



Environmental Science

Standard **IV**

Part **1**

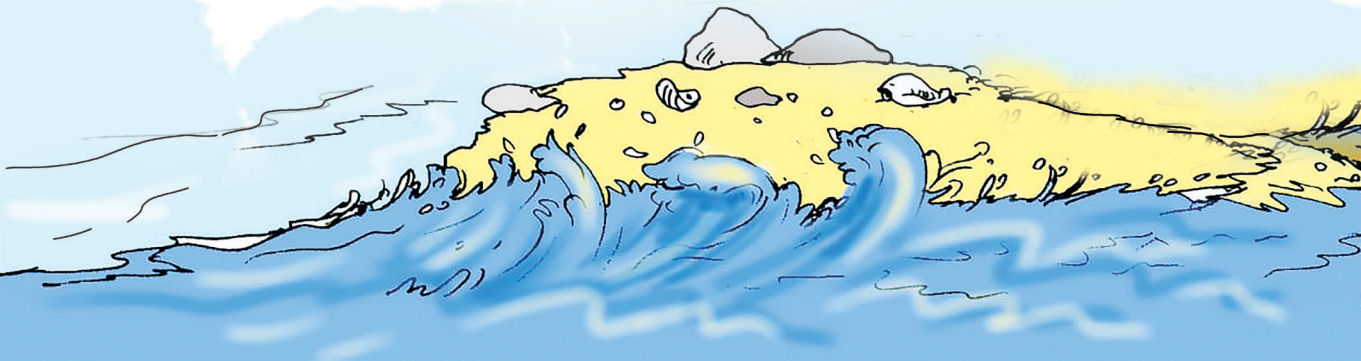


Government of Kerala
Department of General Education

Prepared by

State Council of Educational Research and Training
(SCERT) Kerala

2025





THE NATIONAL ANTHEM

Jana-gana-mana adhinayaka, jaya he
Bharatha-bhagya-vidhata
Punjab-Sindh-Gujarat-Maratha
Dravida-Utkala-Banga
Vindhya-Himachala-Yamuna-Ganga
Uchchala-Jaladhi-taranga
Tava subha name jage,
Tava subha asisa mage,
Gahe tava jaya gatha
Jana-gana-mangala-dayaka jaya he
Bharatha-bhagya-vidhata
Jaya he, jaya he, jaya he,
Jaya jaya jaya, jaya he.

PLEDGE

India is my country. All Indians are my brothers and sisters.

I love my country, and I am proud of its rich and varied heritage. I shall always strive to be worthy of it.

I shall give my parents, teachers and all elders, respect and treat everyone with courtesy.

To my country and my people, I pledge my devotion. In their well-being and prosperity alone, lies my happiness.

State Council of Educational Research and Training (SCERT) Kerala

Vidyabhavan, Poojappura, Thiruvananthapuram, Kerala - 695 012

Website www.scert.kerala.gov.in

e-mail scertkerala@gmail.com

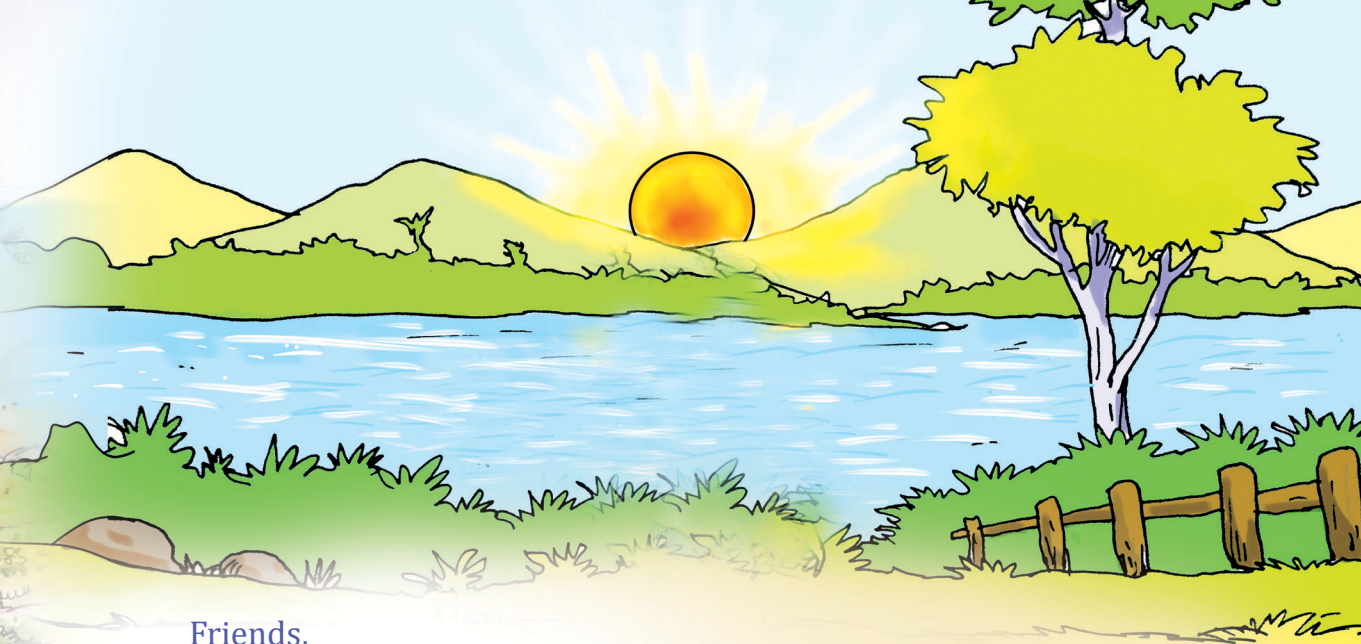
Phone : 0471 - 2341883, Fax : 0471 - 2341869

Typesetting and Layout : SCERT

First Edition : 2025

Printed at : KBPS, Kakkanad, Kochi-30

© Department of General Education, Government of Kerala



Friends,

The Earth we live on and its beauty are precious to us.
So much of diverse events and facts which prompt us to
learn and explore more!! Numerous forms of life existing
in different environments, with interdependence.

Birds which showcase nature's colourful diversity...

The vast sky and countless celestial bodies...

The diverse forms of matter in our surroundings!!

This book will help you expand your knowledge by
observing these wonders, gathering information,
comparing them and conducting experiments.

This textbook also offers opportunities to learn about
our country and society.

May this new knowledge inspire you to become guardians
of the environment and our homeland.

Best wishes,

Dr. Jayaprakash R.K.

Director
SCERT Kerala



Textbook Development Team

Advisor

Dr. Salahudheen Kunju A.
Principal (Rtd.), University College,
Thiruvananthapuram

Chairperson

Dr. Theresa Susan A.
Professor, Head & Dean (Rtd.)
Dept. of Education, Kerala University

Experts

Nandakumar B.
Principal (Rtd.),
DIET Ernakulam

Mukundan Pottamel
Senior Lecturer (Rtd.)
DIET Malappuram

Dr. K.Geethalekshmi
Senior Lecturer (Rtd.),
DIET Thiruvananthapuram

Members

Rajendrakumar N.S.
B.P.O. (Rtd.), B.R.C. Konni, Pathanamthitta

Aji T.S.
Headmaster (Rtd.), Govt. L.P.School,
Oroottambalam, Thiruvananthapuram

Dhanya P.J.
L.P.S.T., Govt. L.P. School, Amarambalam,
Malappuram

Thomas P.
L.P.S.T., Govt. L.P. School, Kavalam,
Alappuzha

Manilal T.N.
U.P.S.T. (Rtd.), Govt. H.S., Adimali, Idukki

Reeshma T.
U.P.S.T., M.D.P.S.U.P. School, Ezhoor,
Thirur, Malappuram

Rekha P.
U.P.S.T., A.U.P. School, Perumbara,
Malappuram

Raseena Salam
L.P.S.T. Govt. L.P. School,
Panmanamanayil, Chavara, Kollam

Artists

Suhail Raj
Student, S.B.H.S.S., Changanasseri

Gireesh Peruva
Artist, Govt. U.P. School, Thalappuzha,
Wayanad

C.N.Raju
Artist (Rtd.), K.B.P.S. Kakkanad,
Ernakulam

English Translation

Experts

Dr. V. K. Santhosh Kumar
Associate professor (Rtd.)
Govt. College of Teacher Education
Thiruvananthapuram

Manjary S.
Assistant Professor,
Department of Zoology, H.H.M.S.P.B. N.S.S.
College for Women, Neeramankara

Members

Jinju Gomez
H.S.S.T. H.G. English, S.M.V. Govt.
Model H.S.S., Thiruvananthapuram

Sheeba Jacob
HSST Jr HG Zoology, Govt Girls HSS
Peroorkada

Dr. Anithakumary. Y.K.
U.P.S.T., G.H.S.S. Perumpalam,
Alappuzha

Dr. Amrutha Kumari Y.K.
TE (HSA-Natural science), Govt. I.T.E.
Manacaud, Thiruvananthapuram

Academic Co-ordinator

Dr. Bindu S.
Research Officer, SCERT



State Council of Educational Research and Training (SCERT) Kerala
Vidyabhavan, Poojappura, Thiruvananthapuram - 695 012

Contents

1. Organisms and Surroundings

07

2. India is My Country

26

3. Winged Buddies

48

4. Kerala : A Symphony of Art

68

Icons used in this textbook
for convenience



For Further Reading



ICT



Let's Assess



Extended Activities

THE CONSTITUTION OF INDIA

PREAMBLE

WE, THE PEOPLE OF INDIA, having solemnly resolved to constitute India into a ¹**[SOVEREIGN SOCIALIST SECULAR DEMOCRATIC REPUBLIC]** and to secure to all its citizens :

JUSTICE, social, economic and political;

LIBERTY of thought, expression, belief, faith and worship;

EQUALITY of status and of opportunity; and to promote among them all

FRATERNITY assuring the dignity of the individual and the ²[unity and integrity of the Nation];

IN OUR CONSTITUENT ASSEMBLY this twenty-sixth day of November, 1949 do **HEREBY ADOPT, ENACT AND GIVE TO OURSELVES THIS CONSTITUTION.**

-
1. Subs. by the Constitution (Forty-second Amendment) Act, 1976, Sec.2, for "Sovereign Democratic Republic" (w.e.f. 3.1.1977)
 2. Subs. by the Constitution (Forty-second Amendment) Act, 1976, Sec.2, for "Unity of the Nation" (w.e.f. 3.1.1977)

Organisms and surroundings

1

20.08.2024

Today we selected a water lily pond for environmental observation. We travelled along the edge of the paddy field and reached the bank of the pond. From the shade of a tree on the bank, we observed the pond. The water was crystal clear. Water lilies were in full bloom. We noticed various aquatic plants, mosses and fallen leaves on the water. Grasses, vines and shrubs were growing along the bank of the pond.





There were birds, squirrels, chameleons, spiders, ants and other small organisms on the Jamun (Njaval) tree near the pond. There was plenty of fish in the pond. They occasionally came to the surface and opened their mouths. Frogs, tadpoles, crabs, snails, water snakes and other aquatic organisms were also the inhabitants of the water lily pond. We played by throwing small stones into the pond, creating ripples. We spent a lot of time enjoying the coolness of the pond.

Did you read Raina's observation notes?

Which organisms did you see in the pond?

Which organisms lived on the tree?

Do all organisms need a place to live?

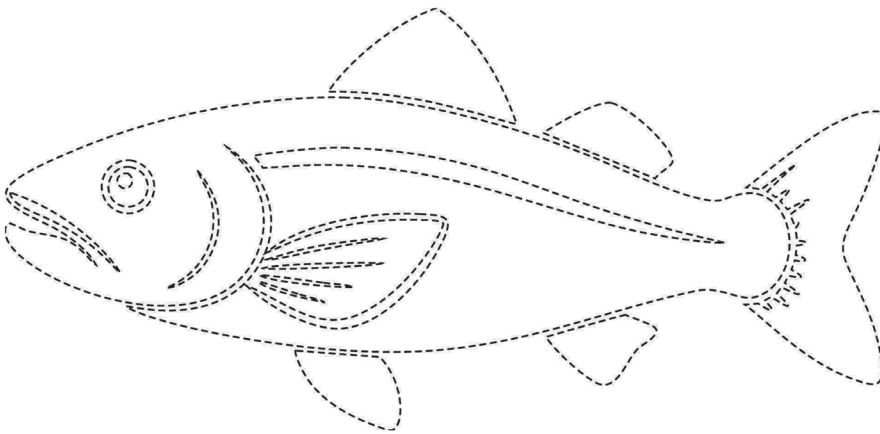
Can organisms that live in water also live on land?

Why can't fish live on land?

Share your guesses.

What special features have you observed in fish that help them live in water?

Let's draw the picture of a fish.



What is the shape of the fish?





How does this shape help the fish move in water?

Observe the shape of the boats.



Which of these shapes is more suitable for travelling through water?

Have you noticed how fish move in water?

How do they change their direction?

How are their scales arranged?

Which part of their body helps them breathe?

What are the special features that help the fish live in water?

The body shape, fins, tail fin, arrangement of scales and slippery nature of fish help them move through water. Fish breathe with the help of gills.

You have understood the shape and features of fish.

Now let us get to know the features of some plants too.





Observe the pictures.



What are the special features of these plants?

What is special about their stem?

What makes them different from other plants? Discuss and write in **My Environmental Science Diary**.



Plants of the Desert (Xerophytes)

Desert plants may have no leaves, or have small leaves or thorns. Their stems are thick, green and can store water. A waxy coating on their stem helps them prevent water loss. The deep roots of these plants absorb water from great depths. Such desert plants are known as Xerophytes. All these features enable them to survive in desert.

Adaptation

Plants and animals have body features that help them survive in their specific environments. Any body feature that helps an organism survive in its environment is called **adaptation**.





Have you listened to the conversation between the water lily and the frog?

Discuss and write more about their adaptations.

Water lily	Frog
• •	• •

Observe the pictures.

Where do these animals live?





Write the names of other animals you are familiar with and complete the table.

Animals live on land	Animals live in water	Animals live on land and water

Analyse the information in the above table. Record your inferences in **My Environmental Science Diary**.

Animals live also in deserts and polar regions. What are there adaptations?

The fat in our hump helps us to survive in the desert for days without drinking water.



The fat under our skin protects us from the extreme cold in the polar regions.





Find other adaptations of camel and penguin. Discuss with your friends and write them in the table.

Camel	Penguin
• • •	• • •



A Life Without Drinking Water

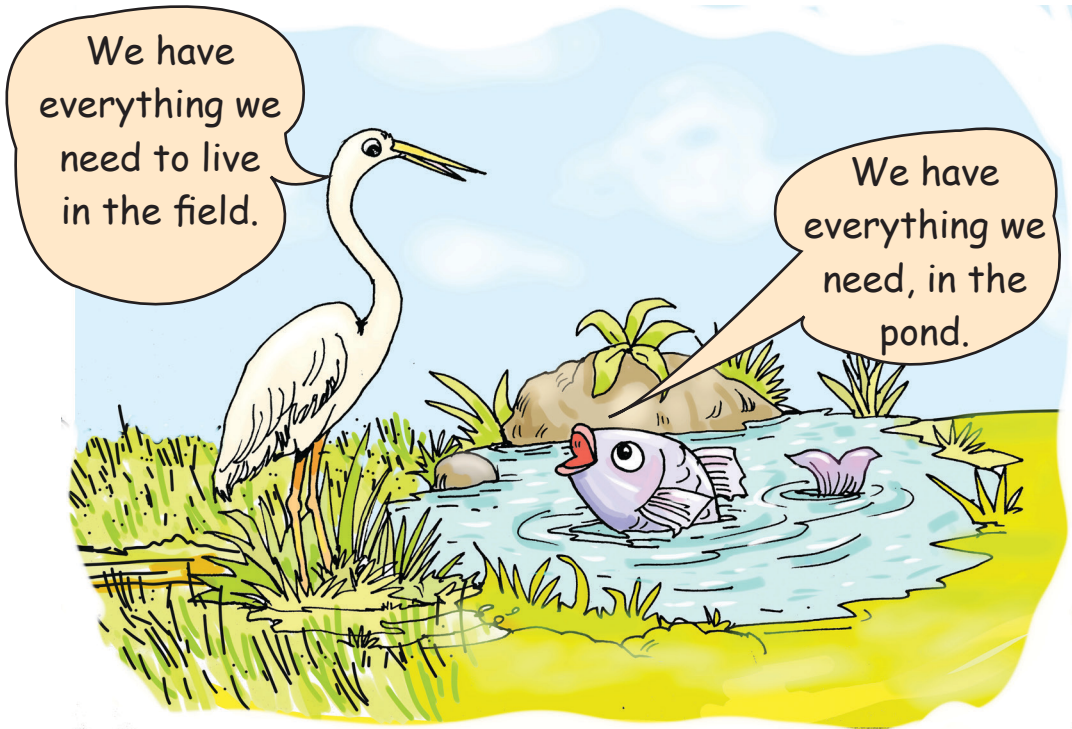
Kangaroo Rat

The Kangaroo Rat is a small animal found in the desert. It has many adaptations for living in the desert. It digs very deep burrows to survive the heat of the day and lives inside them.



It hunts for prey at night. It can live without drinking any water. It gets the water it needs from its main food, such as grains, seeds and also from its body fat. Water loss through sweat or urine is very low. It moves by hopping like a kangaroo using its long hind legs. It can store grains and seeds in the pouch in its cheeks.





What does a stork get from the field?

- Small organisms.



What does a fish get from the pond?

- Place to live.



The environment in which an organism lives is its **Habitat**. A habitat contains everything that the organism needs to survive. Ponds, rivers and fields are examples of habitats.

Discuss, find and write more examples of habitats.





- Tree
-
-

Different Types of Habitats

Observe the picture.



What are the different types of habitats? Write down their names.

A field is a habitat. It has many living and non-living things in it. Which are they? Discuss and write.

Living things	Non-living things
• Plants • •	• Soil • •

There are natural habitats and man-made habitats. Forest is an example of a natural habitat. What about the Biodiversity Park in your school?





Find and write down more examples of natural and man-made habitats.

Natural Habitats	Man-made Habitats
• • •	• • •

A habitat contains many living and non-living things. Plants, animals, and microorganisms are examples of living things. Soil, air, water and sunlight are the main non-living things.

Do living things depend on non-living things like air, water, soil and sunlight? Similarly, living things depend on each other. Living things and non-living things in an area live in interdependence.

Observe the picture.

Find out who depends on whom? Draw lines to connect them and prepare a note.





Ecosystem

An ecosystem is an environment where living and non-living things live in interdependence. Trees, fields, ponds, streams, hills, sacred groves (Kavukal) are small ecosystems. Forests, grasslands, deserts, seas and polar regions are large ecosystems.

What is interdependence in an ecosystem? Explain with examples.

- Between living and non-living things

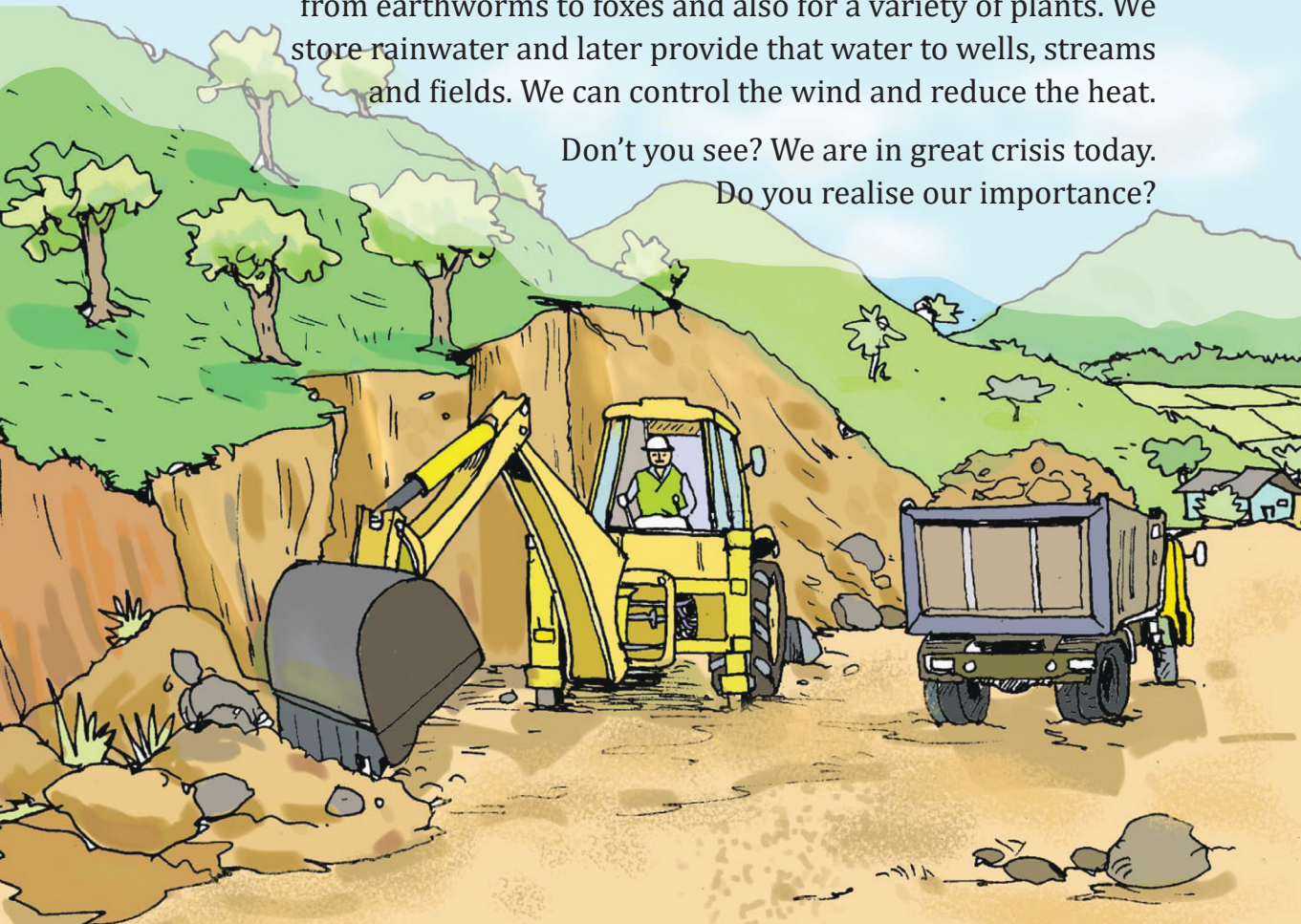
-

Destruction of Ecosystems

Hill has Something to Say

You can see us in many areas in your place. Is there anyone who hasn't climbed a hill? We provide habitat for so many organisms, from earthworms to foxes and also for a variety of plants. We store rainwater and later provide that water to wells, streams and fields. We can control the wind and reduce the heat.

Don't you see? We are in great crisis today.
Do you realise our importance?





Have you read the soliloquy of the hill?

What are the harmful effects vanishing of hills?

What are the human activities that are harmful to the ecosystem?
Discuss and write.

- Demolition of hills
- Excessive use of pesticides
-
-
-

Pollution

Listen to what an earthworm says.



Have you read what the earthworm said?

What are the waste materials found in your home and surroundings?

Find out the waste management process in your school?

Prepare a project and present it to your class.





Observe the pictures.



Isn't throwing of waste to the surroundings harmful to habitats?

Discuss and write about those activities which pollute the soil.

- Excessive use of pesticides in farms.
- Excessive use of chemical fertilisers.
-
-

How does soil pollution affect the ecosystem? Discuss and write about it in **My Environmental Science Diary**.

What are the other factors which get polluted like this in our surroundings?

Observe the pictures and find out the situations of air pollution.





Discuss and write down the harmful effects of air pollution.

Air pollution can have harmful effects on our health. Every year, about 7 million people die in the world due to various diseases caused by air pollution. Air pollution can have a harmful effect not only on humans but also on plants and animals.

Harmful effects of air pollution are declining crop yields, acid rain, global warming, ozone depletion, etc.

Observe the pictures.



In which circumstances does water get polluted?

How does water pollution affect living things and humans?

Water becomes polluted due to the presence of various chemicals and organic substances. Polluted water causes various health issues and diseases. Waste from factories and houses, plastic waste, pesticides, other chemicals, petroleum, etc. cause water pollution. The decrease in the level of oxygen in water is due to pollution. This is a threat to the lives of organisms living in water.





Let's read Aadi's diary note.

Nature's Fury

30-07-2024

Our house was on a hillside. Ours is an area that receives good rainfall. The monsoon rain was lashing down without any stop. It was raining heavily. The water level in the river had also risen. If the water level rose further, our house would be flooded. In the evening it began to rain severely. There was no electricity. We were afraid of what would happen if the rain continued. We were paying attention to the danger warnings.

We noticed that the pets in the houses were disturbed and making unusual noise. Realizing the danger, my parents took us to a relative's house, a short distance away from ours. The rain did not stop. We fell asleep. It was in the early morning that we heard the shocking news. Many people died in landslide. The destructive power of that huge natural disaster, washed away our house, school, some friends, relatives and the entire village.



Have you read Aadi's diary?

Do natural disasters occur in various parts of the world?



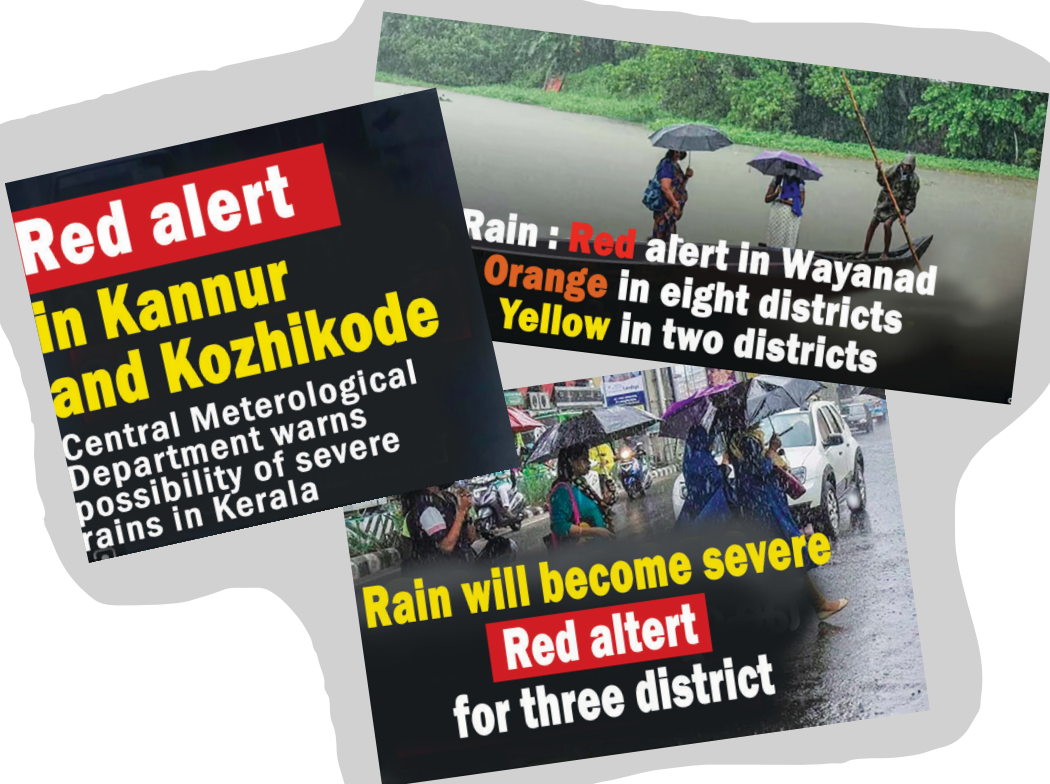


Which all natural disasters do you know? Find and write them down.

- Landslide
- Earthquake
- Forest fire

Natural disasters cause great damage to the environment and living things. Natural disasters can occur due to natural causes or human interference.

Observe the collage



What are these warnings about?

What precautions should be taken if a flood warning is received?
Discuss with your friends and present your suggestions.





There are systems to give warnings about natural disasters. If precautions are taken based on these warnings, it is possible to provide protection to life and environment.

Protection of Ecosystem

Countless organisms are there on land and in sea. How beautiful it is to see them living in harmony with nature! Organisms find their food and habitat from the ecosystem. Ecosystems form the base for life and its diversity. It is our duty to protect our ecosystems.

We shall also participate in activities to protect the ecosystem.



Let's Assess

1. Connect the organisms with their habitats.

Organisms	Habitats
Whale	Forest
Penguin	Ocean
Spotted Deer	Desert
Camel	Polar Region





2. Visit an ecosystem in your area and write down the names of the organisms you find there. Find out their interdependence.
3. Read the table below and connect the organism and its adaptation.

	Breathe with the help of gills.
	The leaves have waxy coating.
	Breathe through the skin.
	Store water in the stem.
	Possess flat feet that do not sink in sand.





Extended Activities

1. Collect the data related to waste disposal in your house and five neighbouring houses using the following format. Prepare a group report and present it before the class.

Data Collection Format

House Name/Number :

Date and Time of Visit :

Name of the House Owner :

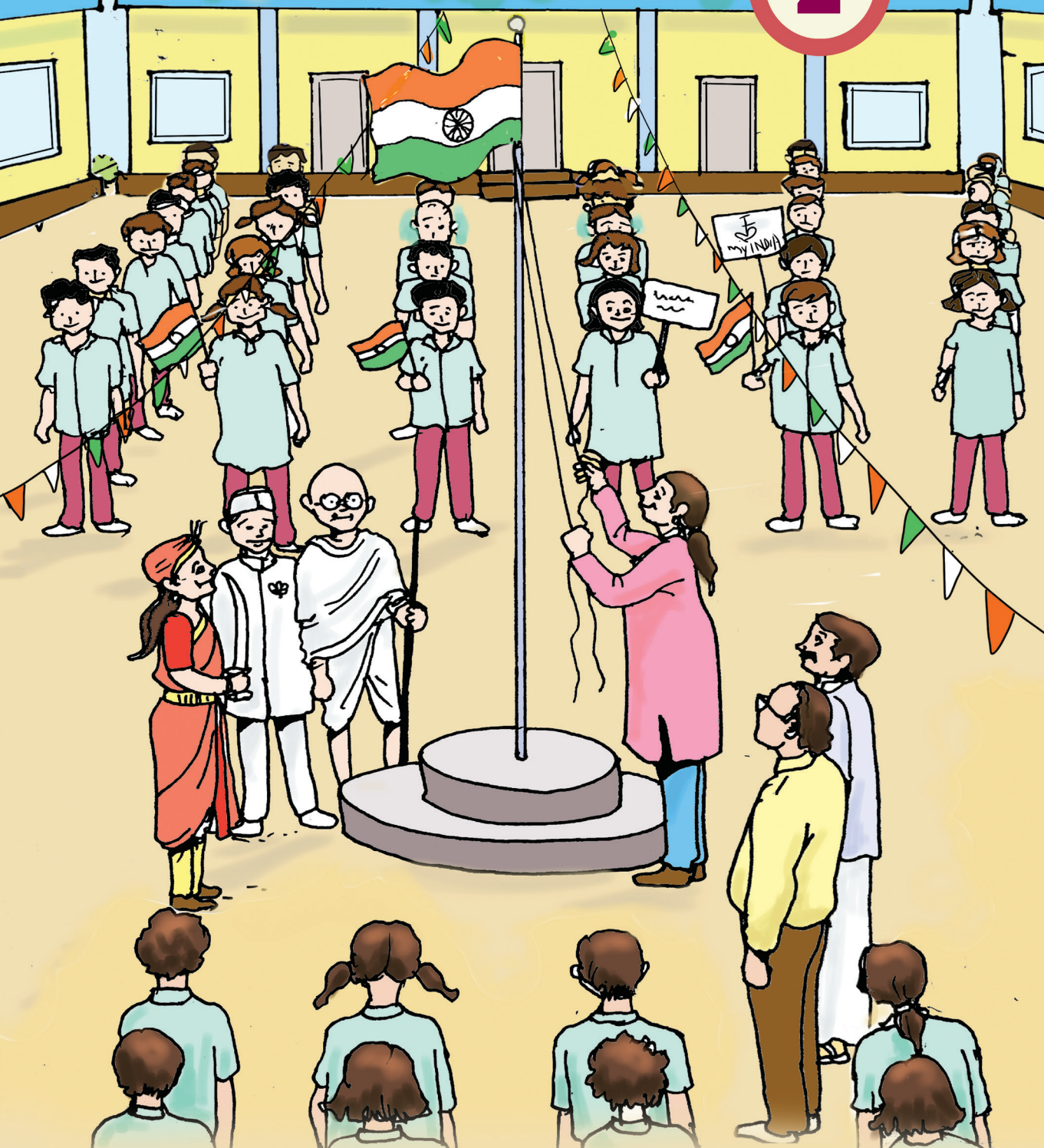
Serial Number	Types of Waste	Method of Disposal
1	Organic Waste	• Bury in the yard ☐ • Throw on the road ☐ • Put in a pipe compost ☐ • Put in a compost pit ☐ • Put in a biobin ☐ • Put in a biogas plant ☐ • Give to animals ☐ • Any other ways.....
2	Plastic Waste	• Give to Haritha Karma Sena ☐ • Bury in the soil ☐ • Use for planting saplings ☐ • Use for making decorative items ☐ • Throw in the surrounding ☐ • Throw into water bodies ☐ • Burn in fire ☐ • Any other ways
3	Waste water	• Use for farming in the yard ☐ • Pour into soak pit ☐ • Pour into a drain ☐ • Pour into water bodies ☐ • Any other ways

2. Collect pictures of organisms that live on land and in water and prepare a digital album.



India is My Country

2



Independence Day celebrations are going on at Thejas's school. Various programmes are organised under the leadership of the Social Science Club.



Megha teacher divided the class into groups and each group was assigned a task.

Thejas and his friends were asked to prepare a magazine about Independence Day. They decided to visit the library to collect information to be included in the magazine. The librarian is their former teacher, Vinayan Sir. They explained the purpose of their visit to the library.



“Children, can you tell me who were the foreigners who ruled our country?” Vinayan Sir asked.

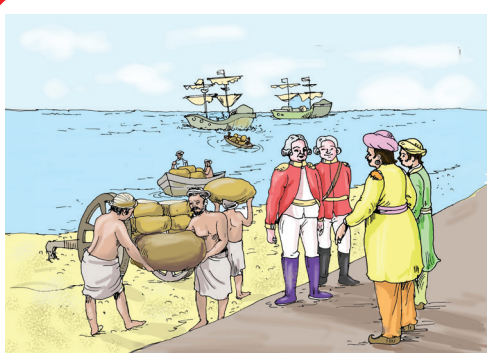
“The British!” Bhavya said excitedly.

“Exactly, Bhavya. Do you know how they became our rulers?” Sir asked again. Children looked at each other as if they didn’t know.

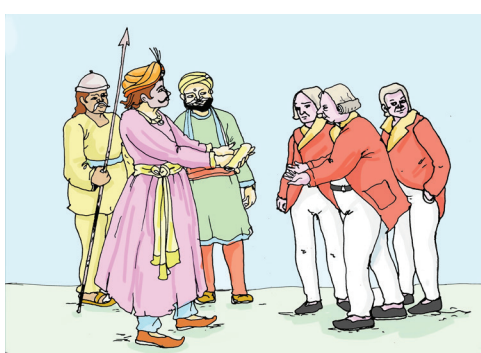
Sir gave them a picture storybook from the library to read.

They started to read the book eagerly.





Foreigners first came to India by ships, to buy spices like cardamom and black pepper, and textiles like silk and cotton.



Gradually they obtained special privileges from the king and established factories here.



Since the rulers of different provinces in India considered each other as enemies and at war, the foreigners found it easy to enhance their power.



They conquered the natives with advanced war tactics and weapons like cannons and guns.



Eventually, the British took over the Princely States after exerting control over agriculture, trade and the king themselves.



Over the time, the British dominated the entire region of India. India was under their control for almost next 200 years.





"You have read the picture story book. Now answer my questions," Sir continued.

You can also find answers to Sir's questions:

- Why did foreigners come to India?
- How the foreigners could easily establish power in India?
- Why were Indians unable to hold their own in the struggles with the British?

Struggles Against the British

"Oh! The people of our country suffered a lot under the British rule. Didn't they, Sir?" Neena asked.

"That's right. The people who were suffering started protest against the British in various places. They protested by breaking the laws, declaring non-cooperation and organising marches." Vinayan Sir replied.

Such protests are known as the '**freedom struggle**', aren't they? Naveen's doubt came within no time.

"Smart boy!" Sir congratulated Naveen with a pat on his shoulder.

"Now, let's know about some of the important events of the freedom struggle." He picked a book from the cupboard and gave it to children.

Read the information collected by children from the book.

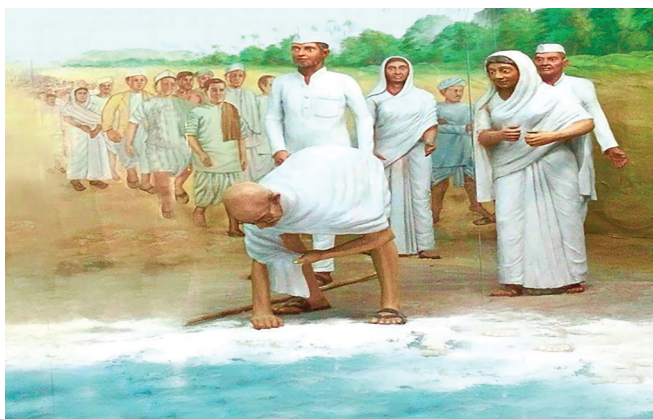
Salt Satyagraha (1930)

At that time, many Indians were engaged in the work of producing salt by draining seawater. The cruel British rulers declared that Indians must pay a tax (a special levy) for extracting salt. Those who made salt without paying the tax were imprisoned. Gandhiji organised the people against this.





They marched in a procession to Dandi beach, a place far away from Gandhiji's Sabarmati Ashram. Taking a handful of salt from the sea, Gandhiji said, "Even if these hands holding salt are crushed, they will not give up the salt."



Find out more information about Salt Satyagraha with the help of your teacher.

- Date and place of Salt Satyagraha
- Gandhiji's leadership
- Dandi March

Quit India Movement (1942)

Vinayan Sir, then introduced the diary of a freedom fighter to the children.

1942 August 8

Today was the day I got immense enthusiasm and energy in the freedom struggle. I had the privilege of attending the Bombay Conference of the Indian National Congress where the demand for Quit India was passionately presented. The meaning of this slogan was clear and resolute:

'Leave India'. Gandhiji reminded us that this must be the most powerful agitation for freedom. Bapuji called on everyone to 'Do or Die'. Inspired by his words, I found myself standing up without knowing and raising my fist and shouting with all my might the slogan – 'Quit India... Quit India...'

"According to Gandhiji's exhort, thousands of people must have participated in the struggle, isn't it, Sir?" Thejas asked.





"Of course. The slogan of this movement echoed all over India. It gave people more power and strength," Sir replied.



Collect the following information about the Quit India Movement with the help of your class library and prepare a note.

- Quit India Day
- Leaders who led the freedom struggle
- Result of the freedom movement

Freedom Struggle in Kerala

"Then there were many agitations in Kerala too", asked Naveen.

"Yes, the spirit of freedom movement led by Gandhiji also spread in Kerala."

The Salt Law was violated at Payyannur Beach in Kannur.



K. Kelappan

K.Kelappan acted as the leader of the movement. Later, he was known as 'Kerala Gandhi'.

"Sir, who were the other leaders who led the freedom struggle in Kerala?"

The children were curious to know more.

"There are hundreds of people like T.K.Madhavan, K.P.Kesavan Menon, Mohammad Abdu Rahman, A.K.Gopalan, Akkamma Cheriyan, Kuttimalu Amma and others." Sir recalled and said.





The children took note of all the information given by Sir.

Find out and write down the major freedom struggles that took place in Kerala.

○ Malabar Rebellion

○

○

○

Freedom Fighters

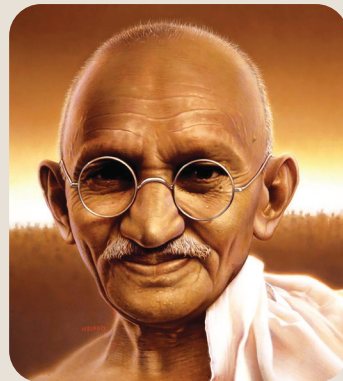
Mahatma Gandhi

“Children, do you know the leader who inspired freedom fighters all over India?”

Sir asked this question and quickly they replied. “Gandhiji.”

Now, read the information they collected about Gandhiji from the books in the library.

Gandhiji was born in Porbandar, Gujarat. His real name was Mohandas Karamchand Gandhi. He left his job as a lawyer in South Africa and returned to India to join the freedom struggle. Through his simple way of living, high thinking, and warm interaction, he rose to become the leader of India.

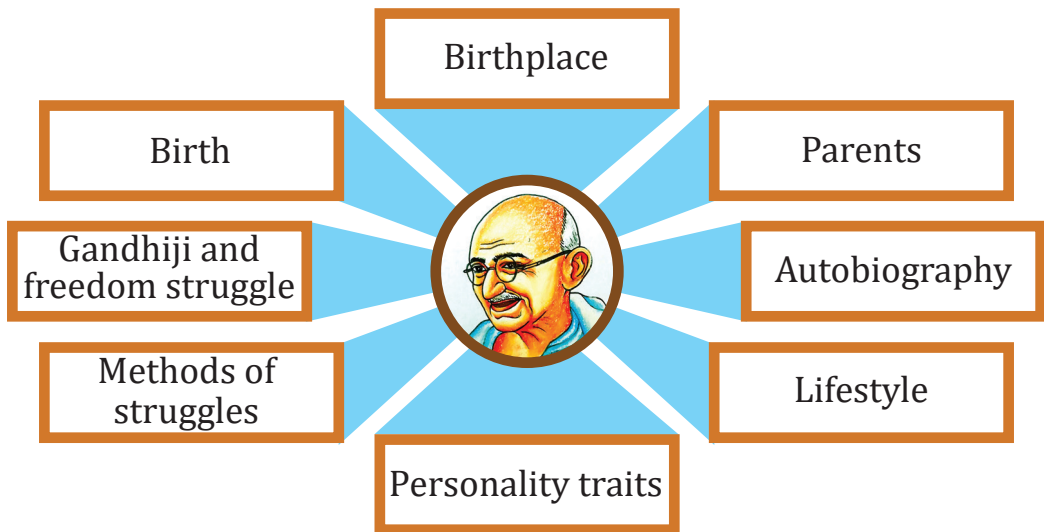


Truth and non-violence were always evident in his words and actions. Children affectionately called him ‘**Bapuji.**’ He led important movements like the Champaran Movement (1917), the Non-Cooperation Movement (1920), the Salt Satyagraha (1930), the Quit India Movement (1942), etc.





Collect more information about Gandhiji from your school library and prepare short notes. Prepare a '**Gandhi Magazine**' as group activity.



Jawaharlal Nehru

"Can you guess the person from the clues given below?". Vinayan Sir continued.

- He worked with Gandhiji at the forefront of the freedom struggle.
- He was the first Prime Minister of India.
- He was the one who declared the independence of India.
- Children fondly called him '**Chachaji**.'



Everyone answer together, "Jawaharlal Nehru."

Find the answers to the following questions about Jawaharlal Nehru using the books in the class library.





- When is Nehru's birthday? In what name do we celebrate this day?

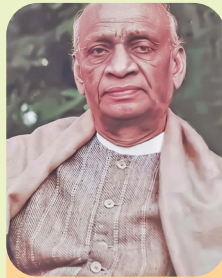
- What is the name of Nehru's autobiography?

Prepare a speech about Jawaharlal Nehru, collecting more information and present it to the class.

Sir also introduced other leaders who played an important role in the freedom struggle, to the children.



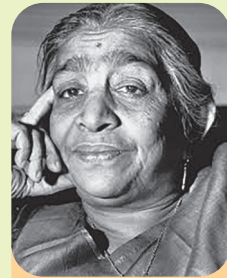
Subhash
Chandra Bose



Sardar
Vallabhbhai
Patel



Gopal Krishna
Gokhale



Sarojini
Naidu



Bal
Gangadhar
Tilak



Bhagat Singh



Aruna
Asaf Ali



Khan Abdul
Ghaffar Khan

Now you are familiar with some of the leaders who participated in the freedom struggle of India.

Identify and write the names of the leaders related to the facts given below.





The first Indian woman who became the President of the Indian National Congress. Known as the 'Nightingale of India'.	-----
He took up arms and fought bravely against the British. He was hanged at the age of twenty-three.	-----
She is known as 'Queen of the Quit India Movement.' She is the 'Grand Old Lady' of the Indian independence movement.	-----
He played a major role in the formation of the Indian Union by uniting the Princely States. Known as the 'Iron Man of India'.	-----
He was the one who reorganised the 'Indian National Army' and fought against the British. Known as 'Netaji'.	-----
"Swaraj is my birthright and I shall have it:" Known as 'Lokmanya'.	-----
The guru who guided Gandhiji into politics. Founder of an organisation called 'Servants of India Society'.	-----
Followed Gandhiji's ideals. Known as 'Frontier Gandhi'.	-----

Collect pictures of other freedom fighters and prepare a wall poster.

If there are people in your locality who can share information related to the freedom struggle, interview them and gather information.

Also, find out if there are places related to the freedom struggle in your area.

India towards Independence

Children prepared an Independence Day magazine incorporating the information gathered from Vinayan Sir.

Read the information in the magazine released by Megha Teacher.





Many protests were organised all over India for freedom. The words of leaders like Gandhiji inspired the protesters and energised the movements.



Some of the protests turned violent. Many people took up arms to fight against the British. Many of them lost their lives.

The leaders who led the protests were imprisoned several times. Thousands of people were arrested along with them. Strict laws were imposed on Indians.



Finally, as a result of continuous protests and discussions, the British were forced to hand over the rule of India to the Indians.

On August 15, 1947, India was declared independent from the British rule. Jawaharlal Nehru was sworn in as the first Prime Minister of independent India.





“While the World is asleep at midnight, India is awakening to freedom and life...” Nehru said this with enthusiasm.

Did you read the facts related to India’s independence?

Use the school library to collect more information.

Respond to the statements given below by marking the appropriate symbol in the box (✓/ X).

- The freedom we enjoy today was achieved by the sacrifice of many lives. ☐
- We must honourably remember the freedom fighters who gained independence for us. ☐
- The freedom that we have gained must be protected and shared ☐
- As Indians, we must be proud and patriotic. ☐
- We must celebrate Independence Day grandly every year. ☐



Collect newspaper articles and pictures related to Indian independence from the internet. With the help of your teacher, prepare a digital album.

The Constitution of India

You must have noticed that some parts of the Constitution are included at the beginning and end of your textbook. Read them. Do you know who played the major role in framing the Constitution?

Under the leadership of Dr. Bhimrao Ramji Ambedkar, the first Law Minister of India, a new legal framework for independent India was drafted. This document is known as the '**The Constitution of India**'. The Constitution of India came into effect on 26 January, 1950.





The Constitution includes laws related to the rights and duties of citizens, governments, elections, etc.

Find answers to the following questions with the help of the class library.

- Name the day in which the Constitution of India came into being?

- Who is known as the architect of the Indian Constitution?

- Which country has the largest written Constitution?



Today's India

Children shared the information they had collected from the library with their friends. Megha teacher also participated in the discussion.

“Teacher, wasn’t India formed by uniting several princely states?” It was Johan who raised the doubt this time.

“Yes,” the teacher replied. “These provinces that were merged in this way were later reorganised based on language for administrative convenience. These regions are known as **States**.”

States

The teacher introduced map of India to the children.

“Currently India has 28 states. The administrative centre of each State is called its capital.” Observe the map showing the states of India and their capitals.

Prepare a list of the States of India.





1	Kerala	8		15		22	
2	Tamil Nadu	9		16		23	
3	Karnataka	10		17		24	
4	Andhra Pradesh	11		18		25	
5	Goa	12		19		26	
6	Telangana	13		20		27	
7	Maharashtra	14		21		28	

Prepare a list of the States of India, their capitals and write it in





My Environmental Science Diary.

Union Territories

“Some regions in India do not have the status of State. These regions are directly governed by the Central Government. Have you heard of such regions?” asked Megha teacher to the children.

Jumping up Mikha said, “I’ve heard about them. Aren’t they called **Union Territories**?”

“Yes, that’s it. Now there are Eight Union Territories in India,” the teacher added.

Observe the map of India, locate and write down the names of the Union Territories of India.

Look at the map of India and find answers to the following:

- India's neighbouring countries.

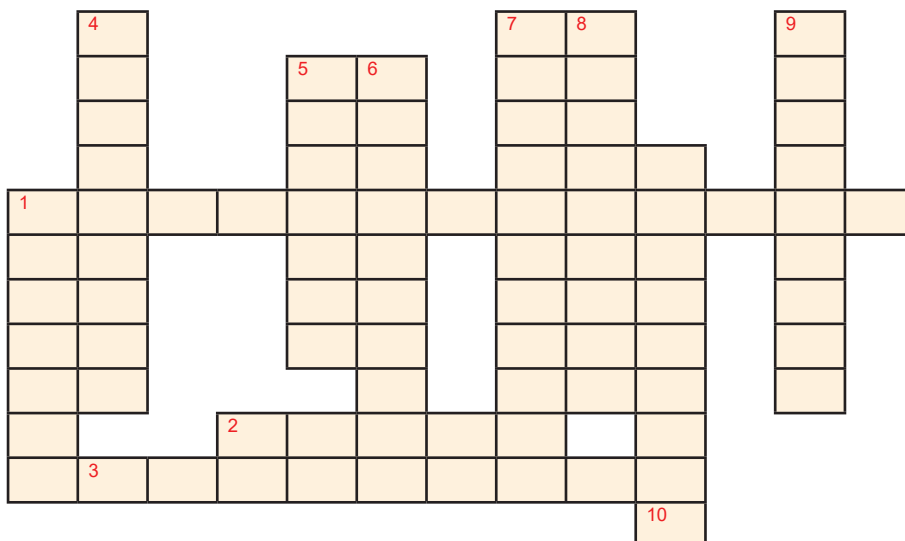
- States on the coast of the Arabian Sea.

- States on the coast of the Bay of Bengal.

- The smallest State in India.

- The State which shares borders with the maximum number of states

Complete the word puzzle using the hints given below:





Across

1. The Second largest state. Located in the central part of India.
2. The state that has a border with Nepal. Patna is the Capital.
3. Hyderabad is located in this State.

Down

1. Shares border with the neighbouring country, Myanmar. Located adjacent to Tripura.
4. Kerala's neighbouring state. Bengaluru is its Capital.
5. Shares borders with Rajasthan, Punjab and Uttar Pradesh. Located near Delhi, the capital of India.
6. Kohima is the capital of this State.
7. Located on the coast of Arabian Sea. Shares a border with Gujarat.
8. Borders with Bangladesh. Neighbouring state of Assam.
9. The largest State in India.

Up

10. Neighbouring State of Kerala. Chennai is its capital.

Find more questions and organise a quiz in the class.

Draw the map of India using a tracing paper and mark the States. Paste it on a thick paper, cut the States out and play jigsaw using them.

Diversity in India

Do people in different regions of India speak the same language?

Do all Indians dress in the same way?

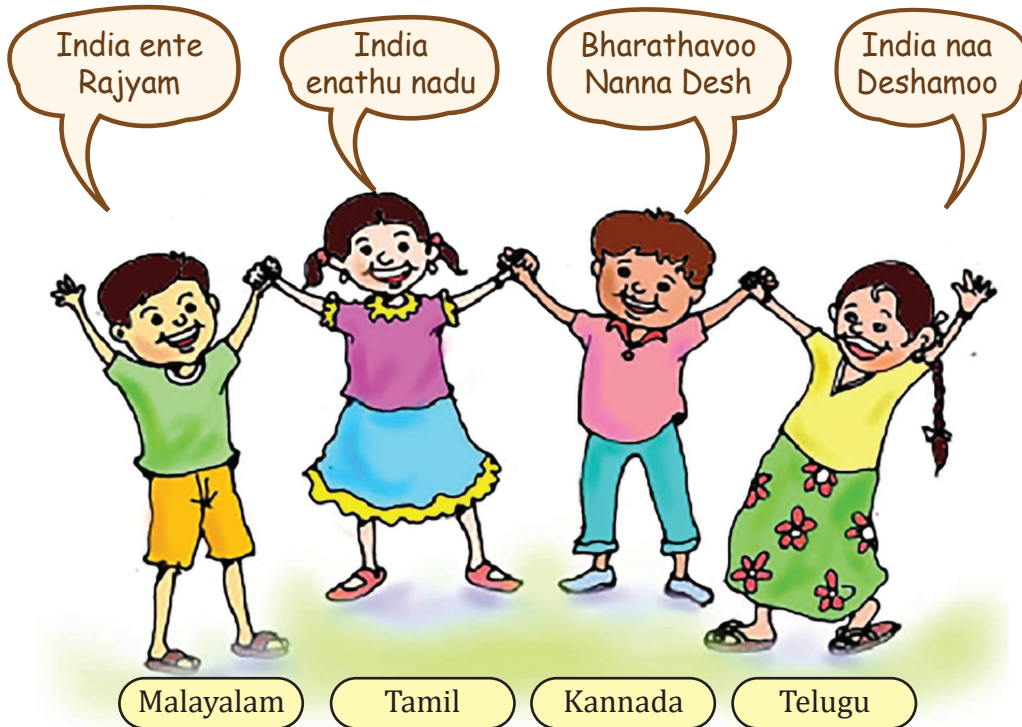
Are festivals and celebrations the same all over India? Share your opinion.





One Nation, Many Languages

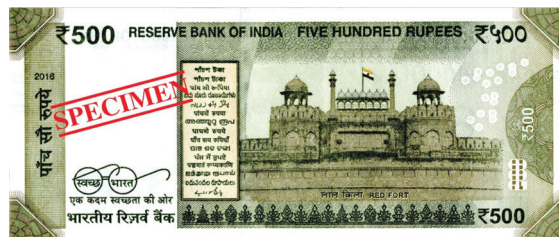
Malayalam is the mother tongue of Kerala. What is the language spoken in our neighbouring State, Tamil Nadu? What about Karnataka?



What are the other languages spoken in India? Find them and complete the list.

State	Language
Andhra Pradesh	Telugu
Telangana	
Maharashtra	
Odisha	

Have you noticed, in how many languages the value of an Indian currency is denoted? Find out and write the names of those languages in **My Environmental Science Diary**.





One Nation, Many Costumes

Observe the picture.



Did you notice the difference in the way of dressing of people of India?



Organise a digital exhibition in the class about different styles of dressing in different regions of India.

Now let's get familiarised with some festivals in our country.

Which festivals shown in the picture are you familiar with?

What are the major festivals in India?

- Diwali
- Eid-ul-Fitr
- Christmas
-



Prepare a digital album with more pictures of festivals in India.





Different Art Forms



Kuchipudi



Kathak



Mohiniyattam



Manipuri



Bharatanatyam

Are all art forms the same across India?

Observe the picture.

Which of these dance forms are you familiar with?

Which of the remaining dance forms are popular in other States? Find out and complete the list.

Art Form	State
Mohiniyattam	Kerala
Bharatanatyam	
Kuchipudi	
Kathak	
Manipuri	

You have understood how diverse the Indians are in language, dress, festivals and art forms.

Let's get familiarised with some of the symbols that unite us as Indians, despite the diversities.

Symbols of Unity

You have learned about the National Flag of India.

What are the other National Symbols of our country?

- National Anthem
- National Song
- National Emblem
-
-





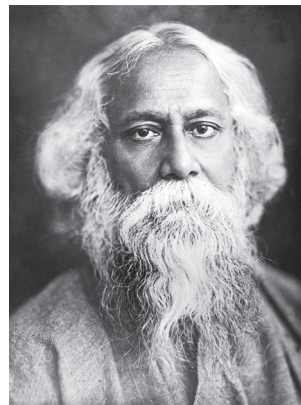
National Anthem

We sing the National Anthem in school.

Our National Anthem, Jana Gana Mana was written by Rabindranath Tagore.

Find the answers to the following questions with the help of the class library.

- In which language is the National Anthem written?
- How should one stand while singing the National Anthem?
- What is the prescribed time for singing the National Anthem?



National Emblem

Observe the image of our National Emblem.

Where have you seen this emblem?

The National Emblem of India is adopted from the pillar built by Emperor Ashoka at Sarnath in Uttar Pradesh. The lions facing all four directions are the prominent feature of this emblem. Dharmachakra (wheel of Dharma) seen at the bottom centre is the Ashoka Chakra. It has 24 spokes.



सत्यमेव जयते

Find answers to the following questions.

- What is the sentence inscribed at the bottom of the emblem? What does it mean?
- What are the other animals seen in the emblem?





National Song

‘Vande... Mataram...’ written by Bankim Chandra Chatterjee is our National Song. It is composed in Bengali, with selected Sanskrit words.

Sing the National Song with your friends in the assembly.

Identify the other National Symbols of India.

Collect information and pictures about them. Display them in the **Environmental Science Corner**.



We must express our love and respect for our Country and National Symbols also. Disrespect to National Symbols is punishable.

India - Our Pride

We understood the paths that we have travelled from the slavery of the British to today's India. Freedom that we gained is at the cost of the lives of thousands!

People of India are diverse in language, dress and lifestyle across different regions! Despite these diversities we are united as Indians.

This sense of unity is known as '**Unity in Diversity**'! India is our pride.

Let's say it together in one voice:

India is my country!!!... My own country!!!

I value India much more than my life!!!





Let's Assess

1. Match the following.

- Independence Day of India - January 30, 1948
- The Day the Indian Constitution came into force - August 9, 1942
- Quit India Day - January 26, 1950
- Gandhiji's Day of Death - November 26, 1949
- Constitution Day of India - August 15, 1947

2. Mark true or false (✓/ x).

- Goa shares a border with Kerala. ☐
- India has coastlines by the Arabian Sea and the Bay of Bengal. ☐
- Hindi is the most widely spoken language in India ☐
- India has five neighbouring countries. ☐



Extended Activities

1. Organise an exhibition in your school displaying pictures, news and information related to the freedom struggle of India.
2. Prepare a digital album by including information about various States of India.



Winged Buddies

3

The teacher started the class that day by playing a bird's song...

"Kutroo.... Kutroo.... Kutroo...."

"Have you heard this bird's song?", the teacher asked.



"Can you identify this singing bird? Has anyone seen it?" The class was silent.

"Its name is White Cheeked Barbet (Chinna Kutturuva)," Ayan said.

"What is the colour of this singing bird?"

"It is green in colour, teacher". Saira responded.

"This bird is also called 'Pachilakkudukka.' What could be the reason for calling it like that?", the teacher continued.





There are many types of birds.

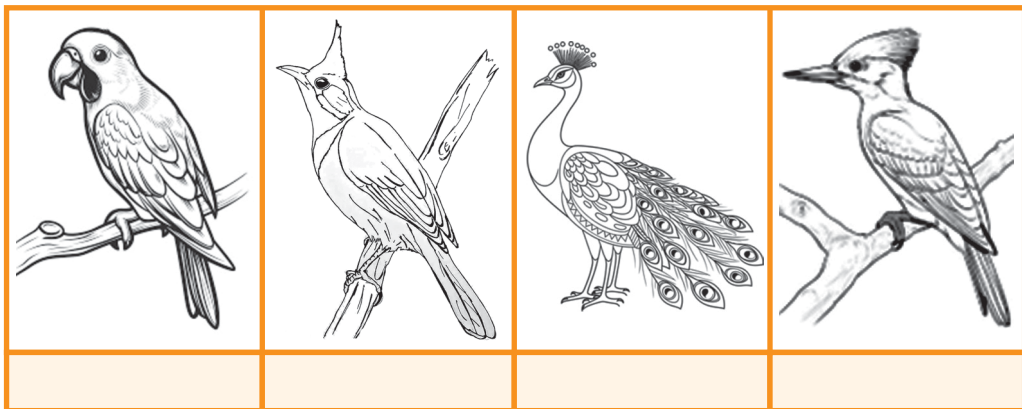
Which are the birds present in your area?

How many of them are familiar to you and name known to you?

Write them in **My Environmental Science Diary**.

Colour and make them beautiful

Identify the birds and write their names. Colour and make them beautiful.



In what ways do the birds in the picture differ?

- Colour of their feathers
- Shape of the body
-
-

Let's Classify them

Do all birds in your area have feathers of the same colour?

Haven't you seen birds with feathers of different colours? Name the birds that have differently coloured feathers. Prepare a table.





Birds with feathers of the same colour on their body



Crow,.....

.....

.....

Birds with feathers of different colours on their body



Peacock.....

.....

.....

What are the common characteristics of birds?

By observing our surroundings, we can also find birds with different characteristics. Observe our surroundings and find out divers characteristics of birds.

Use binoculars (if available) to observe birds.

What things should be observed?

- Place where the bird is seen
- Time when it was seen
- Size
- Colour
- Nest
- Sound
- Size of legs, length, colour, number of toes
- Size and colour of eyes
- Characteristics of feathers
- Style of flying
-
-
-





Observe any bird in your surroundings and prepare a note of it, including its characteristics. Don't forget to draw the picture too.

What should be included in the observation note? Look at Saira's observation note.

Observation Note

Name of the bird	: Parrot
Place where it was seen	: Field bund
Time when it was seen	: Evening
Colour	: Green
Features of the beak	: Sharp, curved and red in colour
Features of the legs	: Legs used to climb trees and hold food firmly
Features of the tail	: Long triangular tail
Other Features	: • A rose ring around the neck. • Lays eggs in hollows in trees.



Let's Complete

The largest bird :

The bird that flies backwards :

The highest - flying bird :

Birds that do not fly :

The smallest bird :



Food of All Kinds

These grains are my food.



I too got big fish.



Today's meal is great!



Do all birds eat the same food?

Bird	Food
Parrot	Grains,
Kingfisher	Fish,
Kite	
.....	
.....	
.....	

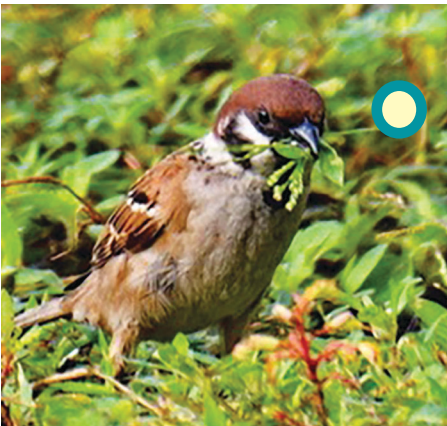




"We hunt for prey in places where there is water."



"I like to chase and catch the prey."



"I like to peck and eat grass seeds and grains."

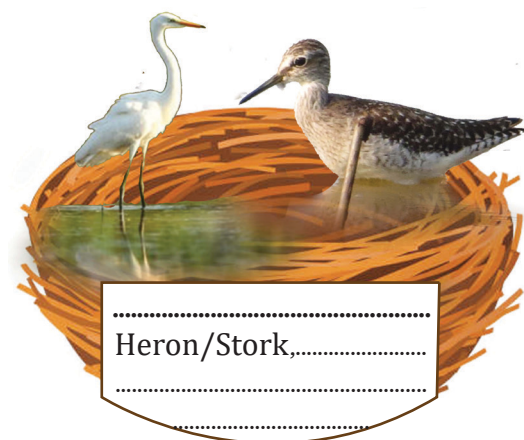
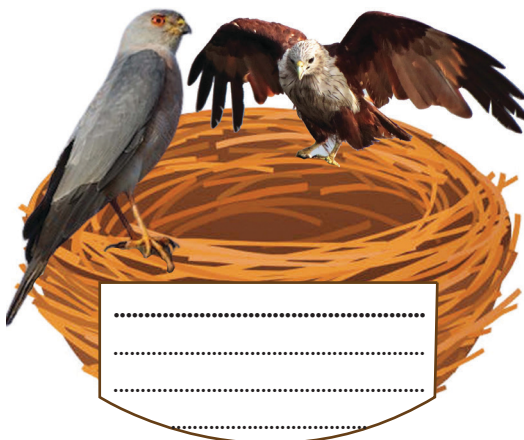
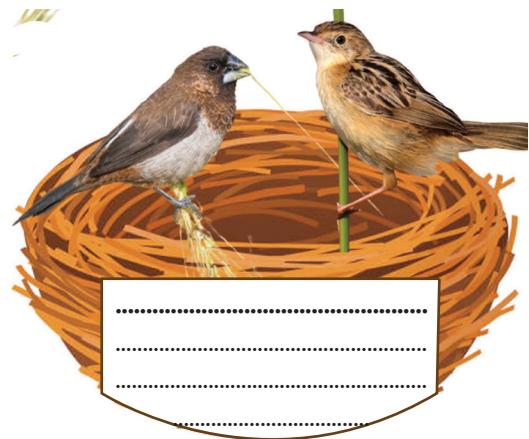
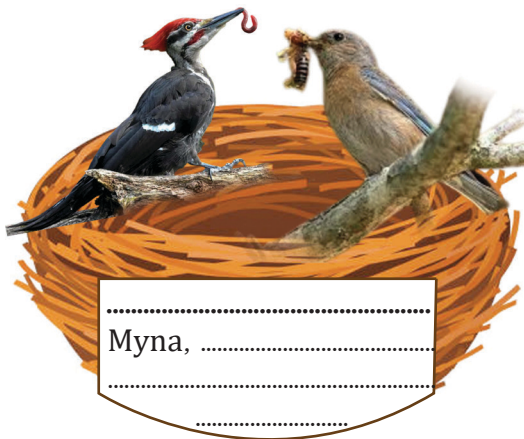
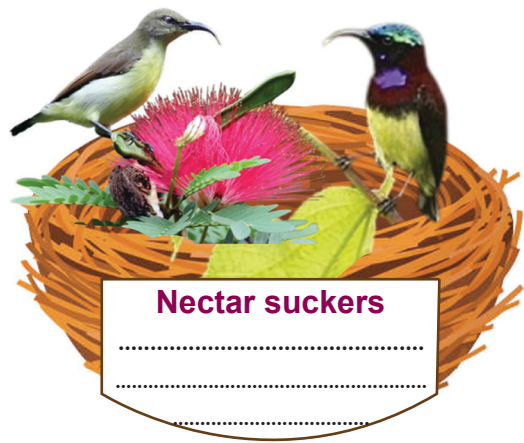
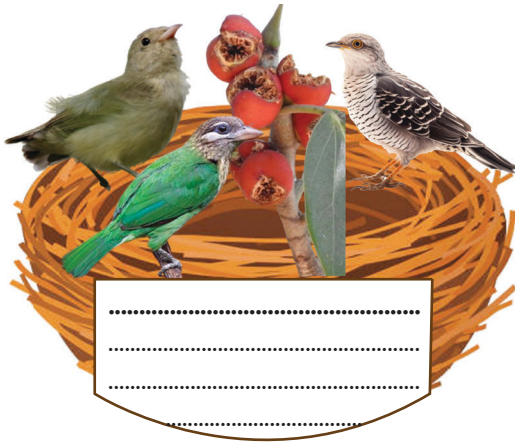
"I am one among the fruit eaters."





What food does each bird eat?

Find them and write the names of more birds in the nests.





Are the size and body structure of the birds in all the nests the same? What are the adaptations of birds for collecting food? Write them down.

Draw and Match

Identify and join the legs of birds, based on the nature of beak.



Birds and Their Habitats

Where can we see birds?

- Near the pond
-
-

Name the birds seen in water - rich places.

.....

What are their features?

- Long legs
-
-

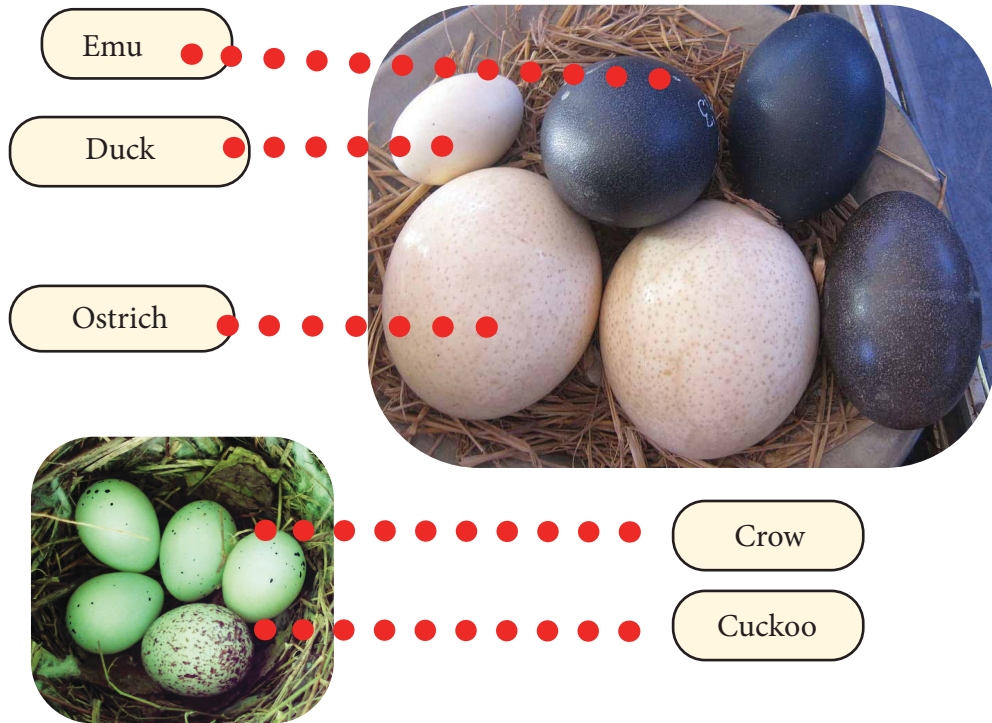
- Not all birds have the same body structure.
- Some have long, pointed beaks and long legs.
- Collection of food and movement are related to the body structure of birds.
- Birds that hunt for prey in water-rich areas have oily feathers.

Nocturnal Birds

Owls sleep during the day and hunt for prey at night. They have a feathered coat that is suitable for hunting at night and does not make sound while flying. The Forest owl catches small creatures. The Barn owl (Silver owl) eats mice and bandicoots. The Fish Owl hunts fish and the Nightjar eats field mice. All of these are nocturnal birds.







In what ways do birds' eggs differ?

- Size
-
-

Collect pictures of different birds, their nests and their eggs. Identify their features and prepare an album.

There is diversity in bird's nests with respect to shape, size, construction materials, location, nesting method and their eggs.



Ostrich and its Egg

The ostrich is the largest living bird in the world today. Its egg is the largest egg. Although it has wings, it cannot fly. An ostrich's egg weighs approximately one and a half kilograms. Moreover, it also has the largest eye among all animals living in land.





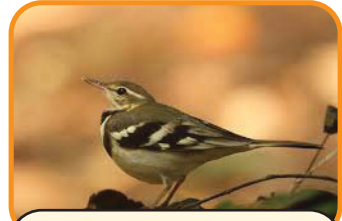
Migratory Birds



Green Warbler



Indian Pitta

Indian Paradise
FlycatcherIndian Golden
OriolePacific Golden
Plover

Forest Wagtail

Do we always see all these birds shown in the pictures? Do we always hear their sounds? What could be the reason?

Some species of birds migrate from one place to another in large numbers to escape from adverse weather conditions, to obtain food and for breeding. When the weather becomes favourable, they return. Such birds are called migratory birds.

Find the names of more migratory birds and write them down. Collect pictures and paste them in the **Environmental Bird-Corner** of your classroom.





Birds and the Environment



Have you noticed peepal trees growing on the top of certain buildings? Has anyone planted it there?

How are birds beneficial to the environment?

- Seed dispersal
-
-



In Search of Drinking Water

How do birds and animals quench their thirst in the summer, when springs and other water bodies dry up?

To protect birds from the heat and drought in summer, we can provide birds with drinking water. For this, you can pour water in earthen pots and keep under the trees or in any other open places. Be sure to change the water frequently to prevent mosquitoes from laying their eggs.



Set up a place in your school to provide food and water for birds.





Great Hornbill, towards Threat of Extinction

The Great Hornbill, also known as '**farmer of the forest**,' is the official bird of Kerala. It is now facing the threat of extinction.



The number of birds like the Great Hornbill and House Sparrow is now decreasing. What could be the reasons?

- Scarcity of food resources
- Lack of tall trees
- Human presence
-
-
-

The Red Data Book is a book that records endangered and rare species.

Write the names of other endangered birds of Kerala in **My Environmental Science Diary**.

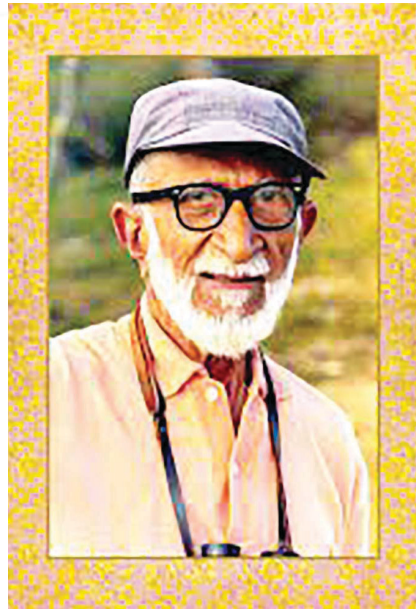
Collect their pictures and prepare an album.





Birdwatchers/Ornithologists

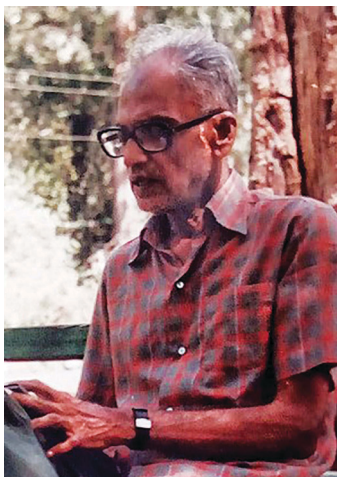
When Salim was 10 years old, he shot a sparrow named Manjathali, with an air gun that his uncle had given him as a gift. Salim and his uncle took this bird and went to visit his uncle's friend, W S Millard, an officer of the Natural History Society, Bombay (Mumbai). He introduced Salim to the collection of birds preserved and kept at the society. It included sparrows like the Manjathali that Salim had shot. This visit marked the turning point for him to be a bird lover later.



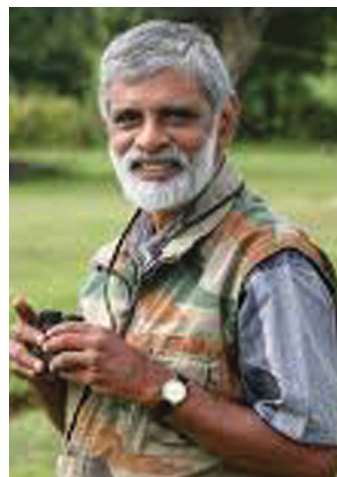
Dr. Salim Ali

This is the biography of Dr. Salim Ali, the greatest birdwatcher, India has ever seen. We celebrate his birthday **November 12**, as National Birdwatching Day.

Do you know any other birdwatchers? Find more information about them and write.



Sri. K.K. Neelakandan,
also known as Induchoodan



Dr. R. Sugathan





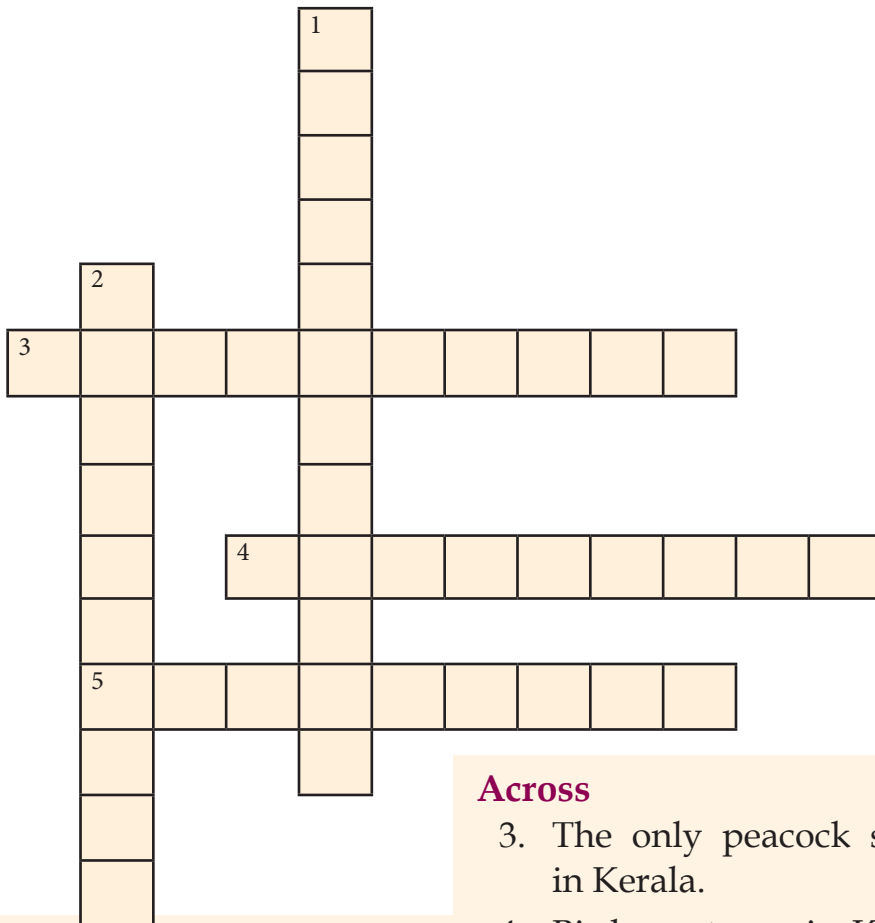
The branch of science related to the study of birds is called Ornithology.

Bird Sanctuary

The bird sanctuary in Kerala named after Dr. Salim Ali is the Thattekkad Bird Sanctuary.

Do you know any other bird sanctuaries?

Complete the crossword puzzle.



Down

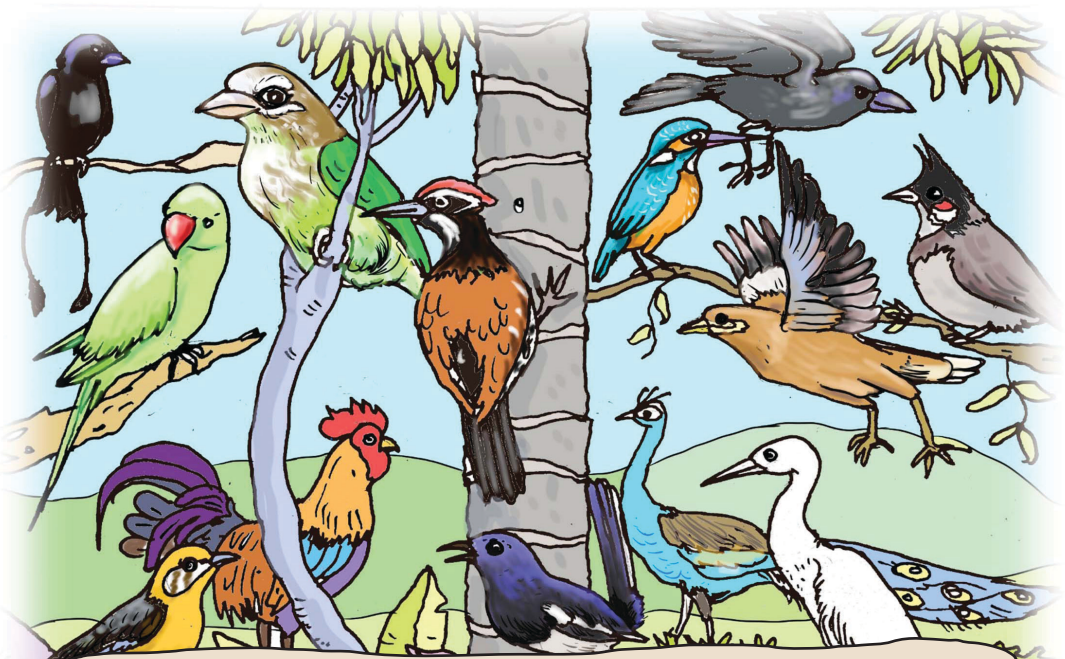
1. The only bird sanctuary in Kerala located in mangrove forests.
2. Known as Dr. Salim Ali Bird Sanctuary.

Across

3. The only peacock sanctuary in Kerala.
4. Bird sanctuary in Kozhikode district where migratory birds are mostly seen.
5. A bird sanctuary in Kottayam district.

Find more information about other bird sanctuaries and write them in **My Environmental Science Diary**.





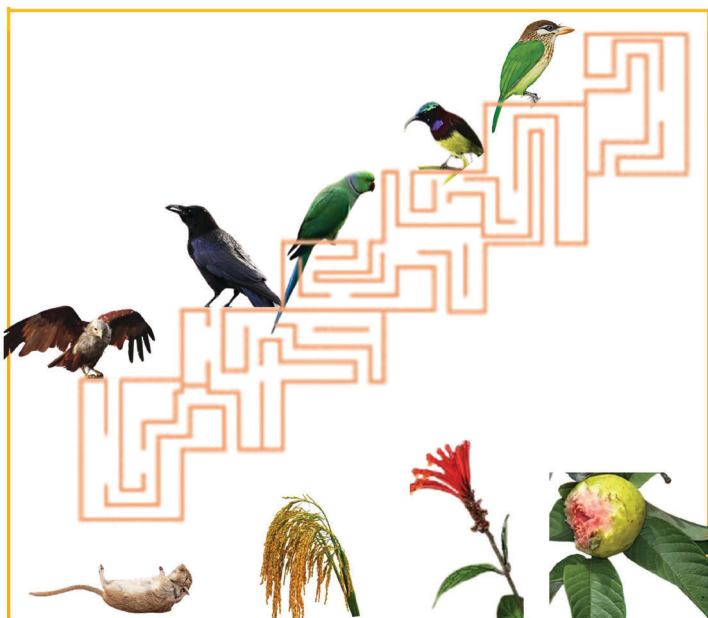
Crows, pheasants, mynas, peacocks, hornbills, wagtails and many more-millions of diverse birds in this living world!! Many of them are having sweet voices, diverse colours, different migratory paths-what not!!

Let's continue our fascinating journey into the world of winged buddies by exploring and discovering more about them.



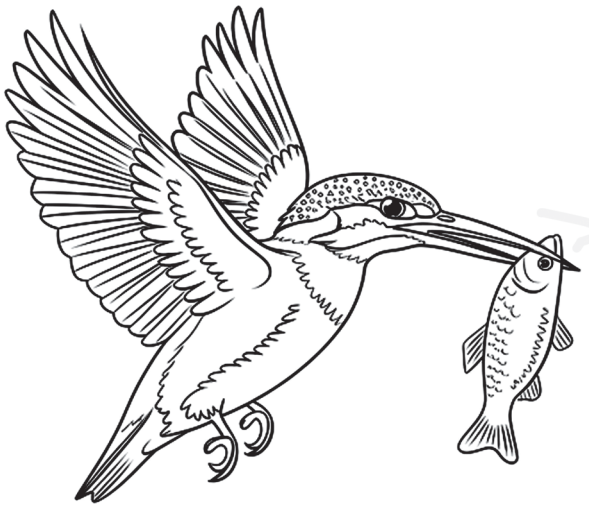
Let's Assess

1. Draw lines through the right path to connect the birds to their food.





2. "Hi... Is this a woodpecker?" Robby shouted when he saw a bird by the side of the pond. "The beak of woodpecker's is not like this." Ayan replied. Then, which bird is this?



Complete the picture giving appropriate colours.

Prepare a note on its features.

3. Mansa and Abin were playing a table-completion game. Join them and complete the table.

Name of the Bird	Colour	Food	Body Features	Nest
Parrot				
	Black			
		Small creatures		
			Long beak	
Woodpecker	Greenish yellow/ Yellowish brown	Insects, Worms	Pointed beak, Red cap on the head	Hollows in trees

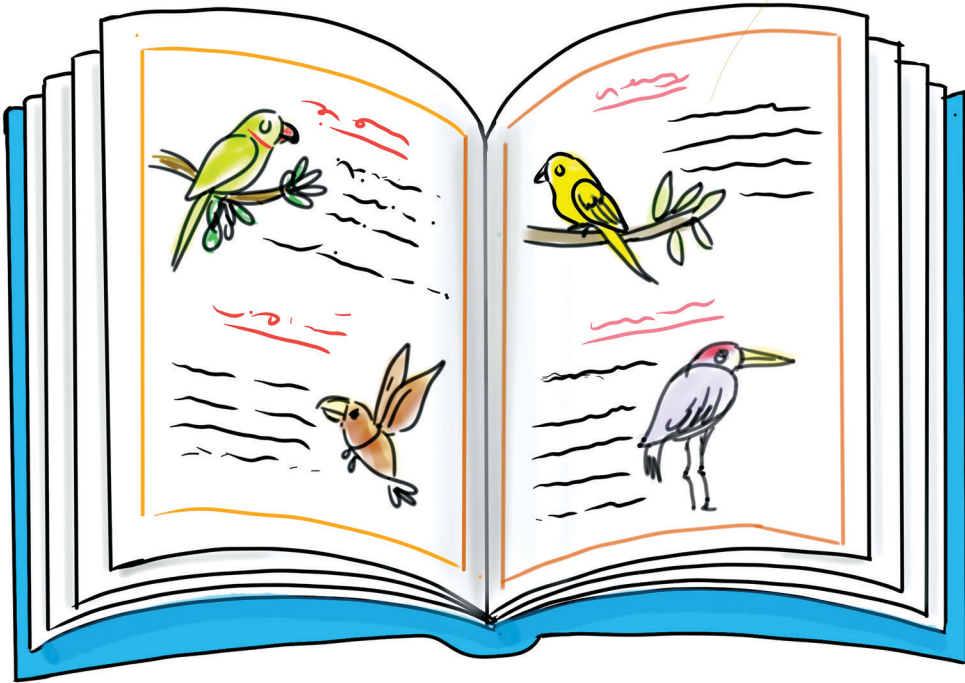




Extended Activities

1. Let's make an album.

Prepare an **album of birds** by drawing or pasting pictures of various birds.



2. Make different shapes by arranging the feathers of various birds.
3. Prepare a short play on 'The Role of Birds in Environmental Protection' and present it in the class.



Kerala : A Symphony of Art

4



For the first time, I got two prizes in the School Kalolsavam (Art and Cultural Festival). First prize for folk dance and second prize for light

music. The first place for drama was won by my friends in Standard IV. What I liked the most was Sanooj's speech and Nila's monoact.

Have you read Neethu's diary?

In which competitions did Neethu win the prizes?

Which are the different competitions held in the school kalolsavam?

Which are the stage items? Which ones are not stage items?

List them.



Nila was watching the colourful pictures of kalolsavam winners in the newspaper. She asked her mother: "Is Thiruvathirakali performed only by girls?"

Mother : Yes dear. Thiruvathirakali is a group dance performed by women. It is performed as part of the Thiruvathira celebration in the month of Dhanu.

It is played by clapping hands while standing around a lighted Nilavilakku (Pedestal oil lamp).

Nila : Mother, when Margamkali was performed in Kalolsavam, it also had a Nilavilakku.



Thiruvathirakali

Mother: Yes, in Margamkali also a Nilavilakku is lighted and kept in the middle.

Song that describe the history of Christianity is sung for Margamkali.

The costume for Margamkali is

'chatta and mundu'. For Thiruvathirakali, the dancers wear the traditional costume of Kerala.



Margamkali

Mother: Do you know any other art form performed by women standing in a circle?

Nila : Both Oppana and Vattappattu are performed in a circle.





Mother: Yes. Oppana and Vattappattu, which are popular in the Muslim society, are performed in a circle. Haven't you seen one of the girls seated in the middle while playing Oppana?

Nila : Isn't that the bride?

Mother: Yes. Oppana is a group dance performed during Muslim wedding celebrations. Dancers stand around the bride and perform Oppana.



Oppana

Mother: Do you know who performs Vattappaattu?

Nila : Isn't it performed by boys?

Mother: Yes. Vattappattu is performed by men. This form is also known as 'Aanoppna'.

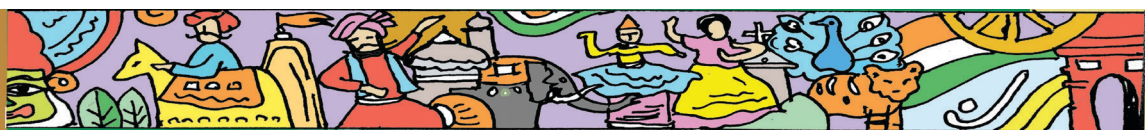
Nila : Isn't Mangalamkali is also performed in circle, mother? There is a photo of it in the newspaper.

Mother: Mangalamkali is popular in Kasaragod and Kannur districts. It is also an art form performed in connection with wedding celebrations.



Mangalamkali

Nila : Isn't Mangalamkali also performed by women?





Mother: Mangalamkali is mainly performed by a group of women.

Men sing and clap their hands. It is also known as Kalyanakali.

Then, mother explained about Villadichanpaattu, a popular art form in South Kerala.

Villadichanpaattu is performed using a large bow, a pot and a stick with jingles as musical instrument to create rhythm. The body movements and acting enhance the visual appeal of the song.



Villadichanpaattu

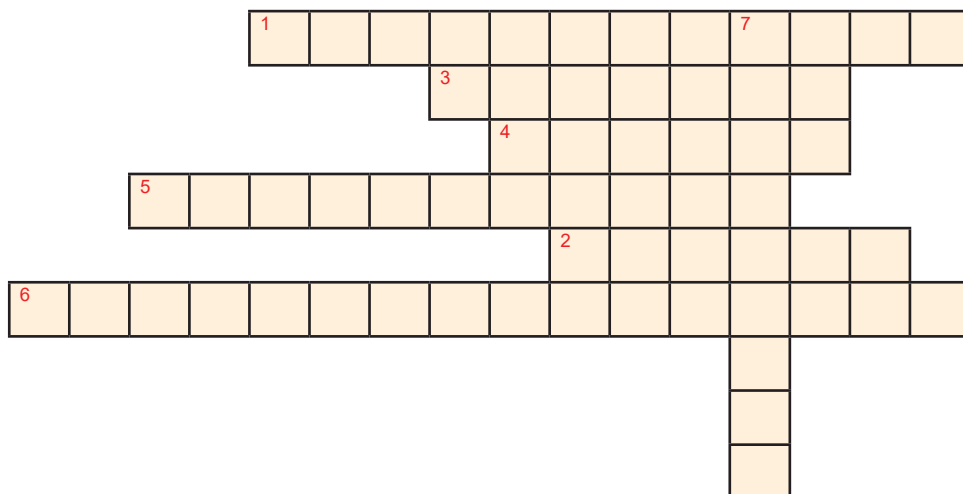
- Women dressed in traditional Kerala costumes, stand in a circle and sing songs to perform Thiruvathirakali.
- Songs narrating the history of Christianity are sung for Margamkali.
- The virtues of the groom are presented before the bride through the Oppana Song.
- Any life related topic such as hunting, work or rituals can be the subject of the songs used in Mangalamkali.
- Villadichanpattu begins with the Vandanagaanam (Greeting song). This is followed by the Kadhaagaanam.





Therefore, it can be said that Theyyattam is a ritual dance performed in the form of deities. Theyyattam has a specific order for its presentation. The main instrument used in Theyyam is the Chenda. It also uses Maddalam, Ilathalam and Kombu. Theyyattam is performed with the rhythm of the orchestra.

Complete the word puzzle given below based on the pictures and instructions.





Across

1.



2.



3.



4. The main instrument used in Theyyam

5.



6.

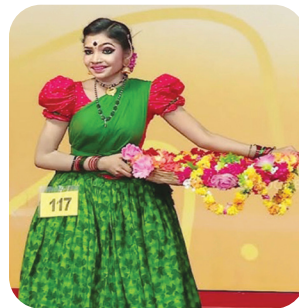


Down

7.



Find out and write the dance forms seen in these picture.





Collect more information about these art forms and write them in **My Environmental Science Diary**.

Collect images of dance forms and prepare an album.

In which item did Neethu get the second place in Kalolsavam?

Like light music, what are the other art forms which give importance to music?

- Carnatic music
-
-

Shall all of us sing together the 'vaythaari' given below?

Oh thithithara thithi thei thithei thaka thei thei thom...

Sing the rest of the lines.



Folk Songs

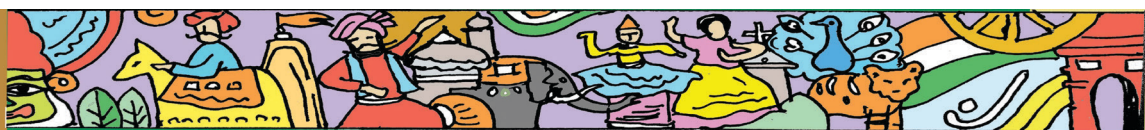
Folk songs are those that have been passed down orally from generation to generation. They are closely related to spoken language. It is related to the rituals and culture of that locality. Folk Songs include those related to agriculture, labour, entertainment and tradition.



Classical Music

Classical music is performed with a precise singing style and rhythm. Kerala has made great contribution to the two major classical music forms - Carnatic music and Hindustani music.

Swathi Thirunal was a great ruler with deep appreciation and knowledge in music. He composed more than five hundred musical compositions in Malayalam, Hindi, Tamil, Telugu and Kannada.



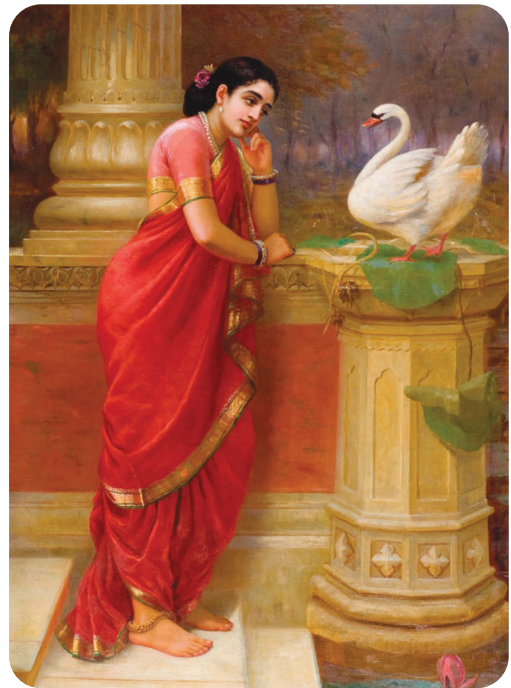


Mappilapattu

Mappilapattu (Mappila songs) are very popular in the Muslim society. These songs are mostly composed in a special Malayalam language (Arabic Malayalam) used by Muslims in North Kerala. Moyinkutty Vaidyar is the most renowned composer of Mappilappattu.

Have you participated in pencil drawing and painting competitions in the school Kalolsavam?

Are you familiar with these paintings?



These are painted by Raja Ravi Varma, a world famous painter from Kerala.

He was the one who introduced modern painting to Kerala.

Have you seen the animated video of Raja Ravi Varma's paintings, using AI technology?



- Conduct an art exhibition in your school collecting copies of Raja Ravi Varma's paintings.





Festivals... Celebrations...



Do you like to participate in festivals? Thrissur Pooram is one of the famous festivals in Kerala.

Do you have festivals in your place too?

Collect information about the main festivals in your locality and prepare a wall magazine.



“Maveli naadu vaneedum kaalam
Maanushyarellarum onnupole
Aamodathode vasikkum kaalam
Aapathengaarkkumottillathanum”

Hope, you have heard this Onam song. Find the next lines and sing along to the tune.





Look at the pictures of Onam celebrations in Nila's school.



Onam is our national festival.

Write how Onam is celebrated in your school and at home in **My Environmental Science Diary**.

Collect information about the celebrations shown in the pictures and prepare a note.





Are there any other festivals and celebrations that you would like to participate?

Note them and share with your friends.



Let's Assess

1. Match the following by drawing lines.

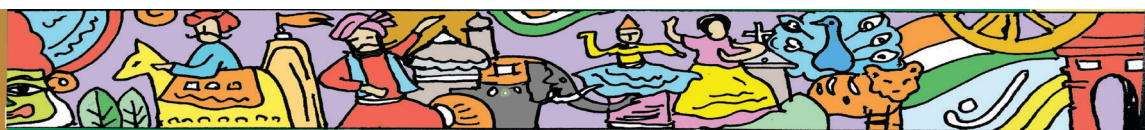
• Inventor of Ottan Thullal • Exponent of Mappilapattu • World renowned painter • Musician and administrator	• Raja Ravi Varma • Swathi Thirunal • Moyinkutty Vaidyar • Kunchan Nambiar
--	--

2. Name the important local art forms in Kerala. Prepare a note on it.



Extended Activities

1. With the help of your teacher arrange a cultural performance by inviting a talented artist to the school and enjoy the performance.
2. Make a collage including pictures of various art forms of Kerala.
3. Identify the games and art forms associated with Onam and prepare a class magazine.



CONSTITUTION OF INDIA

Part IV A

FUNDAMENTAL DUTIES OF CITIZENS

ARTICLE 51 A

Fundamental Duties- It shall be the duty of every citizen of India:

- (a) to abide by the Constitution and respect its ideals and institutions, the National Flag and the National Anthem;
- (b) to cherish and follow the noble ideals which inspired our national struggle for freedom;
- (c) to uphold and protect the sovereignty, unity and integrity of India;
- (d) to defend the country and render national service when called upon to do so;
- (e) to promote harmony and the spirit of common brotherhood amongst all the people of India transcending religious, linguistic and regional or sectional diversities; to renounce practices derogatory to the dignity of women;
- (f) to value and preserve the rich heritage of our composite culture;
- (g) to protect and improve the natural environment including forests, lakes, rivers, wild life and to have compassion for living creatures;
- (h) to develop the scientific temper, humanism and the spirit of inquiry and reform;
- (i) to safeguard public property and to abjure violence;
- (j) to strive towards excellence in all spheres of individual and collective activity so that the nation constantly rises to higher levels of endeavour and achievements;
- (k) who is a parent or guardian to provide opportunities for education to his child or, as the case may be, ward between age of six and fourteen years.

CHILDREN'S RIGHTS

Dear Children,

*Wouldn't you like to know about your rights? Awareness about your rights will inspire and motivate you to ensure your protection and participation, thereby making social justice a reality. You may know that a commission for child rights is functioning in our state called the **Kerala State Commission for Protection of Child Rights**.*

Let's see what your rights are:

- Right to freedom of speech and expression.
- Right to life and liberty.
- Right to maximum survival and development.
- Right to be respected and accepted regardless of caste, creed and colour.
- Right to protection and care against physical, mental and sexual abuse.
- Right to participation.
- Protection from child labour and hazardous work.
- Protection against child marriage.
- Right to know one's culture and live accordingly.
- Protection against neglect.
- Right to free and compulsory education.
- Right to learn, rest and leisure.
- Right to parental and societal care, and protection.

Major Responsibilities

- Protect school and public facilities.
- Observe punctuality in learning and activities of the school.
- Accept and respect school authorities, teachers, parents and fellow students.
- Readiness to accept and respect others regardless of caste, creed or colour.



Contact Address:

Kerala State Commission for Protection of Child Rights

'Sree Ganesh', T. C. 14/2036, Vanross Junction

Kerala University P. O., Thiruvananthapuram - 34, Phone : 0471 - 2326603

Email: childrights.cpcr@kerala.gov.in, rte.cpcr@kerala.gov.in

Website : www.kescpcr.kerala.gov.in

Child Helpline - 1098, Crime Stopper - 1090, Nirbhaya - 1800 425 1400

Kerala Police Helpline - 0471 - 3243000/44000/45000

Online R. T. E Monitoring : www.nireekshana.org.in