

01.Super Senses

1.

- a) Dogs, cats, silk worm and Mosquitoes are some animals or insects that recognise other creatures through their smell.
- b) Dogs mark out their own area on the road. They can make out if another dog has come into their area by the smell of its urine or potty (latrine).
- c) The special sense of smell of dogs is used by police to catch thieves, search for lost people and detect bombs. Dogs are also used to guard our houses from strangers.
- d) High up on a tree, a langur warns others of dangers like a tiger or leopard. The langur does this by making a special warning call.
- e) Snakes do not have external ears (which you can see). They only feel the vibrations on the ground.
- f) Some birds like kites, eagles, vultures can see four times as far as we can.
- g) Birds give alarm calls to warn about the danger. Some birds even have different sounds for different kinds of dangers. For example, there is a different warning call if the enemy is coming from the sky or if the enemy is on the ground.
- h) Lizards are not seen during the cold season. They must have gone for long sleep at a warm place to escape cold.
- i) To protect the animals, our government has made some forests as protected areas. Some of them are the Jim Corbett National Park in Uttarakhand and 'Ghana' in Bharatpur district of Rajasthan. In these areas nobody can hunt animals or destroy the jungle.

2.

Good smells

Freshly cut lemons
A warm ocean breeze
Chocolate chip cookies
Popcorn popping
Jasmine blooming

Bad smells

Sweat
Heap of garbage
Potty
sewer
Burning

3.

The number of tigers and many other animals in our country is reducing. There is a danger that some of them will soon disappear. To protect the animals, our government has made some forests as protected areas. Some of them are the Jim Corbett National Park in Uttarakhand and 'Ghana' in Bharatpur district of Rajasthan. In these areas nobody can hunt animals or destroy the jungle.

4.

a) ants b) urine c) sleeping d) smell e) scientist
f) government g) danger h) eyes i) electric j) four

5.

a) - T b) - F c) - F d) - F e) - F f) - F g) - T h) - T

6.

- a) In most of the birds, eyes are fixed and cannot move. So, birds have to turn their neck very often to see around.
- b) Tigers are endangered, or in danger of disappearing from the wild. This is mainly because of poachers, who hunt tigers for their body parts and habitat loss, when people use the tigers' land, but also because they make bad neighbors for people.
- c) May be Deepak's nappy is dirty with potty but her daughter's nappy had pee only. As the smell of potty is more unpleasant than pee, so Sushila had to cover her nose while cleaning Deepak's nappy but not while cleaning her daughter's nappy.

d) Lizard is a reptile and it is cold blooded, so cannot maintain its body temperature. Their body temperature changes with environment temperature. So, they become inactive during winter, and undergo winter sleep.

e) Dogs are used in special search operations by police because dogs have senses that are much better than a human. Drug and bomb sniffing dogs work based on scent. A dog that searches for people has that sensitive sense of smell, better hearing, speed and agility than a human officer.

7.

- | | | | |
|------------|------------|---------------|------------------------------|
| a) - Tiger | b) - Sloth | c) - Lizard | d) - Kites, Eagles, Vultures |
| e) - Birds | f) - Dog | g) Mosquitoes | h) - Ants |

8.

Cat	-	12 -16 hours	Giraffe	-	4.6 hours
Cow	-	4 hours	Snake	-	16 hours

9.

a) Today many animals are killed and their parts are sold. Elephants are killed for their tusks, rhinoceros for its horn, tigers, crocodiles and snakes for their skins. Musk deer are killed just to make a little scent from its musk. People who kill animals are called hunters and poachers. The number of tigers and many other animals in our country is reducing. There is a danger that some of them will soon disappear. To protect the animals, our government has made some forests as protected areas. Some of them are the Jim Corbett National Park in Uttarakhand and 'Ghana Bharatpur district of Rajasthan. In these areas nobody can hunt animals or destroy the jungle.

b) Do it yourself

02 A Snake Charmer's Story

1.

- a) Kalbeliyas are also known as saperas from gypsy caste, who perform snake dance.
- b) b. Snake charmers can help the people in villages by providing them with the medical services as the hospitals and doctors are far away from them.
- c) In return, the villagers can give the snake charmers money and food grains.
- d) Four types of snakes are poisonous. They are: Cobra, Common Krait, Russel's Viper (Duboiya), Saw-scaled Viper (Afai).

Some non-poisonous snakes are:

- Emerald Tree Boa. The emerald tree boa is a non-venomous boa species found in the rainforests of South America.
- Garter Snake. Garter snake also called gardener snake, is the common name given to harmless.
- Bullsnares
- Rough Green Snake
- Python (Python Molurus)

e) From the marks of the bite snake-charmer tried to find out which snake had bitten the person.

e) Snakes eat the rats in the fields, otherwise rats would eat the crops.

2.

Now the government has made a law that no one can catch wild animals and keep them. Some people kill the animals and sell their skins at high prices. So they made a law against this.

3.

- | | | | |
|---------------|--------------|-----------|------------|
| a) Kalbeliyas | b) poisonous | c) snakes | d) tin-box |
| e) government | f) death | g) been | h) fangs |

4.

i. - c ii. - e iii. - d iv. - b v. - a

5.

- a) Monkey, elephant, tiger, lion, deer, owl, zebra, giraffe, panda, koala and chimpanzee.
- b) They are sad.
- c) Yes, we like to see animals in a zoo.
- d) Yes, I will set them free if given a chance.

6.

Do it yourself

7.

I have dog as a pet.

- I feed him good and high-quality foods.
- Take him for a walk every day for at least half an hour.
- Provide him with the needed vaccination on time.
- Keep him in a clean and hygienic environment.
- Visit Vet on a weekly/monthly basis.

8.

Like snake-charmers, following people also depend on animals for their livelihood: Milkmen get milk from cows and buffaloes to sell for their livelihood. Fishermen catch fishes to sell in the market and earn money. Shepherds depend on sheep for wool.

9.

- a) Nag Panchami: Nag Panchami is celebrated on the fifth day in the month of *sawan* (July/August), according to the Hindu calendar. On this day, people go to temples to worship snake deities, and in some cases to snake pits to worship real snakes, where they make offerings like milk, sweets, and flowers to the snakes.

- b) Yes, I have seen a snake dance show. Snake-charmer or *sapera* make snakes dance by playing the *been*.
- c) The government has made a law that no one can catch wild animals and keep them. Some people kill the animals and sell their skins at high prices. So they made a law against this. Now, with this law, how will snake-charmers earn their livelihood? Snake-charmers now not able to earn their livelihood. They have to change their traditional business.
- d) Do it yourself

03 From Tasting to Digesting

1.

- a) Gur, sugar - sweet
Salty - salt
Sour - lemon, amla
- b) The cruciferous family contains many bitter-tasting vegetables including broccoli, Brussels sprouts, cabbage, kale, radishes and arugula.
- c) Garlic and onions are some food items that have a strong smell.
- d) Tongue helps us in tasting food.
- e) Your senses of smell, taste, and touch help you recognize the food even when your eyes are closed.
- f) The simple act of chewing food in your mouth helps to break down larger particles of food into smaller particles. This helps to reduce stress on the esophagus and thereby helps the stomach to metabolize your food.
- g) Gastroenteritis is the inflammation and irritation of the stomach and intestines. Vomiting and diarrhea can be harmful, because they can cause dehydration. Dehydration occurs when you lose too much fluid.

2.

- | | | | |
|--------------|-------------|-----------|--------------|
| a) digestion | b) tastebud | c) tastes | d) Kalahandi |
| e) glucose | f) karela | g) food | h) juices |

3.

Sweet

Sugar
Honey
Fennel
Orange

Bitter

Bitter guard
Onion
Fenugreek
Coffee

4 .

- a) Weak and little pain in abdomen
- b) sugar and salt solution
- c) When we are feeling weak.
- d) Potassium-rich foods are often recommended, as potassium can help balance sodium levels and increase urine production, helping you drop excess water.
- e) Used to treat very low blood sugar (hypoglycemia), most often in people with diabetes mellitus. This medicine works by quickly increasing the amount of glucose in your blood.

5 .

- a) Because karela is bitter.
- b) Food that starts to taste sweet is carbohydrate in some form and your saliva is breaking it down into simple sugars, therefore sweet. Sugars are the only things your saliva can actually break down, proteins and fats require the rest of your digestive system
- c) A cold temporarily damages your sense of smell and thus your ability to perceive flavor.
- d) Because we like *imli*.

6 .

We feel a bit tired when we are hungry. Besides, we feel an empty sensation in the stomach and want to eat something immediately.

7 .

Glands in your stomach lining make stomach acid and enzymes that break down food. Muscles of your stomach mix the food with these digestive juices. Pancreas. Your pancreas makes a digestive juice that has enzymes that break down carbohydrates, fats, and proteins.

8 .

Digestion begins in the mouth, well before food reaches the stomach. A digestive enzyme in saliva called amylase (pronounced:AH-meh-lace) starts to break down some of the carbohydrates (starches and sugars) in the food even before it leaves the mouth.

9. a). i) Poor nutrition ii) Over-eating

b) The food that keep us hygiene us and healthy is called as proper food.
Improper food means not healthy for body it is harmful for our body.

10 .Do it yourself

11 .People of Kalahandi District in Odisha die of hunger and starvation.
Kalahandi is draught prone area. So, there is little vegetation. There is poverty too. These are the reasons of people die due to hunger.

12 .a) Group C

b) Group B

13 .Do it yourself

04 Mangoes Round the Year

1.

- a) yes, we share our lunch with our friends at school?
- b) Do it yourself
- c) Do it yourself
- d) we may fall sick.
- e) Signs of food spoilage may include an appearance different from the food in its fresh form, such as a change in colour, a change in texture, an unpleasant odour, or an undesirable taste.
- f) Always read the label properly. Check the expiry date or “best before” date.

2. Among the oldest methods of preservation are drying, refrigeration, and fermentation. Modern methods include canning, pasteurization, freezing, irradiation, and the addition of chemicals. Advances in packaging materials have played an important role in modern food preservation.

Meat and fruits like apples, apricots and grapes are some examples of drying with this method.

Freezing is keeping prepared food stuffs in cold storages. Potatoes can be stored in dark rooms but potato preparations need to be frozen.

3. Salting also known as curing removes moisture from foods like meat.

Pickling means preserving food in brine (salt solution) or marinating in vinegar (acetic acid) and in Asia, oil is used to preserve foods.

Sugar is used in syrup form to preserve fruits or in crystallized form if the material to be preserved is cooked in the sugar till crystallization takes place like candied peel and ginger.

4.



Pasteurization



Smoking



Freezing



Refrigerated



Refrigerated



Refrigerated

5. Mamidi tandra is a famous dessert made with ripe mangoes. We can make the mamidi tandra in the following ways:

- First, we took the ingredients for mamidi tandra such as riped mango puree, sugar or jaggery, and ghee.
- After that, we will start making process, we will take a pan and put the sugar and mango puree in it and mix well in a low flame.
- we will mix until both sugar and mango puree is reduced to half quantity.
- Then we will transfer the mixture on a thin poly sheet paper. We will be applied ghee on the poly sheet before pouring the mixture.
- Place this under the sun for one or two days till it is dry. Mamidi tandra is a jelly-like substance and very tasty to eat.

6. Some seasons and conditions in which food spoils quickly are:

- Rainy season having high moisture condition.
- Summer season having high temperature condition.
- Cooked food is kept open.
- Milk is not boiled properly.
- Pickles are not kept safe from moisture or air.

7. a) pickles b) expiry c) fungus d) ripe e) milk
f) aam papad g) spoilt h) jaggery

8. a) - F b) - F c) - T d) - T e) - F f) – T

9. Do it yourself

10. Do it yourself

05 Seeds and Seeds

1.

- a) Seed germination depends on both internal and external conditions. The most important external factors include right temperature, water, oxygen or air and sometimes light or darkness.
- b) 1-2 weeks
- c) Seeds kept in refrigerator do not sprout because the germination of seeds needs air, water and optimum temperature (20 to 25°C). Since the temperature inside refrigerator is very low, so seeds do not sprout when kept inside the refrigerator.
- d) Gopal soaked too much chana.
- e) He was amazed to find seeds sticking all over his clothes and on his dog's fur.
- f) Seed dispersal is the movement, spread or transport of seeds away from the parent plant. Plants have limited mobility and rely upon a variety of dispersal vectors to transport their propagules, including both abiotic vectors such as the wind and living (biotic) vectors like birds.

2.

- a) Chana and wheat
- b) Coriander and cumin
- c) Rajma and Urd
- d) Cotton and dandelion
- e) yellow flag and sea kale
- f) almonds and sesame

3. a) – iii. b) – iv. c) – iv. d) – ii. e) – iv. f) – iii. g) – ii.

4. This happened in 1948. One day George Mestral came back from a walk with his dog. He was amazed to find seeds sticking all over his clothes and on his dog's fur. He wondered what made them stick. So, he observed these seeds under a microscope. He saw that the seeds had many tiny hooks which got stuck to clothes or fur. This gave Mestral the idea of making Velcro. He made a material with similar tiny hooks that would stick. Velcro is used to stick together many

things – clothes, shoes, bags, belts and many more. What a way to take inspiration from nature!

5. a) – wind b) – wind c) – water d) – wind e) – wind
f) – water. g) – water

6. a) – India b) – South America c) – Europe
d) – Africa e) – Africa f) – South America g) – South America

7. a) Nepenthes

b) It is found in Australia, Indonesia and Meghalaya in India.

c) It has a pitcher-like shape and the mouth is covered by a leaf. The plant has a special smell that attracts insects to it. When the insect lands on the mouth of the plant, it gets trapped and cannot get out.

8. a) air b) sprouted c) George Mestral d) seeds
e) Pitcher f) jeera g) chillies h) green

9. a) - F b) - T c) - T d) - F e) - T f) – F g) - T h) – T

10.

Name of the seed	Colour	Use
Rajam	Reddish brown	Pulse
Jeera	Light brown	Spice
Moong	Green	Pulse
Chana	Brown	Grain
Saunf	Green	Spice
Masoor	Red	Pulse
Arhar	Yellow	Pulse
Soyabean Seeds	Yellow	Grain

- a) Due to change in the temperature inside the refrigerator. Seeds do not start germinating due to unfavourable temperature within the refrigerator as it cools the thing putted inside and have low temperatures. Because he had put the seeds in cold temperature while seeds need optimum temperature to grow.
- b) Sprouting tends to enhance the nutritional value of the grains, legumes or beans. These contain certain anti-nutrients including phytic acid which locks up important minerals. It also inhibits our digestive enzymes that can cause indigestion and intestinal gas.
- c) Research has shown that eating pulses can lower blood cholesterol, reduce blood pressure and help with body weight management, which are all risk factors for heart disease. Pulses are low in saturated and trans fats and high in soluble fibre. These are all important for a heart healthy diet.

12. Small Seeds:

Jeera Saunf, Masoor

Big Seeds:

Urd, Rajma, Chana, Kabuli Chana, Peas

13. Do it yourself

06 Every Drop Counts

1.

- a) King Ghadsi of Jaisalmer made Lake of Ghadsisar 650 years ago with the help of the people.
- b) People came here to celebrate festivals and for programmes of music and dance.
- c) Rainwater collected in this lake spread over many miles. It was made in such a way that when the lake was full, the extra water flowed into another lake at a lower level. When that too filled up, the extra water flowed into the next lake. This way all nine lakes filled up. This rain water could be used throughout the year.
- d) More than a thousand years ago, a traveller came to India. His name was Al-Biruni. The place that he came from is now called Uzbekistan.
- e) Today, Ghadsisar is no more in use. Many new buildings and colonies have come up in between those nine lakes. Now the water does not get collected in these lakes. Rain water just flows away and is wasted.
- f) Besides Jaisalmer, many places in Rajasthan, get very little rainfall .

2. He wrote especially about those things that he found very different from his own country. Here is a part of what he wrote about the ponds of that time: The people here are very skilled at making ponds. My countrymen would be surprised to see them. They pile up huge rocks and join them with iron rods to build chabutaras (raised platforms) all around the lake. Between these, there are rows of long staircases, going up and down. The steps for going up and coming down are separate. So there is less crowding.

3. Water forms the major component of a living organism. It plays a vital role as all the metabolic processes required for growth and development requires a liquid medium. Most of the reactions occurs when the substances are in dissolved state. Water also helps in transportation of these dissolved substances in the body. Water helps in maintaining the body temperature.

4. Some water from the lakes soaked into the ground and reached the wells and

bavdis (stepwell). The soil of the area also became wet and fertile.

5. First water from natural resources like lakes, rivers, underground water are collected and treated to make it clean.

Every town or city has a main water source.

Water is stored in facilities such as reservoirs, water tanks, or water towers around the city to distribute water to different areas.

Pipes are laid underground from this water source to carry this water to different parts of the city.

Pressure pumps are installed to push the water through the pipes to your house.

This clean water travels through the pipes to your house !

When a house is built, water pipes are connected from the house to the main city line.

6. Here are some sources of drinkable water:

- Natural springs. In the olden days, one could just drink from a spring.
- Lakes and rivers. These days, these are quite polluted.
- The ocean. Salt ocean water can be made drinkable through desalinization.
- Streams, filtered or chemically decontaminated.
- Wells and Rainwater

7. a) Water b) Ghadsisar c) Johads d) Jaisalmer
e) Uzbekistan f) Naulas g) Rain

8. a) - T b) - F c) - T d) - T e) - F f) - T

9. Do it yourself

10.

- a) It is Bavdi.
- b) Some water from the lakes soaked into the ground and reached the wells and bavdis (stepwell). The soil of the area also became wet and fertile.
- c) A stepwell is a unique form of underground well architecture in which a long-stepped corridor leads down five to six storeys until it reaches the aquifer. The well, at the far end of the L-shaped structure, thus remains filled with clean and naturally filtered water throughout the year.

11.

- a) Today, Ghadsisar is no more in use. Many new buildings and colonies have come up in between those nine lakes. Now the water does not get collected in these lakes. Rain water just flows away and is wasted.
- b) Besides Jaisalmer, many places in Rajasthan, get very little rainfall. Here it rains for only a few days in the entire year, sometimes not even that much. The rivers here do not have water all round the year.
- c) In a stepwell the steps go down several storeys deep because to store more water.
- d) Our body uses water in all its cells, organs, and tissues to help regulate its temperature and maintain other bodily functions. Because our body loses water through breathing, sweating, and digestion, it's important to rehydrate by drinking fluids and eating foods that contain water.
- e) We should not waste water because water is a natural thing which is available in limited quantity so if we waste water –
 - i. It will become less.
 - ii. Drinking water will not be enough for everybody.

12.

- a) Do it yourself
- b) Darki Mai was the woman who lived in a village in the Alwar region of Rajasthan. She used to spend the whole time managing her home and looking after the animals. During summer, when the reservoirs dried up, they have to move to other places by leaving their village.

Darki Mai heard about Tarun Bharat Sangh and requested for help. Collectively,

the people from the village and Sangh determined to make a pond. After the creation of pond, the problem of food and water for animals is now becoming less and people started getting more milk.

Tarun Bharat Sangh (TBS) is a non-governmental association in Rajasthan. It is led by Rajendra Singh. The society and Rajendra Singh are best remembered for performing environmental research and land expansion to provide fresh and clean water to people.

c) Water is a priceless gift to humanity by nature. Life is possible only on earth because of water. People in India and other countries are struggling with water scarcity while three-fourths of the earth is surrounded by water. Due to the lack of water, people teach us to save and conserve water to protect the environment, life and world due to the difficulties faced by people in different areas.

Water is the most essential source of life on earth because we need water to perform all the tasks of life such as drinking, making food, bathing, clothing, and for harvesting etc. We need to save water for proper supply of water for future generation without polluting it. We must stop the waste of water, use water properly and maintain water quality.

07 Experiments with Water

1.

- a) Ayesha's dough ball sink into the water because dough ball is heavier than water.
- b) If we put a plastic ball in water it would float.
- c) Things that float on water are—Plastic ball, shuttle cock, ship and wooden items.
- d) Things that sink in water are— stone, steel spoon, needle and soap.
- e) Sugar dissolves in water because energy is given off when the slightly polar sucrose molecules form intermolecular bonds with the polar water molecules.
- f) Because the density of the egg is higher than the density of tap water, so it sinks. When enough salt is added to the water, the saltwater solution's density becomes higher than the egg's, so the egg will then float!

2.

- a. If we put an egg in a cup of tap water, it will sink to the bottom. Because the density of the egg is higher than the density of tap water, so it sinks.
- b. When we drop a needle vertically which leads to large pressure on the surface of water resulting in tearing the surface and falling down.
- c. Because oil is less dense than water, it will always float on top of water, creating a surface layer of oil.
- d. When detergent is added to water, it decreases the surface tension of the water. Compounds that lower water's surface tension are called surfactants, which work by separating the water molecules from one another.
- e. It will float.
- f. Since the ice, when it floats, displaces exactly its weight in water, when it melts, the water it melts into takes the same volume that the ice cube displaced in the water. So the water level should remain the same.

3.

- | | | | |
|--------------|---------------|---------|------------|
| a) Gandhi ji | b) Dissolves | c) salt | d) salty |
| e) Oil | f) evaporates | g) sink | h) Arabian |

4.

- | | | | | | | | |
|--------|--------|--------|--------|--------|--------|--------|--------|
| a) - F | b) - F | c) - T | d) - F | e) - T | f) - T | g) - T | h) - T |
|--------|--------|--------|--------|--------|--------|--------|--------|

5.

- a) On sunny days rate of evaporation is high and hence clothes dry faster. During cloudy days the sun remains behind the sun and so the rate of evaporation is less.
- b) The density of the Dead Sea is incredibly higher than that of average sea-water. It owes the higher density to way too much salt content and other dissolved minerals. The human is able to float as the water body is able to counteract the downward pressure from the human's body.
- c) The quality of water reduced when it is heated because the water gets evaporated.
- d) As most of the space in the ball is taken up by air so it causes the overall density of ball to be lesser than that of water. Whereas, the density of the iron nail is more than that of water. Due to this the iron nail sinks while the ball floats on the surface of the water.
- e) Puris float on oil as the hot oil makes the puri to rise up and gets filled up with air. The air being lighter than the oil makes the puris to float on oil.

6. Things dissolve in water: Salt, sugar, milk, lemon juice

Things do not dissolve in water: Oil, ghee, butter, wax, and cold cream.

7.

- a) Simple distillation is a method for separating the solvent from a solution. For example, water can be separated from salt solution by simple distillation. This method works because water has a much lower boiling point than salt. When the solution is heated, the water evaporates. It is then cooled and condensed into a separate container. The salt does not evaporate and so it stays behind.
- b) Chalk powder is a carbonate compound, insoluble in water. Because of this property of chalk powder, it is easy to separate it from water. The mixture containing chalk powder and water is allowed to get filtered. After filtration, the retentate obtained is chalk and the filtrate obtained is water without chalk.
- c) If you take a jar and fill it with water, put some 'straightforward' oil on top and shake it, all you need to do to separate the oil and the water is to put the jar on a table and wait. Shortly there will be a layer of oil floating on the surface and all that is left to do is to remove the oil layer.

8. Gandhi through his Dandi March tried to protest against the regressive policies of the British Government and arouse the people of India to fight against the colonialism and its evils through non-violent means. This was the immediate reason for the Dandi March.

9. Tea can be prepared by following steps:

(i) Take 100ml of water as solvent and boil it few minutes.

(ii) Now add one tea spoon sugar, one tea spoon tea leaves and 50ml of milk.

10. Do it yourself

08 A Treat for Mosquitoes

1.

- a) Diseases that are spread to people by mosquitoes include Zika virus, West Nile virus, Chikungunya virus, dengue, and malaria.
- b) Malaria parasites can be identified by examining under the microscope a drop of the patient's blood, spread out as a “blood smear” on a microscope slide.
- c) A malaria infection is generally characterized by the following signs and symptoms:
 - Fever.
 - Chills.
 - Headache.
 - Nausea and vomiting.
 - Muscle pain and fatigue.
- d) Don't let water collect around your house. Fill up the pits. Keep the water pots, coolers and tanks clean. They should be dried every week. Use mosquito nets to protect yourself. Spray kerosene if water has collected at some place.
- e) The plasmodium parasite is spread by female Anopheles mosquitoes, which are known as "night-biting" mosquitoes because they most commonly bite between dusk and dawn.
- f) Only certain species of mosquitoes of the Anopheles genus—and only females of those species—can transmit malaria.
- g) Anaemia signs and symptoms may include:
 - Extreme fatigue
 - Weakness
 - Pale skin
 - Chest pain, fast heartbeat or shortness of breath
 - Headache, dizziness or light headedness
 - Cold hands and feet
 - Inflammation or soreness of your tongue
 - Brittle nails
- h) These are the top 10 iron-rich foods that can improve the levels of haemoglobin the blood:

- Red Beetroots
- Red Meat
- Brown Rice
- Pumpkin Seeds
- Dark Chocolate
- Dried Fruits and Nuts
- Green vegetables
- Seafood and Oysters

i) Haemoglobin is an iron-rich protein that helps red blood cells carry oxygen from the lungs to the rest of the body. If you have anaemia, your body does not get enough oxygen-rich blood. This can cause you to feel tired or weak. You may also have shortness of breath, dizziness, headaches, or an irregular heartbeat.

j) Larvae are baby mosquitoes. In rainy season larvae spread quickly.

2. Ronald Ross was awarded the Nobel Prize for Physiology or Medicine in 1902 "for his work on malaria, by which he has shown how it enters the organism and thereby has laid the foundation for successful research on this disease and methods of combating it".

3. a) Malaria b) Test c) still d) Anaemia e) Ronald Ross
f) leafy g) shivering h) cinchona i) mosquitoes j) larvae

4. a) - F b) - F c) - T d) - T e) - F
f) - F g) - T h) - T i) - T

5.



6.

- a) Mrs. Shivangi Shukla
- b) 14.90
- c) 25 years
- d) RBC count is low and TLC is high

7.

a) When rain, water remains clogged, it helps the mosquitoes breeding process. The spread of malaria can be prevented by keeping such clogged areas clean.

b) Keeping food covered protects your food from harmful bacteria and objects or chemicals from getting into the food.

c) In December 1902, Ronald Ross got the highest award for his discovery—the Nobel Prize for medicine. This interesting incident took place almost a hundred years ago. A scientist found out that mosquitoes spread malaria. In 1905, even as he lay dying, Ross's last words were, "I will find something, I will find something new."

d) It is advised to put kerosene oil in the water tanks of coolers during rainy seasons because kerosene oil prevents the breeding of mosquitoes that spread various diseases like malaria.

e) Leafy green vegetables are brimming with fiber, vitamins, and minerals. Eating a healthy portion every day can help protect you from many diseases, including heart disease, diabetes, and cancer, and can also help you live longer.

8.

a) The most common larval habitat types found were excavation sites, fishponds, bromeliads, streams, pools, ditches, and lagoons.

b) Here's how to prevent mosquitoes in eight simple steps.

- Remove sources of standing water.
- Clean out the gutters.

- Change out water sources weekly.
- Drain water and fill up low areas.
- Maintain pools and water features.
- Replace outdoor lighting.
- Protect yourself.
- Call the professionals.

9. Blowflies and houseflies feed on and breed in faeces and rotting matter. Through their normal habits, flies will encounter many microorganisms that can cause disease or degrade plant and animal matter. It is, therefore, likely that mechanical means of dispersal are important factors.

10. Do it yourself

09 Up You Go!

1.

- a) She teaches in Kendriya Vidyalaya, Shalimar Bagh, Delhi.
- b) Mountaineers carry with them: Food packets, water bottle, rope, hook, plastic sheet, diary, torch, towel, soap, windcheater, whistle, glucose, jaggery, chana and some other snacks.
- c) Brigadier Gyan Singh, the Director of the adventure trip.
- d) The food really depends on the kind of climbing, the environment, and personal tastes. Some take dehydrated foods, while others insist on fresh fruits and veggies, which while heavier, tend to be more palatable.
- e) Sangeeta was made the leader of group no. 7.
- f) Nehru Institute of Mountaineering, Uttarkashi
- g) She was not allowed to take rest when she had blisters on her feet on the second day of her camp.
- h) Double layered plastic sheets were used for the tent and for the ground because the air between the layers would help to keep them warm.
 - i. Sangeeta regain her confidence and turn into a courageous woman by facing a challenge with courage.
 - ii. Khondonbi was feeling hungry. She did not have anything to eat. She jumped over the fence and got into a field. She quickly plucked two big cucumbers and came back.

2. Do it yourself

- 3.** a) Kendriya Vidyalaya b) Mountaineers c) 1600
d) Bachhendri Pal e) 90° f) Mizo g) blisters
h) Sangeeta Arora i) 8848 j) Sagarmath

- 4.** a) - T b) - F c) - T d) - F e) - T
f) - F g) - F h) - T i) - T j) - F
k) - T l) - T

5.

- a) Because she didn't know Mizo.
- b) To get strength and stamina, the people are given Iron tablets and hot chocolate milk when crossing river. Due to force water running, it sometimes lacks energy so that it is always necessary to get Iron tablets and vitamins for crossing. It is also used when people are climbing hills.
- c) Sangeeta was feeling nervous while crossing the river because in the middle of the river she lost her balance and started slipping.
- d) Khondonbi plucked two cucumbers from the field because she was feeling hungry.
- e) Mountaineers used double layered plastic sheets for the tent and for the ground because the air between the layers would help to keep them warm.

6.

- a) Bachhendri Pal
- b) Bachhendri grew up in Nakuri village in the Garhwal area of Uttarakhand.
- c) Brigadier Gyan Singh guided Bachhendri Pal.
- d) At a height of 7300 metres the team put up their tents and went to sleep. Around midnight they heard a loud sound and then a bang. Before they were fully awake, the tent flew off and something very heavy hit them. There was a terrible snow storm. Bachhendri was almost buried under the snow and was hurt on the head. Many of the team members were also injured. The others used snow-picks and axes to dig out those who had been buried under the snow. The rest of the team members returned to base camp but Bachhendri went ahead, climbing slowly but steadily towards the peak. It was seven minutes past one o'clock in the afternoon of 23th May when Bachhendri Pal stepped onto the peak of 8900-metre high Mount Everest also called Sagarmatha in Nepal.

7.

- a) Mount Everest
- b) Junko Tabei, first woman to climb Mount Everest.

- c) 29,029 feet (8,848 meters) above sea level, Mount Everest is the highest mountain on Earth. Located in the Mahalangur section of the Himalayas, the mountain's summit straddles the border separating China and Nepal.
- d) New Zealander Edmund Hillary and Nepalese Tenzing Norgay were the first men to climb Mount Everest.
- e) The best mountaineering institutes in India:
- Nehru Institute of Mountaineering, Uttarkashi, Uttarakhand. ...
 - Himalayan Mountaineering Institute, Darjeeling, West Bengal. ...
 - Atal Bihari Vajpayee Institute of Mountaineering and Allied Sports, Manali, Himachal Pradesh.
- f) Kanchenjunga is the highest mountain peak in India and ranked 3rd highest peak in the world with an elevation of 8,586 m (28,169 ft).
- g) Anshu Jamsenpa: The first woman to climb Mount Everest twice in 5 days.
- h) Bachendri Pal, Indian mountaineer who in 1984 became the first Indian woman to reach the summit of Mount Everest.
- i) India's Arunima Sinha, who became the world's first female amputee to climb Mount Everest in 2013, has added another impressive record to her resume.

8. Do it yourself

9. a)





b) Preparation and planning: Take time to plan and prepare for your ascent. This will be time well spent and the chances of your having a successful and enjoyable ascent will be far higher if you have prepared well. Take time to plan your route and prepare your kit regardless of whether you're going for a short climb or a two-month expedition, some careful planning can make all the difference. As well as careful planning, always check your kit before you leave. Mountaineers carry with them: Food packets, water bottle, rope, hook, plastic sheet, diary, torch, towel, soap, windcheater, whistle, glucose, jaggery, chana and some other snacks.

10 Walls Tell Stories

1.

a) Golconda actually consists of four distinct forts with a 10 km (6.2 mi) long outer wall with 87 semi - circular bastions.

b) Golconda Fort located in Hyderabad, Telangana , India.

c) A bastion or bulwark is a structure projecting outward from the curtain wall of a fortification, most commonly angular in shape and positioned at the corners of the fort.

d) It was written outside the fort that Qutubshahi Sultans ruled here one after another, from 1518-1687.

e) In 1200 AD, this fort was made of mud and different rulers lived here.

f) For eight months Aurangzeb camped outside the fort.

g) In those days, emperors and kings, played such tricks. They tried to make smaller kingdoms a part of their own kingdom. This was done sometimes by friendship, sometimes by flattery, or even by marriage between families. And when nothing else worked, they also attacked them!

h) No wonder it was difficult to attack the fort! If the army tried to come from a different side, then the soldiers in the bastions would have seen it from a distance.

i) Clay pipes would have been used to carry water to different places in the palace.

j) Some places in India where we find forts:

- Red Fort, Delhi – Fort with An Inspiring Architecture.
- Agra Fort, Uttar Pradesh – Former Residence of Mughals.
- Junagarh Fort, Rajasthan – Pride of Thar.
- Warangal Fort, Telangana – Emblem of Telangana.
- Palakkad Fort, Kerala – Blend of History and Nature.

k) Red Fort, Delhi; Agra Fort, Uttar Pradesh; Gwalior Fort, Gwalior

2. A nuclear weapon, also known as a nuclear bomb or a nuke, is a weapon that suddenly releases the energy in the nucleus of certain types of atoms. When triggered, these devices release a huge amount of energy in the form of a nuclear explosion. Nuclear explosions can destroy a city and kill most of its people.

3. Golconda Fort - Architecture. Golconda Fort is a very large fort consisting of temples, mosques, palaces, halls, apartments and other structures. The fort is spread in around 11km area and has beautiful architecture. The fort is divided into four forts each having apartments, worship places, halls, etc. A few feet in front of the gate there is a large wall. This prevented elephants and soldiers (during enemy attacks) from having a proper ramp to run and break the gate. The fort of Golconda is known for its magical acoustic system. The highest point of the fort is the "Bala Hissar", which is located a kilometer away.

4.



Qutub Minar



Gateway of India



Taj Mahal



Red Fort



Charminar



Hawa Mahal

5.

- a) Golconda b) Qutub Shahi Sultan c) thick d) carvings
e) Fateh Darwaza f) Clay g) Delhi h) swords i) Aurangzeb

6.

- a) - T b) - T c) - T d) - F
e) - T f) - F g) - F h) - T

7.

1. - b 2. - e 3. - d 4. - c 5. - a

8.

a) The deep ditch was dug along the wall so that the enemy could not cross it easily to enter the fort.

b) Museum a place where old items are kept. In this various items of cultural, historical or scientific importance are stored and preserved.

c) Because Fort's walls are thick and deep ditch was dug along the wall so that the enemy could not cross it easily to enter the fort.

d) Bastions were made in the fort wall to see at a distance and attack on enemies coming towards the fort from several directions. These rounded and high walls are also called defensive walls. Bastions (Burj) built at a height provide the space for looking on distant places from several directions.

9.

- a) - a b) - d c) - c d) - c e) - a f) - d g) - d h) - b

10. Do it yourself

11. Sunita in Space

1.

a) From space, Earth looks like a blue marble with white swirls.

b) Kalpana Chawla and Sunita Williams

c) Gravity is a force that is caused by the attraction of objects with mass. The planet Earth is very massive so we can feel its gravitational force when we are at or near its surface; that is why we don't float away.

d) Kalpana Chawla died on February 1, 2003, in the Space Shuttle Columbia disaster, along with the other six crew members, when the Columbia disintegrated over Texas during re-entry into the Earth's atmosphere, shortly before it was scheduled to conclude its 28th mission, STS-107.

e) Sunita Williams went 360 kilometres away from the earth, in the spaceship.

f) Astronauts float around in space because there is no gravity in space. Everyone knows that the farther you get from Earth, the less the gravitational force is.

g) Brazil and Argentina are here.

h) In India there are many festivals related to the moon.

eg:- some hindu festivals are Shivratri {day before new moon}; holi, Budhha Purnima, Guru Purnima, {all on full moon}; Diwali {on new moon}

Others are Janmashtami, Rath Yatra. All muslim festivals depend on the moon.

i) In 2007 Sunita Williams set a new record for the longest space flight by a woman.

2. There are the lines, really! Sunita describes her view of the earth from the spaceship: “The earth looks so beautiful and amazing. We could watch it for hours, from the window of the spaceship. We could clearly see the curved shape of the earth.”

3. Sunita Pandya Lyn Williams (born September 19, 1965) is an American astronaut and United States Navy officer of Indo-Slovenian descent. Williams was commissioned an ensign in the United States Navy in May 1987. After a six-month temporary assignment at the Naval Coastal System Command, she was designated a Basic Diving Officer. Sunita Williams began her Astronaut Candidate training at the Johnson Space Center in August 1998. Following are the space mission undertaken by Sunita Williams Williams was assigned to the International Space Station as a member of Expedition 14 and Expedition 15. In 2012, she served as a flight engineer on Expedition 32 and then commander of Expedition 33. She graduated in December, and was assigned to the Rotary Wing Aircraft Test Directorate as an H-46 Project Officer and V-22 chase pilot in the T-2. Later, she was assigned as the squadron Safety Officer and flew test flights in the SH-60B/F, UH-1, AH-1W, SH-2, VH-3, H-46, CH-53, and the H-57. In December 1995, she went back to the Naval Test Pilot School as an instructor in the Rotary Wing Department and as the school's Safety Officer. There she flew the UH-60, OH-6, and the OH-58. She was then assigned to USS Saipan as the Aircraft Handler and the Assistant Air Boss. Williams was deployed on Saipan in June 1998 when she was selected by NASA for the astronaut program. She has logged more than 3,000 flight hours in more than 30 aircraft types.

4. Kalpana Chawla was a Indian origin astronaut. She died on February 1, 2003, in the Space Shuttle Columbia disaster, along with the other six crew members, when the Columbia disintegrated over Texas during re-entry into the Earth's atmosphere, shortly before it was scheduled to conclude its 28th mission, STS-107.

5.

- a) Round b) Air c) 2003 d) Sunita Williams
e) Gravity f) 360 g) Floating h) Kalpana Chawla

7. a) – F b) - T c) - T d) - F e) - F f) – T g) – F

8.

a) Gravity is a force that is caused by the attraction of objects with mass. The planet Earth is very massive so we can feel its gravitational force when we are at or near its surface; that is why we don't float away.

b) Children always slide down and not up because gravity acts downwards and not upwards.

c) The ball always feels an attractive force towards the center of the earth (which we see as directed towards the ground). When it is thrown up, the gravitational force pulls it back down.

d) Water always flows downhill because of gravity.

e) Stars and moon aren't visible during the sunlit hours of daytime because the light-scattering properties of our atmosphere spread sunlight across the sky.

f) There is no force of gravity in the space and everything floats there. Combs are meant to get hair in place which is not possible in space.

9.

a) Sunita Williams

b) Sunita says that when she was a young girl she really loved sports and swimming.

c) In 2007 Sunita Williams set a new record for the longest space flight by a woman.

d) When Sunita was asked by a child what would she like to do in the future, she answered, “I want to become a school teacher!”

10.

a) Kalpana Chawla was an American astronaut, engineer, and the first woman of Indian origin to go to space. She first flew on Space Shuttle Columbia in 1997 as a mission specialist and primary robotic arm operator.

b) Fred Wallace Haise Jr. is an American former NASA astronaut, engineer, fighter pilot with the U.S. Marine Corps and the U.S. Air Force and test pilot. He is one of only 24 people to have flown to the Moon, having flown as Lunar Module Pilot on Apollo 13.

c) Wing Commander Rakesh Sharma, AC is a former Indian Air Force pilot who flew aboard Soyuz T-11 on 3 April 1984 with the Interkosmos programme. He is the only Indian citizen to travel in space, although there have been other astronauts with an Indian background who were not Indian citizens.

d) Yuri Alekseyevich Gagarin was a Soviet Air Forces pilot and cosmonaut who became the first human to journey into outer space, achieving a major milestone in the Space Race; his capsule, Vostok 1, completed one orbit of Earth on 12 April 1961.

11.

a) Spaceship is a vehicle that flies through space.

b) Gravity is an invisible force that pulls objects toward each other. Earth's gravity is what keeps you on the ground and what makes things fall.

c) A satellite is a moon, planet or machine that orbits a planet or star. For example, Earth is a satellite because it orbits the sun.

d) A spacecraft is a vehicle or machine designed to fly in outer space. A type of artificial satellite, spacecraft are used for a variety of purposes, including

communications, Earth observation, meteorology, navigation, space colonization, planetary exploration, and transportation of humans and cargo.
e) A scientist is someone who conducts scientific research to advance knowledge in an area of interest.

12.

- Sunita Williams is an American astronaut who was a member of the Expedition 14 and 15 carried out by the International Space Station.
- She served as a flight engineer in Expedition 32 and as flight commander in Expedition 34 in 2012.
- She was born on September 19, 1965 to Indian scientist Deepak Pandya and Ursuline Bonnie Pandya, who is of Slovene American origin.
- Her paternal ancestry is from Mehsana district in Gujarat and her mother is a Slovene emigrant.
- Sunita graduated from the Massachusetts with a degree in Physical Science in 1983 and gained a Master's degree in Engineering Management from the Florida Institute of Technology in 1995.
- She joined the United States Navy in May 1987 and after completing a six month assignment she was given the designation of Basic Diving Officer.
- In July 1989, she joined the Naval Air Training Command to attain the title of Naval Aviator.
- She was selected for the NASA astronaut programme in 1998.
- For the NASA programme, Sunita received her training at the Johnsons Space Centre in 1998.
- After completing the training, she worked with the Russian Space Agency and was part of missions sent by the ISS.
- Her first space experience was with the STS 116 launched by the International Space Station. She went aboard the Discovery in 2006 to join crew members on Expedition 14.
- During the expedition, Sunita, after many attempts, completed a spacewalk of 32 hours and 36 minutes.

- In 2007, she also ran the first marathon by a person in orbit, which she completed in four hours and 24 minutes.
- In April 2007, Sunita was brought back to the Earth aboard the Atlantis, during which she broke the record for single spaceflight by a woman.
- In 2012, Sunita was launched from the Baikonur Cosmodrome as a part of the Expedition 32/33. On this mission, she was accompanied by Japanese astronaut Aki Hoshide and Russian cosmonaut Yuri Malechenko.
- She became the second woman to become the Commander of the International Space Station in 2012.
- Also, in September 2012, she became the first person to perform a triathlon in space and completed the task in 48 minutes and 33 seconds.
- She returned back to Earth in November 2012.

13.

a) Do it yourself

b) Solar eclipse occurs when a portion of the Earth is engulfed in a shadow cast by the Moon which fully or partially blocks sunlight. This occurs when the Sun, Moon and Earth are aligned. Such alignment coincides with a new moon indicating the Moon is closest to the ecliptic plane.

Lunar eclipses occur when Earth's shadow blocks the sun's light, which otherwise reflects off the moon. There are three types — total, partial and penumbral — with the most dramatic being a total lunar eclipse, in which Earth's shadow completely covers the moon.

c) Do it yourself

12 What if it Finishes...?

1.

- a. Motorcycles, cars, trucks, buses are the vehicles used on the road.
- b. Petrol, diesel and L.P.G. are the different forms of petroleum.
- c. Petrol is a good source of energy and it is important to conserve because it can be replenished quickly. Petrol is formed naturally but very slowly.
- d. Petrol and diesel come from crude oil, which comes from deep underground. Crude oil is refined to make petrol or diesel.
- e. Petrol is used in transportation, industrial power and lighting.
- f. *Uple*, wood and dry twigs are used as fuels in the villages.
- g. Bus, car, auto-rickshaw, motorcycle, etc. give off smoke.
- h. I go to school by school bus or by my bicycle.
- i. Diesel fuel, fuel oil, gasoline, kerosene, liquefied petroleum gas, etc.

2.

Geological and petroleum engineers drill holes in the Earth to get core samples of the underground layers. If **oil** is found in the core sample, then the chances are good that more **oil** is present in the region surrounding the core. Next, the **oil** must be extracted and transported to a location where it can be used.

3. Circle bicycle, bullock cart, rickshaw and metro do not run on petrol and diesel.

4. (a) fuel (b) CNG (c) save (d) refinery
(e) different (f) petrol pump (g) wet (h) L.P.G.
5. (a) True (b) False (c) True (d) True
(e) True (f) True (g) False

6. If the number of vehicles keep on increasing it would lead to many problems like, increased traffic on the road, air pollution, noise pollution and accidents. We can deal with such problems by using public transport; like bus, trains, metro trains, etc. We should use car pool, i.e. sharing car with colleagues. We prefer walking or cycling if we need to go short distances.

7. We can save petrol by

- (a) using public transport instead of personal vehicles.
- (b) preferring walking or cycling if we need to go short distances.
- (c) switching of the engine of vehicle on red lights.
- (d) using solar energy and bio gas wherever possible.
- (e) car pooling

8.

- a) The lady is carrying dry wood in her basket for cooking food.
- b) In my neighbourhood no one collects dry wood or leaves for lighting chulha because everyone uses LPG for cooking food.
- c) The smoke from cow dung (uple) or wood creates many difficulties like lung diseases, headache, eye burning, nausea and problems related to respiration.
- d) Yes, the lady can use cow dung (uple) instead of wood.
- e) Two-thirds people in our country use uple, wood and dry twigs, etc.
- f) Uple, wood and dry twigs are used for boiling water and lighting.

9. My mother cooks food in my family. L.P.G. is used for cooking food. Other families in our area use L.P.G. for cooking food.

10. a) 1. CNG— Compressed Natural Gas

2. LPG— Liquefied Petroleum Gas

b) Venezuela, Saudi Arabia, Canada, Iran, Iraq, Kuwait, etc. are some countries with large oil reserves.

c) Some places in India with oil refineries are as follows:

Jamnagar Refinery—Jamnagar, Gujarat

Nayara Energy Refinery—Vadinar, Gujarat

Kochi Refinery—Kochi, Kerala, etc.

d) We have limited reserves of fuel because fossil fuels are present in limited quantity in the nature. They can be exhausted by human activities. So fossil fuels are called exhaustible natural resources.

11. a) Do it yourself.

b) SAVE OIL AND SAVE MONEY

SAVE FUEL FOR NEXT GENERATION

SAVE FUEL FOR BETTER ENVIRONMENT

13 A Shelter so High!

1.

- a) Gaurav Jani's motor cycle was known as Loner.
- b) Gaurav Jani packed a small tent, sleeping bag, plastic sheet, woollen clothes, camera, petrol and some food for his journey.
- c) It took three days for them to cover 1400 kilometres from Mumbai to Delhi.
- d) Tashi's house was made of stones which were kept one over the other. The walls were coated with a thick layer of mud and lime. The floor and the roof were made of wooden. The ground floor had no windows. Thick tree trunks were used to make the roof strong.
- e) At high attitudes, that is, as we go up the mountains, the level of oxygen in the air becomes less. As a result the breathing becoming more difficult and one has to rapidly draw more oxygen with force.
- f) The shelters are built as per the needs of the people of Jammu and Kashmir, who live there. The houses which are built using stone and wood provide good warmth during winter season. Houses on water i.e., the boathouse provides all the comforts required by the occupants. The houses which we live in, is built as per our requirements and depends on the weather conditions. We use cement, bricks, stone, wood, etc. to construct a house.

2. The shelters of the people living on the mountains of Jammu and Kashmir are basically in the form of a tent called as Rebo. These can be packed up and carried easily and quickly. These are made up of yak hair that are very strong and warm and protect them from icy cold winds within a short period of time. Since these people keep on wandering on high mountains according to the climatic conditions and to graze their animals, therefore such shelters are very much suited to the needs of the people. Houseboat and donga are the complete houses with every

facility in boats. The houses made of stones, wood and mud protect the people from cold weather.

3. a) There are five thousand people in Changpa tribe.

b) Their goats are their only treasure. If a family has more animals it is considered more rich and important.

c) The Changpa graze their goats at higher and colder places so that the goats have more and softer hair (fur).

4. Similarities in the life of Bakarwal people and Changpas: Both of them live at higher altitudes. Both of them rear goats and sheep. Both of them keep moving from one place to another in different seasons. Differences in living: Changpas people live in tents made of skin of goats and sheep. Bakarwal people houses are made of stones and mud.

5.

a) Roof of Tashi's house was the most important because during summer season he dry many fruits and vegetables. They store them for winters when they do not get fresh fruits and vegetables.

b) During winters, Tashi and his family live on the ground floor. As there were no windows on the ground floor hence, the ground floor was protected from the cold winds. Thus, **in** order to protect them, from the icy cold winds of the winter season, they live on the ground floor.

c) It is difficult to breathe at 'Changthang' because this place is at a height of almost 5000 metres. It is so high that it is difficult to breathe normally.

d) For Changpas their animals are very important part of their life because they are their life and livelihood. These provided them food, water, skin for tent and wool for coats and sweaters and mainly making world famous pashmina shawl.

6. a) Rebo— Rebo is a big cone shaped tent which protects Changpas tribe from extreme cold. It is a tent which is made of sheep and goat skin and woven from yak hair its size is very huge.

b) *Lekha*— It is the place where the Changpas keep their sheep and goats. The walls of *Lekha* are made up of stones.

c) The Changpa tribe has only about five thousand people. It is a tribe living on the mountains. They are always on the move with their goats and sheep. They get all that they need from them— milk, meat, skin for tents and wool for coats and sweaters. They graze their goats at higher and colder places so that the goats have more and softer hair (fur). From these special goats they get wool for making the world famous pashmina wool. The sheep and goats are the life and livelihood of Changpa.

d) jule jule—This is the word for saying ‘jule jule’ when you want to say hello, goodbye, thank you, how are you, nice to meet you and you’re welcome” in Leh.

e) It is a special wool which is collected from the goats which are found on a very high altitudes. This hair is so fine that six of these would be as thick as one hair of yours. The weavers in Kashmir weave this wool by hand to make the world famous Pashmina shawls. A pashmina shawl is as warm as six sweaters. It is very thin yet very warm.

7. a) Loner b) Mumbai c) Ladakh d) Srinagar

e) 5000 f) Lekha g) nylon h) Tashi

8. 1. →b 2. →c 3. →d 4. →e 5. →a

9. a) False b) True c) False d) True

e) False f) False g) True

10. Do it yourself.

14 When The Earth Shook!

1.

- a) An **earthquake** is a sudden, rapid shaking of the ground caused by the breaking and shifting of rock beneath the Earth's surface. An earthquake is measured on Richter's scale.
- b) Some other natural calamities are Hurricane, Typhoons and Cyclones; Earthquakes; Tsunamis; Floods; Avalanches.
- c) The cause of the Gujarat earthquake was on Jan. 26, 2001.
- d) Jasma was eleven years old when there was an earthquake.
- e) People were scared and started running here and there when the earth started shaking.
- f) Engineers and architects showed them some special designs for houses. They said that with this design, houses would not get damaged much in an earthquake.

2. The two massive earthquakes that happened in the past are as follows:

GUJARAT— Magnitude: 7.7. Date: January 26, 2001.

Maharashtra— Magnitude: 6.4. Date: September 30, 1993.

Some of the precautions we can take to protect ourselves Are as follows:

If possible leave the house and go to an open ground. Stay clear of windows, fireplaces, and heavy furniture or appliances.

If you cannot go out of the house, lie down under a strong thing like a table and hold on tightly, so that it does not slip away. Wait until the shaking stops.

If you are outside—get into the open, away from buildings, power lines, chimneys, and anything else that might fall on you.

3. a) shaking b) natural c) 2001 d) Drought

e) night f) Kutch g) Motabapu

4. a) True b) False c) True d) False e) True f) False g) True

5.

a) Famine—A famine is a widespread scarcity of food, caused by several factors including war, inflation, crop failure, population imbalance, or government policies. This phenomenon is usually accompanied or followed by regional malnutrition, starvation, epidemic, and increased mortality.

b) Flood—A flood is an overflow of water that submerges land that is usually dry. Floods can also occur in rivers when the flow rate exceeds the capacity of the river channel, particularly at bends or meanders in the waterway. It often causes damage to homes and businesses if they are in the natural flood plains of rivers.

c) Hurricane—A hurricane is a large rotating storm with high speed winds that forms over warm waters in tropical areas. Hurricanes have sustained winds of at least 74 miles per hour and an area of low air pressure in the center called the eye. The scientific name for a hurricane is a tropical cyclone.

d) Earthquake— An **earthquake** is a sudden, rapid shaking of the ground caused by the breaking and shifting of rock beneath the Earth's surface. An earthquake is measured on Richter's scale.

6. If I am indoors when a earthquake hits: I will drop down and take cover under a desk or table. Be prepared to hold on until the shaking stops. Stay inside until the shaking stops and it is safe to exit. Stay away from bookcases and other furniture that can fall on me. Yes, I will try to save my pet animal because animals are very good at finding safety and hiding until the danger has passed, so we can look for our pet immediately after the shaking stops.

7. In a situation of natural calamity like flood or earthquake, the people from cities included some engineers, architects, scientists, some non-governmental organisations, doctors, etc. helped the victims by providing them food, medicines, clothes and other necessary things. They helped them in putting up the tents. Engineers and architects suggested them to build new houses with special designs which will save their houses from flood or earthquake.

Following difficulties are faced by people during floods or earthquake:

(a) Many people lose their near and dear ones.

(b) Many people get injured.

- (c) There is huge loss of property.
- (d) Crops and houses get destroyed.
- (e) A large number of cattle died.
- (f) There is acute shortage of drinking water.
- (g) Road and rail network is badly damaged.
- (h) Water borne epidemics spread in the affected area.
- (i) People do not die because of earthquake but they injured or die because of house collapse.

8.

- a) In the areas of high rainfall people built steep roof houses. They built steep roof houses so that the ice and rain water come down to the ground soon and it will not make any leakage on the roof.
- b) Houses that are earthquake-resistant and are built adhering to proper building code are either load bearing structures or RCC structures. The brick walls are thick in load bearing structures (between 9 inches to 1 foot). These walls carry the load to the foundation of the building.
- c) Firstly, the plan should include the plan of building your house on a raised platform, above the height of flood level. Next, the walls of the house should be watertight. You can use different waterproofing compounds, liquids, and membrane. You can also have solid flooring rather than wooden flooring.

9.

- a) Thousands of people were died in the earthquake.
- b) Bhuj is located in Gujarat state. The earthquake occurred on the morning of 26th January, 2001.
- c) Yes, people from different areas came with food, medicines and clothes. Scientists, engineers and architects also support the people of Bhuj in reconstructing their homes.

10. Do it yourself.

15 Blow Hot, Blow Cold

1.

- a) This is because the air while travelling from mouth to our hands, the air from mouth gets mixed with the outside air and becomes cool.
- b) The woodcutter goes to forest every day for cutting the wood.
- c) Miya Balishtiye saw that the woodcutter kept blowing on his hands from his mouth.
- d) Woodcutter picked up two stones and made a *chulha*. He lit a fire and put a small *handi* (pot) filled with potatoes to boil.
- e) Hot air rises because when you heat air, it expands. The less dense hot air then floats in the more dense cold air much like wood floats on water because wood is less dense than water. This floating effect in a less dense medium is called a buoyant force or a displacement force.
- f) The disc and the tube of the stethoscope amplify small sounds such as the sound of a patient's lungs, heart and other sounds inside the body, making them sound louder. The amplified sounds travel up the stethoscope's tube to the earpieces that the doctor listens through.
- g) **Flute**—It is a long hollow stick made of bamboo with holes in it. It is played by blowing air in it.

Been—It is made from a dried bottle gourd. It is played by snake charmers by blowing air in it.

2.

- a) The woodcutter put down his axe and brought his hands close to his mouth by blowing air on his hands made his hands warmer in winter.
- b) Miya Balishtiye was hesitant to asked the woodcutter because he was confused when he saw him blowing on his cold hands to make them warm and secondly blowing on the hot potatoes to cool them. Seeing this he felt that woodcutter is either ghost or djinn.

- c) It was a very cold winter. His fingers were becoming numb. Every now and then, the woodcutter would put down his axe and bring his hands close to his mouth. Then he would blow hard on them to warm them.
- d) We can cool down our food when it is too hot by blowing air from our mouth.
- e) The woodcutter was blowing on the fire of the *chulha* because the wood was damp.

3. a) air b) instrument c) musical d) lighter

e) heartbeat f) cold g) Balishtiye

4. a) False b) True c) False d) True e) True f) True

5.

- a) as it was cold, his hands were frozen so he blew on them to warm them up a little.
- b) because by seeing woodcutter blowing hot, blowing cold with the same breath. He thought that woodcutter must be a ghost or a djinn.
- c) You are exactly right. The molecules in hot air are moving faster than the molecules in cold air. Because of this, the molecules in hot air tend to be further apart on average, giving hot air a lower density. That means, for the same volume of air, hot air has fewer molecules and so it weighs less.
- d) People often blow out air onto the glass of spectacles before cleaning it. This is because, warm air when touches the cold glass surface, turns into small droplets of water. This moisture helps in cleaning the glass.
- e) because the burning coal is heat the corn a popcorn seller fans the burning pieces of coal because the oxygen enters the coal and increases the amount of heat. When coal is pulverised(powder) the surface area will be more so it catches fire early than lumps.

6. My hands in winter by blowing on them when they are cold. It feels warm and comfortable.

When someone gets redness in eyes or gets injured then warm air is blown on a part of hanky which is then softly pressed on eyes. This gives relief from the pain or discomfort. The same can be applied on a swollen forehead.

Dal, roti and rice can be cooled by keeping them under fan for some time.

I blow air from your mouth for some other things like cleaning my eye glasses.
To cool hot things like hot cup of tea, bowl of hot food, etc. We blow air to cool.

7. Violin; Flute; Guitar; *Dholak*

8.

- a) It is one of the musical instruments. It is a wind instrument. By blowing air, we can play it.
- b) When we blow the air, the moist formed by the air blown comes in contact with the mirror which makes the mirror look hazy. The air blew from the mouth is wet.
- c) When we blow out, we exhale carbon dioxide gas along with water vapour. The water vapour on colliding with the surface of the glass gets condensed due to which the glass becomes wet. This slightly wet glass can be easily cleaned with a soft cloth.
- d) When we blow to cool hot things— We blow air from our mouth to cool hot milk.
- e) We blow on the cold coffee to make it warmed up by blowing air.

16 - Who will do this work

1.

- a) Different people have different skills, abilities, and resources to fulfill their desire by doing different kinds of jobs.
- b) I would not choose the jobs as sweeper, gatekeeper, construction worker, driver and cook. I wanted to do a job which satisfies my parents, which gives more respect.
- c) They have to face many difficulties while doing this work, such as—
 - (i) They have to face excessively foul smelling of garbage due to which they might suffer from many health related problems.
 - (ii) The other people look them with hatred and consider them as belonging to a low and backward community.
- d) Untouchable, also called *Dalit*, officially scheduled caste, formerly *Harijan*, in traditional Indian society. Untouchability, in its literal sense, is the practice of exclude from a society or a minority group by segregating them from the mainstream by social custom or legal mandate.
- e) People do cleaning jobs despite of being educated due to the following reasons:
Lack of job opportunities in accordance with the skills and expertise
Generally the job opportunities are few, which cannot employ a huge population having skills and expertise in accordance with the job.

2.

- a) I discovered that most of these people have basic education. They are generally less educated that is why they do this work to earn money.
- b) They have been cleaning for the last 15-20 years.
- c) They have to face excessively foul smelling garbage due to which they might suffer from many health related problems. The other people look them with hatred and consider them as belonging to a low and backward community. Even if they study, they do not get good jobs.

d) They earn that much to satisfy their hunger.

3. Milkman; bus driver; sweeper; washerman; Fruit/Vegetable Hawker

4. **Mahatma Gandhi** wanted to eliminate untouchability and for this he put up a few steps such as;

1. He called the 'untouchables' *harijan*, or the children of God.
2. He organised *Satyagraha* at various places to provide them entry into temples, and access to public wells, tanks, roads and schools.
3. He wanted to tell upper caste people that cleaning work is not an undignified work and for this he cleaned toilets himself to dignify the work of the *bhangi* /sweepers.
4. He tried to persuade the upper castes to change their heart against the evil of untouchability.

B.R. Ambedkar argued for creating separate electorates and reservations for untouchables and other religious communities.

1. He tried to promote education to untouchables and uplift them.
2. He intended to promote education and socio-economic improvement, as well as the welfare of "outcastes", at the time referred to as depressed classes.
3. He began with public movements and marches to open up public drinking water resources. He also began a struggle for the right to enter Hindu temples.

This campaign was administered by the Indian government and was introduced by the Prime Minister, **Narendra Modi**. Swachh Bharat Abhiyan set a lot of objectives to achieve so that India could become cleaner and better. In addition, it not only appealed the sweepers and workers but all the citizens of the country. This helped in making the message reach wider. It aims to build sanitary facilities for all households. One of the most common problems in rural areas is that of open defecation. Swachh Bharat Abhiyan aims to eliminate that.

5.

- a) Bhimrao Ramji Ambedkar, also known as Babasaheb Ambedkar, was an Indian jurist, economist, politician and social reformer, who inspired the Dalit Buddhist movement and campaigned against social discrimination towards the untouchables.
- b) Swachh Bharat Abhiyan—It is the most significant cleanliness campaign by the Government of India. Shri Narendra Modi led a cleanliness pledge at India Gate, which about thirty lakh government employees across the country joined. Swachh Bharat Abhiyan was launched to solve the problems of sanitation and waste management in India by ensuring hygiene across the country. The main aim of the project is to create sanitation facilities for all and provide every rural family with a toilet by 2019.
- c) Sabarmati Ashram, formerly known as 'Satyagraha Ashram', situated in Ahmedabad. Later on it was shifted to the banks of Sabarmati river and then it came to be known as 'Sabarmati Ashram'. Gandhi stayed at the Ashram from 1915 to 1933. The Ashram is a witness to many important historical events. The Satyagraha Ashram, later renamed as Harijan Ashram, was started in all earnest with a two-fold purpose—one was to carry on the search for Truth, and the other was to create a non-violent group of workers, who would create a non-violent group of workers, who would organise and help to secure freedom for the country.

6.

- a) Mahatma Gandhi's favourite bhajan was '*Vaishnav Jan To Tene Kahiye*'. The famous Gujarati hymn was penned by the 15th century poet Narsimha Mehta and was one of the favourite bhajans of Mahatma Gandhi, who included it into the roster of prayers routinely sung before his meetings.
- b) If everyone will start doing all kinds of work then no work will be considered low or disrespectful. There will be equality among the people; no one will feel superior or inferior. No one will insult any one. Everyone will become independent. The practice of untouchability will also vanish. The men and women will work together at our own house also. The men will also help the women by doing some household work.

17- Across the Wall

1.

- a) Afsana, Zarin, Khushnoor and Afreen were the four members of Nagpada Basketball Association of Mumbai.
- b) Afsana's mother works as domestic help in some houses. When Afsana told her about her plans of playing basketball, she got angry and said, 'Girls do not play basketball'. Moreover her mother told her to go to school and study hard.
- c) If girls are not allowed to play basketball, to study or to do some work of their choice, it will not be good for girls. The girls will not be able to realise their potential as their talent will be suppressed. It will also hamper their mental and physical growth.
- d) A person named Mustafa Khan (known as Bacchu Khan) lived in Mumbai. Everyone was afraid of him. He used to train children to play. Bacchu Khan's devotion and training that players from this area were able to compete with the teams of other countries. He had trained the children of this area. Some players play at the international level. Some had even won the Arjuna Award.
- e) Afreen had to face many difficulties in fulfilling her dreams as she was not allowed to play by her grandmother as she was girl. Moreover her family condition was not good to encourage her for playing.
- f) I think there should be no difference in the games for boys and girls. Physical activity is equally important for both girls and boys. Playing different kinds of games helps in proper physical and mental development of a child. Both girls and boys need proper physical and mental development. Hence, they should play similar types of games.

2. Playing in a team helps children to develop many of the social skills they will need for life. It teaches them to cooperate, to be less selfish, and to listen to other children. It also gives children a sense of belonging. It helps them make new friends and builds their social circle outside school.

3.

- a) As she was a girl, it was difficult for her to play. She had to fight with her family to convince them. Her mother encouraged her to take part in all activities.
- b) She was not allowed to play because of gender bias. Her grandmother did not allow her to play because their family condition was poor.
- c) She was also not allowed to play because she was poor. Her mother did not allow her to play. She had to help her mother with the cleaning work in two or three houses. She had three sisters.
- d) Zarin's house was just in front of the ground. She used to see her brother playing in the ground. When she was in class VII she wished to play and showed her talent.

4. a) Billiards, cycling, golf, surfing
b) Baseball, basketball, cricket, football

5. a) NBA b) encouraged c) Bacchu Khan
d) Unity e) injured f) Afsana

6. a) True b) False c) False d) True e) True

7. One of the most iconic women athletes of track and field, **PT Usha** was born on June 27, 1964, to a poor family living in a village named Payyoli near Calicut, Kerala. Her full name is **Pilavullakandi Thekkeparambil Usha**. She did not have a privileged childhood and faced many health issues and much poverty. Her incredible drive for athletics and sports soon earned the "queen of Indian track and field" the nickname of 'Payyoli Express'.

Sania Mirza is a professional Indian tennis player born on the 15th of November, 1986. She began her tennis career in 2003 and is well known for her forehand and ground strokes. She is the first Indian to have broken into the top 30 WTA rankings and top 10 in doubles. She has been awarded the Padma Bhushan, Padma Shri, Arjuna Award and Rajiv Gandhi Khel Ratna Award by the Government of India.

Mangte Chungneijang Mary Kom was born on 1 March, 1983. She is an Indian boxer. Kom is a member of the Kom tribe of north-east India. She has won the World Boxing championship five times in a row. She is the only woman to get a medal and trophy in all six world championships. She is also the only Indian woman to qualify for boxing in the 2012 London Olympics. She was awarded the Padma Vibhushan, India's second highest civilian award, in 2020.

Saina Nehwal was born on 17 March, 1990. She is an Indian professional badminton singles player. She is the only Indian to have won at least one medal in every BWF major individual event, namely the Olympics, the BWF World Championships, and the BWF World Junior Championships. Previously, the nation's top two sporting honours, namely the Rajiv Gandhi Khel Ratna and the Arjuna Award, were also conferred on her by the Government of India.

8.

- a) Afreen was not allowed to play because their family condition was not good they could not provide the essentials things to her for playing.
- b) Her grandmother scolded Afreen and her sisters all the time because she did not like her to play due to gender bias.
- c) Daddy's coach was Bacchu Khan. Her daddy used to play when he was young.
- d) The coach provided Afreen's daddy with a pair of proper shoes and clothes to become a good player.

9.

- a) Hockey—eleven players each side
- b) Badminton—either two or four players
- c) Football— eleven players each side
- d) Cricket—eleven players each side
- e) Basketball—five players each side
- f) Volleyball—six players each side
- g) Kabaddi—seven members each side
- h) Kho-kho—twelve players each side

- 10.** Team spirit is the feeling of pride and loyalty that exists among the members of a team and that makes them want their team to do well or to be the best. There is a lot of difference in playing for ourselves and for our team. When we are playing for own self, we just think for own victory, we try to prove ourselves excellent and better than others. We play together and work hard to see the victory of the whole team and get praised.
- 11.** Do it yourself.

18 -No Place for Us?

1.

- a) Jatrya was born in Khedi village.
- b) The people of Khedi village earned money by doing these types of work:
 - (i) Fish catching and cleaning
 - (ii) Picking up the luggage of people at the bus or railway station
 - (iii) Kabariwala (picking up rags from the houses or big dustbins)
 - (iv) Working as a servant in house or shops.
- c) Jhimli was Jatryabhai's daughter.
- d) Sidya helped his parents by fish cleaning, picking up the luggage of people at the vegetable market, picking up rags from the houses or big dustbins.
- e) In Khedi village, children learned to dance, play flute and dhol, make pots of clay and bamboo, recognise birds and imitate their sounds, to do farming, to collect things from forest and to catch fish from river. We learn how to live and do different kinds of works from our elders. Jatrya would catch fishes from the sea in Mumbai, may dance or play flute, *dhol* in any big or small show.
- f) Due to construction of big dam, people of Khedi village had to shift to the new village.

2. The construction of dams, factories, etc. in the villages and this force the villagers to empty those places. The villagers are not provided proper houses in the cities, they are just given small huts with no proper provision for toilet and bathing. As a consequence, these poor people are forced to use the roads and drains for this purpose. This causes dirty and foul smelling areas.

3. We can help our parents by saving money on bills like:

- Turn off the lights, television, stereo, and curling iron when not in use.
- Make fewer phone calls and keep them short.
- Take shorter showers to cut down on the hot water used.
- Dry clothes on clothes lines rather than in a dryer when possible.

- Drink water, milk and juices, which are healthier and can be less expensive than soda.
- Turn off water while brushing your teeth, turn on (small stream) for rinsing.
- Buy generic brands of personal care products.
- Don't waste school supplies – use both sides of paper.
- Don't be wasteful with food.
- Ride your bike or walk to places whenever possible.
- Accept your parents decisions in a positive manner.

4.

- a) Many people in Jatrya's village did not agree to move away from their land and forest because they used to live in a small village that was very beautiful, peaceful and simple. There were farms, freely available water, animals and small schools. The environment was also not much polluted.
- b) Sidya had to work in the nearby fish factory to earn money for his family.

5. a) Khedi b) dam c) Sinduri d) Mumbai
e) Sidya f) money g) smoke h) police

6. a) False b) True c) False d) True
e) True f) False g) False h) True

7. a) Jatrya was born in Khedi village. Village was very beautiful, peaceful and simple. There were farms, freely available water, animals and small schools. The environment was also not much polluted.

b) There were so many soothing sounds – the gurgle of the flowing river, the murmur of trees and the chirping of birds. People did farming. They would go to the nearby forest, chatting and singing together, to collect wild fruits, roots and dried wood.

c) Yes, I feel silence daily at night when I go for sleeping. At this time there is no sound at all. The people, animals and birds are all sleeping. There is no vehicle on the roads as well. Thus, there is complete silence.

8. a) Bhakra Nangal Dam—Sutlej river
b) Tehri Dam— Bhagirathi River
c) Hirakud Dam—Mahanadi river
d) Nagarjuna Sagar Dam—Krishna river
e) Sardar Sarovar Dam—Narmada river

9. a) Do it yourself.

b) Village Life:

- Village life refers to the living condition of the rural people. City life refers to the life of urban people.
- Villages have a peaceful and natural environment as compare to the city.
- Villages on the other hand are lacking in the basic infrastructure like road, electricity, etc and getting jobs in village is tough task. There are no good doctors in the village. Therefore, many people die for want of proper treatment.

City Life:

- City life refers to the life of urban people. City-life is full of glamour and is very fascinating.
- In city there is a crowd atmosphere as compare to villages.
- Cities have abundance of employment, health care facilities, transport with roads and electricity along with buildings and apartments, etc.

c) First of all, Education teaches the ability to read and write. Reading and writing is the first step in Education. Most information is done by writing. Hence, the lack of writing skill means missing out on a lot of information. Consequently, Education makes people literate.

Above all, Education is extremely important for employment. It certainly is a great opportunity to make a decent living. This is due to the skills of a high paying job that Education provides. Uneducated people are probably at a huge disadvantage when it comes to jobs. It seems like many poor people improve their lives with the help of Education.

d) Benefits

- Dams are built to control flood and store flood water.
- Sometimes dams are used for diverting part or all of the water from river into a channel.
- Dams are used mainly for drinking and agricultural purposes.
- Dams are built for generating electricity.
- Dams are used for recreational purposes.

Problems

- Dams can displace a significant number of people.
- Reservoirs behind a dam can lead to higher greenhouse gas emissions.
- This technology disrupts local ecosystems.
- Some river sediment is beneficial.
- Dams create a flooding risk if they experience a failure.

19 - A seed tells a Farmer's story

1.

- a) In earlier times good seeds were stored in dried gourd (*lauki*) which was coated with mud.
- b) *Undhiya* (a kind of stew). All the vegetables were put into a clay pot, along with fresh spices. The pot was sealed and kept between hot coals. The vegetables cooked slowly in this special cooker, on the fields. the pot was placed upside down! That is why the dish was called *undhiya* or “upside down” in Gujarati. *Undhiya* would be eaten with *bajra rotis*, freshly cooked on the *chulha*. Oh, what an earthy delicious flavour! Along with that, home-made butter, curd and buttermilk was served.
- c) According to the season farmers grow many different kinds of crops of grains and vegetables.
- d) In earlier times seeds were protected by storing them in strong wooden box and *Neem* leaves were put to protect seeds from insects.
- e) The farmers preferred to grow cotton and wheat in the field because people found that only these crops got better prices in the market.
- f) Earthworms are called soil's best friend because the earthworms soften the soil as they keep digging underneath to make tunnels. This way air and water can easily get into the soil. The earthworms also eat the dead leaves and plants, and their droppings fertilise the soil.

2. The life of people was changed after new methods of farming were adopted because new farming techniques and inventions that led to a massive increase in food production. These inventions made farming easier and more productive, and fewer workers were needed on the farms.

- 3.** a) Damjibhai b) neem c) Undhiya d) loans
e) insecticide f) farming g) bajra

4. a) False b) True c) True d) False e) True f) True

5.

- a) Dhamjibhai put in neem leaves inside the wooden box for protecting the seeds from insects
- b) Most farmers began to grow only cotton and wheat because they got better price.
- c) In the modern times farmer used pumps to lift water from deep under the ground because the canal water was not enough for the new crops.
- d) Hasmukh became often tense and angry because there was a lot of loss due to farming and it had become difficult for him to repay the bank loans. Moreover, his educated son Paresh did not want to do farming. He now started work as a truck driver.
- e) Farmers in Andhra Pradesh were sent to jail for not being able to pay back their loans. They had suffered a big loss in farming.
- f) Bhaskarbhai said they were croton plants which gave him a signal when the soil became dry. He explained that the roots of the croton do not go deep in the ground. So when the top layer of the soil becomes dry, the croton leaves bend and become limp. This signal tells Bhaskarbhai which part of his farm needs to be watered.

6.

- a) Ploughing—A plough or plow is a farm tool for loosening or turning the soil before sowing seed or planting. Ploughs were traditionally drawn by oxen and horses, but in modern farms are drawn by tractors. A plough may have a wooden, iron or steel frame, with a blade attached to cut and loosen the soil.
- b) Threshing is the process of loosening the edible part of grain from the chaff to which it is attached. It is the step in grain preparation after reaping. It does not remove the bran from the grain. It may be done by beating the grain using a flail on a threshing floor.
- c) Sowing is the process of planting. An area or object that has had seeds planted in it will be described as a sowed area.
- d) Harvesting is the process of gathering a ripe crop from the fields. Reaping is the cutting of grain or pulse for harvest, typically using a scythe, sickle, or

reaper. On smaller farms with minimal mechanization, harvesting is the most labour-intensive activity of the growing season.

- e) Irrigation is the process of applying controlled amounts of water to plants at needed intervals. Irrigation helps to grow agricultural crops, maintain landscapes, and produce a new growth of vegetation on disturbed soils in dry areas and during periods of less than average rainfall.
- f) Farming is the act or process of working the ground, planting seeds, and growing edible plants. You can also describe raising animals for milk or meat as farming. Farming is a great way to describe the lifestyle and work of people whose jobs are in the agriculture industry.

7. Name of the Festival	State
1. Makar Sankranti	Karnataka
2. Baisakhi	Punjab and Haryana
3. Gudi Padwa	Maharashtra

8.

- a) A lad is separating and taking out the cobs from the *bajra* crops. The *bajra* cob is kept in a mortar (*okhli*, used for crushing). It will be crushed with a pestle (*moosli*) to separate grains from the cobs. *Bajra* seeds are kept in a plate. A lady is grinding *bajra* seeds to make flour. She is using *chakki* (grinding stone) for that. The *chhalni* is used to sieve the flour after it is ground in the *chakki*. *Bajra* flour is kept in a plate. Dough has been made from *bajra* flour. *Chapatti* is being made from dough. *Chapatti* is being cooked on *tawa*. *Chapattis* kept in a plate.
- b) I think new method of agriculture tend to overexploit the soil and other resources. This leads to the loss of fertility of soil which may result in land becoming barren. A machine can do the work of many people which leaves many people jobless. Too much irrigation depletes the ground water and thus leaves little water for future. Apparently it looks like progress, but it is not the real progress.
- c) Earthworms are known as farmers' best friends because of the multitude of services they provide that improve soil health and consequently plant

health. The soil, in addition to being the habitat for crops, also nurtures other organisms, some of which can cause devastating diseases to plants.

9.

- a) Do it yourself. Take help from your mother how she prepares your favourite dish.
- b) Someday back I went to my friend's farm in Muzaffarnagar (U.P.) along with my few friends. It was one of the best places I had ever been to. As we entered the farm, the view was very beautiful. The entire farm was fenced with yellow flowers and tall trees. There was a wide variety of plants such as, those of carrots, spinach, raddish, sugarcane, etc. We could not resist, when we saw fresh carrots rooted in the soil. We uprooted few of them. We were told by the farmers working there, that all these plants have been grown without using any artificial fertilizers. They had been using earthworms for this purpose. These earthworms dig the soil and make it soft and crumbly which is good for the plants. The dead plants, leaves, stems, fruits are buried in a pit and earthworms are allowed to enter and these automatically convert the waste into manure. This natural manure is very rich in minerals and good for the soil. We enjoyed the visit and also get to learn many things.

20. Whose Forests?

1.

- a) Suryamani takes the children to forest every Sunday because she shows them how to recognize the trees, the plants, and animals. She says, “To learn to read the forest is as important as reading books”.
- b) Adivasis live a very simple life. They wear the most ordinary clothes, sometimes made up of leaves and flowers, they survive on fruits and vegetables, prepare medicines from various forest products. They take woods from the forests and prepare their food, prepare ornaments and decorative articles from leaves and flowers, baskets of bamboo, plates from leaves, etc. and sell these in the market to earn their living.
- c) They got many fruits, vegetables, medicines from these forests. Her family used to collect leaves and herbs from the forest and sell these in the bazaar. Her mother would weave baskets from bamboo or make leaf plates out of the fallen leaves. Besides, all this many people living in the forest obtain their livelihood form it.
- d) Forests are referred as collective bank as we can take things from it as much as according to our needs like food, wood, paper, medicines, etc. The forest is like our ‘collective bank’ — not yours or mine alone. We take from it only as much as we need. We don’t use up all our wealth.”
- e) The forests are an essential part of our life. They keep our environment neat and clean by absorbing most of the harmful gases and releasing oxygen. We also get many fruits, vegetables, medicines from these forests. Besides, many people living in the forest obtain their livelihood form it. Therefore, if the forest would disappear, we will be destroyed.
- f) Suryamani’s chacha(Maniya Chacha) helped them when her father moved to the town in search of work. Chacha would used to send some grain from his small shop to Suryamani’s house. Chacha tried hard and got admission for Suryamani in the school in Bishanpur. He also persuaded Suryamani to go to school for the sake of saving forests.

2.

- a) Jharkhand Jungle Bachao Andolan (Movement to Save the Forests of Jharkhand). The Jungle Andolan of Singhbhum district for land, forest and water was the struggle for right over and part of the socio-economic aspects of Jharkhand Movement. It was the longer period in the history of Jharkhand Movement after independence of India.
- b) Suryamani had opened the centre, Torang which means jungle in the Kuduk language. She wanted the people of her community followed their own culture and language. On festivals, people should sing their own songs. They should not forget their music. They should enjoy wearing their traditional clothes. Children should learn about herbs, medicines and the art of making things from bamboo. Many special books about the Kuduk community and other adivasis have been collected. Flutes and different types of drums are also kept there. For all these activities this centre was opened.
- c) Jhum cultivation also called slash and burn agriculture is a form of crop-growing farming activity. Crops are grown in this cultivation by clearing the trees and other vegetation and then burning the fields. Land burning allows the addition of potash to the soil, which in effect increases soil fertility and nutrient content.
- d) It is a special community of people who live in forest. The language they speak is also called Kuduk.

3.

- a) Maniya chacha helped Suryamani by sending some grain from his small shop to Suryamani's house. He tried hard and got admission for Suryamani in the school in Bishanpur.
- b) Vasavi *didi*, was a journalist. Suryamani soon joined her to work for the *Jharkhand Jungle Bachao Andolan* (Movement to Save the Forests of Jharkhand).

- c) Bijoy was her childhood friend. He helped her to fight for the rights of the village people.
- a) d) Mirchi was another friend of Suryamani. She stayed with her all day and night. Suryamani shared her all thoughts and dreams with her.

4.

- a) Torang means jungle in Kuduk language.
- b) Suryamani was 21 years old when she opened the Centre.
- c) i. Bamboo is used for medicinal purposes.
ii. Bamboo is used for making furniture
iii. Bamboo is used for making baskets.
- d) Suryamani wanted that on festivals people should sing their own songs because she wanted that people did not forget their traditional music and language.

5.

- | | | | |
|-------------|--------------------------|---------------|---------|
| a) adivasis | b) jungle bachao andolan | c) Jharkhand | d) rice |
| e) Jhoom | f) forest | g) collective | |

6.

- | | | |
|----------|----------|----------|
| a) False | b) True | c) False |
| d) False | e) False | f) True |

7.

Jhoom farming is very interesting. After cutting one crop, the land is left as it is for some years. Nothing is grown there. The weeds are not removed but these are burnt and the ashes are mixed with the soil to make it ready for sowing. The land is not ploughed, but shallow trenches are made in the soil, This also helps in making the soil fertile. The seeds are sown. Mixed seeds of various crops are sown-paddy, maize, chillies, vegetables, sesame, etc. If some family is not able to do farming ontime, others help them and are given food.

8.

The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006, is a key piece of forest legislation passed in India on 18 December, 2006. It has also been called the Forest Rights Act, the Tribal Rights Act, the Tribal Bill, and the Tribal Land Act. The law concerns the rights of forest-dwelling communities to land and other resources, denied to them over decades as a result of the continuance of colonial forest laws in India. A little over one year after it was passed, the Act was notified into force on 31 December, 2007. On 1 January, 2008, this was followed by the notification of the Rules framed by the Ministry of Tribal Affairs to supplement the procedural aspects of the Act.

9.

a) i. basket

ii. Medicinal use

b) i. Chipko Movement

ii. Jungle Bachao Andolan

10. Attempt yourself. Take help from your teachers and parents.

21. Like Father, Like Daughter

1.

- a) Do it yourself.
- b) Ashima sneezed just like her father.
- c) Yes, we have distant relatives. We met them on festivals or at any function in our family.
- d) Do it yourself.
- e) Both Saroja and Suvasini look like mirror images because they are twin sisters. They look so similar that their mama gets confused. Suvasini can speak both Marathi and Tamil, while Saroja can speak only Tamil. Suvasini is a good singer, while Saroja is a Karate exponent.
- f) Satti was only a few months old when one of her legs was affected by polio. But she never let this come in the way of her work and her life. Walking long distances and climbing many stairs has been a part of her work. After marriage she was worried about her children may also get polio.
- g) Yes, there are two sisters in my school. They look similar in almost every traits. One of them have long nose.
- a) Scientists have shown that identical twins have very similar marks when they are born. But, as they age, the marks in their DNA become more and more different. So even though identical twins have the same DNA, they are using it in different ways.

2.

- | | | | |
|-----------|----------|---------------|--------|
| a) Ashima | b) Twins | c) hereditary | d) pea |
| e) sister | f) virus | g) <i>bua</i> | |

3.

- | | | | |
|----------|----------|---------|---------|
| a) False | b) True | c) True | d) True |
| e) False | f) False | g) True | |

4.

- a) Gregor Mendel was born in a poor farmer's family in Austria in 1822.
- b) He did not have money to study at the University so he thought of becoming a 'monk' in a monastery.
- c) Gregor Mendel's father was farmer.
- d) The very thought of examinations made him nervous. He was sent to study further. He became a science teacher and he had to take an exam. Oh no! he got so nervous that he kept running away from the exam, and kept failing.

5.

- a) Distant relative is someone whose relationship doesn't have a name. For example uncle, aunt, cousin, brother/sister in law these relationships have a name. Similarly your aunt's brother(where aunt is wife of your father's brother) is distant relative.
- b) Adoption is a process whereby a person assumes the parenting of another, usually a child, from that person's biological or legal parent or parents. Legal adoptions permanently transfer all rights and responsibilities, along with filiation, from the biological parent or parents.
- c) Twins are two offspring produced by the same pregnancy. Twins can be either monozygotic, meaning that they develop from one zygote, which splits and forms two embryos, or dizygotic, meaning that each twin develops from a separate egg and each egg is fertilized by its own sperm cell.
- d) A monastery is a building or complex of buildings comprising the domestic quarters and workplaces of monastics, monks or nuns, whether living in communities or alone.(hermits)
- e) A trait is a specific characteristic of an organism. It can be determined by genes or the environment, or more commonly by interactions between them. The genetic contribution to a trait is called the genotype. The outward expression of the genotype is called the phenotype.

6.

i.→ d ii.→c iii.→a iv.→b

7.

a) Do it yourself with the help of your parents.

b) Draw your family tree yourself.

22. On the Move Again

1.

- a) All the relatives have come to Dhanu's house to celebrate Dussehra.
- b) Dhanu's father is the eldest member in the family.
- c) Dhanu's mother and aunt are busy making *puranpoli* (sweet *rotis* made from jaggery and gram). Alongwith a spicy *kadi* dish is also prepared by them.
- d) *Mukadam* is a person who lends money. *Mukadam* is an agent for sugarcane factories.
- e) Dhanu's family and others have to shift away from the village for the work on the lands of big farmers till Dussehra. To manage the remaining six months, when there is no rain, and no work in the fields. For this everyone borrows money from the *mukadam*. To pay back this money, they have to work for the *mukadam*.
- f) Dhanu could not use pencils, eraser and notebook for six months because he won't be going to school.

2.

Indian agriculture is largely an unorganised sector. No systematic institutional and organisational planning is involved in cultivation, irrigation, harvesting, etc. Institutional finances are not adequately available and minimum purchase price fixed by the government do not reach the poorest farmer. Exploitation by the middlemen is the reason put forth for not getting the best price for the produce of the agriculturists. Government programs do not reach small farmers. The root cause of farmers taking their lives is the increase in their indebtedness and debt burden. We can see even fertile land best suited for agricultural purpose being sold to real estate people, who prepare plots and give attractive advertisements to sell at exorbitant price. There is need to implement strict measures to prevent land grabbing.

3.

- a) *Puranpoli* is a sweet flatbread stuffed with a sweet lentil filling made from skinned spilt bengal gram (*chana dal*) and jaggery. Puran poli is a popular Maharashtrian recipe made during Ganesh Chaturthi or Diwali or any other festive occasion.
- b) A caravan is either a covered vehicle, like a wagon or a van, or a procession of vehicles. The word caravan comes from the Persian *karwan* meaning "group of desert travelers." A caravan can be a large group of people traveling together in one long line.
- c) In finance, a loan is the lending of money by one or more individuals, organisations, or other entities to other individuals, organizations, etc. The recipient (i.e., the borrower) incurs a debt and is usually liable to pay interest on that debt until it is repaid as well as to repay the principal amount borrowed.
- d) Farming is the act or process of working the ground, planting seeds, and growing edible plants. You can also describe raising animals for milk or meat as farming. Farming is a great way to describe the lifestyle and work of people whose jobs are in the agriculture industry.
- e) Human migration is the movement of people from one place to another with the intentions of settling, permanently or temporarily, at a new location. The movement is often over long distances and from one country to another, but internal migration is also possible; indeed, this is the dominant form globally.

4.

- | | | |
|-------------|----------------|--------------|
| a) dussehra | b) eldest | c) puranpoli |
| d) Mami | e) grandmother | |

5.

- | | | |
|----------|---------|----------|
| a) True | b) True | c) False |
| d) False | e) True | |

6. Do it yourself.