They give energy to our body.

b) Proteins

Proteins are important building blocks of our muscles. They also help in hair growth. We get proteins from the meat group.

c) Vitamins and minerals

Milk and other dairy products such as cheese, yogurt, etc. are a source of different vitamins and calcium. They make our bones and teeth strong. Fruits and vegetables are also full of vitamins, minerals and fibers. They keep our digestive system healthy.

d) Fats

Fats store energy in our body for later use. Foods that provide us with fats are oil, butter and sugary products such as soft drinks, sweets, chocolates, etc.

2. Why is it important to drink clean water? Explain the methods of cleaning water in detail.

Importance of water

Water is essential for good health. It helps our body absorb and carry nutrients to all parts of the body, remove toxic substances and regulate our body temperature. It is important to drink clean water. However, there are certain factors that can make it unclean.

For example, pesticides and fertilizers, littering, animal and human waste, leakages from sewer lines, etc. can pollute water. Drinking unclean water can have various adverse effects on our body, i.e., they can cause diseases like diarrhea, typhoid, dysentery, etc. In order to be safe from getting ill by drinking unclean water, we should make it clean and suitable for drinking.

Methods of cleaning water

The following are some methods by which we can clean water.

a) Filtration
b) Boiling

Filtration

Filtration is the process of removing impurities from water using a filter medium that allows water to pass through but holds back impurities. For this

purpose a filtration plant can be installed at homes or even on a larger scale to clean drinking water.

Boiling

There are many disease-causing organisms found in water. Boiling helps in killing the germs found in water.

3. How are diseases transmitted? How can we prevent disease transmission?

Disease transmission

A disease spreads when a germ from an infected person is transmitted to a healthy person. A germ is a foreign particle such as a bacterium, virus, fungus, etc. that enters the body and affects its functioning. It happens when an infected person sneezes, coughs or touches a healthy person.

When an infected person sneezes or coughs, germs spread in the air. When a healthy person inhales this air, germs enter his body and make them ill. Similarly, direct contact by touching an infected person causes the germs to stick to a healthy person's body. When that person touches their nose, mouth or eyes, germs enter the body and infect them.

Prevention of diseases and their transmission

The following are some of the ways that can prevent us from diseases.

a) Wear a surgical mask.
b) Cover coughs and sneezes.
c) Use shirt arm when you cough.
d) Wash your hands often.

Face mask

Using of face mask is one of the most important preventive measures against COVID-19. It provides personal safety and is a barrier between contaminated environment, your mouth and nose. It does not allow germs to enter the body through nose and mouth. Wearing face mask is mandatory for a healthy as well as a patient of COVID-19. Face mask should be disposed of properly on daily basis.

Vaccination

Vaccination is a process in which weakened germs of a particular disease are injected in human body to produce antibodies in his blood. These antibodies stream in human blood and fight against the active germs of that particular

disease if enter human body. Government of Pakistan has launched vaccination programs against many diseases like Polio, Hepatitis, Corona, Tuberculosis etc. We all have the prime responsibility to be vaccinated against these contiguous diseases.

Term 2 Periodic Unit 1

Unit 4: Matter and Its Characteristics

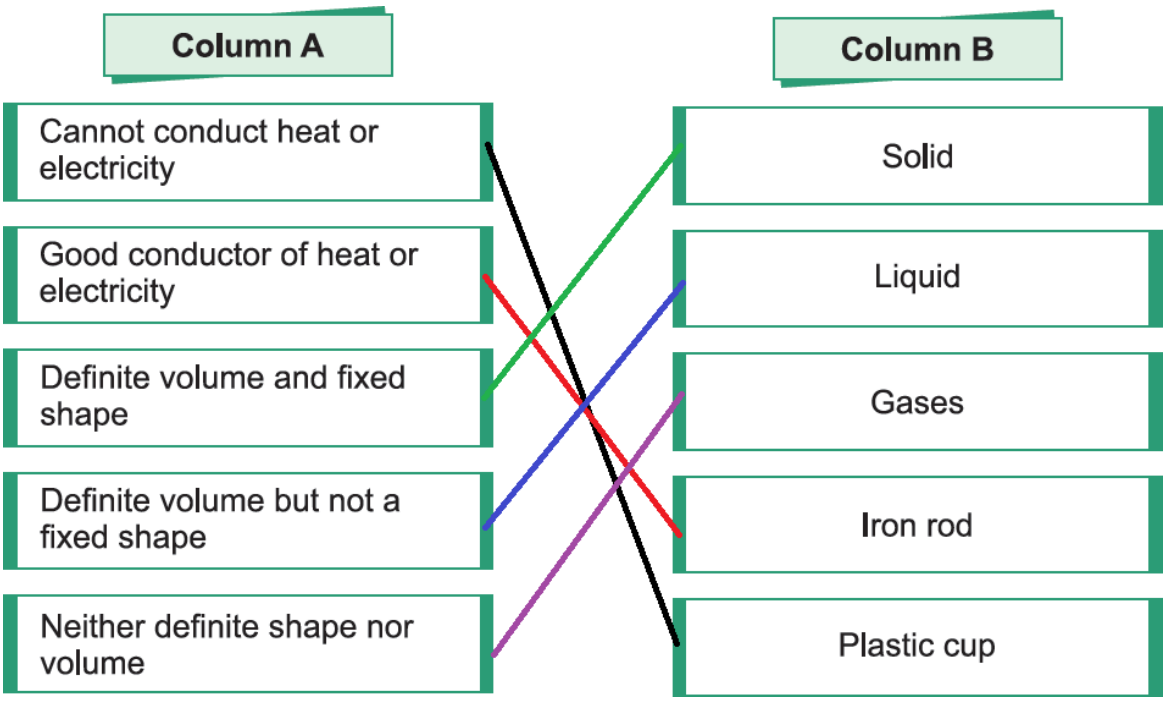
A. Choose the correct option.

1. Particles in gases are_____.
   a. Tightly packed together
   b. Loosely packed
   c. Fixed at one point
   d. Large in size
   The correct answer is b.
2. Which is not a property of solids?
   a. High density
   b. Particles move randomly
   c. Cannot flow
   d. A definite shape and volume
   The correct answer is b.
3. A/An_____can conduct heat and electricity.
   a. Balloon
   b. Wooden ruler
   c. Iron rod
   d. Plastic cup
   The correct answer is c.
4. Which of the following objects will float on water surface?
   a. Rock
   b. Egg
   c. Spoon
   d. Plastic bottle
   The correct answer is b.
5. Which of these is not a metal?
   a. Iron
   b. Silver
   c. Gold
   d. Wood
   The correct answer is d.

B. Write "True" or "False".

1. Matter is all around us.
   True
2. There are five states of matter.
   False
3. In liquids, the size of particles is larger than in gases.
   True
4. Wood is a good conductor of electricity.
   False
5. We use metallic pots for cooking because they conduct heat well.
   True

C. Match column A with column B.



D. Answer the following questions briefly.

1. What is matter?
   Everything around us that has mass and takes up space is matter. Books, stones, water, air, etc. are all examples of matter.
2. Explain why solids cannot flow?
   In solids, the particles are closely packed together and are unable to move. That is why solids cannot flow.
3. Distinguish between good and bad conductors of heat and electricity with examples.
   Difference between good and bad conductors of heat and electricity:

Good conductors	Bad conductors
The materials that have the ability to pass heat or electricity through them are called good conductors.	The materials that do not allow heat or electricity to pass through them are called bad conductors.
Examples: Silver, gold, copper, iron, etc.	**Examples:** Wood, plastic, rubber, glass, etc.

4. Define mass and volume.
   The quantity of matter in a substance is called its mass. The space occupied by a substance is called its volume.
5. Write some uses of metals.
   Metals are used in everyday life. Here are some uses:
   1. They are used to make paper clips, coins, nuts, locks, etc.
   2. Due to their conductivity, metals are used for making kitchen utensils.
   3. Some metals, such as gold and silver, are used for making jewellery.
   4. Metals are used in constructing buildings.
   5. Electrical wires are made of metal, i.e. copper.

E. Answer the following questions in detail.

1. Describe the characteristics of each state of matter with examples.
   Matter
   Matter exists in the following three states.
   a. Solid
   b. Liquid
   c. Gas
   Characteristics of states of matter
   Some important characteristics of states of matter are given below.

Solid	Liquid	Gas
Have a definite shape and volume.	Have a definite shape but do not have a definite volume.	Neither a definite shape nor volume.
Particles are closer together and cannot move. However they can vibrate.	Particles are apart from each other and can move.	Particles are farthest apart and can move randomly.
Cannot flow.	Can flow.	Can flow.
High density.	Less dense than solids.	Less dense than solids and liquids.
Examples: Books, bricks, glasses, etc.	**Examples:** Water, tea, milk, etc.	**Examples:** Air, water vapour, etc.

2. What is buoyancy? Which objects floats on water?

Buoyancy

The ability of an object to float on water is called buoyancy. It depends on the density or how thick an object is.

Why objects float on water?

Objects float on water because they have less density than water. However, objects which are denser than water will sink in water. Less dense objects like apples, wood, and sponges will float on the surface of water.

3. If a piece of solid is given to you. How can you identify if it is metal or not? Infer your answer.

Identification of a metal

To identify metal following physical properties will be observed.

a. Appearance
b. Texture
c. Density
d. Colour and odour
e. Conductivity

If the piece of solid is glossy and has smooth texture and can conduct electricity, it means it is a solid.

Unit 5A: Forms of Energy and Energy Transfer (Energy Sources)

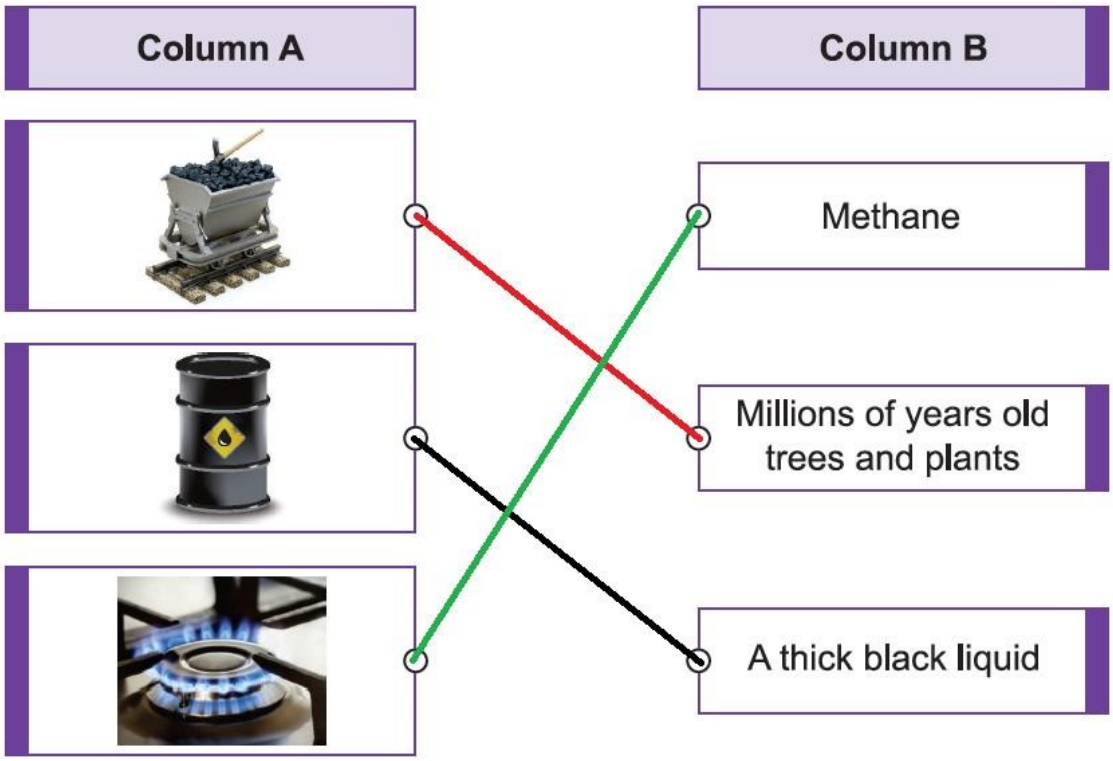
A. Choose the correct option.

1. The energy we get from the Sun is called_____.
   a. Wind energy b. Sound energy
   c. Hydropower energy d. Solar energy
   The correct answer is d.
2. Hydropower is the energy we get from_____.
   a. Water b. Wind
   c. Oil d. The Sun
   The correct answer is a.
3. Natural gas is mainly consist of_____.
   a. Petroleum b. Methane
   c. Diesel d. Coal
   The correct answer is b.
4. In an electrical heater, electric energy is converted into_____.
   a. Sound energy b. Wind energy
   c. Heat energy d. Mechanical energy
   The correct answer is c.
5. Which of the following is the cheapest source of energy?
   a. Water b. Wind
   c. Natural gas d. Coal
   The correct answer is d.

B. Write "True" or "False".

1. Flowing water is the ultimate source of energy.
   False
2. Fossil fuels are the remains of dead animals and plants.
   True
3. Natural gas cannot catch fire easily.
   False
4. The food we eat provides us with energy.
   True
5. Energy does not convert from one form to another form.
   False

C. Match the sources of energy given in column A with their compositions in column B.



D. Answer the following questions briefly.

1. Define energy.
   Energy is the ability to do work.
2. Describe how we use hydropower.
   The energy in running water is used to run turbines that generate electricity. This form of electricity is called hydropower. Hydropower is used in homes and industries.
3. Find out how coal is formed?
   Millions of years ago, when plants and animals died, they were buried in Earth and deposited in very deep layers. This dead matter decomposed and changed into fossil fuels such as coal.
4. From where is crude oil extracted?
   Crude oil is a thick black liquid. It is found deep down between the layers of rock. It is extracted by digging a large well.
5. Define transformation of energy. Illustrate it with two examples.
   One form of energy can be changed into another. This phenomenon is called the transformation of energy. For example, when we switch on an electric

heater, electrical energy is converted into heat and light energy. Similarly, when we use a battery in a flashlight, the chemical energy of the battery transforms into electrical energy.

E. Answer the following questions in detail.

1. Differentiate between renewable and non-renewable sources of energy.
   Differences between renewable and non-renewable sources of energy

Renewable sources of energy	Non-renewable sources of energy
Renewable sources of energy are those limitless energy sources which are present in nature.	Non-renewable sources of energy refer to limited sources of energy as they take millions of years for them to form.
Sun, water and wind are renewable sources of energy.	Coal, oil and gas are non-renewable sources of energy.
Sun: The energy we get from the Sun is called solar energy. The Sun is the ultimate source of energy.	**Coal:** The energy we obtained from coal comes from the energy stored in trees and plants that lived millions of years ago. It is the cheapest source of energy used for burning and power generation.
Wind: Natural movement of air is called wind. The energy obtained from the wind is called wind energy.	**Natural gas:** Natural gas is mainly of methane. It is pumped out from deep inside the Earth.
Water: Energy in running water is used to generate electricity is called hydropower.	**Oil:** Crude oil is a thick black liquid, also called petroleum. It is found deep down between the layers of rocks.
Uses • The solar energy is used to run many solar cells, which in return provide us electricity. • Wind energy moves windmills that also produce electricity. • The hydropower is used to run turbines that generate electricity.	**Uses** • Coal is widely used in power plants. • Natural gas is used in stoves. • Oil is widely used to run vehicles and large turbines.

2. Explain how we can conserve energy.
   Conservation of energy

Energy can be transformed from one form to another. It means energy can never be created or destroyed. It can only change from one form to another. “It is called law of conservation of energy”. Let's observe a few examples of conservation of energy.

1. When we rub hands, the mechanical energy of our hands turns into heat energy and makes us feel warm.
2. When a car engine starts and the car moves, it is the chemical energy of petroleum that is converted into mechanical energy to run the car.
3. When we turn on the stove for cooking, the thermal energy from natural gas is converted into light energy.

In the examples mentioned above, we have seen that our life would be very difficult if energy is not conserved.

3. Explain how we are using non-renewable sources of energy in our daily lives and how we can save them.

Uses of non-renewable sources of energy

1. Coal is widely used in power plants.
2. Natural gas is used in stoves.
3. Oil is widely used to run vehicles and large turbines.

Ways to save non-renewable sources of energy

As energy is very important for us, we should adopt certain ways to conserve the non-renewable sources of energy. Here are some ways.

1. Switch off all the lights and the fan while leaving the room.
2. Use LED bulbs instead of incandescent bulbs.
3. Switch off the TV and computer when not in use.
4. Increase the use of solar appliances.
5. Use public transport instead of own vehicles.

Term 2 Periodic Unit 2

Unit 5B: Forms of Energy and Energy Transfer (Forms of Energy)

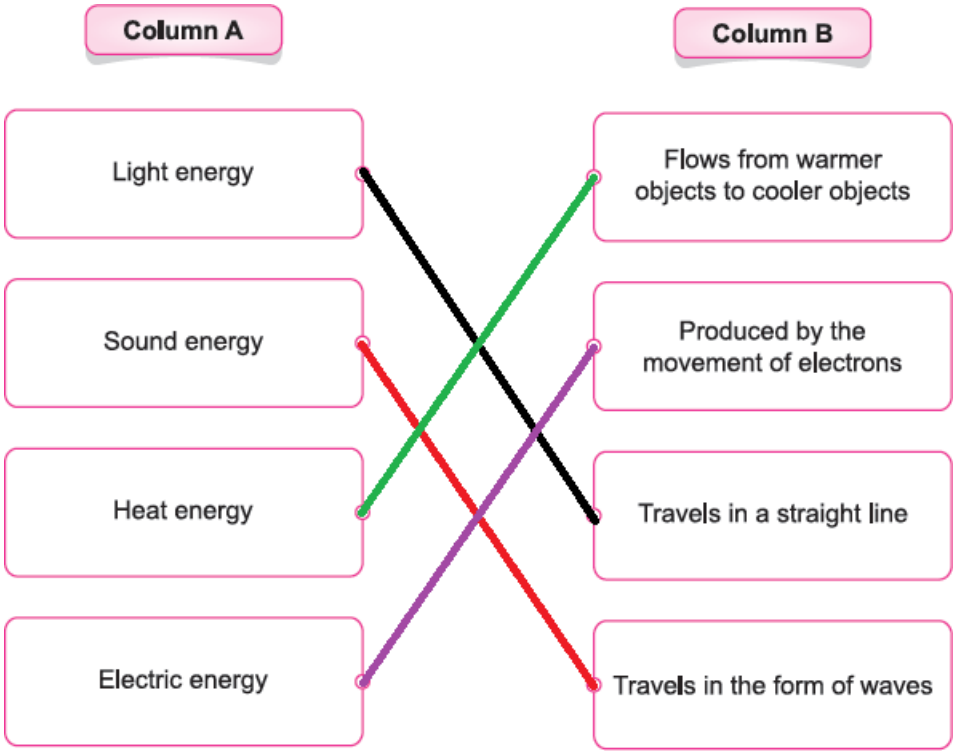
A. Choose the correct option.

1. Splitting of white light into seven colours is called_____.
   a. Reflection b. Refraction
   c. Dispersion d. Absorption
   The correct answer is c.
2. Which group of animals uses an echo to locate an object in the dark?
   a. Sharks and pigeons b. Dolphins and bats
   c. Whales and owls d. Octopuses and eagles
   The correct answer is b.
3. The energy that flows from warmer objects to cooler objects is _____ energy.
   a. Light b. Heat
   c. Sound d. Electric
   The correct answer is b.
4. The device that is used to measure temperature is called a/an_____.
   a. Thermometer b. Stethoscope
   c. Glucometer d. ECG machine
   The correct answer is a.
5. The path that electricity takes is called a_____.
   a. Circuit b. Current
   c. Battery d. Wire
   The correct answer is a.

B. Write "True" or "False".

1. When light falls on a bumpy surface, it reflects back.
   False
2. Sound energy is produced due to vibrations.
   True
3. Temperature can be measured using a Celsius or Fahrenheit scale.
   True
4. A battery drives electricity around a circuit.
   True
5. If there is any gap in the circuit, it will be an incomplete circuit.
   True

C. Match the types of energy given in column A with their properties given in column B.



D. Answer the following questions briefly.

1. Define reflection.
   When a ray of light falls on a smooth shiny surface, it bounces back. This phenomenon is called reflection.
2. Explain how sound is produced.
   The periodic motion of a vibrating body is called vibrations. Vibrations cause the particles of an object to move and produce sound.
3. How is temperature measured? Also write its unit.
   Temperature is measured with a thermometer. It is measured on Celsius or Fahrenheit scales.
4. List the components of a circuit.
   The basic components of a circuit are battery, wire, light bulb and switch.
5. Differentiate between an open and closed circuit.

A closed and an open circuit differ in the following ways:

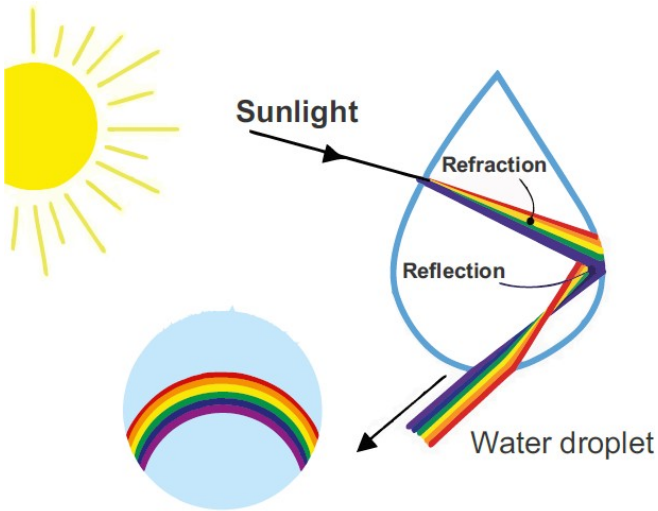
Closed circuit	Open circuit
When electricity has a complete path to travel, the circuit is called a closed circuit.	When electricity does not have a complete path to travel, the circuit is called an open circuit.
In a closed circuit, there is no gap in the path.	In an open circuit, a gap is present in the path.
Current will flow.	Current will not flow.

E. Answer the following questions in detail.

1. How is a rainbow formed? Explain.

Rainbow formation

The formation of a rainbow can be observed after rain in the presence of sunlight. When sunlight strikes a water droplet, dispersion and refraction occur. These tiny water droplets act like a prism and split the white light into its seven colours.



Formation of a rainbow

2. How is an echo produced? Infer your answer with reason.

Echo

When you speak loudly on the top of mountains, your words repeat when you say them. Such sounds are called echoes. An echo is a sound caused by reflection of sound waves from a surface back to listener. An echo occurs when our sound is reflected back after hitting a solid or rigid surface such as

cliffs or walls of a room.
Many animals such as bats and dolphins use this phenomenon to locate an object in the dark.

3. Can a circuit work if one of its components is missing? Justify your answer with reason.

Working of a circuit

No, a circuit cannot work if one of its components is missing. Because a circuit always needs a power source, such as a battery, with wires connected to both positive (+) and negative (-) ends.
The basic components of an electric circuit are wires, a battery and an electrical appliance without which a circuit will not be able to work.

Battery

A battery drives electricity around a circuit. It has a positive (+) end and a negative (-) end.

Wires

They are usually made of copper. They are wrapped with an insulating material that protects us from electric shocks.

Light bulb

When electricity flows from a battery to a light bulb and then back into the battery, the light bulb lights up. These components are connected together to form an electric circuit.

Switch

Switch is a device that makes or breaks connection in an electric circuit.

Unit 6A: Forces and Motion (Forces)

A. Choose the correct option.

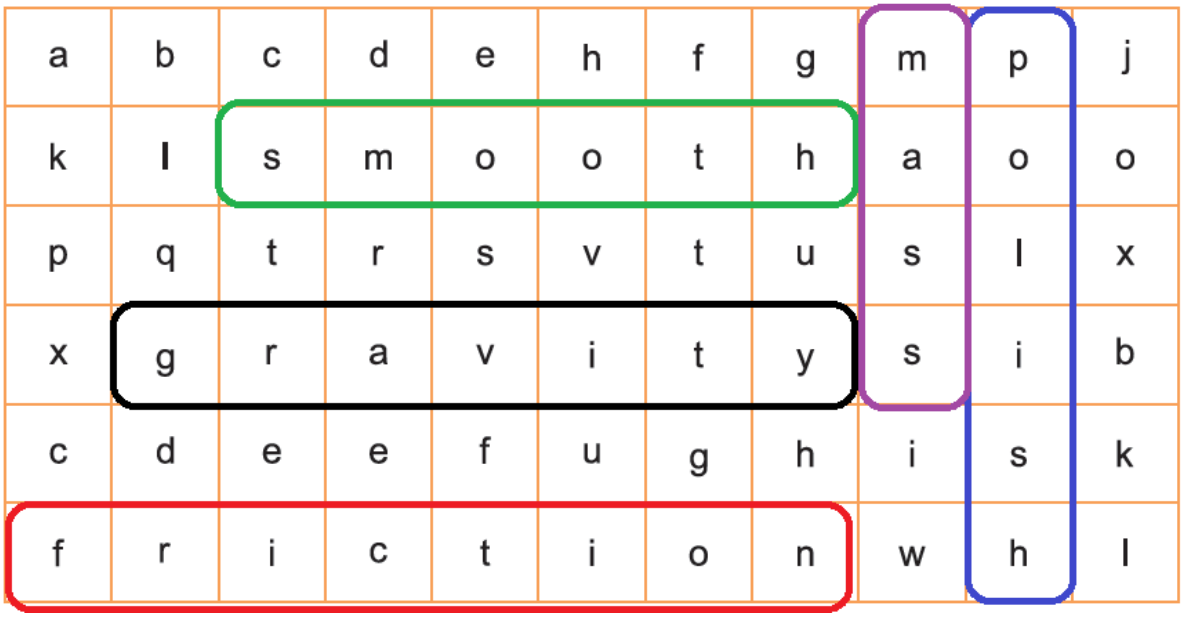
1. The force produced when two objects rub against each other is called _____.
   a. Gravity
   b. Friction
   c. Inertia
   d. Weight
   The correct answer is b.
2. Friction produces_____.
   a. Heat
   b. Sound
   c. Light
   d. Electricity
   The correct answer is a.
3. A_____surface has less friction.
   a. Rough
   b. Smooth
   c. Hard
   d. Bumpy
   The correct answer is b.
4. The force of attraction between two objects is called_____.
   a. Mass
   b. Inertia
   c. Friction
   d. The gravitational force
   The correct answer is d.
5. Tides in the sea are produced due to gravitational force of_____.
   a. The Sun
   b. The Moon
   c. The Earth
   d. Mars
   The correct answer is b.

B. Write "True" or "False".

1. A force can change the direction and shape of an object.
   True
2. The force of friction occurs only between solid objects.
   False
3. Polishing a surface helps to reduce friction.
   True
4. The force between two heavenly bodies is the force of gravity.
   True
5. Gravity is a pushing force.
   False

C. Find and circle the following words in the puzzle.

friction gravity smooth polish mass



D. Answer the following questions briefly.

1. Describe how friction is produced.
   Friction is the force produced when two surfaces rub against each other.
2. Suggest ways to reduce friction in machines.
   Friction can be reduced in machines in the following ways:
   1. Using wheels and ball bearings
   2. Using a lubricant between the moving parts of a machine
3. Find out if all planets have the gravitational force.
   The gravitational force is a force of attraction present in all heavenly bodies including the Sun, moons and all planets.
4. Deduce why the gravitational force is a pulling force.
   The gravitational force is a pulling force because gravity causes the objects to fall towards the Earth. The gravitational force of the Sun makes all planets move in their orbits.
5. Determine what cyclists and swimmers do to reduce friction.
   Cyclists wear tight-fitting clothes and bend their bodies instead of sitting upright to reduce friction. Swimmers also wear tight-fitting swimsuits and

place their arms together to make their bodies streamlined and to reduce friction.

E. Answer the following questions in detail.

1. Discuss the effects of forces in detail.

Effects of forces

The force effect the object in the following ways:

Force can change motion and speed

It can bring stationary objects to motion or slow or even stop moving objects. For example, when you ride a bicycle, you push the pedals to make it move. You can increase or decrease the speed of the bicycle by changing the amount of force you put on pedals. Similarly, when you apply the brakes of the bicycle, it stops.

Force can change direction

It can change the direction of objects. For example, in a football match, a player passes the football to another player by pushing it in a specific direction.

Force can change shape

It can change the shape of objects. For example, when you squeeze a plastic bottle by applying a pushing force or when you pull a rubber band, both change their shapes.

2. Is friction advantageous or disadvantageous? Infer your answer with examples.

Friction is advantageous and disadvantageous for us.

Advantages of frictions

We cannot walk, ride a vehicle or hold an object without friction.

Shoe sole

Do you know why the soles of your shoes have uneven patterns? Because more friction is produced when rough surfaces slide over each other. Although this friction slows down our movement, it also protects us from being slipped away.

Holding an object

Friction also enables us to hold different objects. For example, we can hold a spoon, pencil, book, box, etc. due to friction. Similarly, we can write on paper and tighten a screw just because of friction.

Brakes of the vehicles

Friction also helps to stop a vehicle and prevent it from slipping on the road.

Think what a terrible situation it could be if you fail to apply on the brakes of your cycle. Here, friction is a blessing to you. When you apply brakes, the brake pads rub against the rim of the cycle and produce friction. This friction makes the cycle stop after slowing down its movement.

Disadvantages of friction

Although friction helps us in many ways, sometimes too much friction causes some problems.

The tyres of a vehicle and the shoe sole become flat after some period. This is because friction causes the wear and tear of moving objects.

When we rub an eraser on paper, it causes the eraser to wear away.

Friction also slows down a fast-moving object and produces heat. Due to this reason, we often have to apply more energy than required.

For example, the moving parts of a machine or engine require more energy because friction slows their speed and turns the energy into heat.

3. Explore what will happen if there was no gravitational force on Earth?

Gravitational force

Gravity is the force that causes the objects to fall towards the Earth. It is a pulling force.

If there is no gravitational force on Earth then nothing will stay on Earth. We will not able to stand on Earth. We will fly off in the sky.

Planets will move in others orbits in the absence of gravitational force and will collide with each other. Similarly, the Moon will not revolve around the Earth. Everything will be destroyed.

Term 3 Periodic Unit 1

Unit 6B: Forces and Motion (Simple Machines)

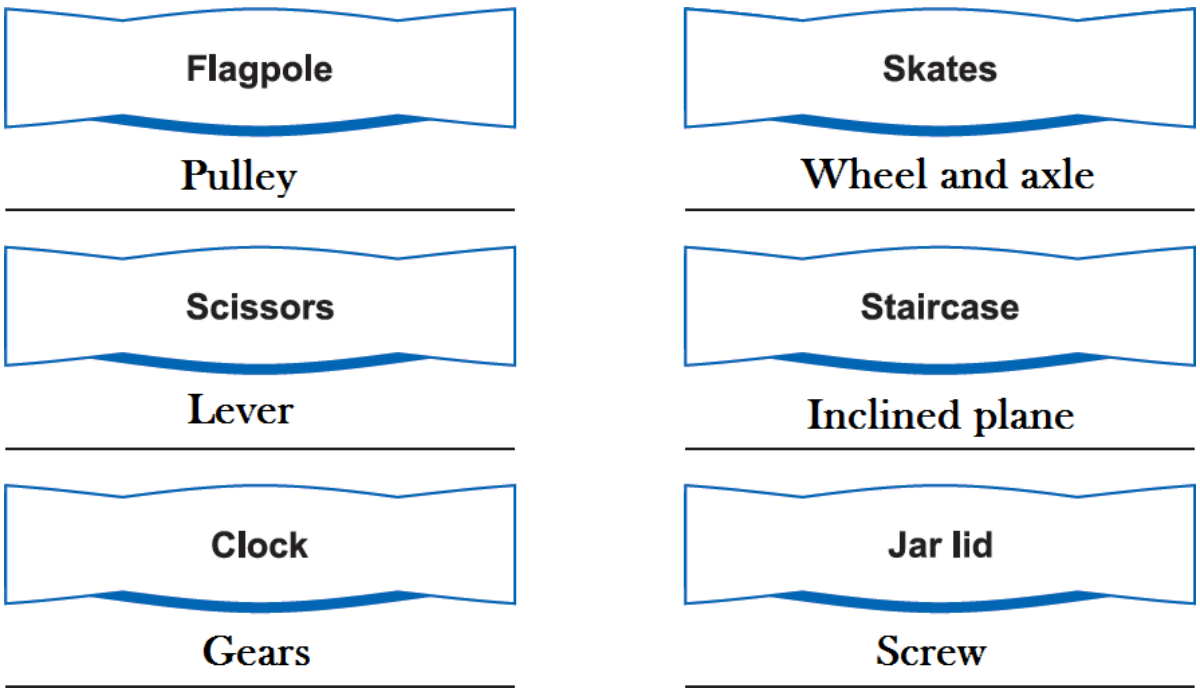
A. Choose the correct option.

1. A simple machine uses_____force(s).
   a. Two b. A single
   c. Many d. No
   The correct answer is b.
2. If the load is between the effort and the fulcrum, it is called a _____ lever.
   a. Class-one b. Class-two
   c. Class-three d. Class-four
   The correct answer is b.
3. A staircase is an example of a/an_____.
   a. Lever b. Inclined plane
   c. Screw d. pulley
   The correct answer is b.
4. A_____is a wedge that is used to join two things together.
   a. Nail b. Knife
   c. Saw d. Pair of scissors
   The correct answer is a.
5. A_____consists of a grooved wheel and a rope passing over it.
   a. Wheel and axle b. Screw
   c. Pulley d. Gear
   The correct answer is c.

B. Write "True" or "False".

1. Simple machines are used to change the direction of the force only.
   False
2. In a first-class lever, the fulcrum is between the load and the effort.
   True
3. A slanted roof and slides are examples of a screw.
   False
4. To hold things tightly together, a wedge is used.
   False
5. A gear is a wheel which has teeth around it.
   True

C. What type of simple machine is used in each object?



D. Answer the following questions briefly.

1. Name six simple machines and give an example of each.
   Simple machines and their examples are as follows:
   1. Lever

   Example: Seesaw
   2. Wheel and axle

   Example: Wheelbarrow
   3. Pulley

   Example: Flagpole
   4. Inclined plane

   Example: Staircase
   5. Wedge

   Example: Knife
   6. Screw

   Example: Bottle lid
2. How does a simple machine make our work easier?
   A simple machine makes our work easier by using a single force. It may change the direction of force or it may reduce the amount of force required to do a task.
3. Identify where wheels and axles are commonly used.

Wheels and axles are commonly used in machines.

4. Differentiate between a wedge and a screw.
   The difference between a wedge and a screw is as follows:

Wedge	Screw
A wedge is a triangular-shaped simple machine. It is made up of two inclined planes placed side by side, which make a sharp edge.	A screw is an inclined plane. It is used to move things up and down.
It is used to split things apart.	It is used to hold things together.
Examples: Axe, knife, saw, etc.	**Examples:** Bottle lid, woodscrew, nut and bolt, etc.

5. Suppose you have to bring a heavy box to the top of a six-floor building. Explain how would do this.
   To bring a heavy box to the top of a six-floor building, a slide (inclined plane) will be used.

E. Answer the following questions in detail.

1. Define lever. Explain all its types in detail.

Lever

A lever is a bar that turns around a fixed point. The fixed point is called a fulcrum. The effort is applied to one end to move an object called a load, i.e. the heavy rock. Similarly, a seesaw in a playground is also a lever that makes it possible for you to lift the weight of your friend.

Types of lever

There are different types of levers depending upon the position of the fulcrum, effort and load. The examples discussed are a practical demonstration of the uses of different classes of levers.

a. Class-one lever
b. Class-two lever
c. Class-three lever

Class-one lever

When the fulcrum is between the load and the effort, it is called a class- one lever. The screwdriver acts like a class-one lever. Scissors, claw hammers, crowbars and seesaws are common examples of class-one levers.

Class-two lever

The load is always between the effort and the fulcrum is known as class-two

lever. A bottle opener is a class-two lever although it looks like a screwdriver. This is because the position of the fulcrum and the direction of the effort are changed. Other examples of class-two levers are wheelbarrows and nutcrackers.

Class-three lever

The effort remains between the fulcrum and the load is known as class-three lever. The bones and muscles in your arm also represent a class-three lever. Ice tongs, staplers and fishing rods are some other examples of class- three levers.

2. What is an inclined plane? Where do we use it? Give examples from daily life.

Inclined plane

An inclined plane is a simple machine having a flat surface with one end higher than the other.

Use of inclined plane

It is always difficult to move upwards due to the force of gravity. It becomes even more difficult when we need to move a heavy load to a higher place. Therefore, an inclined plane is used for this purpose.

Daily life examples

We use many forms of inclined planes daily. For example staircases, slanted roofs, slanted roads, and slides, etc.

3. Describe the working of gears with an example.

Working of gears

Gears are simple machines that have toothed wheels. As one gear moves, it changes the direction and motion of the other gears. They are used to change the amount of force and also the speed of an object.

A good example of a gear set is the gears connected by the chain on a bicycle. When its pedal is pushed forward, the bike goes forward. When you shift to a higher gear your cycle goes faster if you continue pedaling at the same rate. They are commonly used in vehicles, clocks and machines.

Unit 7: Earth and Its Resources

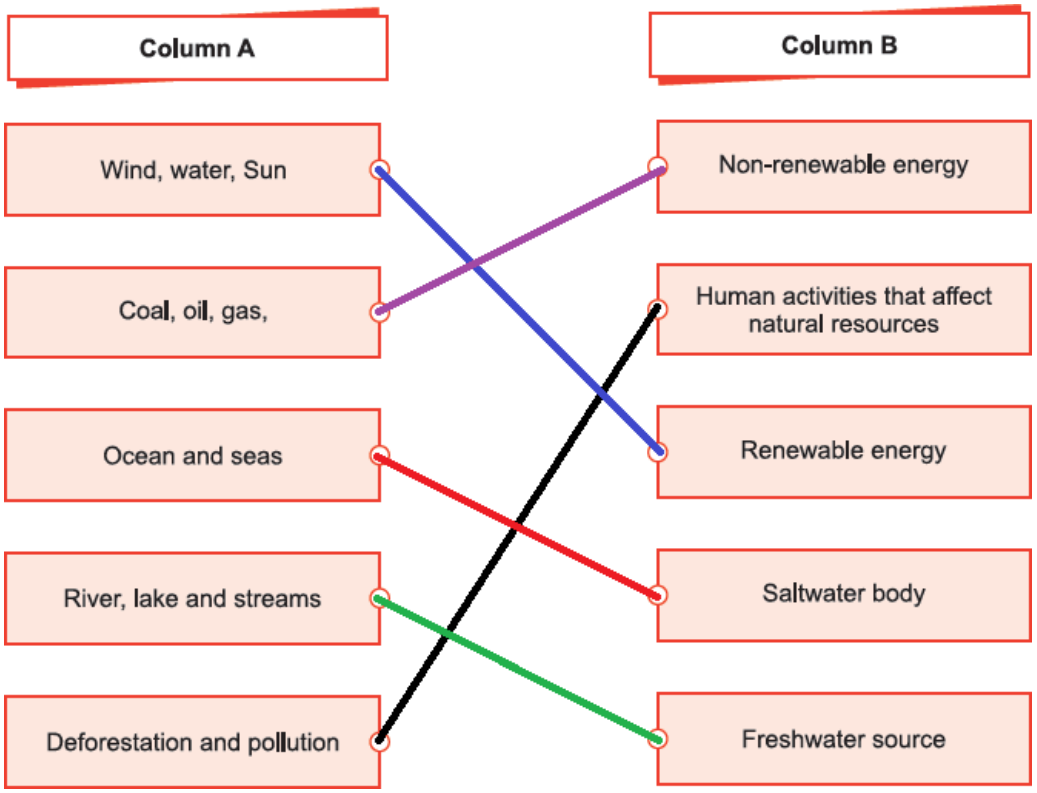
A. Choose the correct option.

1. The green colour on the globe represents_____.
   a. Land b. Water
   c. Forests d. Mountains
   The correct answer is a.
2. Almost_____% of the Earth is covered with water.
   a. 29 b. 59
   c. 71 d. 80
   The correct answer is c.
3. Which of these is not a natural resource?
   a. Air b. Water
   c. Soil d. Fire
   The correct answer is d.
4. All of the following are renewable energy resources except:
   a. Wind b. Coal
   c. Water d. Sun
   The correct answer is b.
5. Which of the following activities helps to conserve natural resources?
   a. Minimum use of private transport b. Burning of fuels
   c. Minimum uses of public transport
   d. Maximum utilization of electrical appliances
   The correct answer is a.

B. Write "True" or "False".

1. 71% of the Earth is covered with land.
   False
2. Houses, buildings, roads, etc. are renewable resources.
   False
3. Sunlight, air and water are renewable natural resources.
   True
4. Fossils fuels take millions of years to form.
   True
5. Conservation of natural resources is not necessary.
   False

C. Match column A with column B.



D. Answer the following questions briefly.

1. Define natural resources.
   A natural resource is anything that is found naturally and is beneficial to mankind. Air, water, forests, oil, minerals, etc. are all natural resources.
2. Differentiate between renewable and non-renewable natural resources.
   The difference between renewable and non-renewable natural resources is as follow:

Renewable resources	Non-renewable resources
The resources that can be renewed or replenished in a short time are called renewable resources.	The resources that cannot be renewed or replenished in a short time are called non-renewable resources.
They are always available and can be used repeatedly.	They take millions of years to form once they are used.
Examples: Air, water, solar energy, soil, etc.	**Examples:** Coal, oil, natural gas, etc.

3. Why is conservation of natural resources important?

We need to conserve resources not only for ourselves but also for our future generations.

4. What is 3R's strategy?
   3Rs (reduce, reuse and recycle) strategy is used to conserve resources.
5. Predict what happen if the Earth runs out of its natural resources.
   If the Earth runs out of its natural resources, we won't be able to do any task. We even cannot survive without them.

E. Answer the following questions in detail.

1. Classify the different sources of water found on Earth.
   Water found on Earth
   Water found on the Earth's surface in the form of water bodies, i.e. oceans, seas, glaciers, rivers, lakes, etc. and in atmosphere in the form of vapour. Water moves continuously within Earth and atmosphere. This is called water cycle.
   Oceans and seas
   Oceans and seas are the largest water bodies of salt water because they have high salt content.
   Fresh water
   Rivers, lakes, ponds, etc. are smaller water bodies containing fresh water. Fresh water is also found in the form of glaciers. During summers, this frozen water melts and moves down the hills in the form of streams and rivers. This flowing fresh water joins another river, lake or stream and ultimately reaches an ocean. Fresh water is one of the most important natural resources and a blessing from Allah (SWT).

2. Explain the impact of human activities on natural resources.
   Impact of human activities
   Both renewable and non-renewable resources of energy are of great importance. However, humans are exploiting these resources for their own benefit through different activities.
   The following are some human activities which are causing damage to natural resources.
   - Water is being wasted resulting in the decline of freshwater resources.
   - Land and water are getting polluted due to dumping of waste.
   - Forests are cleared (deforestation) to fulfill various needs. As a result of which there is a decline in the population of various trees and animals.
   - Coal, oil and natural gas are burnt for multiple purposes, causing depletion

of non-renewable resources.
- Air is being polluted due to burning fossil fuels.

3. List the different ways by which natural resources can be conserved.
Conservation of natural resources
We need to conserve natural resources not only for ourselves but also for our future generations. The following are different ways by which natural resources can be conserved.
- Turn off the tap when water is not in use.
- Switch off extra lights and electrical appliances when there is no need.
- Avoid burning fossil fuels.
- Adopt 3R strategy. (Reduce, reuse and recycle)
- Avoid dumping waste directly into water bodies or on land.
- Utilize renewable resources as much as you can.
- Use public transport instead of personal or individual transport.

Unit 8: Earth's Weather and Climate

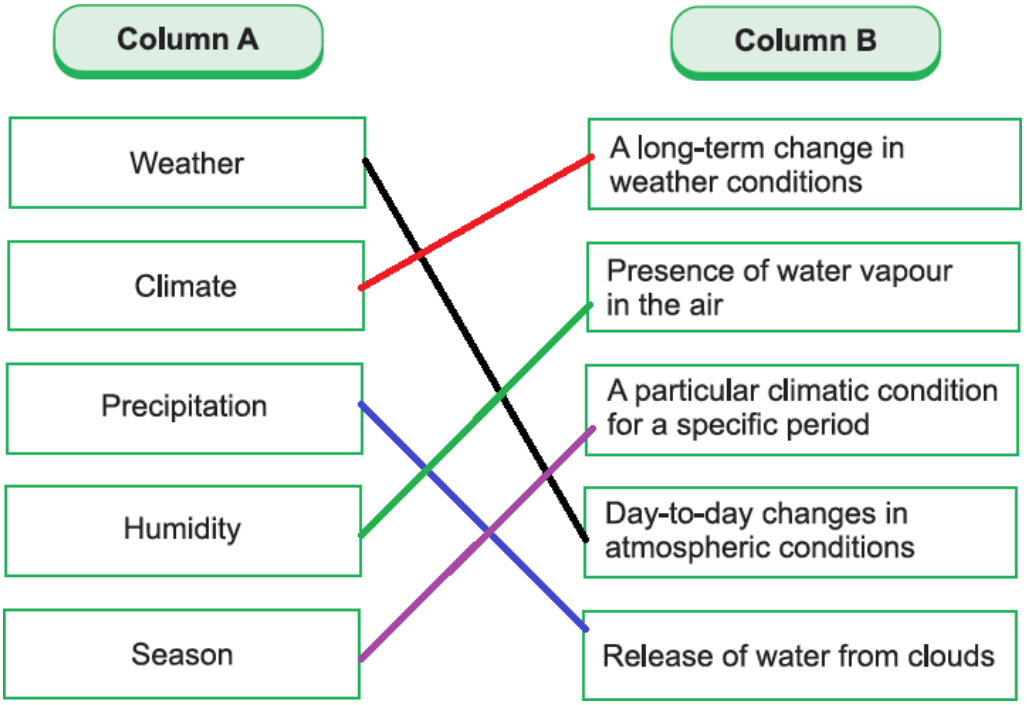
A. Choose the correct option.

1. Humidity levels in an area near the sea will be_____.
   a. Zero
   b. Very low
   c. Minimum
   d. High
   The correct answer is a.
2. A season in which a tree will shed its leaves is_____.
   a. Summer
   b. Winter
   c. Fall
   d. Spring
   The correct answer is c.
3. Which of the following describes climate?
   a. Arid
   b. Sunny
   c. Cloudy
   d. Rainy
   The correct answer is a.
4. Which of the following statements is true about climate?
   a. Day-to-day change
   b. A long term weather condition
   c. Can be hot or cold
   d. Can vary by the minute
   The correct answer is b.
5. All of the given factors affects precipitation except:
   a. Prevailing winds
   b. Sea waves
   c. Presence of mountains
   d. Seasonal winds
   The correct answer is b.

B. Write "True" or "False".

1. Climate can change by the minute.
   False
2. Monsoon is considered a season in Pakistan.
   True
3. The weather of a place changes due to wind pressure only.
   False
4. In hilly areas, one side of the mountain receives rainfall while the other remains dry.
   True
5. Hotter the area, the less humid it will be.
   False

C. Match the terms in column A with their descriptions in column B.



D. Answer the following questions briefly.

1. Define climate. Give examples.
   The climate is the weather condition of a place over a long period. Arid, semi-arid, etc. are some climatic conditions.
2. Name the factors that affect precipitation in a place.
   The following three factors usually affect the precipitation in a specific area:
   - prevailing wind
   - presence of mountains
   - seasonal winds
3. Find out the relation between seasons and weather.
   The weather is a day-to-day change in the atmospheric condition of a specific place. A season is a climatic condition for a specific period of the year.
4. Interpret why there is difficulty in breathing at a high altitude.
   At high altitudes, the air has low pressure. That's why we have a difficulty in breathing there.
5. Define humidity.
   Humidity is the amount of water vapour in the air. The higher the amount of water vapour, the higher will be the humidity.

E. Answer the following questions in detail.

1. Compare humidity with precipitation.

   Humidity

   Humidity refers to the amount of water vapour in the air. The higher the amount of water vapour, the higher will be the humidity.

   Areas which are hot are more humid than the cold areas. It happens because water tends to evaporate rapidly at high temperatures. Thus, the hotter the area, the more humid it will be.

   Precipitation

   Precipitation is the process by which water returns to the Earth's surface in the form of rain, snow or hail. Usually three factors affect the amount of rainfall in a specific area:

   - Prevailing wind.
   - Presence of mountains
   - Seasonal winds

   In mountainous areas, one side of the mountain receives rainfall while the other remains dry. It happens because when warm moist air rises from sea level, it becomes cool causing the moisture to condense. The condensed moisture falls as precipitation. In plain areas the amount of precipitation depends on prevailing wind and seasonal winds.

2. Explain how seasons are different from weather.

   Difference between seasons and weather

Seasons	Weather
The term 'season' refers to climatic conditions for a specific time period of the year.	Weather is a day-to-day change in the atmospheric conditions of a specific place.
All these seasons differ from each other in their characteristic features which are mainly average temperature and precipitation.	Changes in weather occur due to change in air pressure, wind and storms.
When the average temperature of a place remains high for a few months, it is the summer season while the winter is a season of low average temperature.	Weather can change by the day, by the hour or even by the minute.
Spring, summer, fall and winter are four seasons.	Weather can be hot, cold, sunny, cloudy, windy, rainy, etc.

3. Explain how weather changes with geographical location. Give examples.
   Weather changing with geographical location
   Geographical location refers to the type of landscape. It includes rivers, mountains, plateaus and plain areas. Geographical areas at high altitudes have different weather conditions than areas at low altitudes. Mountainous regions have a more wet and cold climate and receive more rainfall as compared to flat lands. Daily variations in temperature, humidity, precipitation, etc. in the form of rain, snow, wind, etc. occur with changing geographical location. Weather at a place does not depend on a single factor only. There are various factors that bring changes to the weather such as air pressure, wind direction, etc.

Term 3 Periodic Unit 2
Unit 9: Earth in the Solar System

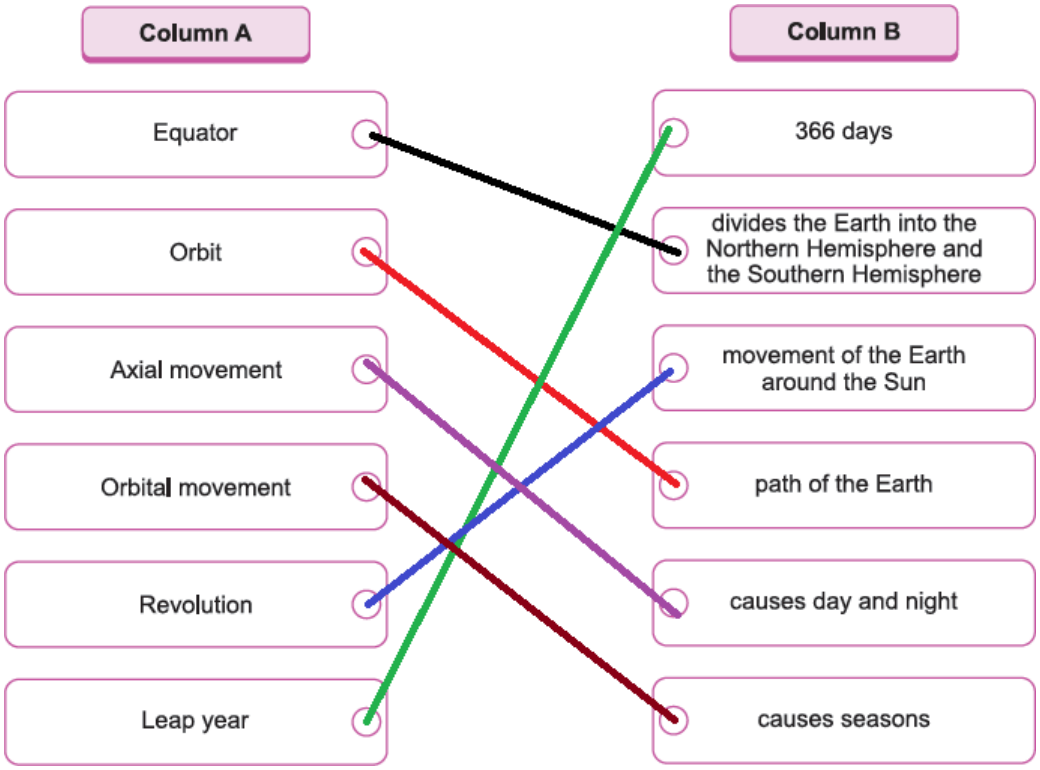
A. Choose the correct option.

1. The fifth planet of the Solar system is_____.
   a. The Earth b. Venus
   c. Jupiter d. Mars
   The correct answer is c.
2. The Earth takes_____to complete its journey around the Sun.
   a. 1 day b. 30 days
   c. 360 days d. 365 ¼ days
   The correct answer is d.
3. If it's winter in the Northern Hemisphere, it will be_____in the Southern Hemisphere.
   a. Winter b. Autumn
   c. Spring d. Summer
   The correct answer is d.
4. The Sun is_____millions kilometers away from the Earth.
   a. 140 b. 150
   c. 160 d. 130
   The correct answer is b.
5. Uranus is blue in colour because it has_____gas.
   a. Methane b. Helium
   c. Hydrogen d. Nitrogen
   The correct answer is a.

B. Write "True" or "False".

1. There are seven planets in the solar system.
   False
2. All planets in the solar system have their moons.
   False
3. Seasonal changes occur due to the Earth's revolution.
   True
4. The Earth rotates on its axis from west to east.
   True
5. A lunar eclipse occurs only when it is a full moon.
   False

C. Match column A with column B.



D. Answer the following questions briefly.

1. What is the solar system? List the planets of the solar system.
   The solar system is made up of the Sun, eight planets, moons, comets, and asteroids, lumps of rock and dwarf planets.
   The eight planets are:
   - Mercury
   - Venus
   - Earth
   - Mars
   - Jupiter
   - Saturn
   - Uranus
   - Neptune
2. Describe the importance of the Sun in the solar system.
   The Sun is a star. It is a huge ball of gases. It is present in the centre of the solar system. It gives heat and light to all planets in the solar system.
3. Explain how the planet Earth is different from other planets.

The Earth is different from other planets because it is the only planet that supports life. It is the only known planet that has an atmosphere and abundance of liquid water.

4. What is an equator?
   An imaginary line on the surface of the Earth that is at an equal distance from the North and South Poles is called the equator. It divides the Earth into the Northern Hemisphere and the Southern Hemisphere.
5. What is the axis of the Earth?
   The axis is an imaginary straight line that passes through the North and South Poles of the Earth.

E. Answer the following questions in detail.

1. Differentiate between the Earth's rotation and revolution.
   Difference between the Earth's rotation and revolution

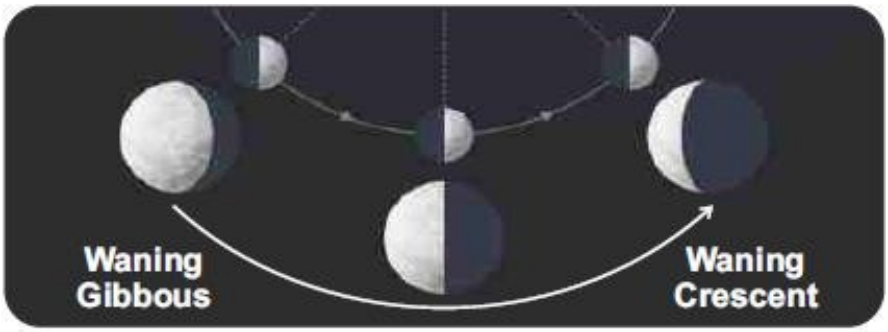
Earth's rotation	Earth's revolution
The Earth rotates on its axis from west to east.	The Earth revolves around the Sun in a path called orbit.
The axis is an imaginary straight line that passes through the North and South poles of the Earth. This line is also called the axis of rotation.	There is an imaginary line on the surface of the Earth called the equator, which is at an equal distance from the North and South poles.
As the Earth rotates, half of it faces the Sun and the other half faces away from the Sun. The half facing the Sun will have sunlight. It is daytime there. The side facing away from the Sun will have darkness. It is night-time there.	It divides the Earth into the Northern Hemisphere and the Southern Hemisphere.

2. Explain the different phases of the Moon.
   Phases of the Moon
   The Moon takes 29 ¼ days to complete its orbit around the Earth. This duration is called a lunar month. During this month, sometimes, the Moon appears as a round ball and sometimes it looks like a silver wedge. Sometimes, it appears as a half circle and at other times cannot be seen at all. This is because the Moon changes its position in relation to the Earth and the Sun. This movement also changes the amount of light reflected back to the Earth from the face of the Moon. Thus, we can see the different phases of the

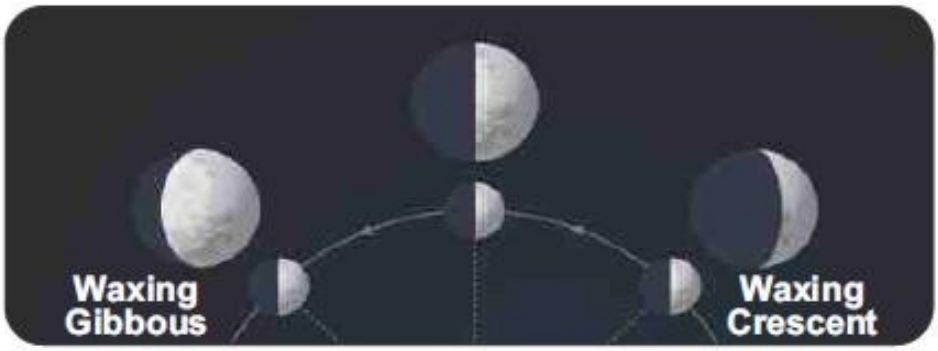
Moon.

Waning and waxing

Waning" and "waxing" are used to describe the phases of the Moon. Waning means a gradual decrease in size and waxing means a gradual increase in size. When the Moon is waning, it starts to lose its light and the dark region starts to increase until it is a new moon.



When the Moon is waxing, it is going from the new moon to the full moon. During this journey, the Moon starts to lose its darkness and gains light.



3. Explain lunar and solar eclipses with diagrams.

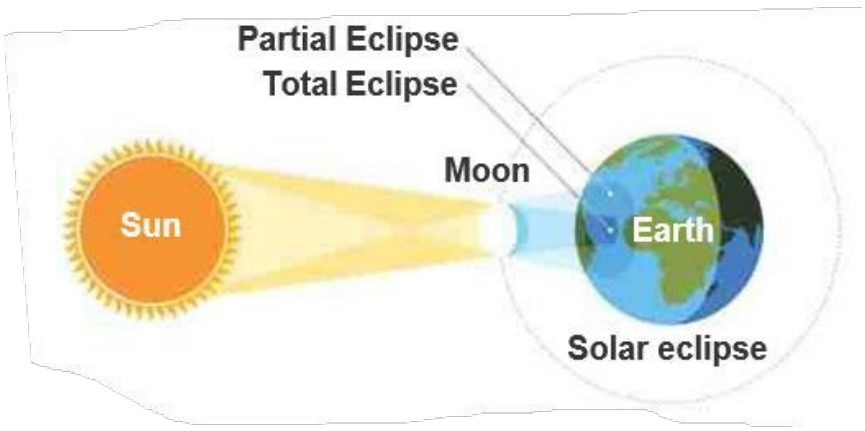
Eclipse

An eclipse is formed when the shadow of one celestial body (related to Sun) falls on another. We know that the Earth moves around the Sun and the Moon moves around the Earth. When these three come in a straight line, an eclipse is formed. There are two types of eclipses.

Solar eclipse

Sometimes, the Moon comes between the Sun and the Earth. When this happens, the Moon blocks the light of the Sun reaching the Earth and casts its shadow on Earth. It is called a solar eclipse.

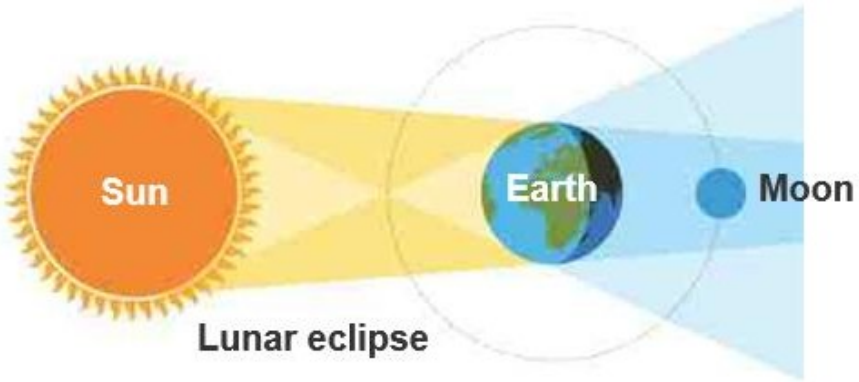
As the Moon is nearer to the Earth, it can cover the whole disc of the Sun. Thus, we see only some part or no part of the Sun during the day.



Lunar eclipse

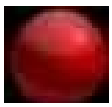
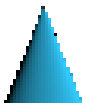
The Earth moves in its orbit around the Sun. Sometimes, the Earth comes between the Sun and the Moon. When this happens, the Earth blocks sunlight from reaching the Moon. Thus, the Earth's shadow falls on the Moon. This is an eclipse of the Moon called a lunar eclipse.

A lunar eclipse can occur only when it is a full moon. During a lunar eclipse, the Moon appears to be a bright red ball.



Unit 10: Technology in Everyday Life

A. Choose the correct option.

1. Which of these is not a technique of crafting?
   a. Cutting
   b. Folding
   c. Blending
   d. Pasting
   The correct answer is c.
2. Which of these is a cone shape?
   a. 
   b. 
   c. 
   d. 
   The correct answer is b.
3.  Circled icon represents the_____app.
   a. Clock
   b. Calculator
   c. Camera
   d. Calendar
   The correct answer is b.
4. Which of these is used to relieve pain?
   a. Painkiller
   b. Cotton
   c. Gauze
   d. Bandage
   The correct answer is a.
5. The normal human blood pressure is_____.
   a. 100/60
   b. 120/80
   c. 80/120
   d. 140/100
   The correct answer is b.

B. Write "True" or "False".

1. Models can only be made using clay.
   False
2. All mobile phones have a camera.
   False

3. An alarm can be set using clock app.
   True
4. First aid is an emergency treatment given to an injured person.
   True
5. A thermometer is used to check blood pressure.
   False

C. Recognise the items in a first-aid box and write their names.



D. Answer the following questions briefly.

1. Define basic craft-making. What types of materials are used in craft-making?
   Craft-making is a technique in which things are made by hand. It is a skill that includes a variety of art forms. Different materials, such as paper, glass, wood and ceramic, are used to make crafts.
2. What is the difference between a paper envelope and a paper bag?
   A paper bag is used to carry things, while a paper envelope is used to send letters and documents.

3. Look around your home and write the names of objects that have a cube, cone or prism shape.
   Cube-shaped: Ice cube, dice, box, etc.
   Cone-shaped: ice-cream cone, party hat, etc.
   Prism-shaped: clock, etc.
4. Perform the arithmetic operation (2435 x 25) on a mobile phone and write its steps. Give its answer as well.
   To perform this arithmetic operation, follow these steps:
   - Open the 'Home screen' and click the 'Calculator' app.
   - Tap keys to perform the operations.
   - Check the result.

   The answer is 60,875.
5. What is blood pressure and how can it be measured?
   The pressure of blood in the circulatory system is called blood pressure. The normal level of human blood pressure is 120/80 mm of Hg. It can be measured with a digital blood pressure monitor.

E. Answer the following questions in detail.

1. What are different techniques used in craft-making? Explain them in detail.
   Craft-making
   Craft-making is a technique in which things are made by hand.
   It is a skill which includes a variety of art forms. Different materials such as paper, card paper, glass, wood, ceramics, etc. are used to make decorative crafts.
   Techniques in craft-making
   There are following different techniques used in craft-making.
   1. Folding technique
   2. Cutting technique
   3. Tearing technique
   4. Pasting technique

   Folding technique
   - Take a sheet of paper and place it on the table.
   - Draw a line in the centre with pencil.
   - Turn the paper along the line and press to fold it.



Steps of folding paper

Cutting technique

Cutting of paper can be done using scissors or a cutter.

- Take a sheet of paper and place it on the table.
- Draw a line in the centre with pencil.
- Cut along the line with scissors.
- To cut with a cutter, fold the paper and push the blade of the cutter to cut it.



Steps to cut paper

Tearing technique

To tear paper, follow these steps.

- Take a sheet of paper and place it on the table.
- Fold and make a crease in the paper.
- Now hold one part of the paper and pull the other part from the crease to tear it.

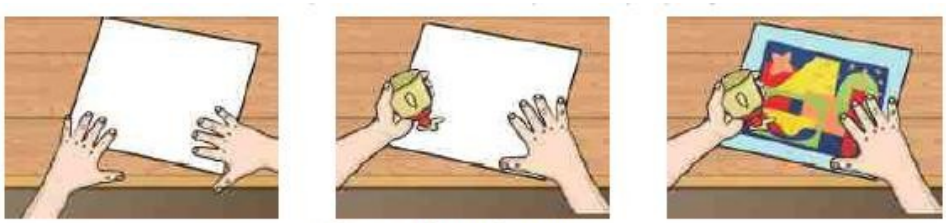


Steps to tear paper

Pasting technique

To paste paper, follow these steps.

- Take a sheet of paper and place it on the table.
- Apply gum or glue on the back of the paper.
- Place it on the desired place and rub it to paste it properly.



Steps of pasting paper

2. Write a detailed procedure to measure temperature of an ill person.

Steps to measure temperature

The following steps are used to measure the temperature of a human body using a clinical thermometer and a digital thermometer.

- Sterilize the bulb of the clinical thermometer. Shake it to make sure the level of mercury should be down in the thermometer.
- Put the thermometer in the armpit and fold the arm across the chest.
- Wait for a couple of minutes.
- Remove the thermometer and note the reading.
- Add 1 in this reading in case of clinical thermometer. This will be the exact body temperature.
- Rinse the thermometer with water and keep it in the first aid box.

A digital thermometer does not need shaking.



Steps of measuring body temperature

3. How you can take a selfie on a mobile phone? Write in detail.

Taking selfie on mobile phone

To take selfie on a mobile phone, I will follow these steps:

- Open the “Home screen” and click the “camera” app.
- Click front camera.
- Point the camera to my face and set the focus to take a clear picture.
- Click the shutter icon and capture the selfie.



Taking a picture on a mobile phone