



GOVERNMENT OF TAMIL NADU

STANDARD ONE

TERM - I

VOLUME 2

**MATHEMATICS
ENVIRONMENTAL STUDIES**

A publication under Free Textbook Programme of Government of Tamil Nadu

Department Of School Education

Government of Tamil Nadu

First Edition - 2018

(Published under Uniform System
of School Education Scheme in
Trimester Pattern)

NOT FOR SALE

Content Creation



State Council of Educational
Research and Training

© SCERT 2018

Printing & Publishing



Tamil NaduTextbook and Educational
Services Corporation

www.textbooksonline.tn.nic.in



FOREWORD

The Colourful world of children is full of excitement and spectacular thoughts! Their imaginative power can even attract the wild creatures to accompany them in a friendly manner. Their enthusiasm and innovative prescription can even trigger the non-living entities and enchant the poetic Tamil. It is nothing but a bundle of joy blended with emotions when you travel into their creative world.

We have tried our level best to achieve the following objectives through the new Text Books by gently holding the tender hands of those little lads.

- To tune their mind away from rote-learning and guide them into the world of creativity.
- To make the children be proud of their ancient history, culture, art and rich Tamil literature.
- To march triumphantly with confidence into the modern world with the help of Science and Technology.
- To facilitate them to extend their journey of learning beyond the text book into the world of wisdom.

These new Text Books are studded with innovative design, richer content blended with appropriate psychological approach meant for children. We firmly believe that these newly designed text books will certainly create a sparkle in your mind and make you explore the world afresh.



THE NATIONAL ANTHEM

Jana-gana-mana-adhinayaka jaya he
Bharata-bhagya-vidhata.
Punjaba-Sindhu-Gujarata-Maratha-
Dravida-Utkala-Banga
Vindhya-Himachala-Yamuna-Ganga
Uchchhala-jaladhi-taranga
Tava subha name jage,
Tava Subha asisa mage,
Gahe tava jaya-gatha.
Jana-gana-mangala-dayaka jaya he
Bharata-bhagya-vidhata
Jaya he, jaya he, jaya he,
Jaya jaya, jaya, jaya he.

- Rabindranath Tagore.

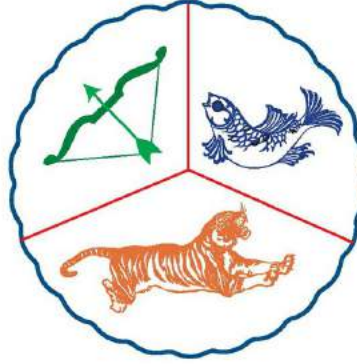


தமிழ்த்தாய் வாழ்த்து

நீராருங் கடலுடுத்த நிலமடந்தைக் கெழிலொழுகும்
சீராரும் வதனமெனத் திகழ்பரதக் கண்டமரில்
தெக்கணமும் அதிற்சிறந்த திராவிடநல் திருநாடும்
தக்கசிறு பிறைநுதலும் தரித்தநறுந் திலகமுமே!
அத்திலக வாசனைபோல் அனைத்துலகும் இன்பமுற
எத்திசையும் புகழ்மணக்க இருந்தபெருந் தமிழணங்கே!
தமிழணங்கே!

உன் சீரிளமைத் திறம் வியந்து செயல் மறந்து வாழ்த்துதுமே!
வாழ்த்துதுமே!
வாழ்த்துதுமே!

- 'மனோன்மணியம்' பெ. சுந்தரனார்.

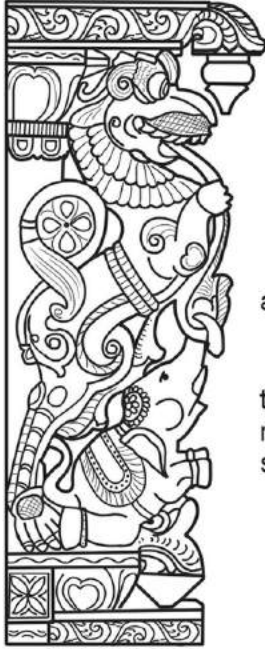


தமிழ்த்தாய் வாழ்த்து – பொருள்

ஒலி எழுப்பும் நீர் நிறைந்த கடலெனும் ஆடையுடுத்திய நிலமெனும் பெண்ணுக்கு, அழகு மிளிரும் சிறப்பு நிறைந்த முகமாகத் திகழ்கிறது பரதக்கண்டம். அக்கண்டத்தில், தென்னாடும் அதில் சிறந்த திராவிடர்களின் நல்ல திருநாடும், பொருத்தமான பிறை போன்ற நெற்றியாகவும், அதிலிட்ட மணம் வீசும் திலகமாகவும் இருக்கின்றன.

அந்தத் திலகத்தில் இருந்து வரும் வாசனைபோல, அனைத்துலகமும் இன்பம் பெறும் வகையில் எல்லாத் திசையிலும் புகழ் மணக்கும்படி (புகழ் பெற்று) இருக்கின்ற பெருமைமிக்க தமிழ்ப் பெண்ணே! தமிழ்ப் பெண்ணே! என்றும் இளமையாக இருக்கின்ற உன் சிறப்பான திறமையை வியந்து உன் வாய்ப்பட்டு எங்கள் செயல்களை மறந்து உன்னை வாழ்த்துவோமே! வாழ்த்துவோமே! வாழ்த்துவோமே!





THE NATIONAL INTEGRATION PLEDGE

"I solemnly pledge to work with dedication to preserve and strengthen the freedom and integrity of the nation."

"I further affirm that I shall never resort to violence and that all differences and disputes relating to religion, language, region or other political or economic grievances should be settled by peaceful and constitutional means."

A STUDENT'S VOW BEFORE MOTHER INDIA

Name :

Class :

School :

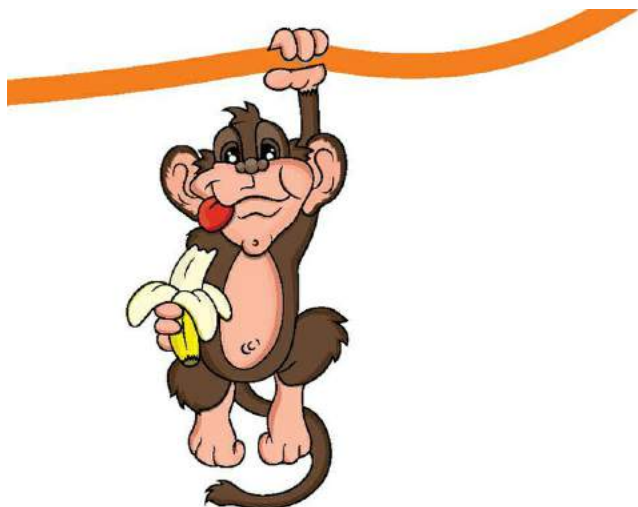
"I shall overcome the obstacles raised by caste and communal prejudices and work for the greatness of my Motherland putting to the fullest use the benefits that I derive through education.

Vande mataram!

Signature



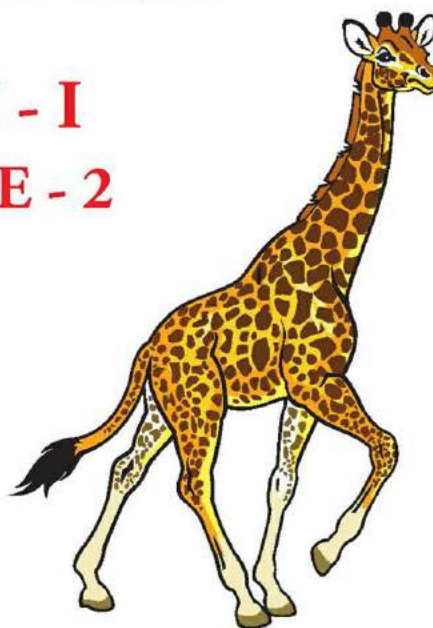
Untouchability is Inhuman and a Crime

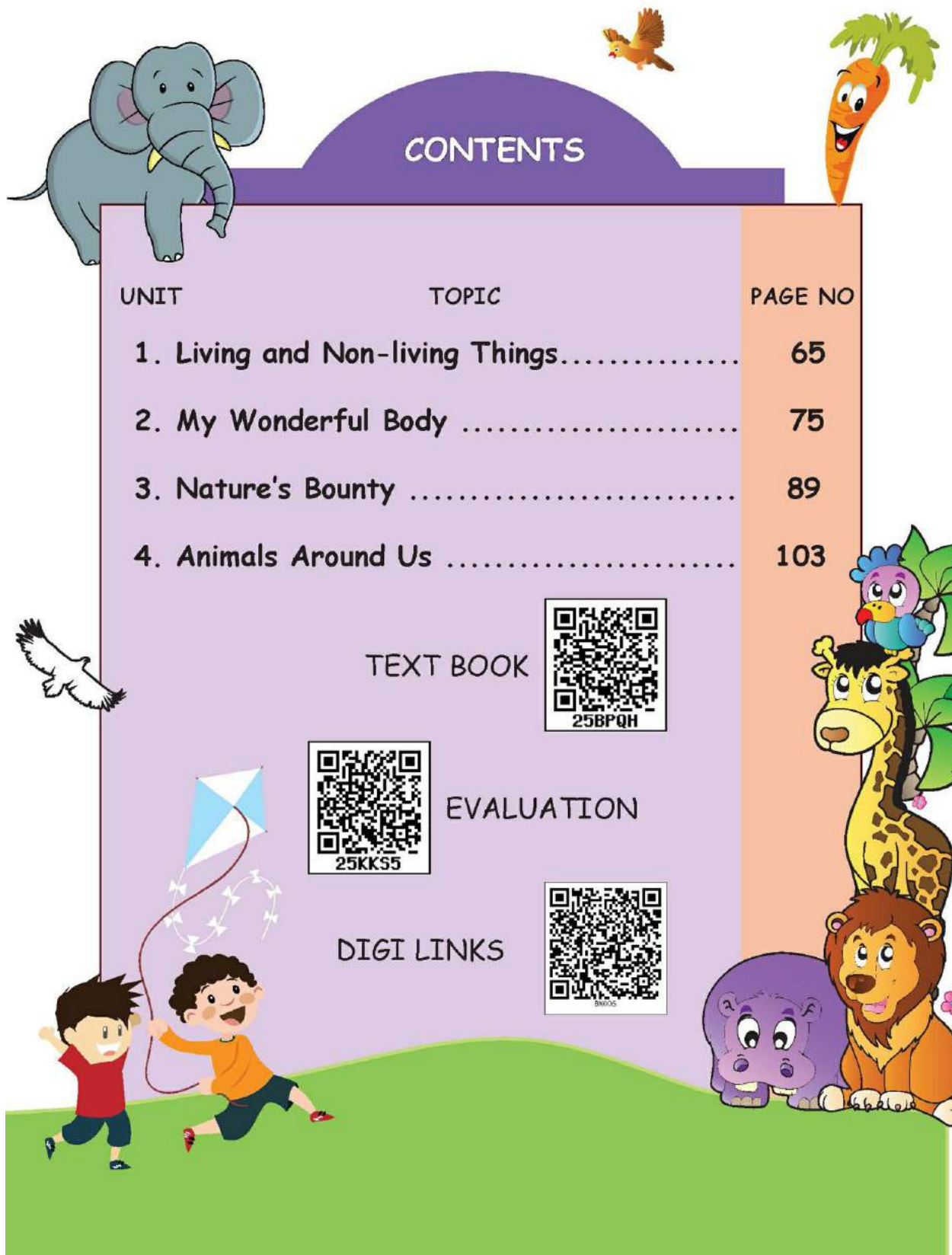


ENVIRONMENTAL STUDIES

STANDARD ONE

**TERM - I
VOLUME - 2**





CONTENTS

UNIT	TOPIC	PAGE NO
1.	Living and Non-living Things.....	65
2.	My Wonderful Body	75
3.	Nature's Bounty	89
4.	Animals Around Us	103

TEXT BOOK



25BPQH



25KKS5

EVALUATION

DIGI LINKS



38002

UNIT 1

Living and Non-living Things

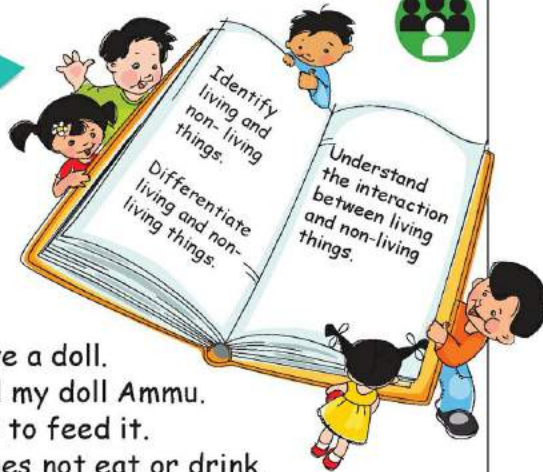
Learning Objectives

The learner should be able to

I am Harini.
I have a puppy.
I call him Jimmy.
I give him eat.
He eats it quickly.
I play with him.
He jumps on me.
I love him very much.



I have a doll.
I call my doll Ammu.
I try to feed it.
It does not eat or drink.
It moves only when I wind the key.
I like my doll.



Harini wonder why her puppy ate food but her doll did not?
Do you know why? Let us find out.



Living things



Living things eat, grow, move and have young ones. They also breathe and feel.



I play



I grow



I eat

I AM A LIVING BEING

Living things eat.



Living things grow.





∞ Plant a seed and watch it grow.



∞ Sequence the pictures.



∞ Put a Tick (✓) against those that need food to live.


☐

☐

☐

☐

☐

☐



∞ Living things can **move** from one place to another.



Horse



Skink



Bird



Earth worm

∞ Living things have **young ones**.

THINK ZONE

A boat moves.
Is it living?

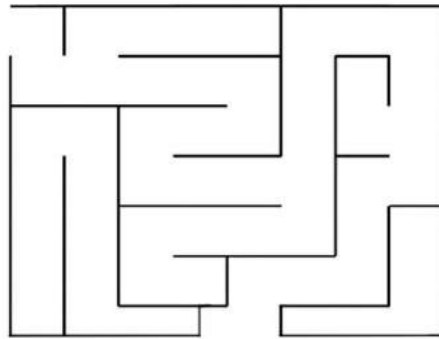


∞ Living things **experience sensations**. Living things **breathe**.





∞ This cat is hungry. Help the cat reach the milk.



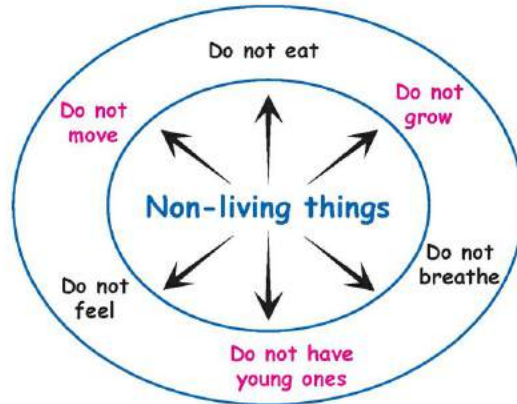
∞ Connect the baby with its mother by drawing a line.





Non-living things

Let us talk



☁ Look at the pictures. Use the first letters to get the words CAT and DOG.



CAR



AEROPLANE



TABLE



DOLL



OIL



GATE



--	--	--



--	--	--





☞ Look at the picture.

Can you see a mountain, a river, a pond and a lake?

Mountains are made up of rocks and soil. The river, pond and lake are full of water. Soil and water help plants to grow. We get our food from plants. We breathe air. Air, water and soil are non-living things. Can we live without them?



Vocabulary

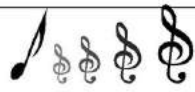
air, water, soil, river, mountain, pond, lake, sea



☞ Observe the picture of life in water.

This is the sea. There are so many living things in it!





Rhyme Time



Fly like an eagle in the sky.

Jump like a dolphin in the sea.

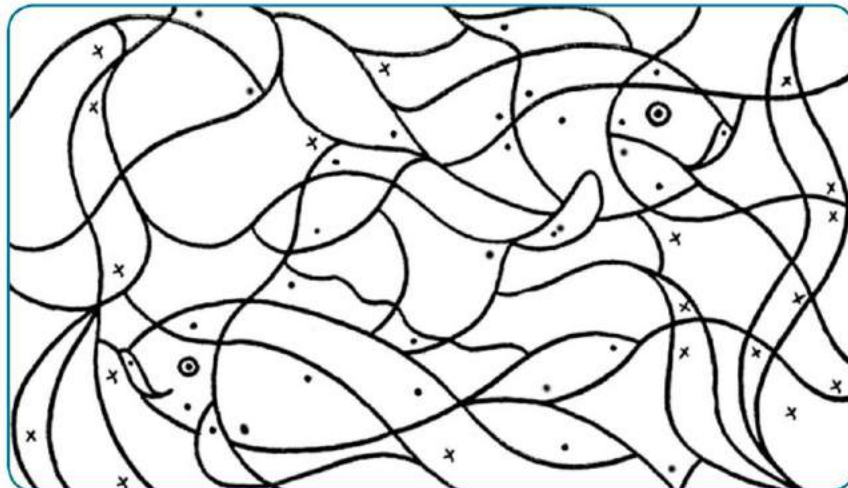


Crawl like a crab in the river sand.

Sky, sea and sand are nonliving, where eagle, dolphin and crab are found.

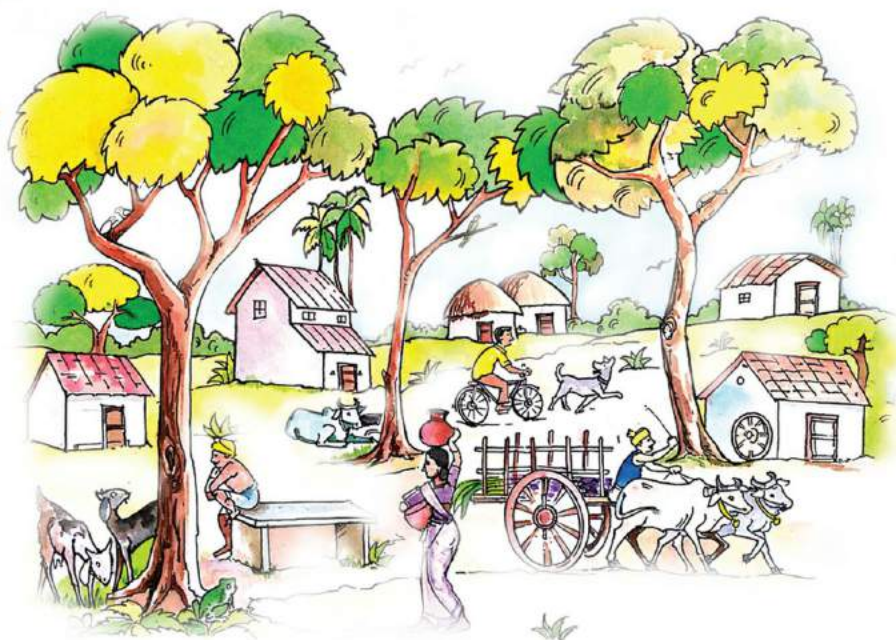


☁ Colour the parts marked with a dot (.) yellow, the parts with a cross (x) green and the rest blue. What do you see?





∞ Observe the picture. Differentiate the living things from non-living things. Give reasons.



Evaluation

∞ Tick (✓) the living things.


☐

☐

☐

☐

☐

☐




☐

☐

☐



☁ Is it living or non-living?

	<p>What is this?</p> <p>Does it grow?</p> <p>Does it breathe?</p> <p>Does it move?</p> <p>Does it produce young ones?</p> <p>What food does it eat?</p>
	<p>What is this?</p> <p>Does it grow?</p> <p>Does it breathe?</p> <p>Does it move from one place to another?</p> <p>Does it produce young ones?</p> <p>What food does it need?</p>
	<p>What is this?</p> <p>Does it grow?</p> <p>Does it breathe?</p> <p>Does it move?</p> <p>Does it produce young ones?</p> <p>Does it need food?</p>

Self-Evaluation

- ★ I can identify living and non-living things.
- I can differentiate living and non-living things. ★
- ★ I can draw within a grid, connect the dots and colour.
- I can make a paper boat and a paper aeroplane. ★
- ★ I can connect related pairs of things.



UNIT 2

My Wonderful Body



Learning Objectives

The learner should be able to

- Name the external parts of the body.
- Identify various senses through activities.
- Maintain personal hygiene.

Let us talk



We play, walk, run, hear, see, smell, taste and touch.

We can see some parts of our body but some others are within us, which we cannot see.

Some parts are in pairs. Can you name a few?

Let us learn names of some parts of our body with this rhyme.



Rhyme Time

Head, shoulders, knees and toes (2)

Knees and toes

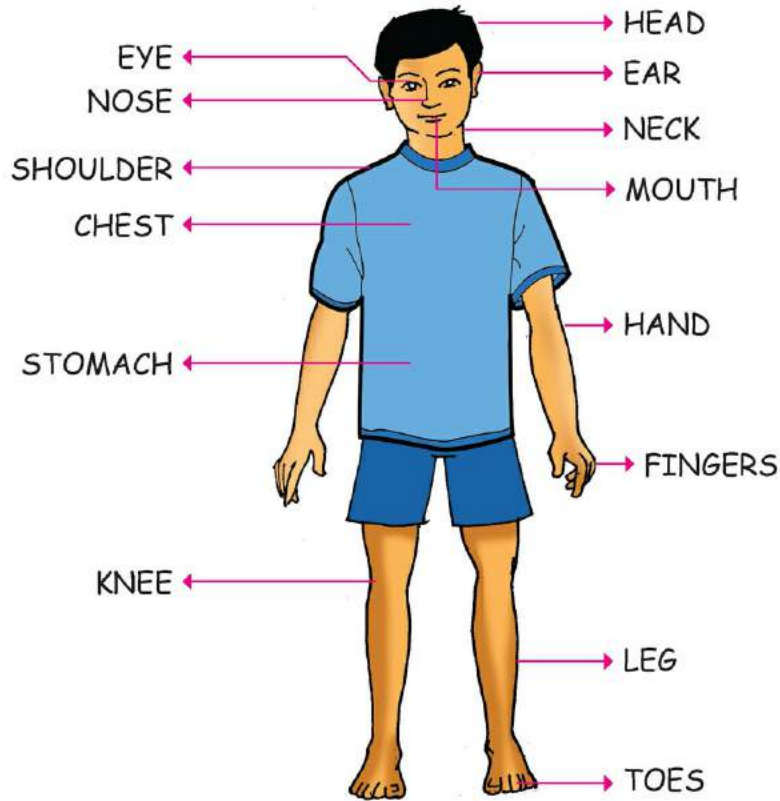
Eyes and ears

Mouth and nose

Head, shoulders, knees and toes

Eyes, ears, mouth and nose

◇ Let us know our body parts.



◇ Connect the labels to the parts.



CHEST

STOMACH

HEAD

LEG

FINGERS

MOUTH



SHOULDER

EYE

NECK

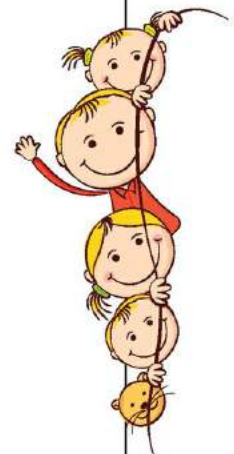
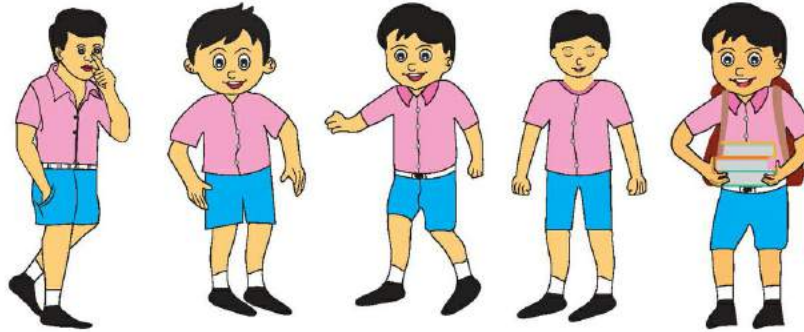
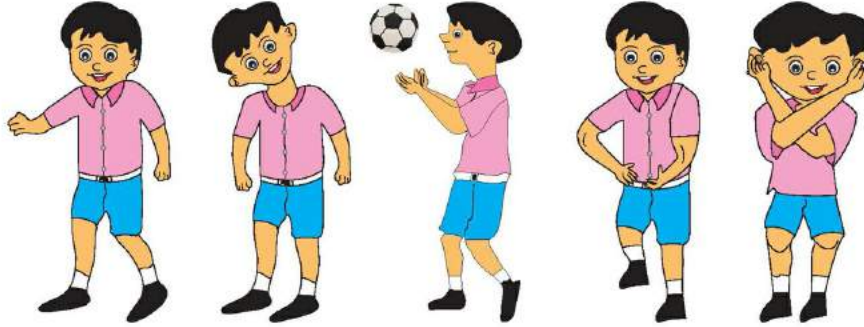
TOES

KNEE

HAND



◇ Observe the pictures. Little Varun is moving his body in so many ways. Shall we try the same actions?



◇ What are some other actions that you can do with your body?

Some of our body parts are in pairs and some are single.

- ◆ Connect the paired parts to the number 2 and the single parts to the number 1.

1

2



- ◆ You can fold your arm and your fingers, wherever there are lines. Try it.

We experience different feelings like happiness, sadness, fear and anger.



We show these feelings with our facial expressions.

Try making these expressions.



- ◆ Draw the facial expressions.



The giraffe has a long neck and the elephant has a long trunk.



Rhyme Time

Right and Left

Let us sing this rhyme.

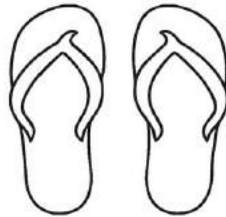
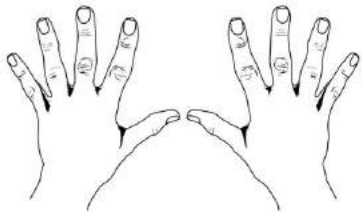


You put your right hand in
You put your right hand out
You put your right hand in
And you shake it all about
You do the Hai hai and
you turn yourself around
That's what its all about!

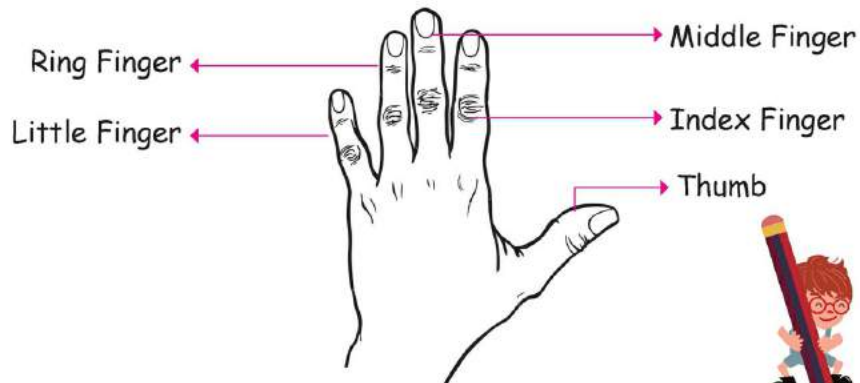


Similarly do the actions with the left hand, right foot, left foot, head and then with your whole body.

◇ Colour the pictures on the right side red and the left side blue.



Each finger of your hand has a name. Do you know the names?





◇ Your thumbprint is special. Put your thumbprint in one of the boxes.

Ask your friend to put his/her thumbprint next to yours.

Do they look the same?



◇ Play the game "Raja Says" or "Rani Says" with your friends.



Touch
your nose



My Senses

I hear many sounds with my ears. Some sounds are loud and some are soft.



The cawing of
a crow



The ringing
of a bell



The ticking of
a clock



The sound of a
moving train



The sound of a
water drop





What are the sounds you hear every day around you?

Which sounds do you like?

◇ Let us play a game.

Blindfold yourself. Let your friends move around you while they make sounds. Find the direction of the sound you hear. Identify your friends with their voices.



We see the world around us with our eyes. We see different shapes, sizes and colours.

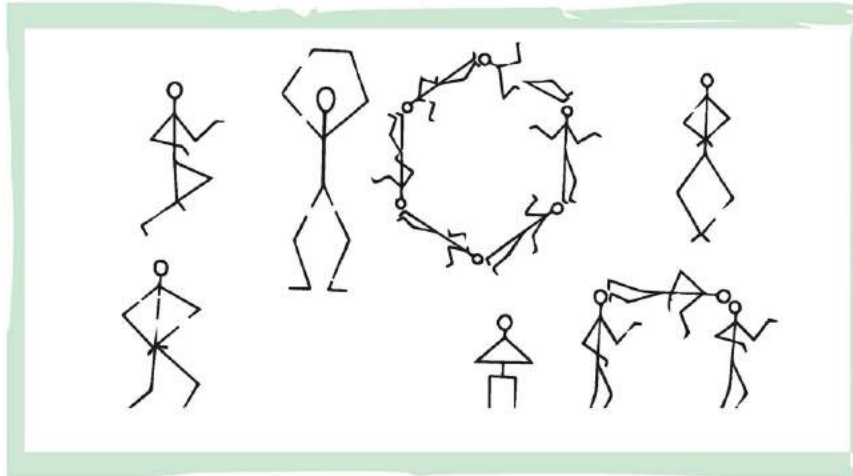


◇ Observe the picture and discuss.





◇ Look at the shapes given below. Can we try the same shapes with our body?



We see and hear the world around us. We also use our senses of touch, smell, taste and to know the world around us.

There are different kinds of tastes like sweet, sour, salty and bitter. Our tongue helps us to taste.

The lemon is sour, the Mango is sweet and the bitter guard is bitter.

What do you like to eat?



DO YOU KNOW?
Eagles, falcons and hawks can see small objects even from a great height.

Our nose can sense different types of smell.

What are the smells you like? What are the smells you don't like?



◇ Go for a Nature Walk in your school campus.



Feel the plants and the soil.

Touch the flower. It is soft.

Touch the tree trunk. It is hard.

What are the things you like to touch?



◇ Blindfold your friend. Give your friend various things to smell, taste and feel and ask him/her to find out what they are.







A dog's sense of smell is 40 times greater than that of a human.





Story Time





This is Mala . She wakes up  in the morning. This is

a germ .  cannot see the .  is very small.

 is waiting to get inside  body.  brushes her

teeth.  takes a  bath. The  attacks .

 is clean and .  becomes .  goes to

school .  goes to the washroom .  does not

wash her hands with .  is happy.  enters Mala's

nails.  eats her lunch.  goes into Mala's stomach.

 falls sick .  visits the . The Doctor tells

her to  her hands with  before  and after using

the . The  gives Mala medicines.  gets well.

 is .





We should keep our hands clean. If we don't, we will fall sick like Mala. Let us learn how to wash our hands properly. Do it step by step.



We must brush our teeth twice a day, once in the morning and once at night. Let us learn the right way of brushing our teeth. Practice all these routines daily.



◆ Healthy Washroom Routines.

After using the toilet (Wash room) wash yourself.



Pour water



Wipe your feet



Wash your hands
with soap



Wipe your
hands

Daily Routines

These pictures shows our daily routine. Arrange them in sequence.



◆ Put a tick (✓) mark to the things which helps to keep you clean.





◇ Some activities keep us healthy and some don't. Tick (✓) the activities that keep us healthy and cross (X) those that do not.



Self-Evaluation

_____→



I Can name the parts of my body.

_____→

I can do many actions with my body.



_____→




I practise good habits to keep me clean.

_____→

I know the names of my sense organs.



_____→



UNIT 3

Nature's Bounty

Learning Objectives

The learner should be able to






Selvi went to a garden. She saw a **yellow flower** on the **tomato plant**. she went to pluck it. A **bee** came and said, "Please, leave it for me. It is my food".






She saw a **red tomato** on the tomato plant. She went to pluck it. A **parrot** came and said, "Please, leave it for me. It is my food".

She saw a **green leaf** on the tomato plant. A **grasshopper** came and said, "Please don't pluck the leaf. It is my food."





Watering the plant, Selvi said , "**You provide food for all of us. Thank you very much**".



Leaves

Let us go on a joyful journey into the world of plants.

Let us talk

Plants have different kinds of leaves. They are of various sizes, shapes, colours and textures. Talk about some leaves that you have seen around you.

Here are some helping words.

Vocabulary

light green, dark green, soft, smooth, rough, edge, sharp, rounded, dry, big, small, tip



Banana (Vazhai)



Mango (Maangai)



Drumstick (Murungai)



Neem (Veppa Ilai)



Coconut (Thennai)



Basil (Tulasi)



Mint (Pudhina)



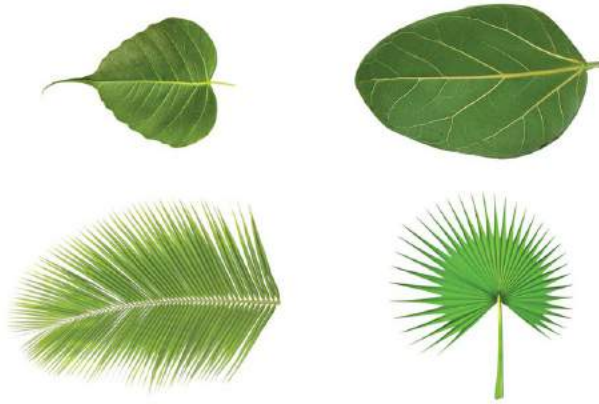
Coriander (Kothamalli)



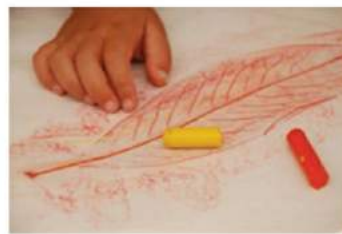
Curry leaves
(Karuveppilai)



🍃 Compare the leaves. Use the words you have learnt.



🍃 Leaf Rubbing. Let us make a leaf pattern using crayons.



🍃 Bring one leaf to class. Observe the changes in the leaf over a week.



Flowers



Look at the pictures. These are some flowers that we see around us. Let us name them.



Fire cracker
(Kanakambaram)



Jasmine (Malli)



Marigold (Samanthi)



Lotus (Tamarai)



Frangipani
(Sampangi)



Rose (Roja)



Screw pine
(Thazhampoo)



Chrysanthemum
(Samanthi)



Hari champa
(Manoranjitham)

Which flower do you like?
Describe that flower.

Here are some helping
words.

Vocabulary

smell, petal, soft, smooth,
rough, thorn, colour, red,
pink, white, yellow





Some flowers have a sweet smell.



Champaca (Shenbagam)



Jasmine



Rose



We can keep flowers fresh as shown above.

Flowers have different kinds of petals. Observe the shapes of the petals.

Match the flowers with their petals.





Vegetables



Rhyme Time

I went to the market
With my bag
To buy red tomatoes
Big brown potatoes
Round and fat
Green chillies
Long and thin
Fat pumpkins
Orange and green
Purple brinjals
Big and small
And drumsticks long
My bag became heavy
I came back home
With my basket full
Everybody smiled!



Let us talk

We all eat vegetables.

They keep us **healthy and strong**.

Which vegetables do you like?

Can you describe them?

Here are some words to help you.

Vocabulary

smooth, rough, big, small,
size, shape, colour, heavy,
light, taste, watery, hard,
round, long, brown, orange,
green, red, purple



- 🍷 Observe how nicely the vegetables are arranged !
We see cabbages, tomatoes, cucumber, ridgegourd,
carrots and many more. Shall we identify them?

A Vegetable Shop



- 🍷 Here are some commonly used vegetables.



Onion



Ginger



Garlic



Beetroot



Radish



Ladies finger

- 🍷 Look at the different varieties of brinjals given below.





🍷 Observe the vegetable man. Identify the vegetables he is made of. Describe them using the words you have learnt. Answer the questions.

- 🍷 Which vegetables are hard ?
- 🍷 Which vegetable is green and long ?
- 🍷 Which vegetable is orange in colour ?

One group describes a vegetable and the other group names it.

- 🍷 You can play this game with your friends.



🍷 Vegetable Printing



With Ladies Finger



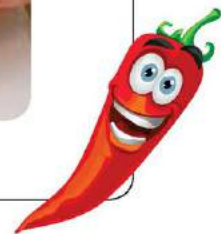
With Capsicum



Using Carrot



Using Lemon





Fruits



Vocabulary

ripe, juicy, fleshy,
small, big, sweet, sour,
dry fruits

🌿 Fruits keep us healthy .
There are many kinds of fruits.

🌿 Most fruits change their colour when they ripen.



Mango



Guava



Papaya



Banana



🌿 These are some fleshy fruits.



Papaya



Sapota

🌿 These are some juicy fruits.



Musk melon



Watermelon



Orange



🍌 These are some small fruits.



Grapes



Jujuba
(Elaithai)

🍌 Some fruits are big.



Watermelon



Jackfruit

🍌 These are some fruits that are sour.



Lemon



Gooseberry

🍌 Some fruits are sweet.



Banana



Custard apple



Sapota

🍌 These are some fruits that taste both sweet and sour.



Grapes



Pineapple





🦋 These are some dry fruits.



Dates



Raisins



Figs

🦋 Do You Know? Birds and squirrels like fruits.



🦋 You have learnt about many kinds of fruits.



You describe a fruit and your friend should name it.

🦋 Fill in the blanks.



1. O _ A _ G _ .

2. G R _ P _ S.

3. _ A N _ O.

4. S _ P O _ A.

5. P _ P A _ A.

🦋 Connect the fruit to its name.



Papaya



Mango



Sapota



Pine apple

🌿 Fruits are grown in orchards..

🌿 How do they reach our homes from there ?
Sequence the pictures in the right order by numbering them.



What does this picture show?

Always wash fruits and vegetables
before you eat.

Evaluation



1. Circle the big leaf.



2. Circle the vegetable which is orange in colour.



3. Circle the long vegetable.



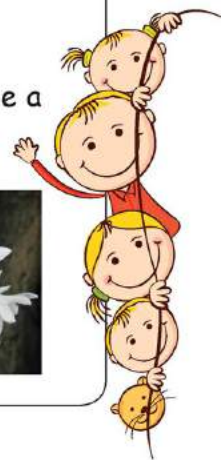
4. Circle the juicy fruit.



5. Circle the sour fruit.



6. Look at the pictures. Name the flowers. Which flowers have a nice smell?





7. Match the following by drawing lines.



Self-Evaluation

I can name and describe some commonly found leaves, flowers, fruits and vegetables.



I know the importance of plants in my life.

I can draw, colour, make vegetable prints and floral designs.





UNIT 4

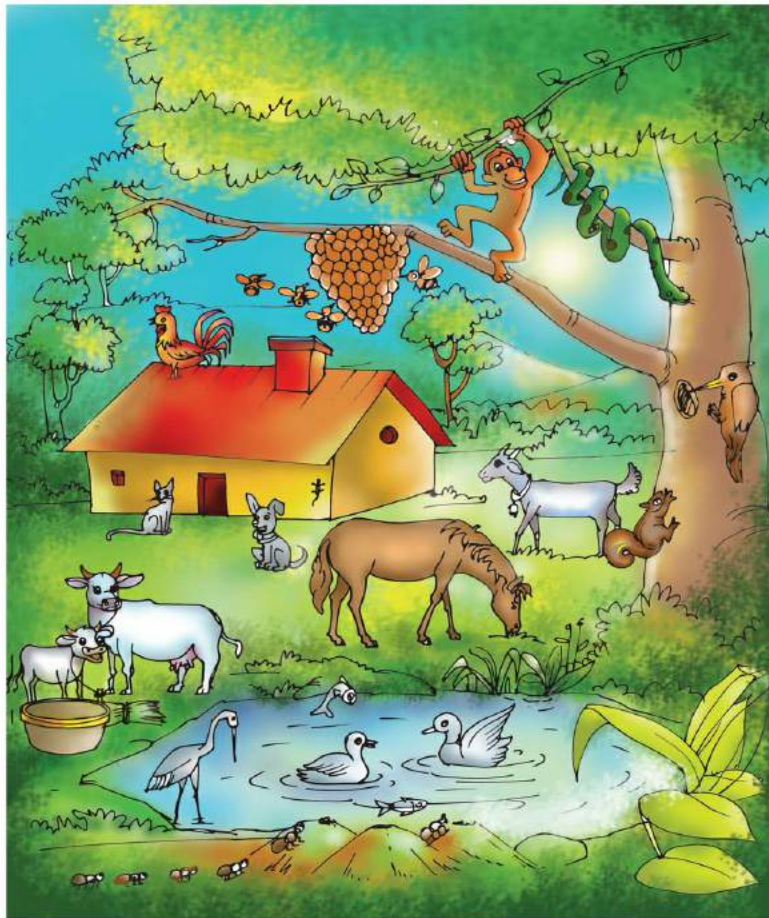
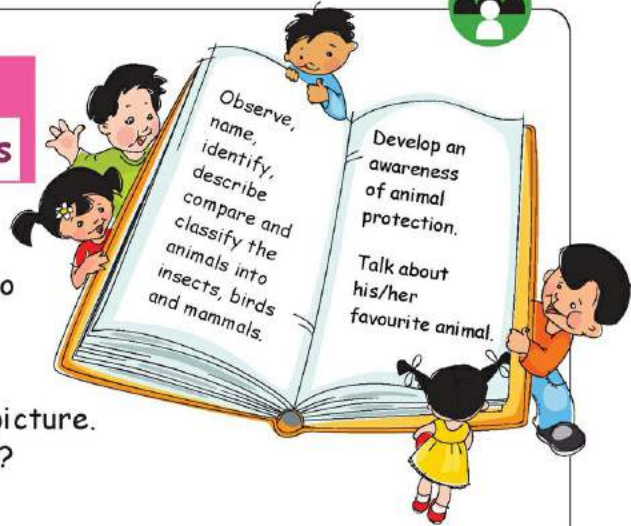
Animals Around Us

Learning objectives

The learner should be able to

Let us talk

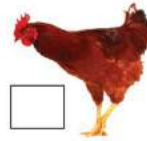
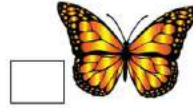
Observe the animals in the picture.
Have you seen these animals?
What are they doing?



28Q7CH



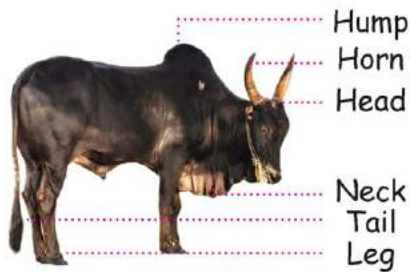
◇ Tick (✓) the animals you have seen.



Let us talk



Observe the Kangeyam bull. Let us know its parts.

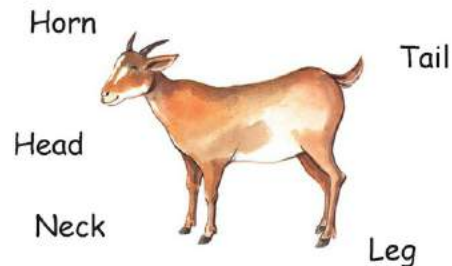
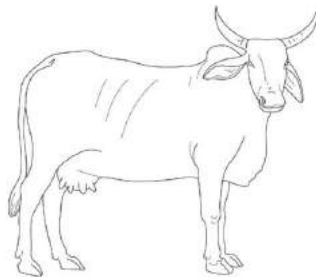


Vocabulary

small, big, head,
eyes, nose, ears, mouth,
teeth, tongue, horns, neck,
colour (patches) hair/fur,
tail, legs, hump

◇ Can you now describe the cow using the above words?

Connect the labels with the parts.





About Animals

There are many kinds of animals.
Some animals are big, some not so big.



Lion



Deer



Giraffe



Elephant



Bear



Tiger



Rabbit



Cheetah

Some animals are small in size.



Mosquito



Ant



Housefly



Rat

◇ Paste the picture of your favourite animal inside this box.



The elephant is the only animal that cannot jump.





About Mammals

Some animals have hair or fur on their body. Some animals give milk to their babies. They are called mammals.



Dogs, kangaroos and elephants are mammals.



Some mammals fly.



Some mammals swim.



Humans are also mammals.



Bat



Whale



◇ Compare the two animals in the pictures.



A Cow and a Buffalo

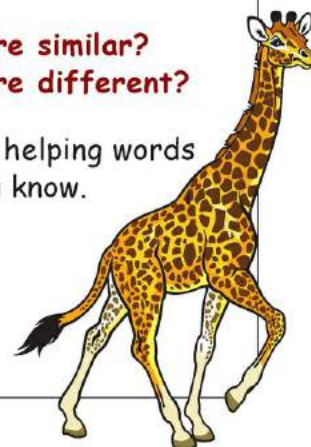


What are similar?
What are different?

A Sheep and a Goat



Use the helping words that you know.





Animal Tails



Happy dog
wags its tail



Troubled cow swats
flies with its tail



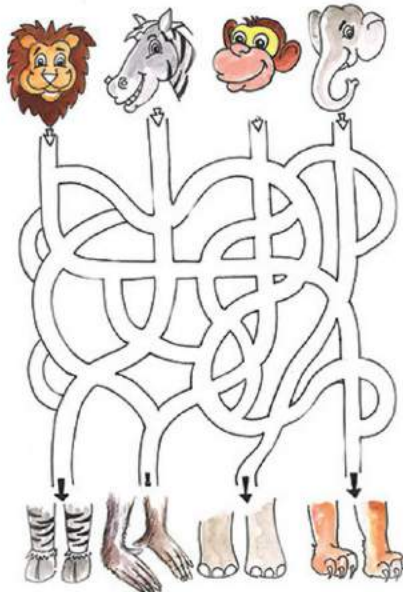
Angry cat stares
with its tail up



◇ Find the hidden animals in the picture given below.



◇ Connect the heads of animals to their legs.





About Birds

Let us talk

Have you seen these birds? Where have you seen them?



Peacock



Sparrow



Eagle



Crow



Parrot



Duck



Pigeon



Kingfisher



Cock



Mynah



Swan



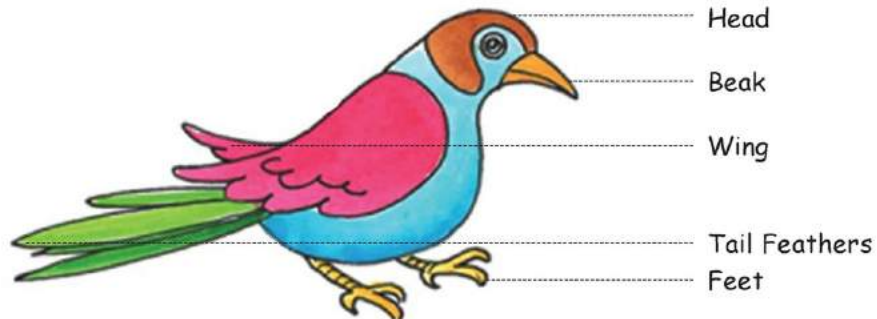
Owl

Name and talk about them. Here are some words to help you.

Vocabulary

size, colour, wings,
legs, beak, feathers,
feet

Observe the bird. Let us know its parts.





◇ Connect the names to the birds.



Crow



Duck



Mynah



Swan

Parrot

Eagle



Let us talk

Speak about similarities and differences.



Mynah



Crow



Cock



Hen



Crane



Sparrow



Birds are animals.

They have two wings, two legs and a beak.



They eat with the help of their beaks. They do not have teeth.



Their legs help them to walk around and run.



They have colourful feathers.



DO YOU KNOW?
The Peacock is the largest flying bird.



They can fly.



An Ostrich's eye is bigger than its brain.



There are some birds that cannot fly.



Emu



Kiwi



Penguin



Ostrich

Some birds can swim.



Duck



Swan



Water hen



♦ Tick (✓) the birds that can fly.



Penguin ☐



Kingfisher ☐



Parrot ☐



Crow ☐



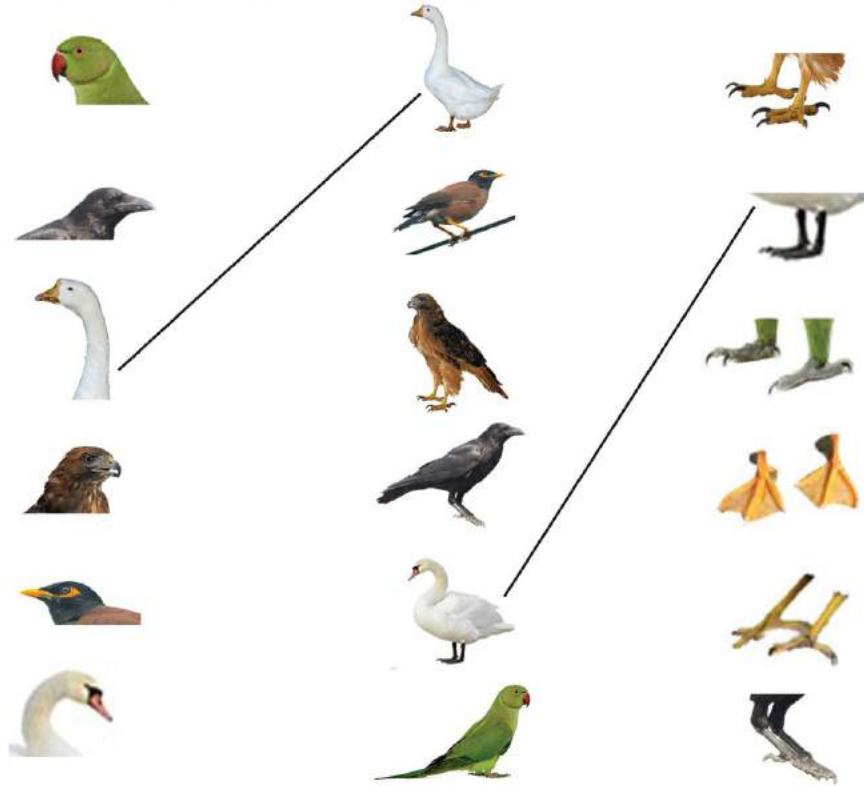
Kiwi ☐



Emu ☐



◇ Match the birds with their beaks and feet.



◇ Thumb Printing

Use your thumb print to complete the pictures.





About Insects



Walk around the school campus. How many insects can you see?
Count their number and enter it in the circle.



Beetle



Dragonfly



Butterfly



Housefly



Mosquito



Ant



Observe the pictures of insects.



Honeybee



Leaf Insect



Beetle



Wasp



Stick insect



Cockroach



Grasshopper



Head louse

Butterflies are good
friends of flowers.

Insects are tiny animals with six legs.
Some insects have wings that help them to fly.





Some tiny animals are not insects.
They have more than six legs.



Some insects cannot fly - Silverfish.



♦ **Shall we do it?**

Put a little sugar and leave it for a while.

What do you observe?



Ants talk through their feelers



♦ **Spot the insects.**

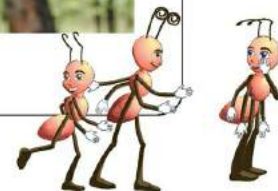
Some insects look like leaves and sticks.



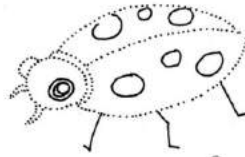
Leaf insects



Stick insects



◇ Join the dots and colour the pictures.



Animal Protection

Let us talk

Is this bird happy? What do you think?



Bird bath

Keep water for the birds in a mud vessel and observe how happy they are.

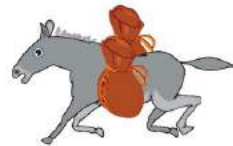


How can we care for the animals around us?





◇ Colour the given circle for the Do's.



◇ Solve the riddles and connect to the pictures given.

- 1 I live in trees and like to climb.
I like bananas. Who am I?



- 2 I live in the forest.
I have sharp teeth.
People call me "The King of
Jungle". Who am I?



- 3 I have no legs.
But I slither on the ground and
on the trees. Who am I?



- 4 I am not a bird but I can fly.
I collect nectar from flowers
and make honey. Who am I?



- 5 I am a mammal.
I have big ears. I have a long
trunk and I walk on four legs.
Who am I?



◇ Make your own riddles and ask your friend to solve them.



◇ "Who am I?" - Play the game with your teacher's help.



◇ Make a paper plate mask.



Now wear the paper plate mask you have made and enact a story.

Fun Zone



Find out what is strange with these animals and have a good laugh.



Evaluation

◇ What do you see in these pictures? How can we care for the animals around us? Talk about it.



♦ Find the animals in the jungle below.
Name them. Classify them as birds,
insects and mammals.





◇ Tick (✓) the animals whose parts are found in the picture.



Self-Evaluation



I can observe and name mammals, birds and insects.

I can identify and differentiate mammals, birds and insects.



I can compare and describe animals.

I can think - sequence, solve riddles and match.



I can act like animals.

I can draw and colour animals.



Primary Environmental Studies – Class 1

List of Authors and Reviewers

Reviewers

1. Dr.R. Ramanujam,
Professor, Institute of Mathematical Sciences,
Tharamani.
2. Prof. Jayashree Ramadas
Tata Institute of Fundamental Research
36/P, Gopanpally Village, Serilingampally Mandal,
Ranga Reddy District, Hyderabad

Domain Experts

1. Vijayalakshmi Srivatsan,
Educational Consultant,
(Former Principal),
P.S. Senior Sec. School, Mylapore.
2. Dr. Suchitra Ramkumar,
Former Educational Consultant,
The School, Krishnamurti Foundation, India.

Academic Coordinator

1. Dr.Vanitha Daniel,
Deputy Director,
SCERT, Chennai.
2. T.Ashok,
Assistant Professor,
SCERT, Chennai.
3. S.Muthamizh Selvi,
PGT, GGHSS,
Tiruttani, Tiruvallur Dist.

Art and Design Team

Chief Co-ordinator and Creative Head

Srinivasan Natarajan

Illustration

N.Gopalakrishnan,
S.Senthil Kumar,
A.Anandha Kumar,
G.Ramakrishnan,

Art Teachers,
Government of Tamil Nadu.

Students,
Government College of Fine Arts,
Chennai & Kumbakonam.

Graphics & Layout

V2 Innotations, Chennai

In-House

QC - Gopu Rasuvel
- Karthik Kalaiarasu

Authors

1. Valarmathi N,
Senior Lecturer,
DIET, Ranipet.
2. Karuppaiyan A,
HM, PUPS, Neduvasal(North),
Pudukkottai.
3. Sathya Kalyani R,
BT Asst, PUMS, Parali ,
Namakkal.
4. Anbazhagan N,
BT Asst, PUMS, 1-3Ward,
Uthiramerur, Kancheepuram.
5. Thangam C,
BT Asst, PUMS, Kallarapatti,
Vellore.
6. Manimaran S,
BT Asst, PUMS, Melaradhanallur,
Koradacheri, Tiruvallur.
7. Thavaselvam R,
SGT, PUPS, Malligainatham,
Gandarvakottai, Pudukkottai.
8. Arumbumozhi S,
Lecturer,
DIET, Vellore.
9. Revington Babu X,
BT Asst, GHS, Sendankadu,
Pattukkottai.
10. Subashini A,
BT Asst, PUMS, Nallaganakothapalli,
Shoolagiri Union, Krishnagiri.
11. Sakthivel Murugan S,
BT Asst, PUMS, Sholinganallur,
St.Thomas Mount Block, Chennai.
12. Sakthivel R,
BT Asst, GHS, Sellappanpettai,
Thanjavur.
13. Kaleeswaran G,
SGT, PUMS, Kilathari,
Sivagangai.
14. Suma Guruprasad,
Primary Co-ordinator,
KRM Matric HSS, Perambur.
15. Rekha B,
Primary Teacher,
KRM Public School (CBSE), Perambur.

This book has been printed on 80 G.S.M.
Elegant Maplitho paper.

Printed by offset at: