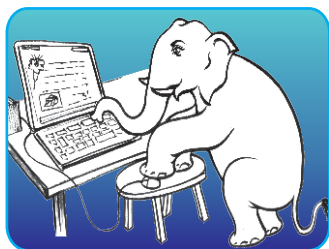


# SCIENCE

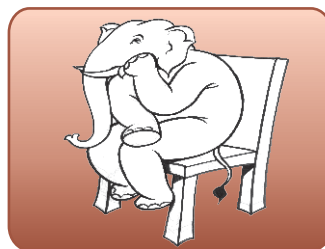
## STANDARD FOUR

### Term II

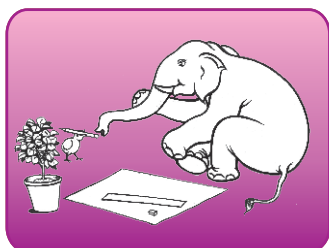
## What These Icons Stand For !



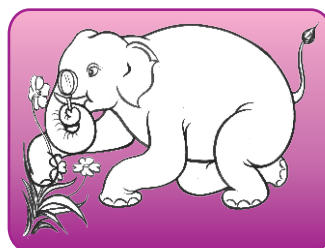
Do You Know ?



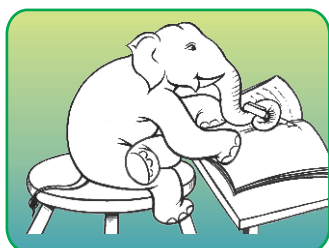
Think and write



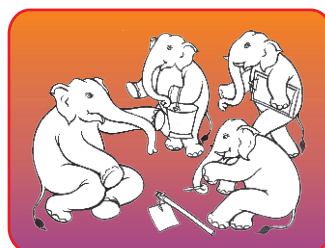
Project



Activity



Evaluation



For Teachers...

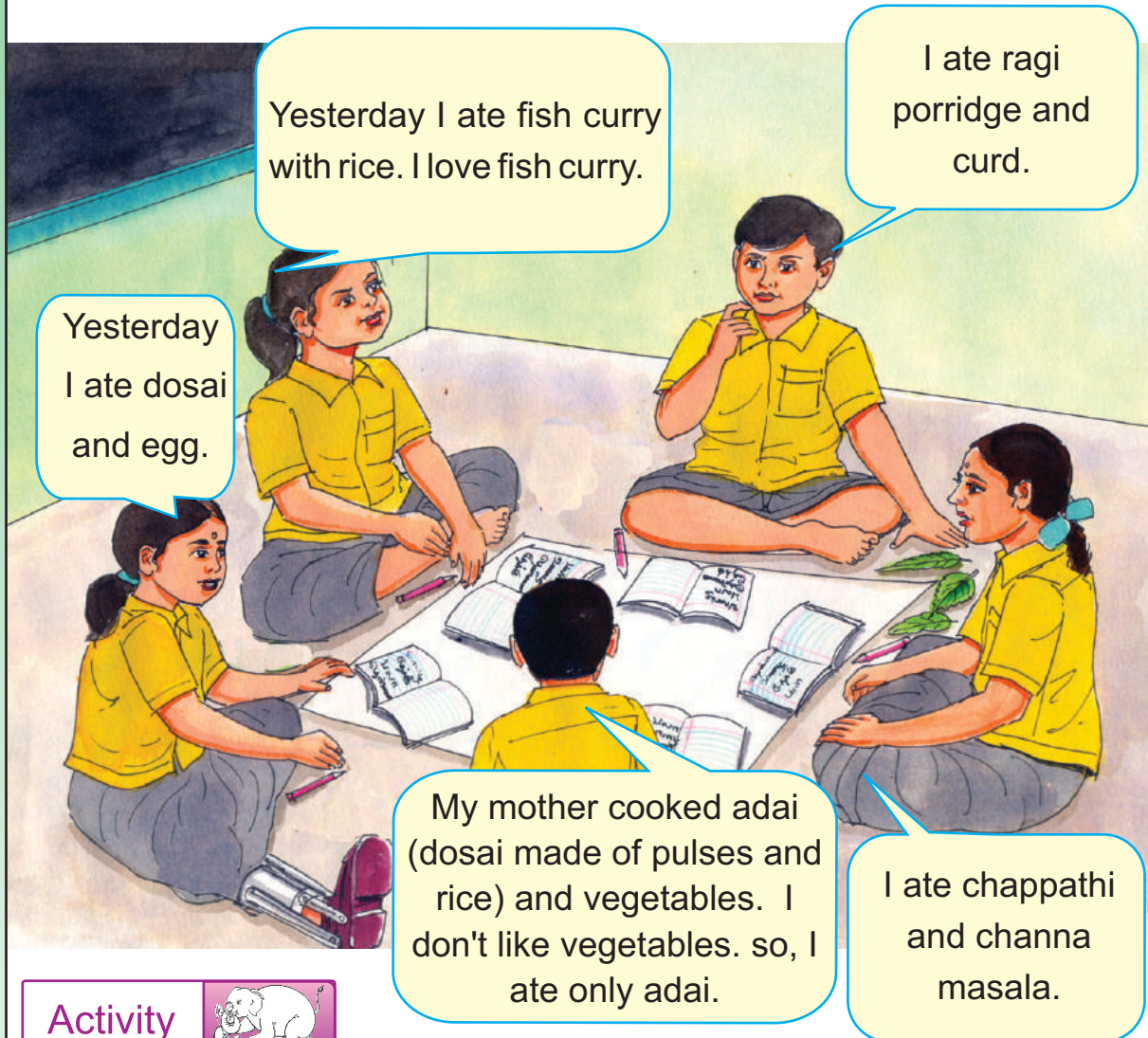
# 1

## FOOD



There was a discussion in the class room on the topic "What did you eat yesterday?"

In the discussion, the students said the following.



### Activity



Write about what you ate yesterday.

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Basic needs of our life are **food, clothing** and **shelter**. The most important among these is food. All living things need food.

### Splendour of food.

- Food gives us energy to work
- Food promotes growth
- Food gives us immunity.

Food substances are classified into two categories. They are **raw food** and **cooked food**.

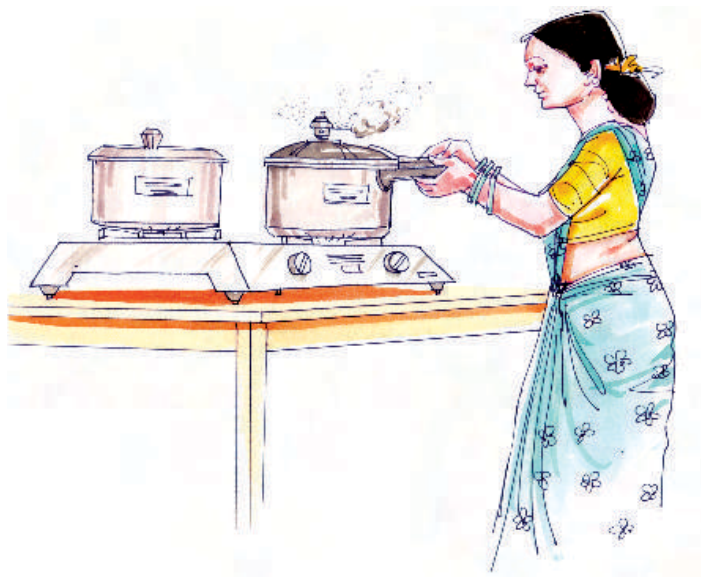
### RAW FOOD

When we eat raw fruits, vegetables and tubers, our body will get complete nutrients and our immunity increases.

### COOKED FOOD

Can we eat all food substances raw? No, we cannot. Some food like rice, potato, meat etc., can be eaten only when it is cooked.  
When cooked..

- Food gets digested easily.
- Add taste and aroma, germs are killed.
- Food becomes soft.



Think it over!



From the pictures of food given below, find out the food that can be eaten raw and write them in the blanks.



\_\_\_\_\_ , \_\_\_\_\_

\_\_\_\_\_ , \_\_\_\_\_



\_\_\_\_\_ , \_\_\_\_\_



\_\_\_\_\_ , \_\_\_\_\_



## Activity



### 1. Preparation of fruit salad

Take banana, papaya, apple, grapes and pine apple in a vessel. Wash them and cut into small pieces. Add sugar or honey and mix well. Your fruit salad is ready.



2. Which are the food you can prepare without cooking? Write their names and the method of preparing them. One example is given below

a. Lemon Juice

Squeeze half a  
lemon into a  
glass of water.

Add sugar

stir well and  
strain

lemon juice is  
ready

b. \_\_\_\_\_

c. \_\_\_\_\_

**For Teachers...**



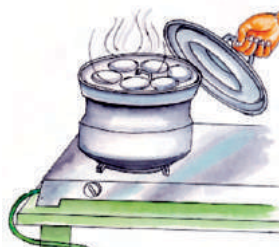
Ask each one of the students to bring vegetables, fruits and grains which are easily available at home and to cook them in groups.

**Do not waste food**



## METHODS OF COOKING

Are we cooking all the food in the same way ? We cook each food differently.



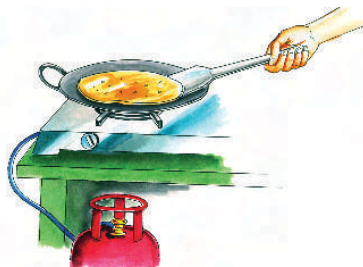
Cooking in steam



Deep Fry



Roasting



Frying



Cooking in water

### Activity



According to the methods of cooking tabulate the following food items.

Rice, chappathi, poori, tuber, thick dosai, murukku, lady's finger, beet root, papad, carrot, spiced pulses, puttu, greens, idly, banana stem, idiaappam, dosai, vadagam, kozhukattai, parotta, porridge, adhirasam and paniaram.

Cooking in water	Cooking in steam	Roasting	Frying	Deep Frying

## VARIETIES OF UTENSILS

Observe the cooking utensils at home. Are they all of the same size and shape? No. Why? According to the method of cooking, the size and shape of the utensils used for cooking will vary.

First whistle

Next meal

Name the utensils

List the utensils used for cooking in your house.

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Earlier, earthen pots were used for cooking. Later utensils made of **iron**, **brass**, **stainless steel** and **aluminium** came into existence.



Now-a-days **Pressure cookers** are being used to reduce fuel consumption and to preserve nutrients.



## Activity



What? How? Which?

Food item	Method of cooking	Utensils used
Idly		
Poori		
Dosai		
Rice		

**Modern utensils are used for faster cooking**

It includes, Induction stove, electric cooker and microwave oven.



## Healthy food

For a healthy body, nutritious and hygienic food is necessary. So it is necessary to protect the food from spoilage.

- ✿ We must wash vegetables, fruits and greens before using them.
- ✿ Food materials must be covered in order to protect them from dust and insects.
- ✿ It is better to eat the cooked food when it is warm.

## Requirements for a healthy life

For a healthy life, fresh air, clean water and nutritious food are necessary. Lack of any one of these may cause diseases. When we are sick, we cannot eat all types of food, can we?

### When we are sick we should

- ✿ eat food that gets digested easily.
- ✿ take liquid food such as porridge, fruit juice and tender coconut.
- ✿ eat food that contains less fat.
- ✿ avoid eating pungent food.
- ✿ avoid eating food fried in oil.

Over eating is injurious to health

### Activity



What sort of foods are to be avoided when sick?

What sort of foods can be eaten? Write in the Tabular column.

Bread, meat, milk,  
Parotta, Biryani, Fish fry,  
Porridge, Energy drinks,  
Herbal decoction, Bajji.

When sick	
Foods to be avoided	Foods to be eaten

Match the food item and fill in the boxes with proper serial number of the ingredients.

- |                    |            |                      |
|--------------------|------------|----------------------|
| 1. Rice, urad dal  | – Pongal   | <input type="text"/> |
| 2. Bengal gram     | – Payasam  | <input type="text"/> |
| 3. Vermicilli      | – Idly     | <input type="text"/> |
| 4. Rice, moong dal | – Chappati | <input type="text"/> |
| 5. Wheat           | – Vadai    | <input type="text"/> |

### Evaluation



(a) Fill in the blanks.

1. Food helps us to \_\_\_\_\_.
2. Cooking increases the \_\_\_\_\_ and \_\_\_\_\_ of food.
3. Idly can be cooked by \_\_\_\_\_ method.
4. \_\_\_\_\_ is used for cooking with less fuel consumption and preserve the nutrients.
5. It is good to eat the cooked food when it is \_\_\_\_\_.

(b) True or False.

1. Food is not useful for the growth of body.
2. By taking food, we are losing energy.
3. While cooking, germs in the food are destroyed.
4. Cooking in steam is a method of cooking.
5. When we are sick, we should eat food containing more cholesterol.

(c) Match the following.

- |              |                    |                          |
|--------------|--------------------|--------------------------|
| 1. Idly      | – Cooking in water | <input type="checkbox"/> |
| 2. Poori     | – Fry              | <input type="checkbox"/> |
| 3. Chappathi | – Deep Frying      | <input type="checkbox"/> |
| 4. Rice      | – Roasting         | <input type="checkbox"/> |
| 5. Groundnut | – Cooking in steam | <input type="checkbox"/> |

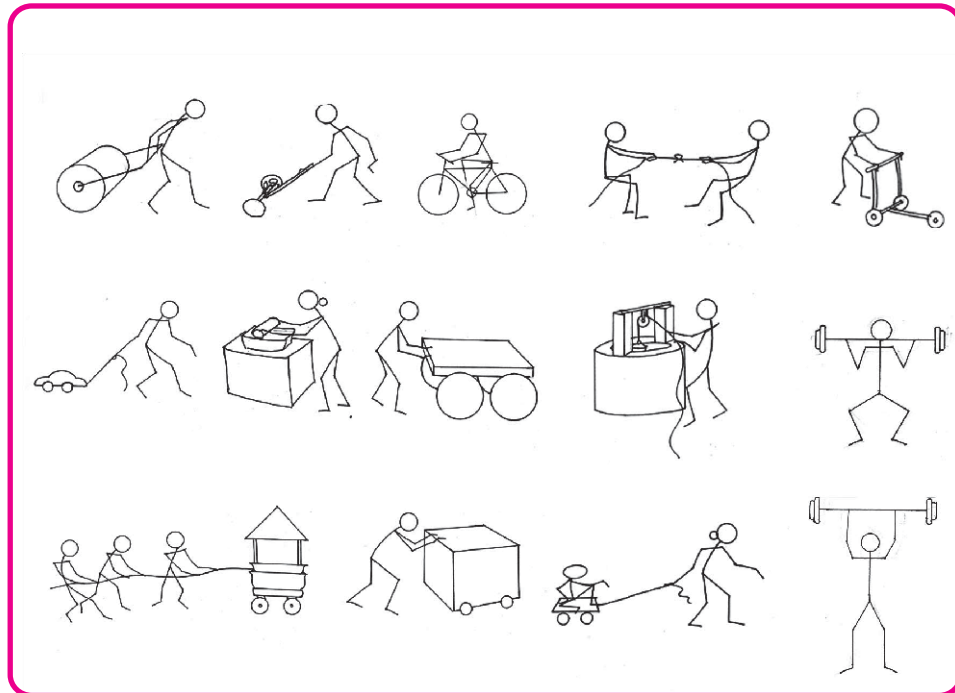
(d) Answer the following.

1. What are the uses of food?
2. Name two food items that can be eaten raw.
3. What is the use of cooking in pressure cooker?
4. Write the name of vegetables and fruits that you like to eat.
5. Write about the methods of cooking.
6. Write about the food that can be eaten when sick.

(e) Draw and colour the utensils used for cooking in your house.

# 2

## WORK AND ENERGY



Observe the picture given above and list down the activities in the given table

PULL	PUSH	PULL, PUSH

### MOTION

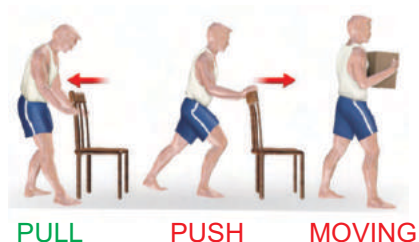


When an object moves from one place to another, we say it is in motion.



## FORCE

Objects will not move from one place to another on their own. To move an object or to stop a moving object, force is required. Depending upon the **force** applied, the object moves either faster or slower.



## WORK

**Work** is said to be done when force acts on a body and moves it in the direction of force.

When an object moves a distance due to a pull or a push, then work is said to be done. If an object does not move by a push or a pull, work **is not done**.

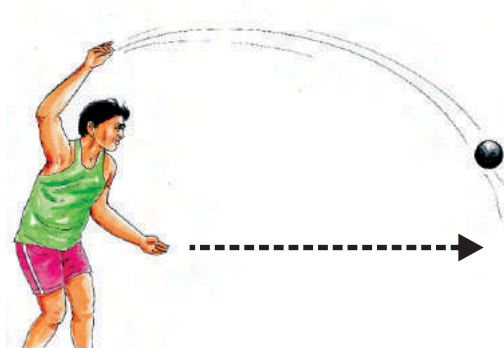
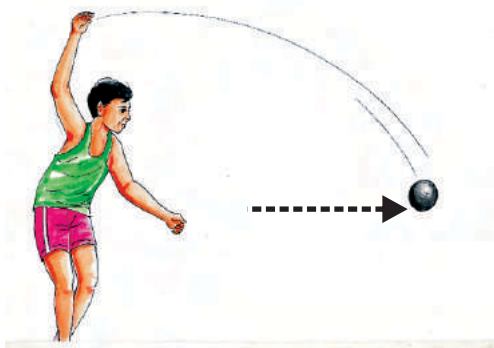
Put tick ☒ for work done and ☐ for work not done to the given activities.

- |                                  |                          |
|----------------------------------|--------------------------|
| 1. Leaning against a wall        | <input type="checkbox"/> |
| 2. Lifting up the books          | <input type="checkbox"/> |
| 3. Fetching water from the well  | <input type="checkbox"/> |
| 4. Reading books                 | <input type="checkbox"/> |
| 5. Pushing the vehicle           | <input type="checkbox"/> |
| 6. Watching television programme | <input type="checkbox"/> |
| 7. Swimming                      | <input type="checkbox"/> |
| 8. Drawing                       | <input type="checkbox"/> |
| 9. Talking over the phone        | <input type="checkbox"/> |
| 10. Rowing boat                  | <input type="checkbox"/> |



## ENERGY

Shotput competition  
in the school.



Shotput competition was held in the school. Prabu and Arul took part in the game. Prabu threw the shotput. Since he used less energy, it fell at a shorter distance. Arul threw the shotput with more energy and it landed at a greater distance. The work done by him brought him victory.

The capacity to do work is called **Energy**.

From where did Prabu and Arul get the energy? They got the **energy** from the food they ate.

We get energy from the food we eat.

From where does the moving bus, lorry or steam engine get its energy?

Let us try to answer the questions.

Shall we listen to them

I get energy from  
Coal.



We get our energy from diesel.



We get our energy from Petrol



Activity



Find out

1. What is the price of petrol and diesel in your area ?  
\_\_\_\_\_
2. What will happen if you don't get petrol or diesel for a week?  
\_\_\_\_\_
3. Suggest some ways to save fuel.  
\_\_\_\_\_

## TYPES OF ENERGY

### Heat Energy

The energy obtained by the combustion of coal is known as **heat energy**.



What are the uses of heat energy?

## Electrical energy

Electric energy is produced from hydro electric plant, thermal power plant, atomic plant and wind mills.



Write about the uses of electric energy.

## Solar Energy

The energy received from the sun is called solar energy. Solar water heater, solar stove, road lights, solar vehicles, etc. work on solar energy.

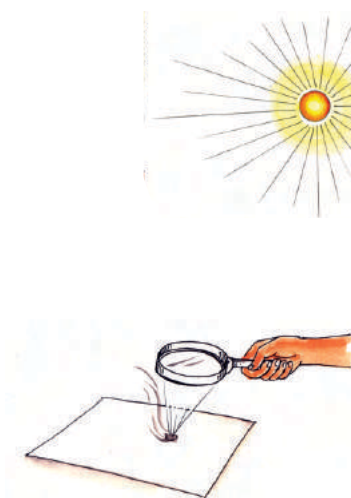


## Activity



## Smoke without fire

Take a thin sheet of paper and place it in direct sunlight. Hold a reading lens above the paper in such a way that more rays fall on it. What happens after some time? The paper turns black and smoke comes out.



**Evaluation****(a) Fill in the blanks.**

1. \_\_\_\_\_ is required to shift the objects.
2. The capacity to do work is called \_\_\_\_\_.
3. The bus gets its energy from \_\_\_\_\_.
4. \_\_\_\_\_ is a vehicle which runs due to the energy obtained from petrol.
5. When a body moves, it is said to be in \_\_\_\_\_.

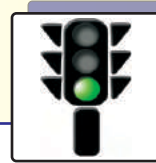
**(b) Answer the following.**

1. State the activities that take place in a hospital that can be called work.
2. What will you do to make a paper fan rotate?
3. What are the different types of energy?
4. What are the fuels that are used to light lamps?
5. What are the fuels that are used to run the vehicles?
6. Name the instruments which work with the help of solar energy.

**(c) Draw the stick figures representing 'pull and push' action.**

# 3

## PERSONAL SAFETY



We read about many accidents in the newspapers. Most of the accidents take place due to our carelessness. We can avoid such accidents and deaths by following some simple safety rules.

### SAFETY AT HOME

- Do not scatter toys, slippers etc., on the floor.
- Keep them in their proper places.
- Clean the water or oil or other liquids that are spilt on the floor immediately.



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#### For Teachers...



Make the students write additional information about the safety rules to be followed at home, road, school and in public places.

## If you smell leakage of cooking gas

- Open the kitchen windows.
- Do not use the electrical switches.
- Close the regulators of the gas cylinders.



## While handling electric appliances

- Do not touch the electrical appliances with wet hands.
- Avoid using electrical appliances with ruptured insulations.
- Avoid using cell phones while it is being charged.



● \_\_\_\_\_

## To avoid being poisoned

- Keep paints, insecticides and medicines away from the reach of children.
- Do not take any medicine without consulting the doctor.
- Do not eat decayed and spoilt food.
- Do not consume medicines that are of expiry date.



● \_\_\_\_\_

\_\_\_\_\_



## ROAD SAFETY

Most of the accidents take place due to carelessness and inefficiency of the drivers. Strictly follow the traffic rules while walking and crossing the roads.

### Road rules

- Must walk only on the platform.
- Do not play on the road.
- Before crossing, look on both sides of the road.
- Do not cross in spaces between the parked vehicles.
- Do not use cell phones while driving / riding.
- One must wear helmet while riding a two wheeler.

### Activity



### For emergency...

Whom should we call from the numbers given below for our immediate help? Find out and write.

101 \_\_\_\_\_ 100 \_\_\_\_\_ 103 \_\_\_\_\_



**Road safety week is celebrated in the first week of January.**

## Activity



Identify the signs and write their captions.

Do not park vehicles, railway crossing, hospital, do not horn, turn left, stop, go slow, turn right, listen, go, narrow path, school.



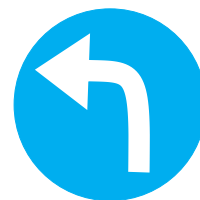
\_\_\_\_\_



\_\_\_\_\_



\_\_\_\_\_



\_\_\_\_\_



\_\_\_\_\_



\_\_\_\_\_



\_\_\_\_\_



\_\_\_\_\_



\_\_\_\_\_



\_\_\_\_\_



\_\_\_\_\_



\_\_\_\_\_

## SAFETY AT SCHOOL

Children may fall down and get injured while playing in the playground.

### To avoid that

- Do not play with sharp tools.
- Do not ignore the game rules.
- Do not involve in rough games.



## SAFETY AT PUBLIC PLACES

- Burst crackers only with the help of elders.
- Do not go to the deep waters.
- To avoid stampede, follow the queue system.

● \_\_\_\_\_

● \_\_\_\_\_

## First Aid

- First control the bleeding of an injury and then take the injured to the hospital.
- In case of a fracture, avoid further movements and tie a support to the fractured part. Then go to the hospital.
- Do not approach a non-medical practitioner.

- Roll and come out of the place of a fire accident.
- Pour cold water on the burnt portions.
- In case of a fire accident, necessary measures should be taken to avoid further spreading of fire in that area.
- Tie a piece of cloth tightly above the place of bite of poisonous insects like scorpion. Then consult a doctor immediately.

●

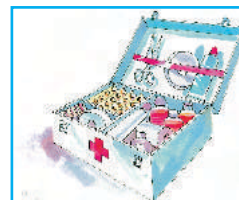
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## First Aid Box

It is very important to have a first aid box in every school. Following things should be available in the first aid box:



- |                                     |                             |
|-------------------------------------|-----------------------------|
| 1. Hot water bottle / hot water bag | 10. Antiseptic ointment     |
| 2. Cotton roll                      | 11. Rubber belt             |
| 3. Sterilized white cloth           | 12. Candle and matchbox     |
| 4. Gauze bandage                    | 13. Hand towel              |
| 5. Pair of scissors                 | 14. Sodium bicarbonate      |
| 6. Plaster                          | 15. Sodium chloride         |
| 7. Forceps                          | 16. Spirit lamp / Stove     |
| 8. Soap                             | 17. Tincture iodine bottle  |
| 9. Antiseptic lotion                | 18. Tincture Benzoin bottle |

## Evaluation



### (a) Answer the following.

1. Mention four road rules.
2. Name some common accidents that take place at home.
3. Mention the first aid given to a fractured person.
4. How can one save himself or herself from the place of a fire accident?
5. How will you help a blind boy to cross the road while going to school?

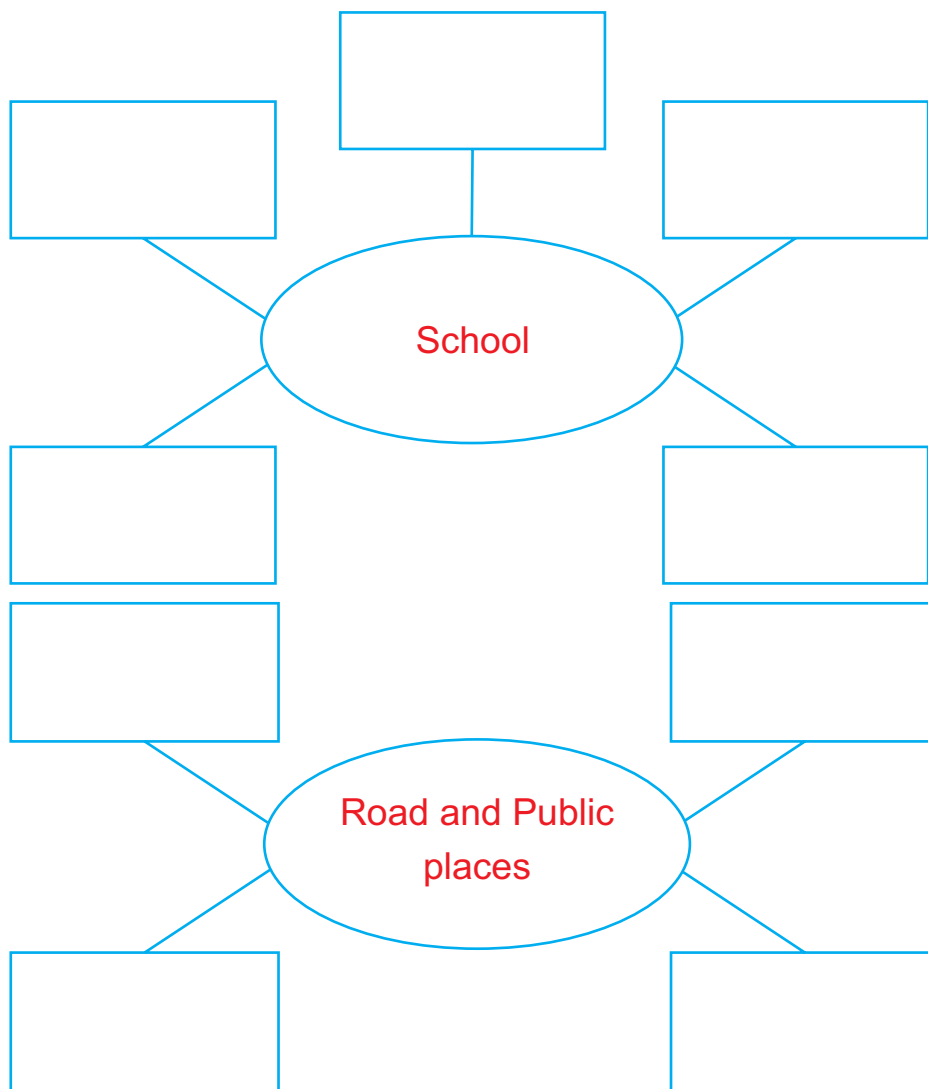
### (b) Fill in the blanks.

1. Do not \_\_\_\_\_ contaminated food.
2. Do not touch \_\_\_\_\_ appliances with wet hand.
3. While walking on the road we must walk on the \_\_\_\_\_.
4. Students should learn to go in a \_\_\_\_\_.
5. We must wear \_\_\_\_\_ for safe walking.

### (c) Discuss the results of the wrong activities given in the picture.



(d) Mention some common accidents at School, on Road and in Public places.



(e) What are the first aid methods for the following accidents?

1. For bone fracture

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2. For fire accident

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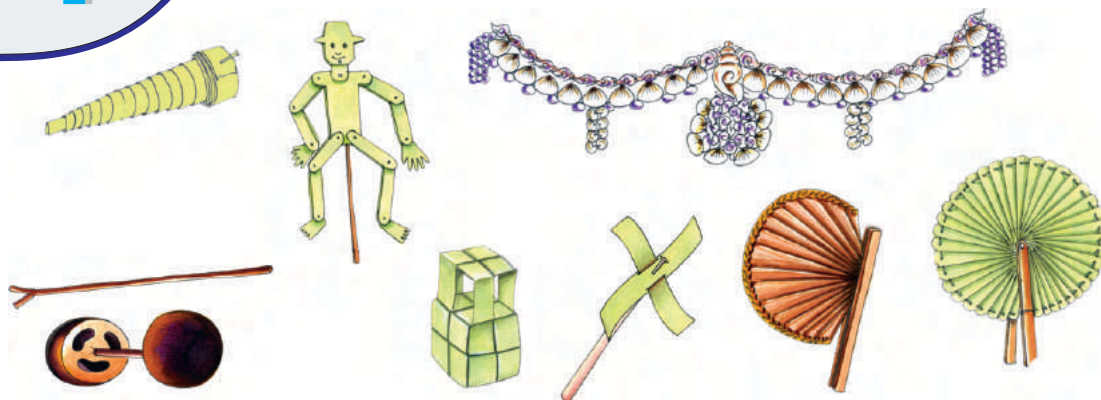
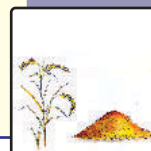
3. For external injury

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# 4

## USES OF NATURAL RESOURCES



Have you played with these things?

Do you know how they are made?

When coconut is peeled, we get coconut fibre. It is used for making ropes. Likewise, we get many things from waste products. We use them for different purposes.

### Activity



S.No.	Waste	By-product
1.	Bark of banana tree	Plate
2.	Bark of the coconut tree	rope
3.	Dried tree	
4.	Worn out tyres	
5.	Defective electrical appliances	

Resources from nature are called natural resources. Plants, animals, aquatic animals, minerals, water, sunlight and air are natural resources.

### Transformation of natural resources into materials for use:

Let us learn about the various uses of rice, husk and rice bran which are obtained from the paddy plant.

The rice we get from paddy plant is used as food.

### TWO TYPES OF RICE

**Raw rice** is obtained by removing the husk from the unboiled rice. While removing the husk some of the nutrition are removed. **Boiled rice** is obtained by removing the husk from the steamed and dried rice. In this, nutrition is not lost.

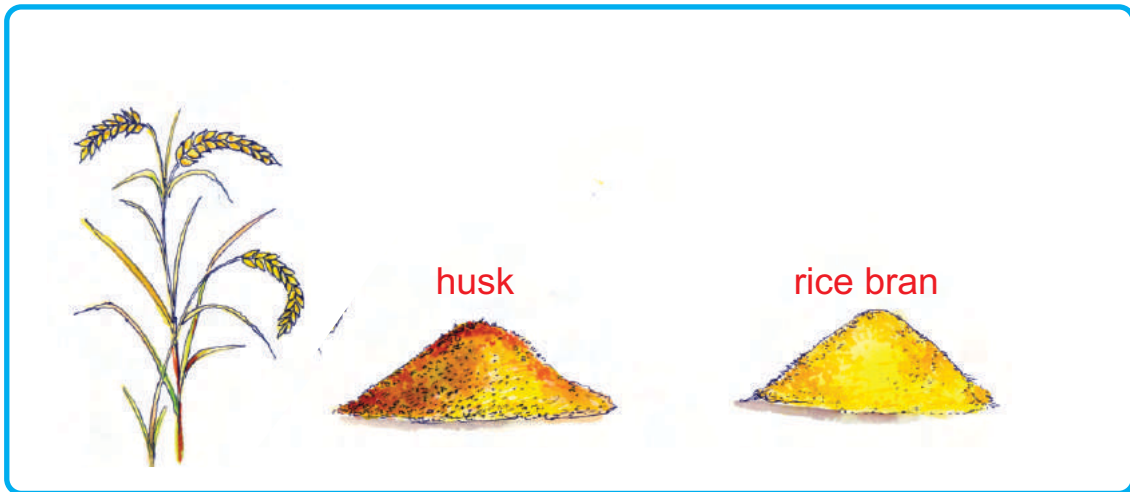
#### GOLDEN RICE

This type of new rice has vitamin A. This improves the eye sight.



We get rice by removing the husk from the paddy. The things we consider as waste such as husk and rice bran are also useful to us.

Let us see how they are useful.



### HUSK AS A FUEL

Husk is used as fuel in houses and industries.

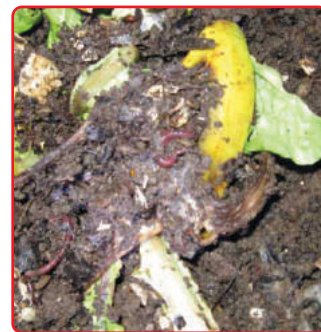
### HUSK AS BRICK

The bricks made from husk and cement are light in weight and protect us from heat. Buildings built out of these bricks have low temperature radiation.



### MANURE FROM HUSK

The manure (vermicompost) is obtained when the earthworms are allowed to grow in the husk. This manure is very good for flowering plants.



## HUSK AS AIR PURIFIER

Activated carbon from the ash of husk is used to purify water. This kills the germs causing diseases.

Let us see how useful rice bran is !

## OIL FROM RICE BRAN

Oil is extracted from the rice bran of the raw rice. It is suitable for cooking because this oil has vitamins and fats that prevent heart diseases. The by-products of this oil is used as food for fish and other animals.



## HAY AS FOOD FOR CATTLE

Hay which is produced from paddy is used as fodder for cattle.



Card boards are made from the paste of hay pulp.

Do you know?



Methane gas released from the paddy fields pollutes the atmosphere and increases the temperature.

## Transformation of natural resources through industries

### STORY OF PAPER

Many centuries ago the Egyptians used different variety of grass called Papyrus for writing. Palm leaves were used in our country. The Chinese were the first to invent paper.

### PAPER FROM BAMBOO

Paper is made from bamboo. It is easy to prepare. Grind the bamboo, add water and boil it to get the pulp. This pulp is passed on thin wire mesh to filter the water and is dried by pressing. Now the paper is ready.



- Do you know which plant purifies the air?



It is bamboo. It is a type of grass plant. Bamboo has the best purifying capacity in the world. It grows faster than other plants. Micro-organisms and fungi cannot destroy bamboo plants.

#### Activity



How are natural resources like rocks, minerals useful?

Rocks : Gravel—To make road

Minerals : \_\_\_\_\_

## PRODUCTION OF WASTAGES

Things that are not useful for us are called as waste.

What are the waste things present in the dustbin of your house?

### Activity



Write the wastes from places given in the table.

S.No.	Place	Waste
1.	House	
2.	Vegetable shop	
3.	Building construction site	
4.	Office/ school	
5.	Hospital	
6.	Automobile shop	
7.	Nearby industries	
8.	Marriage hall	
9.	Electric goods repair places	

Torn clothes, plastic, glassware, unused vessels, food, old medicinal bottles, broken electrical lamps, used cotton, syringe, syringe tubes, smoke, chemical waste, broken bricks, rubber tube, worn out tyres, torn leaves, smashed paper tumblers, rotten vegetables, lime stone pieces.



## TYPES OF WASTE

### Biodegradable Waste

Bury the vegetable wastes under the soil. See after a month. You can see that they are decomposed with the soil. Aren't they? These are called **biodegradable waste**.

### Non-Biodegradable Waste

Bury polythene cover under the soil. After a month it will be in the same form. The things which are non decomposable are called **non-biodegradable waste**.

Project:



Collect tomato, brinjal, banana leaves, glass, flowers, plastics, iron pieces, ceramic, wood, cotton cloth, a piece of brick and small aluminum vessels. Put them in a pit and cover with sand. After few weeks dig the pit and see.

Note down what you have observed in the given table.

S.No.	Things not found in the pit (Biodegradable)	Things found in the pit (Non-Biodegradable)
1.		
2.		
3.		
4.		
5.		
6.		

## TYPES OF WASTES AND THEIR SOURCES

- ☐ Rotten fruits, broken gravels from building construction, bricks are the **solid wastes**.
- ☐ Waste water from factories, gutter water, wastages in liquid forms are the **liquid wastes**.
- ☐ Smoke from vehicles, industries and poisonous gases are the **gaseous wastes**.



### Activity



List the waste produced from a house, a vegetable shop, a building construction site, a school, an automobile shop, a marriage hall, an electrical shop and a hospital.



Sl. No.	Solid Waste	Liquid Waste	Gaseous Waste
1.			
2.			
3.			
4.			
5.			



## RECYCLING

Have you ever seen a person who buys old paper and old things from your house?

List the things taken by him.

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How are these things changed and reused?


Changing the used products into new useful products is called **recycling**.

You can make papers and products out of pulp made from the waste papers. By doing so, the cutting down of trees will be reduced.

Iron, gold, silver, and copper could be melted and used again.

Things which are marked with  can be recycled.



Things that are not marked with  cannot undergo recycling. e.g. petrol, diesel, coal etc., They mostly pollute the environment.

Do you know?



Time taken by the things to undergo decomposition.



1

Paper - 2 to 5 weeks

4

Metal - 50 to 500 years

2

Cloth - 2 to 5 months

5

Glass - 50 to 10 lakh years

3

Wood - 10 to 15 years

6

Plastic - uncountable years

usage of plastics should be avoided. Why?

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## Evaluation



### (a) Fill in the blanks.

1. \_\_\_\_\_ and \_\_\_\_\_ are natural resources.
2. \_\_\_\_\_ is used as an important food.
3. Outer covering of the paddy is called \_\_\_\_\_.
4. Oil got from rice bran is \_\_\_\_\_.
5. \_\_\_\_\_ waste is obtained from broken bricks.

### (b) Match the following.

- |                  |           |                          |
|------------------|-----------|--------------------------|
| 1. Rice          | – Manure  | <input type="checkbox"/> |
| 2. Bamboo        | – Food    | <input type="checkbox"/> |
| 3. Rice bran oil | – Paper   | <input type="checkbox"/> |
| 4. Husk          | – Cooking | <input type="checkbox"/> |

### (c) Answer in detail.

1. Give two examples for each
  - a) Solid wastes
  - b) Liquid wastes
2. What are the uses of husk?
3. How is paper recycled?
4. What are the advantages of growing bamboo trees?
5. Why should we use natural resources in limited quantity?

## Project:



Organize a group discussion to find ways and means to clear the biodegradable and non-biodegradable wastes in your school.

# 'I can, I did'

## Student's Activity Record

**Subject:**

Sl.No	Date	Lesson No.	Topic of the Lesson	Activities	Remarks