PREFACE

This book (General Knowledge-3) has been prepared in the light of students' learning outcomes of Curriculum 2006 prioritized for the textbook. The manuscript of this book was thoroughly reviewed by a committee of well known experts whose valuable recommendations have been duly incorporated in the book. The Review Committee recommended printing and publication of the book after ensuring its full alignment with curriculum 2006.

The competent authority on recommendation of the Review Committee granted approval for its publication.

The experimental edition of the book for the year 2016-17 is in your hands. As there is always a room for improvement, we will highly appreciate valuable suggestions for improvement of the text of this book.

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Life on the Earth

Life on the earth is possible due to the sun, air and water.

**Habitat**

The place where the living things dwell is called their habitat. The sun is the biggest source of light and heat on the Earth. Plants need light and heat to grow. There are many kinds of plants. We get fruit, vegetables and grains from them. Some animals survive by eating these plants whereas some animals prey upon the other animals and live on their flesh. For example, a deer (stag) eats plants and the lion eats the flesh of a deer. In addition to the vegetables and grains, the man also eats flesh of animals.

Life is not possible on the earth without sun. If there were no sun, there would be no light and heat. Plants will not grow and animals will not be able to get food.

Without plants, human beings and animals cannot survive. Plants grow only in sunlight.
Wildlife: Animals Living in the Forest

Wild animals live in jungles, deserts or in the water, just as human beings live in villages and cities. The areas of the earth where trees and plants grow in large number are called forests.

Wildlife includes deer, zebra, rabbits, lions, tigers, leopards, wolves, etc. Deer, zebra and rabbits eat grass, weeds and leaves of the plants. Lions, tigers and wolves eat flesh of the animals.
Living Things Found in Desert

Part of the Earth where there is sandy soil, shortage of water and vegetation is called desert. It receives little rainfall. Only such animals and plants which can live on the small amount of water can survive here. Days are extremely hot and nights are very cold in the desert.

Rats, snakes, scorpions and camels are desert animals. The camel can live without water for several days. Moreover, it can easily walk on the sand due to its flat feet.

Cactus plant grows in desert. This plant has thick stem which stores water. Its bark is also thick so that stored water remains safe.
Living Things Found in Water

Water is a habitat of many animals and plants. For example, frog, fish, dolphin and fungus live in water. Hippopotamus also lives in water. The animals that live in water breathe either through lungs or through gills. Fish can swim in water due to fins.

Shark lives in the sea. It eats small fishes.

Many kinds of plants also grow in water. For example, seaweeds, fungi, algae, etc.
**Animals of the Snowy Regions**

**Polar Bear**
Some parts of the Earth remain covered with snow throughout the year. The plants and animals found in these areas can survive in extreme cold weather. Thick skin and thick fur on the bodies of the polar bear and wolf protect them from extreme cold. The special structure of their feet helps them to move on the ice.
Penguins are birds that live in snowy regions. To keep themselves warm in the extreme cold weather, they live together in groups.
EXERCISES

1. Give short answers

(i) Write down the names of some animals which eat plants.
(ii) What is the food of a lion?
(iii) What do we get from the Sun?
(iv) Write down the names of any three animals living in a jungle.
(v) Write down the names of any three desert animals.
(vi) Where do the fishes live?
(vii) Where does the polar bear live?

2. Tick (√) the correct and cross (×) the incorrect.

(i) Men and animals cannot live without water. √
(ii) The leopards eat meat. ×
(iii) A lot of water is available in a desert ×
(iv) The camel is an animal of cold region. ×
(v) A polar bear does not have hair on its body. ×
3. **Match Column 'A' with Column 'B'**

<table>
<thead>
<tr>
<th>Column 'A'</th>
<th>Column 'B'</th>
</tr>
</thead>
<tbody>
<tr>
<td>The animals of a snowy region</td>
<td>in water</td>
</tr>
<tr>
<td>Scorpions and snakes mostly live</td>
<td>polar bear</td>
</tr>
<tr>
<td>Fishes live</td>
<td>eat flesh</td>
</tr>
<tr>
<td>The lion and the leopard</td>
<td>in the desert</td>
</tr>
</tbody>
</table>

**Activity**

Sketches of some animals are given below. After identification, colour the land animals brown and water animals blue.
Developmental Phases in the Living Things

The offspring of all the living things resemble their parents to some extent. Animals and plants resemble their parents. Humans’ offspring resemble humans and the mango plant is similar to a mango tree.

- The horse and foal
- The elephant and calf
- The hen and chicks
- The cat and kittens

Offsprings of some animals when hatched from eggs do not resemble their parents in the beginning but after some time their shapes resemble their parents.
Life cycle of a butterfly

1. Egg
2. Larva
3. Pupa
4. Butterfly (Adult)

Life cycle of a frog

1. Eggs
2. Tadpole (Larva)
3. Changing Shape of Tadpole
4. Adult Frog
The hen lays eggs. She sits on eggs for 21 days. It is called incubation. After 21 days chickens hatch from eggs.

**Life cycle of a hen**

1. Eggs
2. Chick coming out of the egg
3. Chick
4. Hen

**Growth of plants**

A seed gradually grows into a plant.

Some plants like rose grow from their cuttings instead of seeds.
EXERCISES

1. Give short answers
   (i) What are different phases in the life cycle of a butterfly?
   (ii) What is meant by incubation?
   (iii) Which plants can be grown from their cuttings?

2. Tick (✓) the correct answer.
   (i) It is not part of life cycle of a butterfly:
       (a) pupa       (b) leaf       (c) larva
   (ii) The offspring of a hen is called:
       (a) chicken   (b) calf       (c) tadpole
   (iii) The hen incubates her eggs for:
       (a) 18 days   (b) 22 days    (c) 21 days

3. Life cycle of a frog is given in the figure below. Write down the names of its different phases in the boxes.

   ![Frog life cycle diagram]

   1  2  3  4

   [Boxes to be filled with names]
Time, Directions and Shadows

Everyday, the sun rises from the same side - the East, and sets in the opposite side - the West. Whenever an object comes in front of sunlight, its shadow is formed. For example, in the picture, Amjad is standing in front of the sun and his shadow is cast on the opposite side. When the sun changes its position, the length of the shadow also changes.

When the sun is at lower height in the morning and evening, the shadow becomes longer.

At noon, when the sun is at the top, smaller shadow is formed.
**Directions**

In the morning, if you face the rising sun, it means you are looking towards the East. Your back will be towards the West. Your right hand side is the South while your left hand side is the North.

**Remember:** The sun always rises in the East and sets in the West.

**Activity**

In the picture, Amjad is facing the East. Name the directions in which the Masjid, house and tree are situated?
EXERCISES

1. Write short answers
   (i) In which direction the sun rises daily?
   (ii) In which direction the sun sets?
   (iii) Name the different directions.
   (iv) At what times the shadows of the objects are longer?

2. In the given picture, match the shadows with time.

<table>
<thead>
<tr>
<th>Time</th>
<th>Shadows</th>
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</thead>
<tbody>
<tr>
<td>Noon</td>
<td><img src="image1.png" alt="Noon Shadow" /></td>
</tr>
<tr>
<td>Evening</td>
<td><img src="image2.png" alt="Evening Shadow" /></td>
</tr>
<tr>
<td>Morning</td>
<td><img src="image3.png" alt="Morning Shadow" /></td>
</tr>
</tbody>
</table>

Activity

In the picture, Amjad is facing the West.
Name the directions on his right, left and back.
4 Natural Resources

We have many things around us. There are also job opportunities for us. We use them to meet the needs of our life. All these things are called resources. The resources are of three types:

1. Natural Resources
2. Human Resources
3. Capital Resources

**Natural Resources**

All those resources which are provided by the nature are called natural resources. For example, earth, mountains, rivers, plants, water, air, animals, etc.
Human Resources

The skills and abilities of a person are called human resources. For example, masons have skills to construct buildings. A painter makes these buildings beautiful by painting them. Similarly, the farmer cultivates the crops. Thus the farmer, the builder, painter, wood artisan, potter, cobbler and blacksmith etc. are also included in human resources.

Capital Resources

A man uses his wealth to make such resources which become a source of income. These resources are called capital resources. For example, bus, car, tractor, computer, factories, machines, etc. are capital resources.
EXERCISES

1. Give short answers
   (i) What are resources?
   (ii) What are the different types of resources? Name them.
   (iii) Who created the natural resources? What are their names?
   (iv) What are human resources? Explain by giving examples.
   (v) What are included in capital resources?

2. Tick (✓) the correct answer.
   (i) In what kind of resources a forest is included?
       a. natural resources
       b. human resources
       c. capital resources
   (ii) In what kind of resources a computer is included?
       a. natural resources
       b. human resources
       c. capital resources
   (iii) In what kind of resources a mason is included?
       a. natural resources
       b. human resources
       c. capital resources
3. Put the resources written below in the right category (column).

<table>
<thead>
<tr>
<th>Truck, bus, farmer</th>
<th>forest, car, painter</th>
<th>air, sea, plants</th>
</tr>
</thead>
<tbody>
<tr>
<td>horse</td>
<td>labourer</td>
<td>computer</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Natural resources</th>
<th>Human resources</th>
<th>Capital resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>horse</td>
<td>labourer</td>
<td>bus</td>
</tr>
</tbody>
</table>

4. Match Column 'A' with 'B'.

<table>
<thead>
<tr>
<th>Column (A)</th>
<th>Column (B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>They are part of natural resources</td>
<td>from the Earth</td>
</tr>
<tr>
<td>We get iron</td>
<td>gas &amp; oil</td>
</tr>
<tr>
<td>Cars are manufactured</td>
<td>shoes</td>
</tr>
<tr>
<td>Made of leather</td>
<td>wheat</td>
</tr>
<tr>
<td>Biscuits are made from</td>
<td>in factories</td>
</tr>
</tbody>
</table>
Conservation of Natural Resources

Our surrounding is called our environment. Environment is very important for us. It includes seas, rivers, lakes, deserts, mountains, forests and green fields. All these things are created by Allah Almighty and are called natural resources. Man, animals and plants depend upon each other and also upon the environment. Human development has caused many problems in natural environment. Forests have been cut. Green areas have been occupied by new cities. Such activities have reduced the number of animals and trees. Overpopulation in cities, traffic noise and smoke are causing different problems.
Effects of Decreasing Natural Resources

Air, water, forests and minerals are natural resources. They affect the life of living organisms. If the environment is polluted, animals and plants cannot survive. Shortage of water makes the land infertile. Infertile land produces less crops leading to shortage of food and famine. Shortage of minerals like gas, oil and coal will create shortage of energy. Deforestation affects wild life and changes climate.

How to Save the Natural Resources?

We can save our natural resources by taking the following measures:

1. Factories should be established far from urban areas.
2. Rivers should not be polluted with waste water of the factories.
3. Instead of petrol or diesel alternate sources should be used as fuel.
4. Solar energy or water resources should be used for generating electricity.
5. Natural resources should be used wisely and distances should be covered on foot to save fuel.
6. Canals and drains should be cemented with bricks to reduce water seepage.
7. Plants should be watered using fountains.
8. Unnecessary cutting of trees should be avoided.
9. Make dams for water storage.
10. Use of heater should be avoided in winter.
11. Unnecessary lights should be switched off.
12. Water in houses should be used with care.

**Endangered Animals**

Animals live happily in their own environment. Forest animals live happily in the forests. Due to deforestation, forest animals like panda, lion, black deer, brown deer, bear, markhor etc. are in danger to disappear for ever. Hunting of animals like partridge, chakor and markhor is prohibited in Pakistan.

**Extinct Animals**

Animals like dinosaurs lived on land in the past. But nowadays, they are not seen anywhere on the Earth. Such animals are called extinct animals.
EXERCISES

1. Answer the following questions.
   (i) What is the cause of deforestation?
   (ii) What is the main reason of river pollution?
   (iii) Are crops and animals affected by pollution?
   (iv) What are different ways to save our natural resources?
   (v) What will be the effects of shortage of natural resources?

2. Mark (✓) the correct answer.
   (i) Seas, mountains and forests are the examples of:
       (a) natural resources    (b) human resources
       (c) air resources
   (ii) Pollution affects:
       (a) living organisms    (b) mountains
       (c) deserts
   (iii) Bird whose hunting is not allowed in the forests of Pakistan:
       (a) pigeon            (b) partridge
       (c) crow

3. Fill in the blanks using suitable words.
   dinosaurs, rivers, infertile, coal, Sun
   (i) Shortage of water makes the land ____________.
   (ii) ____________ is an example of minerals found in the Earth.
   (iii) The ____________ is the biggest source of energy.
   (iv) ____________ should not be polluted by the waste water of the factories.
   (v) ____________ have become extinct from the world.
4. Match column A with B.

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural environment consists of</td>
<td>breathing problems</td>
</tr>
<tr>
<td>Air pollution affects</td>
<td>natural resources</td>
</tr>
<tr>
<td>Coal and gas are</td>
<td>seas, mountains and forests</td>
</tr>
<tr>
<td>Caused by industrial smoke</td>
<td>humans, animals and plants</td>
</tr>
</tbody>
</table>

For the teachers
Create awareness in the students about the importance of natural resources and measures to save them.
Food and Nutrition

Animals need food for their energy and growth. All animals do not eat similar food. Some animals eat only grass and plants, some eat meat while some animals eat both plants and meat.

Herbivores

The animals which eat grass, plants and their fruits are called herbivores. For example, deer, cow, rabbit, elephant, etc. are herbivores. Herbivores have broad and blunt teeth. They can easily chew the food with these teeth.
**Carnivores**

The animals which eat only meat are called carnivores. Carnivores depend on the meat of other animals. They have long, sharp and pointed teeth. For example, lion, tiger, hyena, wolf etc.

**Omnivores**

The animals which feed both on meat and plants or their fruits are called omnivores. For example, bear, crow, dog, hen, etc.

Humans also eat vegetables and meat.
Interesting Information

- Omnivores and carnivores have teeth of different structures.
- Carnivores have long and pointed teeth.
- Herbivores have small and flat teeth.

**Good Health and Balanced Diet**

Hygienic environment, suitable balanced diet, regular exercise and proper sleep ensure good health.

**What eatables should we have?**

- Fat, ghee, oil
- Milk, yogurt and butter
- Meat
- Fruit
- Vegetables
- Pulses and seeds
- Cereals
For good health, we use vegetables, pulses, fruit, grains, meat, butter and milk, etc. All these things together keep our body healthy. Food that has proper quantities of vegetables, meat, butter, milk, etc. is called a balanced diet.

**Important instructions**

1. Before eating food recite يَسْمَعُ اللهُ الرَّحْمَنُ الرَّحِيمُ and after eating the food say أَنْشُدُوهُ.
2. Wash your hands with soap.
3. Take your food in time.
4. Eat food calmly and chew it well and slowly.
5. Do not overeat.
6. Do not undertake hardwork or exercise soon after taking food.
7. It is essential for health to sleep for six to eight hours. It keeps us healthy, energetic, alert and gives us mental peace.
8. To keep mind and body healthy, daily exercise is very essential. Every Muslim offers prayers five times a day. Five times ablution removes all sort of pollution.
EXERCISES

   (i) Write the name of few herbivores.
   (ii) Write down the names of five carnivores.
   (iii) What is meant by balanced diet?
   (iv) Describe different kinds of animals on the basis of food they take.
   (v) What is the importance of exercise in life? Explain.
   (vi) How does the structure of teeth help animals in chewing food?
   (vii) Why is proper sleep essential for good health?

2. Fill in the blanks with the help of following words:
   Carnivores, omnivores, herbivores
   (i) __________ eat fruit and vegetables.
   (ii) __________ eat the meat of other animals.
   (iii) __________ eat both plants and meat.
What I want to be?

We are known by the jobs that we do to earn. A vegetable seller earns his livelihood by selling vegetables. We buy vegetables from his shop. Everyone does some job. For example, the teacher teaches the children. The doctor cures the patients. The farmer cultivates the land. Let us see what kind of jobs do the people do.

A teacher teaches the children
A mason builds a house
A farmer cultivates land
A motor mechanic repairs the car
Nurse takes care of a patient

A doctor cures a patient

Bus driver drives a bus to carry people from one place to another

The soldier defends the frontiers of the country

The cobbler mends the shoes
EXERCISES

1. Answer the following questions.
   (i) Who builds the houses?
   (ii) Who educates the people?
   (iii) What is the responsibility of a policeman?
   (iv) Who repairs the cars?
   (v) Who takes care of the patients?
   (vi) What do your parents do?

2. Match column A with column B.

<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gives us protection</td>
<td>motor mechanic</td>
</tr>
<tr>
<td>Repairs the car</td>
<td>soldier</td>
</tr>
<tr>
<td>Cures the patients</td>
<td>policeman</td>
</tr>
<tr>
<td>Drives a bus</td>
<td>doctor</td>
</tr>
<tr>
<td>Defends the frontiers of the country</td>
<td>driver</td>
</tr>
</tbody>
</table>

Activity

Every student may be asked to tell what he wants to be in future and why?
Ancient People and their Livings

Today after coming from school, Hamid and Amna were waiting for their father as they needed his help in doing their homework. Father came back from his job. When he was free from his lunch, Amna and Hamid came to him with their note books and pencils. Hamid asked his father, “How ancient people used to live and what was their diet?” Father replied that ancient people used to live in caves and they ate leaves, roots and fruit of trees. They used to hunt animals with weapons made of stones and ate uncooked meat. This period is called stone age. With the passage of time, they learned to produce fire by rubbing stones with each other. Then they started cooking. Invention of wheel and use of metals played a vital role in
human civilization. To meet his food requirements, man started cultivation and cattle farming. Beside getting milk and meat from animals, he used them for traveling. He built houses for living and started living together in the form of groups called families.

Amna said, “Wao! Abu jee, you have told us lot of things very nicely. Was there anything like computer in stone age?”

Father replied that there was nothing like computer those days. But during the last two centuries inventions like electricity, telephone, television, railway engine and newspapers have helped a lot in the progress of the world.

Now the computer has increased the speed of world’s progress many times. With the help of computer, it has become very easy to get the news and to have contact with the people in the far off countries.
EXERCISES

1. Write short answers.
   (i) What was the diet of ancient people?
   (ii) How was fire produced?
   (iii) Which invention has played a vital role in the progress of humans?
   (iv) What changes have taken place in human life after the invention of computer?

2. Tick (✓) the correct answers.
   (i) What is obtained from animals?
      (a) milk       (b) water
      (c) fruit and vegetables
   (ii) Where did ancient people live in?
      (a) Houses    (b) Caves
      (c) Fields
   (iii) An important invention of ancient period is:
      (a) computer   (b) wheel
      (c) telephone
   (iv) Invention of computer in the world:
      (a) has increased the rate of progress
      (b) has stopped the progress.
      (c) has reduced the informations.
Inventors and Inventions

Making something new, which did not exist before is called invention. One who invents something new is called an inventor. In the ancient times, people used to go near the prey and hunt the animals with their hands. It was very difficult and dangerous job. This problem was solved with the invention of bow and arrow. It was very useful as there was no need to go close to the prey and it was easily hunted.

In the ancient times, people used stones for hunting.

People hunting with lance and ’bow and arrow’.
In the old days, people used tools made of wood and stone in their daily life which were very simple. Pointed stones, bow and arrow, hammer, plough and wheel are the examples of simple tools.

Tools made of wood and stone

If things had not been invented with the passage of time, we would have been living in the caves and eaten uncooked meat. A famous saying that:

“Necessity is the mother of invention”

From the very beginning, man has been inventing things so that he may make his living better. For this purpose, he invented basic things such as simple tools and wheel etc. Before the invention of wheel, people used horses, camels and mules for travelling and transportation of luggage.
After the invention of wheel, man made cart. In the beginning, he pulled the cart himself and then he used animals for this purpose.

Every invention has its own importance. Inventions make the work easier and save our time.

Inventions have made our lives easier. They have improved our living standard. The work which would take days, months and years, can now be done in a few hours.

People in any developed country cannot imagine to survive without facilities. In this modern age, the pace of development has increased due to inventions. For example, ways and means of travelling have become fast. The invention of computer, fax machine, microwave oven and CD has completely changed our lives.
Aeroplane

Before the invention of the aeroplane people used to travel by buses, trains and ships. It took several days to travel from one city to another. When people used to visit Makkah to perform Haj, most of them fell ill due to the hardships of journey. After the invention of aeroplane, distance of thousands of kilometres is covered in a few hours.

Computer

In almost every field of life, computer is being used for doing different sorts of work. In the offices, computer is used for drafting letters and preparing reports. Doctors use it for diagnosis and cure of diseases. Civil engineers and architects use it for making site plans and planning a city. Computer is also used for weather forecast.

A few years ago, it took months to send a letter from one country to another. Now-a-days, messages are conveyed within seconds to any part of the world through e-mail.
**Fax Machine**

Fax machine sends written messages and photographs within a few minutes from one place to another. Basically, like a photocopier, a fax machine first takes the image of a page and then transmits it to another fax machine through a telephone line. When this message is received by the other fax machine, it reprints the message on a page through a printer attached to it.

**C.D**

Its full name is Compact Disk. Data is stored on it. Naats, poems, music programmes, sport programmes, cartoons for children, films, photographs, etc. are recorded on it.

**Microwave Oven**

A microwave oven is used to warm and cook food. It cooks food with microwaves and not with heat energy. It runs with electricity.
Some Inventors and Their Inventions

<table>
<thead>
<tr>
<th>Inventors</th>
<th>Inventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daniel Gabriel Fahrenheit</td>
<td>Thermometer</td>
</tr>
<tr>
<td>Blaise Pascal</td>
<td>Calculator</td>
</tr>
<tr>
<td>George Stephenson</td>
<td>Rail engine</td>
</tr>
<tr>
<td>Charles Babbage</td>
<td>Computer</td>
</tr>
<tr>
<td>Baron Karl Von Drais</td>
<td>Bicycle</td>
</tr>
<tr>
<td>Thomas Edison</td>
<td>Bulb</td>
</tr>
<tr>
<td>Alexander Graham Bell</td>
<td>Telephone</td>
</tr>
<tr>
<td>Charles Francis Jenkins, Philoti Fransworth, John Logie Baird</td>
<td>Television</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Inventors</th>
<th>Inventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Karl Benz</td>
<td>Car</td>
</tr>
<tr>
<td>Wilbur Wright, Orville Wright</td>
<td>Aeroplane</td>
</tr>
<tr>
<td>Johannes Gutenberg</td>
<td>Printing Press</td>
</tr>
<tr>
<td>Gugliemo Marconi</td>
<td>Radio</td>
</tr>
<tr>
<td>Rudolf Diesel</td>
<td>Diesel engine</td>
</tr>
<tr>
<td>Gottlieb Daimler</td>
<td>Motorcycle</td>
</tr>
<tr>
<td>Ibn-ul-Haytham</td>
<td>Pinhole camera</td>
</tr>
<tr>
<td>Elias Howe</td>
<td>Sewing Machine</td>
</tr>
</tbody>
</table>

It is due to inventions that today clean drinking water and medicines for dangerous diseases like heart and cancer are available.

Project

In our daily life, we use wheel or wheel-like things. Make a list of a few things which work / run with the help of the wheel. While making this list, keep in mind the things like toys, machines and vehicles at your home.
EXERCISES

1. Give short answers:
   (i) What do you mean by invention?
   (ii) Hunting was not easy in ancient times, why?
   (iii) Write the names of any three inventions and their inventors.
   (iv) How does microwave oven work?
   (v) Why did people invent things?

2. Match Column 'A' with Column 'B'.

<table>
<thead>
<tr>
<th>Column 'A'</th>
<th>Column 'B'</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sending messages through computer</td>
<td>because of inventions</td>
</tr>
<tr>
<td>Things are easily available now-a-days</td>
<td>CD</td>
</tr>
<tr>
<td>Thousands of years ago people lived</td>
<td>Bow and arrow</td>
</tr>
<tr>
<td>were used for hunting long ago</td>
<td>in the caves</td>
</tr>
<tr>
<td>Used for storing computer data</td>
<td>e-mail</td>
</tr>
</tbody>
</table>
During every era, man has invented several things to meet his needs. Tools and machines are the most important inventions of human beings. Tools make work easy and comfortable. In the ancient times, people used pointed edged stones as tools. These were used in hunting. Moreover, the tools for basic needs were also made of stone.

We do many works with our hands. However, there are a few works which cannot be done with hands, therefore, we use tools or machines for doing such works. For example, we can climb up to a small height but we need a ladder to reach at greater height. Likewise, we can lift a less heavy stone but we would require a tool or machine like crane for lifting heavy stones.
We cut cloth or a paper with a pair of scissors. Similarly, other tools are used for different purposes. We use different tools and machines at our home. A hammer is used to peg a nail and a saw is used to cut the wood. In the same way, pliers and axes are used according to their need. Can you tell the names of some tools used at your home?

**Activity 1**

(i) Try to push a heavy log with your hands. Can you do it easily?
(ii) Take an iron rod and a small stone. Arrange them as shown in the figure below.
(iii) Press the other end of the rod and try it again to push the log. Can you push the log now easily?
(iv) Can the log be pushed easily without the small stone?

Is the small stone necessary as a support to use the rod?
We use different kinds of machines to do work in our daily life. The pictures of some machines are given below:

![Pulley](image1)

**Pulley**

![Slope](image2)

**Slope**

![Cart](image3)

**Cart**

![Grass mower](image4)

**Grass mower**

![Screw jack](image5)

**Screw jack**

Force is a pull or push. Force of pull or push is required to move things or to stop moving things. We use force to change the state of a thing. For example, force of pull or push is required to open or close a door.

![Pulling the door](image6)

**Pulling the door**

![Pushing the door](image7)

**Pushing the door**
Force can change the shape of things too.

**Activity 2**

A boy kicks the football. When the football reaches the other boy, he kicks it back. Does the direction of football change or remain the same? Will the direction of football remain the same or change, if the second boy does not kick it back? Force is required to change the direction of motion of an object.

While playing cricket, a batsman hits the ball coming towards him. Does the direction of the ball change?
Cart, wheel-barrow, bicycle and tonga are all machines. Carts and tongas are driven by animal force. Wheel-barrow and the bicycle are driven by human's force.

Things driven by humans and animals force

A few years ago, the works, which were performed by humans or animals, are now done with the force of the engines fitted in machines.

Things moving with the force of engine
EXERCISES

1. **Give short answers:**
   
   (i) What do we do for lifting heavy things?
   (ii) How do tools and machines help us?
   (iii) What is the use of a pair of scissors?
   (iv) What materials were used to make tools in ancient times?
   (v) What happens when a thing is pulled or pushed?
   (vi) What force pulls a tonga?
   (vii) Do we require less or more force to do work with a machine instead of our hands?

2. **Match Column ‘A’ with Column ‘B’:**

<table>
<thead>
<tr>
<th>Column 'A'</th>
<th>Column 'B'</th>
</tr>
</thead>
<tbody>
<tr>
<td>To lift a very heavy stone</td>
<td>make work easier</td>
</tr>
<tr>
<td>To draw water from the well</td>
<td>movement</td>
</tr>
<tr>
<td>Pull or push causes</td>
<td>direction and shape cannot be changed</td>
</tr>
<tr>
<td>Machines and tools</td>
<td>pulley</td>
</tr>
<tr>
<td>In ancient times tools were made</td>
<td>a machine is required</td>
</tr>
<tr>
<td>Without using force</td>
<td>of stone and wood</td>
</tr>
</tbody>
</table>
Government and Role of Citizens

It is the duty of the government to provide, health, education, jobs, electricity, water, gas and justice facilities to the citizens. Government establishes many institutions for this purpose. These institutions include schools, colleges, hospitals, courts, police stations and various offices. It is the duty of the citizens to take care of these institutions and keep them clean.

Public Problems and their Solutions

Clean Drinking Water

Problems are increased with the increase in population. Clean and drinkable water is not available in many urban and rural areas. It is polluted with mud and germs. Such water must be filtered and boiled before drinking. At certain places, water filtration plants are in use. In deserts, very little water is available. People living in deserts, have to fetch water for drinking and other purposes from far off places. Government tries to provide drinkable water to all the people. We should use water only when needed so that may not become short and the other people can use it.
Schools

A person who cannot read and write is called an illiterate person. Illiterate persons cannot play any role in social development. An illiterate person is neither aware of his own problems nor he can find their solutions. To solve his problems, he has to depend upon others. The main cause of illiteracy is the poverty. Poor people put their children at work instead of sending them to schools. In certain areas, children cannot get education because there are no schools in such areas. To solve this problem, government has declared primary education compulsory for every child. Parents are legally bound to get their children admitted in the school. New schools are being established in those areas where there are no schools. Government is providing free books to the children from class 1 to class 10.

Health

In many areas, health facilities are very poor. In some areas, patients have to travel long distance for getting treatment. This makes the
patient more sick. Sometimes, the patient dies before reaching the hospital. To solve such problems, government establishes hospitals and basic health units in different areas.

**Proper Disposal of Sewage Water**

Non-availability of proper disposal of sewage water is a serious problem. In certain areas due to poor drainage system, sewage water, enters the streets and nearby localities. This causes diseases. Bad smell of sewage water creates health problems. We should not throw garbage into drains so that gutters may not block. Manholes must be covered by lids. Drains must be cleaned regularly. Lime should be sprinkled at the banks of the drains. Do not let dirty water stagnate in the streets, so that mosquitoes may not breed. Trees may be planted at proper places. This will increase the beauty of that area. Such works can be done on self help basis or through the mohalla committees. Government also supports in solving these problems.
Working on Self Help Basis

Government does many things for the citizens of its country and tries its best to provide all facilities to the people. All departments of the government work together to do this. However, there are many problems which can be solved by the citizens on self help basis. For example, cleanliness of the locality and strengthening of embankments in flood affected areas, can be done on self help basis. After filling the pond with soil, trees can be planted there.

A Good Citizen

People can become good citizens by practicing justice and fair play, helping others and observing rules and regulations.

1. Practicing Justice

A person cannot be a good citizen without practicing justice. A society cannot progress without justice. A fair justice means that every citizen can get his due rights. Justice is necessary in every walk of life.
2. **Observing Rules and Regulations**

There are certain rules and regulations to run a country. Every society has its own rules and regulations for the people to follow them and lead peaceful life. People develop the feelings of brotherhood and love by interacting with each other. A good citizen is the one who follows the prevailing rules and regulations of his society. In this way peace prevails and individuals are saved from difficulties. We must follow the laws of the country to prove ourselves good citizens.

3. **Helping Others**

We must help our brothers, sisters, relatives, friends, neighbours and the people at workplaces. We should share the things of our daily use with others. A reliable citizen always looks for the betterment of others.

4. **Respect for the Rights of Others**

Every person in this world is respectable. To respect others is a quality of a good citizen. A good citizen always respects others’ rights. Depriving the others from their rights can create unrest. Rights of others includes the rights of parents, brothers, sisters, teachers, neighbours and relatives. Being a good citizen, it is our moral duty to help others. Every individual whether he is a student or a teacher or a doctor or a labourer, should perform his duty honestly. A good citizen must safeguard the life and property of others. We should respect religious festivals of others and avoid calling by bad names and quarreling with them. While entering or leaving a masjid or school and boarding or leaving a train we should wait for our turn. If we do not wait for our turn, there may be an unpleasant incident due to push or pull.
EXERCISES

   (i) Who is responsible for providing basic necessities to the people?
   (ii) Name two important problems and suggest their solutions.
   (iii) Why is it necessary to help others?
   (iv) Write the benefits of obeying laws.

2. Mark the correct answers with (√).
   (i) Who solves public problems?
       (a) Lawyer  (b) Government  (c) Engineer  (d) Doctor
   (ii) The growth in population leads to:
       (a) increase in traffic  (b) increase in prosperity
       (c) decrease in use of electricity  (d) improvement in education
   (iii) Characteristic of a good citizen:
       (a) law breaking  (b) wrong parking
       (c) abiding law  (d) blocking roads.
   (iv) Roads are blocked due to:
       (a) police  (b) heat
       (c) heavy traffic  (d) cold
3. Fill in the blanks with the suitable words.

   care         humans   honour        citizen

   (i) A person lives in the society along with other ______.
   (ii) We should take ______ of the necessities of our needy relatives.
   (iii) Abiding traffic rules is a sign of a good ______.
   (iv) We should treat each other with respect and ______.

4. Match Column A with Column B.

<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Every person in the world is</td>
<td>one who cannot read and write</td>
</tr>
<tr>
<td>Without practicing justice</td>
<td>respectable</td>
</tr>
<tr>
<td>An illiterate person is</td>
<td>a person cannot be a good citizen</td>
</tr>
<tr>
<td>A teacher gives children and elders</td>
<td>cultivate crops</td>
</tr>
<tr>
<td>For all of us, a farmer</td>
<td>education</td>
</tr>
</tbody>
</table>

**Activity**

Arrange a speech contest between the students about two important problems of your locality.

**For the teachers**

1. Inform the students about the activities of different people in the local community.
2. Inform the students about the role of government in fulfilling the needs of people.
3. Inform the students about the personal qualities of a good citizen.
Government Responsibilities and Citizens’ Rights

Responsibilities of a Government

Government provides many facilities to the citizens. For example, government makes a system for the supply of clean drinkable water for the people. It constructs roads for travelling from one place to another, provides electricity for light and establishes schools, colleges and universities for education. Government establishes hospitals where doctors and nurses treat and look after the patients. Parks are provided by the government for the recreation of the people.

![Images of School, Hospital, and Park]

Rights of Citizens

Every citizen has the right that:

1. schools and colleges should be established for his education.
2. police should guard his life and property.
3. if he falls sick, there should be a hospital for his treatment.
Duties of Citizens

Being good citizens, it is our duty to educate our children, respect the laws, take care of neighbours and disabled persons, be disciplined and cooperate with the government departments like police etc. We should get our children vaccinated, keep our environment clean and put the rubbish into dustbins. We should respect the elders and love the younger.

EXERCISES

   (i) Who treats and takes care of patients?
   (ii) Why are educational institutions established?
   (iii) Tell two rights of citizens.

2. Mark (√) for the correct sentence and (×) for the false sentence.
   (i) We should take care of our health.
   (ii) Children go to hospital for education.
   (iii) Plucking of a flower in a park is not a good habit.
   (iv) Patients visit schools for their treatment.
   (v) We should keep our surroundings clean.

3. Mark the correct answers with (√).
   (i) To travel from one place to another place, we use:
      (a) roads       (b) parks
      (c) dams
(ii) Who treats the patients?
(a) teacher (b) lawyer (c) doctor

(iii) Government has appointed ________ for the education of children.
(a) teacher (b) doctor (c) gardener

(iv) For the recreation of people, government has built:
(a) parks (b) hospitals (c) schools

**Activity 1**

Write the names of any three facilities provided by the government in schools.

(i) _________________________________

(ii) _________________________________

(iii) _________________________________

**Activity 2**

Write the names of any three facilities provided by the government to public.

(i) _________________________________

(ii) _________________________________

(iii) _________________________________
Respect and Regards for Others

All of us have been created by Allah. We are all issues of Hazrat Adam (ﷺ). We are all equal. We live together. We love and take care of each other. Inspite of many similarities, we are different from each other. For example, if some one is tall, other is short in height. Some are fair in colour, while others are dark.

We should respect and help each other. We should not hurt or tease others. Every religion teaches love, brotherhood and good manners. No religion teaches discrimination in cast and creed.

We should try to help others. We must respect the religious festivals of other religions to create love and respect among the people of the country.

We should help blind and disabled persons. Say Asslam-o-Alaikum when we see them. If there is no vacant seat in a bus or a train, we should offer our seat to women and old persons.
We must see each other with regards and respects.

**Importance of waiting for own turn**

While entering the classroom, buying a zoo ticket and boarding a bus, we should make a queue and wait for our turn. In this way, we will have our turn earlier and others will be saved from discomfort. If we do not make a queue, we and others can face difficulty.

**EXERCISES**

1. Write short answers.
   (i) How are people different from each other?
   (ii) How should we respect others?
   (iii) Why should we respect the religious festivals of other religions?
   (iv) Describe the benefits of waiting for own turn.

2. Mark the correct sentence with tick (✓) and the false sentence with a cross (✗).
   (i) Offer seat to women and old persons, if no vacant seat is available in bus or train. ✓
   (ii) Everybody is similar in height, colour and shape. ×
   (iii) Plucking of flowers in a park is not a good habit. ✓
   (iv) All children have black hairs. ×
   (v) While entering a classroom, a queue should be made. ✓
3. Match Column A with Column B.

<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
</tr>
</thead>
<tbody>
<tr>
<td>All of us are</td>
<td>all are equal</td>
</tr>
<tr>
<td>In Islam rich and poor</td>
<td>there we should wait for own turn</td>
</tr>
<tr>
<td>Don't throw trash</td>
<td>issues Hazrat Adam (as)</td>
</tr>
<tr>
<td>A place where there is a crowd</td>
<td>on road or street</td>
</tr>
</tbody>
</table>

**Activity**

Narrate an incident where you helped anybody (person)

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