

SAMPLE CHALLENGING AREAS IN SCIENCE

Why does convection occur in liquids and gases?

- ✓ Their molecules move freely when heated.

Name any two methods used to separate mixtures of different densities.

- ✓ Separating funnel method.
- ✓ Decantation method.

Name the method used to separate mixtures of different boiling points.

- ✓ Fractional distillation method.

Define food poisoning.

- ✓ Food poisoning is an illness caused by eating contaminated food.

Give any two biological ways of controlling weeds in the garden.

- ✓ By planting cover crops.
- ✓ By grazing livestock on weeds.

What are narcotic drugs?

- ✓ Narcotic drugs are drugs that cause addiction after long use.

Why does water exist in all the three states of matter?

- ✓ Its physical properties change with change in temperature.

State the importance of harrowing land.

- ✓ It enables water infiltration.

Why does a stone reach the ground faster than a feather?

- ✓ A stone has less air resistance than a feather.\\ a feather has more air resistance than a stone.

What does the amount of water displaced by a sinking object equal to?

- ✓ Volume of the object.

What does the amount of water displaced by a floating object equal to?

- ✓ Weight of the object.

How does density affect objects?

- ✓ It causes floating or sinking of objects.

In four sentences explain how you can separate a mixture of salt and sand. mnemonic (PAFE)

- ✓ Put the mixture in a clean container.
- ✓ Add water and stir the mixture.

- ✓ Filter off the sand and get the filtrate.
- ✓ Evaporate the filtrate to its dryness to obtain salt.

In four sentences, explain how you can separate a mixture of salt, iron filings and sand.

- ✓ Use a magnet to remove the iron filings.
- ✓ Pour water into the mixture and stir to dissolve salt.
- ✓ Filter the mixture to remove sand.
- ✓ Evaporate the solution to its dryness to get salt.

In four sentences, describe how you can make local salt.

- ✓ Get dry banana peelings and burn them to get ash.
- ✓ Put ash into a clean container and dissolve it with some little water.
- ✓ Filter to obtain a salt solution.
- ✓ Evaporate the solution to its dryness to get salt crystals.

In four sentences, explain how you can make a simple electric circuit.

- ✓ Get a dry cell, a small bulb and wires.
- ✓ Connect one wire from the positive end of the dry cell to the bulb.

- ✓ Attach another wire from the bulb to the negative end of the dry cell.

- ✓ Ensure all connections are tight and the bulb will give out light.

Define the following terms.

Transpiration.

- Is the process by which plants lose water in form of water vapour into the atmosphere.

Germination.

- ✓ Is the development of a seed into a seedling.

Photosynthesis.

- ✓ Is the process by which plants make their own food called starch.

Dehydration.

- ✓ Is the condition when the body lacks enough water.

Balanced diet.

- ✓ Is a diet that contains all food values in their right amounts.

Heat.

- ✓ Is the form energy that flows from a hotter point to a colder point.

Why do arteries have thick walls?

- ✓ To withstand the pressure of blood flowing through them.

Why are ventilators placed above the doors and windows in a living house?

- ✓ To let out warm air which is less dense than the cold air.

Why are doors and windows placed at the lower levels in a living house?

- ✓ To let in cold air which is denser than warm air.

Why does a stone sink in water?

- ✓ A stone is denser than water.

Why does a leaf float on water?

- ✓ A leaf is less dense than water.

Why is sand soil used for making glasses?

- ✓ Sand soil contains silica.

Why is clay soil used for making ceramics?

- ✓ Clay soil is sticky when wet and hard when dry.

Give any two signs that show that a tuber is ready for harvesting.

- ✓ Yellowing of leaves.
- ✓ Drying of the leaves.

- ✓ Cracks in the soil around the tuber.

Which water- borne disease leads to internal bleeding?

- ✓ Dysentery.

Why is water regarded as a universal solvent?

- ✓ Water dissolves all solutes.

Name the component of air needed by plants for:

Making starch > carbon dioxide.

Making proteins > nitrogen.

Respiration > oxygen.

State the units in which temperature is measured.

- ✓ Degrees Celsius.
- ✓ Degrees Fahrenheit.

Why is a moth able to pollinate flowers at night?

- ✓ A moth has a strong sense of smell to detect scent from flowers.

How are flowers able to be pollinated by a moth at night?

- ✓ By the help of the scent produced.

Why is a housefly, butterfly, tsetse fly, mosquito, bee said to undergo complete metamorphosis?

- ✓ The larva is totally different from the adult in structure and function.

Why is a cockroach, cricket, grasshopper said to undergo incomplete metamorphosis?

- ✓ The larva resembles the adult in structure and function.

How do the following practices cause demagnetization?

Heating the magnet > it disorganizes magnetic domains.

Hammering a magnet > it disorganizes magnetic dipoles.

How does circumcision reduce risks of contracting HIV?

- ✓ It makes the fore head of the penis hard for HIV to penetrate.

How does gonorrhea infection increase the chances of contracting HIV?

- ✓ It creates sores on the sexual organs through which HIV enters.

Why are couples advised to go for gonorrhea treatment together?

- ✓ To prevent re-infection.

Why is space left in a bottle when filling it with soda?

- ✓ To leave room for an increase in volume when soda freezes.

Why does a bottle of soda break when kept in a refrigerator for a long time?

- ✓ Due to expansion of soda inside it.

Why is shearing of sheep done during dry season?

- ✓ There is enough sunshine to keep the sheep warm.

State any two reasons for docking sheep.

- ✓ To keep the sheep clean.
- ✓ To prevent flystrikes.

State the advantages of docking sheep.

- ✓ It allows easy mating in ewes.

How >.. It exposes the vulva to the ram.

- ✓ It enables the sheep to grow fat.

How >.. it allows proper distribution of fats in the body.

- ✓ It maintains the hygiene of the sheep.

How >.. it prevents soiling of dung on the sheep's tail.

What causes marasmus?

- ✓ Lack of all food nutrients in ones diet.

State any two biological methods of controlling pests.

✓ By rearing dogs to chase away monkeys.

✓ By rearing cats to eat rats.

Why is a stretcher not put in a first aid box?

✓ A stretcher is too big to fit in a first aid box.

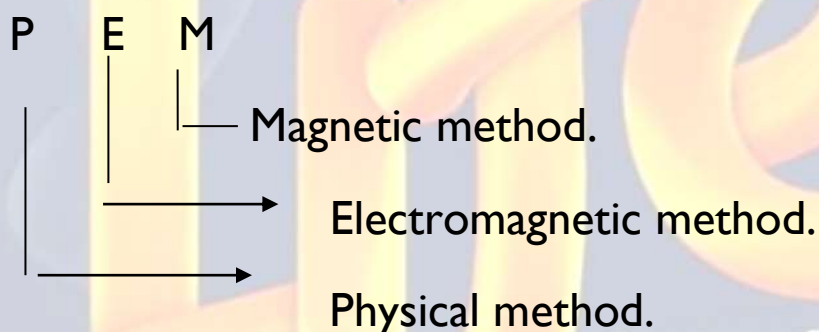
Why is alcohol used for measuring minimum temperature in a six's thermometer?

✓ Alcohol has a low freezing point.

Name the type of teeth which is not present in milk set of teeth.

✓ Premolar.

Mention the three methods of storing sound.



State the methods used to write pieces of music notes

✓ Solfa notation

✓ Staff notation

Name the types of bacteria

- ✓ Useful bacteria
- ✓ Harmful bacteria

Give the examples of stem tubers

- ✓ Irish potatoes
- ✓ Cocoyam

Why does an inflated balloon burst when left under sunshine for too long?

Due to expansion of air inside the balloon

State the role of the following materials during photosynthesis

Chlorophyll - to trap sunlight

Sunlight - to provide energy needed for photosynthesis

Carbon dioxide - combines with water to make starch

Water- combines with carbon dioxide to make starch

State the role of the following materials during germination

Warmth- provides the required temperature for germination

Oxygen – for respiration

Water – softens the testa

Why is the filament of an electric bulb coiled?

- ✓ To increase electrical resistance
- ✓ To occupy the smaller space in the bulb

UNEB CURRENT CHANGES IN INTEGRATED SCIENCE

1. Changes on reproductive system

- ✓ **Primary sex changes** occur during puberty in adolescents Primary sex changes are changes that prepare sexual organs for reproduction.

Primary sex changes occur due to some hormones called

- ✓ **Oestrogen** in girls
- ✓ **Testosterone** in boys.

The difference between primary sex changes and primary sex characteristics

15. Primary sex changes occur during puberty in adolescent s to prepare them for reproduction while primary sex characteristics are present at birth to show an individual's sex.

Examples of primary sex changes are;

Production of sperms

Production of the ova among others.

Primary sex characteristics are the physical features present at birth that define an individual's sex.

In adolescents, these characteristics continue to develop, become more pronounced hence forming primary sex changes.

Examples of primary sex characteristics include:

Presence of testes

Presence of epididymis

Presence of seminal vesicles

Presence of prostate gland

Presence of the penis.

Presence of ovaries

Presence of fallopian tubes

Presence of uterus and cervix

Presence of the vagina.

NB,

1. Primary sex characteristics are always present at birth (but not in adolescents)

2. Primary sex changes occur during puberty in adolescents. They are meant for reproduction.

Secondary sex characteristics are physical features that occur during puberty to distinguish males from females.

Secondary sex characteristics are caused by hormones called estrogen in females and testosterone in males.

Examples of Secondary Sex Characteristics include;

1. Growth of facial hair
2. Appearance of beard mustache, and side burns.
3. Deepening of the voice in boys
4. Broadening of shoulders
5. Increase in muscle mass and bone density
6. Growth of pubic hair
7. Growth of hair on the chest
8. Growth of hair under armpits and legs.
9. Enlargement of the penis
10. Enlargement of the testicles
11. Breast development
12. Growth and enlargement of breasts
13. Widening of hips
14. Beginning of the menstrual cycle

15. Softening of skin and hair

16. Smoother skin and hair.

Regarding the differences between Baroaque's examples and other textbooks, it's possible for this important reason;

Updates or revisions

Textbooks, including, SUREKEY and Baroaque, may have undergone revisions or updates, incorporating new information or perspectives.

Note;

As Baroaque's textbook was approved by the NCDC, it's likely that the information presented is accurate and aligned with current (updated) educational standards.

Item setters should stop confusion by stopping asking primary sex characteristics in adolescents because they don't occur in adolescents. What occurs in adolescents are primary sex changes!

. Updates about crops

Crops can be classified according to a number of criteria;

- The duration of their lifespan
- Purpose of growing the crops
- Parts of the crop used

- Nutrient value

Based on the length of their lifecycle, crops can be grouped as;

Seasonal -grow, yield and die within one season

Annuals-grow, yield and die within one year

Perennials-grow and yield for many years.

Based on their use;

Food crops - grown for food

Cash crops – grown for sale

Based on the Part of the crop used;

Legumes

Cereals

Tubers

Fibres

Note;

The group of a crop depends on the criteria you use. For example, beans are legumes (part of the crop used); the same beans is a good crop(considering reason for growing); the same beans is a seasonal/annual crop (based on the length of its lifespan)

UPDATE ABOUT SOUND.

Sources of sound in the environment

Action of Motorcars

Action of Guitars

Action of bells

Action of Whistles

Humans speaking

Birds singing

Thunderstorm

Blowing wind

Action of Rainfall

Action of Gunshot

Action of drums

Action of bow harps

Action of pan pipes

Action of tube fiddles

Sources of sound

Natural sources of sound

Artificial sources of sound

Methods(ways) of storing sound

Mechanical (physical) method

Magnetic method

Electromagnetic method.

Ways of reproducing sound

Replaying using computers

Replaying using smartphones

Replaying using subwoofers

Replaying using CD players

Replaying using MP3 players

Replaying using gramophones

Replaying using cassette players.

Importance of sound

Helps animals to communicate

Helps to provide evidence in courts of law.

Helps to entertain humans.

Advantages of using mechanical (Physical) Method of storing sound (Vinyl Records)

Devices lasts long if taken care of

Devices produce warm and rich sound

No electricity is needed

Advantages of using magnetic Method of storing sound (Tapes and Cassettes)

Devices can store a lot of music

Sound stored is easy to edit and change

Devices are portable and easy to carry

Devices are relatively cheap.

Advantages of using electromagnetic Method of storing sound (CDs and DVDs)

Devices produce high – quality sound

Devices lasts long

Devices resists scratches

Devices are easy to play and navigate

Sound takes up less space on devices.

Some advantages of using one method of storing sound over another.

Electromagnetic method devices store more sound than physical method devices.

Magnetic method devices store more sound than electromagnetic method devices.

Electromagnetic method devices produce more quality sound than physical method.

Electromagnetic method devices are more (durable) resistant to scratches than physical method devices.

Electromagnetic method devices are more portable and easier to carry than physical method devices.

Magnetic method devices like magnetic tapes store more sound than electromagnetic method devices such as CDs.

Muscular-Skeletal system

Types of bones in the human body.

Bones are classified into 5 main types according to their shapes into;

Long//short//irregular//flat//sesamoid.

But in most cases only 4 are emphasized. (Long short, irregular and flat).

. a) long bones.

In simple language, a long bone is one that has a shaft and two ends. Or

A long bone is one that has a greater length than width.

Examples of long bones

Femur//Tibia//fibula//humerus//ulna//radius//clavicle(collarbone)/
/metacarpals//metatarsals//phalanges.

Some teachers here grouping phalanges, metacarpals and metatarsals as short bones, which is actually not correct.

As per this definition o of long bones, metatarsals, metacarpals and phalanges qualify to be grouped under long bones despite their relatively small size compared to other long bones like the humerus, femur, fibula, tibia, radius and ulna.

b) short bones

Carpals

Tarsals

Mnemonic for short bones : Short clothes tear.

Implying;

Short•••for short bones

Clothes•••Carpals

Tear••••Tarsals

d) Sesamoid bones

These have a shape of a sesame seed, hence the name sesamoid.

Examples

Patella//kneecap.

. c) Flat bones

These have a flat shape and broad surface.

Examples

Scapula//shoulder blade// Sternum/breastbone// Ribs

Examples irregular bones

Bones of the spine/vertebral column/backbone/Vertebrae

hip bones/pelvis

Facial bones (maxilla or mandible)

Ossicles (stapes, malleus, incus)

JOINTS

Joints are places where two or more bones meet in the human body.

Types of joints

These are different classifications of connections between two or bones in the human body.

Types of joints in the human body include:

Movable joints

- Immovable joints.
- Movable joints.

Movable joints

These are types of joints that allow movements in the human body.

Examples (types) of movable joints

Pivot joints

Allow rotation of axis on atlas bones

Hinge joints

Allow short bones to slide over each other

Ball and socket joints.

Allow 360° movement/ allow movements in three planes

Immovable joints These are types of joints that allow no movement in the human body.

Examples of immovable joints

Suture joints. These are immovable joints found between skull bones.

Importance of joints in the human body

Make the human body flexible

Supports body movement.

Facts about sources of food and places where we get food from.

What are Sources of Food?

These are producers of original food.

Examples of sources of food

Plants

Animals

Fungi.

Places where we get food These are areas where food is obtained.

Examples of places where we get food from

Farms

Gardens

Markets

Stores.

Shops

Supermarkets

Butchershops

UPDATE ABOUT POLLINATION

Pollination is the transfer of pollen grains from anthers to the stigma of a flower.

Types of pollination

Self pollination

Self pollination is the transfer of pollen grains from anthers to the stigma of the same flower or another flower on the same plant.

Cross pollination.

This is the transfer of pollen grains from anthers of one flower to the stigma of another flower on plants of the same kind.

Chlorophyll

Chlorophyll is the green pigment found in plants.

Uses chlorophyll

absorbs sunlight energy for making glucose (food).

Sunlight

Provides energy needed by plants to make glucose(food).

Water combines with carbon dioxide to make glucose(food).

Importance of pollination

Allows fertilization in plants to take place.

Facilitates plants to produce seeds and fruits

UPDATE ABOUT ALLOYS

Simple mnemonics for common alloys.

BRASSBrave zebras came.

Meaning;

Brass=Zinc + Copper

BRONZE..... Brown tigers came/ Brown colored tins.

Meaning;

Bronze=Copper +Tin

STEEL..... Strong ices never crack.

Meaning;

Steel=Iron +Nickel +Copper

SOLDER.....Some tins leak

Meaning;

Solder =Tin +Lead

DENTAL AMALGAM..... Many teeth chew

Meaning;

Dental amalgam=Mercury +Tin +Copper +Silver

UPDATE ABOUT STEMS

A stem is a structure that provides support and connection between roots and leaves.

Types of stems

Aerial stems

Underground stems

1. Aerial stems

Aerial stems are plant stems found above the ground.

Examples of aerial stems

➤ Upright(erect)stems

They are common in plants such as

Maize plants/ Mvule plants/ Orange plants

➤ Weak stems/ Climbing stems/ Clasp ing stems.

They are common in plants such as

Cowpeas

Cucumbers

Beans

White yams.

2. Underground stems

Underground stems are plant stems found underground (in the soil).

Rhizomes

These are horizontal underground stems with nodes capable of growing into new plants

Examples of rhizomes

Ginger/ Turmeric/ Zoysia

Stem tubers

These are swollen underground stems with stored food.

Examples of stem tubers

Coco yams

Irish potatoes

Corms

These are short vertical underground stems with stored food.

Examples of Corms

Gladiolus/ Crocus

Bulbs

These are underground small stems with swollen fleshy leaves.

Examples of bulbs

Onions

Tulips

Qn; Explain how male circumcision reduces the risks of getting HIV/AIDS?

It hardens the glans which makes the penetration of HIV into blood difficult.

It reduces injuries during sexual intercourse

It removes the foreskin, where HIV can accumulate and enter the blood stream.

It reduces the presence of anaerobic bacteria under the foreskin, which can increase the risk of HIV transmission.

A scientific perspective, the correct term is "weaning babies or babies being weaned."

Weaning

Weaning is the gradual introduction of semi solid foods to a baby at 6 months and above.

It is done while reducing breastmilk or formula intake.

It is done to prevent deficiency diseases among infants

Note

So, weaning babies accurately describes infants undergoing this transition.

"Weaned babies," on the other hand, would imply that the weaning process is already complete.

Vulnerable groups of people

Groups of people who need special care (and diet.)

Examples of groups of people who need special care (and diet)

Breast feeding women

Breast feeding babies

Invalids

Convalescents

Elderly

The lame

The sick people

The blind

Pregnant (expectant) women

Premature babies

Note

People with special needs also need special care and therefore they are vulnerable groups of people too.

However, all people with special needs are vulnerable people but not all vulnerable people are people with special needs.

How can children promote PIASCY in a community?

Making and displaying posters about PIASCY messages.

Singing songs about PIASCY messages.

Reciting poems about PIASCY messages.

Performing short skits or plays about PIASCY messages

Composing written pieces that reflect PIASCY messages

Engaging in debates that promotes PIASCY messages.

Guiding and counseling fellow school children to understand and apply PIASCY messages.

Developing games or quizzes that reinforce PIASCY messages.

Qn; State the reason why a frog is regarded as an amphibian.

Correct response: A frog lives both on land and in water.

Reject: A frog moves by leaping/ hopping.

Explanation; The word "amphi" means both then "bian" means life. So,"amphibians" means"living both lives", which refers to animals that live both in water and on land such as frogs, toads, newts, salamanders and caecilians.

ENZYMES

Enzymes are chemical substances that speed up chemical digestion

Chemical digestion is carried out by enzymes.

Characteristics of digestive enzymes

They are protein in nature

They are catalysts//speedup chemical digestion

They are specific in digestive actions

They are destroyed by high temperature

They work under either alkaline or acidic environment

Enzymes carry out their work straight away from the mouth, stomach and ileum (duodenum).

Enzymes such as

- **Pepsin** digests proteins (chemically in the stomach)
- **Trypsin** digests proteins (chemically in the duodenum)

Duodenum (first part of the ileum)

- **Pancreatic amylase** digests carbohydrates (chemically in the duodenum)
- **Pancreatic lipase** digests fats (chemically in the duodenum) etc.

Weeds

Weeds are unwanted plants in the garden.

Reject: Weeds are plants growing where they are not wanted.

Weeding is the removal of unwanted plants in the garden.

Reject Weeding is the removal of plants growing where they are not wanted.

Advice and explanation;

Know what to teach and when to teach it.

When do we talk about weeds?

During crop growing.

What makes plants to be weeds?

Plants growing by themselves

Where is the competition between intended grown plants and unintended grown plants take place?

In the well prepared garden.

Is weeding a crop growing practice?

Yes

Where are crop growing practices carried out?

In the garden.

How do we call those unintended growing plants in the garden?

Weeds

Do we want those unintended growing plants in the garden?

No

How do we call those unwanted plants in the garden?

Weeds. Therefore, since weeding is taken as one of crop growing practices;

832. Weeding is carried out a crop growing practice in the garden.

Note

Any removal of unintended growing plants in a place is not necessarily a crop growing practice.

It is called a crop growing practice only if it is carried out in the garden.

Energy

Energy is the ability to do work

Forms of energy

Sound energy

Form of energy produced by vibrations of a material.

Recorded and stored through

Mechanical(physical)method,.....

Mechanical energy

Form of energy a body has due to its position or movement.

Types of mechanical energy

Potential energy

Form of energy a body has due to its height or position at rest.

Kinetic energy

Form of energy a body has due to its movement.

Light energy

Form of energy that enables humans/animals to see.

Heat energy.

Form of energy that flows from a hot point to a cold point.

Electrical energy

Form of energy produced by electric charges. It commonly flows through electric conductors

Magnetic energy.

Form of energy that enables magnets to attract magnetic materials.

Earth and lodestone are examples of natural substances possessing magnetic energy.

U-shaped magnets, Electromagnets, bar magnets, induced magnets and needle magnets are examples of artificial temporary or permanent substances possessing magnetic energy.

Characteristics of forms of energy

They make work possible (enables us to do work)

They can be changed from one form to another.

Honey

Honey is a sweet viscous fluid made by worker bees using nectar from plant flowers.

How is honey useful to people?

Source of carbohydrates to people such as builders, farmers etc.

Due to fact that it is rich in fructose and glucose.

Used in making drugs for cough.

Used to sweeten tea.

Honey harvesters usually harvest honey during day time.

Reason:

- There is enough sunlight to allow visibility of honey combs and broods.
- Most worker bees are out of the hive looking for honey making raw materials.

Methods of harvesting honey combs from the hive.

Traditional method

Here fire is used to harvest honey combs from the hive.

Modern method

Here smoke is used from an instrument called a smoker.

A smoker produces smoke for calming bees making it easy to harvest honey combs from the hive.

After harvesting honey combs from the hive, We again harvest honey from those honey combs.

Methods of extracting honey from honey combs

Spinning (centrifugation) method

Here an instrument called a centrifuge is used to spin the honey combs, extracting honey from it using centrifugal force.

Floating the wax method

Here honey combs are crushed and heated in a container, causing melting of wax to float on top of honey.

This leads to easy separation.

Here honey combs are squeezed or pressed using a press or piece of cloth to force honey out.

Honey can last longer without going bad after being harvested from the honey combs.

Reason:

- Honey has low moisture/ water content. Bacteria need water to grow and reproduce. But since honey has low water content, this prevents bacterial growth that would have caused honey contamination and going bad.
- Honey has a high sugar content. High sugars cause a great demand for water from bacteria, this forces water in bodies of bacteria to draw out hence failing to survive.

- Honey is acidic in nature.

This prevents bacterial growth that would have caused it to go bad.

- Honey contains hydrogen peroxide.

It is a natural antiseptic that preserves honey by preventing bacterial growth that would have caused honey to go bad.

Qn: In four sentences Briefly describe steps P7 children take to wash utensils

- I. Pour water in the washing container.
- II. Wash the utensils to remove dirt.
- III. Dry utensils with a towel.
- IV. Place them in the rack.

Helping the learner to differentiate types of roots and types of root systems.

Whereas the **types of roots** are: **True roots** and **False roots** (Adventitious roots), **types of root systems** are **tap root system** and **fibrous root system**.

A tap root being the only true root grows from the radicle of a seed.

Fibrous roots are false roots and they grow from the base of the stem of a plant.

A funnel is cone shaped regular object used for channeling liquids.

Importance of a funnel in our daily life

Shopkeepers

Helps in pouring cooking oil in small bottles without spilling

Helps in pouring fruit juice in small bottles without spilling.

Helps in filling containers with flour or sugar.

Meteorologists

Helps in pouring the collected amount of rain water received in an area into the measuring cylinder in a rain gauge.

Transferring water samples from one container to an other for analysis.

For collecting and measuring snow falls

Doctors and nurses

For measuring and mixing drugs accurately

Science labs

Helps in measuring chemicals accurately Helps in transferring chemicals/ solutions/ samples between test tubes

Used in filtration method of separating mixtures

Chefs and cooks

Helps in pouring cooking oil into small bottles

Petrol sellers

Helps in pouring Petrol into vehicles without spilling

Crop farmers

Helps in pouring pesticides into a knapsack sprayer without spilling.

Helps in pouring seeds or fertilizers into containers

Brewers

Helps in transferring beer between containers.

Diseases that affect the circulatory system

M.SALAH... stands for:

M-Malaria

S-Sickle cell disease

A-AIDS

L-Leukaemia

A-Anaemia

H-Haemophilia

They can always remember M. SALAH as diseases of the circulatory system

Roots

Taproots (primary roots) and fibrous roots are not types of roots. Types of roots are two namely;

True roots

False roots (adventitious roots).

(a)**True roots** are types of roots which develop from the radicle.

Examples of true roots;

Tap roots (primary roots).

Fibrous roots are not examples of true roots.

Reason

They don't develop from the radicle.

When a monocot seed germinates, the root that develops from the radicle breaks off at some stage.

Thereafter, fibrous roots develop. They develop at the base of the stem.

If you uproot one plant with fibrous roots, you will observe that these roots grow from the base of the stem of that plant.

(b)False (adventitious) roots

These are types of roots which develop from other parts of the plant but not radicle.

Examples of false (adventitious roots)

Prop roots

Clasping roots

Stilt roots

Fibrous roots

Buttress roots etc.

Note

Fibrous roots as we have seen, they develop from the base of the stem.

This explanation makes fibrous roots to be false (Adventitious roots). Therefore, (primary roots) are the only example of true roots.

Tap roots (primary roots) are examples of true roots (which develop from the radicle) While tap root system, fibrous root system are types of root systems. A tap root system is composed of a main root also called tap root (primary root) and small branching roots from the main root.

They are called lateral roots//secondary roots.

Qn: State any one reason why farmers dock their sheep.

Accept.

To prevent fly strikes

To keep the sheep clean

Reject. To allow easy mating.

Qn: state any two advantages of docking sheep.

It allows easy mating in ewes.

It enables the sheep to grow fat.

How?

It allows proper distribution of fats in the body.

It maintains the hygiene of sheep.

How? -It prevents soiling of dung on the tail.

-Dissolves food in the cotyledon

MNEMONICS TO SIMPLIFY THE TEACHING OF INTEGRATED SCIENCE

For beef breeds of cattle (CHAAGA)

C- Charolais

H- Hereford

Aberdeen angus

American beef master

G- Galloway

A – American Brahman

For exotic breeds of rabbits (CRANCED)

C- Californian

R- Rex

Angora

N- New Zealand white

C- Chinchilla

E- Earlop

D- Dutch

For dairy breeds of goats (TASA)

T- Toggenburg

Alpine

S- Saanen

Anglo Nubian

For cold blooded vertebrates (FAR)

F - Fish

Amphibians

R- Reptiles

For groups of vertebrates (MR BAF)

M- Mammals

R- Reptiles

Birds

Amphibians

F- Fish

For groups of invertebrates (WAM)

W- Worms

Arthropods

M- Molluscs

For groups of arthropods (MICA)

M- Myriapods

I- Insects

C- crustaceans

Arachnids

For examples of arachnids (SMiTS)

S- Scorpion

Mi-Mites

T- Ticks

S- Spider

For characteristics of arthropods (JESM)

J- Jointed legs

E- exoskeleton

S- segmented body

M- moulting

For diseases of the circulatory system (SHALAM)

S- Sickle cells

H- Haemophilia

Anaemia

L- Leukaemia

AIDS

M- Malaria

For tick borne diseases (HEAR)

H- Heart water disease

E- East coast Fever

Anaplasmosis

R- Red water diseases

For speed of sound (WHAT)

W- Wind

H- Humidity

Altitude

T- Temperature

For conditions of germination (WOW)

W- Warmth

O- Oxygen

W- Water

For fungal diseases (CARD)

C- Candidiasis

A-Athlete's foot

R- Ringworm

D- Dhobi itch

For agents of pollination (WIB)

W- Wind

I-Insects

B-Birds

For protozoan poultry diseases

Can - Coccidiosis

Brian – Black head

Party (protozoan)

For viral poultry diseases

Nice - Newcastle

Black – Bird flu

Girls- Gumboro

Fear - Fowl pox

For vitamin deficiency diseases

Nathan – Night blindness

Buys - Beriberi

Pink - Pellagra

Shirts - scurvy

Rarely –Rickets

