

Amazing Science 5<sup>th</sup>

# **DISTRICT PUBLIC SCHOOL & COLLEGE, KASUR**



## **NOTES/HOME TASK/WORK SHEET FOR**

**CLASS: 5<sup>th</sup>**

**SUBJECT: G. SCIENCE**

**2<sup>nd</sup> TERM SYLLABUS: UNIT (5,6,7,8)**

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## Unit # 5

### Environmental pollution

#### Answers to Exercises in Unit 5:

1. (a) **What does the Earth give us?**  
Ans. The Earth gives us air, food, water, and materials for making clothes and building houses.
- (b) **Which things have a bad effect on the Earth?**  
Ans. Cutting down of trees, emission of smoke and fumes, disposal of waste materials, making new harmful chemicals, and oil spillage, etc. have a very bad effect on the Earth.
- (c) **Why are plants important for life on Earth?**  
Ans. Plants take in carbon dioxide and give out oxygen, which animals and people use for breathing. They produce food from simple new substances and feed all the other living things.
- (d) **How are trees useful to us?**  
Ans. Trees provide food as well as homes for many animals. They prevent the soil from drying up. They also affect the rainfall of an area. They provide pulp for making paper and timber for making furniture and houses, etc.
- (e) **Write short definitions of the following terms: environment, pollution, pollutant.**  
Ans. i) The natural world that surrounds a living thing is called its environment.  
ii) The contamination or defiling of an environment by unwanted and harmful things is called pollution.  
iii) Anything which contaminates the environment is called a pollutant.
- (f) **Name the different types of pollution that are found in the environment.**  
Ans. The different types of pollution are air pollution, water pollution, land pollution, and noise pollution.
- (g) **Name the different sources of air pollution.**  
Ans. Harmful gases, smoke and chemicals from factory chimneys, and carbon dioxide from burning wood, oil, gas, and coal can cause air pollution.
- (h) **Explain how a river becomes polluted.**  
Ans. When a river passes through a town or a farm, chemicals from factories and dirty water from houses and farmyards flow into it.
- (i) **What is an oil spill? What are the harmful effects of an oil spill?**  
Ans. If an oil tanker leaks in the sea, it is called an oil spill. This spilt oil forms a layer on top of water and thus kills fish, seabirds, and other animals.

## Unit # 6

### Matter

#### Answers to Exercises in Unit 6:

1. (a) **Give a definition of matter.**  
Ans. Matter is anything which has weight and volume and occupies space.
- (b) **what are the properties of matter?**  
Ans. Matter is made up of very tiny particles which have spaces between them. These particles keep moving and bumping into each other all the time.
- (c) **Name the three states of matter.**  
Ans. Matter is found in three different states:

**Solid** . These three states are due to the amount of space present between the particles. The particles of a solid are very tightly packed because the spaces between them are very small. The forces with which the particles pull each other are very strong and their movement is very limited. Therefore, solids have a fixed volume and shape and they cannot be compressed, like rock, wood, and ice.

**Liquid** The particles in a liquid are very close together, but the forces of attraction between them are weak. There are spaces between the particles which allow movement to a certain extent. Liquids have a fixed volume but no fixed shape. They take up the shape of the vessel in which they are kept. They can flow but they cannot be compressed as in water, milk, and oil.

**Gas.** The particles of a gas are very far apart so they can move about freely. Therefore, a gas has no fixed volume or shape. There are no forces of attraction between the particles and so gases can spread easily. Due to large spaces between the particles, gases can be compressed as in air, oxygen, and hydrogen.

**(d) How can it be proved by experiment that the particles of matter are always moving?**

Ans. The particles of matter are always moving. It can be proved by the following experiment. Sprinkle some pollen grains on the surface of warm water in a dish. The pollen grains will appear to be dancing on the surface of water. The particles of warm water move about and bump into the pollen grains and make them jump about.

**(e) What is diffusion? Describe an experiment that provides evidence of diffusion.**

Ans. The mixing of particles is called diffusion. Put a drop of red ink into a beaker containing water. The red colour of the ink will spread evenly in water, making it pink. The particles of ink fill the spaces between the water particles and so the water appears pink.

## Unit# 7

### Force and machines

#### Answers to Exercises in Unit 7:

1. (a) what is friction?

Ans. Friction is a force that is produced when things rub against each other.

**(b) What causes friction?**

Ans. Friction is partly due to tiny bumps on the surfaces which are in contact with each other and partly due to atoms in the two materials which tend to stick to each other.

**(c) In what ways can friction be harmful? In what ways can it be useful?**

Ans. A lot of energy is needed to overcome the force of friction. It produces heat, which wastes a lot of energy. The moving parts of a machine wear out by rubbing against each other. Friction helps in all kinds of motion such as walking, writing, climbing, etc. It helps vehicles to move on roads by allowing their tyres to grip the surface.

**(d) How can we reduce friction?**

Ans. Lubricants such as oil and grease are used in machines to reduce friction. Ball bearings are used between moving parts of machines. Submarines, ships and racing cars, and aircraft are streamline shaped to move smoothly through air and water. Wheels are often used to cut down friction.

**(e) what is gravitational force?**

Ans. The downward pull of the Earth is called gravitational force.

**(f) what is the difference between mass and weight?**

Ans. Mass is the amount of material contained in an object. It is measured in kilograms. Weight is the gravitational force acting on a body. It is measured in newtons.

**(g) Define Newton's first law of motion.**

Ans. Newton's first law of motion states that if something has no force acting on it, it will stay still. If moving, it will keep moving at a steady speed in a straight line.

**(h) what is a machine? What is the mechanical advantage of a simple machine?**

Ans. The moving parts of an object which help to make our work easier are called simple machines. The extra force that is gained by applying less effort to do more work is called the mechanical advantage of the machine.

**(i) What is a lever? Draw diagrams of the three classes of levers.**

Ans. A lever is a simple machine which helps us to use a small effort to lift a large load.

**(j) what is the difference between an inclined plane and a wedge?**

Ans. An inclined plane is a plank that can be used to pull a load along a sloping surface rather by lifting it. A wedge is two inclined planes put together which changes the direction of the force as well as increases it.

## Unit # 8

### light

#### Answers to Exercises in Unit 8:

**1. (a) what is light?**

Ans. Light is a kind of energy which travels in the form of waves.

**(b) Name the sources of light.**

Ans. Sources of light are the Sun, electric bulbs, lamps, candles, and glowing as well as burning objects.

**(c) How can you prove by an experiment that light travels in straight lines?**

Ans. Take three equal-sized pieces of card and make a pinhole in the centre of each. Stand them in a straight line so that the pinholes are aligned. Place a candle in line with the cards so that its flame can be seen through the pinholes. Now shift the middle card slightly and observe the flame. The flame will not be visible because light can only travel in a straight line.

**(d) Draw a diagram to show the positions of the Earth, the Sun, and the Moon during a (i) solar eclipse and (ii) lunar eclipse.**

Ans. Refer to pages 76 and 77 of the Pupil's Book.

**(e) Draw a labeled diagram of a pinhole camera.**

Ans. Refer to page 74 of the Pupil's Book.

**(f) Explain how a shadow is formed.**

Ans. A shadow is formed when an object is placed in the path of light, a dark patch resembling the shape of the object is formed on the side opposite the source of light.

**Class 5<sup>th</sup> MCQ**

**Unit # 5**

MCQs

- (a) More than billion people live on the Earth.  
 4    5    6    [6]
- (b) We are cutting down to clear land to build house and roads.  
 trees    animals    buildings    [*trees*]
- (c) Without trees the dries up and cracks and is easily carried away by wind and water.  
 wood    grass    soil    [*soil*]
- (d) The natural world that surround a living thing is called its .  
 environment    home    school    [*environment*]
- (e) Anything which harms the environment is called a .  
 chemical    pollutant    soil    [*pollutant*]
- (f ) Pollutants which can be broken down by bacteria into harmless substances are called  
 Biotechnical    biodegradable    biogas    [*biodegradable*]
- (g) Dirty water from farms and house is called .  
 sewage    slush    puddle    [*sewage*]
- (h) Farmers use chemicals called to get rid of unwanted plants.  
 pesticides    insecticides    weed killers    [*weed killers*]
- (i) Air pollution is making the layer of gas thinner in some places.  
 Oxygen    nitrogen    ozone    [*ozone*]
- (j) When acid rain falls in rivers and lakes it harms the fish and plants living in the .  
 land    air    water    [*water*]

**Unit # 6**

MCQs

- (a) Everything in the universe is composed of .  
 Gases    water    matter    [*matter*]
- (b) Matter is composed of very tiny particles which have between them.  
 air    spaces    atoms    [*spaces*]
- (c) The particles in a solid have very small between them.  
 Atom    molecules    spaces    [*spaces*]
- (d) Liquids have no fixed shape but they have a fixed .  
 Size    shape    volume    [*volume*]
- (e) Due to the spaces between the particles gases can be compressed.  
 large    small    no    [*large*]
- (f ) The motion of particles is called Brownian motion.  
 Straight    curved    zigzag    [*zigzag*]
- (g) When a substance is heated or cooled a change in its occurs.  
 state    colour    shape    [*state*]
- (h) The temperature at which a liquid changes into gas is called its .  
 melting point    boiling point    freezing point    [*boiling point*]
- (i) The changing of a substance from a solid to vapour state is called .  
 evaporation    sublimation    condensation    [*sublimation*]
- (j) When a substance is cooled its particles lose energy and come closer causing a decrease in volume  
 which is called .  
 contraction    expansion    sublimation  
     [*contraction*]

## Unit # 8

### MCQs

- (a) The speed of light is the speed of sound.  
the same as                                  faster than                                  slower than                                  [*faster than*]
- (b) The bundles of energy thrown off by electrons are called .  
photon    photon    photo cells                                  [*photons*]
- (c) Light travels in lines.  
Straight    curved    wavy    [*straight*]
- (d) The pinhole camera was invented by a scientist named Al-Haitham.  
Christian    Chinese    Muslim    [*Muslim*]
- (e) A \_\_\_\_\_ is a path of light in a particular direction.  
beam    ray    laser    [*ray*]
- (f) A \_\_\_\_\_ is a very strong ray of light, which is very narrow and has only one colour.  
beam    ray    laser    [*laser*]
- (g) Materials that allow only some light to pass through are called .  
transparent    translucent    opaque    [*translucent*]
- (h) An eclipse is formed on either the Earth or on the Moon.  
object    shadow    image    [*shadow*]
- (i) Rays that are just beyond the violet edge of the rainbow are called .  
ultra violet    infra red    magenta    [*ultra violet*]
- (j) Chlorophyll, a pigment found in the leaves of most green plants, absorbs \_\_\_\_\_ of the spectrum.  
blue and green    green and red    red and blue    [*red and blue*]

Name: \_\_\_\_\_

Date: \_\_\_\_\_

1. Identify some of the harmful effects of pollution on:

a. the weather \_\_\_\_\_  
\_\_\_\_\_

b. ice caps \_\_\_\_\_  
\_\_\_\_\_

c. river life \_\_\_\_\_  
\_\_\_\_\_

d. sea life \_\_\_\_\_  
\_\_\_\_\_

e. the atmosphere \_\_\_\_\_  
\_\_\_\_\_

2. Fill in the blanks to explain the importance of plants for life on Earth.

Plants provide \_\_\_\_\_ for humans and animals. Plants use \_\_\_\_\_ gas to make their food. Plants give out \_\_\_\_\_, which all living things use for breathing, as a by-product of photosynthesis.

\_\_\_\_\_ provide food and shelter for many animals. The \_\_\_\_\_ of plants hold the soil particles together and prevent the soil from drying up and being carried away by \_\_\_\_\_ and water.

Trees also affect the \_\_\_\_\_ of an area by absorbing the water from the soil and evaporating it from their leaves.

Name: \_\_\_\_\_

Date: \_\_\_\_\_

1. Draw the arrangement of particles in the boxes below.



Solid



Liquid



Gas

2. Choose the correct word(s) to complete the statements:

- a. Expansion in a substance is caused when particles gain / lose energy.
- b. Contraction is caused when particles gain / lose energy.
- c. Melting is caused when particles gain / lose energy.
- d. A decrease / an increase in size or volume occurs when a substance is heated.
- e. A decrease / an increase in size or volume occurs when a substance is cooled.
- f. An increase / a decrease in volume occurs when a solid changes into a liquid.
- g. An increase / a decrease in the volume occurs when a liquid changes into a gaseous state.
- h. The change of state from a liquid to a solid is caused by heating / cooling.
- i. The change of state from a liquid to a gas is caused by heating / cooling.
- j. The change of state from a solid to a gaseous state is caused by cooling / heating.



Name: \_\_\_\_\_

Date: \_\_\_\_\_

Write 'expand' or 'contract' in the blank spaces.

- a. A glass tumbler cracks if ice is put in it because glass \_\_\_\_\_.
- b. The tyre of a bicycle bursts if it gets too hot because the air in the tube \_\_\_\_\_.
- c. Milk boils over if left on the heat because milk \_\_\_\_\_.
- d. Metal pipes burst in very cold weather because the water inside the pipes \_\_\_\_\_.
- e. A tightly fitted metal cap on a bottle can be opened by heating the cap because it \_\_\_\_\_.
- f. Overhead wires break in cold weather because they \_\_\_\_\_.
- g. Gaps are left between railway lines to prevent them bending in hot weather, because metals \_\_\_\_\_ on heating.

# Assessment

## Units 1–6

1. Answer the following questions:

- (a) Why have the scientists classified living things?
- (b) Describe the life cycle of i) a frog or ii) a butterfly.
- (c) How can doctors help you to fight diseases?
- (d) What is groundwater?
- (e) List three things that we can do to reduce pollution.
- (f) How does a solid melt into a liquid?

or

What is condensation?

2. Fill in the blanks:

- (a) Animals can be classified into two main groups: vertebrates and \_\_\_\_\_.  
(*invertebrates*)
- (b) Birds are the only animals with \_\_\_\_\_. (*feathers*)
- (c) When living things create new living things of their own kind it is called \_\_\_\_\_.  
(*reproduction*)
- (d) Flowering plants have \_\_\_\_\_ which produce fruits and seeds. (*flowers*)
- (e) Regular \_\_\_\_\_ helps your body to stay strong and fit. (*exercise*)
- (f) Growing children need to eat food that contains a lot of \_\_\_\_\_. (*proteins*)
- (g) Air contains water in the form of \_\_\_\_\_. (*water vapour*)
- (h) Ice is \_\_\_\_\_ water. (*solid*)
- (i) The natural world that surrounds a living thing is called its \_\_\_\_\_.  
(*environment*)
- (j) When a substance is heated, its particles gain energy and start moving \_\_\_\_\_.  
(*faster*)

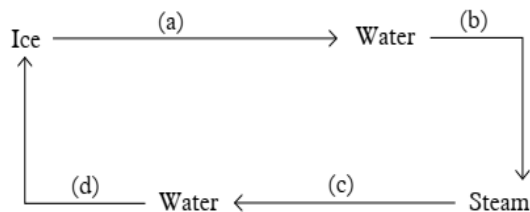
3. Match the items of the lists A and B:

A	B
petal	male cell
stamen	female part
pollen	brightly coloured
carpel	male part
ovule	sticky tip
stigma	fruit
ovary	female cell
seed coat	germination
growth of seed	embryo
baby plant in the seed	testa

4. Write **True** or **False** against each statement:

- Exercise makes you fat. \_\_\_\_\_
- Sleeping is the best exercise. \_\_\_\_\_
- The rubbish of the house should be thrown into the street. \_\_\_\_\_
- We should not use the things that a sick person has used. \_\_\_\_\_
- If you have a disease that can spread, stay away from people till you are better. \_\_\_\_\_

5. Write the name of the processes.



## Answers

- (a) Scientists have classified living things because it helps us to understand how all different things in the world fit into a pattern.
  - (b) i) The female frog lays eggs. A tiny tadpole comes out of each egg. The tadpole grows to form a complete frog.
    - ii) The female butterfly lays eggs. After a week small larve called caterpillar hatch from eggs. It produces a fine thread and forms a shell, called cocoon around its body. Inside the cocoon the insect becomes a pupa. The pupa splits and the newly formed butterfly emerges from it.

- (c) Doctors inject vaccines of different diseases in our bodies, which help our bodies to become immune to germs of different diseases.
- (d) Water that has soaked through the soil is called groundwater. It fills the spaces in the rocks, and comes out in the form of springs and wells.
- (e) Students will give their own answers
- (f) When a solid is heated, its particles begin to move faster and hit against each other. They move away from each other and the solid melts into a liquid.

or

When water vapour in the air touches a cold surface, it changes into water droplets. This change of water vapour into liquid water is called condensation.

3.	A	B
	_____	_____
	petal	brightly coloured
	stamen	male part
	pollen	male cell
	ovule	female cell
	stigma	sticky tip
	ovary	fruit
	seed coat	testa
	growth of seed	germination
	baby plant inside the seed	embryo

- 4. (a) false      (b) false      (c) false      (d) true      (e) true
- 5. (a) melting      (b) evaporation  
(c) condensation      (d) freezing

Name: \_\_\_\_\_

Date: \_\_\_\_\_

1. Fill in the blanks:

- a. When rough \_\_\_\_\_ rub against each other, they produce a force called friction.
- b. For smooth surfaces the force of friction is \_\_\_\_\_.
- c. For rough surfaces, the force of friction is \_\_\_\_\_.
- d. Friction helps all kinds of \_\_\_\_\_, such as walking, writing, etc.
- e. Friction is caused due to the tiny \_\_\_\_\_ on the surfaces in contact.
- f. Friction is also due to the presence of \_\_\_\_\_, which tend to stick to each other.
- g. Air \_\_\_\_\_ is the largest frictional force pushing against a fast-travelling car.
- h. Rowing a boat needs a lot of force to push it forward against the \_\_\_\_\_ resistance.
- i. The \_\_\_\_\_ experienced by swimmers, runners, cyclists, and racing car drivers is referred to as drag.
- j. The amount of drag depends upon the \_\_\_\_\_ of the object.

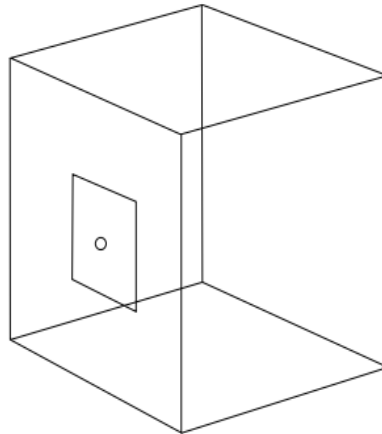
2. Name the type of simple machine:

<b>Description</b>	<b>Machine</b>
a. It has a long arm which can lift a heavy load by applying very little effort.	_____
b. It is a sloping surface along which a heavy load can be pulled in order to raise it.	_____
c. It is two inclined planes that increase and change the direction of the force.	_____

Name: \_\_\_\_\_

Date: \_\_\_\_\_

1. On the given diagram, draw rays to show how an image is formed by a pinhole camera:



2. Write the term that matches the description.

**Description**

**Object**

- |   |       |
|---|-------|
| a. A path of light in a particular direction                                | _____ |
| b. Several rays running side by side  | _____ |
| c. A strong narrow ray of light of one colour that gives out heat           | _____ |
| d. Materials that allow light to pass through                               | _____ |
| e. Materials that do not allow light to pass through                        | _____ |
| f. Materials that allow some light to pass through                          | _____ |
| g. A dark patch formed when an opaque object is placed in the path of light | _____ |

Name: \_\_\_\_\_

Date: \_\_\_\_\_

1. Draw a labelled diagram to show the parts of a shadow.

2. Draw a labelled diagram of a solar eclipse.

Amazing Science 5<sup>th</sup>