THEME 7

NATURAL RESOURCES

ACTIVITY 55

What we have to do?

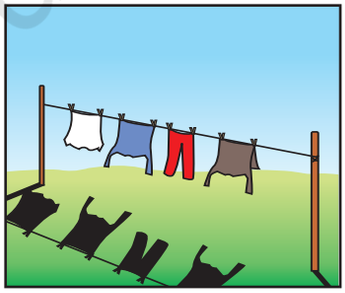
Paste/draw pictures/figures of activities given in the boxes and write the role of air (if any) below each activity.

A

Burning

B

Girl is reading a book



C

Clothes are drying in an open field

Pouring water in dry soil	Cow grazing a field	Flag fluttering
D	E	F

A scene of snowfall	A person wearing sweater	Kite flying
G	H	I
Windmill	Moving yacht	Spring
J	K	L
Bulb glowing on a pole	Car moving on a road	Electric train standing on a station
M	N	O

What do we need?

Figures/pictures (from old newspapers, used magazine or you can draw), chart paper, glue, colours, a pair of scissors.

How do we proceed?

1. Collect pictures/figures from used newspapers, magazines or draw the figures yourself as shown in boxes A, B and C.
2. Cut them and paste them on a chart paper in a sequence shown in boxes above.
3. Write the role of air in each activity.

What do we observe?

Activity	Role of air
A	Helps in combustion
B	Helps in breathing
C	Helps in drying clothes

What do we conclude?

Air plays an important role in many of the activities in our life.

Let us answer

1. How air helps in flying kite?
2. How does air help in drying clothes?
3. Name the components of air.
4. Which component of air is used in combustion?
5. Which component of air is present in maximum amount?

What more can we do?

You can perform other activities such as-

- Air occupies space.
- Air is dissolved in water.
- Air is present in soil.

Note for the teacher

- Teacher may plan a field trip to show places where air is polluted. These places can be industrial area, limekiln, brick kiln, cross road with red lights.
- The group may interview a traffic police man. Why often he/she wears a mask.

ACTIVITY 56

What we have to do?

Recycle waste paper.

What do we need?

Collect waste paper from school or home, old newspapers, used notebooks, old magazines, etc, beaker, muslin cloth, frame with a wire mesh fitted into it, wooden block, sunmica sheet, a stone block of the size of wooden wire mesh frame, a mortar and pestle.

How do we proceed?

1. Tear the waste paper into small pieces. Put these pieces in a beaker and pour water just enough to soak the paper and keep it aside for one day (Fig. 56.1).
2. Next day drain the water and grind the soaked paper pieces with the help of mortar and pestle to get a smooth pulp (Fig. 56.2).
3. Spread the muslin cloth on the wire mesh.
4. Spread the wet pulp paste on the muslin cloth spread on wire mesh frame, to make a thin uniform layer (Fig. 56.3).
5. Put a sunmica sheet over the wet paste and place a block of stone over it so as to press the paste (Fig. 56.4).
6. Keep it aside for one day.
7. Next day carefully remove the block of stone and carefully separate the pulp sheet from the muslin cloth.
8. Spread the pulp sheet in open air under the sun or a fan to dry.

Figure 56.1 Beaker containing soaked pieces of paper

Figure 56.2 Grinding soaked pieces of paper

Figure 56.3 Spreading of wet pulp paste on the muslin cloth

Figure 56.4 Sunmica sheet over wet paste and block of stone over it

9. Remove the dried sheet of paper.
10. Paper is ready to be used again (Fig. 56.5).

Figure 56.5
Recycled paper

What do we observe?

Compare the texture, colour, etc of initial waste paper with one made by you.

What do we conclude?

- Paper may be recycled.
- 'Reduce, Reuse, Recycle' should be our moto to save our environment and to Save Trees - The Precious Resource.

Let us answer

1. Do you know any other waste material which can be reused?
2. Can you suggest some ways by which wastage of materials can be reduced?

What more can we do?

- Make any piece of art, such as butterfly, dustbin, etc. using waste materials.
- Interview a *kabariwala* to find out what happens to the various materials he collects from homes and other places.

Note for the teacher

- Suggest measures to show how the consumption of paper can be reduced.
- Teacher may also help students in making items from waste paper or hand made paper.

ACTIVITY 57

What we have to do?

Infiltration of water through soil.

What do we need?

A used plastic bottle, soil, water, filter paper or a piece of cotton cloth, knife.

How do we proceed?

1. Take a clean used plastic bottle and cut it with a knife about 5 cm below the neck, The bottle is divided into two parts. The upper part will be used as a funnel and the lower part as a container (Fig. 57.1).

Figure 57.1
a) Improvised funnel
b) Improvised container

2. Fix a filter paper or cloth in the improvised funnel and keep it over the container. Now add some soil over the filter paper till it fills two third part of the funnel.

   Your apparatus to show infiltration is ready (Fig 57.2).

Figure 57.2
Set up for infiltration

3. Pour some water on the soil and wait for some time.

   Do you find some water drops trickling down ?

   If not, pour some more water on the soil surface till water starts trickling down (Fig. 57.3).

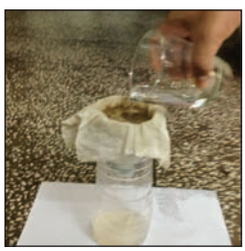


Figure 57.3
Showing infiltration

What do we observe?

The water which was poured over the soil has percolated through the soil and a part of it gets collected in the container.

Can you relate this activity with the accumulation of ground water?

What do we conclude?

Surface water from any source (rain, pond, river, lake, spring, snow, human activities) percolate through soil and gets stored as ground water. This process is called infiltration.

Let us answer

1. Do you think that you get same amount of water after infiltration? Justify your answer.
2. Do you know from where you get water in tube wells and hand pumps?
3. Water in a well is ground water. Justify the statement.
4. Do you think water is cleaned during infiltration? Explain.

What more can we do?

Make a pit in the garden of a school or home. Connect the pit with the outlets of waste water. Cover the pit. Keep observing the pit time to time. Guess what happens to the water being collected in the pit?

This is your project to explore many more things.

Note for the teacher

- While doing the activity teacher should see that students pour a measured quantity of water. Only then students can compare it with the quatity of water percolated in the container.
- While discussing 'Water - a Precious Resource' in the class, the concept of rain water harvesting can be highlighted on the basis of this activity.
- Encourage children to make a model of rain water harvesting as a group activity.

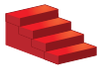
ACTIVITY 58

What we have to do?

Cleaning of muddy water.

What do we need?

A sample of muddy water, containers, muslin cloth, alum, heating device.



How do we proceed?

1. Take the sample of muddy water (Fig 58.1) and filter it using a piece of muslin cloth (Fig. 58.2).

Figure58.1
Container containing muddy water

Figure58.2
Filtration using muslin cloth

2. Take a piece of alum and tie it with a thread. Hold the thread and swirl the alum in water 2-3 times (Fig.58.3).
3. This help in settling down the fine mud particles suspended in water, which could not be removed by filteration.
4. Leave the water undisturbed for some time.
5. Do you find any change in the transparency of water?
6. Now decant/filter the water using a clean piece of muslin cloth.

Figure 58.3
Swirling alum in water

7. Boil water for about 15-20 minutes to kill the germs.
8. Cool and filter the water again. This is your clean water.

What do we observe?

- Suspended impurities of muddy water are separated by filtration.
- On leaving the water undisturbed after swirling with alum, the fine mud particles are settled down.

What do we conclude?

Water can be cleaned with the help of simple processes such as filtration, treating with alum, boiling, etc.

Let us answer

1. Can we use any material other than muslin cloth to filter the water?
2. Do you agree that boiling kills germs? Explain.
3. Do you think that the water purified in the above activity is fit for drinking? Justify you answer.

What more can we do?

Arrange a field trip to the nearby water body to observe if it is being polluted. Note the observations and discuss in the class how pollution of the water body can be controlled.

Note for the teacher

While discussing natural resources it is our moral duty to make students aware of three "Rs"

R- Reduce

R- Reuse

R- Recycle