A. Checking on concepts:

1. Circle the correct answer.
   i. Which food contains all the five nutrients?
      a. beef          b. ghee          c. milk          d. apple
   ii. What is a balanced diet?
        a. food measured in a balance          b. meals given to sick people
        c. fruits and vegetables          d. food that has proper amount
                                           of all nutrients
   iii. Which food has more fat in it?
        a. soy bean oil          b. vegetable oil          c. desi ghee          d. rice
   iv. Which nutrient builds up the body?
        a. carbohydrates          b. proteins          c. minerals          d. vitamins
   v. What are germs?
        a. worms in rubbish          b. insects in dirt          c. microscopes
        d. micro organisms

2. Match the words in column A with words of same meaning in column B.

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. disease</td>
<td>a. living body</td>
</tr>
<tr>
<td>b. contaminated</td>
<td>b. cleanliness</td>
</tr>
<tr>
<td>c. protect</td>
<td>c. illness</td>
</tr>
<tr>
<td>d. organism</td>
<td>d. making pure</td>
</tr>
<tr>
<td>e. hygiene</td>
<td>e. impure</td>
</tr>
<tr>
<td>f. purification</td>
<td>f. save</td>
</tr>
</tbody>
</table>

B. Recalling facts:

1. Use the words in the box to fill in the blanks.

Germs are **microorganisms** that cause **disease**. We can see germs only under a **microscope**. Germs get into our body through **contaminated** food. Uncovered food gets germs from **houseflies** and **dust**.
Q.1: What is a balanced diet?
Ans: A balanced diet is one which contains a proper amount of the nutrients. These nutrients are carbohydrates, proteins, minerals, vitamins and fats.

Q.2: How does food get the germs?
Ans: Food can catch germs by a lot of sources. Houseflies are the major source of transferring germs on food. Food being sold on the roadside also collects a lot of dust and germs as it is kept uncovered. Eating with dirty and unwashed hands also contaminates food.

Q.3: How can we protect water from contamination?
Ans: We can protect water from contamination by filtering it. Boiling is also recommended for purifying the water as it kills any germs present in it.

Q.4: What is meant by hygiene?
Ans: Hygiene is a set of rules that should be followed in order to stay healthy and prevent disease.
A. Checking on concepts:

1. What are the main food items in the dishes given in column 1? Do they come from plants or animals? Write their names in the proper column as shown in the example.

<table>
<thead>
<tr>
<th>Dish</th>
<th>Ingredients from plants</th>
<th>Ingredients from animals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chicken Biryani</td>
<td>Rice, Ghee</td>
<td>Chicken</td>
</tr>
<tr>
<td>Qorma</td>
<td>Onion</td>
<td>Yogurt, meat, ghee</td>
</tr>
<tr>
<td>Paratha</td>
<td>Flour</td>
<td>Ghee</td>
</tr>
<tr>
<td>Kheer</td>
<td>Rice, sugar</td>
<td>Milk</td>
</tr>
<tr>
<td>Aloo Samosa</td>
<td>Flour, potato, oil</td>
<td></td>
</tr>
<tr>
<td>Tea</td>
<td>Tea leaves, sugar</td>
<td>Milk</td>
</tr>
<tr>
<td>Kabab</td>
<td>Onion, green chilly, oil</td>
<td>Meat</td>
</tr>
</tbody>
</table>

2. Things made up of materials obtained from animals are called animal products. Things made from materials obtained from plants are called plant products. Write P for plant product and A for animal product in the square against each name.

- gunny bag **P**
- woden sweater **A**
- shoe **A**
- honey **P**
- sewing thread **P**
- car tyre **P**
- paper sheet **P**
- fur coat **A**

B. Recalling facts:

1. Give the names of the following vegetables and write whether they are roots, stems, leaves, fruits or flowers.

   - Cauliflower: **Flower**
   - Brinjal: **Fruit**
   - Spinach: **Leaves**
2. Name three animal products and three plant products that you use in your home.

<table>
<thead>
<tr>
<th>Animal products</th>
<th>Leather bags, woolen clothes, woolen rugs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plant products</td>
<td>Wooden furniture, paper, cloth</td>
</tr>
</tbody>
</table>

3. Fill in the blanks.

a. Wheat, rice and corn are called \textbf{cereals}.
b. Gram, mung (moong) and red lentil (masoor) are called \textbf{pulses}.
c. Birds that we eat are called \textbf{poultry}.
d. Mammals that we breed and rear for meat are called \textbf{cattle}.
e. Place for breeding fish is a \textbf{fish farm}.
Q.1: What are cattle? Name some animals that are classified as cattle.
Ans: Cattle are mammals that we eat and get milk from. These animals have hooves and horns. Cow, buffalo, goat and sheep are cattle.

Q.2: Name some ways in which animals are used by humans.
Ans: Animals are used by humans in a variety of ways. Their meat is used for food, their skins are used for making shoes and accessories, their wool is used to make warm clothes, their nectar is used for making honey. Animals are also used for pulling carts and to plough fields.

Q.3: How do plants provide food?
Ans: Plants are very useful for providing us with food. We make oil from the seeds of plants. We also eat the fruits, roots, leaves and seeds of plants.

Q.4: Name some famous crops of Pakistan.
Ans: The famous crops of Pakistan are.
1. Wheat
2. Rice
3. Cotton
4. Sugar cane
ADAPTATION TO ENVIRONMENT

A. Checking on concepts:

1. Name the environment.

   **Features**
   - Hot and sandy
   - Cold and icy
   - Rainfall and thick forest

   **Environment**
   - desert environment
   - arctic environment
   - tropical environment

2. Mark the following statements as true or false.

   a. Adaptation to environment is a characteristic of life.  \( T \)
   b. Adaptation means moving the body from one place to another.  \( F \)
   c. A camel does not need any water.  \( F \)
   d. Aquatic plants have short roots.  \( F \)
   e. There is heavy rainfall in tropical regions.  \( T \)
   f. The arctic region is in the southern hemisphere.  \( F \)

B. Recalling facts:

1. Fill in the blanks.

   a. The fish is adapted to the **aquatic** environment.
   b. The camel is adapted to the **desert** environment.
   c. The elephant is adapted to the **tropical** environment.
   d. The long-tailed monkey is adapted to its **arboreal** environment.
   e. The polar bear is adapted to the **arctic** environment.

2. Give examples of:

   a. a desert plant **cactus**.
   b. An aquatic plant **water lily**.
   c. A tropical plant **peepal tree**.
   d. A tendril climber **grape vine**.
   e. A twine **morning glory**.

C. Applying your learning:

1. Look at a world map.

   a. Write the names of three countries, which are in the Northern Hemisphere.

   Italy, Japan, Russia
b. Write the names of three countries, which are in the Southern Hemisphere.
   **Australia**  **South Africa**  **New Zealand**

c. Write the names of three countries, which are in the tropical regions.
   **Brazil**  **India**  **Sri Lanka**

2. Fill in the blanks with words given in the box.
   a. The polar bear **wears** a thick coat of fur to keep itself warm.
   b. The camel **stores** fat in its hump.
   c. A tendril **coils** around a support.
   d. Fish are adapted to the aquatic environment.
   e. Fins **help** the fish to swim.

3. What would happen if animals were not adapted to their environment?
   Ans: If the animals were not adapted to their environment, they would find it impossible to live and protect themselves and would die.

---

**Additional Questions**

Q.1: What is meant by environment?
   Ans: Environment is the air, water, land features on which plants, animals and humans live on.

Q.2: Name the six environments.
   Ans: The six environments are,
   1. Desert environment
   2. Aquatic environment
   3. Aerial environment
   4. Arboreal environment
   5. Arctic environment
   6. Tropical environment

Q.3: What is a twiner? Give three examples.
   Ans: Some plants have weak stems. They twine their stems around the trunks or branches of nearby trees. These plants are called twiners. Morning Glory, Railway creeper and honey suckle are three examples of twiners.
Water and Water Cycle

A. Checking on concepts:

a. What are clouds made up of?
   Ans: Water vapors cool and condense into tiny droplets of water. The tiny droplets of water make up the clouds.

b. What process makes water vapor turn into liquid water?
   Ans: Condensation turns water vapor into liquid water.

c. What happens when water vapor in the atmosphere freezes into ice crystals?
   Ans: When water vapors freeze, they become snow flakes.

d. What process makes liquid water into water vapor?
   Ans: Heating up of water turns liquid water to water vapor. This process is called evaporation.

e. Name four soluble substances you use in your home.
   Ans: Salt, sugar, washing powder and soap are some examples of soluble substances used in homes.

2. Mark the following statements as true or false.

a. Water cannot evaporate at night time.  False
b. Water vapor condenses in warm air. False
   True
   False
   True
   False
   False

B. Recalling facts:

1. Fill in the blanks with the words given in the box.

   a. Salt is soluble in water because it dissolves in water.
   b. More salt can dissolve in an unsaturated solution.
   c. More salt cannot dissolve in a saturated solution.
   d. Soluble substances dissolve more in hot water.
   e. Chalk is insoluble in water.
   f. Water is a very good solvent because it dissolves many substances.
   g. The processes of evaporation and condensation are the causes of water cycle in nature.
C. Applying your learning:

1. Collect small amounts of the following substances.

   baking powder, washing soda, wheat flour, glucose, charcoal powder,  
   saw dust, washing powder (like surf), soap, alum, water colour,  
   food colour, turmeric powder.

Try to dissolve them in water separately. Find out which are soluble and which are insoluble. Present the information in the following table.

<table>
<thead>
<tr>
<th>Soluble Substances</th>
<th>Insoluble Substances</th>
</tr>
</thead>
<tbody>
<tr>
<td>baking powder</td>
<td>wheat flour</td>
</tr>
<tr>
<td>washing soda</td>
<td>charcoal powder</td>
</tr>
<tr>
<td>glucose</td>
<td>saw dust</td>
</tr>
<tr>
<td>washing powder</td>
<td>turmeric powder</td>
</tr>
<tr>
<td>soap, alum</td>
<td></td>
</tr>
<tr>
<td>water colour</td>
<td></td>
</tr>
<tr>
<td>food colour</td>
<td></td>
</tr>
</tbody>
</table>

2. Look at the map of Pakistan and answer the following questions.

a. Which rivers join the big river Indus?  
   Ans: Sutlej and Chenab rivers.

b. At what place does the Indus falls into the sea?  
   Ans: Indus falls into the sea at Keti Bandar.

c. What is the name of the sea in which Indus pours its waters?  
   Ans: Indus pours its water in the Arabian Sea.
A. Checking on concepts:
1. Mark the statements as true or false.
   a. Air is a mixture of different gases. True
   b. Greater part of air is oxygen gas. False
   c. A thick layer of air surrounds the earth. True
   d. Only 20% part of the air helps in burning. True
   e. When a burning candle goes out under an inverted glass, no air is left in the glass. False

B. Recalling facts:
1. Fill in the blanks.
   a. A layer of air surrounding the earth is called the atmosphere.
   b. 1/5th part of the air is oxygen.
   c. Helium is one of the rare gases present in air.
   d. The gas that turns lime water milky is called carbon dioxide.
   e. A large part of air is the gas called nitrogen.
   f. Oxygen supports combustion.

C. Applying your learning:
A burning candle A goes out under an inverted glass. What would happen if you remove the glass and put it over another burning candle B? 
Will candle B burn for a longer time than candle A? 
Or will candle B burn for the same time as candle A? 
Or will candle B burn for much shorter time than candle A?

When the glass is inverted over candle B then it will burn for some time and then the flame will die out both the candles will burn for the same time.

D. Label the given pie chart:

- 21% Oxygen
- 0.03% Carbon-dioxide
- 78% Nitrogen
- 1% Rare gases
Q.1: Define atmosphere.
Ans: The thick layer of protective air around the earth is called atmosphere. It extends about a thousand kilometers above the surface of the earth.

Q.2: Name the gases that are found in the air.
Ans: Air is made up of different gases. These gases are Nitrogen, oxygen, carbon dioxide.

Q.3: What is neon and what are its uses?
Ans: Neon is a gas which is used in making colored electric signs.
Burning and Breathing

A. Checking on concepts:
1. Mark the statements as true or false.
   a. Burning of wood and breathing are alike in many ways. True
   b. Oxygen is not used up in the burning of sui gas. False
   c. Water vapor is also produced in burning of paper. True
   d. Plants also use oxygen in breathing. False
   e. There is more carbon dioxide in the air than oxygen. False
   f. Lime water is juice of lemon. False

B. Recalling facts:
1. Fill in the blanks with words given in the box.
   rises, breathing, ventilation, ventilators, similar
2. Burning and breathing are similar processes.
3. Our body keeps warm by the process of breathing.
4. In some houses warm air moves out through ventilators near the ceiling.
5. Hot air always rises up.
6. Fresh air coming into a room and stale air moving out is called ventilation.

C. Applying your learning:
1. Which classroom is better ventilated, classroom A or classroom B? Explain Why?
   Classroom B is better ventilated than classroom A because it has windows on opposite walls. This way fresh air can come inside and stale air moves out.

2. What will happen in a crowded hall with bad ventilation? Write three things that will happen.
   If a crowded hall is badly ventilated, then there would be little or no fresh air coming inside. This will cause uneasiness, tiredness and suffocation in the crowd.
Q.1: Why does hot air moves up and cold air settles down?
Ans: Hot air moves up because it is light in weight whereas, cold air is heavy and this is why it moves down.

Q.2: What is air pollution? Name some air pollutants.
Ans: When the air is contaminated by harmful substances it get polluted. Air pollution is harmful for human health. Some air pollutants are sulphur dioxide, carbon mono oxide, lead, chlorofluorocarbons.

Q.3: What is ventilation?
Ans: The movement of fresh air around a closed space is called ventilation.
MEASURING TEMPERATURE

A. Checking on concepts:
1. Fill in the blanks.
   1. \(32^\circ F\) is the **freezing** point of water.
   2. Solid ice changes into liquid water at \(0^\circ C\).
   3. Mercury rises in the thermometer because it **expands** on getting heat.
   4. Mercury is a shiny **liquid** metal.
   5. If the body temperature of a person is \(100^\circ F\), the person has a **fever**.

B. Recalling facts:
1. Fill in the blanks in the table.

<table>
<thead>
<tr>
<th></th>
<th>Celsius scale</th>
<th>Fahrenheit scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Boiling point of water.</td>
<td>100(^\circ)C</td>
<td>212(^\circ)F</td>
</tr>
<tr>
<td>2. Freezing point of water.</td>
<td>0(^\circ)C</td>
<td>32(^\circ)F</td>
</tr>
<tr>
<td>3. Normal temperature of human body.</td>
<td>37(^\circ)C</td>
<td>98.4(^\circ)F</td>
</tr>
<tr>
<td>4. Melting point of ice.</td>
<td>0(^\circ)C</td>
<td>32(^\circ)F</td>
</tr>
</tbody>
</table>

C. Applying your learning:
1. If you have a thermometer in your classroom or at home, record the temperature at different times of day.

<table>
<thead>
<tr>
<th>Time</th>
<th>Temperature</th>
<th>Time</th>
<th>Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morning</td>
<td>20(^\circ)C</td>
<td>Noon</td>
<td>25(^\circ)C</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Night</td>
<td>18(^\circ)C</td>
</tr>
</tbody>
</table>

   a. When is the temperature high? **Noon**.
   b. When is it low? **Night**.
   c. Why is it so? **Because there is no sun**.

2. Study the following figures and answer the questions below:

In which beaker the water is,
   i. at boiling point **A**
   ii. very cold **D**
   iii. very hot **C**
   iv. warm **B**
3. The highest temperature of a place in 24 hours is called the **maximum** temperature (in short Max.) and the lowest temperature is called **minimum** temperature (in short Min.). Study the weather chart for May 01, 2010 and answer the following:

i) Give the name and maximum temperature of the hottest place. 
   Place **Multan**. 
   Temperature **45°C**.

ii) Name the coolest place during the day and its maximum temperature. 
    Place **Karachi**. 
    Temperature **34°C**.

iii) What is the difference between day temperatures of the hottest and coolest place. 
    Temperature **45°C - 34°C = 11°C**.

iv) Which city was the coldest at night? 
    What was the minimum temperature of the city. 
    City **Quetta**. 
    Temperature **14°C**.

### World Weather

<table>
<thead>
<tr>
<th>City</th>
<th>Min C</th>
<th>Max C</th>
<th>Outlook</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bahawalpur</td>
<td>25</td>
<td>43</td>
<td>Sunny</td>
</tr>
<tr>
<td>Faisalabad</td>
<td>25</td>
<td>42</td>
<td>Sunny</td>
</tr>
<tr>
<td>Hyderabad</td>
<td>25</td>
<td>41</td>
<td>Hot and Dry</td>
</tr>
<tr>
<td>Islamabad</td>
<td>18</td>
<td>40</td>
<td>Partly cloudy</td>
</tr>
<tr>
<td>Jiwani</td>
<td>21</td>
<td>37</td>
<td>Sunny</td>
</tr>
<tr>
<td>Karachi</td>
<td>27</td>
<td>34</td>
<td>Hot and Dry</td>
</tr>
<tr>
<td>Lahore</td>
<td>26</td>
<td>42</td>
<td>Partly Cloudy</td>
</tr>
<tr>
<td>Multan</td>
<td>26</td>
<td>45</td>
<td>Haze</td>
</tr>
<tr>
<td>Peshawar</td>
<td>21</td>
<td>38</td>
<td>Partly Cloudy</td>
</tr>
<tr>
<td>Quetta</td>
<td>14</td>
<td>40</td>
<td>Cloudy</td>
</tr>
<tr>
<td>Rawalpindi</td>
<td>22</td>
<td>37</td>
<td>Partly Cloudy</td>
</tr>
<tr>
<td>Sukkur</td>
<td>27</td>
<td>42</td>
<td>Sunny</td>
</tr>
</tbody>
</table>

* Humidity at 1700 Hours

### D. Answer these questions:

1. Write a short note on the sources and uses of heat. 
   Ans. Heat is necessary for all living things and is used for getting many things done. Sun, fire and electricity are some of the sources of heat. Heat is used for cooking, boiling, drying, ironing, sterilizing etc.

2. How does a thermometer work? 
   Ans. The thermometer contains mercury in its stem, there are markings on the stem showing the temperature in centigrade and fahrenheit too. As the temperature rises, the mercury inside the stem expands and rises up and as the temperature drops, the mercury contracts and drops down in the bulb of the thermometer.

3. What is a clinical thermometer? 
   Ans. A clinical thermometer is a special thermometer that measures body temperature.
LIGHT - THE BOUNCING BEAMS

A. Checking on concepts:
1. Classify the following into luminous and non-luminous:

<table>
<thead>
<tr>
<th>Luminous</th>
<th>Non-Luminous</th>
</tr>
</thead>
<tbody>
<tr>
<td>Candle flame</td>
<td>Mirror</td>
</tr>
<tr>
<td>Fire</td>
<td>Diamond</td>
</tr>
<tr>
<td>Star</td>
<td>Gold ring</td>
</tr>
<tr>
<td>A lighted torch</td>
<td>Earth</td>
</tr>
<tr>
<td></td>
<td>Moon</td>
</tr>
<tr>
<td></td>
<td>Mercury in a thermometer</td>
</tr>
</tbody>
</table>

2. Three people cross a busy road at night.
One wears a yellow shalwar qameez.
Second wears a black shalwar qameez.
Third wears a white shalwar qameez.

Q. Which person is in danger of having an accident?
Ans: The person wearing black shalwar qameez at night is in danger of having an accident.

Q. Why is that person in danger?
Ans: The person wearing black clothes is in danger because it is dark at night and black color absorbs light that shines on it. Thus, a person wearing black will not be visible at night and will be in danger.

3. In some jeweler's shops and in some restaurants, there are large mirrors on opposite walls. What effect does it produce?
Ans: The mirrors on opposite walls create a sense of depth and make the room look much larger than it actually is.

B. Recalling facts:
1. Mark the statements as true or false.
   a. Rough and dull surfaces do not reflect light.  True
   b. The sun reflects light. False
   c. Moonlight is reflected sunlight. True
   d. Light bounces off when it strikes a surface. True
e. A lighted electric bulb gives off light. True
f. The light from our eyes enables us to see things. False

2. State three uses of mirrors.

Ans: The three uses of mirrors are:
1. Mirrors are used in homes to look into while dressing up.
2. They are used in cars as rear view mirrors.
3. They are used in optical instruments.

3. Fill in the blanks:

i. The moon reflects sunlight.
ii. Light is reflected when it strikes a surface.
iii. The bouncing off of light is called reflection.
iv. The sun shines by its own light. It is a luminous body.
v. Objects that do not have their own light are non-luminous.
vi. The image in a pinhole camera is inverted.
vii. Submarine crew use a periscope to see ships on the sea surface.
viii. When we stand in front of a mirror, we see our image.
ix. We see multiple images in a kaleidoscope.
x. Dark colored objects absorb light.

C. Applying your learning:

1. Use your pinhole camera to obtain images of objects in bright light and in shade.

Which images do you find best or better or not good.

Images of:
a. objects in bright sunlight. better
b. objects under strong lamp light. best
c. objects inside a room. not good
The Magic of Magnets

A. Checking on concepts:

1. Group the materials in the box into “attracted by a magnet” and “not attracted by a magnet”.

<table>
<thead>
<tr>
<th>Attracted by a magnet</th>
<th>Not attracted by a magnet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nickel coin</td>
<td>Saw dust</td>
</tr>
<tr>
<td>Steel spoon</td>
<td>Copper coin</td>
</tr>
<tr>
<td>Iron screw</td>
<td>Rubber</td>
</tr>
<tr>
<td>Iron nail</td>
<td>Copper wire</td>
</tr>
<tr>
<td></td>
<td>Plastic comb</td>
</tr>
<tr>
<td></td>
<td>Clay</td>
</tr>
<tr>
<td></td>
<td>Plastic cup</td>
</tr>
<tr>
<td></td>
<td>Cardboard</td>
</tr>
</tbody>
</table>

2. Place a tick (✓) under magnetic materials and cross (✗) under non-magnetic materials.

<table>
<thead>
<tr>
<th>copper</th>
<th>iron</th>
<th>gold</th>
<th>steel</th>
</tr>
</thead>
<tbody>
<tr>
<td>✗</td>
<td>✓</td>
<td>✗</td>
<td>✓</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>silver</th>
<th>nickel</th>
<th>aluminium</th>
<th>brass</th>
</tr>
</thead>
<tbody>
<tr>
<td>✗</td>
<td>✓</td>
<td>✗</td>
<td>✗</td>
</tr>
</tbody>
</table>

3. Which magnet is stronger, magnet A or B?
Ans. Magnet B is attracting more clips than magnet A, therefore, magnet B is stronger.

4. The arrows show attraction or repulsion between the pairs of magnets. Only one pole of each pair is marked. Mark the other poles by writing N or S.
B. Recalling facts:

1. Draw the following kinds of magnets and mark their poles.

   Bar Magnet  Horse shoe magnet  Compass Needle

2. Fill in the blanks.
   1. A magnetic **compass** is used to find directions.
   2. There is a force of attraction between **opposite** poles.
   3. Like poles **repel** each other.
   4. Magnets **attract** magnetic materials.
   5. A freely suspended magnet always points in the **north-south** direction.

3. Name the force:
   a. Between unlike poles  Force of **attraction**.
   b. Between like poles  Force of **repulsion**.

D. Write any two uses of each:

1. **Magnet**
   Ans: Magnets are used in compasses and cranes.

2. **Electromagnet**
   Ans: Generators and door bells are made of electromagnets.
Q.1: What are magnetic and non magnetic materials? Explain with examples.
Ans: Magnetic materials are those that are attracted by a magnet. For example, iron, steel and nickel. Materials that cannot be attracted by a magnet are called non magnetic materials. For example, wood, paper, sand etc.

Q.2: Name some uses of magnets.
Ans: Magnets are used in door bells, picking up things, compasses, tape recorders and televisions etc.

Q.3: What is an electromagnet?
Ans: An electromagnet is a temporary magnet which works by using the electricity. When current is passed through a piece of iron, a magnetic field is produced around it and that piece of iron converts into an electromagnet.

Q.4: Name some different kinds of magnets.
Ans: Some common kinds of magnets are, bar magnet, disc magnet, horseshoe magnet, magnetic needle etc.
**Static Electricity**

**A. Checking on concepts:**

1. Rub two plastic rulers with a piece of flannel. Suspend one, bring the other near it.

   What happens?
   Ans. The rulers repel each other.

   Explain why?
   Ans. The repulsion happens because both the rulers have a static charge.

2. Mark the following as true or false.
   a. Static electricity is produced when two different materials are rubbed together. **True**
   b. A charged object will repel another similarly charged object only on touching it. **True**
   c. Electrical attraction and repulsion are forces that act at a distance. **False**
   d. A negatively charged balloon sticks to the wall because the wall is positively charged. **True**

**B. Recalling facts:**

1. What are the different kinds of electrical charge?
   Ans. Positive charge and negative charge.

2. Fill in the blanks with appropriate words:
   a. Like charges **repel** but **unlike** charges attract each other.
   b. There is **attraction** between charged and uncharged objects.
   c. When you rub two different objects together, **static electricity** is produced.

**Additional Questions**

Q.1: What is static electricity produced and what is it made of?
   Ans: Static electricity is made up of tiny particles of electricity called electric charges and it is produced by rubbing different materials with each other.
Soil—an Important Natural Resource

A. Checking on concepts:

1. Complete the given sentences
   a. There is no vegetation on rocky land because there is no Ans. Soil. It is a barren land.
   b. Loam is the best soil for growing crops because it has Ans. Proper amount of humus in it.
   c. Pots and pans can be made of clay because Ans. Clay becomes hard on drying.
   d. A mixture of dead and decaying animal and plant matter is called Ans. Humus
   e. If there was no soil, there will be no plant and animal life on land.

B. Recalling facts:

1. Use the words in the box to fill in the blanks.
   
   fertile, barren, resource, layer, loam
   a. Sandy and rocky lands are barren.
   b. The best kind of soil for growing crops is loam.
   c. Soil is an important natural resource.
   d. Soil with greater amount of humus is fertile.
   e. Most of the land surface is covered with a thin layer of soil.

Additional Questions

Q.1: What is soil made up of?
Ans: Soil is made up of heavy rock particles, sand, clay and pieces of leaves, twigs, dead insects called humus.

Q.2: What is a natural resource? Give examples.
Ans: A natural resource is a useful material present in the natural environment. Soil, air, water, plants and animals are all natural resources.

Q.3: Describe clay.
Ans: Clay is a kind of soil which contains mud particles that are very fine and little sand and humus. It is slippery in nature and gets very hard on drying. It is used to make earthen pots and pans.
THE EARTH, THE MOON AND THE SUN

A. Checking on concepts:

1. The diagrams show the sun, moon and earth in different positions. Write which positions can cause (a) Lunar eclipse, (b) Solar eclipse and (c) Which set of position is “not possible”.

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<tr>
<th>Sun</th>
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<th>Earth</th>
<th>Solar Eclipse</th>
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<tr>
<th>Earth</th>
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2. Complete the diagram to show the cone of the moon’s shadow.

3. Which motions shown in the pictures below are “rotation”.

| ![Pictures](image_url) |
4. Mark the statements as True or False.
  1. The earth completes one revolution in 24 hours.  \text{False}
  2. The earth’s axis is an imaginary line passing through the centre of the earth. \text{True}
  3. Earth’s shadow is the cause of solar eclipse. \text{False}
  4. The moon completes one revolution around the earth in 14 days. \text{False}
  5. The earth rotates in west-east direction. \text{True}

**B. Recalling facts:**

1. In how many days does
   a. The earth makes a complete revolution around the sun?
      \text{Ans. The earth takes a whole year to complete a revolution around the sun.}
   b. The moon makes a complete revolution around the earth?
      \text{Ans. The moon makes a complete revolution around the earth in 28 days.}
   c. The earth makes one complete axial rotation?
      \text{Ans. The earth makes one axial rotation in 24 hours.}
   d. The moon changes from new moon to full moon?
      \text{Ans. The moon changes from new moon to full moon in 14 days.}

**D. Answer the following questions:**

1. What is an axial rotation?
   \text{Ans. The spinning of the earth on its own axis is called axial rotation. This rotation causes day and night.}

2. Write the names of the phases of moon, also write when they appear.
   \text{Ans. Crescent, waxing, full moon and waning are the phases of the moon. The new moon appears as a crescent on the 29th or 30th of the lunar month. Then everyday the moon grows larger. It is called the waxing stage of the moon. On the 14th night, the moon rises as a full moon. After the full moon, the bright portion seems to grow smaller until it appears as a crescent again. This is the waning stage of the moon.}

3. When do we get to see a solar eclipse?
   \text{Ans. When the moon passes between the earth and the sun, its shadow falls on a part of the earth. The moon cuts off the sunlight from that part of the earth. This causes a solar eclipse.}
A. Checking on concepts:
1. Mark the statements as true or false.
   a. The stars do not seem to move across the sky; they seem fixed. **False**
   b. The seven bright stars seem to move around a fixed star. **True**
   c. The fixed star in the north is the brightest of all stars. **False**
   d. People in ancient times also observed the groups of stars and their motion across the sky. **True**
   e. On a dark night we can see thousands of stars in the sky. **True**
   f. The stars are not present in the sky at daytime. **False**

B. Recalling facts:
1. Fill in the blanks.
   1. Groups of stars are called **constellations**.
   2. We see a group of seven bright stars in the northern sky. It is called **the big dipper**.
   3. A star in the northern sky does not change its position with time. It is called **the pole star**.
   4. An imaginary line running through the **pointer** stars meets the fixed star.
   5. The direction of the fixed star is the direction of **north**.
   6. The group of seven bright stars is part of a bigger group of stars called **the Great Bear**.

C. Applying your learning:
1. Draw the Big Dipper at three different positions around the pole star.
2. If you are looking at the pole star,
   A. What direction are you facing?  
      Ans. We are facing the north.
   B. What is the direction on your right?  
      Ans. The direction on our right is the east.
   C. What is the direction on your left?  
      Ans. The direction on our left is the west.
   D. What direction you will face if you make an about turn?  
      Ans. If we make an about turn, we will be facing the south.

**Additional Questions**

Q.1: What is a constellation?  
Ans: Constellations are groups of stars found in the night sky. These constellations have been given names like Virgo, Orion, Gemini etc.

Q.2: Where is the pole star located?  
Ans: The pole star is located in the northern part of the sky.

Q.3: Why is the pole star important?  
Ans: Pole star is very important because it is the only star that seems to be fixed in the sky. It is located in the northern part of the sky and so helps people to find all other directions.