13 Conservation of Natural Resources

Before We Start, Let's Check

What you already know

Look at the following pictures and complete the words.

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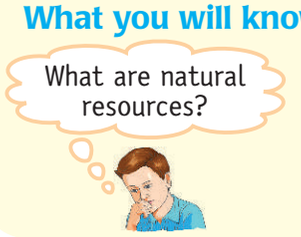
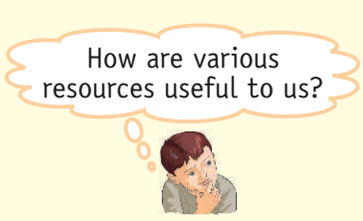
What you will know





NATURAL RESOURCES

If something is 'natural', it means that it comes from nature. If something is a 'resource', it means that it is valuable for humans and can be used by them.

So, when we put the whole phrase together, a natural resource is something that comes from nature and can be used by people to fulfil their needs.

Natural resources include air, water, land, forests, soil, minerals, etc. We need some natural resources to stay alive and use others to make our lives better.

Natural resources are mainly of two types: renewable and non-renewable natural resources.

Renewable resources

Resources that can be renewed in a relatively short period of time are called renewable resources.

Water, soil, forests and animals are some renewable resources.

Non-renewable resources

Non-renewable resources are resources that take a very, very long time, if ever, to be renewed. If used up completely, we will certainly not see them again in our lifetime.

Fossil fuels such as coal, petroleum and natural gas take millions of years to form and are therefore non-renewable.

Let us learn about some major natural resources.

FORESTS

A forest is a large area covered with trees. Every continent except Antarctica has forests.

Forests are hugely important for life on earth. Let us learn about some of their uses.

- Trees growing in forests absorb carbon dioxide and give out oxygen. Thus, forests purify the air.
- Forests help to cause rain. Trees absorb a lot of water from the soil. Later, excess water is released by their leaves as water vapour. That helps in cloud formation and causing rain.
- Forests serve as a home to millions of animals. They provide food and shelter to a wide variety of animals. Without forests, many of them would die.
- By providing shade and storing carbon, forests help in checking global warming.
- Forests also help in soil improvement. Some kinds of trees have an ability to return nitrogen to the soil through root decomposition or shedding leaves.
- Forests also provide us many useful things. Some of them are:

TIMBER
uses: furniture, plywood, paper, etc.

BAMBOO
uses: fodder, baskets, paper and pulp, etc.

CANE
uses: walking sticks, mats, picture frames, etc.

RUBBER
uses: tyres, shoes, erasers, balls, etc.

FRUITS
examples: mango, orange, pear, etc.

FLOSS
uses: cotton wool, mattresses, pillows, etc.

GUM
uses: adhesives, chewing gums, etc.

MEDICINES
examples: Amla, Ashoka, Ashwagandha, etc.

FIBRE
jute, coir used in sacks, ropes, etc.

OILS
sources: camphor, sandalwood, etc.

Conservation of forests

Inspite of their multiple uses, forests are being cleared all around the world for a number of reasons. People are clearing forests to use the wood or to make way for farming or development.

Deforestation

Deforestation is taking away our most precious resource. We can conserve forests in the following ways.

- A large-scale cutting of trees should be prevented by making tough laws.
- Block-cutting is a good method of preserving forests. In it, afforestation and deforestation is carried out simultaneously.
- Trees in forests should be protected from diseases and pests. Trees infected with diseases like rust, smut and wilt, should be removed.
- Forest fires are a major cause of forest destruction. These happen because of the negligence of man and sometimes due to natural causes. We need to be very careful.

WATER

Water is the source of life for all living beings. Rivers, lakes and mountain ice caps contain fresh water. Besides these, there is groundwater too which we get by digging wells or installing water pumps.

Water has a number of uses. Some of them are as follow:

- Drinking water is necessary to avoid dehydration. Without water we cannot survive for long.
- Water is used for many household purposes such as cooking and washing clothes.
- Water is used for irrigation. In this, water is added to the soil in order to assist the growth of crops.
- Electricity can be generated from hydropower. It is the process by which the power of falling water is used to drive turbines connected to generators.
- Water is used by firefighters to extinguish fires.
- Water in seas and oceans is home to millions of marine animals and aquatic plants.

irrigation

Conservation of water

Water conservation means using water wisely without wasting it. Our water supply is limited. We only have the water that we have now. You know that only three per cent of all the water is fresh water and only one per cent is available as drinking water. So, we must conserve water.

Let us explore the ways of conserving water.

- A judicious or economical use of water with least wastage is very important. For this,
  - check all the taps, pipes, etc. for leaks.
  - turn off the tap while brushing your teeth or applying soap to your hands.
  - take bucket baths instead of using the shower.
  - put a barrel outdoors to collect rainwater. Use that water for watering plants, flushing toilets, etc.
- Wastewater from sewage and industries should be treated in plants before being released into rivers.
- In agriculture, transfer of water from areas having surplus water to those facing water shortage, through canals, etc. can reduce water wastage.
- To prevent floods in low-lying areas, dams and reservoirs should be constructed.

a bucket bath

a dam

SOIL

Soil is a mixture of sand, silt, clay and bits of decaying animals and plant tissues. It takes thousands of years for a small amount of soil to form.

Soil is a very important natural resource. Some of its uses are given below.

- Soil has vital nutrients for plants. It supports the growth of plants.
- It provides shelter to many insects, reptiles, birds and mammals.
- Minerals present in the soil are the source of many metals.
- Clayey soil is used in making ceramics or pottery.
- Soil contents like gravel, clay and sand are widely used for constructing buildings, roads, etc.

a potter using soil

Conservation of soil

Soil can be conserved in the following ways.

- Soil erosion is the washing or blowing away of the top layer of soil by flowing water or wind. It can be checked by planting trees on a large scale because tree roots hold soil.
- The fertility of soil can be maintained by adding manures and fertilisers to it from time to time.
- In the mountains, terrace farming or step farming slows down the flow of water and reduces soil erosion.
- Overgrazing of land by cattle should be prevented as the land loses the plant cover which leads to soil erosion.

planting a tree

a terrace farm

FOSSIL FUELS

Fossil fuels are energy sources that formed more than 300 million years ago. There are three forms of fossil fuels: coal, oil (petroleum) and natural gas. These materials are called fossil fuels because, like fossils, they are the remains of plants and animals that lived very long ago.

Conservation of fossil fuels

We need energy for many purposes such as lighting, heating and running vehicles and machines. Most of this energy comes from fossil fuels. Fossil fuels are non-renewable resources. Once exhausted, they can never be replaced. Therefore conserving fossil fuels is very important. We can conserve fossil fuels in the following ways.

- Turn off lights and electrical appliances when not in use.
- Use compact LED bulbs instead of traditional bulbs and tube lights.

- Ride a bicycle or walk for travelling short distances.
- Use public transport instead of private cars or two-wheelers.
- Buy and use energy-efficient appliances.
- Stop the ignition of your car while waiting at the traffic lights.
- Switch to renewable sources of energy such as solar and wind energy.

wind energy

Words to Remember

natural resource	–	any natural thing that can be used by man
renewable resource	–	a resource that can be replaced in a short time
non-renewable resource	–	a resource that cannot be replaced if it is used up
forest	–	a large area covered with wildly grown trees
conservation	–	a careful use of something so that it lasts for a longer time
sewage	–	used water and waste materials that are carried away from homes and other buildings through sewers or drains
reservoir	–	an artificial lake where water is collected and kept for future use
soil erosion	–	removal of topsoil due to natural, animal or human activities
terrace farming	–	a type of farming in which crops are grown in 'steps' that are built on the side of a mountain or a hill
fossil fuel	–	a natural fuel formed inside the earth over millions of years from the remains of dead organisms

Points to Recall

- We are blessed with many natural resources.
- Some resources are renewable and can be renewed.
- Some resources are non-renewable and have a limited supply.
- Forests are very useful to living beings.
- We should check deforestation, forest fires and diseases of trees to conserve forests.
- Water is a source of life and is used for various purposes.
- The stock of drinking water is limited, so we should use it judiciously.
- Soil supports plant growth, provides us with minerals and metals, and is used for making buildings, roads and utensils.
- Steps should be taken to prevent erosion of soil and maintain its fertility.
- Fossil fuels are non-renewable resources, so their conservation is very important.

Exercises

A. Tick (✓) the correct option.

1. Which of the following is not a renewable resource?
   (a) forests ☐ (b) coal ☐ (c) water ☐ (d) soil ☐
2. Which of the following is a non-renewable resource?
   (a) sunflower oil ☐ (b) soya bean oil ☐ (c) crude oil ☐ (d) all of these ☐
3. Which of the following is a disease of trees?
   (a) rust ☐ (b) smut ☐ (c) wilt ☐ (d) all of these ☐

4. Which of the following is not a source of fresh water?

(a) ice caps (b) seas (c) rivers (d) wells

5. Which of the following is a component of soil?

(a) gravel (b) clay (c) sand (d) all of these

B. Match the following.

1. timber	(a) sacks, ropes, mats	1.	
2. bamboo	(b) Ashwagandha, Amla, Ashoka, etc	2.	
3. rubber	(c) baskets, fodder, paper and pulp	3.	
4. medicines	(d) paper, plywood, furniture	4.	
5. fibre	(e) shoes, erasers, balls	5.	

C. Answer in one or two words only.

1. Give one example of fossil fuel. _____
2. Which continent does not have forests? _____
3. What is a large-scale planting of trees called? _____
4. What kind of water do we get from tube wells? _____
5. What is being added to the soil to maintain its fertility? _____

D. Answer in one sentence only.

1. How do trees help in causing rain?
2. What is block-cutting?
3. What is irrigation?
4. What is soil erosion?
5. How is soil erosion reduced in mountains?

E. Answer in a few sentences.

1. Distinguish between renewable and non-renewable resources. Explain the difference with examples.
2. What are fossil fuels? Why should we conserve them?
3. Write any four ways of conserving water.
4. Write any four uses of soil.
5. Write any two methods of checking soil erosion in the plains.

Creative Skills

BRAINSTORM

1. Which of the three R's (reuse, reduce or recycle) is applied in rainwater harvesting?
2. How does deforestation create imbalance in nature?
3. Why do we experience more power shortage in summer?

Tell Your Teacher

Read the following activities. Tell your teacher what right or wrong thing each child does.

- Ruchi and Kanika are both very fond of writing with ball pens. When the refill of Ruchi's pen is used up, she throws her pen and buys a new pen. Kanika never throws her pen. She buys a new refill, replace the old one with it and uses the same pen again.
- Ankit loves sunday mornings because that is the time when his father washes his car and he helps him. But today Ankit refused to wash his car with the running hose. He brought a bucket and a sponge and asked his father to use them instead of the hose.

Find Out

What is an embankment? Why is it made?

_____

_____

What are CNG, LPG and PNG? Where is each of them most commonly used?

_____

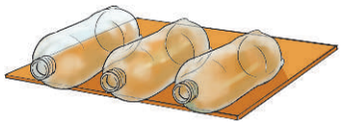
_____

Project

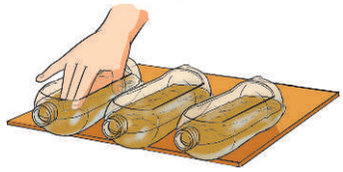
The Appiko Movement was a movement based on environmental conservation. It was led by Panduranga Hegde. Find out more about it and write a brief report. Submit it to your teacher. Take help from books, newspapers, magazines, the Internet, etc.

Experiment

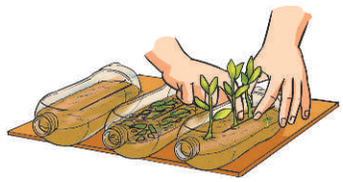
Understanding soil erosion



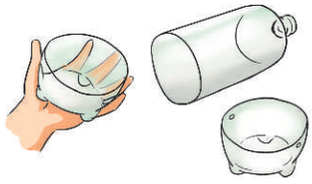
1. Take 3 empty coke bottles and paste them on a piece of plywood. The opening of the bottles should protrude a little out of the surface.



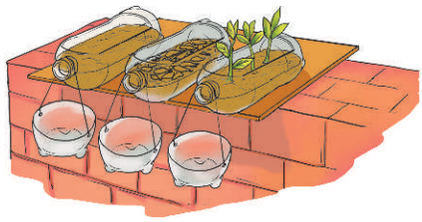
2. Cut rectangular holes along the side of the bottle. Fill the bottles with garden soil. Press hard. The soil must be below the level of the openings of the bottles.



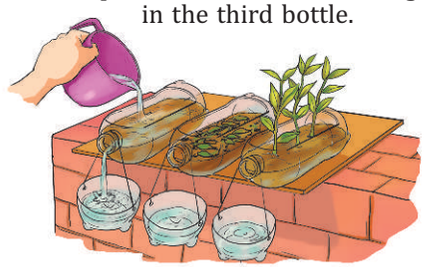
3. Leave the first bottle as it is. Cover the soil in the second bottle with dead leaves, bark chips, etc. Plant some seedlings in the third bottle.



4. Take 3 more empty coke bottles. Cut them horizontally. Make two holes opposite to each other in the bottom halves.



5. Cut three pieces of string. Insert each end into the holes. Hang them over the necks of each of the three bottles on the board. Leave the board in open for a few days.



6. Make sure that the plants in the third bottle are well developed. Now, slowly pour equal amounts of water into each of the bottles. Take note of the colour of the water collecting in the cups.

What do you observe? Why does it happen? Tell your teacher.