**FOCUS ACADEMY**

**Kg to 12**

**English&Gujarati Medium**

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**Std -6 Sub- Science Solution from chapter 9 to 16**

**CH-9 THE LIVING ORGANISMS – CHARACTERISTICS AND HABITATS**

**Exercise Questions**

**[1.] What is a habitat?**

**Solution: The place where organisms live is called habitat. Habitat means a dwelling place (a home). The habitat provides food, water, air, shelter and other needs to organisms.**

**[2.] How are cactus adapted to survive in a desert?**

**Solution: Adaptation of cactus are as follows**

**Leaf is replaced by spine to reduce transpiration**

**Stems carry out photosynthesis**

**A thick waxy layer surrounds leaf to retain water**

**Roots of cactus are deeply rooted inside soil to absorb water**

**[3.] Fill up the blanks**

**(a)The presence of specific features, which enable a plant or an animal to live in a particular habitat, is called adaptation.**

**(b)The habitats of the plants and animals that live on land are called terrestrial habitat.**

**(c)The habitats of plants and animals that live in water are called aquatic habitat.**

**(d)Soil, water and air are the abiotic factors of a habitat.**

**(e)Changes in our surroundings that make us respond to them, are called stimuli.**

**[4.] Which of the things in the following list are nonliving?**

**Plough, Mushroom, Sewing machine, Radio, Boat, Water hyacinth, Earthworm**

**Solution: Plough, Sewing machine, Radio and Boat are nonliving things**

**[5.] Give an example of a non-living thing, which shows any two characteristics of living things.**

**Solution: Example: car**

**Features**

**It can move like living beings**

**It needs energy to do work**

**[6.]Which of the non-living things listed below, were once part of a living thing?**

**Butter, Leather, Soil, Wool, Electric bulb, Cooking oil, Salt, Apple, Rubber**

**Solution: Butter, Leather, Wool, Cooking oil, Apple and Rubber were once part of a living thing.**

**[7.] List the common characteristics of the living things.**

**Solution: Common characteristics of living things are as follows**

**1.Respiration**

**2.Food intake**

**3.respond to stimuli**

**4.Excretion**

**5.Movement**

**6.Reproduction**

**7.Grow and Die**

**[8.] Explain, why speed is important for survival in the grasslands for animals that live there. (Hint: There are few trees or places for animals to hide in grasslands habitats.)**

**Solution: Speed is important for survival in the grasslands for animals to avoid predation from their predators. For example Tiger eats deer, to survive deer has to run faster than the tiger.**

**CH-10 MOTION AND MEASUREMENT OF DISTANCES**

**Exercise Questions**

**[1.] Give two examples each, of modes of transport used on land, water and air.**

**Solution:**

Land- Train, Bus

Water- Ship, Boat

Air- Helicopter, Aeroplane

**[2.] Fill in the blanks:**

(i) One metre is **100** cm.

(ii) Five kilometre is **5000** m.

(iii) Motion of a child on a swing is **periodic.**

(iv) Motion of the needle of a sewing machine is **periodic**.

(v) Motion of the wheel of a bicycle is **circular**.

**[3.] Why can a pace or a footstep not be used as a standard unit of length?**

**Solution:** Pace or a footstep cannot be used as a standard unit of length because it varies from person to person.

**[4.] Arrange the following lengths in their increasing magnitude: 1 metre, 1 centimetre, 1 kilometre, 1 millimetre.**

**Solution:** 1 millimetre, 1 centimetre, 1 metre, 1 kilometre

**[5.] The height of a person is 1.65 m. Express it into cm and mm.**

**Solution:** 1.65= 165 cm = 1650 mm

**[6.] The distance between Radha’s home and her school is 3250 m. Express this distance into km.**

**Solution:** 1km = 1000 m Hence 3250 m = 3.25 kms

**[7.] While measuring the length of a knitting needle, the reading of the scale at one end is 3.0 cm and at the other end is 33.1 cm. What is the length of the needle?**

**Solution:** Length of needle = 33.1 – 3 = 30.1 cm

**[8.] Write the similarities and differences between the motion of a bicycle and a ceiling fan that has been switched on.**

**Solution:** Similarities – The blades of a fan and the wheels of a bicycle shows circular motion

Differences- Bicycle move in rectilinear motion, but the fan does not move in rectilinear motion.

**[9.] Why would you not like to use a measuring tape made of an elastic material like rubber to measure distance? What would be some of the problems you would meet in telling someone about a distance you measured with such a tape?**

**Solution:** An elastic measuring tape will not give accurate measurement as it stretches in length and reduces in size when stretched. When we express measurement taken with elastic tape, we have to tell whether the tape was stretched. If yes, how much. Hence it is very difficult to tell the measurement taken from an elastic tape.

**[10.] Give two examples of periodic motion.**

**Solution:** a) A needle of a sewing machine b) Pendulum

**CH-11 LIGHT, SHADOWS AND REFLECTIONS**

**Exercise Questions**

**[1.] Rearrange the boxes given below to make a sentence that helps us understand opaque objects.**Opaque objects puzzle**Solution:**

The given boxes can be rearranged to form ‘Opaque Objects Make Shadows’ as shown below

Opaque objects puzzle

**[2.] Classify the objects or materials given below as opaque, transparent or translucent and luminous or non-luminous:**

**Air, water, a piece of rock, a sheet of aluminum, a mirror, a wooden board, a sheet of polythene, a CD, smoke, a sheet of plane glass, fog, a piece of red hot iron, an umbrella, a lighted fluorescent tube, a wall, a sheet of carbon paper, the flame of a gas burner, a sheet of cardboard, a lighted torch, a sheet of cellophane, a wire mesh, kerosene stove, sun, firefly, the moon.**

**Solution:** Opaque:  A piece of rock, a sheet of aluminium, a mirror, a wooden board, a CD, an umbrella, a wall, a sheet of carbon paper,  a sheet of cardboard.

Transparent: Air, water, a sheet of plane glass.

Translucent: A sheet of polythene, smoke, fog, a sheet of cellophane, a wire mesh.

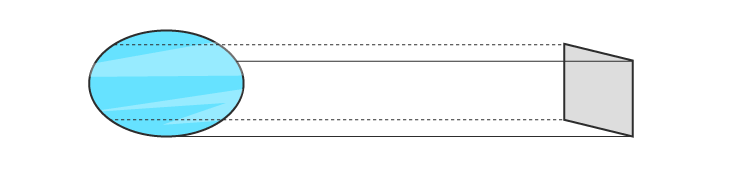
Luminous: A piece of red hot iron, a lighted fluorescent tube, the flame of a gas burner, a lighted torch, sun, firefly, kerosene stove.

Non – luminous: Air, water, a piece of rock, a sheet of aluminium, a mirror, a wooden  board, a sheet of polythene, a CD, smoke, a sheet of plane glass, fog, an umbrella, a wall, a sheet of carbon paper, a sheet of cardboard, a sheet of cellophane, a wire mesh, moon.

**[3.] Can you think of creating a shape that would give a circular shadow if held in one way and a rectangular shadow if held in another way?**

**Solution:**

Yes,



**[4.] In a completely dark room, if you hold up a mirror in front of you, will you see a reflection of yourself in the mirror?**

**Solution:** No, in a dark room, a mirror reflection of the image will not be shown as the light will not fall on the mirror to reflect the image due to darkness.

**CH-12 ELECTRICITY AND CIRCUIT**

**Exercise Questions**

**[1.] Fill in the blanks :**

(a) A device that is used to break an electric circuit is called**switch**.

(b) An electric cell has **two** terminals.

**[2.] MarkMark ‘True’ or ‘False’ for following statements:**

**(a) Electric current can flow through metals[ True ]**

**(b) Instead of metal wires, a jute string can be used to make a circuit. [false]**

**(c) Electric current can pass through a sheet of thermo Col. [False]**

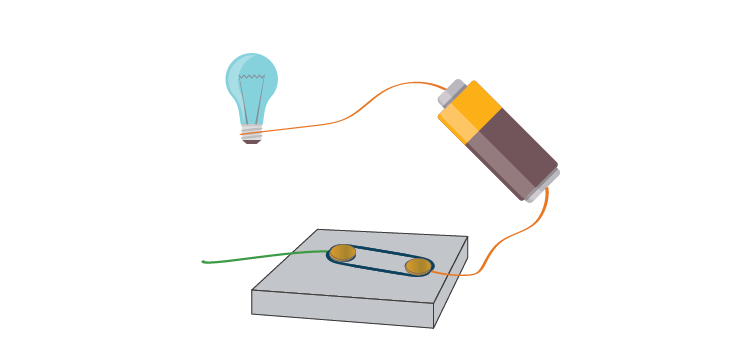
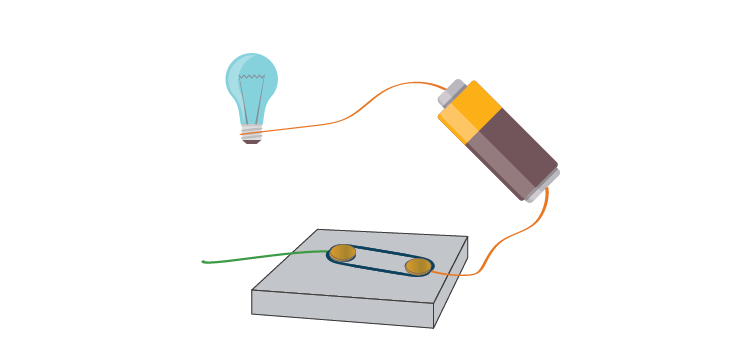
**[3.] Explain why the bulb would not glow in the arrangement shown in Fig. 12.13.**



**Solution:**

The bulb would not glow in the arrangement because circuit is not complete due to presence of insulator in the centre.

**[4.] Complete the drawing shown in Fig 12.14 to indicate where the free ends of the two wires should be joined to make the bulb glow.**



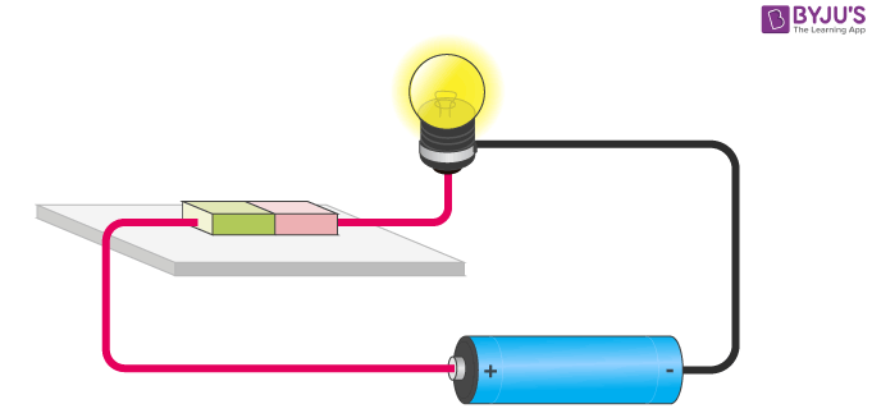
Solution

**[5.] What is the purpose of using an electric switch? Name some electrical gadgets that have switches built into them.**

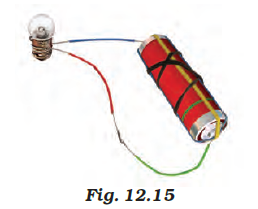
**Solution:** The purpose of an electric switch is to complete or break the circuit. Electrical gadgets that have switches built into them are fan, refrigerator, television, microwave oven, electric cookers.

**[6.] Would the bulb glow after completing the circuit shown in Fig. 12.14 if instead of safety pin we use an eraser?**

**Solution:**

No, the bulb will not glow as eraser is an insulator.

**[7.] Would the bulb glow in the circuit shown in Fig. 12.15?**



**Solution:**

No, the bulb will not glow.

**[8.] Using the “conduction tester” on an object it was found that the bulb begins to glow. Is that object a conductor or an insulator? Explain.**

**Solution:**

The object is a conductor because the bulb glows only when the conductor is used but not when the insulator is used.

**[9.] WhyWhy should an electrician use rubber gloves while repairing an electric switch at your home? Explain.**

**Solution:**

An electrician uses rubber gloves while repairing an electric switch at your home because rubber gloves are insulators. This protects him from avoiding electric shocks.

**[10.] The handles of the tools like screwdrivers and pliers used by electricians for repair work usually have plastic or rubber covers on them. Can you explain why?**

**Solution:**

Tools like screwdrivers and pliers are used by electricians for repair work because plastic is an insulator and plastic handles protect the electrician from electric shocks.

CH-13 FUN WITH MAGNETS

Exercise Questions

[1.] Fill in the blanks in the following

(1)Artificial magnets are made in different shapes such as \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_.

(2)The Materials which are attracted towards a magnet are called\_\_\_\_\_\_\_\_.

(3)Paper is not a \_\_\_\_\_\_ material.

(4)In olden days, sailors used to find direction by suspending a piece of \_\_\_\_\_\_\_\_\_\_\_.

(5)A magnet always has \_\_\_\_\_\_\_\_\_\_ poles.

Solution:

(1)Artificial magnets are made in different shapes such as bar magnet, horse shoe and cylindrical.

(2)The Materials which are attracted towards a magnet are called magnetic.

(3)Paper is not a magnetic material.

(4)In olden days, sailors used to find direction by suspending a piece of magnet.

(5)A magnet always has two poles.

[2.] State whether the following statements are true or false:

(1)A cylindrical magnet has only one pole. [False]

(2)Artificial magnets were discovered in Greece. [False]

(3)Similar poles of a magnet repel each other. [True]

(4)Maximum iron filings stick in the middle of a bar magnet when it is brought near them. [False]

(5)Bar magnets always point towards North-South direction. [True]

(6)A compass can be used to find East-West direction at any place. [True]

(7)Rubber is a magnetic material. [False]

[3.] It was observed that a pencil sharpener gets attracted by both the poles of a magnet although its body is made of plastic. Name a material that might have been used to make some part of it.

Solution:

Iron might have been used to make some part of it.

1.Column I shows different positions in which one pole of a magnet is placed near that of the other. Column II indicates the resulting action between them for each situation. Fill in the blanks.

Solution:

Column – I Column – II

N-N Repulsion

N- S Attraction

S-N Attraction

S– S Repulsion

[5.] Write any two properties of a magnet.

Solution: Properties of a magnet are as follows

It attracts objects made of Nickel, Cobalt and Iron.

Like poles of two magnets repel each other and opposite poles attracts each other.

[6.] Where are poles of a bar magnet located?

Solution: On two ends of a bar magnet.

[7.] A bar magnet has no markings to indicate its poles. How would you find out near which end is its north pole is located?

Solution: A bar magnet is hanged in the air and the end pointing to the north is the north pole of the magnet.

[8.] You are given an iron strip. How will you make it into a magnet?

Solution: Take a bar magnet and keep in contact with one of its poles with one edge of the bar of iron.

Without lifting the bar magnet, move it along the length of the iron bar till you reach the other end.

Lift the magnet and bring the pole (the same pole you started with) to the same point of the iron bar from which we began.

Move the magnet again along the iron bar in the same direction as you did before.

Repeat this process for about 30-40 times.

[9.] How is a compass used to find directions?

Solution: A compass always shows north and south direction, by keeping this as a reference we can always find east and west directions also.

[10.] A magnet was brought from different directions towards a toy boat that has been floating in water in a tub. Affect observed in each case is stated in Column I. Possible reasons for the observed effects are mentioned in Column II. Match the statements given in Column I with those in Column II.

**Ans:**  


CH-14 WATER

Exercise Questions

[1.] Fill up the blanks in the following:

(a)The process of changing of water into its vapour is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

(b)The process of changing water vapour into water is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

(c)No rainfall for a year or more may lead to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in that region.

(d)Excessive rains may cause \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Solution:

(a)The process of changing of water into its vapour is called evaporation.

(b)The process of changing water vapour into water is called condensation.

(c)No rainfall for a year or more may lead to drought in that region.

(e)Excessive rains may cause floods.

[2.] State for each of the following whether it is due to evaporation or condensation:

(a)Water drops appear on the outer surface of a glass containing cold water.

(b)Steam rising from wet clothes while they are ironed.

(c) Fog appearing on a cold winter morning.

(d)Blackboard dries up after wiping it.

(e)Steam rising from a hot girdle when water is sprinkled on it.

Solution:

(a)Condensation

(b)Evaporation

(c)Condensation

(d)Evaporation

(e)Evaporation

[3.] Which of the following statements are “true” ?

(a)Water vapour is present in air only during the monsoon. (False )

(b)Water evaporates into air from oceans, rivers and lakes but not from the soil.( False )

(c)The process of water changing into its vapour, is called evaporation.( True)

(d)The evaporation of water takes place only in sunlight.( False)

(e)Water vapour condenses to form tiny droplets of water in the upper layers of air where it is cooler.( True )

[4.] Suppose you want to dry your school uniform quickly. Would spreading it near an anghiti or heater help? If yes, how?

Solution:

Spreading uniform near an anghiti or heater will help because it increases the rate of evaporation due to heat.

[5.] Take out a cooled bottle of water from refrigerator and keep it on a table. After some time you notice a droplets of water around it. Why?

Solution:

This is because the surface of the air around the bottle cools down and air condenses around the bottle.

[6.] To clean their spectacles, people often breathe out on glasses to make them wet. Explain why the glasses become wet.

Solution:

The air we breathe out contains water vapour which condenses on the surface of the spectacles. So, the glass becomes wet and with the help of a small amount of water molecules, it becomes easier to clean the spectacles.

[7.] How are clouds formed?

Solution:

The process of condensation plays an important role in bringing water back to the surface of the earth. As we go higher from the surface of the earth, it gets cooler. When the air moves up, it gets cooler and cooler. At sufficient heights, the air becomes so cool that the water vapour present in it condenses to form tiny drops of water called droplets. It is these tiny droplets that remain floating in the air and appear to us like clouds.

[8.] When does a drought occur?

Solution:

If it does not rain for two or more years, water is lost from the soil due to evaporation and transpiration. Since it is not being brought back by rain, the soil becomes dry. The level of water in ponds and wells of the region goes down and some of them may even dry up. The ground water may also become scarce. This may lead to drought.

CH-15 AIR AROUND US

Exercise Questions

[1.] What is the composition of air?

Solution: Air comprises water vapour, Oxygen, Nitrogen, Carbon dioxide, dust and smoke.

[2.] Which gas in the atmosphere is essential for respiration?

Solution: Oxygen in the atmosphere is essential for respiration.

[3.] How will you prove that air supports burning?

Solution: Place two candles of the same length on a table. Light both the candles. Cover one of the candles with an inverted glass tumbler. We observe that the candle covered with a glass tumbler got extinguished after some time, whereas the other candle continued burning. The candle gets extinguished because the component inside of the glass tumbler, which supports burning, is limited. Most of the component is used up by the burning candle. However, the other candle is getting continued supply of air. This component of air, which supports burning, is known as oxygen.

[4.] How will you show that air is dissolved in water?

Solution: Take some water in a container. Heat it slowly on a tripod stand. Before water begins to boil, look at the inner surface of the container. We observe tiny bubbles inside.

These bubbles come from the air dissolved in water. When you heat the water, to begin with, the air dissolved in it escapes. This experiment concludes air is present in the water.

[5.] Why does a lump of cotton wool shrink in water?

Solution: The lump of cotton wool shrink in water because the air inside the cotton lumps are replaced by water which makes the layer stick together.

[6.] The layer of air around the earth is known as \_\_\_\_\_\_\_\_\_\_\_.

Solution: The layer of air around the earth is known as the atmosphere.

[7.] The component of air used by green plants to make their food, is \_\_\_\_\_\_\_\_\_\_\_.

Solution: The component of air used by green plants to make their food is carbon dioxide.

[8.] List five activities that are possible due to the presence of air.

Solution: Activities that are possible due to air are:

1)Photosynthesis

2)Cloud formation

3)Respiration

4)Transpiration

5)Winnowing

[9.] How do plants and animals help each other in the exchange of gases in the atmosphere?

Solution: During the process of respiration, animals and plants consume oxygen from the air and release carbon dioxide gas in the air. But green plants also release oxygen gas by utilizing carbon dioxide during the process of photosynthesis. Hence, in this way, plants and animals help each other in the exchange of gases in the atmosphere.

CH-16 GARBAGE IN, GARBAGE OUT

Exercise Questions

[1.] (a) Which kind of garbage is not converted into compost by the red worms?

(b) Have you seen any other organism besides red worms, in your pit? If yes, try to find out their names. Draw pictures of these.

Solution: (a)Pieces of cloth, polythene bags, broken glass, aluminium wrappers, nails and broken toys are not converted into compost by the red worms.

 (b)Earthworms, small insects like ant, millipedes are found in

pits

[2.] Discuss:

(a) Is garbage disposal the responsibility only of the government?

(b) Is it possible to reduce the problems relating to disposal of garbage?

Solution: a) No, not just the government, but everybody is responsible for garbage disposal. We should bifurcate wet and dry waste, recycle the non-biodegradable substances and we should also reduce the accumulation of garbage in our house and streets.

b) Yes, it is possible to reduce the problems of garbage by scientific disposal of garbage, we can do it by bifurcation of different waste and also by recycling the waste materials.

[3.] (a) What do you do with the leftover food at home?

(b) If you and your friends are given the choice of eating in a plastic plate or a banana leaf platter at a party, which one would you prefer and why?

Solution:

(a) Leftover food can be collected and used to form compost. Compost produces nutrients necessary for the growth and development of plants.

(b) We would prefer to eat food on a banana leaf plate because it acts as a harmless substance which helps to form  manure by the process of composting, whereas plastic plates cannot be converted into harmless substances by composting. Plastic plates are not degradable, hence can persist in the environment and cause many problems.

[4.] (a) Collect pieces of different kinds of paper. Find out which of these can be recycled.

(b) With the help of a lens look at the pieces of paper, you collected for the above question. Do you see any difference in the material of recycled paper and a new sheet of paper?

Solution: (a) Papers such as newspapers, notebooks, magazines can be recycled easily. However, shiny and coated papers cannot be easily recycled

(b)  Recycled paper is usually thick or rough when compared to a new sheet of paper.

[5.] (a)Collect different kinds of packaging material. What was the purpose for which each one was used? Discuss in groups.

(b) Give an example in which packaging could have been reduced?

(c) Write a story on how packaging increases the amount of garbage.

Solution: (a) Different kinds of packaging materials used commonly are:

Cardboard – used as shoe, soap, bulb and other boxes.

Plastic Bags – Toys covers, sarees bags, shopping bags, etc.

Wooden Boxes – Fruit baskets and boxes for hardware.

Jute Bags – School bags, shopping bags, vegetable bags, etc.

(b) By reusing the packaging material, we can reduce the accumulation of garbage.

(c) The basic purpose of packaging is to protect the product from tampering and to maintain its freshness and purity. However, most of the packaging material is used to beautify the boxes and make them look attractive on the shelves. Unfortunately, a large volume of packaging material goes waste and is thrown into the dustbin.

For example, in most of the places, the dustbins are full of chips and biscuit wrappers.

It unnecessarily increases the amount of garbage. It also increases the cost of the product due to unnecessary packaging. We should seriously consider how to reduce unnecessary packaging.

[6.] Do you think it is better to use compost instead of chemical fertilizers? Why?

Solution: Yes, it is better to use compost instead of chemical fertilizers for the following reasons:

1.It is easy to prepare compost

2.Compost is environment friendly as it does not cause any health issues in humans and animals

3.Compost will not cause pollution

4.Compost increases soil fertility.

5.Compost is biodegradable

