SCHEME OF WORK

WEEK CONTENT

1. Compound cleaning, resumption, exercise and copying of Scheme of work
2. Satellite: Meaning, Uses, (Communication) Photography, Mapping, Geographic, Information System (G.I.S)
3. Satellite: Purpose of Satellite, Benefits, Launching of Nigeria SAT – 1
4. Earth in Space: The atmosphere, Components of the solar system Rotation and Revolution of the earth and the moon.
5. The earth in space: Description of climate and seasons of the year
6. The earth in space: Eclipse of the sun and the eclipse of the moon.
7. MID – Term Break
8. Space Travel: Meaning and history space travel, purpose, benefits and dangers of space travel
9. Environmental Conservation And Safety – I (Maintaining Balance in Nation): Energy flow in a community, conservation of energy, water and wildlife, importance of conservation, the significance of maintaining balance of natural resources.
10. Environmental Conservation and safety – II: (sanitation) Types of human activities that affects environmental balance, effects of human activities in ecosystems , Sanitation, Refuse, Bio degradable and non biodegradable refuse or materials, Necessity for water system, Benefits of Environmental Sanitation.
11. Revision
12. Examination
13. Closure

SATELLITES

What is a Satellite?

Satellite is an object that moves around a large objects like the planet. A planet is a body what revolves around the sun.

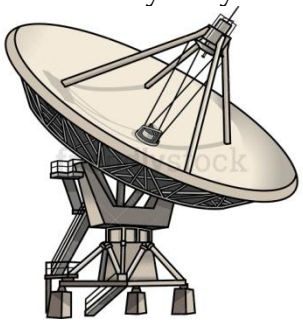
Satellite can be man-made or naturally occurring such as moon. Many man-made satellites orbit or revolve around the earth. The naturally occurring satellite or moons of the planets in our solar system are shown below.

PLANETS AND THEIR NATURAL SATELLITES

S/N	Planet	Number Of Moon
1	Mercury	None
2	Venus	None
3	Earth	1
4	Mars	2
5	Jupiter	12
6	Saturn	9
7	Uranus	5
8	Neptune	2
9	Pluto	None

Structure of a Satellite

Satellites have different shapes each is a spaceship, designed to go into the space and remain in space for a planned period of time. The instruments carried by a satellite depend on the functions of the satellite for example, military espionage satellite must carry different designed for telephone transmission or geographical mapping. Each satellite is launched into orbit by a system of rockets.



Satellite Dish

Presently, most of the satellite orbiting round the earth space serve so many purposes including, telephone, television, and radio transmission

Uses of Satellites

1. To study the nature of the earth's space including energetic particles, interplanetary matter and electromagnetic radiation
2. To investigate the characteristics of the upper atmosphere as well as the atmosphere
3. To carry out biological experiments
4. To study celestial objects from a vantage point beyond the atmosphere
5. They are used in support of manned operation
6. To perform non-scientific task in applied technology, such as communication, observation and navigator

Functions of Satellites

1. **Communication Satellites:** These are stationed in orbits for the purpose of sending information quickly from one place to another. The phones that use satellites are called Glob – phones. These phones provide global hand hold wireless service. Telephone signals can be sent from the source to the satellite. A receiver in the satellite receives the signals. A transmitter in the satellite then transmits the signal to the earth. A receiver on earth (telephone) then receives the signals from the satellites

2. **Weather Satellites:** This monitor the weather condition in the atmosphere and supply the information to ground stations.

3. **Observation Satellites:** This can be used in different types and uses. We have what is commonly called. The "Spy" business or espionage others include the geology or the study or observation of the earth United States Geological Survey use satellites to take extensive photographs of the country.

- Satellites allow geologists to make long duration measurements over many different latitudes and longitudes or map making
- Geologists use satellite to monitor natural phenomena, such as clouds, glaciers, sea ice, desert and tropical rain forest.
- Geologists use the information gathered by the satellites to collect clues about long – term global climatic change and ecological threats.
- Navigation: The automobile satellite navigation system is called the Guid Star Global Positioning Satellite (GPS) System
  This system watches you by taking signals from four satellites to determines your where about.
- **Reconnaissance Satellites:** These are satellites used for military or intelligence purpose such as observing enemy locations or troop movement
- **Environmental Monitoring:** TIROS polar orbiting satellites, launched and operated by the United State are the principal sources of environmental data for the 80% of the globe that is not covered by conventional monitoring equipment. These satellites measures temperature and humidity in the earth's atmosphere, record surface ground and surface sea water temperature and monitor cloud cover and water or Ice boundaries. They have the capacity to receive, measure, process and transmit data from balloons, buoys and remote automatic stations distributed around the globe. These satellites carry search and rescue (SAR) equipment that is used to located downed air planes and ships in distress.

The first Artificial Satellite to orbit the earth was the Russian satellite called "**Sputknik"**. It was launched on October 1st, 1957 and that marked the beginning of space age. The first American satellite was called " **Explorer".** Nigeria owns a satellite called SAT – 1 which was launched in 2003.

NIGERIAN SURVEILLANCE SATELLITE AND ITS PURPOSES

The Nigerian SAT – 1 is a low earth orbit micro satellite or disaster monitoring it weighs 100kg and has a five year target, design, it's orbit is 7000m.

Nigeria SAT – 1 was built by 15 Nigerian Engineers with the input of the university of survey in England (survey satellite and technology). Handled by National Space Research and Development Agency (NSRDA).

The Nigerian Micro Satellite is one of the seven of such being produced for disaster monitoring constellation. The other partners in the constitution include.

1. United Kingdom, China, Algeria, Turkey, Thailand, USA and Japan. Nigeria Sat – 1 is founded to a knowledge based Economy, powered by Science and Technology in the country.

   SAT – 1 is now used to solve problems in the area of environment, irrigation, minerals, Tourism and Census.
   The Date received from the satellite will be used in disaster monitoring like flood and other environmental hazards.

THE EARTH IN SPACE

The earth in which we live in is the third planet which revolves around the space the earth is spherical in shape.

The atmosphere is a huge space of about 900km thick and is completely empty with the sun moon and stars, are very far away that's reason why it is called space and the man's vehicle which travel through is called space craft.

The earth in form of a globe with imaginary line joining from the North Pole to the south pole of the earth. Thus imaginary line is called the axis. The earth rotates about in axis ones in 24hours, in its axis is responsible for day and night. We experience in the earth. The earth also has another imaginary line around its middle this is called the equator which is half way between the poles.

DAY AND NIGHT

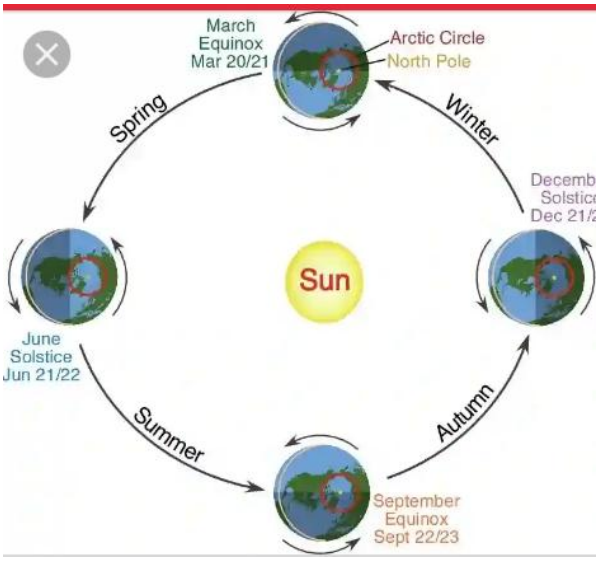
The earth rotates on it s axis just as the globe rotates on its axis. The main luminous body to the earth is the sun. The earth rotates in its axis. The part of the earth that faces the sun directly receives the light, this will cause the day.

CLIMATE AND SEASON

The earth resolves around the sun just as it rotates on its axis. It takes the earth 365 days (ie one year) to go round the sun.

The earths revolute round the sun in responsible for the seasonal and climatic charges throughout the year.

Climate: Is the atmospheric condition of a place over a period of time.
Weather: Is the atmospheric condition at a particular time and place.
Season: Are the different condition at the climate in the year for instance in Nigeria, we have dry season, wet or rainy season, and harmattan season. In the temperature regions, they have winter season, spring season and summer season. As the earth revolves round the sun, for some part of the year, the Northern hemisphere is tilted towards the sun and the Southern hemisphere away from the Southern hemispheres is tilted towards the sun and the Northern hemisphere away from the sun.



Earth's Revolution Round the Sun

THE SUN

The sun is one of the stars in our galaxy, the milk way galaxy. It is the nearest star to the earth. The sun is fixed. The sun's diameter is more than 1,380,000 kilometres which is more than 100 times bigger than the earth.

The sun is an enormous ball of glowing gas which is at a very high temperature. At the surface, the temperature of the sun is about 6000^{o}C, at the centres, it is estimated to be 40 million degrees. The sun is the primary sources of energy distribution round the earth. The earth which is about 150 million kilometres away (far) from the sun, receives only a minute fraction of the energy from the sun. The earth is also protected from the scorching heat of sun by a layer of a gas called OZON. Green plants also absorb or trap sunlight energy and use it to manufacture their food for themselves and for animals including man.

THE STARS

The stars are enormous spheres of gases, which releases great radiant energy. The temperature of the stars is usually very high but due to their far distance, we are protected from such violent energy liberated.

In West Africa, there are four of stars that we observe at different periods, they are:

1. **The Orions:** These are best observed between the months of December and April (i.e December, Jan, Feb, March and April)
2. **The Plough:** These are mostly seen from April to July
3. **Scorpius:** They are best seen between June and September (i.e June, July, August and Sept)
4. **The Pegasus:** We mostly see these between September and December.

   A collection of stars is called constellation. Each of these has different characteristic patterns, shapes illumination and positioning as shown below.

The stars appears visible to us only in the night, this is because in the day, this is because in the day, the Sunlight which is very strong shines on our atmosphere and makes the sky appear blue.

This light of the sun and the blue of the sky prevent us from seeing the stars in the day time

THE MOON

The moon is a non-luminous body. It's light is a reflection of the light from the sun to the earth. The moon is a satellite of the earth because it revolves round the earth and travels with the earth round the sun. It takes the moon about 29 days (i.e almost one month) to complete a revolution round the earth. The moon is barren with no atmosphere and no water. It carries no life. It is an unchanging world since there is no erosion taking place on it's surface.

The moon is much smaller than the earth. It has a diameter of about 3200 kilometres (i.e one quarter that of the earth). It is about 348,300. Kilometres away from us, but it is also the one closest to us, of all the heavenly bodies.

PHASES OF THE MOON

The amount of light from the sun that we can see on earth from where we are is called moon phase.

Half of the Moon's surface is always illuminated by sunlight. However, just how much of that light we can see from our point of view on Earth varies every day and this is what we refer to as a Moon phase.