



3055 BA SANGAM COLLEGE

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LESSON NOTES

School: Ba Sangam College

Year/Level: 13

Name: _____

Subject: English

Week: 6

Year: _____

Strand	Writing and Shaping
Sub Strand	Language features and rules
Content Learning Outcome	Use correctly the conventions of written English including grammar, usage, spelling and punctuations to communicate ideas logically.

SENTENCE STRUCTURES

There are four types of sentence structures.

1. Simple Sentence Structure

A **simple sentence** consists of one independent clause. (An independent clause contains a subject and verb and expresses a complete thought.)

- I like coffee.
- Mary likes tea.
- The earth goes round the sun.
- Mary did not go to the party.

2. Compound Sentence Structure

A **compound sentence** is two (or more) independent clauses joined by a conjunction or semicolon. Each of these clauses could form a sentence alone.

- I like coffee and Mary likes tea.
- Mary went to work but John went to the party.
- Our car broke down; we came last.

The coordinating conjunctions: FANBOYS (for, and, nor, but, or, yet, so)

3. Complex Sentence Structure

A **complex sentence** consists of an independent clause plus a dependent clause. (A dependent clause starts with a subordinating conjunction or a relative pronoun, and contains a subject and verb, but does not express a complete thought.)

- We missed our plane because we were late.
- Our dog barks when she hears a noise.
- He left in a hurry after he got a phone call.
- Do you know the man who is talking to Mary?

Here are some common subordinating conjunctions:

- *after, although, as, because, before, how, if, once, since, than, that, though, till, until, when, where, whether, while*

Here are the five basic relative pronouns:

- *that, which, who, whom, whose*

4. Compound-Complex Sentence Structure

A **compound-complex sentence** consists of at least two independent clauses and one or more dependent clauses.

- John didn't come because he was ill so Mary was not happy.
- He left in a hurry after he got a phone call but he came back five minutes later.

A dependent clause is also called a subordinate clause.

EXERCISE 1 (7 marks)

Fill in the blanks beside each sentence with the correct sentence type: simple, complex, or compound. If it is a compound sentence, circle the coordinating conjunction. If it is a complex sentence, circle the subordinating conjunction.

1. She has a blue backpack. _____
2. We went to the park, and we had hot dogs on the grill. _____
3. The children finished their work, and they played on the computer. _____
4. I tried to speak Spanish, and my friend tried to speak Spanish. _____
5. Erica likes to read her book in the morning. _____
6. She is reading her book because she is done doing her homework. _____
7. The teacher gave back the student's homework after she noticed it was full of errors.

EXERCISE 2 (10 marks)

Tell whether each sentence below is simple, complex, or compound:

1. A brown bat may live in a barn, or it may prefer a cave. _____
2. The park was open until 9 p.m. _____
3. Dawn was tired because she had stayed up all night. _____
4. Many visitors come to Disneyland each year. _____
5. My dad went to the store, and he bought me a candy bar. _____
6. She always does all of her chores. _____
7. Crista likes spiders; she studies them all of the time. _____
8. Jessica fed the cats while the Smith family was out of town. _____
9. Tommy was tired, but he continued to play video games. _____
10. Elaine had a great time at the party. _____



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Worksheet 6

School: Ba Sangam College

Year / Level: 13

Subject: Mathematics

Name of student: _____

Strand	4 – Trigonometry
Sub strand	4.1 - Identities and Exact Values of Trigonometric Ratios
Content Learning Outcome	Prove Trigonometric identities

NOTES

Trigonometric Identities

• $\tan \theta = \frac{\sin \theta}{\cos \theta}$	• $\cos^2 \theta + \sin^2 \theta = 1$	• $\tan^2 \theta + 1 = \sec^2 \theta$
• $\cot \theta = \frac{1}{\tan \theta}$	• $\sec \theta = \frac{1}{\cos \theta}$	• $\operatorname{cosec} \theta = \frac{1}{\sin \theta}$

Example 1

Prove : $\tan \theta \operatorname{Cosec} \theta = \sec \theta$

Solution

Let $\tan \theta \operatorname{Cosec} \theta = \text{LHS}$ & $\sec \theta = \text{RHS}$

LHS

$$\frac{\cancel{\sin \theta}}{\cos \theta} \times \frac{1}{\cancel{\sin \theta}}$$

(use basic identities then cancel like terms)

$$\frac{1}{\cos \theta}$$

(use basic identities again)

$$= \sec \theta$$

$$= \text{RHS}$$

Example 2

Prove that $\frac{1}{1 + \sin^2 \theta} + \frac{1}{1 + \csc^2 \theta} = 1$

Solution

Trig identities that can be used:

$$\boxed{\csc^2 \theta = \frac{1}{\sin^2 \theta} \text{ substitute}}$$

$$\frac{1}{1 + \sin^2 \theta} + \frac{1}{\left[1 + \frac{1}{\sin^2 \theta}\right]} = 1$$

$$\begin{aligned} LHS &= \frac{1}{1 + \sin^2 \theta} + 1 \div \left[\frac{\sin^2 \theta + 1}{\sin^2 \theta} \right] \\ &= \frac{1}{1 + \sin^2 \theta} + 1 \times \frac{\sin^2 \theta}{\sin^2 \theta + 1} = \frac{1 + \sin^2 \theta}{\sin^2 \theta + 1} = 1 = RHS \end{aligned}$$

$$\boxed{\begin{aligned} &\left[1 + \frac{1}{\sin^2 \theta}\right] \\ &= \frac{\sin^2 \theta + 1}{\sin^2 \theta} \end{aligned}}$$

Make common denominator and Simplify

ACTIVITY

Prove the following identities

(3 marks each)

<p>1. $\sin^2 x - \cos^2 x = 2 \sin^2 x - 1$</p>	<p>2. $\csc 2\theta - \cot 2\theta = \tan \theta$</p>
<p>3. $\frac{\csc \theta}{\cot \theta + \tan \theta} = \cos \theta$</p>	<p>4. $\frac{\sin \theta}{\cos \theta} + \frac{\cos \theta}{\sin \theta} = \sec \theta \operatorname{cosec} \theta$</p>

THE END



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WORKSHEET 6

School: Ba Sangam College
Subject: Chemistry

Year: 13
Name:

Strand	3 - Reactions
Sub strand	3.1 - Electrochemistry
Content Learning Outcome	Investigate the processes involved in an electrochemical cell. -Represent galvanic cell as a cell notation.

Electrochemical Cells

Differences Between Electrolytic and Galvanic Cells

Electrolytic Cell	Galvanic Cell
Cathode is negative (reduction)	Cathode is positive (reduction)
Anode is positive (oxidation)	Anode is negative (oxidation)
<i>Electrical energy is supplied using battery</i>	<i>Electrical energy is produced through spontaneous reaction</i>
Converts electrical energy into chemical energy	Converts chemical energy into electrical energy
Redox reaction is not spontaneous and electrical energy has to be supplied to initiate the reaction	Redox reaction is spontaneous and is responsible for the production of electrical energy
Both the electrodes are placed in the same beaker in the solution of molten electrolyte	The two half cells are set-up in different beakers being connected through the salt bridge or porous partition
Absence of salt bridge	Presence of salt bridge

Cell Notation

Important components of a cell notation:

Single Slash

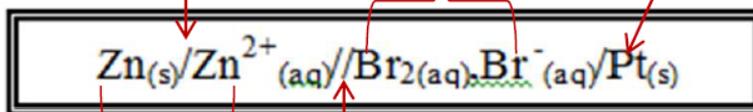
Phase change is represented by a single slash.

Reduction Half Equation

There is a decrease in oxidation number (0 to -1). There is no phase change so Br_2 and Br^- not separated by single slash

Platinum Electrode

Reduction occurs here. Br^- is separated from Pt with a single slash as there is phase change (aqueous to solid). Bromine is in aqueous state, so require Pt as electrode.



Oxidation Half Reaction

This can be easily decided by looking at the Oxidation Number of Zn (there is an increase from 0 to +2). Zinc is the electrode used.

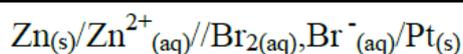
Double Slash

A **salt bridge** is represented using a double slash and separates the Oxidation half from Reduction half.

Exercise

- Which of the following is **true** for an electrochemical cell?
 - The anode is always positive.
 - The cathode is always negative.
 - Electrons always travel from the anode to the cathode.
 - Electrons always travel from the cathode to the anode.

2. A cell notation is a useful way of representing the components of an electrochemical cell. Use the cell notation below to answer the questions that follow:



- (i) What does the following symbols represent in a cell notation:
I. Double slash (/). _____
II. Comma (.). _____
- (ii) Using the cell notation write the balanced reduction half equation.
- _____
- _____

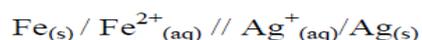
3. Which of the following is **not** a component of a galvanic cell?

- A. Battery
B. Electrodes
C. Salt bridge
D. Electrolyte

4. In a galvanic cell

- A. the reaction is spontaneous.
B. the cathode has a negative polarity.
C. electrical energy is supplied using a battery.
D. electrical energy is converted into chemical energy.

5. Use the cell notation for the galvanic cell given below to answer the questions that follow.



$$E^{\circ}\text{reduction}(\text{Fe}^{2+}(\text{aq})/\text{Fe(s)}) = -0.44 \text{ V}$$

$$E^{\circ}\text{reduction}(\text{Ag}^{+}(\text{aq})/\text{Ag(s)}) = +0.80 \text{ V}$$

- (i) Identify the **oxidation half** of the cell notation.
- _____

- (ii) State how the **oxidation half** of the cell notation in part (i) above is identified.
- _____
- _____

6. The comma (,) in the cell notation below



- A. represents an electrode.
B. represents a salt bridge.
C. indicates that the species are changing phase.
D. indicates that the species are in the same phase.

- 7.

Which of the following statements is correct?

- A. In an electrolytic cell, oxidation takes place at the negative anode.
B. In an electrolytic cell, oxidation takes place at the positive anode.
C. In an electrochemical cell, reduction takes place at the positive anode.
D. In an electrochemical cell, reduction takes place at the negative anode.

8. State the purpose of the salt bridge.

(Also refer to the questions on pg 110 and 111 from Chemistry year 13 text book)



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WORKSHEET NO: 6

Subject: Applied Technology	Year/Level: 13
Lesson 1	
Topic: BASIC HOME IMPROVEMENT	

Previous Knowledge

Students have some prior knowledge on topic which was done last year in Year/Level 12/2020.

Learning Outcomes

By the end of this topic, students will: know what electricity is.

Electricity

Introduction

Electricity is the most versatile energy source that we have; it is also one of the newest: homes and businesses have been using it for not much more than a hundred years.

Current

Current is the movement or flow of electrons along a conductor.

The diagram shows an example of current flow around a circuit.

When a battery is connected to a lamp with copper wires, the lamp illuminates. This is because as current flows through the filament of the globe (which has resistance), the filament becomes hot. The heating of the filament radiates light.

The unit of measurement of current is the **ampere** (or amp).

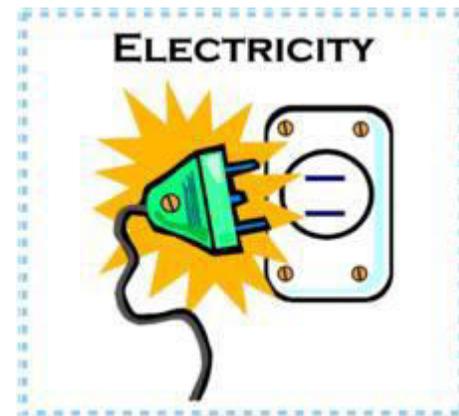
Voltage

Voltage in the battery

Voltage is the term used to describe electrical pressure or electromotive force (EMF).

A battery can create and store voltage or electrical pressure.

A battery has a build-up of negative charge at one terminal and positive charge at the other. These charges want to balance out, so there is an electrical force, or strain, between them.

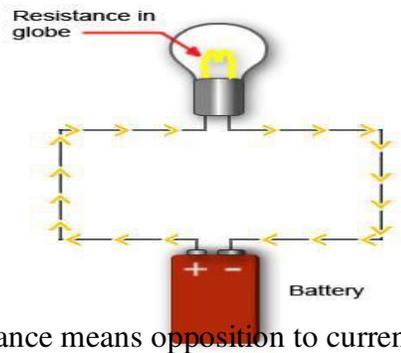


When a circuit is connected between the terminals of a battery, the electrical pressure (voltage) from the battery forces electrons to flow from the negative terminal to the positive terminal.

The unit of measurement for voltage is the **volt**.

Resistance

The filament of the globe contains resistance.



In an electrical circuit, resistance means opposition to current flow.

The amount of resistance is directly related to how easily atoms of specific materials give up electrons. Conductors have low resistance and insulators have high resistance.

In an electrical circuit, components such as globes or appliances such as toasters provide resistance to current flow. All electrical components and circuits, including the wire, have resistance that will cause opposition to current flow.

The unit for measurement of resistance is the **ohm**.

ACTIVITY QUESTION

- 1 Define electricity?

- 2 Discuss the following terms
 - Current

 - Voltage

 - Resistance



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Name- _____

Year 13

HOME ECONOMICS

WORK SHEET 6

Strand	The Family & Home Management
Sub- strand	13.1.2 Resources
Content Learning Outcome	Examine in detail appropriate means of managing income and analyse effectiveness of other saving methods.

Definitions:

Money Management-

- is the process of knowing where you are spending your money today and having a well thought – out plan in place for where you want it to go in the future.
- It is a strategic technique employed at making money yield the highest of interest, yielding value for any amount of it spent.

2. The family income - incomes of all people in a family eg. salaries and wages, retirement income, government assistance, sales and investment gains.

3. Earnings- Most people are paid regularly, weekly, fortnightly or monthly.

4. Gross Annual Income - the amount one earns in a year, such as wages/salary, commission or interest on savings.

5. Gross Income - the amount of money we earn before any deductions are made.

6. Net Income - the amount of money left after compulsory deductions have been made.

7. Deductions - money deducted from Gross Income and these include:

- Income Tax
- PAYE [Pay As you earn]
- Superannuation [FNPF – Fiji National provident Fund]

BUDGETTING

- is a plan of income and expenditure for a given period of time, usually a year or a month.

- is prepared in advance of the period to which it relates.

USES:

- It provides a yard stick against which actual results can be compared with budgeted results.
- It helps to plan and control expenditure from a given income so that maximum saving can be made.
- It acts as a guide for an individual to make plans for long term goals eg. buying a car/house.
- It ensures that sufficient cash is available to meet unpredictable events. Eg. serious illness, maintenance of house, robbery, unemployment, etc.

Budget Preparation

- Budgeting is essentially concerned with planning and this will be prepared in conjunction with those who support the family.

Components of Budget:

- Income**
- Variable Expenses:** fluctuates from period to period. Eg food, clothing, electricity, etc
- Fixed Expenses:** remain constant throughout the period, for example rent, hire purchase.

Importance of Financial literacy

- It is when a person has the skills and knowledge to be able to successfully manage his/her personal finances and interacts with the financial system.
- It promotes the importance of credit management, budgeting, paying bills on time, and not taking in too much costly debt.

Worksheet 6.

1. Define the following terms: **(3 marks)**
 - a. Family Income-

 - b. Gross Annual Income -

 - c. Budget -

2. State the difference between:
 - a. Fixed and Variable expenses- **(2 marks)**

 - b. Gross and Net Income- **(2 marks)**

3. State the importance of financial literacy. **(2 marks)**

4. List 2 uses of budgeting. **(2 marks)**
 - a. _____

 - b. _____



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Subject: Year 13 Accounting

Name: _____

Strand 5	Analysis and Interpretation of Financial Statements
Sub strand 5.1	Analysing Company Accounting Reports
Content Learning Outcome	Analyse and interpret the financial reports of a company to assess its performance and position.

Accounting Reports

Function of Accounting Reports

The main function of an accounting report is to present financial information to the users.

Features of Good Accounting Reports

Clear heading

Accuracy

Simplicity

Consistency

There are four categories of ratio analysis:

The first category that is discussed below is Earning capacity or profitability ratio

Profitability Ratios/Earning Capacity measures the profitability of a business.

Analysis Measure	Formula	Purpose & Interpretation
Gross Profit percentage	$\frac{\text{Gross Profit}}{\text{Net Sales}} \times \frac{100}{1}$	Measures gross profit per dollar of sales. High profit ratio is good for the business because it provides satisfactory return to the investors or owners. Declining gross profit ratio means low sales margin and expensive buying.
Mark up percentage	$\frac{\text{Gross Profit}}{\text{Cost of Goods Sold}} \times \frac{100}{1}$	Measures the gross profit based on the cost price.
Net Profit or Loss percentage	$\frac{\text{Net Profit or Loss after Tax}}{\text{Net Sales}} \times \frac{100}{1}$	Measures net profit per dollar of sales. High net profit ratio means high profits. Low net profit ratio may be due to excessive expenses, poor pricing techniques and poor selling techniques.

Expense to Sales percentage	$\frac{\text{Total Expenses}}{\text{Net Sales}} \times \frac{100}{1}$	Measures the ratio of expenses in relation to the sales dollar. The lower the ratio, the greater the profitability. High expense percentage is unfavorable.
Return on Total Assets percentage	$\frac{\text{Net Profit before Int. and Tax}}{\text{Average Total Assets}} \times \frac{100}{1}$	Measures return on all assets provided by owners or external parties. This ratio measures the productivity of total assets employed by the business. It helps the management in assessing the effectiveness of asst utilisation.
Return on Total Shareholders Equity percentage	$\frac{\text{Net Profit after Tax - Pref. Div}}{\text{Average Shareholders Fund}} \times \frac{100}{1}$	Measures return on investment provided by owners. This ratio enables the business to make decisions concerning alternative investment opportunities and the effectiveness with which funds are being employed. The higher the percentage rates the better for shareholders to invest further.

QUESTION 1 ANALYSIS AND INTER PRETATION OF FINANCIAL STATEMENTS

A. Tina and Tom Company Ltd is in operation and the following information has been extracted from final accounts

Year Ended 30th June	2019	2020
Revenue Statement		
Sales	120000	160000
Cost of goods Sold	84000	100000
Gross profit	36000	60000
Net Profit after tax	12000	16000
Total expenses	18000	36000
Balance Sheet		

Total assets	\$74400	\$75000
Shareholders and Liabilities		
Paid up Capital	35600	35600
Profit and loss appropriation	6700	8400
Mortgage	8000	4000
Provision for final dividend	2000	4500
Provision for taxes	6000	8000
Creditors	16100	14500
	\$74400	\$75000

Required: Calculate the following ratios for the years 2019 and 2021

- a. Net profit Percentage
- b, Gross profit ratio
- c. Expenses to sales percentage
- d. Rate of return on total assts
- e. Rate of return on shareholders funds
- f. Mark up percentage.

Ratios	Formula	2019	2020
a. Net Profit Percentage			

b. Gross Profit ratio			
c. Expenses to sales percentage			
d. Rate of return on total assets			
e. Rate of return on shareholders funds			
f. Mark up percentage			

(18 Marks)

b. State two features of a good accounting report.

(2 Marks)



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WORKSHEET 6

School: **Ba Sangam College**

Subject: **Biology**

Year: **13**

Name:

Strand	13.3 Biodiversity Change and Sustainability
Sub strand	13.3.1 Sub Cellular Form of Life Viruses
Content Learning Outcome	Describe general structure of virus.

3.1.1 Viruses

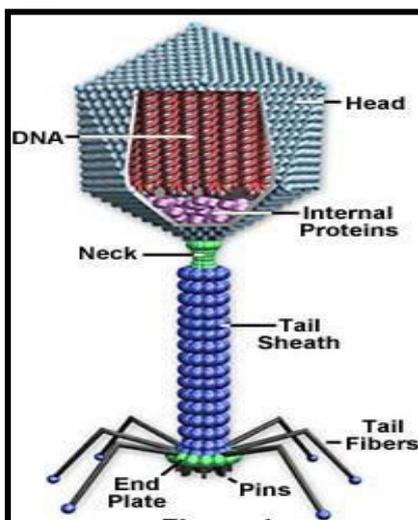
- A virus is a non-cellular particle made up of genetic material and protein that can invade living cells.

Properties of viruses

- no membranes, cytoplasm, ribosomes, or other cellular components
- they cannot move or grow and can only reproduce inside a host cell
- have 2 major parts - a protein coat, and DNA or RNA
- they are extremely tiny, smaller than cells and only visible with electron microscopes

Virus Structure

- Are usually host specific and to the cells they can infect.
- **Protein Capsule:** surrounds genetic material: **DNA or RNA**
- No means of independent metabolism or growth
- No means of independent reproduction : dependent on host
- Can evolve or change over time



EXERCISE

1. What is the genetic material of a virus and explain how this genetic material help in viral reproduction?

(2 marks)

2. What are retrovirus ?

(1 mark)

3.Name some common diseases that are caused by Virus.

(1 mark)

4.Can a virus evolve or modify itself over time?

(1 mark)

5.Can the virus reproduce if host in not available?

(1 mark)

The End



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LESSON NOTES

Worksheet 6

Subject: Economics

Year / Level: 13

Name: _____

Strand	3 - Macroeconomics
Sub Strand	Investigate how an economy operates and functions to achieve its economic growth.
Content Learning Outcome	Explore the effects of money supply in the economy

PRIMARY FACTORS AFFECTING MONEY SUPPLY

- Money as we know it today is the result of a long process and has evolved over time.
- In this modern era money plays a vital role with the prime function of being the medium of exchange.
- The latest type of money is plastic money in the form of credit cards and debit cards.
- The aim is to remove the need for carrying cash to make transactions.
- The money supply consists of notes and coins in the hands of the public plus demand deposits with all banks.
- Money supply is categorised as M1, M2 and M3.

Money supply changes due to:

- a) Primary expansion of money supply.
- b) Secondary expansion of money supply.

PRIMARY EXPANSION OF MONEY SUPPLY

- In primary expansion changes in money supply is the result of new deposits being deposited into the banking system.
- Such new deposit has effect on increasing the reserves of banks which means the reserves will be greater than those required to support the existing level of customers deposit therefore banks could lend out more money.

There are several factors which causes primary expansion of money supply:

- a) Public debt policy (Government borrowing)
- b) Foreign aid
- c) Remittances
- d) Export earnings and import payments
- e) Open market operations
- f) Interest rate
- g) Moral suasion

EFFECTS OF PRIMARY FACTORS ON MONEY SUPPLY:

Each primary factor has effect on volume of money supply. These effects are:

- a) **Government budgetary transaction** – whereby the government national budget standing has effect on money supply. This happens through:
 - i. **Budget deficit** – to cover for deficit budget borrowing takes place in 3 ways.
 - Borrowing from reserve bank. This simply means printing more money. This money supply increases.
 - Borrowing from overseas under floating exchange rate will alter the money supply depending on the movement in exchange rates.
 - Borrowing from the private sector (public) by selling bond or securities will lead to transfer of funds from private sector to public sector. It will lead to crowding out of investment however money supply will remain unchanged.
 - ii. **Budget surplus** – of the government budgets for a surplus, the domestic money supply will fall. This is because the volume of money withdrawn from the economy exceeds the volume of money injected in the form of government spending. Thus budget surplus contracts the economy.
- b) **Foreign aid** – is the international transfer of capital, goods or services from a country or international organisation for the benefit of the recipient country. Increase in foreign aid to a recipient country will increase money supply and vice versa.
- c) **Remittances** – are transfer of money from a migrant worker to their families or other individuals in their home countries. In many countries, remittance constitutes a significant portion of the GDP. Increase in remittances will increase money supply and vice versa.
- d) **Export earnings and import payments** – increase in export earnings will increase money supply on the other hand increase in import payment will decrease money supply and vice versa.
- e) **Open market operations** – when the reserve bank sells the government stock and bonds, the public account balance reduces as they pay for stock and bonds, decrease in account balance, decreases reserves, hence money supply decreases. Whereas when reserve bank buys bonds and securities, the public account balance increases hence increase in money supply.
- f) **Interest rates** – increase in interest rate leads to decrease investment thus aggregate money demand decreases hence money supply decrease. Whereas decrease in interest rates leads to increase investment thus aggregate money demand increases hence increase in money supply.
- g) **Moral suasion** – Non-official tool of monetary policy which government employ to persuade financial institutions in following suggested guidelines on the availability and cost of credit. Moral suasion is used typically by making policy announcements to induce the desired response, before resorting to mandatory compliance through statutory regulations. Therefore, through moral suasion money supply is increased.

Activity

1. Define Remittances.

2 marks

2. Differentiate between primary and secondary money expansion.

2 marks

3. State 3 factors causing primary expansion of money.

2 marks

4. State 3 effects of primary expansion of money.

2 marks

5. What is the impact on money supply if reserve bank sells the government bonds and securities?

2 marks

6. State the effect of decrease in interest rate on money supply.

2 marks

7. Explain why government budget surplus reduces the money supply.

2 marks

8. What does “crowding out of investment” mean?

2 marks

9. Explain the term “Moral Suasion”.

2 marks

10. Purchase of bonds and securities by Reserve Bank will increase or decrease money supply?

2 marks



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LESSON NOTES

School: Ba Sangam College

Year/Level: 13

Name:

Subject: Geography

Week 6

Year:

Strand	13.1 Physical Geography
Sub Strand	13.1.3 Climate and Climate Change
Content Learning Outcome	Structure and Composition of Atmosphere

Climate and Climate Change

	Climate Change	Exposure	Health Outcome	Impact
Extreme Heat	More frequent, severe & prolonged heat events.	Elevated temperatures	Death and illness	Rising temperatures will lead to heat related deaths and illnesses.
Outdoor air quality	↑ Temperatures and changing precipitation patterns	Worsen air quality	Premature deaths (acute and chronic cardiovascular and respiratory illnesses)	Rising temperatures, wildfires and decreasing precipitation will lead to increase in ozone and particulate matter increases the risk of deaths
Flooding	Rising sea levels, frequent intense precipitation, hurricanes and storm surge.	Contaminated water, debris and disruptions to essential infrastructure.	Drowning, injuries, other illnesses	Increased coastal and inland flooding, exposes people to negative health impacts before, during and after events.

<p>Vector-borne infection (Lyme disease) Vector-Borne Disease: Disease that results from an infection transmitted to humans and other animals by blood-feeding arthropods, such as mosquitoes, ticks, and fleas. Examples of vector-borne diseases include Dengue fever, West Nile Virus, Lyme disease, and malaria.</p>	<p>Changes in temperature extremes and seasonal weather patterns</p>	<p>Earlier and geographically expanded tick activity</p>	<p>Lyme disease</p>	<p>Ticks will show earlier seasonal activity and a generally Northward range expansion, increasing risk of human exposure to Lyme disease causing bacteria.</p>
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Activity

Definition

(4 marks)

Define the following terms:

1. Albedo-

2. Insolation-

3. Relative humidity-

4. Pressure Gradient-

Resource Interpretation



1.Explain what the cartoon is trying to portray. Give evidence for your answer. (2 marks)

2.State four ways of solving the above problem. (4 marks)

3.Define ocean acidification. (2 marks)

4.Describe how global warming affecting permafrost and state the consequences. -

----- (4 marks)

5.Explain how solar radiation contributed to climate change in recent decades. (2 marks)

6.'The world is warming due to climate change', suggest a reason why some winters and summers still very cold. (2 marks)



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School: Ba Sangam College
 Subject: Technical Drawing

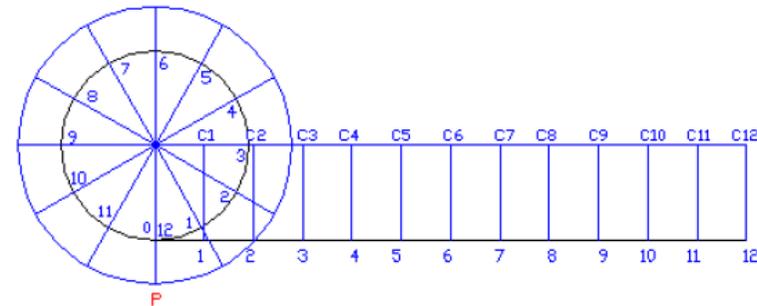
Year/Level: 13
 Week 6

Name: _____
 Year: _____

Strand	Geometrical Drawing
Sub Strand	Cycloid
Content Learning Outcome	Define different types of rolling wheels and state their application. Construct the rolling wheels.

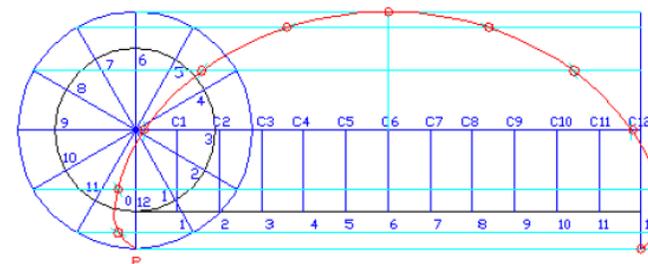
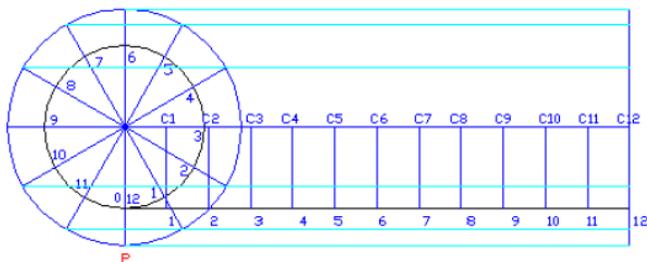
CONSTRUCTION OF A SUPERIOR TROCHOID

Below is a description of constructing a **Superior Trochoid** for a point **P** outside a circle as it rotates along a straight line without slipping.



Follow the first 2 steps of a cycloid to begin the construction of a Superior Trochoid. Draw the height lines for the **Superior Trochoid** and draw a circle that runs through point P. Draw horizontal lines from the twelve points on the revolving circle.

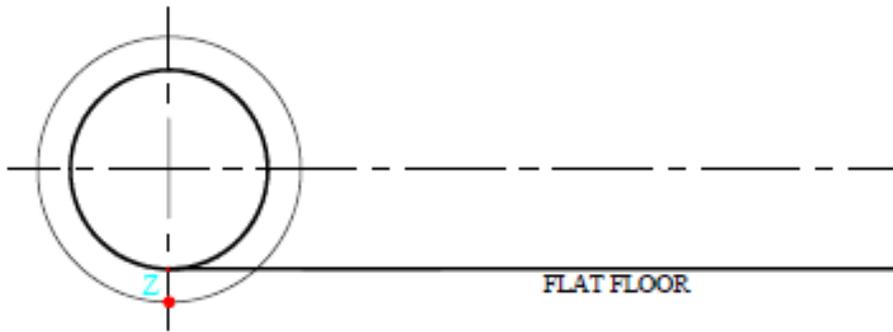
Set your compass to the radius of the new circle, place the point of the compass on C1 and inscribe on height line 1. Continue on as with the Cycloid. Join the points to get the locus of a Superior Trochoid.



Activity

Given: A tyre of a shopping trolley with a point Z rolls on a Flat and sloping floor without slipping for $1\frac{1}{4}$ revolution.

Required: Plot the locus of point Z as it makes one complete revolution.



20 marks



LESSON NOTES

School: Ba Sangam College
Subject: Agricultural Science

Year/ Name: 13 _____
 week 6

Strand	AS 13.3 Agronomy
Sub Strand	AS 13.3.1 Soil Science
Content Learning Outcome	Demonstrate the assessment methods in determining the chemical properties of the soil.

LESSON 1: ORGANIC CONTAINER GARDENING

Lesson Outcome: At the end of this lesson student should be able to:

1. Define organic gardening
2. Identify the two methods of organic vegetable container gardening

Notes

Two methods of growing organic vegetables in container gardening

1. Horizontal Container Growing Method

This is a method of growing plants or vegetables in containers in a horizontal position on the ground. The horizontal container growing method can be applied in a small-spaces gardening using different recycled containers in container gardening

2. Vertical Container Growing Method

This a method of growing container plants in traditional garden horizontal bed to increase vegetable pro a limited space to grow vegetables at home.

Activity Worksheet 6

1. List 4 recycle materials that can be used for growing vegetables in school.

(2 marks)

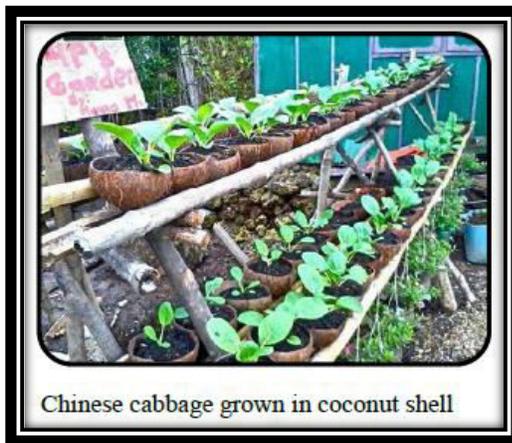
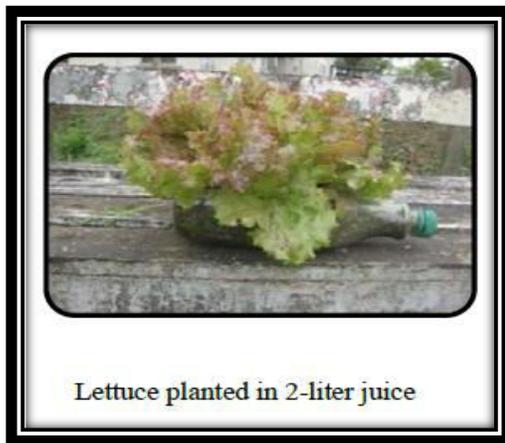
2. State two advantages of organic vegetable container gardening.

(2 marks)

3. Identify 3 suitable crops for container gardening

(3 marks)

4. The diagram below represents two different methods of practicing organic container gardening. Identify and label them correctly?



- a) _____ b) _____

(2 marks)

5. Can all vegetable crops be grown in a used 1-liter tetra-pack milk?

(1 mark)



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WORKSHEET 6

School: Ba Sangam College

Subject: Computer Studies

Year / Level: 13

Name of Student: _____

Strand	3 – Application Packages
Sub strand	3.1 – Web Designing
Content Learning Outcome	Discuss and develop web design skills

Web Designing

Servers

- ✓ The server is the software (not the computer itself) that allows the computer to communicate with other computers; however, it is common to use the word “server” to refer to the computer as well.
- ✓ The role of server software is to wait for a request for information, then retrieve and send that information back as quickly as possible.

Browsers

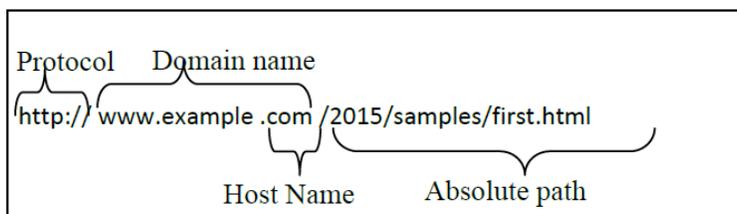
- ✓ People use desktop browsers, mobile browsers, and other assistive to access documents on the Web. The server returns the documents for the browser to display. The requests and responses are handled via the HTTP protocol.
- ✓ HTTP can be used to transfer images, movies, audio files, data, scripts, and all the other web resources that commonly make up web sites and applications.

Web Page Addresses (URLs)

The parts of a URL a complete URL is generally made up of three components:

- ✓ the protocol
- ✓ the site name
- ✓ the absolute path to the document or resource

Parts of a URL



What is Web Development?

Website Development is a process for creating a new web site or implementing changes to one already in use, e.g. adding a significant new section to a live site.

There are 8 steps in the development process. These are:

- | | |
|-------------------------|----------------------|
| 1. Website Planning | 5. Website Testing |
| 2. Website Content | 6. Website Hosting |
| 3. Website Design | 7. Website Publicity |
| 4. Website Construction | 8. Website Review |

ACTIVITY

1. What is the difference between internet and WWW? (2 marks)

2. Explain the parts of an URL? (2 marks)

3. What is the purpose of the HTTP protocol? (1 mark)

4. List two different types of server software and their uses? (2 marks)

5. What is role of the website designer? (1 mark)

6. Give an example of an URL address and label the parts. (2 marks)

7. Give two examples of servers. (2 marks)

8. Give two examples of browsers. (2 marks)



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WORKSHEET 6

SCHOOL : BA SANGAM COLLEGE
 SUBJECT: PHYSICS

YEAR : 13
 NAME OF STUDENT: _____

STRAND	4- ELECTROSTATIC
SUB-STRAND	ELECTRIC FIELD
LEARNING OUTCOME	<ul style="list-style-type: none"> Calculate the electric force between two charges

- Electric charge and electric forces play a vital role in determining the behaviour of the universe.
- Electric charge is observed to have the following properties;
 1. An electric charge has a polarity that is either positive or negative.
 2. An electric charge is conserved. It cannot be created nor destroyed.
 3. An electric charge is quantized. That is electric charges exist as discrete packets and we write as

$$q = Ne$$

Where q is symbol for charge (C)
 N is some integer
 e is the smallest value of charge (1.6×10^{-19} C)

Electric Field

Coulomb's Law

- The force between two charges of magnitudes q_1 and q_2 separated by a distance (d) is given by Coulo

$$F_e = k_e \frac{|q_1 q_2|}{d^2}$$

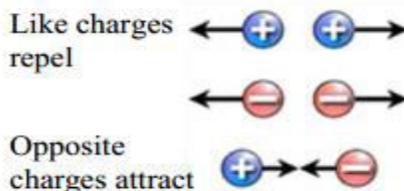
Coulomb's constant k in SI units has the value, $k_e = 8.99 \times 10^9 \text{ Nm}^2/\text{C}^2$. This can also be written as

$$k_e = \frac{1}{4\pi\epsilon_0}$$

Where the constant ϵ_0 is known as the permittivity of free space and has the value

$$\epsilon_0 = 8.54 \times 10^{-12} \text{ C}^2 \text{ N}^{-1} \text{ m}^{-2}.$$

- The electric force between two charges q_1 and q_2 obeys Newton's third law ie

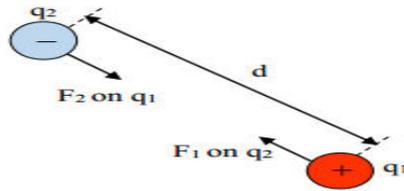


Comparison of electrical force and gravitational force

- both are inverse square laws;
- the mathematical form of both laws is the same;
- electrical forces can be either attractive or repulsive
- Gravitational forces are always attractive.

EXAMPLE

The electron and proton of a hydrogen atom are separated by 4.3×10^{-11} m. Find the magnitude of electric force and the gravitational force between the two particles.



ELECTRIC FORCE

$$F_e = \frac{k_e |q_1 q_2|}{d^2} = \frac{(8.99 \times 10^9 \text{ Nm}^2 \text{ C}^{-2}) |(-1.6 \times 10^{-19} \text{ C})(1.6 \times 10^{-19} \text{ C})|}{(4.3 \times 10^{-11} \text{ m})^2}$$
$$= 1.24 \times 10^{-7} \text{ N}$$

EXAMPLE 2

Two charges q_1 (1 mC) and q_2 (of unknown charge) exerting electrostatic force of 72 kN. If the charges are separated by a distance 0.5 m determine the value of q_2 .

$$q_1 = 1 \text{ mC} = 1.00 \times 10^{-3} \text{ C}$$
$$q_2 = ??$$
$$d = 0.5 \text{ m}$$
$$72 \text{ kN} = 72 \times 10^3 \text{ N}$$
$$F_e = \frac{k_e |q_1 q_2|}{d^2}$$
$$7.2 \times 10^3 \text{ N} = \frac{(8.99 \times 10^9 \text{ Nm}^2 \text{ C}^{-2}) |(1.00 \times 10^{-3} \text{ C})(q_2)|}{(0.5 \text{ m})^2}$$
$$q_2 = 2 \times 10^{-4} \text{ C}$$

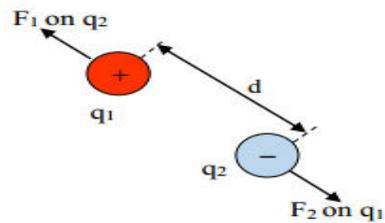


Figure 4.3

EXERCISE

- 1) Two identical conducting spheres are placed with their centres 0.3 m apart. One is given a charge of 12×10^{-9} C, the other a charge of -18×10^{-9} C.

a) Calculate the electrostatic force of attraction between the spheres.

The spheres are now connected by a conducting wire that allows charge re-distribution to occur and for equilibrium to be established.

b) Calculate the electrostatic force between the spheres. Is this force attractive or repulsive?

(2 marks each)

2. The electrostatic force of attraction between a positive charge of 8×10^{-6} C. and a negative charge of -5×10^{-6} C is 99.89 N. Determine the separation distance between the two charges.

(2 marks)



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YEAR 13 NA VOSA VAKA VITI
WORKSHEET 6

Yaca:
Tagede

(15 na maka)

Strand	Volavola kei na bulibuli
Sub Strand	Na vola ivola ni vakaraitaki nanuma
Content Learning Outcome	Tuvana matau na vosa ena loma ni veiyatuvosa me volai rawa kina na ivola

iDusidusi: Vola se vakabira na itukutuku ni vuli oqo ena nomu ivola ni volavola . Nanuma mo sauma talega na kena taro. E na taura e rua na siga mo sauma kina e dua na taro.

Vakayagataka nai vakaraitaki e soli tiko me vukei iko

Vola na nomu ituvatuva ni bera nio vola na nomu talanoa veivosaki/tukutuku

Na Vola iVola (15 na maka)

Na vola ivola e sala ni noda veitaratara se vakasavitukutuku. E sala makawa sara ka se vakayagataki tikoga nikua .E dina ni sa vakayagataki na talevoni veikauyaki , e levu se vakayagataka tikoga na ivola me sala ni nona vakau itukutuku vua e dua tale.

E rua na mataqali ivola e vulici ena Vosa vaka Viti

- i. Vola vakaveiwekani (informal) – volavola vua e dua drau veikilai vinaka se veiwekani voleka
- ii. Vola vakacakacaka (formal) – volavola vua e dua o sega ni kila, vakaitutu cecere, drau sega ni veiwekani.

Vola vakacakacaka - Veika bibi mo kila :

- Vola na nomu ituvatuva
- Tiko na kena inaki
- Volai na nona itikotiko o koya e volavola /kei koya talega ena laki ciqoma na ivola
- Volai na tikinisiga
- Veikidavaki ena Ia saka se I’ saka
- Sega na vakavakadigo ena volai ni tikotiko (address)
- Tekivu ena laini na parakaravu taucoko ka vakalalai e dua na laini ni oti e dua na parakaravu.
- Me vakaiwasewase na parakaravu me rawa ni kilai na ikau, lewena kei na itinitini. E rau leleka na ikau (matai) kei na itinitini ni parakaravu ka rabailevu na lewena (rawa ni 2 -3 na parakaravu).

