

SCHEME OF WORK

1. Family trait

- Meaning of trait
- Dominant and Recessive gene
- Importance of family traits.

2. Drug and substance abuse

- Effects and prevention of drug abuse
- Orthodox and herbal drugs
- Drug control agencies.

3. Resources from living things (plant)

- Meaning of resources from plant
- Cash crops
- Importance of resources from plants.

4. Resources from living things (Animals)

- Meaning of resources from Animals
- Importance of resources from animals
- Ways of preserving resources from plants and animals.

5. Resources from Non-Living things.

- Meaning of resources from Non-Living things.
- Location of solid minerals.
- Uses and importances of solid minerals.

6. Skill Acquisition

- Meaning and type of Skill Acquisition.
- Right Application to Science.
- Wrong Application to Science.

7. The Nervous System

- The Brain and Spinal cord
- Peripheral Nervous system
- Reflex actions.

8. The sense organs I

- The eye
- The Ear
- Care of the eye and the ear

9. The sense organs II

--The Eye and Ear continues.

10. Revision

11. Examination.

FAMILY TRAITS

TRAITS: - is any characteristics that is observed in an organism

FAMILY OR HERITABLE TRIAT

Family traits are characteristics passed from parents to their offsprings/progeny. Also, family trait can be referred to as transmittable.

HEREDITY: -This is the transmission or passing of traits or characteristics from parents to their offspring.

OR

Heredity is the study of the transfer of traits from parents to their offspring.

EXAMPLES OF FAMILY TRAITS

1. Baldness of the head
2. Height of the body (tall or short)
3. Complexion (light or darkness)
4. Sixth finger
5. Shape and size of Nose, eyes, mouth, face, and head.
6. Color or eyes.
7. Color of hair (grey hair)
8. Albinism
9. Sickel cell
10. Size and shape of the body
11. Blood group
12. Quantity of hair, eyebrows, and eyelashes
13. Gait method of walking
14. Tongue rolling, clasping of head.
15. Dimples
16. Curly or straight hair etc.

VARIATION

This is defined as the differences which occur among organism of the same group.

The scientific study of heredity and variation is called GENETICS.

GREGORY MENDEL (a monk) was the first scientist to carry out an experiment on genetics in the year 1866 with the use of GARDEN PEA. He is also referred to as the *FATHER* of *GENETICS*. Scientist who studies genetics are called GENETICISTS.

GENES AND CHROMOSOMES

Chromosomes: - Chromosome is defined as a thread like structure in the nucleus of a cell on which the genes (DNA MOLECULES) are arranged.

Chromosomes are present, both in the nucleus of the female egg or ovum and in the nucleus of the sperm. Chromosomes occurs in pairs hence we have 23 pairs of chromosomes or 46 chromosomes.

Chromosomes that contain same types of genes are called HOMOZYGOUS CHROMOSOMES e.g. TT or tt while,

Chromosomes that contain different genes are called HETEROZYGOUS CHROMOSOMES e.g. (Tt)

GENES: - A gene is the basic unit of heredity which carries trait from parents to their offspring.

OR

The gene is a molecule which governs the characteristics transmitted from parents to offspring. The location of a gene in the chromosome is called Locus.

GENOTYPE: - This is the sum of genes, present in the cells of an organism.

OR

It is the genetic composition of an individual e.g. AA, AS, AC, SS.

PHENOTYPE:- This is the physical appearance of an organism or individual.

Or

It is the visible or observable characteristics in an organism/individual e.g. tt.

HYBRID: - This is the individual obtained after cross breeding.

DOMINANT AND RECESSIVE GENE.

DOMINANT GENES ARE GENES WHOSE CHARACTERISTICS ARE EXPRESSED OR SHOWN IN AN OFFSPRING IN THE PRESENCE OR ABSENCE OF A RECESSIVE GENE. WHILE RECESSIVE GENES ARE GENES WHOSE CHARACTERISTICS ARE NOT EXPRESSED IN AN OFFSPRING IN THE

PRESENCE OF A DOMINANT GENE. THEY ARE GENES WHOSE CHARACTERISTICS ARE USUALLY SUPPRESSED.

Absence of dominance or partial dominance

This is a situation in which there is no clear demarcation in the manifestation of trait rather there appears to be a blending or mixing of trait.

Heredity and Environment

Environment factors also determines how the genes will develop. These factors include.

1. Food
2. Diseases
3. Weather condition
4. facilities for health etc

NON-FAMILY TRAIT OR NON-HERITABLE TRAIT

These are traits that individuals acquire from the environment, they cannot be transferred from parents to offspring.

Examples of non-heritable traits

1. Table manners
2. Culture
3. Greeting
4. Skill acquisition
5. Bleaching of the skin
6. Artificial hair cutting
7. Keeping of long nails

Importance of family Traits

The presence of family traits is very important and useful in various ways:

1. Family traits brings resemblance especially if the traits are a dominant gene and it helps in identifying members of the family.
2. Family traits gives a knowledge of the kind of disease that runs in a family so that appropriate measures are taken to ensure that the offspring does not suffer the same disease e g diabetes, sickle cell, anaemia, etc.
3. Intelligence is one of the good traits that can also be expressed in an offspring if his/her parent have such traits.

4. Family trait can help in family genealogy such that children can trace their parents and parents can also trace their children.
5. Family trait can also help in the tracing of paternity. In this case, the gene of the father and that of the child are compared to determine if there is only resemblance or relationship.

Family tree (Family genealogy)

Family tree is a line of generations of parents and offspring, and it traces the descendants of a man and his wife another name for family tree is genealogy.

ASSIGNMENT.

- 1.State one difference between family trait and non family trait.
- 2.Write down any three examples of transmittable trait you can observe in your body.
3. State any three examples of non transmittable trait.
4. Draw your family tree.

DRUGS AND SUBSTANCES ABUSE

A drug is a substance that change the way the body works i.e. the affects the structure and functioning of the body of a person that takes it.

Abuse simply means the abnormal use of something. Drug abuse is defined or the illegal intake of drugs or abnormal use of drugs.

Drug misuse refers to the use of drug for the purpose for which it is not intended.

EFFECTS/CONSEQUENCES OF DRUG ABUSE

1. It can lead to damage of internal organs.
2. It can lead to family problem including divorce.
3. It can lead to family psychiatric illness (madness).
4. It can lead to hallucination.
5. It leads to poor performance in school.
6. It can lead to dropping out of school.
7. It leads to aggression.

8. It can lead to stomach upset and the damaging of the lining of the stomach leading to ulcer.
9. It can lead to stealing and serious crimes like armed robbery.

PREVENTION OF DRUG ABUSE

1. Educating the youth on how to live a healthy lifestyle and desisting from anything that will affect your health. Do not take drugs without the doctor's prescription.
2. Studying and knowing the people you associate with.
3. Setting a high standard of morality and good behavior.
4. Setting up educational rehabilitation to educate youths and rehab victims.
5. Enforcement of drug laws by drug control agencies.
6. Engaging the youth in enlighten program.
7. By counseling youth that have fallen victims.
8. Inculcating copying skills and learn to say no to drug taking whenever friends or acquaintances want to involve you in drug taking.
9. Positive social interaction: - Be mindful of friends you keep and educate your good friends on the danger of drug abuse.
10. Self-education- Learn more about the adverse effects of drug by attending educative programmes and read educated books that explain dangers of drug abuse.
11. Self-determination: - Be determined never to get involved in drug trafficking.

ORTHODOX AND HERBAL MEDICINE

Orthodox medicine is a system whereby medical doctors and other health professionals (such as nurses, pharmacist, and therapist) treat disease using drugs radiation and surgery. It can also be called biomedicine, conventional medicine, and western medicine.

Herbal medicine is the use of plants and plants extract to treat diseases.

Misuse of herbal medicine

1. Most consumers lack proper understanding on the quality of herbal medicine to consume at a time. They consume it indiscriminately.
2. Most people who use traditional medicine do not know what the herb is made of and how it is made.

3. Manufacturers and suppliers in a bid to make excess gain adulterate most of these herbal products.

Differences Between Herbal and Orthodox Medicine

<u>Herbal Medicine</u>	<u>Orthodox Medicine</u>
1. They are naturally made	They are artificially made.
2. They are cheap	They are expensive.
3. They are gotten from Plants	They are manufactured from chemical.
4. They treat diseases Slowly	They treat diseases and illness faster.
5. They can be produced by Anyone	They are produced by health care professional. pharmacist
6. They are not taken at Specific time (plants)	They are taken at specific time interval.

DRUG CONTROL AGENCIES

These agencies are meant to look more into the appropriate production and misuse of drugs in the society.

1. NDLEA (NATIONAL DRUG LAW ENFORCEMENT AGENCY)

This agency is set up to apprehend drug carriers and their sponsors (barons).

This agency was set up in 1989 through decree No 48. They deal mainly with hard drugs. The activities and function of NDLEA include

- a. They control, monitor, and destroy prohibited drugs especially among citizens.
- b. They carry out investigation, arrest and prosecute drug offenders.
- c. Their agencies undertake the treatment of victims of drug abuses through free counseling and rehabilitation.
- d. They help to control drug trafficking.
- e. They enforce drug laws.
- f. They trace and seize financial proceeds from drug related activities.
- g. They work beyond borders to drug activities.
- h. They eradicate nicotine plants from where it is planted.
- i. They destroy illicit drugs once they get hold of it.

2. NAFDAC (NATIONAL AGENCY FOR FOOD AND DRUG ADMINISTRATION CONTROL)

This agency was set up through decree No 15 in 1992 and started operation in January 1993.

ACTIVITIES OF THE AGENCY INCLUDE: -

- a. This help in the regulation, control, inspection, and manufacturing of drugs.
- b. Their agency can also seize and destroy fake drugs.
- c. They establish guidelines and standard for drug protection.
- d. They carry out the certification of manufactured drug.
- e. They apprehend importers and manufactures of fake and contraband food.
- f. They help to control drug trafficking.
- h. They enforce drug laws.
- i. They trace and seize financial proceeds from drug related activities.
- j. They work beyond bodies to drug activities.
- k. They eradicate nicotine plants from where it is planted.
- l. They destroy illicit drugs once they get hold of it.

APCON: ADVERTISING PRACTITIONER COUNCIL OF NIGERIA)

This agency is to regulate all forms of advertisement in the country. Although, APCON is not inaugurated for drugs advertisement only, but it is within its power to ensure that promotion of harmful drugs through advertisement is not encouraged.

ASSIGNMENT

1 Define Substance Abuse

2 Define Psychoactive drugs

3 State five {5} examples of psychoactive drugs.

4 Mention one club in schools that can enlighten the students on the dangers of drug abuse.

RESOURCES FROM LIVING THINGS

- Resources are the useful thing, gotten from the environment.
- Resources from using things are the useful things gotten from living things.

The resources from living things can be divided into two,

- a. Resources from plants
- b. Resources from animals

RESOURCES FROM PLANTS

These resources can be grouped into four (4)

1. Food crop
2. Wood crop
3. Textile crop
4. Medicinal crop

- **Food crops:** These are plants that are grown mainly for food, e.g. yam, tomatoes, cabbage, apple, spinach etc. food crops can be classified under the following groups

(a) **Leafy vegetable:** - These are plants that their leaves are grown mainly for food. We get vitamins and minerals salts from these group of food crops e.g. pumpkins scent leaf, bitter leaf, waterleaf etc.

(b) **Fruits:** - These are plants grown basically because of their fruits. We get vitamins from this group of food crops e.g. Banana, Apple, cucumber, grape, orange, watermelon etc.

c. **Grains and seeds:** - These are plants grown for their seeds and grains to be consumed e.g. groundnut, beans, soyabeans, millet, wheat guinea corn, rice etc.

d. **Oil Plants:** -e.g. palm fruit, coconut, groundnut, sunflower, olive plant etc.

underground crops: - These are crops grown under the ground.

stem tubers e.g.: cocoyam, Irish potato, yam etc.

root tubers e.g.: carrot, cassava, sweet potato, bulb e.g. onions.

Wood crops: - We obtain hardwood and soft wood from wood crops e.g. oak, obeche, mahogany, mansonina, camphor, ebony etc.

Medicinal crop: - These are parts of plant or whole plant that are used as medicine. Some parts of plants used include Root, stem, bark, leaves, flowers, fruit, seed & plant extract e.g. medicinal crop dogoyaro, scent leaf, bitter leaf, Aloe Vera, Moringa seed & leaf, lemon grass.

Textile crops: - These are crops that are used to make clothe, rope, broom, basket, dyes, packaging sacks etc.

Examples of textile crops include, cotton, sisal, sorrels, jute, palm leave etc.

Cash crops.

These are crops that are produced as raw materials and sold both locally within the country and exported to other countries for money.

The raw materials, (cash crops) are used to produce other useful products.

Examples of cash crops

1. Cotton: Used in textile industries for clothe
2. Rubber: The latex from rubber trees is used in which tyres etc.
3. Cocoa: used in making beverage
4. Groundnut: - Used for groundnut oil and other food
5. Coffee: Used for beverage

6. Palm fruits: Used form palm oil.
7. Dye: from indigo plants and cam wood for colouring clothes, hair etc.
8. Lemon grass
9. Coconut
10. Leem tree (Dogoyaro) etc.

ASSIGNMENTS

1. Write down five examples of medicinal plants you can find within your school environment.
2. Give two examples of any cash crop cultivated within your vicinity.
3. State two economic importances of plant resources to your country.
4. Write down two examples of wood crops used in making furnitures.

Resources from Animals

Resources from animals are the useful things we get from animals. Some of the resource includes.

1. **Meat:** - Meat can be gotten from livestock and it serves as food for man e.g. cattle, goat, sheep, pig, rabbit, chicken, duck, turkey, goose, guinea fowl etc.

2. **Eggs:** - Eggs are gotten from poultry like chicken, guinea fowl, turkey, duck, goose etc.
3. **Sea food:** - Sea foods are mainly aquatic foods, fish, lobster, prawns, crayfish, crab, periwinkle.
4. **Horns and Bones:** - The horns and bones from animals are used in making plates, mug, glue, decoration etc
5. **Feathers:** - Feathers are used in decoration especially during chieftaincy titles and in making pillows.
6. **Wood and fur:** Gotten from sheep, is used for clothing
7. **Irony:** Irony from elephant tusk is used in making furniture and used in decoration.
8. **Milk and dairy products:** Are used for yoghurt, cheese, butter
9. **Faeces and poultry dropping:** Faeces from livestock and poultry droppings are used as manure.
10. **Hides and skin:** - They are the skin of animals processed into leather.

Hides: - Hides are the skin of large animals like cow, camel, horse, donkey etc.

Skin -skin are the skin of smaller animals like goat, sheep, rabbit, pig etc.

Both the hides and skin are processed into leathers in a place called tannery such as we have in Kano. While the person whose job is to process skin to leather is called the tanner.

Ways of preserving resources from plant and animals.

Preservation of resources from living thing, is a way of preserving plant and animal resources from spoilage and to enable the resources stay longer.

Some of the methods used in preserving resources from living things include.

1. **Drying:** - This method helps to remove water which bacterial and microorganisms need to survive in the product e.g. of resources that can be dried, onions, fish, meat, cocoyam, yam, cassava, beans, rice, pepper etc.
2. **Setting:** The presence of salt prevents bacterial from growing on the product to be preserved. e.g. meat, fish, locust beans that is grouped is preserved from smelling.
3. **Processing:** It involves turning an original product into flour or other product of preservation.
4. **Smoking:** - Smoking is carried out by heating the product on the fire to prevent spoilage e.g. meat, fish, etc

5. **Canning:** - It is a process whereby food is kept in a tight tin which have been specially heated to remove microorganism tomatoes, fish, sardine, geisha, sweet corn, baked beans, green peas, tin milk.
6. **Bottling:** It is the process whereby food is kept in an airtight bottle to prevent microorganisms' e. g soft drinks, alcoholic drinks, ketchup, salad cream, jam etc
7. **Refrigerating:** - This is a process of keeping both plant and animal products under a low temperature to avoid the growth of microorganism, some products are best preserved by freezing them e.g. meat, fish, tomatoes etc. while other are preserved at the normal temperature of the fridge e.g. vegetable, tomato, pepper, apple, pineapple, milk etc.

Importance of plant and Animals Resources to the Society.

1. They are used as raw materials for the industries e.g. hides and skin.
2. It aids in the important and exportation of goods such as cocoa, cotton etc.
3. Animal skin and wood from plant can be used in making musical instruments e.g. drum, flute etc.
4. Plant and animal resources serve as food to the society e.g. yam, beans, meat, egg etc.
5. Money gotten from cash crops are used to improve the economy of the nation.
6. It is used to provide job opportunities for the society e.g. livestock farming, keeping of poultry birds, selling of herbs such as moringa leaves, seeds etc.
7. They provide materials for clothing in the society.
8. Raw materials from living things have brought about development in the society.

Importance of plant and animals' resources to individuals

1. Plants and animals resources provides employment for individuals
2. They provide food for individuals
3. They serve as medicine for individuals e.g. olive oil, cod liver oil, moringa seed.
4. They can be used as manure for agriculture e.g. cow dung, leaves.
5. They provide individuals with building materials timbers

ASSIGNMENTS

1. Write down three examples of animals used in farming
2. Write down three birds you have consumed their eggs.
3. Write down five products gotten from animal resources.

4.State two economic importances of animal resources to the society.

RESOURCES FROM NON-LIVING THINGS

Resources from non-living things are useful things we get from non-living things.

Examples of resources from non-living things, solid minerals, soil, crude oil etc.

MINERALS: Minerals are substances that are naturally present in the earth crust and are not formed from animals or vegetable matters. Minerals can exist as solid or non-solid minerals. Some solid minerals can be found in large deposit in some parts of Nigeria, some of which include gold, limestone, iron, diamond, copper, tin etc.

The scientific study of minerals is called MINERALOGY while a scientist who studies minerals is called **MINERALOGIST**.

S/NO	SOLID MINERALS	LOCATIONS	USES
1.	LIMESTONE Calcium Trioxo, Carbonate(iv) (CaCO ₃)	- Nkalagu in Enugu State - Ekwokoro in Ogun State - Jakura in Kogi State - Okpella in Edo State - Sokoto.	- In making cement - In making concrete for building houses - For manufacturing sodium trioxo carbonate (iv) (Na₂CO₃) which is very important in manufacturing glass, production of soap and softening of hard water - it is part of the raw materials used in the production of iron. - it is used in agriculture to remove acidity from soil.
2.	GOLD (Au)	- Illesha in Osun State - Bida in Niger State	- Used in making jewelries. - Used in manufacturing household equipment and furniture.

			- used in making gold medals. - gold can be used to manufacture artefacts
3.	COPPER (Cu)	- Benin city in Edo State - Igbo Ukwu in Anambra state	- used in making electrical wires and cables. - used in making, water pipes and cylinders. - copper can be mixed with tin to produce bronze, which is used to produce tools, weapons, coins. - copper can also be used for making ornaments, pots etc
4.	TIN (Sn)	- Jos in Plateau State - Kuru in Plateau State - Bauchi in Bauchi State	- used in making cans for storing food and beverages. - used in galvanizing (coating) iron for protection against corrosion i.e. rusting
5.	LEAD (Pb)	- Ebonyi in Ebonyi State - Along Benue River Basin	- used in making car batteries. - serve as shield from x-ray. - serve as covering for underground water pipes
6.	COAL	- Udi hill in Enugu State mainly	- source of fuel for cooking and driving auto mobile (locomotor engines) - destructive distillation of coal yields products like coke which is used in producing iron.
7.	IRON (Fe)	- Itakpe in Kogi State	- used in making iron rod, iron pot etc. - used in making nails hoes window frame engine and machine parts.
8.	KAOLIN	- Umuahia in Abia State	- used in making papers plates, rubber, plastics

9.	BITUMEN	- Ondo State	- used in the construction of roads
10.	ZINC (Zn)	- Ebonyi State	- used in making roofing sheets for building.
11.	SALT	- Uburu in Ebonyi State - Abakiliki in Ebonyi State - along Nigeria Coastline from sea water that evaporated	- used in food preservation. - serves dietary purposes. - used in the manufacturing of other important products e.g. sodium, chlorine, sodium hydroxide, hydrochloric acid, bleaches etc
12.	SAND	- Port Harcourt in Rivers State	- for making glasses - for building and construction
13.	COLUMBITE	- Jos in plateau state	- used in making heat resistance steel used in JET ENGINE.

Importance of solid minerals

1. Minerals are source of raw materials to produce other goods/ items e.g. jewelries.
2. Mining and other solid mineral exploitation activities provide jobs for many people.
3. The exploitation of minerals enables people to acquire different skills.
4. The presence of solid minerals in an area leads to the development of infrastructures like road, electricity and pipe-borne water.
5. It is a source of income and foreign exchange for a country. Meaning the taxes and other revenue paid by mining companies serve as sources of income to the country.
6. Solid minerals are used in the constructions of roads, bridges and buildings e.g. Granite, Bitumen, Iron etc.
7. Mineral resources help to promote international recognition, co-operation, and friendship among other countries.
8. Minerals are also useful in the production of fertilizers, insecticides, herbicides, fungicides etc.

Consequences of over exploitation of solid minerals in the environment

1. Most solid minerals are below the ground so mining them can lead to destruction of the forest and places under vegetative cover.
2. It can lead to scraping and the removal of the top layer of the soil which contains nutrients for vegetative growth.
3. It can lead to the land becoming barren because of the loss of nutrients on the soil.

4. It can expose a land to erosion which brings about deep gullies since plants cannot grow on it.
5. It reduces or eliminates farming activities thereby making farmers jobless.
6. In some cases, water is needed to wash the minerals. Minerals washed in water pollutes the water.
7. The pollution of the water by the minerals brings about the death of aquatic organisms in the water. Thereby making fisher men to be jobless.
8. The polluted water can bring about diseases in the community if that is the only source of water.

ASSIGNMENTS

1. Give one reason while oil and coal are not considered as real minerals.
2. State two benefits of solid minerals to the country.
3. Mention any two solid minerals aside the ones mentioned above.
4. Give one example of a liquid metal.

Skill Acquisition and Scientific Ethics

Skill acquisition can be defined as a special ability developed by learning and mastering a particular skill from a professional and having the ability to do it well e.g. crocheting, craft, carpentry, baking etc.

Skill can be defined as the ability to carry out a task to bring about some satisfying result.

Reasons for skill acquisition

1. To develop the individual towards becoming self-employed to the society
2. It is a means of survival.
3. It helps individuals to learn how to live together.
4. It aids in decision making.
5. It helps in managing emergency situations.

Types of Skills

Some of the skills that can be acquired include.

- | | |
|----------------|-------------------|
| 1. Farming | 14. Welding |
| 2. Photography | 15. Painting |
| 3. Carpentry | 16. Panel beating |

- | | |
|----------------------------|---------------------------------------|
| 4. Building | 17. Hair dressing |
| 5. Automobile | 18. Electric installation maintenance |
| 6. Plumbing | 19. Electric installation |
| 7. Book binding | 20. Mechanic etc. |
| 8. Catering | |
| 9. Computer literacy skill | |
| 10. Publishing | |
| 11. Fashion design | |
| 12. Fine art | |
| 13. Bricklaying | |

Importance of skill acquisition

1. Helps one to be self-employed.
2. Earn a living through this means.
3. Improve the quality of life.
4. Enjoy our lives egg soccer, photography.
5. Improve our knowledge.
6. Improve technology in our society.

Scientific Ethics (Ethical issues in the society)

Ethics refers to the way people do things. There can be right and wrong ways of doing things.

Ethical issues in science deals with the right and wrong ways of practicing science in our society.

Right application to science is when the scientific discovering is applied to improve the quality of our life.

Right application to science has led to the improvement of agriculture, health service, transportation, communication, housing, clothing etc.

Wrong application to science is when scientific discoveries are applied wrongly without caution and guide, and it endangers our lives and properties.

Wrong application to science on the other hand leads to, pollution, unemployment, production of weapons, mass destruction, hard drugs, environmental degradation, crimes, accidents etc.

Implication of right application of science

1. It has improved communication e.g. GSM. Internet etc.
2. It has helped in health and medicine e.g. control of HIV/AIDS, High blood pressure, cancer etc.
3. Improved transportation e.g. use of airplane, trains etc
4. It has improved a whole lot in agriculture e.g. increase in food and animal production etc.
5. It has helped in the building of modern house.
6. It has improved the type of cloth people wear.
7. It has helped us in the production of energy.
8. It has helped in the exploration of minerals e.g. mining of gold, tin, coal, crude oil etc.

Implication of wrong application of science

It has led to.

1. Production of weapon of destruction such as gun, bomb, and other explosives.
2. Increase in crime e.g. kidnapping, armed robbery etc.
3. Pollution e.g. production of materials like pesticides, fertilizer that are harmful to the environment.
4. Increase in abortion of unborn babies.
5. Increase in road accidents.
6. Drug abuse and production of hard drugs.
7. Population explosion

ASSIGNMENTS

1. Give two reasons while u need to acquire a skill
2. State one reason why it is important to acquire a skill
3. Give three examples of skills you would like to acquire.

THE NERVOUS SYSTEM

The nervous system is the pathway through which impulses/message passes into the body.

The structural unit of the nervous system is the NERVE CELL OR NEURONE

Combination of the nerve cell makes up the nerves.

- The nerve are fibers that transmit impulses/messages round the body.
- A neuron is made up of two main parts, the cell body and axon.

The nervous system is divided into.

1. The central nervous system (CNS)
2. The peripheral nervous system (PNS)

- The central nervous system is made up of the brain and spinal cord. The CNS co-ordinates the major activities of the body.

- The Brain

The main part of the nervous system is the brain, it is greyish pink. The brain lies within the skull, and it governs the activities and functioning of the body.

The brain and the spinal cord are protected by bones, layers of tissues, and cerebrospinal fluid. The cerebrospinal fluid helps to lubricate the brain and the spinal cord and helps to keep our balance.

The nerves in the brain are called cranial nerves. The brain of a human being is highly convoluted or folded. The amount of folding determines the level of intelligence a person have.

1. The cerebrum
2. The cerebellum
3. Medulla oblongata

1. **The cerebrum:** - It makes up the largest part of the brain which is found in the forebrain. It is the "seat of intelligence", and it deals with many judgments, reasoning, thinking, imagination. Apart from the cerebrum the part of the brain responsible for smell (olfactory lobe) is also found in the fore brain.

2. The cerebellum and medulla oblongata are found in the hind brain, the cerebellum which helps to maintain body balance, muscular activities e.g. jumping, dancing and

controls hearing. The medulla oblongata controls involuntary or reflex actions e.g. knee jerk, heart heartbeat, respiration, digestion, coughing and sneezing etc.

4. The midbrain: Connects the fore brain and the hind brain and contains the optic lobe which is the part of the brain that coordinates sight.

- **THE SPINAL CORD**

The spinal cord is enclosed and protected by the backbone (vertebral column or spine)

Functions of the Spinal Cord

1. The spinal cord controls simple reflex actions or involuntary actions e.g. knee jerk, swallowing, eye blinking, sneezing etc
2. It acts as a pathway between the spinal nerves and the brain through the spinal nerves.

Peripheral Nervous System

The peripheral nervous system is made up of the nervous system that runs from the sense organ and connects other parts of the body to the brain and spinal cord.

The peripheral nervous system is made up of two neurons or nerve cell.

1. Sensory neurone/sensory nerve cell
2. Motor neurone /motor nerve cell

Sensory neurone: The sensory neuron carries impulses or messages or information from the receptors (sense organs) to the CNS.

2. Motor neurone carries interpreted messages or information from the brain and spinal cord to different parts of the body or effectors (muscles)

3. Intermediate or association neurone-

They carry messages from the central nervous system to the motoneuron. The intermediate neuron is found in the central nervous system. The peripheral nervous system is divided into two.

1. Somatic peripheral nervous system
2. Automatic peripheral nervous system.

N: B= No two neurons are attached to each other. There is always a small gap called "synapse or synaptic gap" The impulse jumps through the gap with the help of a chemical called ACETYLCHOLINE.

Note: Sensory receptors are also called sense organs. They receive stimuli before passing it to the sensory neuron.

Effectors are part of the body that responds to messages e.g. muscles, organs.

There are two ways which the body responds to stimuli namely.

1. **Voluntary action:** These are actions that we can control e.g. talking, eating, working, writing etc.

2. **Involuntary action:** These are the actions that we cannot control, it is also called reflex action e.g. Heartbeat, blinking of the eyes etc.

Reflex Actions

Reflex actions are an action which we do not have control over it is also called involuntary action.

Example of simple reflex actions: coughing, knee jerk, swallowing, heartbeat, sneezing, blinking of eyes etc

A pathway taken by a reflex action is called reflex arc.

The following are some of the common reflex actions.

Stimuli .	Response.
1. Sharp objects on the hand	Remove hands quickly
2. Dust in the nose	Sneezing
3. Food in the guile	Swallowing
4. Sudden noise	Whole body jumps
5. Sudden light	Eye blinks

ASSIGNMENTS

1. List three sense organs and their importances
2. List two examples of reflex actions
3. The pathway through which messages causing reflex action travels through is called-

4. Draw a well labelled diagram of the neurone.

SENSE ORGANS

The sense organs of the body are organs that receive external or internal stimuli and send them to the brain for interpretation i.e. they give information and help us avoid danger.

	SENSE ORGANS	FUNCTION
1	Eye	Seeing
2	Ear	Hearing and balance
3	Tongue	Tasting
4	Skin	Feeling
5	Nose	Smelling

THE EYE

The eye is a spherical organ known as “eyeball.” It is located in a bony socket (eye or bony socket) in the skull. The eye enables us to see things. The eyes are normally in pairs and seeing with the two eyes properly is called BINOCULAR OR STEREOSCOPIC VISION.

The eye is made up of three layers

- a. The Sclerotic layer or sclera
- b. The Choroid layer
- c. The Retina

The Sclerotic layer

The sclerotic layer is a white tough layer which protects and maintains the shape of the eye ball. The sclera extends and bulges out in front of the eye to form the cornea. The cornea is being covered by a thin transparent membrane called “CONJUNCTIVA” It helps to protect the eye from infection .

The infection of the conjunctiva is called CONJUNCTIVITIS i.e.. Apollo. The sclera bulges to the front of the eyes to form the cornea which helps in the bulging of the eyes.

The Choroid layer

The choroid layer is rich in blood supply to the eyes. This layer extends to the front of the eye to form the iris and ciliary body or ciliary muscle. The suspensory ligaments emerge from them ciliary body and its helps to hold the lens in place. The gap or space between two iris forms the pupil. The pupil is a small aperture through which light rays enter the eyes while the lens helps to focus the image of the object on the RETINA which is the third and inner most layer of the eye.

The iris controls the amount of light rays that enter the eye while the space in front of the lens is filled with a watery fluid called AQUEOUS HUMOUR and the bigger space behind the filled with a jelly-

like VITREOUS HUMOUR. Both fluids help to maintain the spherical shape of the eye ball. The lysozyme is an enzyme of the eye that works with the fluid (tears to clean the eye properly).

The Retina

The Retina is the inner most layer and most sensitive part of the eye. It is the back of the eye where inverted images are formed.

There are two spots on the retina. There are yellow spot (fovea centralis) and the blind spot, the yellow spot is where you have full vision and sensory tells while in the blind spot, there is little or no vision around.

also, the retina contains numerous photo receptors or sensory which are the rods and cones. The rods are responsible for the black and white vision, while the cones are responsible for coloured vision.

How we see an object

The object we see enters our eyes as light rays. The light rays passes through the small aperture called pupil. The iris helps to control the amount of light rays that enters the eye. The eye lens helps to bring the image to focus on the retina image formed on the retina is inverted. The optic nerves pack the information from the retina and sends to the optic lobe in the mid brain for interpretation. The image is then interpreted as been ERECT.

Note: Receptors are also called sensory cells or sensory receptors.

DRAW THE DIAGRAM OF THE VERTICAL SECTION OF THE EYE,

EYE DEFECTS:

Are some of the problems we face with our eyes

The threats) main eye defects are:-

1. Short sight (Myopia)
2. Long sight (Hypermetropia)
3. Astigmatism .
1. Short sightedness (Myopia)

This is a condition in which a person sees near objects clearly, but cannot see distant objects clearly, because they appear blurred. In this case, the distance from the front to the back of the eyeball is too long or the lenses too curved, Consequently, the image is formed in front of the retina and it is not clear. Short sightedness can be corrected with glasses that have a concave lens which is also known as diverging lens.

*LEAVE SPACE FOR THE DIAGRAM OF SHORT SIGHTEDNESS AND THE CORRECTION OF SHORT SIGHTEDNESS.

2. Long Sightedness (Hypermetropia): This is a condition whereby a person sees distant objects clearly but cannot see near objects' clearly in this case, the image is formed behind the retina and so, it is not clear. This occurs because the distance between the front and the back of the eyeball is too short, or the lens of the eye is flatten than normal hence the image is formed after the retina. Long sightedness can be corrected by wearing glasses with a convex lens which are also called converging lens. The lens will help to bring images to focus on the retina.

*LEAVE SPACE FOR THE DIAGRAM OF LONG SIGHTEDNESS AND THE CORRECTION OF LONG SIGHTEDNESS.

3. Astigmatism:- This is the difficulty in seeing horizontal and vertical lines properly and we can only see parts of pictures. This occurs because the cornea is uneven. Astigmatism can occur

with long or short sight. It can be corrected with glasses that have correct curves for that purpose. The glass must have the right curvature so that the person can see very well.

4. Conjunctivitis
5. Colour blindness
6. Night blindness
7. Blindness
8. Cataracts= It affects the lens it is common among old people, light rays cannot pass because it is not clear or it is blurry.
9. Glaucoma = Affects the nerves (This is as a result of pressure on the nerves of eye. The higher the pressure the more dangerous it is for the eye. Nerves that are destroyed as a result of the pressure won't come back. Glaucoma is called the thief of the eye. It can be corrected with surgeon.

CARE OF THE EYE

1. Do not read with dim light read only with bright light
2. Read books with fairly large print
3. Make sure there is enough light in the room when watching television. this will prevent the eyes from getting tired quickly
4. Avoid rubbing your eyes with fingers
5. Keep dangerous things away from you eye
6. When particles get into the eye you can remove them by washing the eye with clean water
7. If you have any problem with your eyes see a doctor

THE EAR

The main function of the ear is hearing. Apart from hearing, the ear enables us to maintain our body balance there are three major parts of the ear.

1. The outer ear (pinna)
2. The middle ear
3. The inner ear

1. OUTER EAR:- It is made up of the pinna, ear canal, auditory canal and ear drum or tympanic membrane but the pinna is the part of the ear that we can see
2. THE MIDDLE EAR:- It is made up of three(s) small bones called the ossicles" which are malleus, incus and stapes. The middle ear is linked to the back of the throat by a tube called "Eustachian tube which helps to equalize the air pressure inside and outside the ear drum. The bones can also be called auditory ossicles
3. THE INNER EAR: It is made up of the cochlea which is the main organ of hearing and the semi-circular canal which is the main organ of balancing as stability. The auditory nerves which is connected to the cochlea and the semi-circular canal, carries impulses to the brain (cerebellum) for interpretation end perilymph the two fluids found in the cochlea

How We Hear

Sound reach the outer ear (pinna) as vibration, the pinna collects the sound waves and direct them into the ear canal. The waves make the ear drum vibrates the vibration is then passed to the ear bones (ossicles) where it becomes much stronger thereby causing the fluid in the cochlea to vibrate. The vibration then passes the impulses to the brain for human interpretation then hear sound

***DRAW THE DIAGRAM OF THE HUMAN EAR.**

Ear defects

One ear defect we have is deafness. Deafness is the inability to hear. It may be temporary or permanent.

It is usually due to;

1. Wax blocking the ear drum
2. damaging the ear
3. Exposure to loud noise
4. Infection of the middle ear around the inner ear
5. Damage of the sensory cell in cochlea
6. Blocking of the estachian tube etc.

Care of the ear

1. Remove wax in the inner canal regularly by using a good cotton bud
2. Avoid inserting sharp objects into the ear
3. Wearing protection ear muffs when working under condition where noise level is high
4. Do not blow your nose vigorously when you have heavy cold because secretion may be into the ear through the eustachians tube
5. Where hearing and when you have trouble with the ear
6. Seeing a doctor when you have any war defect