



TEACHING GUIDE

I

The SCIENCE Factor

FOR PRIMARY CLASSES

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OXFORD
UNIVERSITY PRESS

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INTRODUCTION



About this series

This science series has been painstakingly written, edited, and published with one aim in mind: to provide primary school students in Pakistan with a comprehensive, engaging, informative, and entertaining experience while learning about science.

The contents follow the guidelines provided by the Cambridge International Primary Programme and the UK National Curriculum for General Science.

Some students can find the idea of studying science an ordeal. They may have been exposed to learning materials that are too dry and dense: providing basic information without considering the learning needs of today's students. We have spent as much effort in making sure our series engages the student as we have on ensuring the accuracy and relevance of the content, making this an outstanding work in all respects.

Salient features of the series

- **consistent with the nature of learning**

This series stimulates students' curiosity and develops their interest in learning. It also provides them with activities that facilitate their capacity for problem solving and enable them to learn more about themselves and the world around them.

- **coherent**

The ideas within this series have a logical and natural connection with each other. There is a progressive articulation of concepts, skills, and content that prepares students to understand and use more complex concepts as they advance through the learning process.

- **developmentally appropriate**

In accordance with providing for all areas of a child's development (i.e. physical, social, emotional, linguistic, aesthetic, and cognitive), this series provides for:

- active exploration of the environment
- self-directed and hands-on learning activities
- balance between individual and group activities
- regular and supportive interaction with teachers and peers
- balance between active movement and quiet activities.

- **comprehensive**

A great deal of work has gone into ensuring that students who work their way through this series end up with a sound knowledge of basic scientific principles that will put them in good stead for later learning, and indeed for when they have completed their formal education.

- **feasible**

The combination of a student text, workbook, interactive CD, and teacher's guide make learning and teaching feasible and accessible, without the need to purchase other materials.

- **useful and relevant**

The content in this series relates directly to students' needs and interests. It enables them to understand more about themselves and the world they live in.

General suggestions and advice on teaching science

Students should be encouraged to share what they know, so invite discussion and foster an environment where students feel comfortable. Starting from what a student knows helps them to feel confident about learning new things.

The main focus of science at this level is to encourage the students to participate and investigate and this is done through asking and answering questions. Actively encourage the students to participate in the different experiments and share their experiences.

A good way to approach the learning and teaching of science in every lesson is outlined below—all you have remember is S.C.I.E.N.C.E.

S — Start by saying what the students are going to learn about.

C — Constantly encourage student participation and involvement.

I — Investigate the topic and follow students' interests.

E — Encourage all students to explore and contribute by rewarding participation and praising their involvement.

N — Notice the interests and questions of the students and explore them further.

C — Consolidate what has been learnt in the lesson and link it to other topics that have been taught and the world around them.

E — End on a positive note and explain what has been learnt and what is coming.

About this teacher's guide

This teacher's guide contains lesson plans, worksheets, and information that will enable teachers to actively support their students' development and provide opportunities for the students to acquire important knowledge and skills. Worksheets at the end of this guide and the workbook along with extension activities will help to reinforce and boost learning.

Teachers are encouraged to actively involve students in reinforcing concepts by interacting with the software CD. If the required facilities are not available assign tasks from the CD for practice at home.

The cartoon character, Super Scientist, is the narrator and has been used for generating interest in the text. His is smart since he is a scientist, but he is prone to acting silly at times. He should be referred to and made use of for eliciting laughter wherever possible.



UNIT 1 THE HUMAN BODY

Background

The purpose of this unit is to help the students to reinforce the parts of the names of the human body. Students will have prior knowledge about the location of the nose, fingers, legs, feet, arms, mouth, ears, and eyes. They will be introduced to the skeleton, brain, kidneys, lungs, and the heart. They will be familiar with the importance of staying healthy. Explore the five senses with them through active learning techniques. Continue to stress on the value of people's individuality.

Expected learning outcomes for the unit

Students should be able to:

- identify the basic parts of the human body and practise writing the words
- describe the functions of their sense organs and identify the relevant parts of the body
- list ways they can look after their bodies through healthy habits

1.1 Parts of the human body

Learning outcomes

Students should be able to:

Student's Book

- identify some of the parts of the human body and their function

Workbook

- label the different parts of the human body
- point to where their heart, lungs, and brain are located in their bodies

Resources

You will need:

- Student's Book page 4
- Workbook pages 2 and 3
- Colour markers

Student's Book steps

1. Welcome the children to the class and ask them to sit in a semicircle with you at the centre. Explain that

they will be learning about the human body. Ask the children to share what they already know about the human body; asking questions such as:

What organ pumps blood around our bodies?

What organ helps us to breathe?

What other organs can you name, and what do they do?

What other parts of the body can you name? What do they do?

2. Ask the children to hold up a hand and make it into a fist—explain that this is the approximate size of their heart. Ask the children to hold up both hands and make them into fists—explain that this is the approximate size of their lungs.
3. Tell the children that the human body is an amazing thing and all of its parts do different things.
4. Read aloud from the Student's Book and ask the students to follow on. Pause after each statement and look at the corresponding illustration with the children. Ask the children to describe what they can see and encourage interaction.

Activities

- Read aloud the statements in the Student's Book under 'Do you know ...?' and ask the children to consider the answers individually and then discuss them with a friend. Direct the students to the answers in the Student's Book—they are upside down.
- Put the students into pairs or threes and ask them to attempt the activities under 'Learning is fun!' Ask the groups to share their responses with the rest of the class and collate all of the answers onto the board so the students can see them.

Workbook steps

1. Begin with the exercise 'The outside of your body'. Read out the different names of the parts of the body and explain that they will need to copy the correct name onto the corresponding blank space. Help them to complete the activity in class.
2. For Workbook page 3, 'The inside of your body' explain to the children the exercise and read out the instructions. Help them to complete the activity in class.

Answers to Student's Book 1.1

1. Students can name any five of the following: ears, fingers, legs, feet, arms, mouth, nose, eyes. Answers will vary.
2. brain, heart, lungs, kidneys, skeleton

Answers to Workbook 1.1

- a. Students will label the parts of the human body using the words given.
- b. Students will colour the heart in red, the lungs in blue, and the brain in yellow.

1.2 Your senses

Learning outcomes

Students should be able to:

Student's Book

- name the five senses and practise writing them
- identify the parts of the human body that relate to the senses

Workbook

- reinforce the points introduced in the Student's Book

Resources

You will need:

- Student's Book page 7
- Workbook pages 4 and 5
- copies of Worksheet 1 for all the children

Student's Book steps

1. Ask the children to gather around you as you sit in the centre—sitting on the floor together will encourage the students to feel more comfortable joining in the discussion. Begin by asking:
How do we see? Point to your eyes and ask the children to point to their eyes.
How do we hear? Point to your ears and ask the children to do the same.
How do we taste? Point to your tongue and ask the children to do the same.
How do we smell? Point to your nose and ask the children to do the same.
How do we feel? Point to your fingers and toes and ask the children to do the same.
2. Explain to the children that they will be learning about the five senses that humans have. Write the senses on the board for all the children to see: sight, hearing, touch, taste, smell.
3. Read from the Student's Book and ask the children to follow in their own books. Pause after each sense and point to the corresponding body part and ask the children to do the same.

Activities

- Ask the children to think about the five different senses that humans have. Ask a few children to share their answers and then help the children write down the five different senses: sight, hearing, taste, smell and touch.
- Hand out Worksheet 1 and read out the sentences with the children, pausing at the missing word and encouraging them to guess what it might be. Help the children write the correct word in the gaps. Ask the children to draw a picture to match each sentence and display the worksheets around the classroom.
- Explain the True or False activity to the children—put a tick in the box next to the statement that is true and a cross in the box next to the statement that is false. They can complete this at home.

Going further

Play the senses game—arrange the children into pairs and ask one child to close their eyes and the other to watch out for them as they try to walk across the classroom. Make sure they walk slowly and carefully. Show the children part of a movie or a television program with no volume and ask them to guess what is happening. Ask the children to eat part of their lunch while holding their nose. Ask the children to discuss their experiences, using prompts such as:

How did you feel when you had your eyes closed?

What did you notice when you were trying to walk across the classroom?

What do you usually smell when you eat your lunch?

What was different when you held your nose and ate?

How could you tell what was happening when you watched the movie with no sound?

How important is hearing to be able to understand the movie?

Workbook steps

1. Read the directions for exercise 1.2a in the Workbook and ask the students to complete it at home.
2. For the exercise 1.2b 'Your senses' in the Workbook ask the children to closely observe the illustrations and then describe what they can see. Explain that they need to match the object to the sense. Help the children complete the exercise in class.

Answers to Student's Book 1.2

1. False 2. False 3. True 4. False 5. True

Answers to Workbook 1.2

1.2a

A. Drawings will vary. Students can draw anything that can be heard on the road.

B. Drawings will vary. Students can draw anything that can be smelled in the kitchen.

1.2b : Students will match words to objects as stated below

see : All objects can be seen.

hear : cat, tambourine, mobile phone, MP3 player, television

touch: All objects can be touched.

smell : garbage can, flower, ice lolly

taste : ice lolly

Answers to Worksheet 1

I use my **hand** to pick up objects.

I use my **foot** to kick a football.

I use my **eyes** to read the words on this page.

I use my **nose** to smell flowers.

I use my **ears** to listen to music.

1.3 Staying healthy

Learning outcomes

Students should be able to:

Student's Book

- list some healthy habits and food choices that will keep them healthy and strong

Workbook

- reinforce some of the ideas introduced in the Student's Book

Resources

You will need:

- Student's Book page 8
- Workbook page 6
- healthy snacks to share with the children, such as: chopped fruit and vegetables

Student's Book steps

1. Always welcome the students into the class and say that they will be learning how to stay healthy. Seat the children in a semicircle with you in the centre. Begin by looking at the Student's Book on page 8 and talking about the images they can see. Ask questions such as:

Can you describe what you can see? What do think this lesson will be about?

2. Explain that we can do certain things to stay healthy. Read aloud from the Student's Book encouraging the children to predict what the words might be and to discuss healthy habits. Pause after each statement and ask the children to put their hand up if they do any of these healthy habits. Praise the children for looking after themselves and making healthy choices.
3. Explain that eating fruit and vegetables keeps you healthy and makes you strong. Share the healthy snacks with the children and encourage them to list other healthy snacks that they should eat.

Extension: Ask the children to draw a picture of a healthy breakfast and help them to label the different things on the picture. Display the pictures around the classroom.

Activities

Explain to the children how the exercise in the Student's Book on page 11 is to be attempted. Help the children to spell and write the names of different outdoor games and healthy food. Explain that in Part B. they need to write the correct word in the blank. Help the children to complete this activity in class.

Workbook steps

Read aloud the instructions for 1.3 'Good or bad?' and read out the statements asking the children whether these are 'good' or 'bad' things to do. Ask the children to write 'good' or 'bad' in the boxes next to each statement.

Answers to Student's Book 1.3

A. 1. cricket, football, cycling, running/racing, skipping. Answers can vary.

2. vegetables, fruits, milk, meat, eggs

B. 1. early

2. after

3. everyday

4. outdoor

5. fruit

Answers to Workbook 1.3

1. good

2. bad

3. bad

4. good

5. bad

6. good

7. good

8. bad

9. good

10. bad



UNIT 2 THE ANIMAL WORLD

Background

In this unit students will be introduced to the differences amongst animals. Their background knowledge should base on not only being able to name and recognize animals but recognize how they are adapted to their mode of life, whether on land, in the air, or in water. Mention is also made of how and why animals move. Pictures in the Student's Book will be useful to develop students' observatory skills. Encourage students' to talk about animals other than those mentioned in the book and praise participation.

Expected learning outcomes for the unit

Students should be able to:

- understand that animals come in different shapes and sizes
- identify that animals come in different colours and patterns for a reason
- understand that animals have homes
- describe how people can be different from each other
- understand that humans are animals

2.1 Animals on land

Learning outcomes

Students should be able to:

Student's Book

- recognize that animals can live on land, air, or water
- list some animals that live on land

Workbook

- match the animal with the right description

Resources

You will need:

- Student's Book page 12
- Workbook pages 7 and 8
- animal figurines or pictures of different animals that live on the land, air, or water

- small pieces of paper with the names of the animals written on them in duplicate—two pieces of paper with cow on it, two with sheep, and so on
- a container to mix the pieces of paper in

Student's Book steps

1. As with every lesson, welcome the students into the class and explain that they are going to find out about different animals. Direct the students to sit in a semicircle on the floor and seat yourself in the centre. Lead a discussion on where animals live asking questions such as:

Where do your pets live at home?

How do you make a comfortable place to live for a dog?

How would you make a comfortable home for a fish?

Would a dog like living in a fish's home?

Where might a bear live? Could a bear live in the same house as a bird?

Encourage the children to explore the funny side of a fish living in a dog's home and other absurd scenarios to do with where animals live.

2. Explain that there are three places that animals live: land, air, and water. Put the children in small groups and ask them to discuss what animals they know that live on land, in the air, or in the water. After some time, play some music or use a clapping rhythm to signal to the children that it is time to stop talking and to listen. Ask a few children to share their favourite animals that live on land.
3. Read aloud from the Student's Book and ask the children to follow in their own books. Look at the pictures with the children, ask them if they know any other animals that live on land.

Activities

- Play the 'Animal noise game'—ask the children to make the sounds of a range of familiar animals such as: a horse, cow, sheep, dog, and cat. Ask the children to pick a piece of paper out of the container that has an animal's name on it. Remind them not to share the animal they select with anyone else. Explain that they can only make the noise of their animal and they need to wander around the class trying to find their matching pair. The children will enjoy this game, so play it a number of times and encourage them to not only make the noise of the animal but also try and move like it. The game is noisy, but great fun.
- Explain to the children that they need to draw a land animal in their Student's Book and to think about the parts of its body that help it move on the land. They can complete the drawing at home.
- Play the 'Animal Classification' game. Divide the children into groups of 4 or 5 and give them pictures of different types of animals or animal figurines. Ask them to group the animals according to where they live: land, air, water.

Going further

Look carefully at the pictures of different animals or animal figurines and see if they can be grouped in other ways: animals that have a long tail, animals that have fur, animals that have scales, and so on.

Workbook steps

1. Ask the children to observe and then describe the pictures of the different animals for 2.1a 'Animals on land'. Read out the words that can fill the blanks and discuss as a class which words might best fit each animal. Help the children to choose the right words and copy them into the blanks.
2. Explain 2.1b and ask the children to complete it at home.

Answers to Student's Book 2.1

Drawings will vary. Any land animal may be drawn. The legs should be visible.

Answers to Workbook 2.1

- a. Bear—It's soft and cuddly.
Horse—It's fast and has big eyes.
Snail—It's slow and small.

Students will also match the animal descriptions to their pictures

- b. Students will colour the horses in red, the kangaroos in green, the lions in blue and the cats in yellow.

2.2 Animals in water

Learning outcomes

Students should be able to:

Student's Book

- list some animals that live in water
- describe some features of animals that live in water
- reinforce the learning in the Student's Book

Resources

You will need:

- Student's Book page 14
- Workbook page 9
- a relevant story book about animals that live in the water

Student's Book steps

1. Ask the students to sit in a semicircle on the floor and seat yourself in the centre. Read from a story book with animals that live in the water in it and encourage the children to predict what they think might happen by looking at the pictures.
2. Revise the different places that animals live and ask the children to list any animals that they can recall that live on land.

- Read aloud the section 'Animals in water' and ask the children to follow in their own books. Encourage the children to share any animals that they might know that live in the water. Carefully observe the pictures with the children and point out the fins and gills that help animals that live in the water to breathe.

Activities

- Identify the parts of a fish that help it to swim and to breathe—help them to copy the words 'fins' and 'gills' into their Student's Book.
- Discuss the animals that cannot breathe underwater and help the children to write down the correct words.
- Place the children into small groups of 2 or 4 and give them some of the animal figurines or pictures of different animals to play with—encourage them to give the animals names and personalities and to interact with each other. After some time, ask the children to 'introduce' one of their animals and tell the class its name and what it likes doing. Praise the children for sharing the story of their animal.

Going further

Ask the small groups to make up a story with their animal figurines or pictures of animals and present it to the class.

Workbook steps

- Explain the word search—find the words listed in the word search and circle them. The students may complete this at home.
- Ask the children to connect the dots and guess the animal at home.

Answers to Student's Book 2.2

- Fish have fins and gills that help them to swim and breathe.
- Whales and dolphins cannot breathe underwater.
Names of amphibians such as frogs or toad could be suggested.

Answers to Workbook 2.2

a.

k	s	f	i	n
g	i	l	l	s
o	t	a	i	l
h	e	a	d	p
w	a	t	e	r

b. The dots will connect to form a fish.

2.3 Animals in the air

Learning outcomes

Students should be able to:

Student's Book

- understand that some animals spend a lot of time in the air
- recognize some of the features of animals that spend a lot of time in the air

Workbook

- become familiar with the differences and similarities between birds

Resources

You will need:

- Student's Book page 16
- Workbook 'Where are the birds?' page 10
- videos or images of different types of birds [similar to what can be found at <http://www.manybirds.com/>]

Student's Book steps

1. As at the start of every lesson, welcome the children into the classroom. Direct them to sit in a semicircle and say that they are going to learn about animals that fly.
2. Show the children some videos or images of different types of birds. You may wish to show them a number of times as the children will enjoy watching different types of birds fly.
3. Ask the children if they know of any animals that fly and make a list of these animals on the board.
4. Read aloud the section on 'Animals in the air' and ask the children to follow in their own books. Point at the different pictures of animals and ask the children to comment on the pictures.

What things do all the pictures of animals have that are similar?

What things are different? What animals have you seen that spend a lot of time in the air?

Activities

- Help the children to copy down the names of four air animals.
- Identify the parts of a bird that helps it to fly and help the children write the words 'feathers' and 'wings'.

Workbook steps

For the Worksheet 'Where are the birds?', read aloud the instructions and encourage the children to describe the images that they can see. Encourage them to look at things that are the same between the birds and things that are different.

Answers to Student's Book 2.3

1. birds, bats, butterflies, eagles/owls.
2. Wings and feathers help an air animal to fly.

Answers to Workbook 2.3

Students will circle pictures of birds.

2.4 Why animals move

Learning outcomes

Students should be able to:

Student's Book

- explain that different animals move in different ways
- explain the different reasons why animals have to move

Workbook

- consolidate the learning in the Student's Book

Resources

You will need:

- Student's Book page 18
- Workbook page 11
- lyrics to 'The elephant is so slow'

Heidi, Heidi, Ho,

The great big elephant is so slow,

He moves his trunk from side to side

As he takes the children for a ride.

Heidi, Heidi, Ho,

The great big elephant is so slow!

Student's Book steps

1. Welcome the children into the class while pretending to be a bird—flap your arms and encourage the children to copy you. The more animated that you are, the more comfortable the children will be in role-playing. Encourage all the children to flap around the classroom and then ask them to sit on the floor in a semicircle with you at the centre. Explain that they are going to learn about how different animals move. Ask them to try and guess what animal you were pretending to be.

2. Name some other animals and encourage the children to get up and move like these animals around the classroom (snake, elephant, monkey). When you want their attention or to change animals, clap your hands in a rhythm to signal that it is time to listen and to save you from raising your voice.
3. Read aloud from the Student's Book examining each picture with the children. Encourage the children to guess why the different animals move the way that they do.
4. Sing the song '*The elephant is so slow*' with the children, encouraging them to move like elephants in a circle as they learn the song. The children will enjoy this activity and may want to do it quite a few times—repetition will help them to learn the song.
5. Show students the picture on page 18 of the book. Ask them to explain what is happening. Tell them that animals have to move not only to find their food, but also to protect themselves from danger. Elicit more reasons why an animal would need to move, e.g. moving to warm areas when their own area becomes too cold in winter. Accept all answers.

Activities

- Read through the sentences in the Student's Book and help the children to write out the correct words from the information provided.
- Explain that baby animals have a different name than fully grown animals: dogs—puppies, cats—kittens. Ask the children if they know of any other names for baby animals. As a class, come up with the answers for the naming of the baby animals and help the children to copy the correct words into their Student's Book.

Workbook steps

Describe the different animals in the section 'How does each of these animals move?' asking the children to demonstrate the different ways the animals move. Use the words at the bottom of the exercise to complete the statements and help the students to write them in the blanks.

Answers to Student's Book 2.4

- | | | |
|---------|----------|------------|
| 1. food | 2. shell | 3. needles |
|---------|----------|------------|

Answers to Workbook 2.4

- | | | | |
|----------------------|-------------------|------------------|------------------|
| c. A snake slithers. | A rabbit hops. | A kangaroo hops. | An ant crawls. |
| A horse gallops. | A snail slithers. | Sparrows fly. | A dolphin swims. |

Answers to Worksheet 2

Students will match the rabbit to the burrow, the bird to the nest, the fish to the pond, and the ant to the mound.

Answers to Worksheet 3

Students will colour the fins and gills of the fish in yellow. They will colour the webbed feet of the frog in green. Duck feathers will be coloured in blue in one picture and orange in the other.



UNIT 3 THE PLANT WORLD

Background

This unit builds on the concepts students have developed earlier. They will be familiar with different types of plants, parts of a typical plant, and how they are useful for humans. Brainstorm the parts of a plant with interactive activities and revise the life cycle of a plant. Use students' feedback and the book to generate a list of ways plants are used by humans. Talk about the different types of plants—flowering plants, plants with cones, trees, shrubs, algae, plants growing in water and soil and some having thick trunks while others having weak, thin stems. Continue to discuss the importance of plants in our lives and emphasize it at this level also, as it will set the pace for concepts such as plant conservation and other environment related issues later on.

Expected learning outcomes for the unit

Students should be able to:

- identify some of the features of plants
- describe the things that plants need in order to grow
- appreciate the importance of plants in our lives

3.1 Types of plants

Learning outcomes

Students should be able to:

Student's Book

- identify some of the different types of plants and their features
- experience growing their own plants

Workbook

- consolidate the learning in the Student's Book

Resources

You will need:

- Student's Book page 20
- Workbook page 12
- edible plant seeds – such as lettuce, kale, broccoli

- empty milk cartons or other suitable receptacles
- soil
- water

Student's Book steps

- 1 As with every lesson, welcome the students into the class and explain that they are going to find out about plants and even better they are going to get to grow some of their own!
2. Emphasize the importance of plants in our lives, not just for food but for clothing and building materials.
3. Ask the children what plants they enjoy eating and make a note of the different types of plants on the board.
4. Read aloud from the Student's Book asking the children to follow in their own books. Ask the children to describe what they can see in the different pictures and encourage interaction.
5. Reinforce that plants need food, water, and sunlight in order to grow.

Activities

- Put the children in pairs or threes and give them a carton cut in half, some soil, water, and seeds for an edible plant. Direct the children to fill the bottom half of the carton with soil and plant the seeds in the carton. Place the carton in a sunny place and water the soil every day. Get the children to check every day for the first sign of a shoot and when the plant is grown you can harvest the plant—making sure to wash it—and eat it!
- Read the statements from the Student's Book and help the students to write in the correct word.

Workbook steps

Read aloud the instructions for drawing the four different types of plants and check that the children know what they need to do by asking question such as:

How might you draw a plant with a weak stem?

What might a drawing of a tree look like?

How might this be different than a drawing of a bush?

Elicit answers from different children. They may complete the drawings at home.

Answers to Student's Book 3.1

1. trees 2. algae 3. shrubs

What's the difference? Animals

Answers to Workbook 3.1

Types of plant—drawings will vary.

3.2 Parts of a plant

Learning outcomes

Students should be able to:

Student's Book

- identify the main features of plants and become confident using the correct names to label the different parts

Workbook

- consolidate the learning in the Student's Book

Resources

You will need:

- Student's Book page 24
- Workbook page 13
- arrange a trip to a local park with lots of different trees and plants or into the school yard

Student's Book steps

1. Ask the students to sit on the floor and seat yourself in the middle. Reinforce the learning from the previous lesson, eliciting from the children the three ingredients that plants need to live: sunlight, water, and food.
2. Ask the children to look at the diagram in 'Parts of a plant' in the Student's Book and see if they can identify any of the parts.
3. Read aloud the statements in the Student's Book and pause after each statement looking at the corresponding part on the diagram.
4. Emphasize that not all plants have all of these elements, but a lot of the plants that they are familiar with have a flower, leaves, a stem, and roots.

Activities

- Take your class to an area with lots of trees and get them to collect as many different leaves as possible. Return to the classroom and ask the students to trace the outlines of the leaves onto paper and then colour them in. Display the leaf outlines around the classroom.
- Explain the activity in the Student's Book, reading out the sentences and checking to make sure that the children feel confident in writing the correct names in the blanks.

Going further

Use the different leaves as a stamp—dip them in paint and press them onto paper to see lots of different shapes.

Workbook steps

1. Look at the drawing of the plant with the children from the worksheet and assist the children to write the correct word in the right space.
2. For part b., help the children to match the part of each plant with what it does.

Answers to Student's Book 3.2

1. flower
2. leaves
3. stem

Answers to Workbook 3.2

- a. Students will label the flower, leaf, stem, and the roots.
- b. leaf—part of a plant that makes food
flower—part of a plant that makes seeds
stem—part that supports the plant
root—part that takes water from the ground

Answers to Worksheet 4

Students will cut out and paste the parts of a plant such as, the roots, leaf, flower, and the stem.

3.3 Plants that help humans

Learning outcomes

Students should be able to:

Student's Book

- recognize that humans use plants in many different ways

Workbook

- consolidate the learning in the Student's Book

Resources

You will need:

- Student's Book page 26
- Workbook page 14

Student's Book steps

1. Ask the students to sit on the floor and seat yourself in the middle. Lead a discussion about the use of plants, asking questions such as:

What things can you see in this room that have been made by using plants?

Think about what you might be eating for lunch or what you had for dinner last night. What things in your home have come from plants?

Emphasize the use of plants as food, shelter, and as clothing.

2. Make a list of all the different uses of plants on the board for the children to see.
3. Read aloud from the Student's Book asking the children to follow in their own books. Pause after each statement looking at the picture with the children and asking them to describe what they can see.

Activities

Explain that they need to write down three different ways we use plants. They may complete this task at home.

Workbook steps

Look at the pictures with the children, asking the children to describe what they can see. Read aloud the sentences and explain that they need to match each sentence with a corresponding picture. Help the children complete the activity in class.

Answers to Student's Book 3.3

1. clothes
2. medicines
3. shelter/homes

Any order in above answers is acceptable. Answers can also include breathing, food, furniture, and heating.

Answers to Workbook 3.3

1. Asma is hungry—bag of wheat
2. Nadir wants to light a fire—logs
3. Alina is tired and wants to rest. She wants shade from the sun—tree
4. Hamza wants to build a cabin. What does he need? logs
5. The fisherman wants to build a boat. What will he use? logs
6. Sana wants to spread a nice, comfortable sheet on her bed—cotton plant



UNIT 4 ENVIRONMENT

Background

This unit focuses on introducing the concept of an environment to the students. Explain that the environment is a space and it can be big or small. Use examples of the classroom, the school, their home, their room, and so on. Students will be familiar with the idea that they live on planet Earth, hence elaborate that the whole world is an environment. Instill the value of keeping the environment clean and elicit ideas about how this can be done in the classroom, the school play area, and at home also. Talk about how land is used for different purposes by humans. Reiterate that the environment belongs to living and non-living things and that it must be taken care of.

Expected learning outcomes for the unit

Students should be able to:

- define environment
- understand that there are living and non-livings in our environment
- understand that we need to care for our environment
- understand how to care for our environment

4.1 What is the environment?

Learning outcomes

Students should be able to:

Student's Book

- understand that the environment is everything around us
- understand that there are living and non-livings things in our environment

Resources

You will need:

- Student's Book page 30
- Workbook page 15

Student's Book steps

1. Write the word 'Environment' on the board and welcome the children into the class and ask them to sit in a semicircle on the floor. Explain that they are going to learn about the environment—point to the word on the board.

2. Ask the children if anyone knows what the word means—encourage any attempts to try and define the word.
3. Say that the environment is everything around us.
4. Read aloud from the Student's Book and ask the children to follow in their own books up to section 4.1.
5. Reinforce that the environment is everything around us and that we share the environment with things that are alive like animals and plants and with lots of things that are non-living.
6. Read aloud from 4.1 and ask the children to follow in their own books. Pause after each statement, look at the pictures with the children, and encourage interaction.

Activities

- Organize the children in pairs and ask them to discuss the different things in their home environment. After a few minutes, signal that it is time to listen then ask a few children to share some of the things in their home environment. Help the children to list five things from their home environment in their Student's Book.
- Explain to the children that they need to draw the environment a monkey would live in. They may do this at home.

Answers to Workbook 4.1

Students will connect the dots to form a tree.

4.2 Keeping my room clean

Learning outcomes

Students should be able to:

Student's Book

- appreciate that we are all part of different environments
- understand that we need to care for our environment and keep it healthy for all living things

Workbook

- reinforce the learning in the Student's Book

Resources

You will need:

- Student's Book page 32
- copies of Worksheet 5 for all the children

Student's Book steps

1. As always, welcome the children into the classroom and ask them to sit in a semicircle with you in the

middle. Ask a few different children if they can recall the meaning of the word environment. Reinforce that there are living and non-living things in our environments which are all around us.

2. Talk about the different environments that the children are in; asking questions such as:

You are part of your home environment—what other environments are you part of?

What about school?

Do you play sport anywhere—is that another environment you are part of?

Are we all a part of the environment of this school, this town, this city?

Of our country? What about the whole world?

3. Emphasize that environments are everything around us and that we are all part of the common environment of the world—of this planet Earth.
4. Explain that it is essential that we keep environments healthy in order for all living things to stay alive.
5. Read aloud from the Student's Book, pausing after each statement to look at the picture with the children and invite any comments or discussions from the children. Ask the children if they practice any of the four 'R's in their own lives.
6. Encourage them to try and implement any of the four 'R's in their own lives.

Activities

- Place the children in small groups and get them to discuss the four 'R's. After some time, ask each group to share what they think the meanings of these words are.
- Spend an hour or so cleaning the environment in and around the school. This would include picking up rubbish, working out which rubbish can be recycled, planting some new trees, removing weeds, and so on.
- Hand out Worksheet 5 and help the children to identify the different environments that the objects belong to—they may colour them in at home.

Workbook steps

Look at the picture with the children and encourage them to describe what they can see. Ask the children to observe the things that are wrong and spoil the environment and explain that they need to circle these things.

Answers to Student's Book 4.2

1. Answers will vary
2. It is important to keep the environment clean to live in a healthy manner.
3. Answers will vary

Answers to Workbook 4.2

Students will circle the man cutting the tree and the hand throwing the wrapper out of the car. They will later colour the entire picture.

Answers to Worksheet 5

Home (red)—teapot, dining table, television, stove, and bed

School (yellow)—blackboard, books, school bag, and study table with chair

Neighbourhood (green)—car, traffic signal, and shop

4.3 Land use

Learning outcomes

Students should be able to:

Student's Book

- understand that there are specific environmental areas in Pakistan that are protected
- appreciate some of the different ways in which we use land

Workbook

- appreciate that everything in the environment is connected

Resources

You will need:

- Student's Book page 34
- Workbook page 16
- information about Pakistan's National Parks (go to <http://www.wildlifeofpakistan.com/wildlifesanctuarygamereservesmap.htm>)

Student's Book steps

1. Set up the classroom so that the children can see some visual images and movies of Pakistan's National Parks when they walk in. Explain that there are special parts of Pakistan which are extra special environments. Show the children the maps of the different National Parks and ask if any of them has visited any of the parks and if so, what did they see and do.

2. Emphasize that there are extra special environments that need to be cared for throughout the world.
3. Read aloud from the Student's Book and ask the children to follow in their own books. Pause after each statement and look at the corresponding images.

Extension: Explore further the different National Parks in Pakistan and the protected species (both animal and plant) that are in them.

Activities

Explain that they can make up how they might like to use a piece of land by designing their own country. Ask them to colour it in and if possible, label the different parts.

Workbook steps

Read aloud the instructions for the Dot-to-dot—the children may complete it and colour it in at home.

Answers to Student's Book 4.3

Drawings will vary. Accept all drawings which show suitable land use.

UNIT 5 MATERIALS

Background

This unit provides an introduction to the topic of materials. Explain that a material is something that is used to make something else. Using the concept web in the Student's Book, explore the different properties of materials and try to show them to the children as well for better understanding. Talk about the fact that when something is built it needs materials. The example of a sand castle should be easy for the students to relate to. Continue to talk about different building materials such as wood, bricks, and glass. Again show these to the students also as mentioned in the activities for this unit. Introduce how tools are needed to build an object and discuss the saw, hammer, nail, and trowel, and their use. Encourage students to talk about other building materials and tools they are aware of.

Expected learning outcomes for the unit

Students should be able to:

- describe what materials are
- describe some different types of materials and how they are used
- list some different types of tools

5.1 Materials for building

Learning outcomes

Students should be able to:

Student's Book

- understand what materials are

Workbook

- become familiar with words used to describe materials

Resources

You will need:

- Student's Book page 36
- Workbook page 17
- different materials, such as: a woollen jumper, rough paper, a wooden spoon, a rough stone, a smooth stone, a piece of cardboard

Student's Book steps

1. Welcome the students into the class and ask them to gather around the table that you have put the different materials on. Encourage them to touch, weigh and generally explore the different materials. After some time, signal to the children that it is time to listen, direct them to sit in a semicircle and put the different materials in the centre.
2. Pick up the different materials and ask individual children to try and describe how they felt, what they think they are used for and what they may have been made from. Encourage the children to try and guess, and reward them for sharing their thoughts.
3. Explain the different materials to the children—what they are currently used for and what they are made from.
4. Read from the Student's Book, asking the children to follow in their own books. Pause after each statement and look at the pictures together. Ask individual children to describe the pictures.
5. Explain that we use materials to build things. Discuss what sort of materials may be used to build a house; asking questions such as:

What is the outside of your house made from?

Do you have a chimney—what material do you think this is made from?

What material makes the windows in your house?

What other materials do you recognize in your home?

Activities

Ask the children to walk around their own home and write down a list of all the materials that they can see. They may need a parent to help them write down the words.

Workbook steps

1. Look at the pictures in the Workbook and ask different children to describe what they can see. Ask a few children to imagine what the different materials would feel like and make a list of these words on the board. Help the children to match the picture with the different words to describe each material.
2. Look at the pictures in the Workbook and ask different children to describe what they can see. Ask the children to imagine some of the materials that they might need if they were to build a toy car. Ask them to look at the illustrations and circle all the things that they might need to build a toy car. Put the children into small groups and ask them to explain to each other why they chose certain materials and how they might use them to build a toy car. Select a few children to share their choices and the reasons for their choices with the class.

5.2 Tools for building

Learning outcomes

Students should be able to:

Student's Book

- understand that tools are needed to build things
- list different types of tools

Workbook

- become familiar with different words for tools

Resources

You will need:

- Student's Book page 38
- Workbook pages 18 and 19
- some string, glue, and cardboard and access to a garden or the school yard where children can collect sticks and leaves

Student's Book steps

1. As always, welcome the students to the class and ask them to sit on the floor in semicircle with you at the centre. Ask individual children to share some of the materials they identified in their home.
2. Explain that tools are used to shape materials in order to build things.
3. Read from the Student's Book asking the children to follow in their own books. Pause after each statement looking at the picture and asking the children to describe what they can see. Encourage the children to be as interactive as possible; asking questions such as:

Do you have any of these tools at home?

Have you seen anyone using these tools before?

What do you think they were doing?

Activities

- Help the children to complete the sentences by using the words in the box. Read out the sentences and the words for the children and help them to write the correct word to complete the sentences.
- Gather some natural materials from around school or a suitable park. Give the children some string, glue, and cardboard and ask them to make something out of the natural materials they have gathered, such as a sculpture or collage—it could be anything: a robot, a doll, a house, and so on.

Workbook steps

1. Check that the children know how to complete the word search. They may finish it at home.
2. Look at the images for 'Tool words' with the children and read out the relevant words. Help the children to match the picture of the tool with the right word.

Answers to Student's Book 5

1. nail 2. saw 3. trowel 4. hammer

Answers to Workbook 5

5.1

dough—soft

spoon—hard

knife—sharp/hard

piece of wood—rough/hard

bowling alley—smooth/slippery

apple—smooth

brick—rough/hard

rubber bands—elastic

5.2 Students will circle the materials of their choice to build a toy car. Selections can vary.

5.3

h	a	m	m	e	r
r	x	x	t	p	a
w	s	a	w	k	n
b	x	p	l	p	a
r	a	x	e	x	i
y	q	b	c	c	l
s	p	a	d	e	x

5.4 Students will match the tool words to the correct picture.

Answers to Worksheet 6

bus—hard, waterproof, warm, strong, heavy, and transparent

window—hard, waterproof, strong, transparent, and shiny

scissors—hard, magnetic, sharp, light, blunt, smooth, and shiny

woollen jacket—warm, soft, light, and flexible

stone—hard, dull, strong, heavy, rough, smooth, wet, cold, dry, and hot

umbrella—waterproof, light, wet, flexible, and dry

Answers above will vary.



UNIT 6 HEAT AND LIGHT

Background

The purpose of this unit is to explore man-made and natural sources of heat and light. Students will have prior knowledge about how light helps us to see and heat keeps us warm. Explain the meanings of the words, man-made and natural with the help of examples. Explore sources of natural and man-made heat and light through stimulating activities and appealing visual material. Brainstorm and list on the board the various ways in which heat and light are used. Encourage them to speak about the Sun and how it helps us to see and feel warm. Continue to instill energy saving ideas also such as switching off lights during the day or when not in use.

Expected learning outcomes for the unit

Students should be able to:

- understand that the Sun is the main source of natural heat and light
- differentiate between human-made and natural sources of heat and light
- appreciate some of the different ways that we use heat and light

6.1 Natural heat and light

Learning outcomes

Students should be able to:

Student's Book

- identify the Sun as the main source of natural heat and light

Workbook

- consider some of the sources of heat and light at home

Resources

You will need:

- Student's Book page 40
- Workbook page 20
- small paper plates, yellow paper, scissors, glue, colour pencils

Student's Book steps

1. Greet the children and direct them to sit on the floor in a semicircle with you at the centre. Explain that they are going to learn about the importance of heat and light in their lives.
2. Direct the children to a window where they can see the sky—tell them that they should never look directly at the Sun as it will damage their eyes. Ask the children to look outside and observe the day—ask a few children to describe what they can see.
3. Return to the semicircle and explain that the Sun provides natural heat and light that makes plants grow, helps us to see and affects everything that we do. Explain that the reason they could see outside when they went to the window was because the Sun was providing light. Explain that all growing things need the Sun in order to live.
4. Read aloud from the Student's Book, asking the children to follow in their own books. Read each statement carefully and direct the students to the relevant picture.
5. Emphasize that the Sun is our main source of natural heat and light.

Activities

Give the children some yellow paper, some paper plates, scissors, glue and colour pencils and ask them to make a model of the Sun to put up in the class. They may use the paper plates as the centre of the Sun and make rays of light going out from the centre. They may wish to draw some pictures of some of the things that we can do because of the light and heat from the Sun.

Workbook steps

Closely observe the illustration under 6.1 in the Workbook and ask a few children to describe what they can see and what the different items are used for. Ask the children if the different items provide heat or light or serve a different function. Help the children to write either 'Heat', 'Light' or 'None' under the different objects.

Answers to Student's Book 6.1

The Sun

Answers to Workbook 6.1

microwave—heat

chandelier—light

bed—none

fireplace—both

torch—light

table—none

toaster—heat

lamp—light

chair—none

6.2 Human-made heat and light

Learning outcomes

Students should be able to:

Student's Book

- identify some of the different sources of man-made heat and light
- understand that we use human-made heat to cook food

Workbook

- reinforce the learning in the Student's Book

Resources

You will need:

- Student's Book page 42
- Workbook page 21
- an electric deep fryer and chopped potatoes for french fries
- paper plates to eat from

Student's Book steps

1. Greet the children and direct them to sit on the floor in a semicircle with you at the centre. Revise the learning from the previous lesson about natural heat and light.
2. Tell the children that this is an extra exciting lesson because they get to see what happens when we use man-made heat to cook.
3. Read aloud from the Student's Book pausing to allow the children to ask any questions and to check their understanding.
4. Look carefully at the pictures and emphasize that these are all things that we do in order to make heat and light.

Activities

- Write the recipe for simple french fries on the board. Explain to the children that by using electricity we can turn raw potatoes into delicious french fries by heating them up. If possible and resources are available, proceed with this activity. Ask the children to gather round as you carefully put the potatoes into the fryer. Make enough french fries for all the children to share and eat them together—make sure everyone has washed their hands before eating.
- Discuss the three different things that we use in order to make electricity—wind, water, and coal and help the children write down the words in the Student's Book.

Going further

Put the children in small groups and ask them to list all the different things in their homes that run on electricity. Ask a child from each group to report back to the class all the different things that they came up with.

Workbook steps

Look at the illustrations with the children under 6.2 'Natural light vs man-made light', asking individual children to explain what they can see and whether the sources of heat and light are natural or man-made. The children may circle the different sources of man-made heat and light at home.

Answers to Student's Book 6.2

1. wind, water, coal
2. Answers will vary.

Answers to Workbook 6.2

Students will circle pictures of the candle, logs on fire, heater, lamp, matchstick, and the torch.

6.3 Uses of heat and light

Learning outcomes

Students should be able to:

Student's Book

- appreciate the importance of heat and light in our lives

Workbook

- reinforce the learning in the Student's Book

Resources

You will need:

- Student's Book page 44
- Workbook page 22

Student's Book steps

1. Greet the children and direct them to sit on the floor in a semicircle with you at the centre. Discuss the uses of heat and light in our lives; asking questions such as:

How does light help us in our lives?

What sort of things can we do when we have light?

If we didn't have any light and the Sun had gone down—what would we do?

Encourage the children to imagine what it would be like not to have any human-made light.

2. Read aloud from the Student's Book, asking the children to follow in their own books. Pause after each statement to look at the accompanying image. Ask individual children to describe what they can see—encourage the children to be as interactive as possible.

Activities

Help the children to fill in the blanks in the sentences under 'Learning is fun!' by using the information in the Student's Book.

Workbook steps

Look carefully at the different illustrations with the children, asking a few children to describe what they can see in the pictures and what they think each person might need. Help the children connect the illustrations by drawing a line between what each person might need.

Answers to Student's Book 6.3

1. Heat
2. light
3. Heat
4. light/sunlight

Answers to Workbook 6.3

The boy wrapped in a towel needs the bucket of warm water.

The lady in the kitchen needs flame to light the stove.

The girl sitting at the table needs a table lamp.

The man and the boy need the lamp post and a torch.

Answers to Worksheet 7

wrist watch—battery

lamp—socket

pedestal fan—socket

remote—battery

hair dryer—socket

toy—battery

computer—socket

television—socket

torch—battery



UNIT 7 WATER, WEATHER, AND WIND

Background

This unit highlights the uses of water and to recognize how weather and wind affect us. Students will be aware of how much water there is around us and the various ways in which it is used. Revise the idea that water on the Earth comes from oceans, rivers, and seas, but all of it is not fit for drinking. Talk about different types of weather and activities students would enjoy in that weather. Explain that wind is moving air which cannot be seen and how it can help humans in many ways. Use class discussion and students' observation and thinking abilities for these concepts. Students need to understand how water may be contaminated if our environment is unhealthy. Again here the value of saving water and not leaving taps running should be brought up and the topic of weather forecasting should be introduced.

Expected learning outcomes for the unit

Students should be able to:

- list some of the different uses of water
- recognize that weather changes what we do
- understand that we can't see wind, but we can see how it alters things

7.1 Uses of water

Learning outcomes

Students should be able to:

Student's Book

- appreciate the importance of water in our lives
- identify some of the different ways that we use water

Workbook

- consolidate the learning in the Student's Book

Resources

You will need:

- Student's Book page 46
- Workbook page 23
- a picture story with water in it

Student's Book steps

1. Greet the children and direct them to sit on the floor in a semicircle with you at the centre. Tell the children that they will be learning about water, weather, and wind.
2. Read aloud from the Student's Book asking the children to follow in their own books. Read each statement carefully and direct the students to the relevant picture.
3. Emphasize that we use water for many different things in our lives.
4. Ask the children to think about what else we use water for. Put them in pairs or threes and ask them to discuss the different uses of water with each other. After some time signal that it is time to listen and ask a few groups to report back some of the different uses of water. Make a list on the board for all the children to see.
5. Choose a relevant picture story and read it aloud. Encourage the children to make predictions based on the pictures.

Activities

Read out the sentences in 'Learning is fun!' and help the children to fill in the blanks with the correct words.

Workbook steps

Check that the children remember how to complete a dot to dot. They may complete the picture at home.

Answers to Student's Book 7.1

1. have fun
2. drink
3. travel
4. wash/cook

Order of answers will vary.

Answers to Workbook 7.1

Students will connect the dots to form a boat and show the child swimming in water.

Answers to Worksheet 8

Water is important. Without water, there would be no life on **Earth**. We **drink** water. Water helps us. We use it to **clean** our bodies, **houses**, and **cars**. We also have fun with **water**. We swim and **splash** in water. Water also helps us to ride in **boats**.

7.2 Weather

Learning outcomes

Students should be able to:

Student's Book

- appreciate that the weather affects what we do

Workbook

- recognize that the weather looks different each day
- understand that we wear different clothes depending on the weather

Resources

You will need:

- Student's Book page 48
- Workbook pages 24 and 25
- a weather forecast either from the paper or from the Internet
- a nursery rhyme or song about the weather (go to <http://www.youtube.com/watch?v=avurCRJiUj0> for an example)

Student's Book steps

1. Greet the children and ask them to sit in a semicircle with you at the centre. Ask a few children to describe what the weather is like today; asking questions such as:

Is it sunny? Are there any clouds in the sky?

Is it very windy?

Does it look like it will rain?

Is it very hot?

Encourage them to be as descriptive as possible.

2. Show the children a weather report—either from the paper or from the Internet and show them a forecast.
3. Explain that we can predict what the weather might be like for the coming days and we call this a forecast.
4. Emphasize that different weather affects what we do.
5. Learn a nursery rhyme or song about the weather with the children and encourage them to use actions when they sing—they may make them up.
6. Read aloud from the Student's Book asking the children to follow in their own books. Ask some children to describe the pictures and encourage interaction.

Activities

Read aloud the directions for 'Learning is fun!' – the children may complete their drawings at home.

Going further

Ask the children to draw the actual weather for a week and record the temperature at the bottom of each picture.

Workbook steps

1. Read out the descriptions of the different weather and ask the children to explain how a day might look with this type of weather. Help the children to draw simple drawings that show the different types of weather.
2. Look at the illustrations for 7.2b with the children and ask them to describe what they can see. Explain that they need to match the different clothes to four different types of weather.

Answers to Student's Book 7.2

Drawings will vary as long as they are related to sunny and rainy weather.

Answers to Workbook 7.2

Drawings will vary depicting different types of weather.

sunny—pictures of goggles/sunglasses, t-shirt, and hat

cold—pictures of overcoat, scarf, wellingtons, and gloves

rainy—pictures of raincoat with hood

Answers to Worksheet 9

Students will cross out the sunglasses and snowman for rainy weather. The snowman will again be crossed out for sunny weather. Ice cream will be crossed out for cold weather.

7.3 Wind

Learning outcomes

Students should be able to:

Student's Book

- understand that wind is moving air

Workbook

- reinforce the learning in the Student's Book

Resources

You will need:

- Student's Book page 50
- Workbook page 26
- materials to make pinwheels: straws, pieces of coloured square paper, pipe cleaners, hole-punchers

Student's Book steps

1. Welcome the children to the class and ask them to sit in a semicircle on the floor with you in the middle. Ask if anyone knows what the weather is going to be like for today and ask them to tell the class.
2. Explain that you are going to learn about wind. Ask the children if they have ever seen wind. Explain that although we can't see wind we can see what it does in moving leaves, our hair, washing flapping on the line, boats sailing, and so on.
3. Read aloud from the Student's Book, asking the children to follow in their own books.
4. Demonstrate how to make pinwheels.
5. Give the children the material to make pinwheels and assist them in the folding, gluing, and threading of the pipe cleaner. Ensure you have time and enough materials for the children to make different pinwheels. Encourage them to experiment with different colour paper and different sized pinwheels—they will enjoy decorating them.

Activities

Explain to the children that some things move in the wind and some do not. Ask the children to circle the things in the picture that will move in the wind.

Workbook steps

Direct the children to colour the picture of a windy day. The children may do this for homework.

Answers to Student's Book 7.3

Students should circle pictures of the balloon, flag, kite, and the yacht.

Answers to Workbook 7.3

Students will colour the picture on the page.



UNIT 8 SOUND

Background

This unit focuses to strengthen the topic of sound. Students will be familiar with the sense of hearing. Help them recall this information with an interesting activity extending towards different types of sounds. Ask them to imagine different places such as parks or malls and what sounds can be heard there. Encourage them to talk about sounds that are pleasing and displeasing to them. Students should be able to categorize loud and soft sounds. Noise should be discussed as well and how this kind of sound can be very unpleasant. Examples from day to day life can be explored here. Emphasize the value of listening to people as a core value also.

Expected learning outcomes for the unit

Students should be able to:

- understand that there are lots of different types of sounds
- identify some basic sounds
- appreciate that sounds can be loud and soft

8.1 Types of sound

Learning outcomes

Students should be able to:

Student's Book

- categorize sounds that are loud and sounds that soft

Workbook

- become familiar with the way that sounds are written
- categorize loud and soft sounds

Resources

You will need:

- Student's Book page 52
- Workbook pages 27 and 28
- some different musical instruments
- copies of Worksheet 10 for all the children

Student's Book steps

1. Welcome the children into the classroom and encourage them to pick up and play with a musical instrument. Allow the children time to experiment with different instruments, making different noises and showing each other—it doesn't matter how they are making a noise, just that they are exploring the different instruments. After some time signal that it is time to listen by using a clapping rhythm that the children copy. This will save your voice and get their attention.
2. Ask different children to talk about the instruments they played with and to describe the types of sounds that it made.

Extension: Use spoons, glass jars, pots, rice or beads in jars to create different sounds—see if you can play a well-known song with these homemade instruments.

3. Ask the children to sit very quietly and to listen to the sounds around them. After some time ask them to share the different sounds they heard—someone's breathing, a noise from a different class, the traffic, and so on.
4. Read carefully from the Student's Book asking the children to follow in their own books. Pause after each statement and look at the pictures together.

Activities

- Read aloud the 'Learning is fun!' direction and ask the children to draw two things that make sounds that they like and two things that make sounds that they don't like.
- Read through Worksheet 10 with the children and explain that they need to try and order the sounds of quietest to loudest. Ask them to think of any other sounds that might fit somewhere on the scale and encourage them to add them.

Workbook steps

1. Look at the images with the children. Ask a few individuals to describe what they can see and to try and describe the sound that the thing makes. Read out the sounds and help the children to match the correct sound with each picture.
2. Help the children categorize loud and soft sounds by writing the correct sound in the table.

Answers to Student's Book 8.1

Drawings will vary but should depict pleasant and unpleasant sounds.

Answers to Workbook 8.1

mouse—squeak	puppy—woof	car—splash	lion—roar	bird—tweet
duck—quack	cat—meow	bee—buzz	snake—hiss	cow—moo

8.2

Loud—siren, thunder, a drill, drum, a crying lady, shouting

Soft—whispering, a cat walking, chirping birds

Answers to Worksheet 10

1. loud rock concert	2. military jet take-off	3. motorbike	4. normal talking	5. whisper
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UNIT 9 THE SOLAR SYSTEM

Background

This unit aims to reinforce the solar system to the students. Students will be familiar with the term Earth and state that it is a planet. Similarly talk about the Moon, the Sun, and the stars and how all of these make up the Solar System. Help the students to recall the names of the planets at this level. Using activities in this guide and suitable visual material, explain how the Sun is at the centre around which the planets revolve—the Earth being one of them. In the same way explain the concept of night and day. The idea of how homes, communities, towns, cities, countries, the world eventually make up the Earth which is a part of the solar system can be discussed in this unit also.

Expected learning outcomes for the unit

Students should be able to:

- understand that our solar system is the planets and their moons travelling around the Sun
- understand that the Earth is moving around the Sun
- understand that the Moon is moving around the Earth

9.1 Our solar system

Learning outcomes

Students should be able to:

Student's Book

- know that the Earth is a planet

Workbook

- consolidate the learning in the Student's Book

Resources

You will need:

- Student's Book page 54
- Workbook page 29
- images of the planets (go to http://www.youtube.com/watch?v=Wd_EldZrvaU for an example of a catchy song to remember the planets) (go to http://www.kidsastronomy.com/solar_system.htm for images of the planets revolving around the Sun)

Student's Book steps

1. Welcome the children to the class and explain that they are going to learn about the planets, the Sun and the Earth—our solar system. Check what the children already know by asking questions such as:

What is the name of our planet?

Are there any other planets?

What are their names?

Why don't we live on them?

What is the Sun?

2. Once you have established what the children know, tell them that we are on a planet called Earth and we are moving around the Sun with other planets in our solar system. Explain that our planet – Earth – is the only planet that we can live on.
3. Explain that the moon is moving around us and is much smaller than the Sun. Tell the children that people have been to the moon, and if possible, show some pictures of people on the Moon (go to <http://www.scn.org/~odea/apollo11.moonwalk.html> for photos).
4. Show the children images of the planets and the song to remember the names of the planets. Encourage the children to come up with their own song and ways of remembering the planets.
5. Read aloud from the Student's Book asking the children to follow on. Pause after each of the statements and invite discussion or comments from the children.

Activities

As a class try to remember all of the eight planets in our solar system. Tell the children that the planets are: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, and Neptune. Help them to copy down the correct names into their books.

Going further

Draw a picture of a rocket going to visit all of the eight planets.

Workbook steps

Ask the children to colour the drawing of the solar system—they may do this at home.

Answers to Workbook 9.1

Students will colour the pictures of the planets and the Sun.

Answers to Worksheet 11

Students will number the planets in the following order starting from the Sun.

Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune

Order of numbers will be 7, 8, 1, 5, 3, 4, 6, 2

9.2 Our planet

Learning outcomes

Students should be able to:

Student's Book

- understand that the Earth is always moving

Workbook

- understand that the Earth is smaller than the Sun
- understand that the Moon is smaller than the Earth

Resources

You will need:

- Student's Book page 56
- Workbook page 30
- some fun music to dance to
- some large balls and some small balls

Student's Book steps

1. Welcome the children into the classroom. Play some fun music and explain that they are going to have a fun time dancing.
2. Ensure there is enough space, turn up the music, and encourage the children to twirl and dance to the music. After some time, use a clapping rhythm to signal to the children that it is time to stop, listen, and sit down.
3. Explain that their twirling and dancing is similar to the twirling and dancing that all the planets do around the Sun. Ask the children if they feel dizzy. Explain that the Earth is turning around the Sun right now but a special force called gravity stops us from floating off and feeling dizzy.

Extension: Create a special dance to show the twirling of the planets through space—children could pretend to be planets, meteors, the Moon, and the Earth.

4. Read aloud from the Student's Book asking the children to follow. Pause after each statement and invite the children to comment or react to the statements.

Activities

Put the children in small groups and give them a large ball and a small ball. Ask the child with the large ball to stand still and ask the child with the small ball to walk in a large circle around their partner, turning the ball as they walk. Explain that this shows how we are orbiting around the Sun.

Workbook steps

Ask the children to look at the drawing of the solar system and look again at the images or websites which show the Sun, the Earth, and the Moon. Ask the children to draw a picture of the Sun, the Earth, and the Moon and to think about the differences in size when they draw them. Ask them to colour their pictures and display them around the room.

Answers to Workbook 9.2

Drawings will vary. The Sun should be the largest followed by the Earth and the Moon. Students will then colour and label their drawing.

9.3 The Moon

Learning outcomes

Students should be able to:

Student's Book

- understand that the Moon looks different at different times of the month

Resources

You will need:

- Student's Book page 58
- images of the Moon in its different phases (go to <http://www.universetoday.com/13533/astronomy-for-kids-fun-with-the-moon/> for an example)
- a relevant story about the Moon
- black paper, white paper, scissors, and glue to make a night-sky

Student's Book steps

1. Welcome the children into the classroom and ask them to sit on the floor in a semicircle with you in the middle. Read a relevant story about the Moon and ask the children to share anything that they know about the Moon; asking questions such as:

Have you seen the Moon at night? What did it look like?

2. Show the children some images of the Moon in its different phases.
3. Emphasize that the Moon travels around the Earth.

Activities

- Arrange the children into small groups and give each group a phase of the Moon to draw and label correctly (see <http://www.universetoday.com/13533/astronomy-for-kids-fun-with-the-moon/> for the different phases of the moon). Display the different moon phases around the classroom.

- Help the children to complete the solar system crossword in class.

Going further

Draw a night-sky with the Moon, the Earth, and lots of stars. Display the pictures around the classroom.

Answers to Student's Book 9.3

Across

2. Moon
3. Earth

Down

1. Sun
2. Mars

Name: _____

Date: _____

Your body

Fill in the blanks in the following sentences.

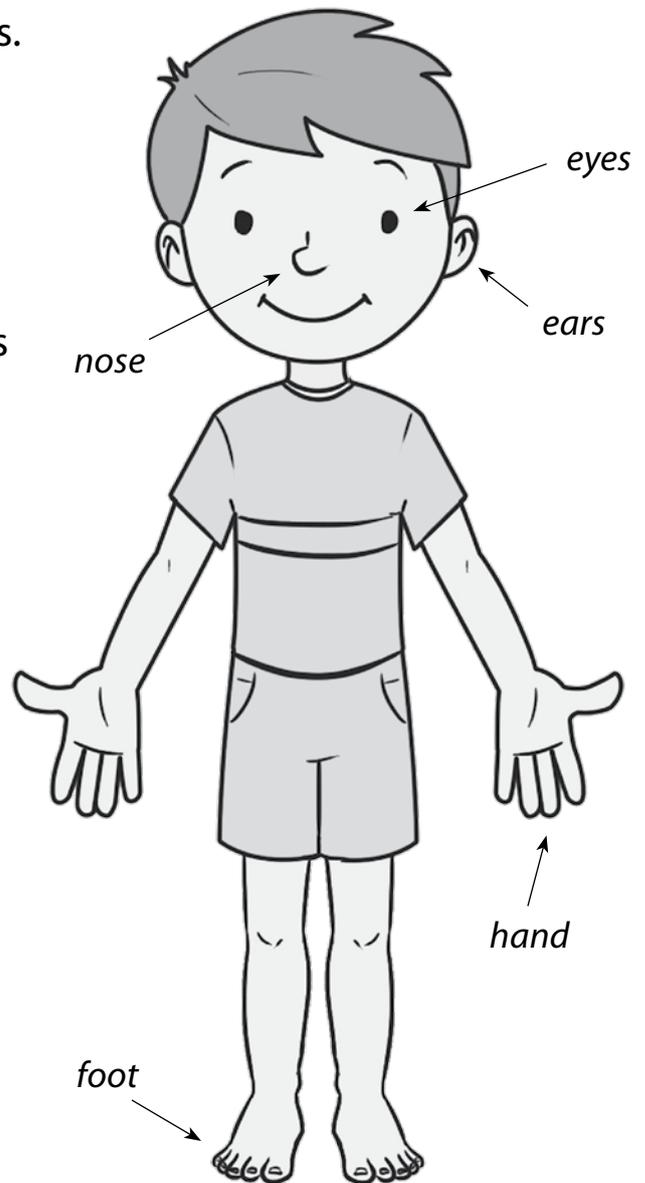
I use my _____ to pick up objects.

I use my _____ to kick a football.

I use my _____ to read the words
on this page.

I use my _____ to smell flowers.

I use my _____ to listen to music.

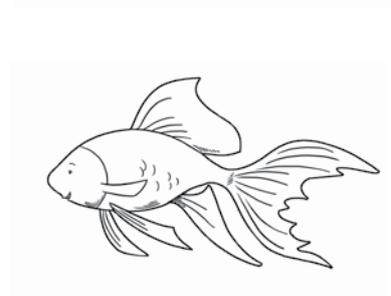
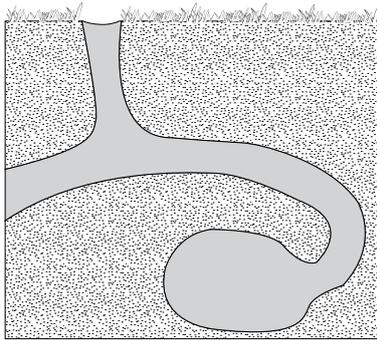
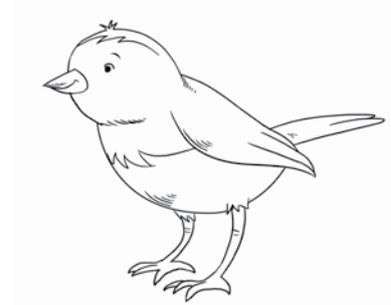
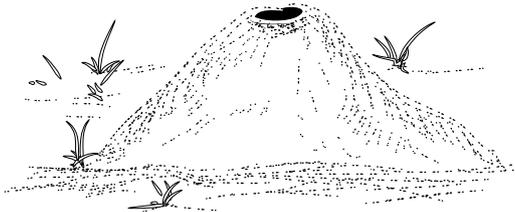
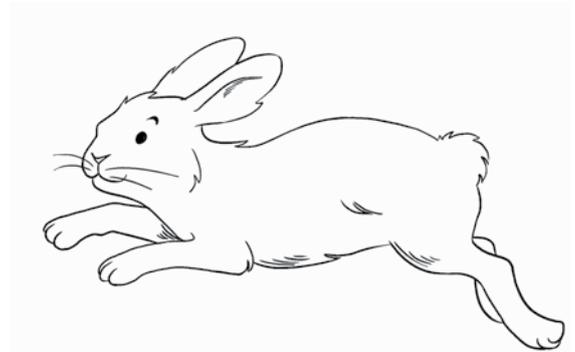
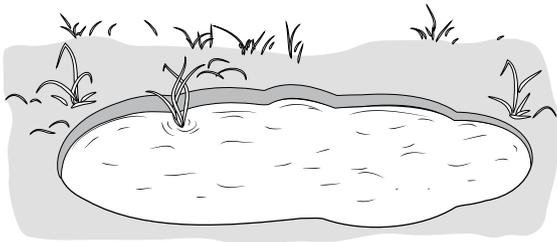


Name: _____

Date: _____

Where do we live?

Draw a line joining the animal to the place where it lives. Use different colours for different animals.



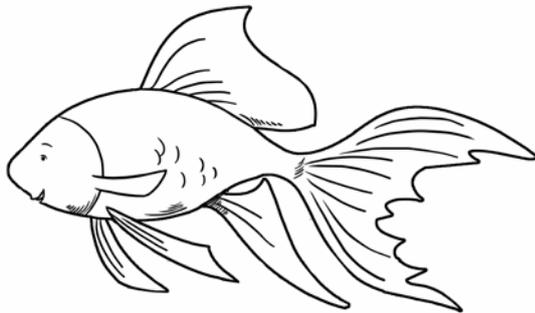
Name: _____

Date: _____

Colour me

Colour the features of the animals below in the colours stated.

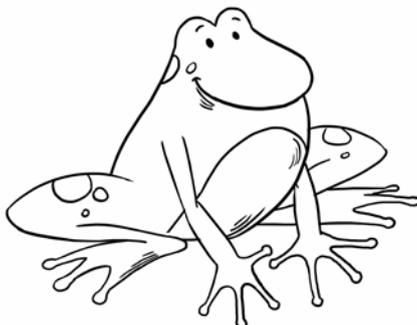
I am a goldfish. Colour the part yellow that helps me to live in water.



I am a duck. Colour the part blue that helps me to live in water and colour the part orange that helps me to live in the air.



I am a frog. Colour the part green that helps me to live in water.



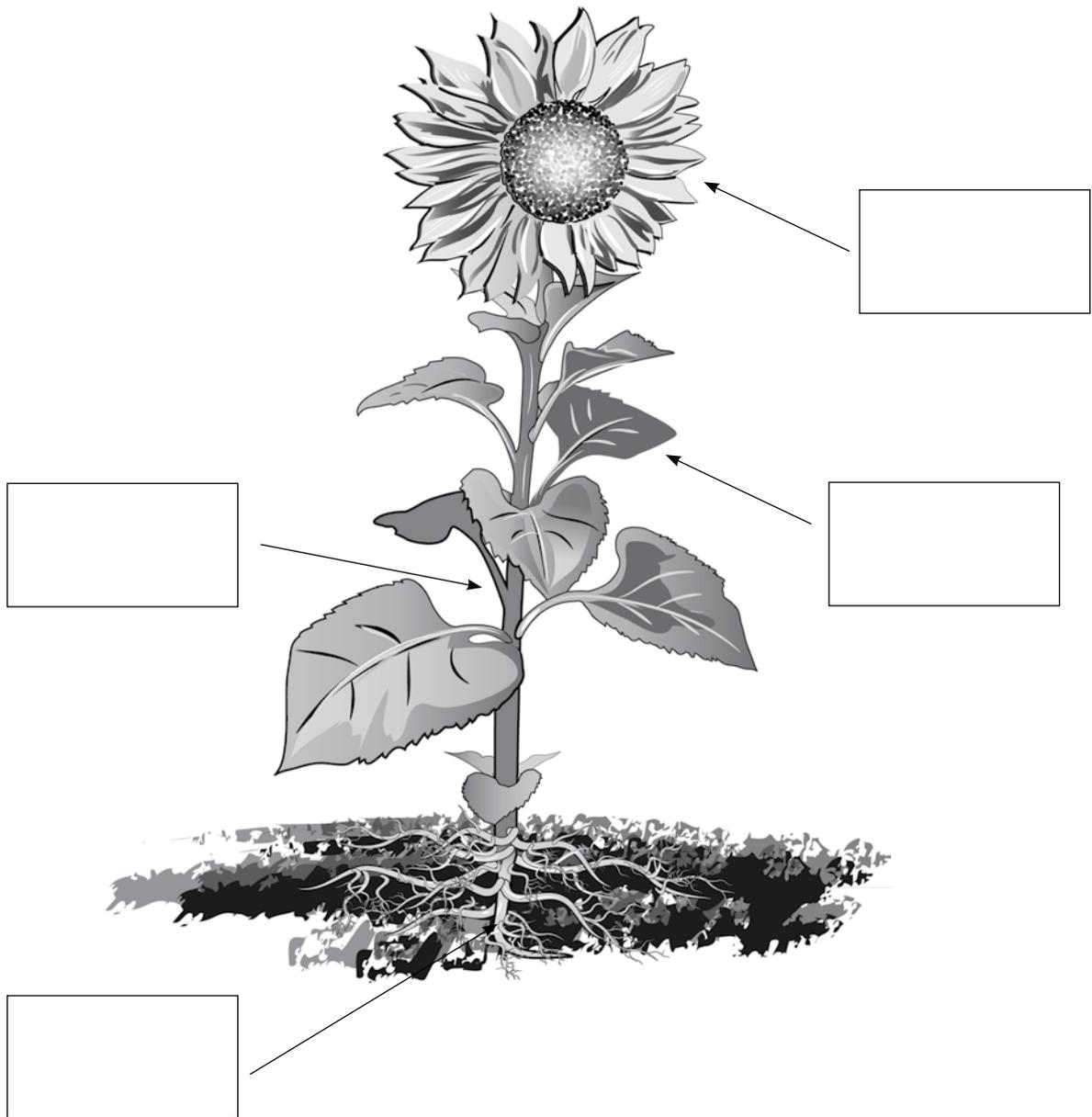
Name: _____

Date: _____

Label me

Cut out and paste the parts of a plant.

roots	leaf	flower	stem
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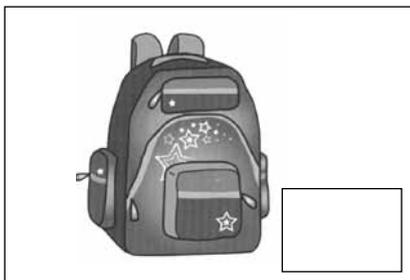
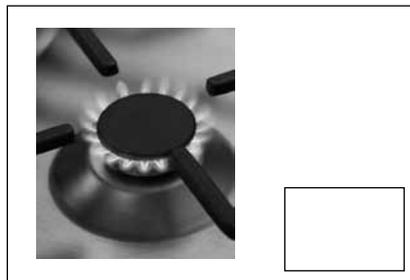
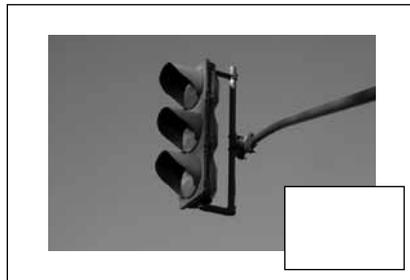
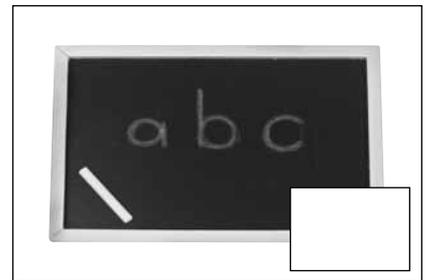
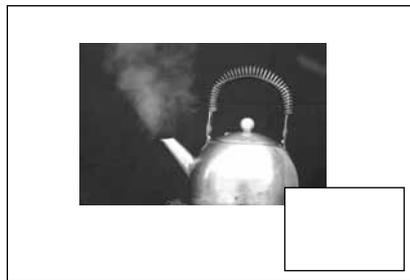


Name: _____

Date: _____

Inside your environments

Below are some objects that you might find in your home, school, or neighbourhood environments. Colour the boxes for the home ones red, the school ones yellow, and the neighbourhood ones green.



Name: _____

Date: _____

Describing material

Use the words from the box below to describe each thing.

hard	soft	rough	smooth	shiny
dull	magnetic	transparent	hot	flexible
waterproof	strong	sharp	blunt	cold
warm	heavy	light	wet	dry



Name: _____

Date: _____

Socket or battery

A lot of things require electricity to work. Electricity has many sources. One of them are batteries. When we plug things into a wall socket, electrical items work as well. The electricity in the socket is in the wires that go inside your houses. Always be careful with wall sockets. You can be hurt badly and receive an electric shock.

Write the word **socket** or **battery** depending on each item's source of electricity.



















Name: _____

Date: _____

Water

Use the key below to complete the sentences about water.

_____ is important.

Without water there would be no life on

_____.

We _____ water.

Water helps us. We use it to

_____ our bodies,

_____, and _____.

We also have fun with _____.

We swim and _____ in

water. Water also helps us to ride

in _____.

water

clean

Earth

houses

boats

cars

splash

drink

Key

Name: _____

Date: _____

Weather

Cross out the pictures that do not belong to the season in each box.

<p>Rainy</p> 		
<p>Sunny</p> 		
<p>Cold</p> 		

Name: _____

Date: _____

Measuring sound

List the sounds below in order of 1-5 from the loudest to the quietest.
(1 being the loudest and 5 being the quietest)



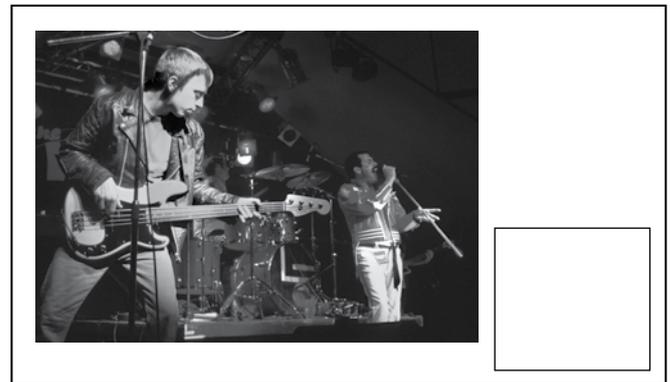
Motorbike



Normal talking



Whisper



Loud rock concert



Military jet take-off

Name: _____

Date: _____

Which planet am I?

Label each planet using their numbers from the box.

1. Earth	3. Jupiter	5. Mars	7. Mercury
2. Neptune	4. Saturn	6. Uranus	8. Venus

