT: $3 \times 1\frac{1}{6}$

$$\begin{aligned} 3 \times 1\frac{1}{6} &= \frac{3}{1} \times \frac{(6 \times 1) + 1}{6} \\ &= \frac{3}{1} \times \frac{7}{6} \\ &= \frac{3 \times 7}{1 \times 6} \\ &= \frac{21}{6} \div \frac{3}{3} \\ &= \frac{7}{2} \\ &= 3\frac{1}{2} \end{aligned}$$

3	6	21
	2	7

G.C.F = 3

$$\begin{array}{r} 3w \\ 7/2 = d_2 \overline{) 7} \\ \underline{- 6} \\ 1n \end{array}$$

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

Activity:

1. Workout the following.

a) $20 \times \frac{1}{5}$

d) $16 \times 3\frac{1}{2}$

b) $32 \times \frac{3}{8}$

e) $25 \times 4\frac{2}{5}$

c) $12 \times \frac{3}{4}$

f) $6 \times 3\frac{1}{3}$

RECIPROCAL

Reciprocals:- are two numbers whose product is 1.

Finding reciprocals

1. Find the reciprocal of $\frac{3}{5}$

Let the reciprocal be y

$$\frac{3}{5} \times y = 1$$

$$3y = 5$$

$$\frac{3y}{3} = \frac{5}{3}$$

$$y = \frac{5}{3}$$

$$\frac{3}{5} \times \frac{5}{3} = 1 \times 1$$

$$y = \frac{5}{3}$$

$$3y = 5$$

The reciprocal of $\frac{3}{5}$ is $\frac{5}{3}$

2. What is the reciprocal of 5?

Let the reciprocal be n

$$5 \times n = 1$$

$$5n = 1$$

The reciprocal of 5 is $\frac{1}{5}$

$$\frac{5n}{5} = \frac{1}{5}$$

$$n = \frac{1}{5}$$

3. What is the reciprocal of $2\frac{1}{3}$

$$2\frac{1}{3} = \frac{(3 \times 2) + 1}{3}$$

$$= \frac{6 + 1}{3}$$

$$3$$

$$= \frac{7}{3}$$

Let the reciprocal be m

$$\frac{7}{3} \times m = 1$$

$$7m = 3$$

$$\frac{7m}{7} = \frac{3}{7}$$

$$m = \frac{3}{7}$$

$$\frac{7}{3} \times \frac{3}{7} = 1 \times 1$$

$$m = \frac{3}{7}$$

$$7m = 3$$

The reciprocal of $2\frac{1}{3}$ is $\frac{3}{7}$

Activity

1. Find the reciprocal of the following.

a) $\frac{4}{3}$

e) 2

d) $2\frac{3}{7}$

b) $\frac{21}{8}$

f) $3\frac{2}{3}$

h) 8

c) $\frac{3}{8}$

g) $\frac{7}{11}$

DIVIDING A FRACTION BY A FRACTION USING RECIPROCAL.

Guidelines.

- Find the reciprocal of the divisor
- Multiply it by the first fraction (dividend)
- Either find numerator product and reduce or
Denominator product.
- Cancel numerator and denominator vertically or diagonally.

Examples

1. Divide $\frac{3}{4}$ by $\frac{9}{8}$

$$\frac{3}{4} \div \frac{9}{8} = \frac{3}{4} (\div \frac{9}{8})$$

$$\frac{\cancel{3}^1}{\cancel{4}_1} \times \frac{\cancel{8}^2}{\cancel{9}_3}$$

$$= \frac{1 \times 2}{1 \times 3}$$

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

ALT: $\frac{3}{4} \div \frac{9}{8}$

$$\frac{3}{4} \div \frac{9}{8} = \frac{3}{4} (\div \frac{9}{8})$$

$$= \frac{3}{4} \times \frac{8}{9}$$

$$= \frac{3 \times 8}{4 \times 9}$$

$$= \frac{24 \div 12}{36 \div 12}$$

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

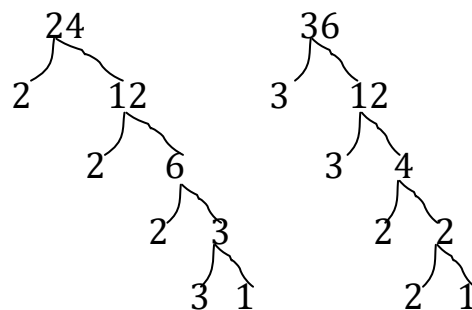
$$= \frac{2}{3}$$

②	24	36
②	12	18
③	6	9
	2	3

$$\text{G.C.F} = 2 \times 2 \times 3$$

$$= 4 \times 3$$

$$= \underline{12}$$



$$\frac{24}{36} = \frac{\overset{|}{2} \times \overset{|}{2} \times \overset{|}{2} \times \overset{|}{3}}{3 \times \overset{|}{3} \times \overset{|}{2} \times \overset{|}{2}} = \frac{2}{3}$$

2. How many $\frac{3}{5}$ litres of milk are in $\frac{2}{3}$ litres?

$$\frac{2}{3} \div \frac{3}{5} = \frac{2}{3} (\div \frac{3}{5})$$

$$= \frac{2}{3} \times \frac{5}{3}$$

$$= \frac{2 \times 5}{3 \times 3}$$

$$= \frac{10}{9}$$

$$= 1\frac{1}{9}$$

$$\frac{10}{9} =$$

$$= 1\frac{1}{9}$$

There are $1\frac{1}{9}$ litres of milk

Activity

1. Workout: $\frac{4}{5} \div \frac{2}{3}$

4. Divide $2\frac{1}{2}$ by $\frac{5}{4}$

2. Divide $\frac{3}{5}$ by $\frac{2}{3}$

5. Divide $\frac{8}{9} \div \frac{4}{12}$

3. Divide $\frac{5}{9}$ by $\frac{2}{4}$

6. Divide $\frac{5}{9}$ by $\frac{5}{12}$

7. A man packed $\frac{1}{2}$ kg packets of tea leaves in smaller packets of $\frac{1}{6}$ kg each. How many smaller packets of $\frac{1}{6}$ kg did he obtain?

8. How many $\frac{1}{4}$ kg packets of sugar can be got from $1\frac{1}{2}$ kg.

DIVIDING A FRACTION BY A FRACTION USING THE L.C.M

Guidelines.

- Find the L.C.M of denominators
- Multiply the L.C.M on both sides and cancel.
- Interpret the horizontal division into a fraction.
- Reduce the fraction to its lowest term if possible.

Examples.

1. Divide $\frac{3}{4}$ by $\frac{9}{8}$

$$\frac{3}{4} \div \frac{9}{8}$$

$$\frac{8^1 \times \frac{3}{4}^1}{8^1 \times \frac{9}{8}^1}$$

$$= (2 \times 3) \div (9 \times 1)$$

$$= 6 \div 9$$

$$= \frac{6}{9} \div \frac{3}{3}$$

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

L.C.M of 4 and 8

$$M_4 = \{4, 8, 12, 16, \dots\}$$

$$M_8 = \{8, 16, \dots\}$$

$$\text{L.C.M} = 8$$

$$\text{G.C.F} = 3$$

2. How many $\frac{1}{4}$ kg packets of salt can be obtained from $2\frac{1}{2}$ kg of salt?

$$2\frac{1}{2} \div \frac{1}{4}$$

$$\frac{(2 \times 2) + 1}{2} \div \frac{1}{4}$$

$$2$$

$$\frac{5}{2} \div \frac{1}{4}$$

$$\frac{4^1 \times \frac{5}{2}^1}{4^1 \times \frac{1}{4}^1}$$

$$= (2 \times 5) \div (1 \times 1)$$

$$= 10 \div 1$$

L.C.M of 2 and 4

$$M_2 = \{2, 4, 6, 8, \dots\}$$

$$M_4 = \{4, 8, 12, \dots\}$$

$$\text{L.C.M} = 4$$

$$= \frac{10}{1}$$

$$= 10$$

There are 10 quarter kg packets in $2\frac{1}{2}$ kg of salt.

Activity.

Divide the following using the L.C.M

a) $\frac{4}{5} \div \frac{1}{4}$

d) $2\frac{1}{4} \div \frac{1}{2}$

b) $\frac{2}{3} \div \frac{2}{9}$

e) $\frac{1}{5} \div \frac{2}{3}$

c) $\frac{1}{4} \div \frac{5}{8}$

f) $1\frac{4}{9} \div \frac{9}{5}$

g) A trader packed $5\frac{1}{4}$ kg of sugar in smaller packets of $\frac{1}{2}$ kg packets. How many $\frac{1}{2}$ kg packets did he get?

h) How many $\frac{1}{3}$ litre bottles can be obtained from a container of $2\frac{1}{3}$ litres?

DIVIDING A WHOLE NUMBER BY A FRACTION.

Guidelines.

- Make the whole number out of 1.
- Divide using L.C.M or reciprocals.

Examples.

1. Divide 4 by $\frac{1}{2}$

$$4 \div \frac{1}{2} = 4/1 \left(\div \frac{1}{2} \right)$$

$$\text{ALT: } 4 \div \frac{1}{2}$$

L.C.M of 1 and 2 is 2

$= \frac{4}{1} \times \frac{2}{1}$ $= \frac{4 \times 2}{1 \times 1}$ $= \frac{8}{1}$ $= \underline{8}$	$\frac{4}{1} \div \frac{1}{2}$ $2 \times \frac{4}{1} \div \frac{1}{2} \times \cancel{2}$ $= (2 \times 4) \div (1 \times 1)$ $= 8 \div 1$ $= \frac{8}{1}$ $= \underline{8}$
--	--

2. How many a $\frac{1}{4}$ kg packets of salt can be got from 5kg?

$= 5\text{kg} \div \frac{1}{4}$ $= 5 \div \frac{1}{4} = 5 \times \frac{4}{1}$ $= \frac{5 \times 4}{1 \times 1}$ $= \frac{20}{1}$ $= 20$	ALT: $5 \div \frac{1}{4}$ $\frac{5}{1} \div \frac{1}{4}$ $4 \times \frac{5}{1} \div \frac{1}{4} \times \cancel{4}$ $= (4 \times 5) \div (1 \times 1)$ $= 20 \div 1$ $= \frac{20}{1}$ $= 20$	ALT: II 1kg contains 4 quarters 5kg contain (5×4) quarters $= (5 \times 4)$ quarters $= 20$ quarters
---	---	---

Activity.

1. Divide: 10 by $\frac{1}{2}$

3. Divide: 48 by $\frac{2}{3}$

2. Divide: 30 by $\frac{5}{6}$

4. Divide: $8 \div \frac{2}{3}$

5. Divide 35 by $\frac{7}{9}$

6. Divide: $24 \div \frac{3}{5}$

7. A tailor uses $\frac{1}{2}$ metre piece of cloth to make a skirt. How many such skirts can he make from a 15 metre cloth?

8. Nanziri uses $\frac{1}{8}$ litres of cooking oil every day. For how long will a 20 litre jerrycan last?

DIVIDING A FRACTION BY A WHOLE NUMBER

Guidelines.

- Make the whole number out of 1.
- Divide using the L.C.M or reciprocals.

Examples.

ALT:

1. Divide $\frac{1}{2}$ by 4

$$\begin{aligned}\frac{1}{2} \div 4 &= \frac{1}{2} \div \frac{4}{1} \\ &= \frac{1}{2} \left(\div \frac{4}{1} \right) \\ &= \frac{1}{2} \times \frac{1}{4} \\ &= \frac{1 \times 1}{2 \times 4} \\ &= \frac{1}{8}\end{aligned}$$

$$\begin{aligned}\frac{1}{2} \div 4 &= \frac{1}{2} \div \frac{4}{1} \\ &= \frac{1}{2} \times \frac{1}{4} \\ &= \frac{1 \times 1}{2 \times 4} \\ &= \frac{1}{8}\end{aligned}$$

L.C.M of 2 and 1 is 2

- 2 Mummy shared a $\frac{3}{4}$ piece of sugarcane among her 8 children. What fraction did each get?

$$\frac{3}{4} \div 8$$

$$\frac{3}{4} \div 8 = \frac{3}{4} \div \frac{8}{1}$$

$$= \frac{3}{4} (\div 8/1)$$

$$= \frac{3}{4} \times \frac{1}{8}$$

$$= \frac{3 \times 1}{4 \times 8}$$

$$4 \times 8$$

$$= \frac{3}{32}$$

ALT:

$$\frac{3}{4} \div 8 = \frac{3}{4} \div \frac{8}{1}$$

$$\frac{3}{4}^1 \times \frac{1}{8}^1 \div 8/1 \times 4$$

$$= (1 \times 3) \div (8 \times 4)$$

$$= 3 \div 32$$

$$= \frac{3}{32}$$

Each child got $\frac{3}{32}$ of the sugarcane.

Activity.

1. Workout the following.

a) $\frac{1}{2} \div 6$

d) $1 \frac{3}{5} \div 15$

b) $\frac{2}{3} \div 8$

e) $\frac{5}{6} \div 20$

c) $\frac{3}{4} \div 9$

f) $\frac{3}{4} \div 24$

2. Shalom shared $\frac{2}{3}$ of a pawpaw among her 3 friends. What fraction did each get?

3. Aunt served $\frac{5}{6}$ of the watermelon to her 8 visitors. What fraction did each get?

MORE ABOUT FRACTIONS IN WORD PROBLEMS.

Examples.

1. In a class of 40 pupils, $\frac{3}{5}$ of them are girls and the rest are boys.

a) What is the fraction of boys in class?

$$\begin{array}{l} 1 - \frac{3}{5} = \frac{5}{5} - \frac{3}{5} \\ = \frac{5 - 3}{5} \\ = \frac{2}{5} \end{array} \quad \parallel \quad \frac{2}{5} \text{ of the pupils are boys}$$

b) How many boy are in class?

$\frac{2}{5}$ of 40 pupils are boys.

$$\begin{array}{l} 8 \\ \frac{2}{5} \times 40 = 2 \times 8 \\ 1 \\ = 16 \end{array}$$

There are 16 boys in class.

c) Find the number of girls in class.

$$\begin{array}{l} 8 \\ \frac{3}{5} \text{ of } 40 \text{ pupils are girls.} \\ \frac{3}{5} \times 40 = 3 \times 8 \\ 1 \\ = 24 \end{array} \quad \begin{array}{l} 3 \quad 10 \\ \text{ALT: } 40 \\ - \quad 16 \\ \hline 24 \end{array}$$

There are 24 girls in class.

2. A container of 60ml is $\frac{2}{3}$ full of water.

a) What fraction of the Jug is not filled with water?

$$\begin{array}{l} 1 - \frac{2}{3} = \frac{3}{3} - \frac{2}{3} \\ = \frac{3 - 2}{3} \\ = \frac{1}{3} \end{array} \quad \therefore \frac{1}{3} \text{ of the jug is not filled with water.}$$

b) How much water is in the jug?

$$= \frac{2}{3} \text{ of } 60\text{ml}$$

$$= \frac{2}{3} \times 60\text{ml}$$

$$= 2 \times 20\text{ml}$$

$$= (1 \times 20)\text{ml}$$

$$= 20\text{ml}$$

$$\text{ALT } 60\text{ML}$$

$$-40\text{ML}$$

$$20\text{ML}$$

$\therefore 20\text{ml}$ of water is needed to fill the jug.

Activity.

1. In a class of 80 pupils, $\frac{1}{4}$ of them are boys and the rest are girls.

a) Find the fraction for girls.

b) How many girls are in class

c) Find the number of boys in class.

2. Mummy bought 2 litres of cooking oil. She used $\frac{3}{8}$ of it to prepare chapattis for the visitors and kept the rest for daily use.

a) How much cooking oil did she use to prepare chapattis?

b) What fraction of the cooking oil was kept?

c) How much cooking oil in litres was kept?

3. Daddy bought 12 sweets from the supermarket, he gave $\frac{2}{3}$ to the children and kept the rest.

a) How many sweets did he give the children?

b) What fraction of the sweets was kept?

c) How many sweets did he keep?

d) How many more sweets were eaten than those kept?

DECIMAL FRACTIONS.

Decimal fractions:- are the fractions which have a decimal point e.g. 0.2, 3.25, 34.069..

Parts of a decimal number.

A decimal number has 2 parts;

- i. The Whole number
- ii. The fraction.

Note: Digits that are on the left/before the decimal point are the whole numbers.

- Digits that are on the right/after the decimal point are the fractions.

Example. 4 . 39
Whole Number decimal point fraction

A decimal number has decimal places.

Note: Decimal places; are the number of digits that come after the decimal point.

Examples; 0 . 2 (1 decimal place)

0 . 234 (3 decimal places)

Decimal numbers have denominators of 10, 100, 1000, 10,000 etc and these are the place values of the decimal.

In the diagram



the shaded fraction = $\frac{3}{10}$

= 0 . 3 (Three tenths)

Unshaded fraction = $\frac{7}{10}$

= 0 . 7 (seven tenths)

PLACE VALUES OF DECIMALS UP TO THOUSANDTHS.

H	T	O		T th	H th	TH th	TH th
2	1	3	.	4	0	8	9

Hundreds
 Tens
 Ones
 Tenths
 Hundredths
 Thousandths
 Ten thousandths

Examples

1. Write the place value of each digit in the figures below.

a) 0.23

0.23
 Ones
 Tenths
 Hundredths

b) 24.904

24.904
 Tens
 Ones
 Tenths
 Hundredths
 Thousandths

2. What is the place value of the underlined digit.

a) 3 . 7 8

3 . 7 8

Hundredths

b) 58.39

5 8 . 3 9

Tenths

c) 253.027

2 5 3 . 0 2 7

Tens

What is the place value of 4 in each of the following figures.

a) 4 . 021

4 . 0 2 1

Ones

b) 3 . 04

3 . 0 4

Hundredths

Activity.

1. What is the place value of each digit in the following numbers.

a) 0 . 15

c) 72.145

e) 4 . 9

b) 9 . 32

d) 0 . 009

f) 49.8

2. What is the place value of 6 in each of the following numbers.

a) 0 . 62

b) 6 . 29

c) 0 . 06

3. Write the place value of the underlined digit.

a) 23.46

c) 64 . 12

b) 48 . 76

d) 0 . 07

VALUES OF DECIMALS

Note:- value = Digit x place value.

Place values of decimals in figures.

VALUES Place values of decimals in figures

Tens	Ones	.	Tenths	Hundredths	Thousandths
10	1		$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1000}$
10	1		0.1	0.01	0.001

Examples

1. Write the value of each digit in the numbers below.

a) 0.32

0	.	T th	H th
0	.	3	2

$$\begin{array}{l}
 0 \times 1 = 0 \\
 3 \times \frac{1}{10} = \frac{3}{10} \\
 \quad = \underline{0.3} \\
 2 \times \frac{1}{100} = \frac{2}{100} \\
 \quad \quad = \underline{0.02}
 \end{array}$$

b) 234.09

H	T	O	.	T th	H th
2	3	4	.	0	9

$$\begin{array}{l}
 2 \times 100 = 200 \\
 3 \times 10 = 30 \\
 4 \times 1 = 4 \\
 0 \times \frac{1}{10} = \frac{0}{10} \\
 \quad = \underline{0} \\
 9 \times \frac{1}{100} = \frac{9}{100} \\
 \quad \quad = \underline{0.09}
 \end{array}$$

2. What is the value of the underlined digits in the following.

a) 4 . 2 8

0		T th	H th
4	.	2	<u>8</u>

$$8 \times 1/100 = 8/100$$

$$= \underline{0.08}$$

b) 62.327

T	O		T th	H th	TH th
6	2	.	3	<u>2</u>	7

$$2 \times 1/1000 = 2/1000$$

$$= \underline{0.002}$$

3. What is the value of 5 in each of the following.

a) 7 . 54

0		T th	H th
7	.	5	<u>4</u>

$$5 \times 1/10 = 5/10$$

$$= 0.5$$

b) 0 . 125

0		T th	H th	Th th
0	.	1	2	<u>5</u>

$$5 \times 1/1000 = 5/1000$$

$$= 0.005$$

Activity.

1. Find the value of each digit in the numbers below.

a) 3 . 04

c) 7 . 8

e) 42 . 7

b) 12.17

d) 246.03

f) 2 . 015

2. Find the value of the underlined digits.

a) $0.\underline{3}5$

c) $9.37\underline{8}$

e) $16.02\underline{4}$

b) $4.2\underline{6}8$

d) $1\underline{2}.75$

f) $\underline{4}5.3$

3. What is the value of 3 in each of the following.

a) $9.8\underline{3}$

c) $0.\underline{3}4$

e) $32.\underline{8}$

b) $42.\underline{0}63$

d) $2.\underline{2}34$

f) $8.\underline{9}3$

EXPANDING DECIMALS USING VALUES.

Note:- Use numerical place values.

Values = Digit x place value.

Examples.

1. Expand 0.48 using values.

0		T th	H th
1		$\frac{1}{10}$	$\frac{1}{10}$
0	.	4	8

$$0.48 = (0 \times 1) + (4 \times \frac{1}{10}) + (8 \times \frac{1}{100})$$

$$= (0 \times 1) + (\frac{4}{10}) + (\frac{8}{100})$$

$$\underline{0.48 = 0 + 0.4 + 0.08}$$

2. Expand 38.24 using values.

T	O		T th	H th
10	1		$\frac{1}{10}$	$\frac{1}{100}$
3	8	.	2	4

$$38.24 = (3 \times 10) + (8 \times 1) + (2 \times \frac{1}{10}) + (4 \times \frac{1}{100})$$

$$= (3 \times 10) + (8 \times 1) + (\frac{2}{10}) + (\frac{4}{100})$$

$$\underline{38.24 = 30 + 8 + 0.2 + 0.04}$$

3. Write 12.308 in expanded form using values.

T	O		T th	H th	TH th
10	1		$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1000}$
1	2	.	3	0	8

$$12.308 = (1 \times 10) + (2 \times 1) + (3 \times \frac{1}{10}) + (0 \times \frac{1}{100}) + (8 \times \frac{1}{1000})$$

$$= (1 \times 10) + (2 \times 1) + \frac{3}{10} + \frac{0}{100} + \frac{8}{1000}$$

$$12.308 = 10 + 2 + 0.3 + 0 + 0.008$$

Activity.

1. Expand the following using values.

a) 3.29

e) 341.5

b) 14.2

f) 0.04

c) 0.21

g) 9.028

d) 5.738

h) 36.84

EXPANDING DECIMALS USING PLACE VALUES

Note:- Use numerical place values.

- Multiplying the required digit by its place values.

Examples.

1. Expand 4.32 using place values.

0		T th	H th
1		$\frac{1}{10}$	$\frac{1}{100}$
4	.	3	2

$$\begin{aligned} 4.32 &= (4 \times 1) + (3 \times \frac{1}{10}) + (2 \times \frac{1}{100}) \\ &= \underline{(4 \times 1) + (3 \times 0.1) + (2 \times 0.01)} \end{aligned}$$

2. Expand 23.21 using place values.

T	O		T th	H th
10	1		$\frac{1}{10}$	$\frac{1}{100}$
2	3	.	2	1

$$\begin{aligned} 23.21 &= (2 \times 10) + (3 \times 1) + (2 \times \frac{1}{10}) + (1 \times \frac{1}{100}) \\ &= \underline{(2 \times 10) + (3 \times 1) + (2 \times 0.1) + (1 \times 0.01)} \end{aligned}$$

3. Expand 83.496 using place values

T	O		T th	H th	TH th
10	1		$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1000}$
8	3	.	4	9	6

$$\begin{aligned} 83.496 &= (8 \times 10) + (3 \times 1) + (4 \times \frac{1}{10}) + (9 \times \frac{1}{100}) + (6 \times \frac{1}{1000}) \\ &= \underline{(8 \times 10) + (3 \times 1) + (4 \times 0.1) + (9 \times 0.01) + (6 \times 0.001)} \end{aligned}$$

Activity.

1. Expand the following numbers using place values.

a) 0.34

e) 5.36

b) 17.05

f) 95.4

c) 4.928

g) 2.374

d) 7.8

h) 738.5



GAYAZA JUNIOR SCHOOL
PRIMARY FIVE SOCIAL STUDIES

NAME_____ **STREAM**_____

TOPIC: **The people of pre-colonial Uganda.**

SUB-TOPIC: **Political organization of Ethnic groups**

CONTENT: **Bunyoro Kitala Empire**

The Chwezi dynasty.

- The Bachwezi were cattle keepers and reared long horned cattle.
- They were also sports men and hunters who used to play board games.
- They were also referred to as Semi gods since they used to perform miracles.
- The headquarters of the Bachwezi were at Bigobyamugenyi and their last ruler was Wamala.

Reasons for the collapse of the chwezi empire / dynasty

- The empire was too large to be ruled by one king
- Increasing misfortunes e.g death of the beloved cow Bihogo
- Existence of natural disasters like famine, drought, Earthquakes.
- Luo invasion / The coming of the Luo – Babito in the empire which led to its final decline.
- Disunity among the people.

How iron working strengthened the Chwezi dynasty.

- They made strong weapons for expansion and fighting against enemies.
- It increased food production.

Cultural sites left by the Chwezi include Bigobyamugenyi, Kibengo, Kagongo, Ntusi.

Importance of Bigobyamugenyi to Uganda.

- It acts as a tourist attraction

- It creates employment to people
- It is used for research purposes.

Activity.

1. Name the last ruler of Chwezi dynasty

2. Outline two causes for the collapse of the Chwezi dynasty.

3. How did the size of Bunyoro-Kitara contribute to its collapse?

4. What finalized the collapse of the Chwezi dynasty.

5. How is Bigobyamugenyi economically important to Uganda today?

CONTENT: Kingdom

- A Kingdom is an area ruled by a King or a queen.
- Kingdoms emerged after the collapse of Bunyoro Kitara empire.
- They include; Bunyoro Kingdom, Tooro Kingdom, Buganda and Ankole Kingdom.
- outside Uganda, we had Karagwe kingdom in Tanzania and Wanga in Kenya near L. Victoria.

Characteristics of Kingdoms.

- Each Kingdom had one supreme ruler called a King
- Kingship is hereditary (inherited)
- Kingdoms have well established social institutions
- Each Kingdom has one supreme King at a time.

Regalia:

These are objects which identify a Kingdom

Examples of regalia

- The royal drum
- The royal stool or throne
- The royal crown
- The royal shield
- The royal spear, bows and arrows
- The royal tombs.

Advantages of Kingdoms.

- They employ people
- They unite people
- They promote peace and security.
- They promote culture
- They promote morals among people
- They help to mobilize people for national tasks e.g. elections, immunization.

Disadvantages of Kingdoms.

- Kingdoms promote dictatorship since the King isn't elected.
- They favour the interests of the minority
- They are concerned about one region rather than the whole nation.

Examples of the tribes that formed Kingdoms in Uganda.

- Baganda
- Batooro
- Banyoro
- Banyankole

Activity

1. Which tribal group led to the formation of Kingdoms in Uganda?

2. How were the Bantu organized politically before the coming of foreigners in Uganda?

3. State two importance of Kingdoms today.

4. Name any two tribes that formed Kingdoms in Uganda?

5. How is Kingship attained in Uganda?

6. Mention two examples of regalia.

CONTENT: Buganda Kingdom

Buganda Kingdom

- It was founded by Kintu according to the Ganda tradition.
- It was founded by Kato Kimera the Brother of Isingoma Rukidi Mpuga according to the Nyoro tradition.
- It occupies the central region of Uganda.

Political organization of Buganda Kingdom.

- The title given to the King of Buganda is Kabaka.
- The Kabaka of Buganda is obtained through hereditary.
- The Kabaka appointed the chiefs who were supervised by the prime minister (Katikiro).
- Buganda has its headquarters at Bulange Mengo in Kampala.

- The Kabaka was the chief commander of the army and owned land on behalf of his people.
- The Kingdom was divided into small administration units such as, county, sub-county, Parish, sub-parish and village.
- Laws were made by the Lukiiko (Buganda parliament)

Some terms used in Buganda.

- i. Kabaka for King
- ii. Katikiro for Prime Minister
- iii. Nabagereka for King's wife
- iv. Namasole for Kings mother (queen mother)
- v. Namulondo for throne
- vi. Lubiri for Palace
- vii. Saza for county
- viii. Abambowa for soldiers

Duties of the Katikiro or Prime Minister before colonization.

- To supervise Chiefs.
- To make sure that chiefs brought food, barkcloth, beer, firewood and ivory to the Kabaka's palace.
- To make sure that the chiefs remained obedient to the Kabaka.

Social organization of Buganda Kingdom

- The people of Buganda were divided into three classes i.e.
 - i. The royal class i.e. Princes (Balangira) and princesses (Bambejja)
 - ii. Chiefs (Bakungu)
 - iii. Peasants (Bakopi)

- The Baganda believed in gods e.g Kibuuka for war, Dungu for hunting, Mukasa for lakes, Musoke for rain.

Economic organization of Buganda Kingdom.

- The Baganda were farmers, they dealt in crop growing and rearing of animals.
- They carried out iron smelting which they adopted from Bachwezi
- They made bark clothes for sale
- They also carried out fishing along lakes.

Some of the strong kings of Buganda.

- King Suuna II – welcomed the first Arabs to Uganda
- Kabaka Muteesa I – invited Christian Missionaries to Uganda
- King Mwanga II – Resisted British rule in Uganda
- Muteesa II – was the first president of Uganda
- Kabaka Ronald Muwenda Mutebi II – Is the current Kabaka of Buganda.

Factors that led to the growth and expansion of Buganda Kingdom

- Buganda had powerful leaders.
- It had a strong and standing army.
- Baganda were united
- The strategic location of Buganda near Lake Victoria.
- The Kingdom had favourable climate and fertile soils for food production.

Activity.

1. According to the ganda tradition, who was the founder of Buganda Kingdom?

2. How did the strong army help Buganda to expand?

3. How did the trade with the coastal tribes help Buganda to expand?

4. What title is given to the King of Buganda?

5. State one way Buganda was organized economically.

CONTENT: Bunyoro Kingdom

The Bunyoro Kingdom

Political organization of Bunyoro Kingdom.

- Bunyoro Kngdom had hereditary rulers.
- The Omukama appointed chiefs.
- The chiefs were supposed to be loyal to the King and offered him gifts collected from his subjects to acknowledge his power.
- Some of the strong Kings of Bunyoro were King Kamurasi and King Kabalega.
- King Kamurasi welcomed the early European explorers like the Bakers and King Kabalega tried to resist the colonial rule.
- Kabalega also attacked and over threw King Kasagama of Tooro
- The strong army of Omukama Kabalega were called Abarusura.
- Bunyoro Kingdom had its headquarters at kitara.

Social organization of Bunyoro Kingdom.

- The people of Bunyoro were grouped into classes i.e. Royal class, chiefs and peasants.
- The Banyoro believed in god / Ruhanga and other gods like Muhingo (god of war)
- The Banyoro had pet names e.g Akiiki, Amooti etc.

Economic organization of Bunyoro Kingdom.

- The Banyoro were miners and carried out iron smelthing.
- They mined salt from Lake Katwe.
- They carried out barter trade with the neighbours like Baganda, Khartoumers, Langi etc.

- The Banyoro were also farmers, they grew crops like millet and even reared some animals.

Some trade items between Banyoro and Baganda.

a) Banyoro – salt, potatoes, iron tools, salt, vines.

b) Baganda – Bananas, bark cloth.

Factors that led to growth and expansion of Bunyoro Kingdom.

- Strong leaders e.g Kabalega

- Strong army (Abarusura)

- The people were united

- Trade in iron and salt made the Kingdom torquire wealth.

Factor that weakened Bunyoro Kingdom.

- The coming of the colonialists that led to the exiling of some kings.

- The growth and expansion of Buganda

- outbreak of famine since the Bairu (peasants) had relaxed from crop growing.

Activity

1. Which King did Kabalega succeed?

2. Identify two trade items between Buganda nad Bunyoro Kingdom.

3. How were the Abarusura important to Bunyoro Kingdom?

4. State one reason why Bunyoro Kingdom declined.

5. Who is the current King of Bunyoro Kingdom?

6. How did Kabalega lose his powers as a King?

7. Which King of Bunyoro welcomed the Bakers?

CONTENT: Tooro and Ankole Kingdoms

Tooro Kingdom

- It was founded by Prince Baboyo II son of Kyebamba in 1830 and it is the youngest Kingdom in Uganda.
- The title given to the King of Tooro is Omukama.
- Omukama of Tooro had soldiers called Basongora to safe guard the Kingdom.
- The current Omukama of Tooro is Oyo Nyimba Kabamba Iguru IV. He ruled with help of regents because he was still young until he made 18years of age.
- The people of Tooro has pet names e.g. Akiiki, Atwoki etc.
- The people of Tooro also believed in gods.
- They delt in salt mining which they sold to their neighbours.
- The people of Tooro also delt in crop growing e.g. millet.

Reasons why Omukama Kasagama of Tooro welcomed Capt. Fredrick Lugard.

- He wanted to be restored to his throne.
- He wanted protection against his enemies.

How did Omukama Kasagama benefit from the coming of the Capt. Fredrick Lugard.

- He restored him to his throne.
- He gave him protection against Omukama Kabalega.

Factors that led to the decline of Tooro Kingdom.

- Constant attacks by Omukama Kabalega of Bunyoro.
- Outbreak of famine.

Ankole Kigndom.

- This Kingdom was formed from the states of Mpororo. Igara, Buhweju and Nkore.

- It was found in South west Uganda in the present day district of Bushenyi, Isingiro, Mbarara, Ibanda and Kiruhura.
- The title given to the King of Ankole was Omugabe.
- The Omugabe had a Prime Minister (Engazi) and Chiefs (Abakungu).
- The Kingdom's royal drum was Bagyendanwa and it was a symbol of power.
- The people of Ankole were divided into Bahima (royal) and were pastoralists and Bairu (Peasant) who ere cultivators.
- They believed in gods like Kagoro for good harvest and Mugara for war.

Other tribes.

1. Basoga.

- The basoga had chiefs and now kings.
- Busoga Kingdom is located in Eastern Uganda (Jinja, KamuLI, Bugiri, Iganga, Kaliro, Mayuge, Namutamba etc).
- It started as chiefdom and assisted by council of elders.
- The title given to the traditional ruler of Busoga is Kyabazinga.

2. Iteso

- The Iteso live in Soroti, Kumi, Pallisa, Katakwi, Kaberamaido etc.
- The title of their cultural leader is Emorimori.

3. Bakonzo/Bamba

- The title given to their traditional ruler is Omusinga.
- The current Omusinga of Rwenzururu is Charles Wesley Mumbere.

Activity

1. Who was the founder of Tooro Kigndom?

2. Give one reason why Omukama Kasagama welcomed Capt. Fredrick Lugard?

3. State one reason for the decline of Tooro Kingdom

4. Which Tooro King was driven out of Tooro by Omukama Kabalega?

5. How were the people of Tooro economically organized?

CONTENTS: Chiefdoms (Non-Centralised Societies)

- They are ruled by a chief
- They are ruled in small communities
- The communities were led by warriors, medicine men, Chiefs, clan heads and elders.
- Leaders could be changed according to the choice of people in the community.
- In times of wars, the communities would join and fight together against a common enemy.

Some Bantu tribes who formed Chiefdoms didn't form kingdom.

- Basoga, Bakiga, Bagwere, Bamba, Bagisu.

Other tribes who did not form Kingdoms but rather formed chiefdoms (Non-Bantu)

- Acholi, Karimajong, Iteso, Alur.

Reasons why some tribes did not form Kingdoms.

- They never lived a settled life/they were unsettled/they were mobile e.g. Karimojong and Iteso.

Factors which enabled some Bantu tribes to form Kingdoms.

- They were settled
- They were properly organized
- They were united.

Reasons why some tribes formed Kingdom.

- They wanted to expand their territories.
- For prestige
- For protection against their enemies
- To strengthen themselves
- To preserve their culture.

Kingdom or Chiefdom	Title
Buganda	Kabaka
Bunyoro	Omukama
Tooro	Omukama
Busoga	Kyabazinga
Acholi	Rwot
Iteso	Emorimori
Ankole	Omugabe

Activity

1. Name two Bantu tribes that didn't form Kingdoms in Uganda.

2. Identify two groups of people who led the commodities which were unoler chiefdoms.

3. Give one reason why some tribes did not form Kingdoms in Uganda?

4. State one factor that enabled some tribes to form Kingdoms in Uganda.

5.Name the president who abolished all the Kingdoms in Uganda?

6. Explain why some tribes formed Kingdoms.

CONTENT: Social Organisation

A Map showing Kingdoms of Uganda.

Social organization of the Pre-colonial people.

- Social organization means the relationship patterns that existed between individuals.
- People were majorly related by clans.
- The children belonged to the clans of their fathers.
- On the side of religion, spirits received much attention.
- Traditional religious leaders such as rain makers, medicine men and fortune tellers got a lot of respect.
- Education was passed through stories.
- They had languages, names, customs, clans, totems values, games.

Duties of a clan head.

- Oversee clan property.
- To settle disputes among clan members.
- To organize clan ceremonies and functions.
- To Distribute clan wealth.

Culture

This is the general behaviour of people in society.

Types of culture.

There are two types of culture.

1. Material culture

2. Non – material culture.

1. Material culture: This refers to objects that are of great importance in society. These include material things e.g clothes, crafts, weapons, food etc.
2. Non-Material culture: These are non-physical ideas that people have about their culture e.g. beliefs, religion, mode of conduct, taboos moral values, language, name etc.

General examples of culture.

- Dressing
- marriage
- Food
- songs.
- Burying the dead
- beliefs
- Weapons
- religion etc.

Importance of culture

- It promotes harmony among people.
- It promotes discipline among people
- It promotes unity
- It promotes identity
- It helps to group people.

Activity

1. What does the term social organisation mean?

2. State two roles of the clan head during the pre-colonial Uganda?

3. How is culture important to people (Give two ways).

4. Under which type of culture do clothes belong?

5. Why is it important for children to be taught good morals?

CONTENT: Social and Economic organization.

Define the following.

- a) . Custom: This refers to an acceptable behavior in a given society.
- b) Norms: These are standards of behaviour in a given society.
- c) Morals: These are principles of right and wrong behaviour.
- d) Taboos: These are religious or cultural customs that prevent people from doing certain things.
- e) Harmony: This is a state of peaceful existence and agreement.
- f). Values: These are things to which people attach great importance.

Examples of weapons include: Spears, arrows, bows, swords, shields.

Types of values

- i. Personal values
- ii. Family values
- iii. Community values

Examples of values.

- | | |
|---------------|---------------|
| - God fearing | - Helpfulness |
| - Respect | - Law abiding |
| - cleanliness | - Trust |
| - Honesty | - work |

Cultural ceremonies celebrated in different cultures.

- | | |
|---------------|------------------------------------|
| - Wedding | - helpfulness |
| - New harvest | - The birth and naming of children |
| - Marriage | - Dowry payment |

- Enthroning
- Initiation
- Funeral rites
- Circumcision

Relationship

This is how people interact with each other.

Types of relationships.

1. Relationship by blood e.g. parents, brothers, sisters.
2. Relationship by marriage e.g. wife and husband
3. Peer relationship e.g. agemates
4. Social relationship e.g. workmates, classmates etc.

Activity

1. Name the two types of culture

2. How were the spears important to the people of pre-colonial Uganda?

3. State two cultural ceremonies in your community.

4. Which tribe majority carries out circumcision in Uganda?

5. Name the type of relationship that exists between husband and wife.

6. Why is it important for a P.5 child to be fearing.

CONTENT: Economic Organisation

Economic Organisation is the way things are connected with trade, industry and development wealth in a society.

- The people of pre-colonial Uganda carried out trade in things they could not produce.

- The system of trade was barter trade. This was because there was no money as a medium of exchange.

Barter trade.

This is the exchange of goods for goods or goods for services.

General trade items during pre-colonial Uganda included; craft materials, salt, barkcloth, hoe, sheep, sorghum, spear, shields, cattle, goats, millet, bananas.

Advantages of Barter trade.

- It was easy to carry out.
- It made trade possible without money
- It solved the problem of language difficult or barrier.
- It developed negotiation skills
- It promoted peaceful living / friendship.

Disadvantages of Barter Trade.

- There was double coincidence of wants.
- There was not standard measure of value (cheating)
- It was difficult to transport some bulky goods.
- It was time wasting since people could wait for those who had what they wanted.

Items of trade by;

- a) Banyoro – salt, iron tools e.g. spears
- b) Baganda – Bananas and barkcloth.
- c) Nilotics – cattle, beads, crafts.

Economic activities were;

- Farming
- Salt mining
- Iron smelting
- Hunting

- Animal rearing
- Trading

Long distance trade

- This was the trade carried out between the people of the interior and the people on the coast of East Africa.

Tribes that participated in long distance trade in Uganda.

- Baganda
- Banyoro

Activity

1. Define the following terms

a) Barter trade

b) Long distance trade

2. Why did the people of pre-colonial Uganda carryout barter trade?

3. Why do few people practice barter trade today.

4. State two trade items by the Baganda during pre-colonial Uganda.

5. Mention one advantage of barter trade.

CONTENT: Foreign influence

- A foreigner is a person who lives in a country or an area which is not his or hers.
- Foreign influence refers to the changes brought about by the different groups of people who came to Uganda of Africa.

Groups of foreigners who came to Uganda.

- i) Traders
- ii) Explorers
- iii) Explores
- iv) Missionaries
- v) Administrators or colonialists.

Traders.

- Traders were the first group of foreigners to come to Uganda.
- A trader is a person who buys and sells goods and services.

Traders also came to Uganda in three groups i.e.

- i) Arab traders from Saudi Arabia (Asia)
- ii) India traders from India (Asia)
- iii) European traders (Europe)

Reasons for the coming of the early traders to Uganda.

- To look for market for their manufactured goods.
- To get raw materials for their home industries.
- To invest their excess capital in Uganda.
- To get slaves to work on their plantations and mines.

Problems faced by early traders in Uganda.

- Difficult in communication due to language barrier.
- They were attacked by dangerous wild animals.
- They walked long distances due to poor transport.
- Attackers from hostile tribes.
- They were attacked by tropical diseases
- They lacked supplies from home e.g. medicine, security, food etc.

Problems faced by traders in Uganda today.

- High rate of theft
- High way robbers
- Poor transport network to market places
- High rate of accidents which leads to destruction of goods
- Poor storage facilities
- Lack of ready market for some goods.

Activity

1. What is trade?

2. Identify two reasons for the coming of early traders to Uganda.

3. Name the first group of foreigners to come to Uganda.

4. From which continent did the Indian traders originated.

5. Give one reason why some people fear to carry out trade in Uganda today.

CONTENT: Traders

Arab traders.

- These were the first group of foreigners to come to Uganda.
- They came from the continent of Asia from countries like Saudi Arabia.
- The first Arab trader to come to Buganda was Ahmed Bin Ibrahim who was later joined by Isa Bin Hussein and Snay Bin Amir.

- The Arabs who came to Uganda(East Africa) used boat called Dhows to sail across the Indian Ocean.
- The Arabs were driven by the seasonal winds called Monsoon winds to and from the coast of East Africa.
- Kabaka Suuna was the King of Buganda by the time the first Arab traders came to Buganda.
- Another group of Arabs came through the Northern direction of Uganda*(Egypt and Sudan) and raided the Acholi, Lugbara and Alur for slaves.
- This group was called the Khartoumers.

Reasons why Arabs came to Uganda.

- To trade (main reason)
- To spread Islamic religion
- To escape from religious wars in their country.

Reasons why Arabs took long to enter the interior of East Africa.

- They feared to be attacked by hostile diseases.
- They feared attacks from hostile tribes in the interior e.g. Nandi, Masai
- They feared to cross thick forests with fierce animals.
- There were no clear routes from the interior to the coast.

Items of trade brought by the Arabs to Uganda.

- clothes
- cowrie shells
- Mirrors
- ornaments like watches
- beads
- plates and cups

Items taken by the Arabs from Uganda.

- Slaves
- Tortoise shells
- Ivory
- Honey

- Hides and skins
- Wax

Note: The most important items that Arabs wanted from Uganda were slaves and ivory.

Slave Trade.

This was the buying and selling of human beings.

Why Arabs wanted slaves.

- They wanted to use them as porters
- They wanted to sell them to Europeans who wanted to take them to mines, plantations to work for them.

Methods used by Arabs to get slaves.

- By raiding villages
- By supporting inter-tribal wars
- By exchanging with chiefs and kings to get gifts.

Effects/Results of the coming of Arabs to Uganda.

a) Positive effects.

- They introduced Islamic religion
- They introduced cowries shells as a medium of exchange.
- They introduced new items of trade.
- They brought Zebu cattle.
- They introduced new ideas and skills of building e.g. stone building.
- They linked Uganda to the rest of the world.
- They introduced new languages e.g. Kiswahili and Arabic.

b) Negative effects.

- They introduced slave trade and slavery in Uganda.
- They introduced guns which are dangerous to human beings.

- They fueled inter-tribal wars.

Activity.

1. Name the first group of foreigners to come to Uganda.
2. How were the monsoon winds important to the Arab traders.
3. How did the coming of the Arabs improve on trade in Uganda?
4. Which type of boats was used by the Arabs to come to Uganda?
5. Give the main reason for the coming of the Arabs to Uganda.
6. Why did the Arabs take long to enter into the interior of East Africa?

CONTENT: Traders

Indian Traders.

- These came from India in the continent of Asia.
- Indians were brought to Uganda to provide unskilled labour towards the construction of the Uganda railway.
- This is why because the Ugandans had refused to work on the construction of the Uganda – Kenya railway.

Why?

- They feared to move far away from their families
- Low wages paid.

- The Indians who helped in the construction of the Uganda railway were called Indian coolies.

- After the construction of the Uganda railway.

These Indians stayed behind and opened up shops and other businesses.

- The first shop in Kampala was opened up by Aldina Visram in 1898.

- The Indian money lenders were called Banyans.

- The Indians introduced Rupees as a form of money which replaced the cowries shells.

Examples of Indian businesses men in Uganda.

1. Aldina Vislam.

- Opened up the first shop in Kampala.

- Started the first bank in Uganda called the international bank of India.

- Built many cotton ginneries in Uganda.

2. Muljibhai Madhivani.

- Started a large sugar estate in Kakira in Jinja district called Kakira Sugar works.

3. Nanji Kalidhas Mehta.

- Started a sugarcane estate in Lugazi

- Has also opened up tea estate and tea processing plant.

4. Agha Khan.

- Has opened up many schools and a university in Kampala.

- Has also opened up hospitals.

Effects / contributions of Indians in Uganda.

- They promoted trade by building many shops.

- They helped in the construction of the Uganda railway.

- They built industries.

- They built schools and hospitals

- They introduced Rupees as a form of currency.

- They opened up sugarcane plantations.
- They have improved financial instructions by building banks.

Negative effects.

- They have utilized Africans valuable resources.
- They make profits in Uganda for their own benefit.

Activity.

1. Which form of currency was introduced by the following people?
 - a) Arab trades
 - b) Indian traders
2. Why did Islamic religion take long to spread in Uganda?
3. Which group of Indians helped in the construction of the Uganda railway?
4. Why did the African chiefs and kings never wanted slave trade to end.
5. Give one reason why the Ugandans refused to work on the construction of the Uganda – railway.
6. Why is Aldina Vislam still remembered in the history of Uganda?

CONTENT: Explorers

An Explorer is a person who leaves his home country and goes to a new place to make new discoveries.

- More explores who came to Uganda were from Europe e.g

- | | |
|--------------------------|----------------------|
| 1. John Hannington Speke | 4. Sir. Sameul Baker |
| 2. James Grant | 5. Jospeh Thompson |

3. Henry Morton Stanley

- The explorers who came to Uganda were funded by the Royal Geographical Society (RGS) in London to find the source of River Nile.
- The President of the Royal Geographical society by then was Dr. Rippon.
- The .G.S sponsored the explorers journeys.

Reasons for the coming of explorers to Uganda.

- To find the source of R.Nile (main reason)
- To open up the way for the missionaries.
- To find trade opportunities.

Why did most European traders entered uganda through Tanzania(south).

- They feared hostile tribes in Kenya e.g Nandi and Masai.
- Kenya had thick forests with fierce animals.
- Buganda believed that travelers through the Eastern direction were enemies to Buganda.

Explorers who came to Uganda.

a) John Speke and Richard Burton (1856 – 1858)

- They were army men from Britain.
- They came to find the source of River Nile.
- They reported to Zanzibar in 1856 to ask the sultan to allow them to move through his territory.
- They followed a caravan route through Tabora to Ujiji on L. Tanganyika.
- They came back to Tabora and Burton fell sick.
- John Speke left Richard Burton at Tabora and moved to the north. He found a big lake at Mwanza which he named Victoria after the Queen of England by then.
- Speke believed that it was the source of River Nile.
- When he came back to Tabora, he told Burton about his findings.

- Burton did not accept and the two went back to Europe in disagreement.

Activity.

1. Who is an explorer?

2. Which society sponsored most explorers to come to Uganda?

3. Why did the Europeans call Africa a dark continent?

4. State the main reason why explorers came to Uganda.

6. State one reason why explorers had to report to Zanzibar first before coming to Uganda.

CONTENT: Explorers

b) John Speke and James Grant (1860-1863)

- John Speke made his second journey with James Grant.
- He came to confirm his discovery of the source of the Nile on Lake Victoria.
- They were escorted by two gun men from the coast who were Mwinyi Mabruki and Sidi Bombay.
- They moved northwards to the Kingdom of Karagwe.
- King Rumanika welcomed them in his Kingdom of Karagwe.
- He gave them guides, protection and allowed to rest in his Kingdom of Karagwe.
- James Grant fell sick and remained in Karagwe as Speke continued to Buganda.
- John Speke arrived in Buganda at Kabaka Muteesa's palace at Banda in 1862 and he was welcomed by Kabaka Mutesa 1 of Buganda.
- Speke gave Mutesa 1 a gun he needed to fight his enemies.

- John Speke was later taken to the source of the Nile and he named the waterfalls found at the source as Rippon falls after the president of Ras by then, (on 28th July 1862)
- Grant joined Speke after Speke had already seen the source of River Nile.

c) Sir. Samuel Baker (The Bakers) 1862-1865.

- He was the first European explorer to look for the source following it from its mouth.
- He came with his wife Jane Baker and he was the first European explorer to come with his wife.
- John Speke and James Grant met the Bakers at Gondokoro in South Sudan in 1863.
- They told him that they had discovered the source of the Nile.
- He changed his journey and went to west and reached Omukama Kamurasi's place in Bunyoro.
- He became the first European explorer to see Lake Mwitanzige which he later named Lake Albert after the husband of Queen Victoria of England.
- He also became the first explorer to see the Murchison falls in 1864.
- He was later sent as the first governor of the equatorial province by Khedive Ismail of Egypt.
- The Equatorial province was the region between south Sudan and northern Uganda.
- He established his headquarters at Patiko in northern Uganda where he helped so much to fight against slave trade.
- Sir Samuel Baker gave guns to the people of Acholi to protect themselves against slave traders.
- Other forts built by Baker were Padibe and Foweira.

Activity.

1. How was river responsible for the coming of most explorers to Uganda?
-

2. Name the first European to see the source of river Nile.

3. How was king Rumanika of Karagwe of great help to John Speke and James Grant?

4. How is Gondokoro in South Sudan important in the exploration history of Uganda?

5. Why was Lake Nalubaale named Lake Victoria?

6. Which explorer looked for the source of River Nile from its mouth?

CONTENT: Explorers

d) Henry Morton Stanley

- He was an American journalist working for two newspaper companies i.e. the daily telegraph newspapers of Britain and the New York her old newspapers of America.
- He made three journeys to Africa.

i) His first journey 1871 – 1873.

- He had come to find out if Dr. David Living was still alive.
- Livingstone had spent a long time in Africa without being heard in Europe.
- Stanley met Livingstone at Ujiji in Tanzania in 1871
- He Failed to convince Livingstone to go back to Europe.
- Dr. David Livingstone died in 1873 at chief Chitambo's village in Zambia and his body was carried by his two porters i.e. Chuma and Susi to the coast and was shipped to Europe.
- Livingstone was buried at West Minister Abbey, a burial place for important people only.

ii) His second Journey (1874-75).

- He had come to prove Speke's finding whether Lake Victoria was the source of River Nile.
- He did this by sailing around (circumnavigating) Lake Victoria and confirmed Speke's finding.
- He sailed around Lake Victoria using a boat known as Lady Alice and drew the map of Lake Victoria.
- Stanley reached Muteesa 1's palace and told him about the missionaries.
- Kabaka Muteesa 1 requested H.M Stanley to write a letter inviting the missionaries on behalf of the Kabaka.
- The letter was taken by Lennant De Bellefonds and it was published in the Daily Telegraph Newspaper of Britain (England).
- H.M Stanley moved westwards where he found Mt. Rwenzori, L. George and L. Edward.
- He named Mt. Rwenzori "Mountain of the Moon" because the snow capped peak of Mt. Rwenzori looked like a rising moon.
- He was the first man to see the above features.

iii) His third journey in 1888.

- He came to look for Emin Pasha who had been trapped in northern Uganda by the Madhists.
- Stanley met Emin Pasha at Kavalis South of L. Albert and convinced him to go back to Europe but he refused.
- Emin Pasha was killed by the Arab traders in democratic Republic of Congo on his way back to Europe in 1892.

Activity.

1. Why is it wrong to say that Speke discovered the source of river Nile.

2. Name the two Newspapers which sponsored H.M Stanley's journey's to Africa.

3. Why was H.M Stanley sent to East Africa for his first journey?

4. Who named Mt. Rwenzori an "Mountains of the moon"

5. How is Lennant De Bellefonds funds related to the coming of missionaries to Uganda?

6. Which King invited missionaries in Uganda?

Content: Explorers.**e) Joseph Thompson.**

- He was sent to East Africa by the Royal Geographical society to find a direct and short route from the coast of East Africa to Lake Victoria.
- He became the first European explorer to cross the Nandi and Masai land successfully.
- He was welcomed by the Nabongo Mumias (King) of Wanga Kingdom in Kenya and directed him to Mt. Masaba which he named Mt. Elgon.
- Joseph Thompson also explored L. Balungo in Kenya.

Problems faced by European Explorers.

- They were attacked by hostile tribes.
- They suffered from tropical diseases.

- Difficult in communication due to language barrier.
- They walked long distances due to poor transport.
- Shortage of supplies from home countries e.g. food, medicine.
- Harsh climate or harsh weather conditions.
- Difficult in crossing big physical features.

Effects of the coming of explorers to Uganda.

- They led to re-naming of some physical features.
- They made Uganda known to the outside world.
- They paved way for the coming of missionaries and colonialists.
- They discovered more physical features and added them to the map of Uganda.

Reasons why Kabaka Muteesa 1 invited Missionaries.

- He thought that the missionaries would supply him with guns.
- He wanted missionaries to teach his people reading and writing.
- He thought that missionaries would protect him against his enemies.
- To teach his people Christianity.

Activity

1. Why was Joseph Thompson sent to East Africa?

2. Which role did H.M Stanley play towards the coming of missionaries to Uganda.

3. Identify two problems faced by the early European explorers.

4. How did the explorers encourage the coming of colonialists to Uganda?

5. Give one way the coming of explorers affected Ugandans negatively.

CONTENT: The Missionaries.

Missionaries in Uganda.

- A Missionary is a person who leaves his/her land to go to a foreign land to spread the word of God.

They came to Uganda in two major groups.

a) The church / protestant / Anglican missionaries

b) Catholic missionaries.

Protest missionary societies.

- Church Missionary society (CMS)
- The Livingstone society of Scotland
- The universities Mission to central Africa (UMCA)
- The London Missionary Society (LMS)

The Church Missionary Society (CMS)

- This was the first society to send Christian missionaries to Uganda in 1877.
- Among the first CMS members in Uganda were;
 1. Reverend C.T Wilson
 2. Shergold Smith (Lieutenant)
- They came from England (Britain)
- The two were later joined by Alexander Mackay as a leader of the church Missionary Society in 1878.
- Mackay was a teacher, carpenter and a builder.

- Alexander Mackay introduced the first printing press used to print Christian and educational books.
- Mackay built his Mission station at Nateete and translated some selected verses of the Bible into Luganda.
- The first Christian (protestant martyrs were his students i.e. Makko Kakumba, Yusuf Lugalama and Nuwa Serwanga.
- In 1879, another group of Protest missionaries including Rev. G. Litchfield, C.W Pearson and Dr. Felkin also came to Uganda.

b) The Catholic Missionaries.

- The catholic missionaries had many societies that came to Uganda. These included.
 - i) The white fathers.
 - These were the Roman Catholic missionaries who came from France.
 - They were led by,
 Father Simon Lourdel later nicknamed Mapeera
 Brother Amans Delmas.
 - The name Mapeera was given to him by the Baganda from a French word “Mom Pere” which means fathers”
 - In the same year, another group of Catholics missionaries arrived in Uganda which included.
 Father Leon Barbot and Ludovic Girault. These were sent from Algeria by Cardinal Lavengeril of missionaries of Africa.
 - ii) The Verona fathers.
 - These were catholics who came from Italy and reached Uganda in 1910. They were also known as Comboni fathers.

- They were responsible for spreading Christianity, building schools and hospitals in specific areas of Uganda in Northern Uganda.

iii) The Mill Hill Fathers.

- They were also Catholics and they came to do missionary work in Eastern Uganda.

Activity.

1. Who is a missionary?

2. Which explorer encouraged the coming of missionaries to Uganda?

3. State one reason why Muteesa 1 wanted missionaries to come to Uganda.

4. Name the first group of missionaries to come to Uganda in 1877.

5. Who were the first Roman Catholic missionaries in Uganda?

6. How was Alexander Mackay a practical man?



Name: Stream:

MEASUREMENT AND ENERGY.

MEASUREMENT

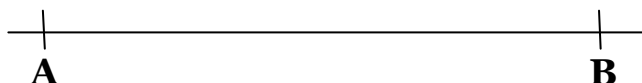
Measurement / measuring

This is the act of finding out the amount of something.

This is the act of finding out how long, short, big, small, heavy or high an object is.

A. LENGTH

Length is the distance between two points.



Length is measured using the following units.

- | | |
|------------------------|------------------------|
| (i) Millimetres (mm) | (v) decameters (Dm) |
| (ii) Centimetres (cm) | (vi) Hectometres (Hm) |
| (iii) Decimetres (dm) | (viii) Kilometres (Km) |
| (iv) Metres (m) | |

The most commonly used units for measuring length are centimetres, metres and kilometres.

The basic units for measuring length is **metres**. The biggest units for measuring length are **kilometers (Km)**.

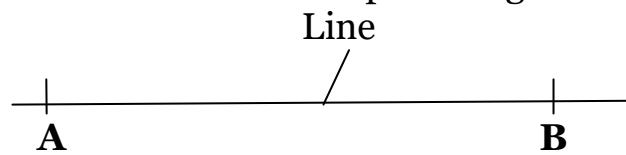
The smallest units for measuring length are **millimetres (mm)**.

Modern instruments for measuring length include foot ruler, metre ruler, tape measure.

Traditional methods include arms, pams, foot steps, strides, sticks, string and hand spans.

Line segments

A line segment is a line between two points e.g



Activity

Draw line segments of the following length

a) 4 cm

b) 6 cm

c) 8 cm

d) 4 cm

AREA

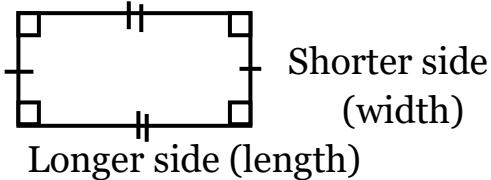
B. Area

This is the total space occupied (covered) by an object or a figure (two dimensional figure) / two sided figures.

Area is measured in **square units** e:g cm^2 , m^2 , cm^2 , km^2 .

Two dimensional figures.

Rectangle

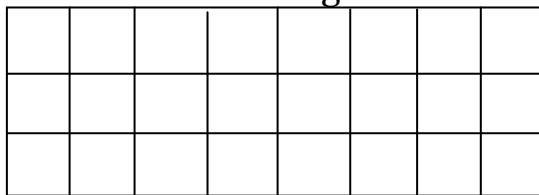


The longer side is length. The shorter side is width.

Length is represented by letter **L**; width is represented by letter **W**.

Example 1

Find the area of the figure below.



3 squares

8 squares

By counting the squares

$$A = 24 \text{ square units}$$

By using the formula

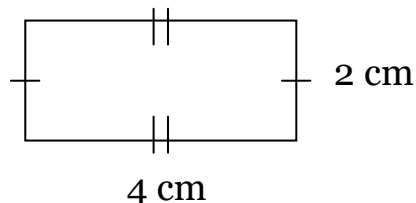
$$A = L \times W$$

$$= 8 \text{ squares} \times 3 \text{ squares}$$

$$= \underline{\underline{24 \text{ square units}}}$$

Example II

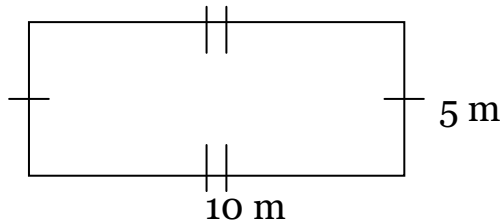
Find the area of the figure below.



$$\begin{aligned}
 \text{Area} &= L \times W \\
 &= 4 \text{ cm} \times 2 \text{ cm} \\
 &= 8 \text{ cm}^2
 \end{aligned}$$

Example III

Find the area of a floor carpet which is 10 metres long and 5 metres wide



$$\begin{aligned}
 \text{Area} &= L \times W \\
 &= 10 \text{ m} \times 5 \text{ m} \\
 &= 50 \text{ cm}^2
 \end{aligned}$$

Area of a square

A square has all its sides equal.

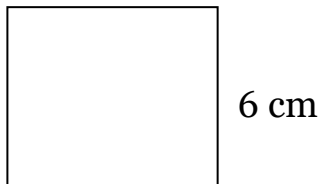
$$\begin{aligned}
 \text{Area} &= S \times S \\
 &= S^2
 \end{aligned}$$



$$\begin{aligned}
 \text{Area} &= S \times S \\
 &= 4 \text{ cm} \times 4 \text{ cm} \\
 &= 16 \text{ cm}^2
 \end{aligned}$$

Example II

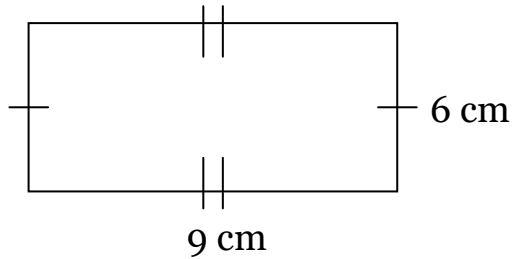
Find the area of the figure below.



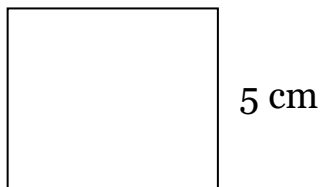
$$\begin{aligned}
 \text{Area} &= S \times S \\
 &= 6 \text{ cm} \times 6 \text{ cm} \\
 &= 36 \text{ cm}^2
 \end{aligned}$$

Activity:

Find the area of the figure below.



2. Find the area of the figure below.



3. Use a metre ruler to measure the length of the longest side of your book and the shortest side of the book and complete the table below correctly.

Item	Book	Geometry set
Long side		
Short side		
Area		

VOLUME

C. Volume

Volume is the space occupied by an object. This is the amount of space occupied by a given object.

Volume is measured in cubic units e.g.

(i) Cubic centimetres (cm^3 or cc)

- (ii) Cubic millimetres (mm^3)
- (iii) Cubic metres (m^3)

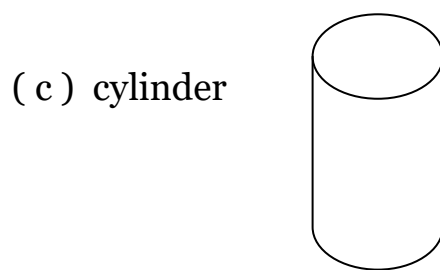
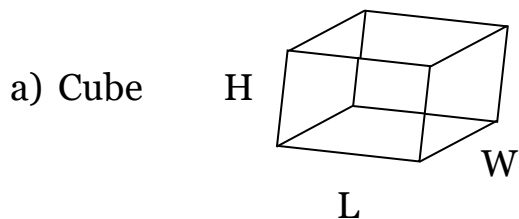
Types of shaped objects.

1. Regularly shaped objects (Regular objects).
2. Irregularly shaped objects (irregular objects).

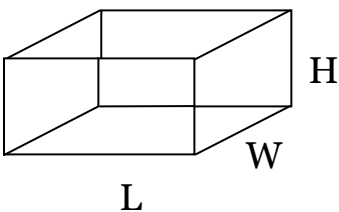
1. Regular objects

These are objects with specific (definite) shapes.

Examples of regular objects.



b) Cuboid



(d) bricks

(e) books

(f) blocks

(g) sets

(h) chalkboard

2. Irregular objects

These are objects which do not have a specific (definite) shape.

Examples of irregular object.

- Stones
- irish potatoes

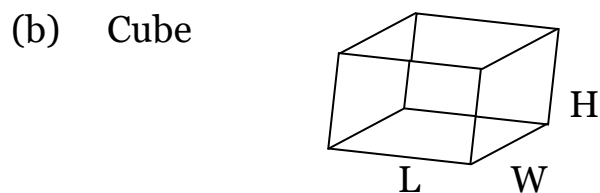
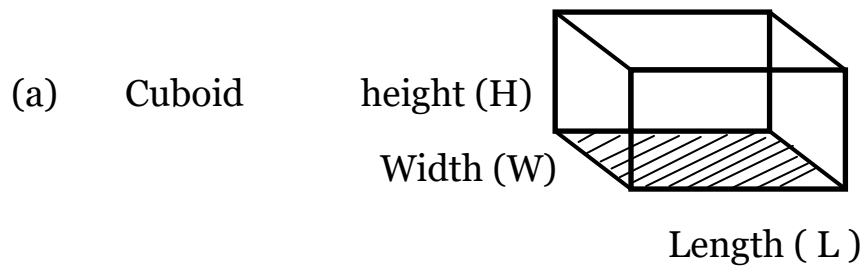
Finding volume of regular objects.

We can find the volume of regular objects by measuring their length, width and height.

We therefore use the formula:

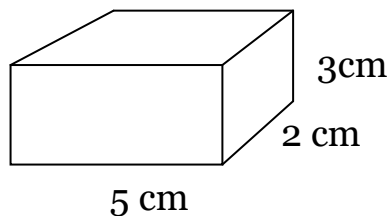
Volume = Length (L) x Width (W) x Height (H)

Length, width and height are shown on the figures below:



Example:

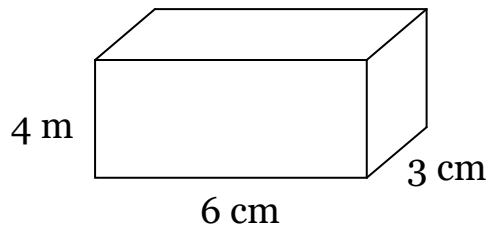
Find the volume of the cuboid shown below:



$$\begin{aligned}\text{Volume} &= L \times W \times H \\ &= (5 \text{ cm} \times 2 \text{ cm} \times 3 \text{ cm}) \\ &= 10 \text{ cm}^2 \times 3 \text{ cm} \\ &= 30 \text{ cm}^3\end{aligned}$$

Example II

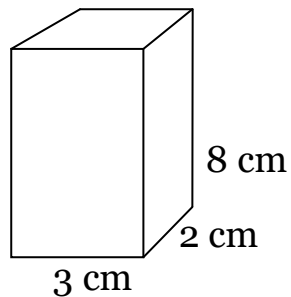
Find the volume of the cuboid below:



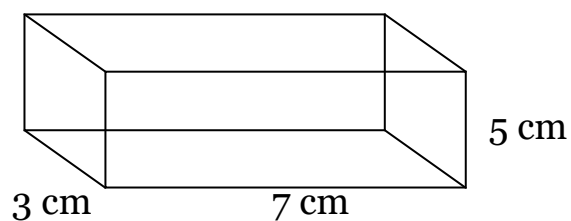
$$\begin{aligned}\text{Volume} &= L \times W \times H && 3 \\ &= (6 \text{ cm} \times 3 \text{ cm}) \times 4 \text{ cm} && 18 \\ &= 18 \text{ cm}^2 \times 4 \text{ cm} && \begin{array}{r} \times 4 \\ \hline \end{array} \\ &= 72 \text{ cm}^3 && \begin{array}{r} 72 \\ \hline \end{array}\end{aligned}$$

Activity

a) Calculate the volume of the following figures.



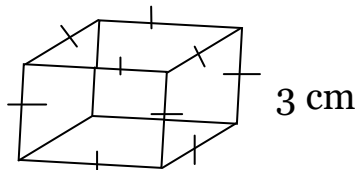
b)



Finding the volume of a cube.

Example

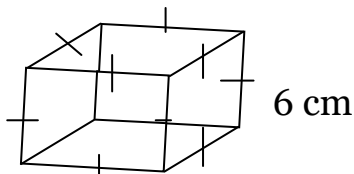
Find the volume of the following figure.



$$\begin{aligned}\text{Volume} &= L \times W \times H \\ &= (3 \text{ cm} \times 3 \text{ cm}) \times 3 \text{ cm} \\ &= 27 \text{ cm}^3\end{aligned}$$

Example II

Find the volume of the figure below.

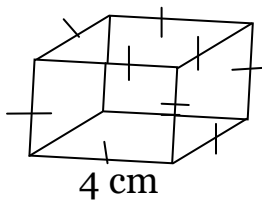


$$\begin{aligned}\text{Volume} &= L \times W \times H && 3 \\ &= (6 \text{ cm} \times 6 \text{ cm}) \times 6 \text{ cm} && \underline{\times 6} && 36 \\ &= 36 \text{ cm}^2 \times 6 \text{ cm} && \underline{216} \\ &= 216 \text{ cm}^3\end{aligned}$$

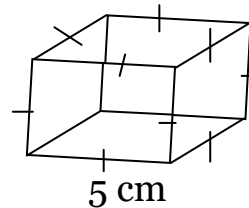
Activity

1. Calculate the volume of the following figures.

a)



(b)



2. Find the volume of a rectangular block of length 6 cm, width 4 cm and height of 5 cm.

3. (a) What is volume?

.....
.....

(b) In which units is volume measured?

.....

4. Mention the two types of shaped objects.

(i) (ii)

IRREGULAR OBJECTS AND THEIR VOLUME.

Finding the volume of irregular objects.

The volume of irregular objects is measured using ***displacement method***.

Qn. Why is the displacement method called so?

It is because the irregular object displaces the amount of water equal to its volume.

- When an irregular object is fully immersed in water, it displaces the amount of water (liquid) equal to its volume.

Instruments used in displacement method.

- a) Measuring cylinder.
- b) An overflow can or eureka can

Finding the volume of an irregular object using a measuring cylinder.

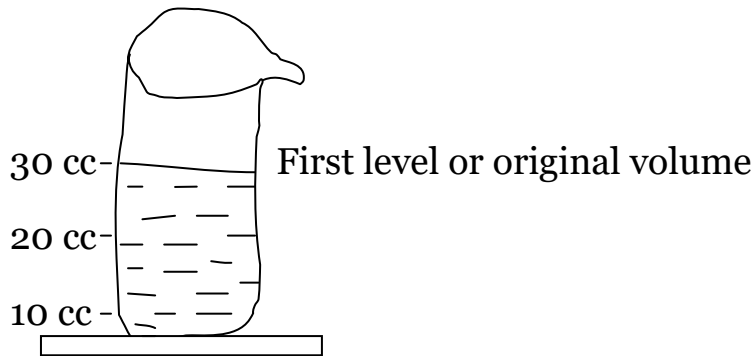
Requirements

- i) A measuring cylinder
- ii) Water
- iii) An irregular object e.g. stone
- iv) String

Steps

Step I

Pour water into a measuring cylinder so that it is half full and record the first step (original) volume of water say 30 cc.

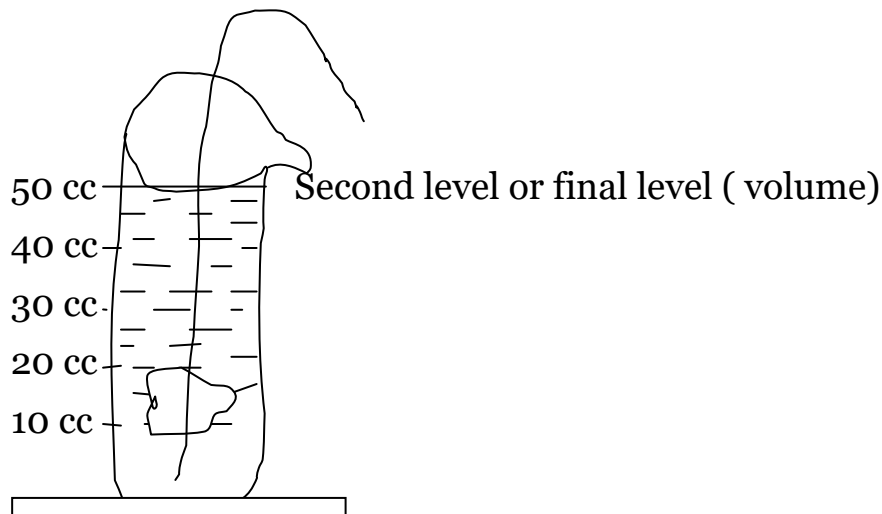


Step II

- Get an irregular object, tie it with a string.
- Gently lower the irregular object tied on a string into the measuring cylinder so that it is fully covered by water.

Step III

Record the final level (volume) of the water in the measuring cylinder. Say 50 cc.



Step IV: Get the change in volume. Volume of the stone will be equal to:

Subtract first level (volume) from second level (volume).

$$\begin{aligned}\text{Volume} &= \text{second (final) level} - \text{first level} \\ &= 50 \text{ cc} - 30 \text{ cc} \\ &= \underline{\underline{20 \text{ cc}}}\end{aligned}$$

Note: The volume of the stone is 20 cc because when an irregular object is fully immersed in water, it displaces an amount of water equal to its volume.

FINDING THE VOLUME OF AN IRREGULAR OBJECT.

Practical activity

1. Given the requirements below, follow the steps of finding the volume of an irregular object using a measuring cylinder to complete table below correctly.

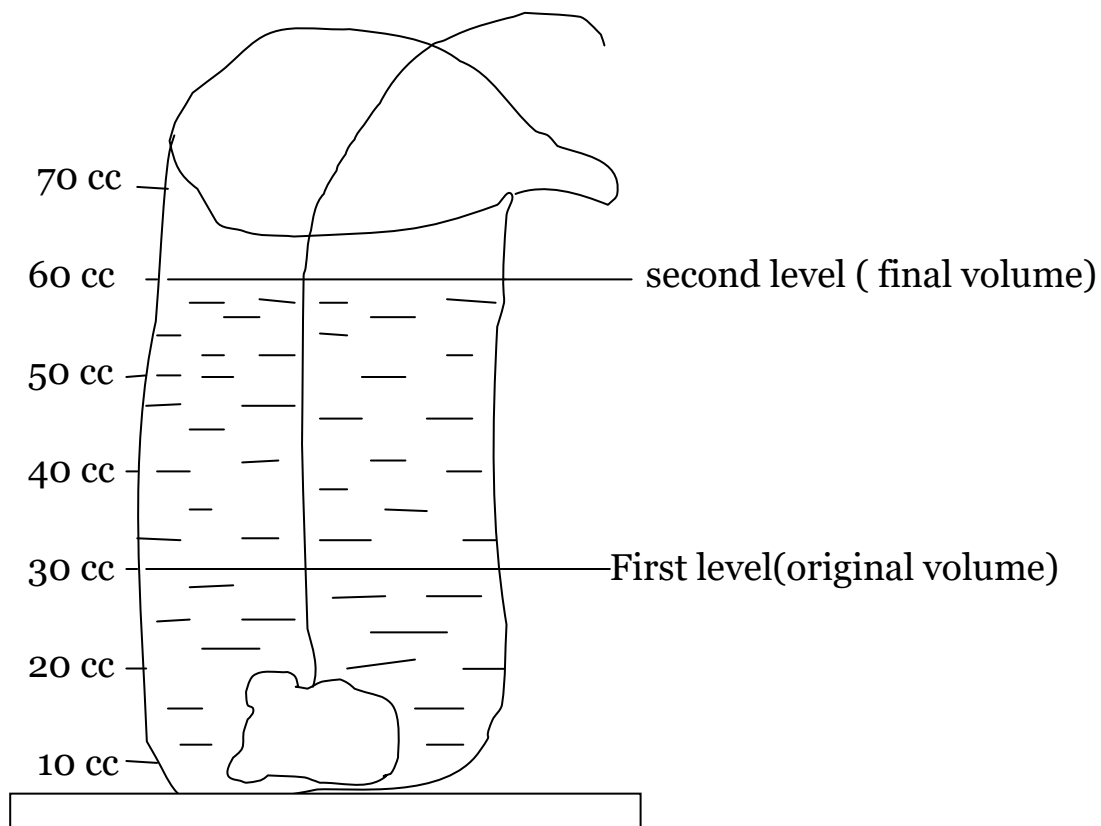
Requirements

1. A stone or irish potato
2. Water
3. Measuring cylinder
4. String

Results

Volume / level	Potato	stone
Final volume (H ₂ O level)		
Original volume		
Change in volume		

2. An experiment was carried out by P. 5 pupils to find the volume of the stone using a measuring cylinder as shown below.



a) Calculate the volume of the stone.

.....

.....

.....

b) Why is the volume of the stone equal to that answer you have given?

.....

.....

c) Name the method used in finding the volume of the stone above.

.....

.....

d) How is the string useful in the above diagram?

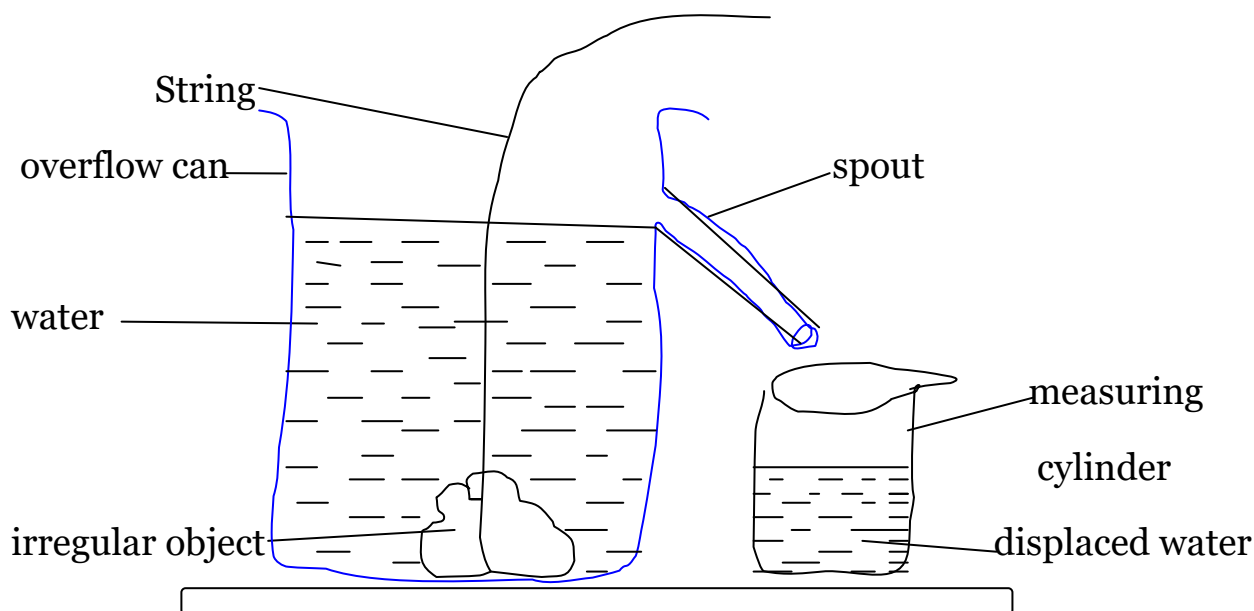
.....

.....

FINDING THE VOLUME OF IRREGULAR OBJECTS USING AN OVERFLOW CAN (EUREKA CAN) TOGETHER WITH A MEASURING CYLINDER.

Finding the volume of an irregular object using an overflow can (Eureka can)

- Lower the irregular object tied on a string into the overflow can.
- The water will overflow and pour into the measuring cylinder.



Step III

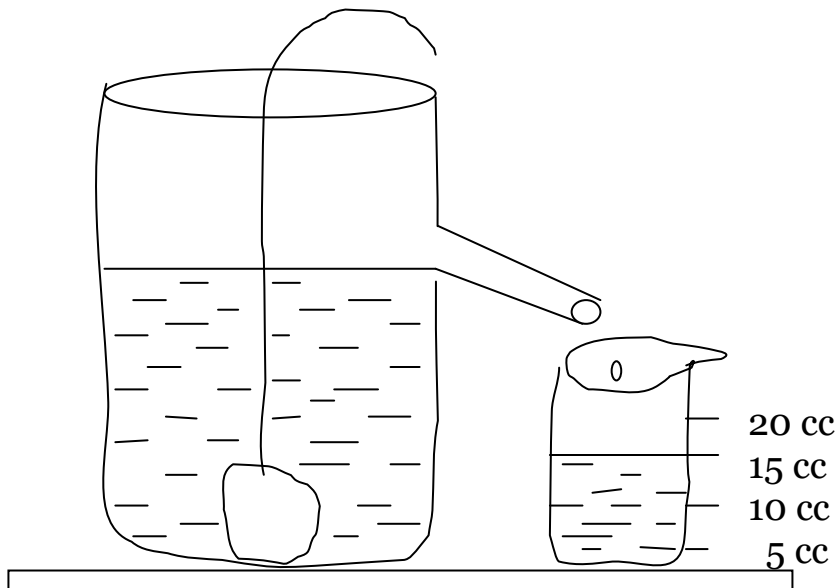
Find the volume of the irregular object by reading the level of water in the measuring cylinder.

Note:

1. Volume of an irregular object is equal to volume of the water displaced.
2. The string helps in lowering an irregular object into an overflow can.
3. The spout directs water into the measuring cylinder.
4. Measuring cylinder has markings that enable the volume of water displaced by the irregular object to be read.

Example

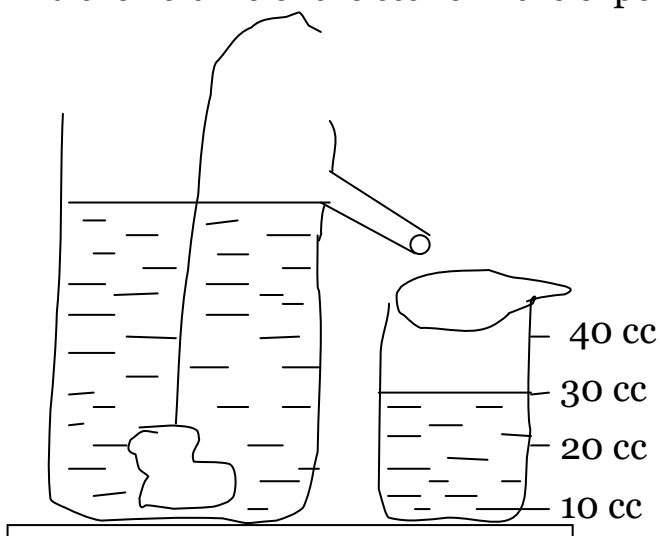
A P. 5 class carried out an experiment as shown in the diagram below. What was the volume of the stone?



The volume of the stone is 15 cc.

Example II

Find the volume of the stone in the experiment below.

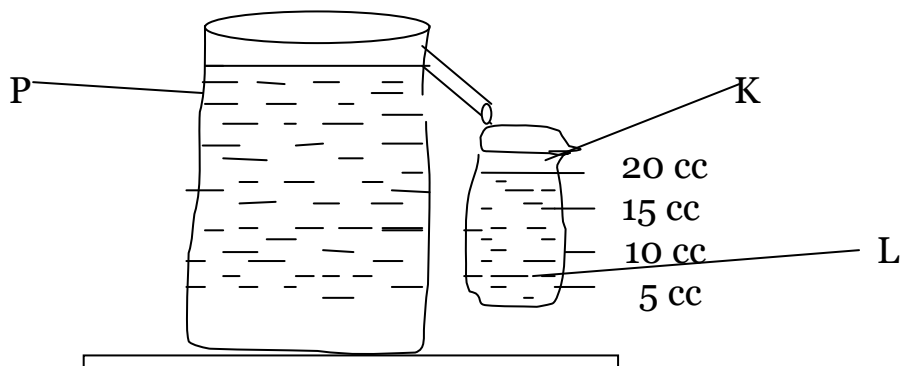


The volume of the stone is 30 cc.

FINDING THE VOLUME OF IRREGULAR OBJECTS USING AN OVERFLOW CAN.

Activity

The experiment below shows a method of finding volume of an irregular object.



a) What name is given to;

(i) Container K.

(ii) Container P.

(iii) Liquid L.

b) What method is shown in the diagram above?

.....

c) Find the volume of the stone.

.....

.....

.....

3. When a stone was immersed in water in a measuring cylinder, volume of water rose from 15 cm^3 to 40 cm^3 . Calculate the volume of the stone.

.....

.....

.....

.....

a) Why did the volume of water rise?

.....

.....

b) Calculate the volume of the stone?

.....

.....

.....

CAPACITY

Capacity

This refers to amount of a liquid a container can hold. Capacity is measured in **litres**.

Capacity is the amount of matter a container can hold.

1 litre = 1000 cubic centimetres = 1000 cm^3 = 1000 cc.

Cubic centimetres are written in short form as **cm³** or **cc**.

Metric table for capacity of liquids.

Kl	Hl	Dl	L	dl	Cl	Ml	
1	0	0	0	0	0	0	Kl - kilolitres
	1	0	0	0	0	0	Hl - hectoliters
		1	0	0	0	0	Dl - decalitres
			1	0	0	0	L - litres
				1	0	0	dl - deciliters
					1	0	Cl - centiliters
						1	Ml - milliliters

- The standard instrument used for measuring capacity is called the measuring cylinder.
- Other containers which are used to measure capacity include;
- Soda bottles of 300 mls, 500 mls, 1 litre bottles
- Jerrycans and tanks

Differences between capacity and volume

Volume	Capacity
1. It is the measure of space occupied by an object or substance	It is the amount of liquid a container can hold.
2. It is measured in cubic units.	It is measured in litres.

Weight

This is the gravitational force acting upon an object on earth.

This is the gravitational force exerted on an object by the earth.

Weight is the lightness or heaviness of an object.

Weight is the force exerted on the body due to gravity.

The standard unit for measuring weight is Newtons (N) (10 N = 1 kg) or (1 N = 100 g)

Note:

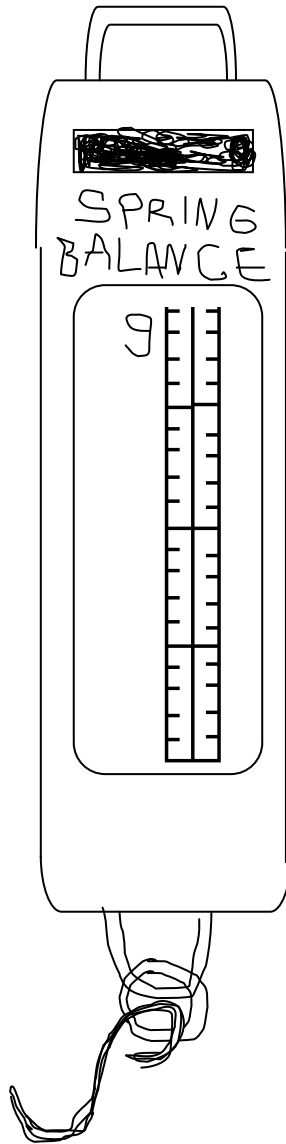
- (i) Force is the pull or push on an object.
- (ii) Gravitational force is the force which pulls an object towards the centre of the earth (gravity).

Weight of an object is determined by:

- (i) Size of the object.
- (ii) The pull of the force of gravity.
- (iii) Materials from which an object is made.

Weight is measured by an instrument called spring balance.

Diagram of a spring balance.



Mass

This is the quantity of matter an object contains. This is the amount of matter contained in an object.

The basic unit for measuring mass is grams (g).

Mass is also measured in kilograms, milligrams etc.

Mass is constant (it doesn't change and it doesn't depend on the pull of gravity).

A body can have the same mass on land and on the moon.

Instruments used to measure mass.

- (i) Beam balance
- (ii) Set of scales
- (iii) Scale balance
- (iv) Lever balance

(i) Beam balance



(ii) set of scales



(iii) scale balance



(iv) lever balance



MASS AND WEIGHT

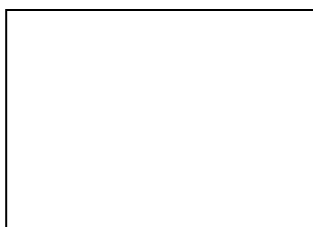
Practical activity about mass and weight.

Throw, observe and discuss.

- a) Get a bottle top and throw it up. What happens to it after sometime?
- b) Try with a pen cover. Does it fall down after some time?
- c) Try to jump up and down. Why is it that you cannot jump very high?
- d) Discuss in groups why things fall.

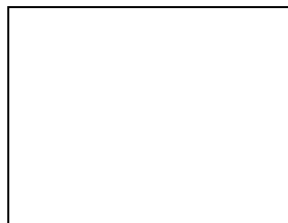
e) Which of the pieces A and B will reach the ground first when dropped from the same height?

A



Folded paper

B



unfolded paper

f) Give a reason for your answer in (a) above.

.....

.....

Note:

An object with more mass is pulled with much force down than the object with less mass. Hence, a heavy object comes back down first before the lighter one.

- Objects with more mass have more weight.
- The weight of different objects changes from place to place.
- Objects weigh less in water due to the upthrust force.

Upthrust is the upward force in water which tends to push objects upwards.

Differences between mass and weight.

Mass		Weight	
i.	Mass is constant (does not change).	i.	Weight changes with distance from the earth.
ii.	Basic units for measuring mass is grams (g).	ii.	Basic unit for measuring weight is Newtons.
iii.	Mass is the amount of matter contained in an object.	iii.	Weight is gravitational force acting upon an object on earth.

Activity:

1. Briefly explain the following terms:

a) Mass

.....
.....

b) Weight

.....
.....

2. State the standard units for the following;

(i) Mass

(ii) Weight

3. Mention any one place where a set of scales can be used in our communities.

.....
.....

4. State one difference between force and gravitational force.

.....
.....

5. Give one factor which determines the weight of an object.

.....
.....

6. How is mass different from weight in the way they are measured?

.....
.....

FINDING DENSITY OF DIFFERENT OBJECTS IN RELATION TO MASS AND VOLUME.

Density

This is the mass of an object per unit volume.

Note: Mass is measured in grams (g).

- ✓ Volume is measured in cubic centimetres (cm³ or cc).
- ✓ Density is measured in grams per cubic centimetres (g/cc or g/cm³).

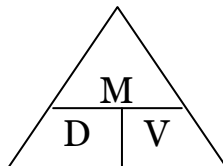
$$\text{Density (D)} = \frac{\text{Mass}}{\text{Volume}}, \quad D = \frac{M}{V}$$

- ✓ The density of a substance is found after knowing its mass and volume.
- ✓ A **hydrometer** is an instrument used for measuring the density of different liquids e.g. beer, wine, acids in batteries.
- ✓ A special instrument used for measuring density of milk is called **lactometer**.

Example I

If an object has a mass of 40 g and volume of 20 cc. Calculate its density.

$$\begin{aligned} \text{Density} &= \frac{\text{Mass}}{\text{Volume}} \\ &= \frac{40 \text{ g}}{20 \text{ cc}} \\ &= \frac{2 \text{ g}}{\text{cc}} \\ &= 2 \text{ g/cc} \end{aligned}$$



Example II

What is the density of an object whose mass is 14 g and volume of 7 cc?

Mass = 14 g, Volume = 7 cc

$$\text{Density} = \frac{\text{Mass}}{\text{Volume}}$$

$$\begin{aligned}
 &= \frac{14 \text{ g}}{7 \text{ g}} \\
 &= \frac{2 \text{ g}}{1 \text{ cc}} \\
 &= 2 \text{ g / cc}
 \end{aligned}$$

Example III

An irregular object has a mass of 20 g and volume of 5 cm³. Work out its density.

$$\text{Density} = \frac{\text{Mass}}{\text{Volume}}$$

$$\begin{aligned}
 &= \frac{20 \text{ g}}{5 \text{ cm}^3} \\
 &= 4 \text{ g/cm}^3
 \end{aligned}$$

Exercise

- What is the density of an object whose mass is 30 g and volume of 5 cm³?

.....

.....

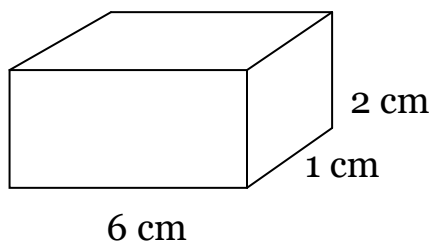
.....

- Work out the density of an object whose mass is 24 g and volume of 6 cc.

.....

.....

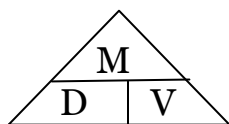
3. Find the density of the object below whose mass is 48 g.



DENSITY AND VOLUME.

Example 1

Find the mass of an object whose volume is 5 cc and density of 10 g / cc.



$$\text{Mass} = \text{Density} \times \text{Volume}$$

$$= \frac{10 \text{ g}}{\text{cc}} \times 5 \text{ cc}$$

$$= 10 \text{ g} \times 5$$

$$= 50 \text{ g}$$

Example II

Workout the mass of an object whose volume is 3 cm³ and density of 5 g/cc.

$$\text{Mass} = \text{Density} \times \text{Volume}$$

$$= \frac{5 \text{ g}}{\text{cc}} \times 3 \text{ cm}^3$$

$$= 5 \text{ g} \times 3$$

$$= 15 \text{ g}$$

Exercise

1. What is the mass of an object whose density is 10 g/cc and volume of 6 cc?

.....

.....

.....

2. An object has a density of 3 g/cm³ and volume of 20 cm³. Calculate its mass.

.....

.....

.....

.....

3. Find the mass of a stone whose density is 4 g/cc and volume of 6 cc.

.....

.....

.....

.....

DENSITY AND MASS

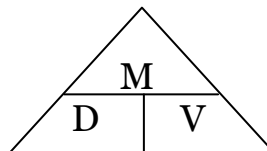
Example I

Finding volume of an object given density and mass.

What is the volume of an object whose mass is 14 g and density of 2 g/cc.

$$\text{Density} = \frac{\text{Mass}}{\text{Volume}}$$

$$\text{Volume} = \frac{\text{Mass}}{\text{Density}}$$



$$= \text{Mass} \div \text{Density}$$

$$= 14 \text{ g} \div \frac{2 \text{ g}}{\text{cc}}$$

$$= \overset{7}{\cancel{14}} \text{ g} \times \frac{\text{cc}}{\cancel{2} \text{ g}} \underset{1}{}$$

$$= 7 \times \text{cc}$$

$$\text{Volume} = 7 \text{ cc}$$

Example II

Workout the volume of an object whose mass is 15 g and density of 5 g / cc.

$$\text{Volume} = \frac{\text{Mass}}{\text{Density}}$$

$$= 15 \text{ g} \div \frac{5 \text{ g}}{\text{cc}}$$

$$= \overset{3}{\cancel{15}} \text{ g} \times \frac{\text{cc}}{\cancel{5} \text{ g}}$$

	=	3	x	cc
Volume	=	3	cc	

Activity:

1. Workout the volume of an object whose mass is 24 g and density of 3 g/ cc.

.....

.....

.....

.....

2. What is the volume of an object whose density if 2 g/cc and mass of 10g?

.....

.....

.....

.....

An object has density of 2 g/cm³ and mass of 80 g. Find its volume.

.....

.....

.....

.....

Floating

This is when an object stays on top (the surface) of the liquid on which it is put.

Objects float because they are less dense than water / liquid in which they are put.

Note: When an object floats on water, it displaces the amount of water equal to its weight.

Sinking

This is when an object goes down to the bottom of the container of the liquid it is put.

Objects sink because they are more dense or denser than water / liquid in which they are put. **OR** Their density is more (higher) than that of the liquid in which they are put.

Examples of floating and sinking objects.

Floating objects	Sinking objects
- A pencil - Leaf - Piece of paper - Bottle top - Tooth brush - Boats - Rubber band - Plastic mug or plate etc	- Nail - Stone - Coin - Nkife - Button - Pin - Sand - Soil - Glass - Keys etc

Activity

1. Give on reason why:

a) A paper floats on water

.....

b) A nail sinks in water

.....

2. What happens when a stone is put in the water. Why?

.....

.....

3. What determines sinking and floating of objects?

.....

.....