



# Right Science

2

***Teacher's  
Resource Book***

For Order : 0320-5899031

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## Chapter 1: Living Things

### Our Body Structure 1.1

#### Learning objectives:

- In this lesson you will learn about body structure.
- You will learn about skeleton, bones, joints and muscles in detail.
- You will also learn about the functions of skeleton, bones, joints and muscles.

#### Teacher Starters:

Start by asking children about their bodies and their structure. Also ask them to identify or name certain body parts and their functions. For example, what does brain do? It helps us to think. What do bones do? They help us to move. Tell them about main body parts like, bones, skeleton, joints and muscles with their functions in detail.

#### Teaching:

Get the lesson read in class, emphasizing more on the topic of body structure. Help them to give examples. Point to the pictures of the bone, skeleton, joint and muscle, which is given in the lesson.

#### Extended Teaching

##### Resources at [www.learningwell.pk](http://www.learningwell.pk)

Log on to your personal account at [www.learningwell.pk](http://www.learningwell.pk) to view electronic print of this lesson and a full-length video lecture or animation pertaining to the lesson. You will also find extended exercises or MCQ-based tests based on the lesson to help your students improve their learning. Additional teaching resources are also available at [www.TeachingWell.pk](http://www.TeachingWell.pk)

#### Web Resources:

For further information visit these sites and links:

1. [www.scienceforkidsclub.com](http://www.scienceforkidsclub.com)
2. <https://youtu.be/rg34VwymLXc>

#### Think and Write

##### A. Answer the questions

1. Name four movable joints.
  - These are the four movable joints:
    1. Elbows
    2. Shoulders
    3. Hips
    4. Knees
2. What is our body made of?
  - Our body is made up of bones, skeleton, joints and muscles.
3. What is skeleton? What is its function?
  - When all the bones are taken as a whole they are called skeleton. Its main function is to provide shape and structure to our body.
4. What role our muscles play in our body?
  - Our muscles control movement of different parts of our body.



## Test Your Knowledge

### A. Circle the correct answers. (Correct answers are given)

1. The place where two bones meet is called a
  - Joint
2. Bones are stronger than
  - Steel
3. What do bones that fit together make?
  - Skeleton
4. What moves you bones?
  - Muscles
5. How many bones are there in an adult human being?
  - 206

### B. Match the body parts with their names.

Ear eye foot hair hand leg Lips neck nose thumb tongue waist

- Do as directed.( Correct sequence is given below according to picture)
- |           |          |
|-----------|----------|
| 1. Tongue | 7. ear   |
| 2. Neck   | 8. Waist |
| 3. thumb  | 9. Hand  |
| 4. Foot   | 10. Leg  |
| 5. Hair   | 11. Lips |
| 6. Eye    | 12. nose |

### Learning New Words:-

Words	Meanings
Blinking	to close and then open your eyes very quickly
Flesh	the soft parts of the body of an animal or person
Heap	a large, disordered pile of things
Internal	located inside of something
Organs	parts of the body
Joints	a point where two bones meet in the body
Lungs	an organ that people and animals use to breathe
Muscles	a body tissue that can contract and produce movement
Ribs	any of the paired curved bone
Skeleton	the structure of bones that supports the body
Skull	the structure of head and face bones
Spinal	relating to, or affecting the spine
Column	a long post made of steel, stone etc.
Structure	the way that something is built

## Chapter 1: Living Things

### Habits to keep Our Body Healthy 1.2

#### Learning objectives:

- In this lesson we will learn about some habits to keep our body healthy.
- We will learn which food is healthy or which foods are unhealthy for us.
- We will learn that the food we eat is the fuel for our body.
- We will also learn about the importance of outdoor activities like jogging, riding a bike, or playing sports.

#### Teacher Starters:

Start by asking children about their habits that they have adopted to keep their body healthy and fit. Also ask them how they take care of their body. For example, by exercising, swimming etc. You can tell them the importance of these healthy habits so they can understand the topic easily.

#### Teaching:

Get the lesson read in class, emphasize on the topic 'Healthy habits'. Tell them how they should keep their body healthy. For example, we can keep our bodies healthy through exercise, good sleep and proper hygiene etc. Point to the picture of habits, given in the unit.

#### Extended Teaching

Resources at [www.learningwell.pk](http://www.learningwell.pk)

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#### Web Resources:

For further information visit these sites and links:

1. <https://youtu.be/mN5ZwgT8fMw>
2. [www.parents.com](http://www.parents.com)

#### Think and Write

##### 1. Answer the questions

1. Why do you need to take care of your body?
  - We need to take care of our body so that it stays healthy.
2. What are the advantages of Playing outside?
  - We can digest food well; increase the capacity of heart, lungs and brain.
3. Why should we eat healthy food?
  - We should eat healthy food because healthy food makes you big, strong and smart.
4. Write two good food habits.
  - Two good food habits are eating: 1) fruits, 2) vegetables

**Test Your Knowledge**

**A. Write the names of the food. Put the words under the correct heading.**

Healthy Food	Unhealthy Food
Grapes, banana, butter	Fries
Apple, sausages	Burger, cold drink
Beetroot, almonds	Bread, juice
Carrot, fish, egg	Toffee
Water, cherry, watermelon	Beef

**B. Write (H) for healthy habits or (U) for unhealthy habits after the sentences. Put the number of the sentences in circle.**

- Brush your teeth (H)
- Go jogging (H)
- Sleep 12 hours a day (U)
- Have fizzy drinks (U)
- Exercise (H)

**C. Write (G) for good and (B) for bad habits:**

- Neha always washes her hands before and after meals. G
- Aamir never drinks water from his own glass. B
- Taha does not like to eat green vegetables. B
- Aman washes his hair regularly. G
- Hira always chews her food properly. G

**D. Draw two fruits and two vegetables in your note book.**

Do as directed:-

**Learning New Words:-**

Words	Meanings
Accumulate	To gather something gradually as time passes
Garbage	things that are not useful and thrown out
Healthy foods	food that is good for your health
Healthy habits	a person does something often in a regular way to keep him or herself healthy
Outdoor activities	something that is done outside
Unhealthy food	harmful food for your health



## Chapter 1: Living Things

### Putting Animals into Groups 1.3

#### Learning objectives:

- In this lesson we will learn that animals are divided into two large groups; Vertebrates and Invertebrates.
- We will learn that animals which have a backbone are called Vertebrates.
- Groups of vertebrates include Mammals, Reptiles, Birds, Fish and Amphibians.
- We will also learn that animals which do not have a backbone are called invertebrates. Animals with more than four jointed legs are called arthropods.

#### Teacher Starters:

Start by asking children about names of various animals and also ask them to suggest the group to which the animal belongs to. Also ask them what they know about Vertebrates and Invertebrates. You can tell them some examples of Vertebrates and Invertebrates. And tell the major difference between them, the presence of absence of backbone.

#### Teaching:

Get the lesson read in class, focus on the topic. Tell the students about the groups of animals and also ask them whether they have seen such animals at the zoo. Tell students about vertebrates and invertebrates in detail. Point to the picture of the vertebrates and invertebrates animals given in the lesson. Also tell them about backbone so they can easily differentiate between vertebrates and invertebrates. You can carry up a human skeleton if possible during the lesson if possible to help your students clearly seen the backbone i.e. the main feature of vertebrates.

#### Extended Teaching

Resources at [www.learningwell.pk](http://www.learningwell.pk)

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#### Web Resources:

For further information visit these sites and links:

1. [www.thoughtco.com](http://www.thoughtco.com)
2. <https://youtu.be/mRidGna-V4E>

#### Think and Write

##### A. Answer the questions:

1. How do we classify animals? Write in detail.
  - Answer: All the animals are divided into two broad groups.
    - a) Vertebrates
    - b) Invertebrates



2. What is backbone?
  - Backbone is a series of small bones on the back.
3. Write down the names of 5 groups of vertebrates with their characteristics. Give an example too.
  - Five groups of vertebrates are;
    1. Amphibians: They spend their lives in water and on land. e.g Toads and frogs.
    2. Reptiles: They have hard dry scales on their body.  
e.g Lions and Bears
    3. Mammals: They have hair or fur on their body. e.g Lions and Bears
    4. Fish: They only live in water and use gills to breathe. E.g. Shark and dolphin.
    5. Birds: All birds have strong sharp beaks to catch worms. E.g. Eagles and crows.
4. What are Arthropods?
  - Animals with more than four jointed legs are called Arthropods.
5. Explain the terms: warm-blooded animals, cold blooded animals. Support your answer with pictures.
  - i) **Warm-blooded animals:**  
They can maintain their body temperature- They can keep themselves warm when it is cold outside.
  - ii) **Cold-blooded animals:**  
They cannot maintain their body temperature. They are hot when their environment is hot and cold when their environment is cold.

## Test Your Knowledge

### A. Complete this table:

Groups	What is my body covering?	What do I use to breathe?	How do I have babies?	Am I warm blooded or cold blooded?	Animals of this group?
<b>Fish</b>	Scales	Gills	Eggs	Cold blooded	Shark, dolphin
<b>Amphibians</b>	Scales	Gills	Eggs	Cold blooded	Toads Frogs
<b>Reptiles</b>	Scales	Lungs	Eggs	Cold blooded	Turtles Snakes
<b>Mammals</b>	Hair or fur	Lungs	Embryo	Warm blooded	Lions Bears
<b>Birds</b>	Feathers	lungs	Eggs	Warm blooded	Eagles Crows



**B. Circle the correct answers. (Correct answers given)**

1. Mammals are covered with .....
  - hair
2. What do mammals use to breathe with?
  - Lungs
3. Animals that begin their life in water and live the rest of their life on land are called.
  - Amphibians
4. To which class of vertebrates do the humans belong?
  - Humans
5. What does invertebrate mean?
  - Animals without backbone

**C. Underline the correct words.**

1. Hair
2. Gills
3. Cold-blooded
4. Invertebrates
5. Cannot

**Learning New Words:-**

<b>Words</b>	<b>Meanings</b>
Amphibians	an animal that can live both on land and in water
Arthropods	any of a phylum of invertebrates animals such as insects
Feathers	light growth that make up the outer covering of the body of a bird
Gills	an organ for obtaining oxygen from water
Invertebrates	lacking a spinal column
Mammals	a type of animal that feeds milk to its young
Reptiles	an animal (such as snake, lizard, turtle)
Vertebrates	an animal that has a backbone

**Chapter 1: Living Things****Eating Habits of Animals 1.4****Learning objectives:**

- In this lesson we will learn that animals are divided into three groups according to their eating habits.
- We will learn about the herbivores, carnivores and omnivores.
- We will also learn about the eating habits of animals.

**Teacher Starters:**

Start by asking students about eating habits of animals i.e. which animals eat what for example birds eat grains, cattle eat grass, lion eat meat etc. Ask them which kinds of food animals like to eat. Also ask them about Herbivores, Carnivores, and Omnivores.

**Teaching:**

Get the lesson read in class, emphasizing more on eating habits of animals such as meat eaters and plant eaters. Point to the picture of the animals given in the unit. Tell them that animals are divided into three groups according to their eating habit. Tell them about Herbivores, Carnivores and Omnivores in detail with examples, so that they can understand the topic easily.

**Extended Teaching**

Resources at [www.learningwell.pk](http://www.learningwell.pk)

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**Web Resources:**

For further information visit these sites and links:

1. [www.mocomi.com](http://www.mocomi.com)
2. <https://youtu.be/5oNtBhHuNDw>

**Think and Write****A. Look at these pictures and answer the questions.**

1. Which of these animals eat plants?
  - Goat, cow, rabbit, deer eats plants.
2. Which of these animals eat other animals?
  - Eagle and lion eats other animals.
3. Which of these animals eat both, other animals and plants?
  - Hen eat both (small insects, grains and plants too)

**B. Answer the following questions.**

- D. What will happen if there are no plants?
  - Life could not exist on earth without plants.
4. What will happen if all plant eating animals die?
  - We can't get milk and meat

**Test Your Knowledge**

**A. Group the following animals according to their eating habits.**

Carnivores	Omnivores	Herbivores
Dog	Boy	Bear
Snake	Crow	Camel
Tiger	Monkey	Duck
Cat		Elephant
		Giraffe
		Horse
		Zebra

**B. Guess the names of these animals with the help of the given clues.**

- a. Rabbit                      b. Mouse                      c. Elephant                      d. Giraffe

**C. Underline the correct answers.**

- a. Elephant                      b. Ox                      c. Monkey                      d. Snakes

**Learning New Words:-**

**Words**

- Carnivore
- Grasping
- Herbivore
- Nectar
- Omnivore
- Swallows
- Talons

**Meanings**

- an animals that eats meat
- wanting and possessions too much
- an animal that only eats plants
- a sweet liquid produced by plants
- an animal that eat both plants and animals
- to take something into your stomach through your mouth or throat
- the sharp claws on the feet of some birds

**Chapter 1: Living Things**

**Life Cycle 1.5**

**Learning objectives:**

- In this lesson we will learn about the life cycle of mammals, birds, amphibians, insects and plants.
- We will learn that all living organisms in their life cycle grow from a baby, become an adult, give birth to babies, grow old and die.
- We will learn that plant begins with a seed, it sprouts and produces seedling then it grows into an adult and then it produces flowers which later turns into fruits.



**Teacher Starters:**

Start by asking children about the changes that happen in the life of all living organisms like humans, animals and plants. Tell them about the life cycle of every living organism. Also tell them that life cycle is common to all organisms, it happens in different ways in different animals and plants and each organism has a specific life span.

**Teaching:**

Get the lesson read in class, emphasizing more on the various phases of life experienced by mammals, including humans as well as birds, amphibians, insects and plants. Point to the pictures given in the unit. Draw chart to explain the topic to students. You might add the row of 'life span' in the chart so that children can understand that various species of animals have varying life times.

**Extended Teaching****Resources at [www.learningwell.pk](http://www.learningwell.pk)**

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**Web Resources:**

For further information visit these sites and links:

1. <http://kidskonnnect.com>
2. <https://youtu.be/-pHav-3QZkl>

**Think and Write****A. Answer these questions:**

1. What is a life cycle?
  - All the changes that happen in life from birth to death are called life cycle.
2. Draw the life cycle of a butterfly?
  - (do as directed from book)
3. What do we call a tadpole with front and hind legs?
  - A tadpole with front and hind legs is called froglet.

**Test Your Knowledge****A. Fill in the blanks:**

- E. Life cycle
- F. Slow, change
- G. Tadpole
- H. Food, water
- I. Fruits

**B. Circle the correct answers.**

1. Frog
2. Crocodiles
3. Life cycle
4. Larva
5. Living things

**C. Write whether the following statements are True or False:**

1. False
2. Trud
3. Trud
4. False
5. True

**D. Frog life cycle labeling**

- Label the stages of the frog life cycle. Check your answers against the frog life cycle poster.
  - a. Frog
  2. Egg
  3. Froglet
  4. Tadpole

**Learning New Words:-**

<b>Words</b>	<b>Meanings</b>
Disappear	to stop being visible
Froglet	a young frog
Hatches	a small door or opening
Life cycle	the stages which a living thing passes from birth to death
Living organisms	a system with many parts that depend on each other and work together
Seedling	a young plant that is grown from seed
Sprouts	to produce new leaves, buds etc
Tadpole	a small creature that becomes an adult toad or frog

**Chapter 1: Living Things****Germination in Plants 1.6****Learning objectives:**

- In this lesson we will learn about germination in plants.
- We will learn what a seed needs in order to germinate.
- We will learn the whole process of germination.

**Teacher Starters:**

Start by asking children about what does a seed have in its inside and what does a seed needs in order to germinate. Ask them about parts of a seed. Later tell them about the seed and parts of the seed in detail with the help of a diagram. Discuss the topic of germination in plants and give your students examples of germination in a few plants. As a supplementary activity, you

may ask them to plant a seed in a jar covered by wet cotton. You may also do the same activity in a pot of plant in the school or outside the class room.

### Teaching:

Get the lesson read in class, emphasizing more on the topic germination in plants. Tell students that the process of germination needs water, air and right temperature. Point to the picture given in the unit.

### Extended Teaching

#### Resources at [www.learningwell.pk](http://www.learningwell.pk)

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#### Web Resources:

For further information visit these sites and links:

1. [www.coolkidfacts.com](http://www.coolkidfacts.com)
2. <https://youtu.be/ro8Z9qllWjM>

### Think and Write

#### A. Answer the following questions:

1. What is germination?
  - The process of growth of a seed in to a plant is called Germination.
2. What does a seed need to germinate?
  - A seed need water, air and right temperature to germinate.
3. Name parts of a seed.
  - Three parts of a seed are, (i) Embryo, (ii) Seed coat, (iii) Food store
4. What a baby plant is called?
  - A baby plant is called an Embryo.

### Test Your Knowledge

#### A. Write whether the following are True or False:

1. False
2. False
3. True
4. False
5. True

#### B. Rearrange the letters in correct order to make the following words

Germination, Energy, Seed Coat, Temperature, Embryo, Oxygen, Seedling, Food Store

- Answer: In sequence.

Embryo	seedling	germination
Energy	temperature	seed coat
Food store	oxygen	



**Learning New Words:-**

<b>Words</b>	<b>Meanings</b>
Absorbs	to take in something such as water
Adult plant	fully grown and developed plant
Baby plant	a very young plant
Downward	from a higher to a lower place or position
Embryo	a human or animal in the early stages of development before it is born
Enough	equal to what is needed
Germination	to begin to grow
Temperature	a measurement that shows how hot or cold something is

**Chapter 2: Materials****Materials We Use 2.1****Learning objectives:**

- In this lesson we will learn about the materials and types of material.
- We will learn the properties of objects.
- We will learn that choosing right material for an object is crucial for the usability of that product.

**Teacher Starters:**

Start by asking children about the things they use in routine life. Ask them to identify the materials with which those things are made, for example chairs can be made of wood or plastic. Tell them about the properties of material. Also tell them that properties of objects depend upon the properties of material they are made from. Give them some examples. Tell students about the types of material such as iron, copper, plastic etc.

**Teaching:**

Get the lesson read in class focusing on the topic of materials used in everyday life such as plastic, cotton, iron etc. Tell students about different material and their properties. Give them examples so students can understand that easily. Point to the picture of different materials given in the unit.

**Extended Teaching****Resources at [www.learningwell.pk](http://www.learningwell.pk)**

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## Web Resources:

For further information visit these sites and links:

1. [www.kidcyber.com.av](http://www.kidcyber.com.av)
2. <https://youtu.be/xOKr462HLc0>

## Think and Write

### A. Answer the given questions:

1. What is material? Give some examples of materials around you.
  - The matter from which a thing is or can be made is called material. E.g. wood, metal, glass, plastic, paper, rubber.
2. Why is it important to choose the right material for everything?
  - Choosing right material for everything is important because of usability of that product.
3. What are metals? Give examples.
  - Metals are hard, strong and shiny. They are used to make tools, buildings, bridges etc.
4. Give two differences between materials made from glass and plastics.
 

Glass	Plastic
1. Glass jug is fragile & easily breakable	1. Plastic jug is stiff and un-breakable
2. Glass bowl is heavy	2. Plastic bowl is light.
5. Name four objects from your household that are made of wood.
  - Four objects of wood are: 1. Bed, 2. Chair, 3. Table, 4. Cupboard

## Test Your Knowledge

### A. Match the objects in Column 1 with the material in Column 2.

Column 1	Column 2
• Knife ---	steel
Notebook ---	paper
Shoes ---	leather
Table ---	wood
Jug ---	glass

### B. Write whether the following are True or False.

- |          |         |
|----------|---------|
| 1. False | 4. True |
| 2. False | 5. True |
| 3. False |         |
| 6.       |         |

### C. Write the names of the objects made of these materials in your surroundings.

Material	Objects
Wood	Furniture, doors
Metal	Tools, cars
Plastic	Toys, bags
Glass	Mirrors, windows





**D. Fill in the blanks.**

1. Force
2. Natural
3. Chemical
4. Hammer
5. Material

**Learning New Words:-**

<b>Words</b>	<b>Meanings</b>
Tough	very difficult to do
Fragile	easily broken or damaged
Absorbing	fully taking something
Waterproof	to prevent water from entering or passing through
Unbreakable	unable to be broken
Stiff	difficult to bend or move
Bent	not straight
Application	an act of putting something to use
Properties	something that is owned by a person
Obtained	to gain or get something by efforts
Countless	too many to be counted
Hammer	a tool that is used for hitting nails or breaking things
Tools	to shape form or finish something
Structures	the way that something is built or arranged
Various	many different things, people etc
Chemicals	a substance that is made by a chemical process
Exteriors	located on the outside of something
Flexible petroleum	a kind of oil which is capable of bending
Crude oil	very basic and simple oil

**Chapter 2: Materials****Investigating the States of Matter 2.2****Learning objectives:**

- In this lesson we will learn about matter and states of matter which are: solids, liquids and gases.
- We will learn that materials can change from one state of matter to another.
- We will learn that states of matter can be changed by heating or cooling of the matter.

**Teacher Starters:**

Start by asking children about matter and states of matter. For example ask them: What is ice, solid or liquid? What is oxygen? Solid or liquid? What is soft drink? Solid or liquid. Also ask them

what makes the states of matter different, e.g. if you boil the water, it will turn into steam. Prepare them for the topic by any practical activity such as carrying a cube of ice in the class and telling the difference of change of the matter as time of your lesson passes. Tell them that matter can change from one state to another. Tell them about atom. Draw a diagram to elaborate. Discuss the difference between heating and cooling.

**Teaching:**

Get the lesson read in class; discuss the topic in detail with examples such as that of the ice cube melting and eventual evaporation into water vapors. Tell students about matter and its three states using the same example. Point to the picture given in the unit. Later tell your students about the difference between heating and cooling the matter and ask them about their daily life instances where they see heating or cooling, such as in cooking.

**Extended Teaching****Resources at [www.learningwell.pk](http://www.learningwell.pk)**

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**Web Resources:**

For further information visit these sites and links:

1. [www.theschoolrun.com](http://www.theschoolrun.com)
2. <https://youtu.be/yjJ3eSD77zE>

**Think and Write****A. Answer the given questions:**

1. What is matter?
  - Anything that has weight and occupies space is called matter
2. What are the three states of matter?
  - The three states of matter are:  
(i) Solid (ii) Liquid (iii) Gas
3. What is solid? Name five solids.
  - Solid has fixed shape and size. Five solids are book, chair, clothes, pencil and paper.

**Test Your Knowledge****A. Circle the right answer.**

- |           |                    |
|-----------|--------------------|
| 1. Gas    | 6. Solid           |
| 2. Weight | 7. Liquid          |
| 3. Atoms  | 8. Gas             |
| 4. Things | 9. Solid           |
| 5. Three  | 10. Closely packed |

**B. Write whether the following are True or False**

1. False
2. True
3. True
4. False
5. True

**C. Underline the right answers:**

1. Freezing
2. States
3. Variable
4. Evaporation
5. Atom

**Learning New Words:-**

<b>Words</b>	<b>Meanings</b>
Freezing	to become a hard substance because of cold
Gas	a substance that is like air and has no fixed shape
Heating	to cause something to become warm or hot
Liquid	capable of flowing freely like water
Matter	the thing that forms physical objects and occupies space
Melting	to change from a solid to a liquid
Microscope	a device used to view larger of very small objects
Solid	firm or hard
State	the overall physical condition of something

**Chapter 3: Machines and Forces****Simple Machines 3.1****Learning objectives:**

- In this lesson we will learn about simple machines.
- We will learn that a machine makes our work easier.
- We will learn about six types of machines: lever, inclined plane, wedge, screw, pulley, wheel and axle.
- We will learn the functions of lever, inclined plane, wedge, screw, pulley, wheel and axle.

**Teacher Starters:**

Start by asking children about the things that make our work easier. As they give you answers, tell them about the machine and its functions. Also ask them what they know about different kinds of machines stated in the lesson. You can tell them some examples of machines and



functions with the help of text book. You may also ask them which simple machines they frequent every day such as fans, screw driver, sharpener etc.

**Teaching:**

Get the lesson read in class, emphasizing more on simple machines like pulley and lever. Discuss the kinds of machines with their functions. Point to the picture of the machines given in the unit and ask them to identify different machine types in their homes or schools.

**Extended Teaching**

Resources at [www.learningwell.pk](http://www.learningwell.pk)

Log on to your personal account at [www.learningwell.pk](http://www.learningwell.pk) to view electronic print of this lesson and a full-length video lecture or animation pertaining to the lesson. You will also find extended exercises or MCQ-based tests based on the lesson to help your students improve their learning. Additional teaching resources are also available at [www.TeachingWell.pk](http://www.TeachingWell.pk)

**Web Resources:**

For further information visit these sites and links:

1. [www.coolkidfacts.com](http://www.coolkidfacts.com)
2. <https://youtu.be/fvOmaf2GfCY>

**Think and Write****A. Answer the given questions:**

1. What is a machine?
  - A machine is anything that makes our work easier.
2. What are simple machines?
  - Simple machine allows us to push or pull over long distance.
3. How many types of simple machines are there?
  - There are six types of simple machines; Lever, Inclined plane, Wedge, Screw, Pulley, Wheel and axle.
4. Why do we use an inclined plane?
  - We use an inclined plane to move a heavy object from higher to lower and lower to higher surface.

**Test Your Knowledge****A. List two examples of each type of simple machine**

1. Screw (bulb, bolts)
2. Lever (see-saw, stapler)
3. Pulley (lift elevators, lift the bucket)
4. Wheel and Axle (car, wagons)
5. Inclined Plane (ramp, slides)

**B. Find the following words in the grid below:**

- ( Do as directed in book)

**Learning New Words:-**

<b>Words</b>	<b>Meanings</b>
Axle	a bar on which a wheel turns
Groove	a long, narrow cut
Heavy	having great weight
Inclined plane	a plane structure that makes an oblique angle
Lever	a strong bar that is used to lift or move something
Pulley	a wheel that is used with a rope, chain etc
Rope	a strong thick string
Screw	a nail-shaped piece with a spiral groove designed to be inserted into material
Simple machines	to push or pull over long distance
Wedge	a piece of wood, metal etc.
Wheel	the round parts underneath a car, wagon etc

**Chapter 3: Machines and Forces****Electricity 3.2****Learning objectives:**

- In this lesson we will learn that electricity is a form of energy.
- We will learn about how electricity is formed.
- We will learn about main electricity.
- We will learn about batteries and their uses.

**Teacher Starters:**

Start by asking children about electricity and their uses. They should be clear that most machines that we use have to use electricity such as toys, fans, cars, television and fridge. Also ask them what is battery and why do we use battery. You can tell them some examples of things which can be run on main electricity and things which can be run only on batteries.

**Teaching:**

Get the lesson read in class, emphasizing more on the topic 'electricity' and the use of electricity in our everyday life. Tell students that how electricity is formed, and what are the main uses of electricity. Also tell them about batteries and their uses. Point to the picture given in the unit.

**Extended Teaching**

Resources at [www.learningwell.pk](http://www.learningwell.pk)

Log on to your personal account at [www.learningwell.pk](http://www.learningwell.pk) to view electronic print of this lesson and a full-length video lecture or animation pertaining to the lesson. You will also find extended

exercises or MCQ-based tests based on the lesson to help your students improve their learning. Additional teaching resources are also available at [www.TeachingWell.pk](http://www.TeachingWell.pk)

**Web Resources:**

For further information visit these sites and links:

1. [www.ducksters.com](http://www.ducksters.com)
2. <https://youtu.be/jpbDOVENOUE>
3. <https://byjus.com/physics/uses-of-electricity/>

**Think and Write****A. Answer the following questions:**

1. What is electricity?
  - Electricity is a form of energy.
2. What is the use of electricity?
  - We use electricity to run; T/V, iron, A/C, computer, fridge, fan etc.
3. What is meant by mains electricity?
  - Electricity that is generated in power station is called mains electricity.
4. What are batteries? Write down their uses.
  - Batteries are storage medium. They store electricity, they do not produce it. Batteries are used to run; toys, mobile phones, laptops, clocks etc.

**Test Your Knowledge****A. Write 'B' if the item uses batteries or 'M' if uses mains electricity.**

1. Cell Phone (B)
2. Electric Kettle (M)
3. Television (M)
4. Hand-held game (B)
5. Vacuum Cleaner (M)
6. Laptop Computer (B)

**B. Circle the correct word/statement.**

1. Energy
2. Power station
3. A white board
4. Power lines
5. Rechargeable

**C. Write whether the following are True or False.**

1. False
2. True
3. True
4. False
5. True

**Learning New Words:-**

<b>Words</b>	<b>Meanings</b>
Batteries	a device that is placed inside a machine
Cables	a thick, strong rope made of wires
Electricity	a form of energy that is carried through wires
Generation	a group of people born and living during the same time
Generators	a machine that produces electricity
Gadgets	a small, useful device
Mains	relating to utility distribution (mains voltage-mains water)
Power stations	power making factories
Power lines	thick cables through which electricity send
Socket	a device in a wall into which an electric cord can be plugged
Transformer	a device that changes the voltage of an electric current

**Chapter 3: Machines and Forces****Magnets 3.3****Learning objectives:**

In this lesson we will learn about 'Magnets'.

- We will learn that magnet is a type of rock or a piece of metal that can pull certain metals towards it.
- We will learn that magnet has two poles; North pole and the South pole.
- We will learn about different shapes of magnet.
- We will learn that earth is a kind of a gigantic magnet.

**Teacher Starters:**

Start by asking questions about magnet. Many children toy cars have magnets, so ask them why their toys need that. Also ask them did they ever use magnet on their own, for example closing up a kitchen or a wardrobe cabinet that has magnet. Ask them about the uses of magnet. Prepare them for the topic. Tell them about magnet and its use. Give them examples, so they can understand the topic easily.

**Teaching:**

Get the lesson read in class and stress more on use of magnet in our daily live including magnets in toys, magnets in speakers, magnets in cabinets, magnets in clutches and schoolbags, magnets in door locks etc. Point to the picture of the shapes of magnet given in the unit. Tell students about the magnet, poles and shapes of magnet in detail.

**Extended Teaching**Resources at [www.learningwell.pk](http://www.learningwell.pk)

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**Web Resources:**

For further information visit these sites and links:

1. [www.theschoolrun.com](http://www.theschoolrun.com)
2. [https://youtu.be/D3e47M\\_AsyA](https://youtu.be/D3e47M_AsyA)

**Think and Write****A. Answer the following questions**

1. What is a magnet?
  - A magnet is a rock or a piece of metal that can pull certain metals towards itself.
2. Draw different shapes of magnets.
  - (Do as directed in copy)
3. What are poles?
  - The two ends of a magnet are called poles. There are two types of poles:
    1. North Pole
    2. South Pole.

**Test Your Knowledge****A. Write whether the following True or False**

- |          |          |
|----------|----------|
| 1. False | 4. False |
| 2. False | 5. False |
| 3. False |          |

**B. Tell whether each pair of magnets will attract or repel:**

- (according to picture give sequence)

Repel	attract	attract
Repel	repel	attract
Repel	repel	repel

**Learning New Words:-****Words**

Construction  
Gigantic  
Magnetism  
Magnetic field  
Rotation  
Stronger

**Meanings**

the process something is built or made  
extremely large  
the attracting property of a magnet  
the portion of a space near a magnetic body  
a complete turn around a central point  
having a lot of strength





Weaker Gravity	something less forceful and less effective the natural force that cause things to move
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## Chapter 4: Space

### Our Solar System and the Space 4.1

#### Learning objectives:

- In this lesson we will learn about the solar system and the space.
- We will learn that all planets revolve around the Sun.
- We will learn about stars, sun, moon and the planets.

#### Teacher Starters:

Start by asking children about our solar system and the space. Tell them that solar system is a network of the Sun, eight planets and their moons. You can tell them the names of planets. Discuss topic in detail.

#### Teaching:

Get the lesson read in class, emphasizing more on the topic 'our solar system and the space'. Tell your students that solar system is one of the many such systems with a star and a planets and there might be many such systems in the universe. Point to the picture of the planets given in the unit. Tell students about the space, stars, sun, moon and planets.

#### Extended Teaching

##### Resources at [www.learningwell.pk](http://www.learningwell.pk)

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#### Web Resources:

For further information visit these sites and links:

1. [www.theschoolrun.com](http://www.theschoolrun.com)
2. <https://youtu.be/RJ2bQWH6GCM>

#### Think and Write

##### A. Answer the following questions:

1. Name three space objects.
  - Three space objects are; Stars, The Sun, The Moon.
2. What is a planet?
  - A planet is a large ball-shaped object that revolves around a star.

3. What do we get from the Sun?
  - We get heat and light from the sun.
4. Which is bigger- the Moon or the Earth?
  - The Earth is bigger than the moon.
5. What is the solar system?
  - Solar system is a huge system of sun, moon and planets.

### Test Your Knowledge

#### A. Write whether True or False

- |          |          |
|----------|----------|
| 1. True  | 4. False |
| 2. False | 5. True  |
| 3. False | 6. True  |

#### B. Circle the correct answer.

- |         |                  |            |         |
|---------|------------------|------------|---------|
| 1. Star | 2. Cold and dark | 3. Biggest | 4. Moon |
|---------|------------------|------------|---------|

### Learning New Words:-

#### Words

#### Meanings

Enormous	very great in size or amount
Orbit	to travel around in a curved path
Supports	to agree with or approve of
Survive	to remain alive
Revolve	to turn around a center point or time or thing
Neighbour	a person or thing who live next to or near to
Satellite	a machine that is sent into space which moves around the sun, moon, earth or a planet
Instruments	a device that measure something (such as temperature or distance)
Gravity	the natural force that cause something to move

## Chapter 4: Space

### Day and Night 4.2

#### Learning objectives:

- In this lesson we will learn about the movement of Earth around the sun.
- We will learn that how days and nights are formed.
- We will learn that what is revolution and rotation of Earth/

#### Teacher Starters:

Start by asking children about the various times of day and night and the role of movement of earth around the sun in transforming day into night and vice versa. Also ask them what they



know about rotation and revolution of earth. As they answer, discuss the topic 'day and night' with them, explaining that day and night are simply names given to presence and absence of sunlight covering part of earth. You can tell them some examples related to the topic.

**Teaching:**

Get the lesson read in class. Focus on the differences between Day and Night and the role of sunlight in it. Point to the pictures given in the unit. Tell students that what causes day and night. Tell them about orbit and rotation. Explain them how the movement of the earth happens, with the help of a diagram.

**Extended Teaching**

Resources at [www.learningwell.pk](http://www.learningwell.pk)

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**Web Resources:**

For further information visit these sites and links:

1. [www.theschoolrun.com](http://www.theschoolrun.com)
2. <https://youtu.be/hWkKSkI3gkU>

**Think and Write****A. Answer the following questions:**

1. What is rotation and revolution of Earth?
  - The spinning movement of the earth is called rotation. Earth revolves around the sun, this movement is called revolution.
2. What is an orbit?
  - Earth has a fixed path along which it moves, this path or track is called the orbit.
3. Explain why we have day and night.
  - We have day and night because of the Earth rotation. When earth rotates, one side of the earth faces sun and the other side faces away from the sun.

**Test Your Knowledge****A. Circle the right answers.**

1. The Sun
2. Two
3. The earth is rotating
4. 1 year
5. 24 hours

**B. Write whether the following are True or False.**

1. True
2. False
3. False
4. True
5. False



**Learning New Words:-****Words**

Axis  
Movement  
Orbit  
Path  
Revolution  
Spherical  
Spins  
Spinning  
Rotation

**Meanings**

the imaginary straight line that something turns around  
the act of moving from one place or position to another  
to travel around in a curved path  
a track that is made for people to walk or ride-on  
a sudden, extreme or complete change  
having the shape of a sphere  
to turn or cause something to turn around repeatedly  
to seem to be moving around repeatedly  
a complete turn around a central point

## Chapter 5: Light

### Light and Shadow 5.1

**Learning objectives:**

- In this lesson we will learn about light and shadow.
- We will learn that light travels in a straight line called rays.
- We will learn that how does a shadow move.
- We will learn how a shadow changes its size.

**Teacher Starters:**

Start by asking children about various forms of light and shadow. Ask them what the light is, and how it travels. Tell them that light is a form of energy just like electricity. Discuss how shadow is formed and how does it changes its size.

**Teaching:**

Get the lesson read in class, emphasize on the topic 'Light and Shadow'. Point to the pictures given in the unit. Tell them about translucent, transparent and opaque objects. Tell them about shadow in detail. You can perform experiment of 'shifting shadow' in class, which is given in the book. As a practical example, you can create a shadow from any solid object by placing it in front any source of light in your classroom. You can then change the distance of the object from the source of light to demonstrate the change of size of the shadow.

**Extended Teaching****Resources at [www.learningwell.pk](http://www.learningwell.pk)**

Log on to your personal account at [www.learningwell.pk](http://www.learningwell.pk) to view electronic print of this lesson and a full-length video lecture or animation pertaining to the lesson. You will also find extended exercises or MCQ-based tests based on the lesson to help your students improve their learning. Additional teaching resources are also available at [www.TeachingWell.pk](http://www.TeachingWell.pk)

**Web Resources:**

For further information visit these sites and links:

1. <https://scienceinprek.si.edu>
2. <https://youtu.be/KXdr1YwmNwc>

**Think and Write****A Answer the following questions:**

1. What is light? How it travels?
  - Light is a form of energy and travels in a straight line.
2. What is a shadow?
  - When an object blocks light a dark patch is formed this patch is called the shadow.
3. Write the definition of these with examples: Transparent object, opaque objects, and translucent objects.
  - **a) Transparent objects:** When the light passes through an object they are called transparent objects- e.g. glass and water.
  - **b) Opaque objects:** Objects that do not let light pass through them are called opaque objects- E.g. woods
  - **c) Translucent object:** Object that let some light pass through them are called translucent objects. E.g. Tissue paper and frosted glass.
4. How shadows change their size?
  - Shadows change their size, when the objects block more or less amount of light.

**Test Your Knowledge****A Underline the right answers.**

1. Energy
2. Opaque
3. Transparent
4. More
5. Long

**B. Make a list of four things in your house that give off light.**

1. Bulb
2. Lamp
3. Tube light
4. Torch

**Learning New Words:-****Words**

Bend  
Blocks  
Opaque  
Straight  
Shadow

**Meanings**

to curve out of straight line or position  
a solid piece of material wood or metal  
not letting light through  
not having curves, bends and angles  
an area of darkness created when a source of light is blocked



Squeezed	to press together the parts of something
Transparent	able to be seen through
Translucent	not completely clear but allow light to pass through
Rays	any lines of light that appear to radiate from a bright object
Travels	to move from one place to another

## Chapter 6: Earth and its Atmosphere

### Seasons 6.1

#### Learning objectives:

- In this lesson we will learn about Seasons.
- We will learn about various types of seasons in detail.
- We will learn why seasons change?
- We will learn that seasons are not the same everywhere.

#### Teacher Starters:

Start by asking children about seasons. Ask them about how many seasons are there in a year and what is their favorite season. Also ask them what they like to do in summer, winter, autumn and spring, which kinds of clothes do they wear in these seasons. Prepare them for the topic. You can tell them examples of different foods we have in different seasons.

#### Teaching:

Get the lesson read in class. State the properties of each season and list them in different columns on the board. Tell students that specific climate conditions in a year make up its seasons. Point to the pictures given in the unit.

#### Extended Teaching

##### Resources at [www.learningwell.pk](http://www.learningwell.pk)

Log on to your personal account at [www.learningwell.pk](http://www.learningwell.pk) to view electronic print of this lesson and a full-length video lecture or animation pertaining to the lesson. You will also find extended exercises or MCQ-based tests based on the lesson to help your students improve their learning. Additional teaching resources are also available at [www.TeachingWell.pk](http://www.TeachingWell.pk)

#### Web Resources:

For further information visit these sites and links:

1. <https://kidsgeo.com>
2. <https://youtu.be/XkQo0uxQTCI>

## Think and Write

### A. Answer the following questions:

1. What are the seasons?
  - The different weather conditions are called seasons.
2. Which season is the hottest of all?
  - Summer season is the hottest of all.
3. Which season has greenery all around?
  - Spring season has greenery all around.
4. Some areas do not have a season, why?
  - Because they remain at the same distance from the sun throughout the year.
5. What causes different seasons on the Earth?
  - The seasons are caused by the tilt of the earth's rotation or towards the sun.

## Test Your Knowledge

### A. Circle the right answers

- |           |           |
|-----------|-----------|
| 1. Tilt   | 4. Winter |
| 2. Winter | 5. Winter |
| 3. Autumn |           |

### B. Whether the following statements are True or False.

- |          |          |
|----------|----------|
| 1. False | 4. True  |
| 2. True  | 5. False |
| 3. False |          |

### C. Identify the seasons.

Look at the images below and write the season they depict on the lines provided.

- (Answer given according to pictures sequence)

- |           |           |
|-----------|-----------|
| 1. Spring | 3. Autumn |
| 2. Summer | 4. Winter |

## Learning New Words:-

### Words

### Meanings

Autumn	the season between summer & winter
Climatic	a region with particular weather, patterns or conditions
Conditions	the physical state of something
Fall season	a season where things (such as leaves) go down quickly from a high place or position
Migrate	to move from one country or area or place to another
Nesting periods	a time when a bird lays its eggs and takes care of its young
Seasons	a suitable or natural time
Snowfall	an amount of snow that falls in a single storm
Spring	the season when plants and trees begin to grow
Summer	the warmest season of the year



Tilt to cause to have an inclination  
Winter to coldest season of the year

## Chapter 6: Earth and its Atmosphere

### How Weather Forms 6.2

#### Learning objectives:

- In this lesson we will learn about how weather forms.
- We will learn about the various kinds of weather.
- We will learn what makes up the weather.
- We will learn about the effects of weather on us.

#### Teacher Starters:

Start by asking children about various types of weather, hot weather, cold weather, windy, sunshine, cool etc. Ask them which kinds of weather they like the most? Prepare them for the topic by asking about their favorite weather. Tell them that weather is the state of the atmosphere around us. You can tell them some examples related to this topic such as changes in our clothing and food as per changes in the weather.

#### Teaching:

Get the lesson read in class. Tell students that wind, sunshine, temperature, precipitation and humidity are the main elements that make the weather. Later tell them about the effect of weather upon us, changes in our lifestyle, food and sleeping habits. Point to the picture given in the unit.

#### Extended Teaching

Resources at [www.learningwell.pk](http://www.learningwell.pk)

Log on to your personal account at [www.learningwell.pk](http://www.learningwell.pk) to view electronic print of this lesson and a full-length video lecture or animation pertaining to the lesson. You will also find extended exercises or MCQ-based tests based on the lesson to help your students improve their learning. Additional teaching resources are also available at [www.TeachingWell.pk](http://www.TeachingWell.pk)

#### Web Resources:

For further information visit these sites and links:

1. [www.weatherquestions.com](http://www.weatherquestions.com)
2. [www.weatherwizkids.com](http://www.weatherwizkids.com)

#### Think and Write

##### A. Answer the following questions:

1. What is weather?
  - Weather is the state of the atmosphere around us.





2. What are different kinds of weather?
  - The different kinds of weather are; Sunny, Cloudy, Rainy, Stormy.
3. What makes up the weather?
  - Different elements make up the weather such as; wind, sunshine, temperature, humidity etc.
4. How the weather affects us?
  - The weather controls our lives like what we do, what we eat, what we wear etc.
5. Define these terms: Clouds, Humidity, Precipitation, and Temperature.
  - (i) **Clouds** are made of millions of tiny water drops.
  - (ii) **Humidity** is the amount of water vapour present in the air.
  - (iii) **Precipitation** is the stuff that falls from the sky such as snow, rain and hail.
  - (iv) **Temperature** tells us how hot or cold it is.

### Test Your Knowledge

#### A. Circle the right answers

- |             |                  |
|-------------|------------------|
| 1. Humidity | 4. Precipitation |
| 2. Clouds   | 5. All of these  |
| 3. Clouds   |                  |

#### B. Write whether the following statements are True or False.

- |          |          |
|----------|----------|
| 1. True  | 4. False |
| 2. True  | 5. False |
| 3. False |          |

#### C. Match words and pictures.(Answer according to pictures)

- |                     |            |             |
|---------------------|------------|-------------|
| • Autumn (fall) (6) | Cloudy (1) | foggy (2)   |
| Freezing (5)        | hot (4)    | rainy (10)  |
| Snowy (3)           | spring (7) | stormy (12) |
| Summer (9)          | sunny (8)  | windy (6)   |

#### D. Answer the following.

- **Hot**  
What to wear: Light clothes  
Activities you can do: Swimming, drink lots of water, enjoy yummy fruits like mango.
- **Cold**  
What to wear: Warm clothes  
Activities you can do: Drink hot coffee and tea, enjoy dried fruits like peanuts
- **Windy**  
What to wear: Warm and thick clothes  
Activities you can do: drink hot soups and eat food rich in fats.
- **Rainy**  
What to wear: Warm clothes like rain coats, rain boots

Activities you can do: use an umbrella to stay dry.

### Learning New Words:-

Words	Meanings
Atmosphere	the whole mass of air that surrounds the earth
Behaviour	the way a person or animal acts or behave
Cloudy	having many clouds in the sky
Condition	the physical state of something
Condense	to change from a gas into a liquid
Destruction	to act or process of destroying something
Hail	precipitation in the form of small balls or lumps
Humidity	moisture in the air
Moderate	average in size or amount
Persist	try to do something even though it is difficult
Precipitation	water that falls to the ground as rain, snow etc
Rainy	having a lot of rain
Stormy	relating to or affected by a storm
Sunny	having plenty of bright sunlight
Thunder	the loud sound from the sky that follows a flash of lightning
Vapours	a substance that is in the form of a gas
Weather	the state of the atmosphere

## Chapter 6: Earth and its Atmosphere

### The Environment 6.3

#### Learning objectives:

- In this lesson we will learn about the Environment.
- We will also learn that how humans use environment and how they abuse environment.
- We will learn about pollution and types of pollution.
- We will learn about how to take care of our environment.
- We will learn about three R's; Reuse, Reduce and Recycle.

#### Teacher Starters:

Start by asking children questions pertaining to various components of our environment such as land and water and air. Also ask them about what causes the pollution. Prepare them for the topic. You can tell them some related examples such as water gets polluted from factory waste while air gets polluted from smokes of vehicles. Tell them about the pollution and its kinds i.e. land, water and air. Also tell them how we should take care of and environment.

**Teaching:**

Get the lesson read in class. Emphasize more on techniques we can use to preserve our environment and reduce pollution. Tell your students about environmental pollution and how it can affect our health and wellbeing. Tell them that how they should take care the environment. Tell them about the three R's. Point to the pictures given in the unit.

**Extended Teaching****Net Extra**

Guide your student about how to use Net Extra for better understanding of the lesson and also to find out meanings of difficult words.

**Web Resources:**

For further information visit these sites and links:

1. <http://kids.niehs.nih.gov>
2. <https://youtu.be/gEk6JLJNg0U>

**Think and Write****A. Answer the following questions:**

1. What is environment?
  - The environment is everything that surrounds us like air, water, plants, animals etc. it helps us to live on the Earth.
2. What are natural and human-made resources? Support your answer with examples.
  - (i) A huge number of useful things in the environment are called natural resources. e.g. Plants, animals, air, rivers, mountains etc.
  - (ii) Humans are natural resources to make useful things are called human-made resources. e.g. cars, roads, shops, parks, houses etc.
3. What is environmental pollution?
  - The addition of harmful substances to the environment is called environmental pollution.
4. What are three R's?
  - The three R's are:
    - (i) Reduce (ii) Reuse (iii) Recycle

**B. Do the following:**

1. List two ways that you can reduce waste
  - a) Produce less waste                      b) Avoid using unnecessary things
2. List three things in your home that you can reuse.
  - a) jars,    b) bottles,    c) paper                      d) clothes

**Test Your Knowledge****A. Fill in the blanks with the appropriate terms.**

1. Recycle                      2. Natural                      3. Less                      4. Clean                      5. Pollution



## B. Dump the items in correct Recycle bin.

Colour each item and draw a line to match it to the correct bin! (Hint: Aluminium items are usually silver, shiny and can be crushed)

- |                |                          |                  |
|----------------|--------------------------|------------------|
| • <b>Paper</b> | <b>Plastic and glass</b> | <b>aluminium</b> |
| box,           | bottle                   | tin              |
| newspaper      | jar                      | bowl             |

## C. Write whether the following statement is True or False

1. False
2. False
3. True
4. True
5. False

## Learning New Words:-

<b>Words</b>	<b>Meanings</b>
Chemicals	a substance that is made by a chemical process
Damaging	causing or able to cause damage
Diseases	an illness that affects a person, animal or plant
Environment	everything that surround us
Human-made	things which are made by people
Microorganisms	an extremely small living thing that can only be seen with a microscope
Minerals	a substance that is naturally formed under the ground (such as coal, salt etc)
Natural	coming from nature
Oxygen	a chemical that is found in the air
Pollution	substances that make land, water, air etc
Polluted	dirty, not safe or suitable to use
Recycle	to make something new from (something that has been used before)
Reduce	to make something smaller in size, amount, number etc
Resources	a place or thing that provides something useful
Reuse	to use something again