

SCIENCE

IV STANDARD

Term II

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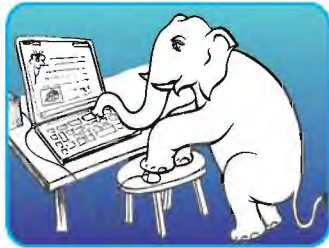
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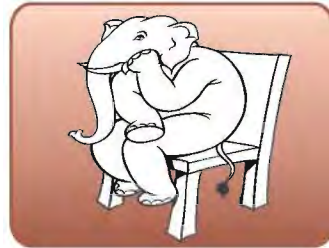
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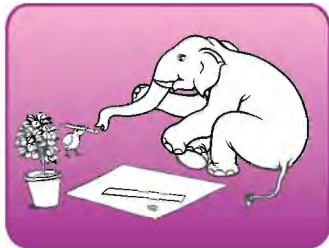
What This Icons Stands For !



Do You Know ?



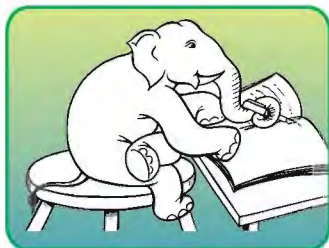
Think and write



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.

Yesterday I ate fish curry with rice. I like fish curry very much.

I ate ragi porridge and curd.

Yesterday I ate dosai and egg.

My mother cooked pulses rice dosai and vegetables. I don't like vegetables. so, I ate only pulses rice dosai.

I ate chappathi and channa masala curry.

Activity



Write about what you ate yesterday.

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..

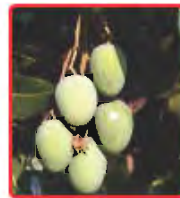
- Food gets digested easily.
- Add taste and aroma, germs are killed.
- Food becomes soft.



Think it over!



From the pictures, write the food that can be eaten raw:



_____ , _____



_____ , _____



_____ , _____



_____ , _____



_____ , _____



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 and taste it.



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

a. Lemon Juice

Squeeze lemon
in water

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.

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 fast 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

- Eat food that gets digested easily.
- Liquid food such as porridge, fruit juice and tender coconut are good to drink.
- 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 number.

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

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"/> |

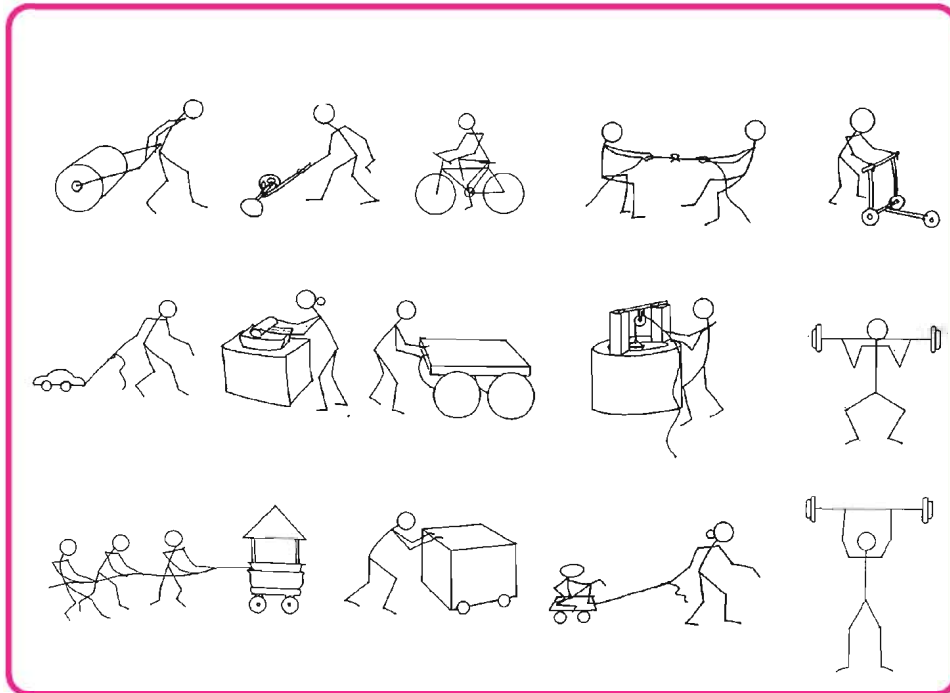
(d) Answer the following.

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

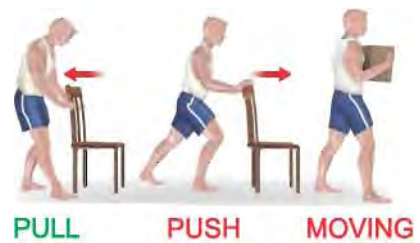


When an object moves from one place to another, we say it is under motion.



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 quantity of the **force** 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.

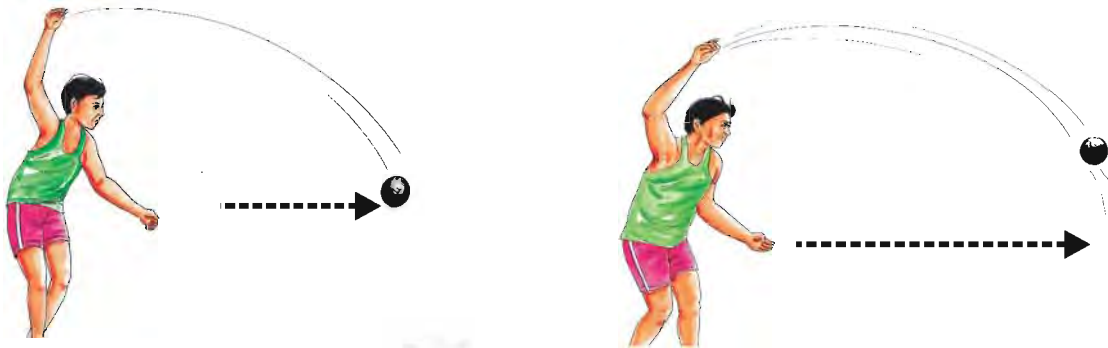
When an object moves to a distance due to a pull or a push, then it is said to be work done. If an object does not move by a push or a pull, work **is not done**.

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. 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 food.

From where did the running bus, steam engine, lorry get their 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.

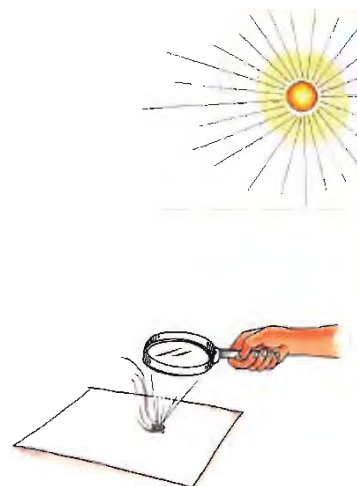


Activity



Smoke without fire

Take a thin sheet of paper and place it in the 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. Write about the incidents taking place in a hospital which involves 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 used to light lamps?
5. What are the fuels 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 throw toys, slippers and other things everywhere.
- Keep them in their proper places.
- Clean the water, oil and other liquids spilt on the floor.



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.



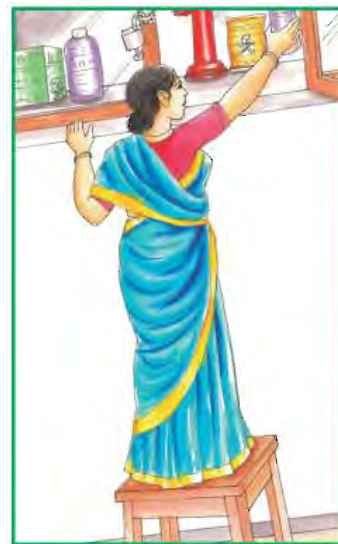
While handling electric appliances

- 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 play ground.

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.
- Tightly tie just above the place of bites of poisonous insects like scorpion and then consult the doctor.

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 match box |
| 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?

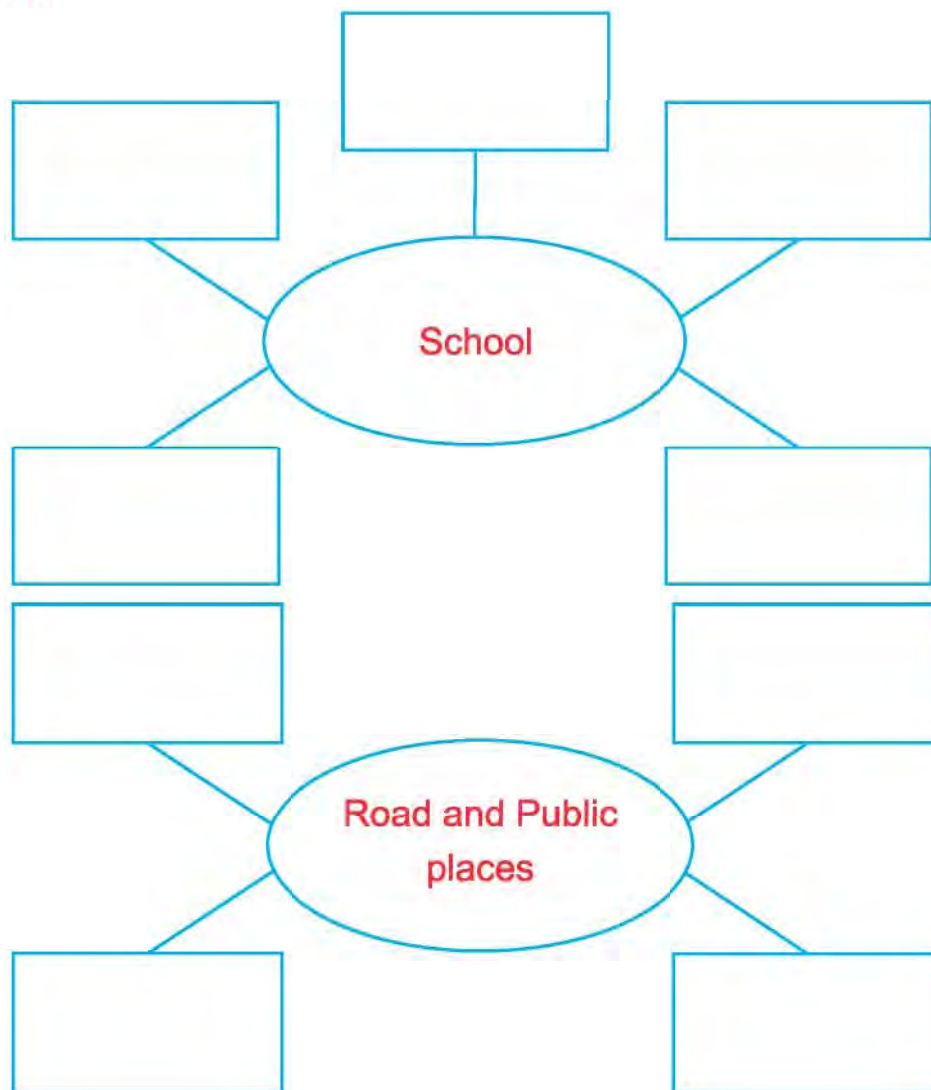
(b) Fill in the blanks.

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?

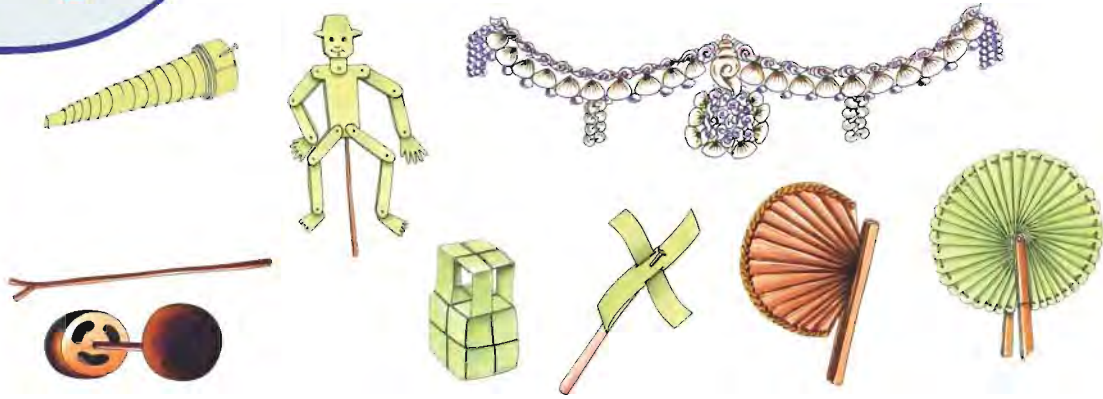
1. For bone fracture

2. For fire accident

3. For external injury

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, sun light 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.

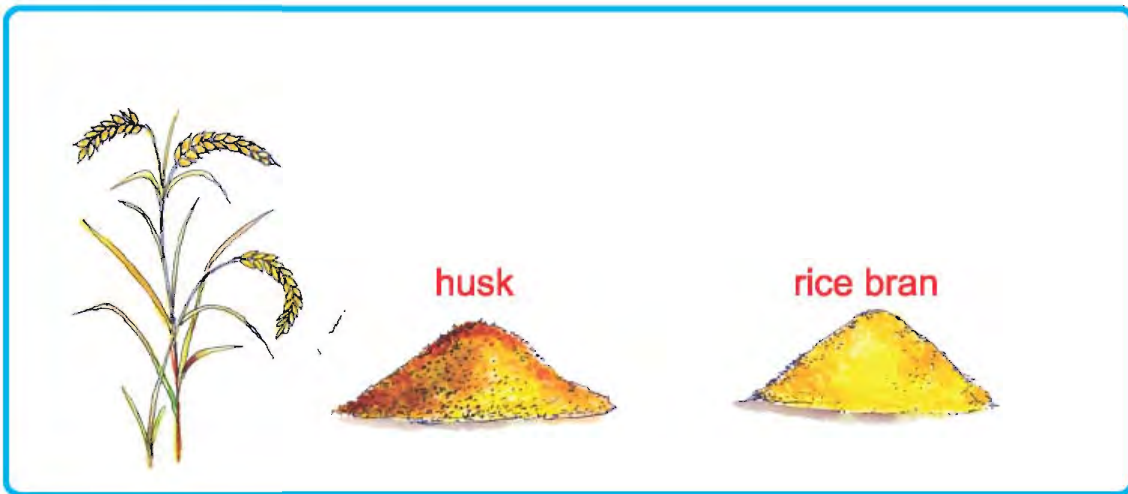
GOLDEN RICE

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 wastes present in the dustbin in 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

Bio-Degradable 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 **bio-degradable waste**.

Non Bio-Degradable 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 bio-degradable 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 (Bio-Degradable)	Things found in the pit (Non Bio-Degradable)
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 out 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 out the things taken by him.

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. eg. 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?

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 bio-degradable and non bio-degradable wastes in your school.

SOCIAL SCIENCE

IV STANDARD

Term II

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Thiru.**R.BALASUBRAMANIAN**,Theni.

Thiru.**S.MANOHARAN**,Theni .

Thiru. **M.JOHN RAJA**, Cuddalore .

DTP

Thiru. **R.TAMIL SELVAN**.

LAYOUT DESIGN

Thiru. **R. YUVARAJ** Thiru. **S. DHILIP**

What the Logos stand for?



ANSWER THE QUESTIONS



CHOOSE THE BEST ANSWER



MAP ACTIVITY



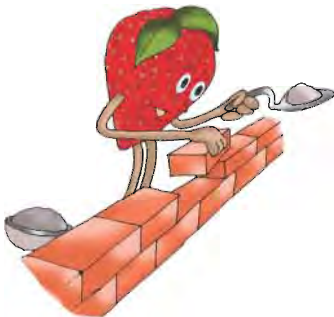
PROJECT



FACTS



MATCH THE FOLLOWING



FILL IN THE BLANKS



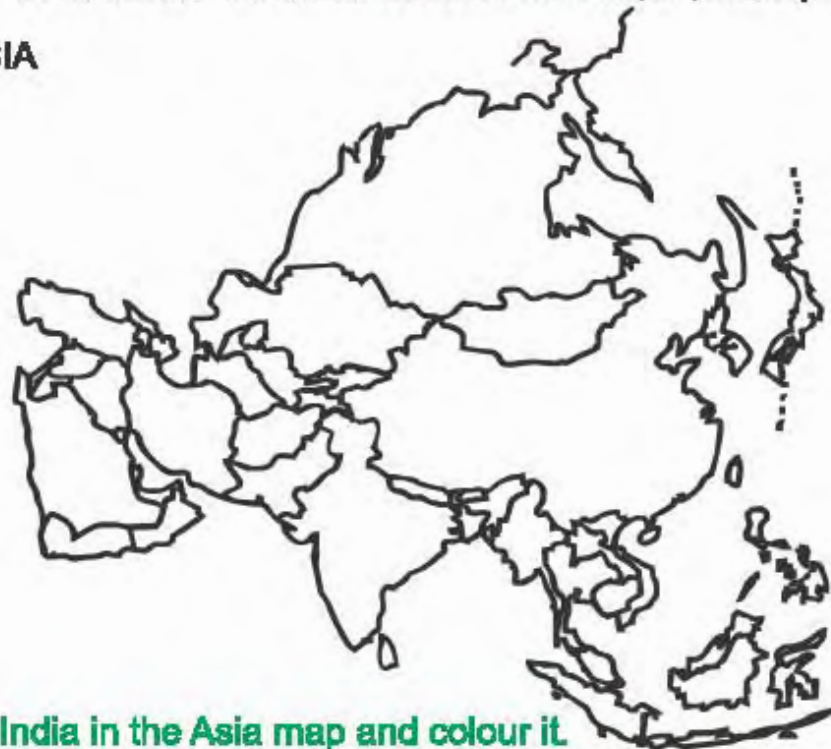
GROUP ACTIVITY



OUR COUNTRY

India is a **sub-continent**. It is a part of the continent **Asia**. It is located to the north of the **Equator**. India is a big country. It is the seventh largest country in the world in area and second to China in population. The southern part of the country is a **peninsula** as it is surrounded by water on three sides. Its total surface area is 32,87,263 sq.km.

ASIA



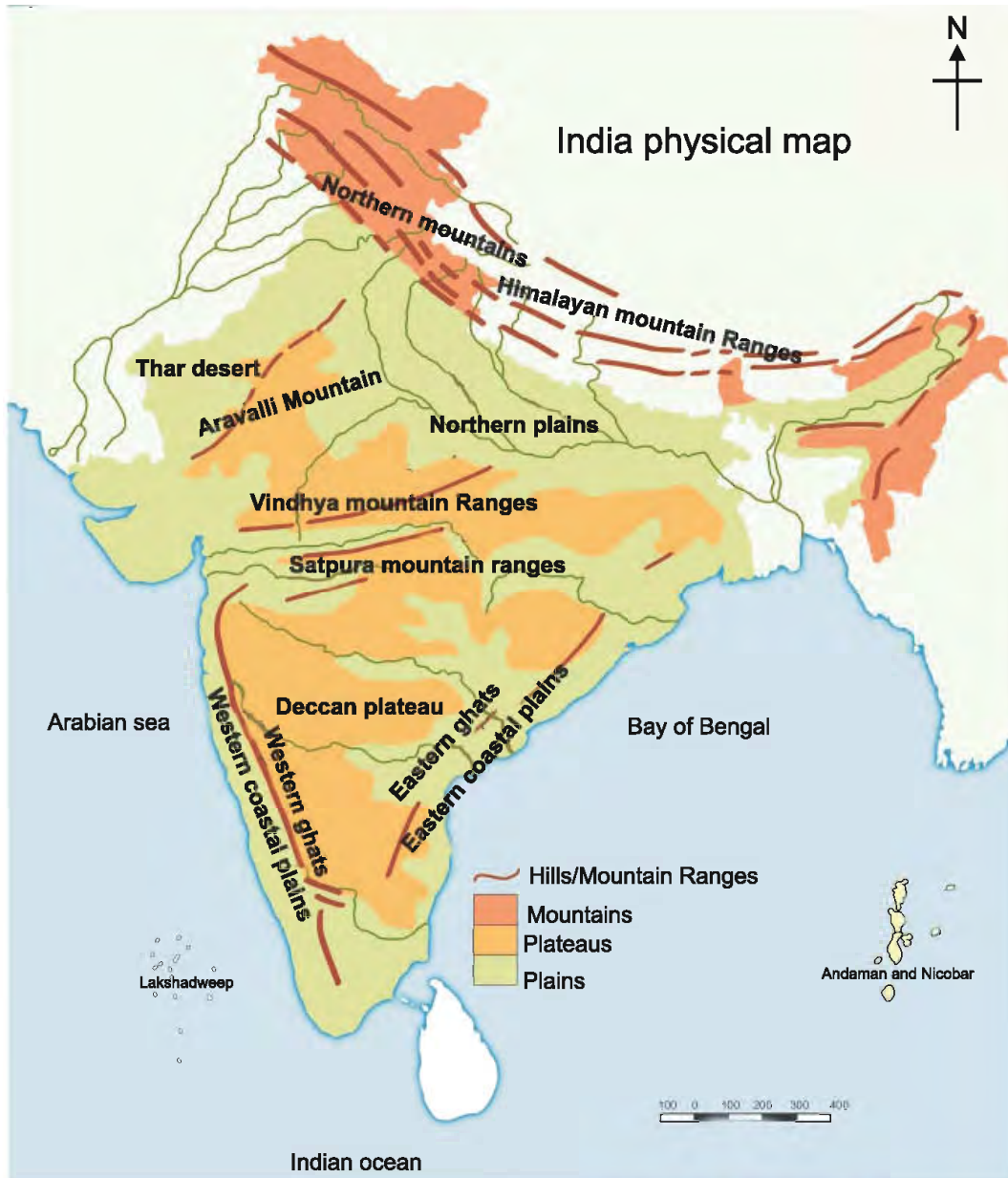
🌐. Locate India in the Asia map and colour it.

🌐. Write the names of neighbouring countries of India.



INDIA'S PHYSICAL FEATURES

The physical features of India are not same across the country. They vary from place to place. India has dry deserts, high mountains, vast stretches of plains and plateaus. Many rivers originate from the mountains and plateaus and flow into the plains.



INDIA CAN BE DIVIDED INTO SIX PHYSICAL DIVISIONS.

1. The Northern Mountains,
2. The Northern Plains,
3. The Great Indian Desert,
4. The Plateau Region,
5. The Coastal Regions,
6. The Island Regions.

1. THE NORTHERN MOUNTAINS

World's highest mountain ranges are located in the northern part of India. Himalaya means 'the abode of snow'. Mount Everest, the world's highest peak, is located in this region.

Himadri or the Greater Himalayas, Himachal or the Middle Himalayas and the Shiwalik, the Outer Himalayas are the three ranges of mountains in this region. Rivers like Ganga, Yamuna, Brahmaputra, Satluj and Indus originate from here. The popular hill stations of this region are Mussoorie, Shimla and Darjeeling.



IMPORTANCE OF THE HIMALAYAS

1. They protect us from the cold winds blowing from the north.
2. They bring heavy rainfall to the northern plains.
3. The rivers originating from the Himalayas make our land fertile

2. THE NORTHERN PLAINS

To the south of the Himalayas lie the Northern Plains or the Indo-Gangetic plains. It is a flat region watered by the Himalayan Rivers. These rivers deposit silt or alluvial soil on this plain, which makes the region very fertile. Many crops like wheat, rice, sugar cane and cotton are grown here.



The delta made by Ganga and Brahmaputra is called Sundarbans. It is the largest in the world. This region is thickly populated. Some important places located in this region are Delhi, Agra, Allahabad and Kolkata.

3. THE GREAT INDIAN DESERT

The sandy area known as the Thar or the Great Indian Desert lies to the north west of India. It receives very little rainfall and so it is very dry and sandy. Hot winds and sand storms are very common here.

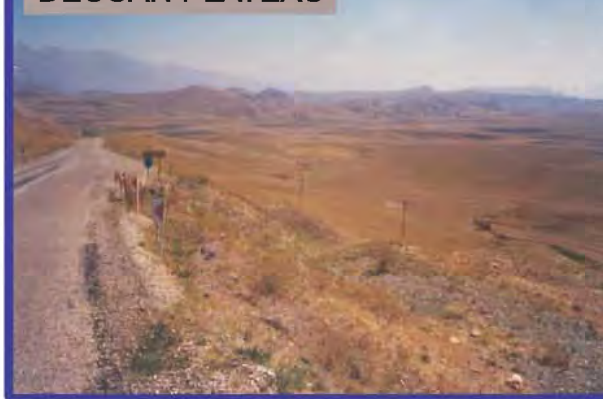
These winds make sand hills called **sand dunes**. They keep shifting every time when there is a strong wind. There are a few **oases** in this area. [An oasis is a green and fertile place in a desert or wasteland.] A few crops are grown around these oases. People rear **camel and cattle**.

People keep moving from place to place in search of food and water. Now the **Indira Gandhi Canal** supplies water to the farmers of Rajasthan. The Camel is called the **Ship of the Desert** as it can walk easily in the sand and go without water and food for days together.

THAR DESERT



DECCAN PLATEAU



4. THE PLATEAU REGION

Plateaus are also called tableland. They are elevated portion of the earth. The plateau region of India is divided into three main parts. They are **Malwa Plateau** in the west, **Chota Nagpur Plateau** in the north and **Deccan Plateau** in the south.

The Deccan Plateau lies between western ghats and eastern ghats in the south. This Plateau is surrounded by chains of hills called the **Western Ghats** in the west and the **Eastern Ghats** in the east. This Plateau slopes from west to east.

Important rivers of this region are **Mahanadi, Godavari, Krishna, and Cauvery**. These rivers start in the west and fall into the **Bay of Bengal** in the east. The west flowing rivers **Narmada** and **Tapti** start in the east and fall into the **Arabian Sea**. Most parts of this region have black soil. **Cotton and sugar cane** are the major crops here.

5. THE COASTAL REGIONS

Narrow strips of plains are found along the east coast and the west coast of India. They are called **The Eastern Coastal Plains** and the **Western Coastal Plains**. The two coasts meet at **Kanniyakumari**.



6. THE ISLAND REGIONS

An **island** is a piece of land surrounded by water on all sides. The islands that belong to India are **Lakshadweep** in the Arabian Sea and the **Andaman** and **Nicobar** islands in the Bay of Bengal.

INDIA POLITICAL DIVISIONS

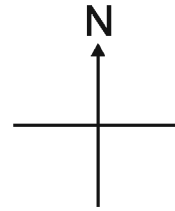
India is a democratic Republic. It has been divided into smaller areas called States and Union Territories for effective administration. We have a **Central Government** which looks after the affairs of the whole country and the affairs of the states are looked after by the **State Governments**. At the state level the governments are elected by the people of that state. We have 28 states and 6 union Territories and New Delhi is the National capital territory.

In which direction is the capital city of India located? _____

If a tourist from a foreign country visits India where will you take him/ her? Why?

Union Territories are ruled directly by the Central Government. The President of India appoints an Administrator or Lieutenant-Governor for each union territory.

INDIA POLITICAL MAP



With the help of the map given in the previous page ,
Write the capitals for the following states .



1.	Andhra Pradesh	
2.	Arunachal Pradesh	
3.	Assam	
4.	Bihar	
5.	Chattisgarh	
6.	Goa	
7.	Gujarat	
8.	Haryana	
9.	Himachal Pradesh	
10.	Jammu and Kashmir	
11.	Jharkhand	
12.	Karnataka	
13.	Kerala	
14.	Madhya Pradesh	
15.	Maharashtra	
16.	Manipur	
17.	Meghalaya	
18.	Mizoram	
19.	Nagaland	
20.	Odisha	
21.	Punjab	
22.	Rajasthan	
23.	Sikkim	
24.	Tamil Nadu	
25.	Tripura	
26.	Uttar Pradesh	
27.	Utharkhand	
28.	West Bengal	

Find out and write the names of Union Territories and its capitals with the help of the political map of India

SL.NO	UNION TERRITORY	CAPITAL



FACTS

1. India got its name from Indus Valley.
2. The snow – clad Himalayas have been described by Kalidasa as the 'King of Mountains'
3. The Camel is called the ship of the desert because it is used as a “beast of burden” in the deserts.
4. Most of the beautiful cities of India are located on the plateaus, E.g. Gwalior, Bhind, Morainia and Shirpuri.
5. Rajasthan is popularly known as 'the most colourful desert in the world' and it is the Number one Tourist destination.
6. The Andaman and Nicobar Islands consist of a group of 204 Islands. Lakshadweep has 43 islands.
7. Port Blair, the Capital city of the Andaman was the dreaded site of the cellular jail used by the British for banished convicts.
8. Marina beach in Chennai is the second longest beach in the world.
9. India is the largest democracy in the world and one of the most ancient civilizations.

LABEL THE STATES AND ITS CAPITALS IN THE GIVEN MAP.



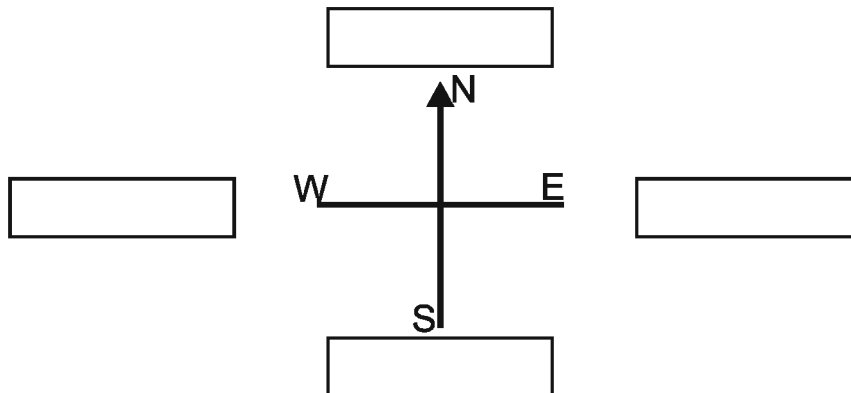


ACTIVITIES (WITH THE HELP OF ATLAS)

1. Write the names of the states and capitals that begin with the letters given.

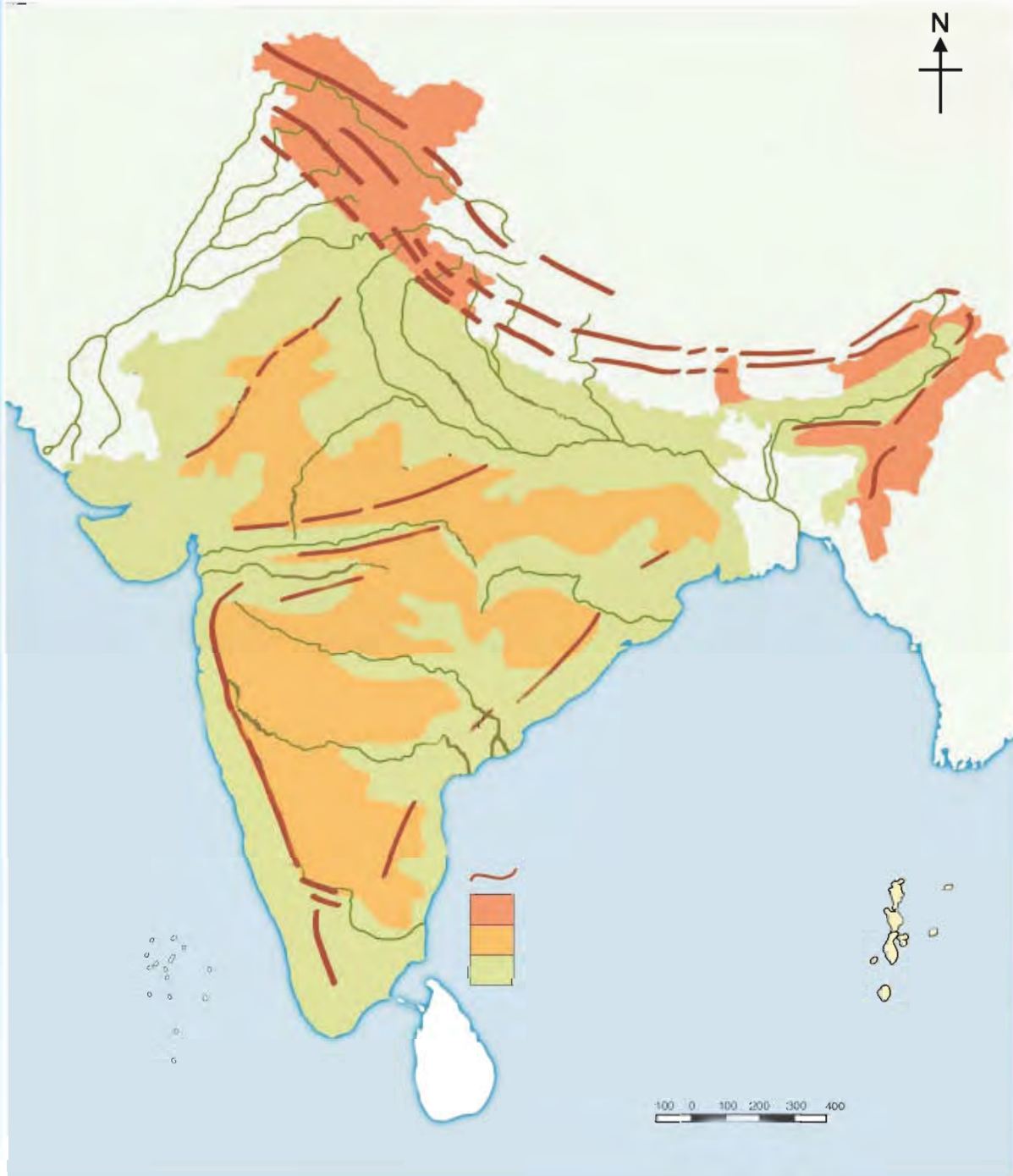
States	Capitals
G _____	S _____
O _____	H _____
A _____	I _____
	M _____
	L _____
	A _____

2. Which is the smallest state in India?
 3. Write the names of the mountain ranges, islands, valleys, rivers and plateaus in India.
 4. Which is the southern tip of India? How would you reach there from your place?
 5. A cultural dance troupe starts from Tamilnadu by train to give performance in New Delhi. List the states they have to pass through on their journey to New Delhi.
-
6. Collect the wrappers of household items. Find out where these products are manufactured. Paste a piece of that cover in the state in which it is manufactured.
 7. Write the boundaries of India in the word web.



MARK THE FOLLOWING IN THE GIVEN MAP

1. Deccan Plateau
2. Thar Desert
3. Coastal Plains
4. Mountain Ranges



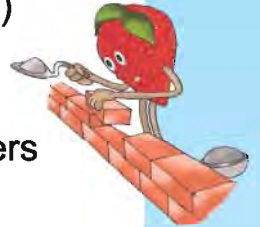
EXERCISE

I. UNSCRAMBLE THE WORDS AND FILL IN THE BLANKS.

1. I am the largest desert in India _____(HART)
2. I am an island region of India _____(EEWDPALKAHS)
3. I am the highest peak _____(TESEREV)

II. FILL IN THE BLANKS

1. _____ and _____ rivers originate in the Himalayas.
2. The _____ is called the ship of the desert
3. The Northern Plains are also called the _____
4. The Andaman and Nicobar islands lie in the _____
5. The Coastal Plains meet at _____



III. MATCH THE FOLLOWING

- | | | | |
|------------------------|---|----------------|-----|
| 1. Thar | - | island | () |
| 2. Andaman and Nicobar | - | desert | () |
| 3. Himalayas | - | fertile plains | () |
| 4. Northern plains | - | mountains | () |



IV. ANSWER THE FOLLOWING

1. Why are the Himalayas important to India?
2. How do the rivers in the Northern Plains have water even in summer ?
3. What is a sand dune? How do sand dunes get shifted?
4. Why do most rivers in the Deccan plateau flow from west to east?
5. Why has India been divided into States and Union Territories?
6. How are Union Territories governed?





NATIONAL SYMBOLS

The national symbols of India are unique. They represent the spirit, values and ideals of our nation. They are helpful in developing the feeling of universal brotherhood. We, as Indians, should always respect these symbols.

NATIONAL FLAG

Our National Flag is horizontal and has three colours of deep saffron at the top, white in the middle and dark green at the bottom in equal proportion.

The ratio of width of the flag to its length is 2:3. In the centre of the white band we have a navy-blue wheel which represents the **chakra**. It is adopted from the **Sarnath Lion Capital of Ashoka**. It has **24 spokes**.



The design of the National Flag was adopted by the Constituent Assembly of India on **22 July 1947**.

NATIONAL EMBLEM

The National Emblem is a symbol of our country's authority. It was adopted by the Government of India on **26 January 1950**.

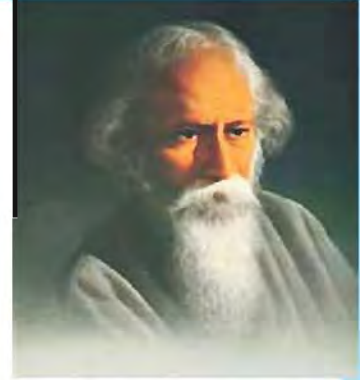


The emblem consists of three visible lions and the fourth being hidden from view. The wheel appears in relief in the centre of the abacus with a bull on right and a horse on left and the outlines of other wheels on extreme right and left.

The words **Satyameva Jayate**, meaning '**Truth Alone Triumphs**', was adopted to show the world that India is a peace loving country.

NATIONAL ANTHEM

Our National Anthem Jana Gana Mana.... was written by the great poet and writer Rabindranath Tagore. The song which Tagore wrote had 5 stanzas out of which only the first 13 lines were chosen as our National Anthem .



We should sing it within 52 seconds. It fills us with a strong sense of pride and unity.

NATIONAL ANIMAL – TIGER

The magnificent tiger is a combination of grace, strength, agility and enormous power. It has earned its pride of place as the national animal of India.



Out of eight races of the species known the Indian race, the Royal Bengal Tiger, is found throughout the country except in the north-western region

NATIONAL BIRD – PEACOCK

The Indian peacock is the National Bird of India. The male of the species with a glistening blue breast and neck and a spectacular bronze-green tail of around 200 elongated feathers is the National Bird. The elaborate courtship dance of the peacock, fanning out the tail and preening its feathers is a beautiful sight.



NATIONAL SONG

Our National Song **Vande Mataram** was composed by **Bankim Chandra Chatterji** in Sanskrit. It was a song that served as a motivation to the Indians during the freedom struggle.



NATIONAL FLOWER – LOTUS

Lotus is the National Flower of India. It is a sacred flower and occupies a unique position in the art and mythology of ancient India. It has been an auspicious symbol of Indian culture since time immemorial.



NATIONAL TREE – BANYAN



The National Tree of India is the Banyan tree. It is a huge tree with deep roots. It symbolises the country's **unity**. This tree is considered immortal and is an integral part of the myths and legends of India. Even today, the banyan tree is the focal point of village life.

NATIONAL FRUIT – MANGO

Our National Fruit is Mango. Mango is called the **Food of the Gods**. The word mango originated from the Tamil word "mangai"



Our National Symbols depict our rich culture and tradition. We as Indians should know the values behind these symbols and respect them.

Trace the emblem using a coin here



EXERCISE

I. FILL IN THE BLANKS

1. The _____ symbols represent the spirit, values and ideals of our nation.
2. The design of the National Flag was adopted on _____
3. Our National Anthem was written by _____
4. There are _____ spokes in the wheel of our National Flag.
5. _____ is our National Song.

II. MATCH THE FOLLOWING

- | | | |
|--------------------|---|--------------------|
| 1. National Emblem | - | Peacock |
| 2. National Animal | - | Lotus |
| 3. National Flower | - | Tiger |
| 4. National Anthem | - | Sarnath |
| 5. National Bird | - | Jana – gana – mana |

III. ANSWER THE FOLLOWING QUESTIONS

1. What do the three colours of our National Flag stand for?
2. What is written at the base of our National Emblem?
3. When do we hoist the National Flag in our schools?
4. What is the duration of time to sing the National Anthem?

IV. ACTIVITY

1. Draw the National Flag and colour it.
2. Find out how the Flag looked before our independence.
How was it different from our present National Flag ?
3. Collect the national flags of different countries, paste it in your scrap book.
4. Design a symbol and a motto for your school! What does it symbolise ?



SYMBOL



MOTTO



RIGHTS AND DUTIES

When Mrs.Kamala entered the class some of her students were seriously discussing. The moment they saw their teacher they stopped and stood up.

The teacher became curious and asked
"What was the argument about?".

Sita started slowly, "We were discussing about the government . Please tell us about our government."

"India is an independent democratic country. It has a **written constitution,**" began the teacher.

"What is a Constitution?" asked Sakthi.

A Constitution is a legal document. It clearly states the powers and functions of the government and the rights of the people. These rights are called the **basic or fundamental rights.**

FUNDAMENTAL RIGHTS

They are called "basic or fundamental rights" because they are important for an individual to develop his or her personality.

The six fundamental rights are

- ✿ Right to Equality
- ✿ Right to Freedom
- ✿ Right against Exploitation
- ✿ Right to freedom of Religion
- ✿ Right to Culture and Education
- ✿ Right to Constitutional Remedies





“What do you mean by **Right to Equality**?”

Saritha sitting at the back asked hurriedly. It means that all are equal before the eyes of law.

No one can be discriminated on the basis of caste, colour, religion, creed or sex. This right is applied in the matters of education and employment.



“But can we enjoy all these rights?” asked Vijay.

“Oh, yes!” the teacher explained, “In India we enjoy several freedoms. All citizens have the right to express themselves freely, to practise any religion, to move freely with in the country, to live anywhere in India and to take up any job or practise any profession.”



But we should remember to respect the freedom of others while enjoying ours”.

“Are these rights and freedom meant for children also?” Kumaravel asked. ‘Yes, of course. These are meant for all the citizens of India’, the teacher answered.

Then why do we see children selling things on the roadside?

“It is really sad that such things happen now. They should be given opportunities to get education. Poverty should not stop their development. That is why **The Right against Exploitation** is included in our constitution. This protects children, women and the poor. Our constitution says that children below the age of 14 years should not be forced to work.



Free and Compulsory Education Act 2009. This Act makes education a fundamental right of every child between the ages of 6 to 14.”

“What do you mean by the **right to constitutional remedies**?”

“It means, the citizens of India have the right to go to the court if any of their fundamental rights is violated”.

“Our country is providing such a lot of facilities for us. What should we do in return?” asked Dhatchna.

‘Just as the fundamental rights, we are also asked to perform certain **fundamental duties**. We should observe all those duties. Rights and duties are like two sides of the same coin. While exercising our rights we should also remember that we have certain duties to perform.

“What are they?” asked Lithisha from the last row.

The teacher listed the duties,

- ☀ Every citizen should respect the constitution of India, National flag and National Anthem.
- ☀ We should follow the principles for which our leaders fought.
- ☀ We should be willing to help our country when needed.
- ☀ We should remain united.
- ☀ We should take care of public property.
- ☀ We should take care of forests, rivers, lakes and wild life which form our natural environment.
- ☀ We must get rid of all superstitions and learn constantly to reach excellence.

But these rights and duties are meant for elders. How about children like us? asked Balamurugan. Anand got up and added, 'Is there any law that protects the interest of children?'

That is why it is said that all children have a right: to live, to have a name and nationality, to be with their families as far as possible, to have a good quality health care, should be protected from violence and neglect and to say what they think. Any more questions? The teacher asked before winding up the class.

ACTIVITIES

1. LIST THE RIGHT THINGS TO DO IN THE CLASS.

Subheads : Working Quietly, Cleaning Up, Waiting to Speak, Playing Fairly, Asking Permission, Raising Your Hand, Sharing, Using Equipment, Taking Turns)



2. WRITE A "CLASSROOM CONSTITUTION"

Ask students to suggest rules to conduct the classroom smoothly . As each rule is proposed, have the class vote on whether it should be included or not in the document . If majority in the class vote for it, the rule becomes part of the constitution.



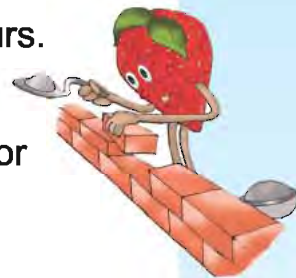
EXERCISE

I. WHICH OF THE FUNDAMENTAL RIGHTS AND DUTIES CAN BE APPLIED UNDER THE FOLLOWING SITUATIONS?

1. Ramu's father is a gardener. They are poor and so he doesn't go to school.
2. My neighbour Sankar is leaving for Delhi as his father has got a job there.
3. Our class is going to clean the near by temple this week end.
4. Poonam is 8 years old. She works in a factory for long hours.

II. COMPLETE THE FOLLOWING SENTENCES.

1. _____ are essential for an individual to develop his or her personality to lead a decent life.
2. All are equal before the eyes of _____.
3. Right _____ is included in the constitution specially to protect children, women and the poor.
4. We should follow the _____ for which our leaders fought.
5. Rights and duties are like two sides of the same _____.



III. ANSWER THE FOLLOWING

1. Why are the rights called Fundamental or basic?
2. What should we remember while enjoying our freedom?
3. What does the right against exploitation say?
4. What is meant by right to constitutional remedies?





The life style of people depends on the work they do, the way they spend their free time and money and the values on which they have based on their lives. In other words, it is their needs and wants which are influenced by their family and cultural background.



Every Indian city has people of different types of cultures and customs adapting to the new situation and living together with the locals peacefully. These people are the image of our nation and the example of unity in diversity. This lesson is a narration of people who have adapted themselves to a new way of life out of necessity.

Through them we can understand the changes and the ability of man to adapt to new life styles.

VASAMALLI-TODA GIRL

My name is Vasamalli. I am 9 years old. I live in **Kodap mund Udagamandalam** or **Ooty** as it is popularly known. I belong to a hill tribe called **Toda**. Our Toda settlements are called **Mund**. My father's name is Korattas and he works in a tea estate .

My mother's name is Pudumallis. She is a teacher in a local school. I study in class IV in the same school. We walk quite a distance to reach school. I get up early in the morning and help my mother. After school, in the evening I hardly get an hour to play, as it gets cold very early in the evening. Whenever my mother gets time she tells me about her childhood.



VASAMALLI

She said that she had to struggle hard to escape child marriage and get educated, as education was not common especially for girls. I was surprised when she said that my grand father was very eager to increase the number of buffaloes he had, as the person with large number of buffaloes was considered the wealthiest in the Mund.

The old ideas are changing slowly because of our contact with people in the town. We do not live in the Toda hut which is built with bamboo, dried grass and loose stones piled one on top of the other, with a low entrance. Earlier this protected them from the cold and wild animals.



Now we live in well-built houses. We wear the traditional two piece white cloth (one around the hip and the other over the shoulder) during the religious ceremony **Kona Shastra** and on special occasions like marriage.

The piece worn over the shoulder is embroidered with black and red threads. We comb and plait our hair and do not curl it using butter like my grand mother. Our elders were pure vegetarians eating only the dairy products and vegetables. But now, we have learnt many things from others. So, our food habits are also changed. Though our life style is changed to a great extent; we still go to our traditional temple to worship Goddess **Teikirshy** and follow the customs during birth and death. How does your dress differ from that of the todas?

MANI-A FARMER FROM TANJORE

My name is Mani. I live in Alathur, Thanjavur district. I was born and brought up here. I am a farmer and I own a small piece of land.



The **alluvial soil**, bright sun and the river **Cauvery** have made this district suitable for agriculture. Rice is the chief crop. Our district is called as the **Rice bowl** of Tamil Nadu. The north east monsoon generally gives plenty of water. So, I cultivate rice and banana. I learnt about cultivation from my grandfather and father. Years back when I was young, things were different.

I could not continue my studies after school as there were no proper bus facilities to go to the college in the town. So, I started helping my father. Life was very tough then, as our land was dependent on the north east monsoon. When it failed we had to go through a lot of hardship. Those days we were working day and night in the land.



There was no proper road and transportation to move our produce to the market. Now things have changed. We have schools and colleges for our children, well laid roads, supply of electricity and water to our lands and homes. Many new centres of entertainment have come. When we have a good harvest, we enjoy life like any body else in the big cities. But at times the untimely rains and cyclones shatter our life causing heavy loss. Some farmers are not able to manage the situation.

The government helps the farmers in many ways. It has brought water even to the interior parts through irrigation projects and canals. We have community halls where television sets and radio are kept for public use. All new technological developments in farming are made known to us either through mass media or through special officers. Now small farmers can come together and form **co-operative farms**.

They have co-operative stores and banks which provide assistance in all matters of farming. I utilise my free time to find some new way to improve my yield. At present I am experimenting on **vermiculture** and **organic manure**. I enjoy being a farmer.

RANBIR-A COOLIE

My name is Ranbir. I am 30 years old. I belong to **Kandivli** (Kandivali) a suburb near **Mumbai**. My parents work in a stone quarry there. They wanted me to take up a job in one of the stone quarries, but I did not like the idea. I studied only up to 8th Class. I came to Tamilnadu by train hoping to get some job. Accidentally I became a coolie.



The life of a coolie may look easy but actually I struggle a lot. From the time I get up in the morning my worries start. You will understand only if I tell you about my work conditions. I am a licensed coolie. All the licensed coolies are given serial numbers. We should take turns to carry luggage. According to the system, every coolie gets a turn once in 2 or 3 hours. In spite of the system, misunderstandings and quarrels are common. I should survive those moments.

I work for 10 to 12 hours a day. I charge travellers from Rs.50 to Rs. 300 depending on the luggage that I have to carry. I earn around Rs.200 a day. We are four in the family. With the rising prices I find it difficult to make both the ends meet.



When my children ask me to buy something, I borrow money from my friends; but it becomes a struggle while returning it.

Nowadays most of the passengers are not hiring coolies. They travel with less luggage and use trolleys and wheeled bags. So my earning has come down. In all these years as a coolie, the only thing that makes me happy is that the languages that I have learnt. I can speak a little English, Telugu, Malayalam and Tamil. My latest delight is learning to drive a car.



SANTHOSH-OWNER OF A FASTFOOD SHOP

My name is Santhosh. I am 25 years old. I was born and brought up in Thirunelveli. My father works in a textile shop there. I studied up to 8th Std. I was not very much interested in studies. I came to Chennai in search of a job. I was struck with wonder to see the buzzing traffic, the crowd and the high buildings. One day, after eating in a roadside shop I was sitting on a stone near by. The shop owner saw me and enquired about me. I told him my story. After thinking for a while, he asked me if I would work in his shop. I agreed. He gave me food, a place to stay and paid a small amount as monthly salary.



In the beginning I was helping him to clean plates and utensils, clean the shop and sometimes even in cooking. I learnt a lot from him. I worked with him for three years. One day I told him that I want to start a fast food shop of my own. He helped me to set up this road side shop. In the beginning by 5'O clock in the evening I was there in the beach with my food items. Within a short period, my business picked up.

How do you spend your free time ?



Things have changed a lot in the last few years! Earlier, very few people bought from the road side shops. But now I prepare chaat items, vada pav and some typical Thirunelveli sweets and dishes. Whatever I prepare gets sold. The demand from the people has made me creative. I try out some innovative dishes too.

Now people earn a lot and do not mind spending. They have become health conscious and very particular about cleanliness. People from all walks of life come with their family enjoy the evening, eat at my shop and go home relaxed. I am earning enough money. But the increased number of fast food shops worries me a lot these days.

When I am free and alone I do miss the lush green paddy fields, the early morning fresh air, a walk along the bank of **Thamirabarani River** and my mother's affectionate calls.



Put the following in the correct columns.

Chips, Ragi malt, Sprout grains, Samosa, Vegetable Salad, Baked Bean, Fresh Juices, Packed Juices

HEALTHY FOOD	JUNK FOOD

FACTS

1. The Todas are a small pastoral community.
2. Worship of God is an important part of the daily life of Indian people.
3. Respecting elders is a common trait among Indians.
4. Namaste is the traditional Indian style of greeting.
5. 'Athithi Devo Bhava' - A guest is always treated as God.

I. ACTIVITIES

1. Discuss with your teacher how the lifestyle of tribes differ from others.

2. List the professions in your locality.



3. GROUP DISCUSSION

- a. A farmer in the Nilgiris
- b. Latest developments in the field of agriculture.
- c. The fastfood culture
- d. The tribes of India

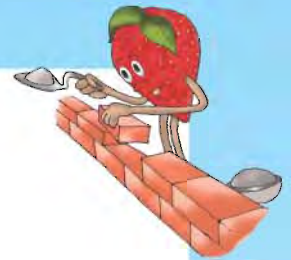
Divide the whole class into four groups and ask them to prepare a writing on the given headings and have a debate.

4. GROUP THE FOLLOWING IN THE GIVEN COLUMNS.

Mund, Noodles, luggage, farming, buffalo, fastfood, kona shastra, rice bowls, organic manure, railway station

THODAS	FARMERS	COOLIE	FAST FOOD SHOP

EXERCISE



I. FILL IN THE BLANKS

1. Earlier the huts of Todas were built with _____
2. Todas wear the traditional dress during _____
3. Mani is experimenting on _____
4. Ranbir borrows money from his friends _____
5. Santhosh was wonder struck when he saw _____

II. ANSWER THE FOLLOWING

1. Who are the best examples of unity in diversity?
2. What surprised Vasamalli?
3. Which monsoon gives plenty of rain to Thanjavur?
4. How long does Ranbir work in a day?
5. What makes Santhosh more creative?



III. GIVE REASONS.

1. Vasamalli's grand father was keen on increasing the number of buffaloes he had.
2. Mani cultivates rice and banana.
3. Ranbir's earning has dropped down.



IV. COLLECT THE DETAILS OF THANJAVUR AND FILL IN .

Location-
Climate-
River -
Monsoon-
Crops grown-
Important monuments-

V. BRING OUT THE PLACES WHERE GEOGRAPHY IS LINKED WITH HISTORY IN THIS LESSON.



INVENTIONS

People say, "Necessity is the mother of invention", said the teacher. Do you agree?

"No, I don't", said Malli. We can invent things for fun. "I have built a special house with just cardboard and cloth".

"I can take it with me wherever I go". "Wow!" said Mani.

"Where did you get the idea?" "From a snail", said Malli.



Have you invented anything just for fun? Name one!



"We can also invent games", said Kadhira. Have you?

"Where did human invention come from?" asked the teacher.

"I am sure it is from nature", said Hemanth. "We can invent something if we are curious", said Ameen.

Now we have reached a stage where we cannot imagine a life without the electronic gadgets. Human life on earth has been a journey of inventions. Let us think about inventions of early human beings. Can you name one important invention?' asked the teacher.

"Fire", said Martin. He loved to invent new items to eat, in the kitchen.

"Right, let's talk about fire", said the teacher.

INVENTION OF FIRE

In the beginning man was scared of the forest fire and the lightning as he did not and could not understand them. In course of time probably he saw bamboos causing fire while rubbing against each other and roots and meat tasting better when softened by fire. He also would have realised that bamboos could be bent to make various things.

“Could it be a girl or a woman who discovered these?” asked Menaka.

“Could be”, smiled the teacher. “It could certainly have been a woman who discovered fire or it could even have been children who noticed and told their parents”.

Man understood that fire provides not only light and heat at night but also keeps the wild animals away.



As time passed by, man learnt to make fire by rubbing hard stones called **flint**. He also used stones as weapons to defend himself from enemies. With the discovery of fire the life of human race changed to a great extent. “Fire has always been sacred to man”, said the teacher.

In the modern times, with the advancement in science and technology fire is used in thermal and nuclear plants, research centres and industries.

“Can you think of another important invention?” asked the teacher. “Plough” said Shankar.

THE STORY OF THE PLOUGH

Agriculture is the backbone of any civilization. Early man observed that seeds produce plants. They obtained fruits, vegetables, grains and roots from plants and trees. Man also learnt that plants grow better in soil that had been loosened.

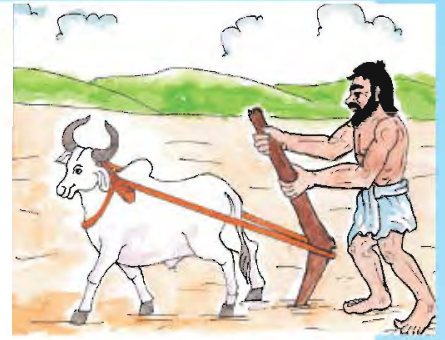
So he used sharp stones and bones to loosen the soil and learnt to produce his food.

People made the first **plough** about 8000 years ago. They used oxen to pull the plough. Thus the plough became a tool to prepare the soil for growing plants.

The first ploughs might have been used in the region which we call now as **Tamilnadu**.



Researchers say that the old word, 'nan gol' for plough can be divided into **nam**: oxen and **kol**: staff – The region which used it first is called as **Nanchilnadu**. Another Tamil word for plough is 'nanchil'! Nanchilnadu is famous for a variety of seeds. The original name of **Kanniyakumari** was **kazhi kudi** or the place of the plough.



With the coming of plough, people settled in one place and built a consistent history. Tamilnadu has an ancient history of agriculture and a variety of seeds.

“The other important invention of the early man was the wheel”, said the teacher.

“We learnt a little about it through Sembian's story in Class III”, said Natasha.

“I am glad you remember what you learnt in the previous class”, said the teacher.



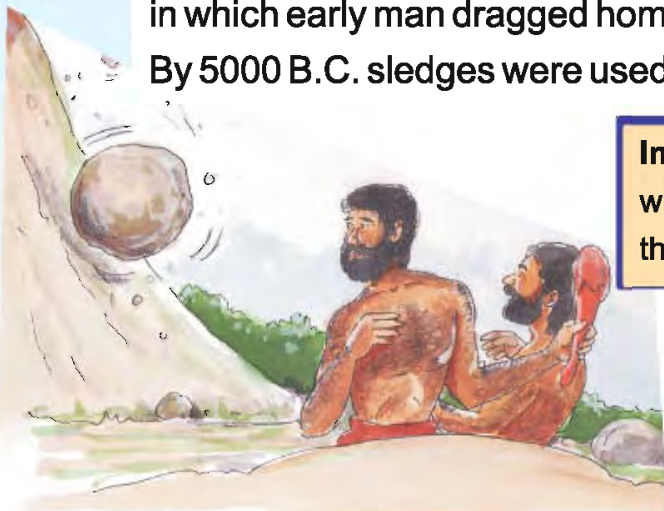
THE INVENTION OF WHEEL

It is not very clear as to when exactly the wheel was invented. But researchers say that it was probably 8000 years ago that man began using the wheel in **Asia**. The oldest wheel that exists today is from **Mesopotamia** [ancient civilization near Egypt], around 5000 years ago. It is believed that it was used in chariots drawn by horses. This is marked as one of the most important steps in the development of human civilization.

The most primitive vehicle must have been a hollowed out tree trunk in which early man dragged home things he collected in the forests.

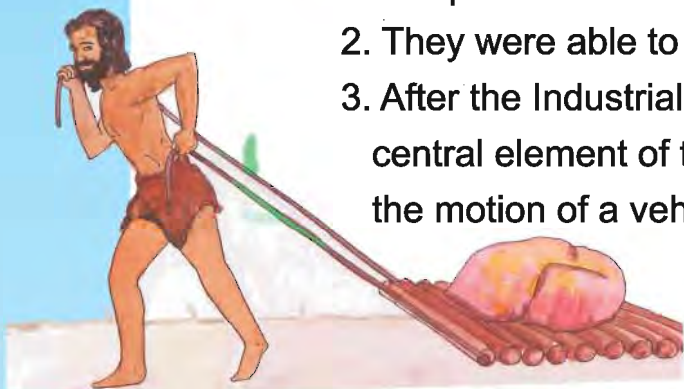
By 5000 B.C. sledges were used to move stone blocks.

Interesting facts on sledges: Egyptians used it when the pyramids were built. Eskimos used them pulled by dogs to carry cargo




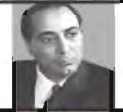


IMPORTANCE OF THE INVENTION OF WHEEL

1. People could travel long distances.
2. They were able to move goods faster.
3. After the Industrial Revolution the wheel became the central element of technology - wheel is used to facilitate the motion of a vehicle or a machine.



Most of the great inventions have been anonymous though humanity as a whole is benefited by them.

“Tell us about Indian scientists and inventors”, asked Mary. “There have been many”, said the teacher. “India has some very great women scientists as well”. **Dr. Asima Chatterjee** evolved an Indian medicine for **epilepsy!** Some of the Indian scientists who made significant contribution in Science are:

	Evolution of stars	S. Chandrasekharan
	Atomic Energy	Dr. J. Bhabha
	Missile technology	A.P.J. Abdul Kalam
	Structure & Function of the ribosome [cell]	V. Ramakrishnan

'Teacher, why are all inventions associated with men?' Purvi asked. The teacher smiled and answered, 'But women have contributed in their own way to the society. **Charles Babbage** was the designer of the modern computer. The first computer program was written by a lady, Ada Lovelace for Babbage's machine even before it was built.

Bessie Nesmith Mary Anderson	white correction fluid windshield wiper
Janaki Ammal	Ethnic botany

The teacher now talked to them about **Sir Jagadish Chandra Bose**.

One of the greatest scientists that modern India has produced is Sir. Jagadish Chandra Bose. He was a famous Physicist and Botanist. He was born in 30th of November 1858 in East Pakistan now Bangladesh. His father's name was Bhagwan Chandra Bose, his mother's name was Abala Bose.



He graduated in Natural Science in 1884 and became a Professor of Physics at the Presidency College, Calcutta. He studied Plant Physiology and proved that plants have life by observing the pulse of the plant through experiments. He also designed an extremely sensitive automatic recorder to measure the growth of plants. He believed that all knowledge belonged to the world. He said, "A true student will not go after money or status – he will be committed to obtaining knowledge so that he can help humanity".

He founded the famous Bose Research Initiative in Calcutta for Physical, Biological sciences in 1917.

He was the first Indian to be honoured as a "Fellow of the Royal Society". He died on 23rd November, 1937 in Bihar.

To conclude the class the teacher said, "This planet of ours has undergone many changes in all respects whenever there was an invention".

Now it is for us to take care of this earth in all possible ways.

Write your favourite scientists names here: _____

KNOWLEDGE UPDATE

INVENTIONS	INVENTORS
Electricity, Bulb, cinema etc	Thomas Alva Edison
Steam Engine	James Watt
Telephone	Alexander Graham Bell
Radio	Marconi
Television	J.L. Baird
Aeroplane	Orville Wright & Wilbur Wright
Pencil	N.J. Kando
Zip	J. Watson
Tooth Brush	William Attilis
Parachute	A.J. Cavanagh

ACTIVITIES

1. The names of the inventors are hidden in their own inventions along with an unwanted letter. If you remove it you will get the names of the inventors.

a) HALEHXAHNHDEHR GRAHAMBHEHLHL – Telephone

b) AWRAIGAHT ABROATHAERAS – Aeroplane

c) BEDIBSOBN- Bulb

2. Compare the lifestyle.

	Food	Dress	Dwelling place
Ancient Man			
Modern man			

3. Predict how the lifestyle will change in another 20 years?

EXERCISE

I. FILL IN THE BLANKS

1. _____ invented the modern pencil.
2. _____ discovered that plants had life.
3. _____ discovered an Indian medicine for epilepsy.



II. MATCH THE FOLLOWING

- | | |
|--------------------|----------------|
| 1. Edison | - Aeroplane |
| 2. Graham Bell | - Steam engine |
| 3. Marconi | - Telephone |
| 4. Wright Brothers | - Electricity |
| 5. James Watt | - Television |
| 6. J.L. Baird | - Radio |



III. IF YOU ARE GIVEN A CHANCE TO REDESIGN YOUR FAVOURITE THING.

(eg. car, camera, phone, pen, Television, dress etc.)

How would you do it?

Draw and show or make a model and explain.

IV. WHICH OF THE INVENTIONS IS THE MOST HELPFUL FOR MANKIND ACCORDING TO YOU? GIVE REASONS FOR YOUR ANSWER

V. TRY OUT A RAINBOW IN YOUR CLASSROOM

MATERIALS NEEDED:

CD/DVD, Torch Light, White Sheet



PROCEDURE:

Paste a sheet on the wall. Make the classroom dark. Now pass the light into the blank side of the CD/DVD and allow the light rays to fall on the white sheet. Now what do you see?

Have you ever seen something like that during a rainy day?

LET US RECALL

What comes to your mind when you think of each lesson?
Write in the given space.











