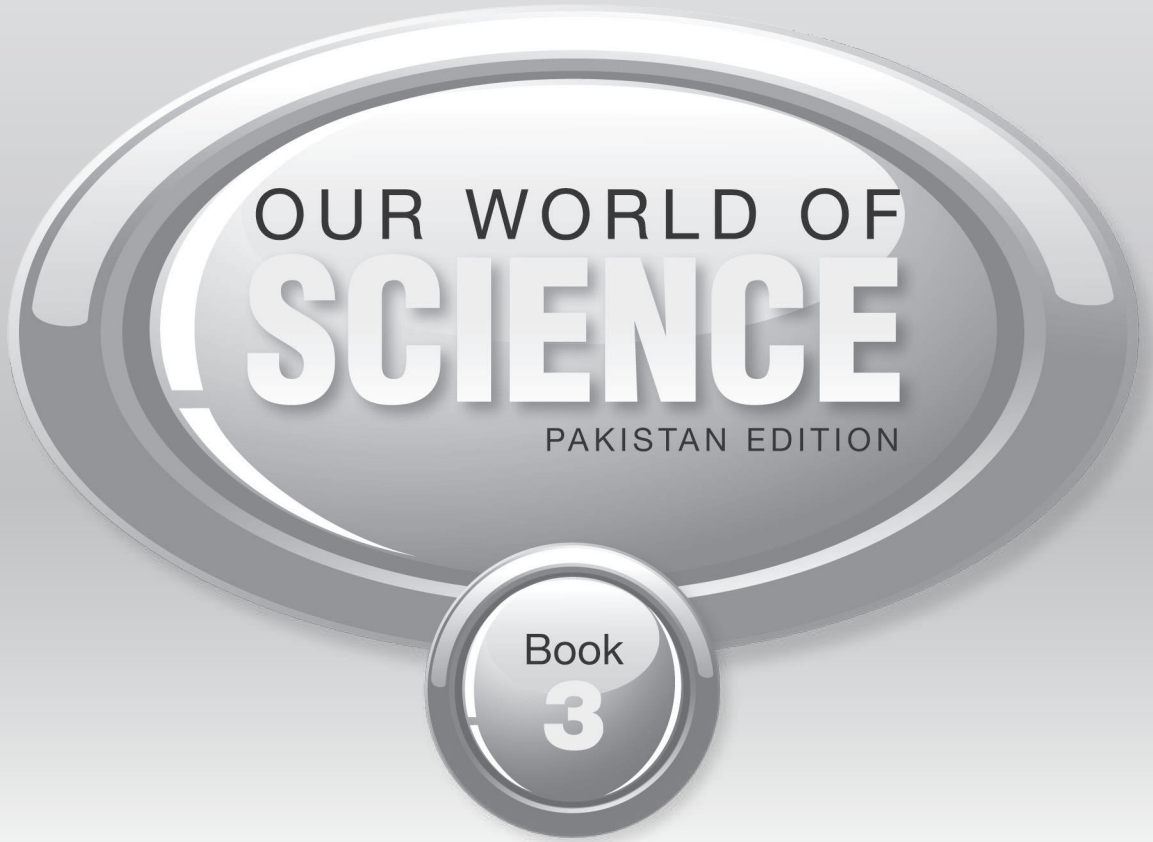

TEACHERS' GUIDE

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Contents

Introduction

This Teachers' Guide has been developed to accompany Our World of Science textbook series. The Guide has particularly been designed with an aim to help you put your valuable class time and resources to the best use.

The detailed lessons plans in this Guide may be used as they are, or followed loosely depending upon your teaching strategies, resources, time allotted to Science at your institution and very importantly, the needs of your students. Remember, these are not the only ways to transmit knowledge; you can come up with your own plans to tailor the activities given in the lessons and divide your time accordingly.

STRUCTURE OF THE TEACHERS' GUIDE

This Guide has been divided broadly into two main sections: Lesson Plans and Worksheets.

Lesson Plans consist of the following key features:

- **Objectives:** Every chapter lists the learning objectives of the lesson which you may refer to before, during, and as you conclude the teaching of the chapter to ensure that you have covered everything.
- **Vocabulary Bank:** The vocabulary bank includes the relevant vocabulary which the students will be required to become familiar with. You should encourage them to use it during class discussions. Make sure that you prepare the class softboard with the words displayed prominently. Drill these words daily. You can prepare flashcards or use other techniques like a thematic word wall on the softboard.
- **Lesson:** The detailed procedure of the main teaching of the lessons has been structured in a way to include activities and their variations, multiple teaching strategies, extra information, hands-on activities and crafts to clarify concepts and give ideas a concrete shape. Each lesson is divided into Warm up, Main Lesson and Recap sections. Be judicious in your choice of activities and you can mix and match different sections. The plans may also be used as they are. You may also improvise and contextualize ideas, incorporating them into your own teaching design.
- **Links:** Weblinks to relevant topics have been given to enhance the teaching process for you and to ensure complete understanding of the chapters taught.
- **Evaluation:** Evaluation exercises have been included at the end of every lesson to help you assess and ensure how far key objectives for a particular teaching session have been met.
- **Safety**

  Specific safety measures have been included with activities in the Guide; however, exercise all necessary caution when conducting hands-on activities.

Some general ethical and safety precautions:

- In discussions involving a comparison of physical and cultural characteristics, be careful not to pass judgmental remarks or to let the students pass critical comments. Students come from different backgrounds and have varying intellectual and physical abilities. Similarly, cultural differences like dietary preferences may also vary. Exercise every caution not to offend their sensibilities. Be sure to emphasize that we are all different in our physical attributes, likes/dislikes, etc.

- Students may have various allergies from plants, animals, and edible items like pollen, dust, cats, and (pea)nuts. Try to find out any such instances from parents or the school nurse well in advance of any demonstration or field exercise.

- Make sure before tasting anything the students have clean hands.

- Ensure that students are under proper supervision when taking them for a visit to the park or to the playground for observation.

- The students must never look at the Sun directly, or sunlight reflected in a mirror, microscope, or through a hand lens etc. Warn them of permanent damage including blindness.

- Be careful when handling apparatus: electrical appliances, mercury thermometers, microscopes, glass beakers, test tubes etc.

- Seeds may be poisonous. Make sure that children do not put them in their mouth.

- Candles should be supported firmly in their proper holders.

Remember to go through the plans well in advance to make the necessary preparations, especially for topics like plants, the solar system and weather which require ample time to record results intermittently.

Answers to exercises in the textbook have been provided for each chapter.

Worksheets for every lesson are provided at the end of the Guide. Tear out and photocopy the worksheets to use as a reinforcement exercise, homework or for assessment.

TEACHING STRATEGIES

The philosophy behind our books is to break away from the traditional pedagogical practice of lecturing and focusing on a learner-centred approach. Always demonstrate, discuss and then engage the students in reading the text. Do not initiate any lesson by directly reading from the textbook. We particularly emphasize on collaborative learning in the classroom and encourage you to use various cooperative and interactive teaching strategies.

We have taken meticulous care to include a variety of such strategies in our lesson plans. They include:

Pair/Group Work: Students work in pairs/groups to think about work assigned to them and then discuss amongst themselves before sharing with the class. Some approaches for this are:

- **Think-Pair-Share:** Assign the students a particular task or give them a topic/question to think about. In pairs, the pupils will discuss the question or task, and then share their ideas with each other. Finally, the pupils will discuss their answers with the class.

- **Jigsaw Technique:** This cooperative learning approach where pupils teach there group members what they have learnt. It works like this:

a. Form 'home' groups where each member is assigned a different portion of a chapter to read. Also assign each student with a number, for example from 1–4. Each number denotes the portion assigned to them.

b. All students assigned a particular task in their home groups will then form a group with other pupils assigned the same task. For example, all number 1s from their respective home group will come together, as will all number 2s, 3s, and 4s. They will study and discuss the material and become 'experts' in it.

c. Now all the pupils will return to their respective home groups. They will teach each other what they have learnt about the material assigned to them.

d. Your job is to facilitate this process and evaluate what they have learnt by asking them to make a presentation before the class, or by taking a quiz.

- **Gallery Walk:** An excellent way to start/conduct/revise the lesson. Divide the class into at least 3–4 groups. Each group will be assigned a topic, which they will discuss and write the salient points of on a paper/chart and paste it on the wall. Every chart will be pasted in the room far apart, preferably on all four corners of the room, like an art gallery. Each group will now be stationed in front of another group's poster.

  The students in the group will read and discuss the points on the poster and write their observations on sticky notes which they will stick onto the poster. When the teacher claps or rings a bell, each group will rotate and move to the next poster and do the same. All groups will rotate in this manner until each group has had a chance to look at every group's poster. All the groups will then end when they have reached their own group's poster.

Loop cards: This is a popular educational game to keep students actively engaged. Prepare cards with a question on one side and answer on the other. The answer should be to a different question and not the one on the card. The number of cards you prepare should match the number of students in the class.

Distribute the cards, giving one card to each pupil. Begin by one student reading aloud the question on his/her card. The rest of their students will flip their cards to see who has the answer. The child bearing the correct answer will call out the answer and then it will be his her turn to read out the question on his/her card.

If the child with the correct answer written on his/her card does not know that it is the answer to the question, whoever answers correctly will be the next to read out the question on his/her card. The students can be divided into teams as well.

Loop cards can serve as an excellent revision/evaluation strategy. It keeps the students thoroughly attentive because the card they hold may come up in the loop. The idea is to have all the children participate by asking and answering questions in a way that you come back in a loop to the 'Start' person.

KWL: This is a comprehension strategy to evaluate what the students have learned using a chart. You can make a three column table on the board or a flip chart labelled K, W and L. Before reading, first find out what the children already know about a topic (K). List those points on the flip chart. Then ask what they want to know about the topic (W). List these as well. After the reading and discussion, ask what they have learned about the topic (L). Once you have completed the chart, analyse it to see what learning has taken place. KWL gives the students a purpose for learning the topic and keeps them engaged.

Here is what the KWL chart may look like:

K What I/we know	W What I/we want to know	L What I/we learned
Write the what the students already know in this column	Write what the students want to know in this column	After the completion of the lesson write whatever the students have learned in this column

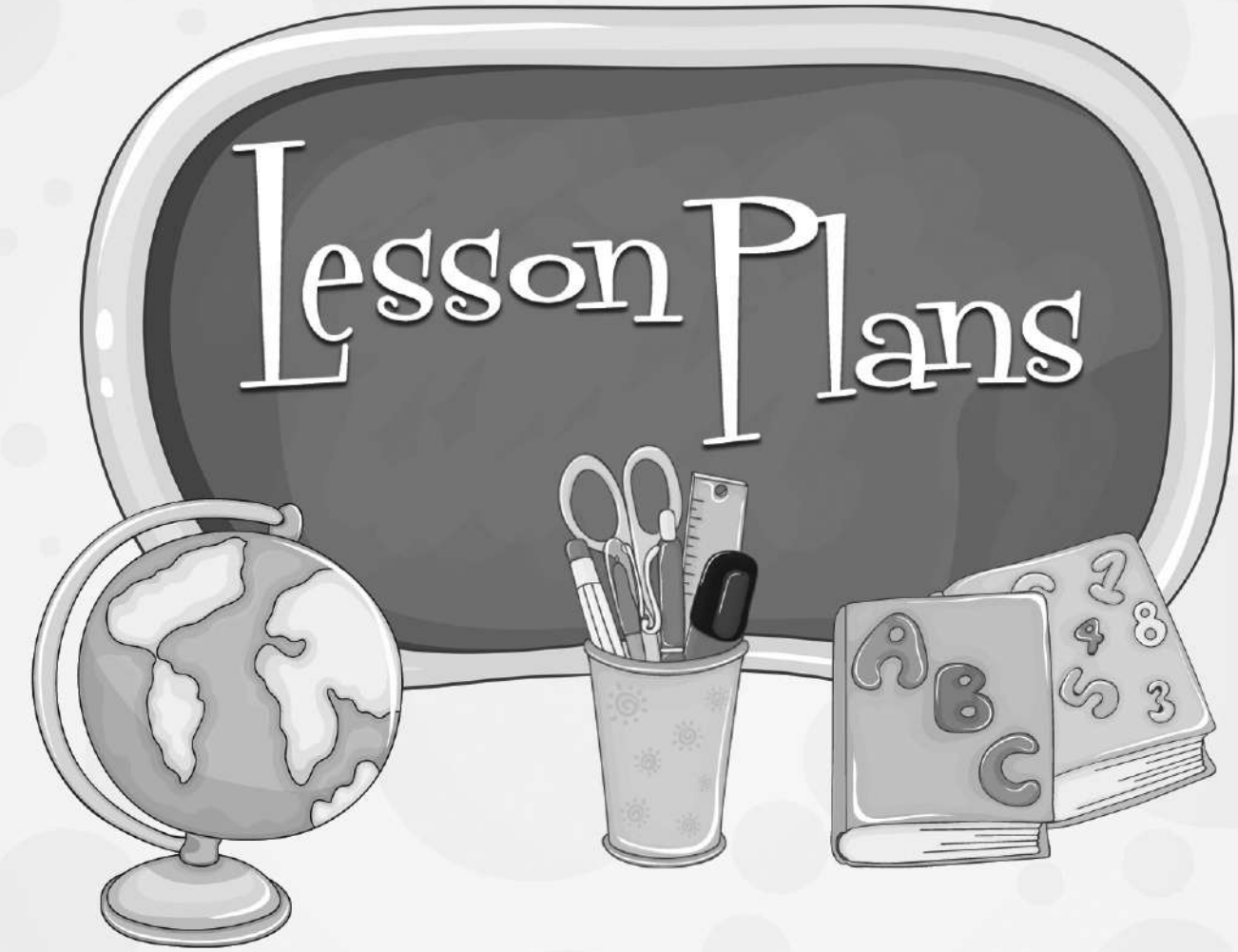
Circle Time: This is an excellent strategy to initiate discussions or use as part of your main lesson. Arrange the class in a fish bowl set-up or if there is enough room, ask them to sit in a large circle. This allows face to face interaction and helps in exchange of ideas, revision, and removal of misconceptions. This may be used in conjunction with any of the strategies above, for example the gallery walk. Each group can read out the comments left by other groups on their posters, leading to an interactive discussion.

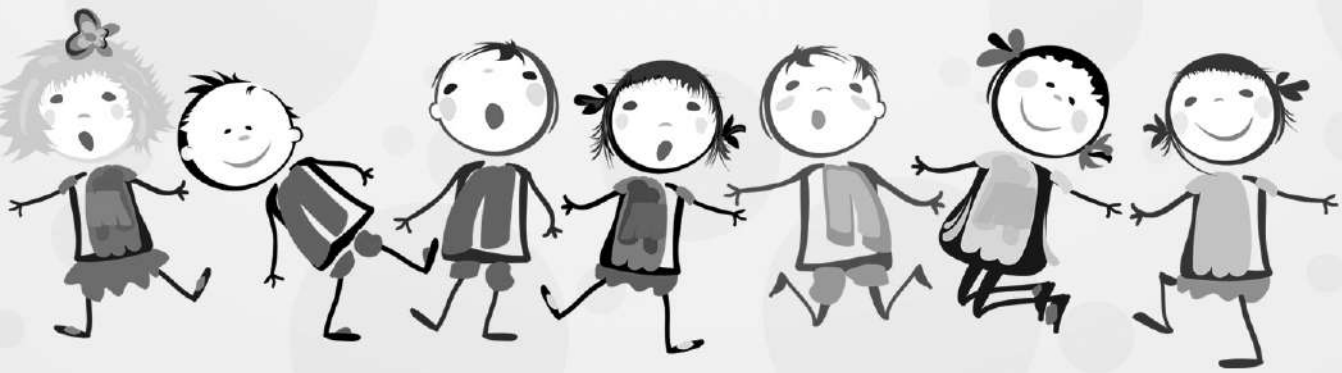
Audio Visual Aids: Links to relevant websites have been provided in the lesson plans for different topics. Concepts are understood best only when they are seen or done practically. The children must experience phenomena in order to fully understand concepts like forces, electricity, materials, living things, etc.

Although every care has been taken to ensure that the lesson plans in this Guide will help facilitate learning through inquiry and practical activities, it is not necessary that they should be followed rigidly. If you have trouble arranging the required resources for a lesson, feel free to improvise. Make the most of what you have readily available.

Science started with observation, and this is one of the first skills to be inculcated in children to foster the spirit of scientific enquiry, followed by collecting information, inference, experimentation, recording and analysing results to form a conclusion. A good teacher always tries to provide a variety of learning experiences to the students. Make every effort to connect phenomena to the experiences of the everyday lives of your learners. Take them to the playground or a nearby park, the music room, computer room, or any other place to engage them in a hands-on learning experience, encouraging them to observe and ponder over their findings.

Lesson Plans





Unit 1

Chapter 1

The human senses

Objectives	By the end of the lesson, students should be able to • understand the five senses and their associated body parts. • recognize how the five senses help them learn about the world around them. • describe the physical properties of objects that are detected by the senses (e.g. large or small, odour, rough or smooth, heavy or light, soft or hard).
Vocabulary Bank	pupil, eyelid, iris, nostril, eardrum, smell, hear, see, taste, touch

LESSON 1: 40 mins

5 mins	**Warm Up:** Elicit previous knowledge of the students by asking questions. *How many senses do we have ?* Write their responses on the board. Now make two columns, sense and organs. There are five senses: seeing, smelling, hearing, tasting and touching. Now ask them to name the sense organ. *How do we hear sounds? With the help of our ear. How do we see things? With the help of our eyes. How do you know that the bell is ringing? How do you taste food? How do you feel that something is soft or hard?* Now continue in the same manner.
30 mins	**Main Lesson:** Take students out to a walk in the school and observe the things using their senses e.g. seeing different things, smelling and tasting different things near the canteen, hearing the voice of different students and teachers or the school bell and touching different objects. If this is not possible, then use flashcards or spray a room freshener, open a lunchbox, play a mobile ringtone or ask a student to sing a poem and now ask the children to identify different organs related to different senses. This video can also be shown as an introduction: http://www.turtledairy.com/kids-videos/the-five-senses.html

	Explain the importance of senses. Ask what would happen if they did not have eyes. *You will not be able to see things and same for the other senses.* Elaborate how people who lose any of their senses, e.g. seeing or hearing, use other senses like touching and smelling to know about their surroundings. The Let's Find Out for Ourselves activity on pg.12 should be done in pairs and the oral responses taken.
5 mins	Recap: Summarize the main points discussed. *Our senses give us the knowledge of the things happening around us.* *The sense organs allow us to know about our surroundings through five main ways. Name these.*

LESSON 2: 40 mins

5 mins	Warm Up: To begin the lesson, tell the students that in last class we learned what our five senses. Make five children represent five sense organ like eye, nose, touch, ear, and tongue in form of a role play. Each will present itself by telling its importance and functions. I am an eye and I help to see things. *Without me you cannot see the beautiful world.* The others will do the same for the other senses.
30 mins	Main Lesson: Now ask a child with the help of senses how we identify things. Point a table and ask him to describe its physical properties. *How can we tell? We can identify the physical properties be seeing the object from our eyes. Touching by our hand. A table can be small or big. It can be rough or smooth.* Ask about the properties of a flower, book, boy etc. Explain to the students that senses are also used to identify the physical properties of different things. Read the text of the lesson and discuss the pictures. Ask to observe the eye of their partners and identify its parts. Ask them to think of the steps in which sound travels through our ear: from the outer ear to the ear drum, then to the middle ear and in the end to the inner ear. For skin, tongue and nose discuss the ways they benefit us and their importance. Read the chapter and do Exercises 1 and 2 on page 13.

5 mins	Recap: Summarize the main points discussed. *The eye is a sense organ that gives us the sense to see.* *The nose is a sense organ that gives us the sense to smell and let us breathe from.* *The tongue is a sense organ that gives us the sense to taste our food and talk properly.* *The ear is a sense organ that gives us the sense to hear.* *The skin is a sense organ that gives us the sense of feeling objects and protecting us.*

Answers

Exercise 1

a. The sense organs allow us to know about our surroundings.

b. Eyelids and eyelashes protect our eyes.

c. The skin is the sense organ that gives us the sense of feeling objects and protecting us.

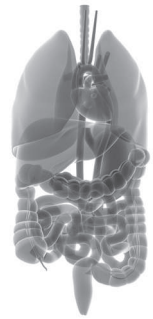
d Tongue is a muscle that helps us to taste food. The tongue is covered with taste buds that allow us to taste sweet, salty, sour and bitter tastes.

e. The nose is a sense organ by which we smell.

Chapter 2

Unit 1

The human body



Objectives	By the end of the lesson students should be able to • identify the four major internal organs the human body needs for survival (heart, brain, stomach and lungs) • realize the importance of these organs • state the functions of these organs • recognize the other working parts of the human body • understand the importance of the skeleton in giving the body its shape and structure • explain the function of the muscles in movement and care of internal organs
Vocabulary Bank	skull, brain, functions, heart, pumps, blood, network, arteries, breathe, heartbeat, stomach, nutrients, oxygen, carbon dioxide, bones, structure, coiled. These words should be used as a resource for teaching in form of flash cards. You can also display them in the classroom.

LESSON 1: 40 mins

5 mins	**Warm up:** Write **Human Body** on the board. Brainstorm what is inside our bodies. They will name things like blood, kidney, brain, and different body parts. Explain to the students that all parts of our body are equally important, however, some are more important than others, like our heart is the most important part without which life is impossible.
30 mins	**Main Lesson:** Take the students to the resource room and show them the video on human body followed by an online game. http://www.turtlediary.com/grade-2-games/science-games/human-body.html

	Pair Work Bring the students back to the classroom and ask them to read and discuss pages 14 and 15 in pairs and identify the importance and functions of the given organs. Take random feedback from the students and write all their responses on the board.
5 mins	**Recap:** Wrap up the lesson by summarizing the main points discussed. • *The most important organs inside the human body are brain, heart, lungs and stomach.* • *The brain is the controlling system of the body. It receives input from other parts of the body. It is responsible for our thoughts, feelings, memory and our perception about the environment around us.* • *The heart pumps blood throughout our body.* • *The lungs are responsible for taking in oxygen and giving out carbon dioxide.* • *The stomach absorbs the nutrients of the food we eat and distribute it to other parts of the body.*

LESSON 2: 40 mins

5 mins	**Warm up:** Review the previous lesson by asking questions like how many major organs are there in the human body. *There are four main organs: brain, heart, lungs and stomach.* Write their responses on the board.
30 mins	**Main Lesson:** **Pair Work** Ask the students to read and discuss pages 16 and 17 in pairs. Take the feedback by asking questions like what are the functions and importance of the different given organs. Students can also recall information from the video they had seen. **Group Work** Divide the class in the groups of 6 and provide each group with Athermopore slab and cutouts of different internal organs. They will make a replica of the human body by following the instructions given on page 18. Students work can be displayed in the class room and all the groups can have a gallery walk and can comment on each other's work on the provided sticky notes. Exercises 1 and 2 will be completed at home.

5 mins	**Recap:** Wrap up the lesson by summarizing the main points discussed. • *The skeleton gives our body support and structure. There are 206 bones in our body. Teeth are also bones.* • *Muscles are solid parts of our body that are joined to our body. They help in movement and giving strength to the body.* • *The kidneys help to remove all the waste left in our body from the food we eat.* • *Our liver takes all the nutrients from the stomach and converts into energy and send it to other parts of the body.*
	Evaluation and Activities: 1. *What will happen if there is no skeleton in our body?* If there is no skeleton in our body we will just feel like jelly. We will not be able to stand or sit, or pick up anything with our hands. 2. *In one line, write one main function of each of the main body parts/organs discussed in the chapter you have just completed.* The worksheet **The Human Body** can be given to evaluate the students.

Answers

Exercise 1

a. The heart provides blood to the entire body, specially the brain and all the other important organs.

b. The brain is the control centre of the body. It helps us to think and receive input from our senses.

c. Kidneys, liver, mouth and intestines are connected to the stomach.

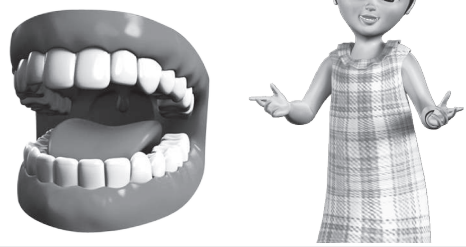
d. Lungs help us to breathe. They take in oxygen and give out carbon dioxide.

e. Kidneys remove waste from the body whereas liver makes energy out of the food we eat.

Chapter 3

Unit 1

Our teeth



Objectives	By the end of the lesson, students should be able to: • name and identify different types of teeth according to their function • differentiate between milk and permanent teeth • identify incisors, canines, molars and premolars • learn about plaque and tooth decay • understand how to take care of our teeth • know what causes plaque and tooth decay and how to take care of our teeth • identify the importance of teeth in giving us facial structure, helping us eat and speak correctly
Vocabulary Bank	crown, incisors, canines, premolars, molars, bacteria, plaque, cavities, dentist, toothache, crushing, grinding, floss, tooth brush, tooth decay, permanent teeth, primary teeth
Resources	small mirrors, A4 printouts of table of observation, plain A4 sheets or chart paper, washed fruits and vegetables, biscuits, and clean and dry eatables.

LESSON 1: 40 mins

5 mins	**Warm Up:** Start the lesson by asking students what they ate last night. On getting the responses, ask them what helped them eat their food and how. Teeth helped them eat their food as it helped them in chewing, crushing and grinding their food. *Teeth help us to chew our food for digestion. Are there any other ways in which teeth can be important for us?*

Explain that we produce sounds and are able to speak properly with the help of our teeth. *Try saying 'toothache', 'smile' and 'teeth' without letting your tongue touch your teeth.*

Teeth are also important for shaping our face and making our smiles beautiful.

30 mins

Main Lesson:

Several children in the class may have lost some milk teeth. Ask how many have lost their teeth.

Explain that there are two types of teeth: *Primary teeth and secondary teeth. Primary teeth are also called milk teeth. These are then placed by another new set of teeth, called permanent teeth. Permanent teeth can last us a lifetime if we take proper care of them.*

Pair activity

With the help of a mirror, ask students to look at their teeth. *Are all your teeth of the same size and shape? Why do you think they are different? Teeth are shaped differently because the perform different functions.*

In pairs the students will read "Types of teeth" on page 21 and identify their functions. Now have a whole class discussion by randomly asking about different types of teeth and their functions. Write their responses on the board.

Group Activity

In groups, the teacher will provide some fruits, vegetables, biscuits etc. to the students and ask them to think about which teeth they will use for biting, cutting, chewing and grinding into each. Students will write all their responses on a given A4 sheet in the following format.

Type of food	Teeth	Use
Carrot	Premolars	Chewing

Display the work on the softboard.

Students will complete the Let's Find Our for Ourselves activity on page 24 in pairs. Take random verbal responses of their answers.

This is an excellent link which can be shown to the students in the computer lab or on a projector on the kinds of teeth and their functions.

http://www.childrensuniversity.manchester.ac.uk/interactives/science/teethandeating/typesofteeth/

5 mins	**Recap:** Summarize the main points discussed. *All of us grow two sets of teeth. Milk teeth are our first teeth that come out when we are around 6 to 7 months old and we start losing them at the age of 7. Permanent teeth are the final set of teeth that grow by taking the place of the milk teeth. They are strong enough to last for a lifetime.* *Incisors help to cut food into pieces. Canines are sharp and pointed to used to tear food. Premolars are chewing teeth. Molars are the grinding teeth.*

LESSON 2: 40 mins

5 mins	**Warm up:** Begin the lesson by asking the students to review the different types of teeth that they learned about in the last lesson. Name them together and review with the students the different teeth and how they help us to eat different kinds of food. Like incisors help to cut food into pieces. Canines are sharp and pointed. Premolars are chewing teeth. Molars are the grinding teeth. We do not grow new permanent teeth, so it is very important to take care of them.
30 mins	**Main Lesson:** In pairs, students will read and discuss pages 22 and 23. Take the feedback by asking different questions from the students like: *Which foods are good for our teeth? Crunchy fruits and vegetables are good for teeth as they clean our teeth when we eat them. Sugary foods are very bad for our teeth and are the main cause of dental cavities because they form a layer of plaque on our teeth.* *Cavities are holes which form in our teeth when we don't clean them properly and do not get rid of the plaque. How do you clean your teeth?* Brushing two to three times a day after every meal and before bedtime; flossing regularly. *Who looks after our teeth? A dentist looks after our teeth. Have you ever been to visit a dentist?* **Group Activity** Divide the class in groups of four and ask the students to make a colourful poster on ways of dental care and present it in the class or have a gallery walk and ask groups to comment on each other's work. Exercise 1 on page 25 will be completed in the classroom.

5 mins	**Recap:** Summarize the main points discussed. *Dairy foods, fruits and vegetables are good for teeth. If we do not brush and floss regularly; we might get cavities in our teeth.*
	Evaluation: The following questions may be given for evaluation or the worksheets on **Our Teeth** may be given for evaluation and reinforcement. 1. List any 3 benefits of teeth. • They help to breakdown and chew food. • They help pronunciation of different words. • They help us to look better with a nice smile.
	Extension Activities: • Invite a dentist to have a session with the students followed by a demonstration of dental hygiene by flossing and asking the students to bring their toothbrushes and brushing teeth in the proper way. • Students can make effective posters/advertisement about dental care and can display in the school or have an assembly presentation on it.

Answers

Exercise 1

a. We have teeth to eat and chew food, as well as to give structure and shape to our mouth. Teeth make our smile beautiful.

b. Premolars and molars are used for crushing and grinding food.

c. Canines are used to rip and tear food.

d. Incisors help cut food into bite size pieces that can be swallowed.

e. To prevent cavities in our teeth, we should brush and floss regularly, drink lots of milk, eat a balanced diet and avoid sugary foods. We should visit the dentist regularly.

Unit 2

Chapter 4

Animal teeth



Objectives	By the end of the lesson, students should be able to: • differentiate between herbivores, carnivores and omnivores • recognize and understand the purpose of various teeth arrangement in animals based on their diet • understand that humans are omnivores • realize that birds have a sharp beak and no teeth
Vocabulary Bank	omnivores, carnivores, herbivores, beak, incisors, canines, premolar, molars, prey, meat eater, grinding, swallow, gulp

LESSON 1: 40 mins

5 mins	**Warm up:** Start the lesson by asking students to recall their previous knowledge about the types of human teeth. *How many types of teeth do we have?* Write their responses on the board that there are four types of teeth: incisors, canines, premolar and molars. Ask about the function of each type of tooth. Incisors help to cut food into *pieces. Canines are sharp and pointed. Premolars are chewing teeth. Molars are the grinding teeth.*
30 mins	**Main Lesson:** Elicit previous knowledge by asking questions. *What kind of food do you eat? Meat, vegetables, fruits, nuts, etc. What about birds? And goats?* Explain that we divide animals into three groups on the basis of food they eat. An animal's mouth and teeth help it to eat different kinds of food. Omnivores are animals that eat both plants and animals. Omnivores have sharp incisors for cutting food, canine teeth for slicing up meat, molars and premolars for grinding food to be swallowed easily, e.g. Humans, Bears, Chickens, Turtles, Chimpanzees

	Carnivores are animals which are only meat-eaters. They have sharp teeth in order to tear meat apart. They usually don't chew their food but swallow it wolf, tiger, shark, eagle, lion Herbivores are animals that are plant eaters. They have flat teeth. They need to chew a lot in order to break their food. Their flat teeth helps them to chew easily. e.g. cows and goats Birds have no teeth. They have a big pointed mouth called a beak. They use their sharp beak to tear and pick their prey to swallow easily. As you discuss, use the pictures in the book to show the arrangement of teeth in each type of animal. **Group Work** Take out printouts of images of animal skulls of different types of animals i.e. herbivores, carnivores, omnivores and birds in which teeth are also visible; enlarge and laminate them. Give one from each type of animal in each group. Ask students to identify the type of animals and which teeth they have to eat their food. Now show them a picture of a human skull. *Looking at the kind of teeth we have, are humans carnivores, herbivores, or omnivores? Humans are omnivores and we have a variety of teeth to help us eat tear meat and chew vegetables and grind the food properly.*
5 mins	**Recap:** Summarize the main points discussed. *Various animals have different diets. There are three main types of animals groups based on the type of food they eat. Herbivores are plant eaters, carnivores are meat eaters, and omnivores are both plant and meat eaters. Different arrangement of teeth helps them to eat their food easily.*

LESSON 2: 40 mins

5 mins	**Warm up:** To begin the lesson, tell the students that in last class we learned what about different types of teeth in different kinds of animals based on the food they eat. *Let's name them together and review the different teeth and which help animals to eat different kinds of food.* Incisors help to cut food into pieces for the omnivores. Canines are sharp and pointed for the carnivores to tear apart their prey. Premolars are chewing teeth for herbivores to chew their food.

30 mins	**Main Lesson:** Divide the class in groups of four. Prepare a handout having all the required information needed to complete the table on page 30 so that students can read and find the missing information. You can also provide the related resource books/ encyclopedia from the library instead. Encourage students to find the answers on their own by discussing in groups. You should facilitate or guide the students.
5 mins	**Recap:** Students will present their work in groups. Teacher will add the missing information if needed. Exercises 1, 2 and 3 on pages 31, 32 and 33 will be completed.
30 mins	**Evaluation:** Use the exercise given below or the worksheet **Animal Teeth** to evaluate the students. Answer the following questions: *Rabbit, cat, lion, dog, eagle, cow* 1. Identify plant eaters, meat eaters and both plant and meat eaters. 2. What will happen to the herbivores if there are no plants? Can they live on any other food source? 3. What will happen to the carnivores if there are no animals? Can they live on any other food source?

Answers

Exercise 1

a. Herbivores have big, strong incisors to cut through leaves and plants. They also have molars and premolars, which are strong with wide surfaces to crush and chew the plants.

b. Omnivores have a variety of teeth like incisors, canines, molars and premolars because they eat a variety of food.

c. Birds have no teeth because they don't chew their food, they swallow it. They pick at the food and use their sharp beaks to tear open their prey.

d. Teeth arrangement is different in animals because of the food they eat. Some animals are carnivores, others herbivores while some are omnivores.

e. Birds do not have teeth, they have sharp pointed beaks.

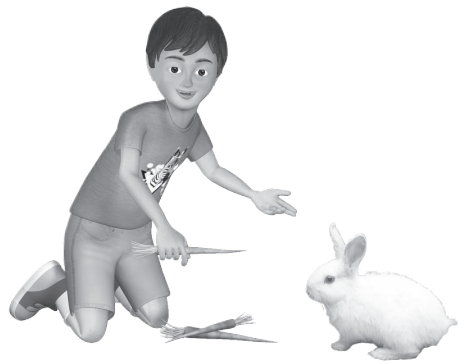
Exercise 3

	FOOD	PREY	HUNTER
1.	carrot	rabbit	tiger
2.	caterpillar	parrot	owl
3.	rice	mouse	cat
4.	prawms	fish	bear

Unit 3

Chapter 5

Plants for food



Objectives	By the end of the lesson, students should be able to: • recognize plants as the source of food for living things like humans and animals • identify edible and inedible plants for humans and animals • identify harmful and poisonous plants • recognize the uses and benefits of herbal plants for humans in our daily lives
Vocabulary Bank	producers, source, edible, inedible, seeds, buds, roots, stem, vegetable, fruits, benefits, harmful, poisonous, cure, illness
Resources	green plant in pot, flashcards of different plant parts/ vegetables

LESSON 1: 40 mins

5 mins	**Warm up:** Start the lesson by asking students about a meal they ate recently. Draw and label the meal on the board. Ask the children to identify which parts of the meal come from plants. Repeat this a couple of times to help children understand that all the food they eat can be traced back to a source. Plants are an important food source for living things in the world. There are some plants that can be only eaten by animals and some are eaten by both animals and plants. For example, grass is eaten by a horse and goat but not by humans. Carrots, beans and radishes are eaten by a rabbit. *Can you name some foods that come from plants?*
30 mins	**Main Lesson:** Show a plant to the children in the school garden and ask the children to name the main parts, e.g. leaf, flower, stem and root.

	Explain that we eat different parts of plants. Make it clear to the children that we do not eat all plants. Some plants are poisonous. Hold up several foods which come from plants or use pictures of plants and ask children to name them and say which part of the plant it is, e.g. broccoli,(flower), apple (fruit), lettuce (leaves), celery(stem), carrots (root). Explain that potatoes are tubers. Tubers grow off the roots of potato plants. In pairs, ask children to read pgs 35 and 36 respectively. Then swap the pairs and ask children to share their understanding as a jigsaw reading. Give the worksheet on this link to complete in pairs to evaluate their understanding: http://www.foodafactoflife.org.uk/attachments/80eefab6-3d26-4166eeb15302.pdf
5 mins	**Recap:** Summarize the main points discussed. *Plants are an important food source for living things in the world. There are some plants that can be only eaten by animals and some are eaten by both animals and plants.* *We eat different parts of plants like stem, root, fruit, flower, leaves.* *We do not eat all plants as some plants are poisonous.* **Homework:** Pg 38 and 39 can be set as homework after proper explanation.

LESSON 2: 40 mins

5 mins	**Warm up:** To begin the lesson, tell the students that in last class we learnt that plants are the largest (in number) of all living things in the world. *Let's name them together. Review with the students that different parts of the plants are edible like broccoli, (flower), apple (fruit), lettuce (leaves), celery (stem), carrots (root).*
30 mins	**Main Lesson:** Explain to the students that there are many benefits of plants, like they are a food source for living things, they make the environment clean and beautiful. *Can you name any other benefit?* Explain that many plants are useful as they are used to make medicine to make us healthy. These plants are called herbal plants. Exercises 2, 3 and 4 on pages 40 and 41 will be completed in class.

5 mins	**Recap:** Summarize the main points discussed. *There are many benefits of plants like they are a food source for living things, makes the environment clean and beautiful. Many plants are useful as they are used to make medicine to make us healthy. These plants are called as herbal plants.*
	Evaluation and Activity: The worksheet **Plants for Food** may be given to evaluate the students. http://www.teachthisworksheet.com/static_worksheets/index/801 The following exercise may also be given to evaluate the students: *Write any three benefits of plants.* Plants • are a food source for living things • make the environment clean and beautiful and • are used to make medicines.

Answers

Exercise 1

a. carrot b. sugarcane c. spinach d. peas e. cauliflower f. tomato

Exercise 2

a. false b. false c. false d. true e. true

Exercise 3

a. Plants produce both edible and inedible foods.

b. Different parts of plant can make food for example leaves, roots, stems, fruits, seeds and buds.

c. No, all plants don't produce food from all their parts.

d. Names of some edible stems are sugar cane, celery and asparagus.

e. No, all plant seed are not edible.

Exercise 4

1. c 2. b 3. a 4. a 5. b

Unit 3

Chapter 6

Helping plants grow well

Objectives	By the end of the lesson, students should be able to: • understand that a plant needs air, water and light to grow well • identify that a plant needs a healthy stem, roots and leaves to grow well • recognize that plants make food through a process called photosynthesis. • identify the functions of root, leaves, flower and stem
Vocabulary Bank	healthy, unhealthy, condition, temperature, photosynthesis, food factory, weak, pale, dry, nutrients, carbon dioxide, absorbed, transport, swamped, germination, ploughing, sowing, farmer, gardener
Resources	healthy plants in pots (enough to be shared in groups of three or four)

LESSON 1: 40 mins

5 mins	**Warm up:** Start the discussion by eliciting previous knowledge. *What do plants need to become strong and healthy?* Write their responses on the board. *Can they grow without these things? How do we know?* *Plants need proper amount of light air and water to grow well. If any of these things are not present their leaves becomes pale and dry and in the end they die. They also need nutrients to be strong. Just like humans, plants need air, light, food and water to survive.*
30 mins	**Main Lesson:** Take the students on a round in the school garden. Ask them to observe the plants and their conditions carefully. *What did you observe? Why are some leaves turning pale? Are most of the plants healthy or unhealthy? Who looks after them?* With a help of a gardener, arrange some seeds, pots, soil and water for children. Ask them to plant seeds in pairs and properly label them with their names and class and look after it each day by giving it right amount of water and sunlight. Ask them to put these pots wherever they feel it will grow in a healthy manner

	(under the Sun, under the shade, on the class window, in the class). Children can also take tips from the gardener. Let children explore themselves the best conditions for plant to grow well and which condition makes them healthy. Ask students to take two pots with fully grown and healthy plants and mark them as 'Pot A' and 'ot B'. Place one pot directly under the sunlight and place the other one in the shade covering it with a polythene bag or cloth so that it doesn't receive light and air. Water 'Pot A' daily and 'Pot B' just once a week. Observe the growth for the whole week.
5 mins	**Recap:** Summarize the main points discussed: *Plants need proper amount of light air and water to grow well. If any of these things are not present their leaves becomes pale and they die. They also need nutrients to be strong.*

LESSON 2: 40 mins

5 mins	**Warm up:** Start the lesson by taking children to the ground and asking each pair to comment on their plant. *Has it started growing? Has nothing grown?* Encourage children to come up with reasons. Introduce the word **photosynthesis** and explain that this is a process when plants make their own food through leaves. A plant needs proper amount of light, water and air. If it receives too much light , the plant will die, if it receives too much water, the seeds will become swamped and won't grow. If there is too much air, it will also not grow.
30 mins	**Main Lesson:** Show the following animation on 'Plant Growth' to the children and allow them to discuss in groups that what they have understood. http://www.thepotatostory.co.uk/default.aspx?section=lifecycles&subsection=plantgrowth34 After that, play an online quiz with the students to evaluate their understanding: http://www.thepotatostory.co.uk/default.aspx?section=growingplants In pairs, ask the children to read pages 42-43 and then discuss their understanding in groups. Exercise 1,page 48, questions a and b can be done in their notebooks.

5 mins	**Recap:** Summarize the main points discussed. Plants can grow under certain conditions. They need water, light, Sun and warmth. If a plant does not have these things slowly it will die. A healthy plant has green leaves and stands upright firmly. Photosynthesis is a process by which plants make their own food through leaves.

LESSON 3: 80 mins

5 mins	**Warm up:** Brainstorm by drawing a plant on a board then asking students that what the conditions that help plants to grow well are. Write the responses on the board. Ask students to label different parts of a plant: Root, leaves, stem and flower.
65 mins	**Main Lesson:** Place the two pots 'Pot A' and 'Pot B' on a table and ask students to observe and discuss their conditions in pairs. In groups, they will sit together and complete page 47 in their books. In pairs, ask students to study page 44 and 45 and identify parts of a plant and also their functions. Have a discussion with the whole class so that everybody is able to identify the parts. • Root – the root anchors the plant in the ground and takes in nutrients, usually from the soil. • Stem – the stem carries water and nutrients to different parts of the plant. • Leaf – the leaves use light from the Sun to make food for the plant. • Flower – the flower is brightly coloured to attract insects such as bees and butterflies. A plant needs healthy roots, leaves and stem to grow well. Exercise 1 question c, d and e and Exercise 2 will be completed.
5 mins	**Recap:** Summarize the main points discussed. The root, leaves and the stem help the plant with photosynthesis. The roots take in water and they need to spread out to get more nutrients from the soil. Water and nutrients are transported through the stem to other parts of the plant.

Evaluation and Activity:

The worksheet **Helping plants grow well** or the questions below can be given for evaluation.

Answer the following questions:

Q1. Which part of a plant holds it upright and moves it towards the light?

Q2. What is the name of the process by which a plant makes it own food?

Q3. Which THREE things do plants need to make food?

Answers

Exercise 1

a. Plants need warmth and nutrients together with light, water, air and soil to remain healthy.

b. Plants become unhealthy without water, air, light or soil without nutrients.

c. If a plant doesn't get enough light it cannot make food and will die.

d. If a plant doesn't get enough water it will become unhealthy, its leaves will lose colour and begin falling.

e. Plants make food for themselves through a special process called photosynthesis.

Exercise 2

a. light, air and water b. healthy c. dry up d. sunlight e. cold f. watered

Unit 4

Chapter 7

Choosing and using materials

Objectives	By the end of the lesson, students will be able to: • know that different materials have different properties • identify the uses of different materials • identify ways in which materials can be useful • use vocabulary to describe the properties of different materials • know about a particular property of a material through investigation
Vocabulary Bank	hard, soft, magnetic, smooth, rough, shiny, flexible, rigid, transparent, property, wooden, metal, affordable, bendable, stiff, weak, strong, non-magnetic, insulators, conductors, fabric
Resources	objects made from materials like wood (block) metal (spoon) glass (jam bottle) fabric (cloth), iron (nail) plastic (toy) etc; feely bag (not transparent), printouts of Material Tally Chart

LESSON 1: 40 mins

10 mins	**Warm up:** Elicit the prior knowledge of students about materials. A range of objects made of different materials like wood (duster), glass (drinking glass), plastic (pen casing), paper, fabric (cloth), iron (nail), steel (spoon), rubber (toy), clay (statue), magnet etc. are to be collected and displayed on the table. Ask students to identify their properties by asking questions e.g. *Which one is hard? What is the opposite of hard? Which of these have the same properties?*
65 mins	**Main Lesson:** **Group Work** Divide the class in groups of four and explain to the children that they are going to conduct a survey in the classroom/school and try to find out different materials used to make objects.

	Show them an enlarged example of 'Materials Tally Chart' worksheet. Tell the children that they must observe all of the objects carefully in the classroom/school and try to decide which materials they are made from. Hand out copies of 'Material Tally Chart' to each child. Ask them to identify on their chart the specific part of the object that is constructed from that material. The children will complete their survey and write the results in the given chart. They total the number of objects made from each material and write the number in the total column. **Circle Time** Bring the children together in a circle, sitting group wise, and discuss the results as a circle time session. Discuss the results with the children and ask them to identify reasons why one material appears to be used more than another. Base the discussion around the properties of each material. Why tables are made of wood? Why not from glass? What if the table has a rough surface? Why windows are made of transparent glass? Different materials have different properties. They are chosen on the basis of their properties. Explain that a table is made up of wood because it is hard and has a smooth surface. It is unbreakable but glass is breakable and can be harmful. An object may have 2 or more similar properties of the other material. In pairs, children will read and discuss pages 50 and 51. They will share their understanding as a whole class discussion.
5 mins	**Recap:** Summarize the main points discussed: *Different materials have different properties. They are chosen to make certain objects the basis of their properties. Comparisons can be made on the basis of their properties like of wood and glass. An object may have two or more similar properties as another material.*

LESSON 2: 40 mins

10 mins	**Warm Up:** Recall the previous lesson by asking questions like: what are the properties of wood, glass, paper, plastic (pointing out to the objects in the class made of these materials like table, window, clock glass, chair etc.)
30 mins	**Main Lesson:** Start the lesson by filling the bag with some objects made from different materials like wood (block) metal (spoon) glass (jam bottle) fabric (cloth), iron (nail) plastic (toy) etc. Ensure that the objects chosen do not have sharp edges and are not too fragile.

	Ask the children to sit in a circle. Tell them to take turns to put their hand inside the bag and describe the object to the other children. They must not take the object out of the bag at this stage. When they have finished their description, the other children must try to guess what material the object is made from. Write the describing words used on the board. After a few answers, introduce the children to the specific vocabulary e.g. **fragile, strong, hard, soft, rough, smooth, flexible, rigid** etc. Encourage the children to describe the objects in terms of these characteristics. Take the things out and relate with the responses. Introduce the words such as **conductors, insulators, magnetic** and **non-magnetic** materials and their properties. Explain that conductors allow heat to pass through them like iron, steel etc. Insulators do not allow heat to pass through them like plastic, wood etc. Magnetic materials are pulled by magnet like metal and non-magnetic materials like paper, plastic etc. are not pulled by magnets. Gather together and talk about how the objects were identified according to the properties of the materials used. Explain that the objects that can be made from more than one type of material - tables, chairs etc. Identify common properties needed in a material used for certain objects, e.g. a table will need to made from a material that is strong, durable and easy to clean. Discuss and read pages 53 and 54 with the students. With the help of the objects from the feely bag, complete pg 55 of the textbook of the activity Let's Find Out for Ourselves. Exercise 1 on page 56 and Exercise 4 on age 59 can be assigned as homework after proper explanation. Exercises 2 and 3 on page 57 can be completed in class.
5 mins	**Recap:** Review the main points of the lesson. *Different objects made of different materials can be used differently.* *We adapt and change materials to suit our needs.* *Materials that make an object are chosen according to the use of the object.* *Some properties of the materials are bendable, stiff, hard, soft, weak, strong, magnetic, non-magnetic, insulator and conductor.*

	Evaluation: The activity below or the worksheets **Choosing and Using Materials** can be given to evaluate the students. **What are these objects made up from and why? Complete the sentences.**
	1. Umbrella is made up of plastic because it is a non-absorbent material. 2. Table is made up of wood/plastic because it is hard and unbreakable. 3. Handle of the saucepan is made up of wood because it is a bad conductor of heat. 4. Electricians wear rubber gloves because rubber is a bad conductor of heat. 5. Keys are made up of metals because metal is strong and unbendable.

Answers

Exercise 1:

a. false b. true c. false d. true e. true

Exercise 2

a. Cardboard, glass bottles, cans, plastic toys can be re-used to make different objects.

b. Materials are chosen according to affordability, reliability, strength and liking to make a house.

c. Light bulbs should be made from materials such as glass because it is transparent and heat resistant, and metal because it is hard and good conductor of heat.

d. Magnetic materials are those that can be pulled by magnets like metals and non-magnetic materials are those which cannot be pulled by magnets, like plastic.

e. Materials which are strong are titanium; concrete and materials which are stiff are wood and glass.

Exercise 3

a. properties b. liked/afforded c. break d. non-magnetic e. wool, leather

Exercise 3

Across

1. steel
2. cotton
3. silk
4. plants
5. cap

Down

5. cement
6. glass
7. plastic
8. nylon

Exercise 4:

toaster - conductor

television - hard

toy - soft

chalk - weak

desk - non-magnetic

crane - strong

Chapter 8

Unit 4

Magnets

Objectives	By the end of the lesson, students should be able to: • become aware of different shapes of magnet • realize the strength of magnets • differentiate between magnetic and non-magnetic materials • recognize the forces in a magnet and its force field • identify the characteristics of the magnets • realize how magnets are useful in many ways
Vocabulary Bank	iron, steel, nickel, cobalt, neodymium, strength, magnetic, non-magnetic, attract, repel, stainless steel, metallic, non-metallic, aluminium, poles, north, south, force, compass, scrap yard, suspended
Resources	magnets of different shapes and sizes, paper clips, sheets/objects of cardboard, cloth, steel, iron, rubber, plastic, wood, paper and aluminium

LESSON 1: 40 mins

5 mins	**Warm up:** Introduce the word 'magnet' in the class. *What do we know about magnets?* Brainstorm by asking simple questions like: *What is a magnet? What shapes do magnets usually come in? What things are attracted to the magnets?* Write the responses on the board. *A magnet is made up of iron or steel. A magnet can pull or attract magnetic materials made up of iron or steel. Different shapes of magnets are flat bar magnet, round stick magnet, button magnet, u-shaped magnet, ball magnet, and ring magnet.*
30 mins	**Main Lesson:** Show different types of magnets to the students. Explain each magnet has different shapes and sizes depending on the use. Magnets also have different kinds of strengths.

	Divide the class in groups of four. Give each group a set of resources like a pencil, paper clip, rubber, nail, aluminium foil, pen, staples, rubber band, plastic box, paper, safety pin etc. and ask to identify magnetic and non-magnetic materials with magnets. *Which materials are attracted to magnets and why?* Iron and steel are magnetic materials. They can be attracted by magnets. Exercise 1, part a, b and c on page 66 can be done in the classroom.
5 mins	**Recap:** Summarize the main points discussed. *A magnet can be made of iron and steel. A magnet may vary in shape, size and strength. A magnet can pull or attract magnetic materials. Non-magnetic materials cannot be attracted by magnets.*

LESSON 2: 40 mins

5 mins	**Warm up:** To begin the lesson, tell the students that in last class we learned what are magnets and its types. *Let's name them together and review what a magnet is? How many types of magnets are there?* A magnet can be made of iron and steel. A magnet may vary in shape, size and strength. A magnet can pull or attract magnetic materials. Non-magnetic materials cannot be attracted by magnets.
30 mins	**Main Lesson:** Hold a magnet in your hand. Explain that all magnets have two ends called poles. They are called north pole and south pole. The strength of a magnet can mostly be felt at poles. Divide the class in groups of four. Give a magnet and some paper clips to each group. Ask the children to identify which part of the magnet is the most powerful. Keep the paper clips at a distance and try to attract it to the magnet. *Were they able to attract them? Why?* *The part of the magnet with the strongest pull or attraction is called pole. Magnets have a field around them where there force can be felt. We cannot see it but can see it effects on objects.* Now give each group a paper clip, a magnet and different sheets/objects of cardboard, cloth, steel, iron, rubber, plastic, wood, paper and aluminium. Put a

	paper on the sheet/over the materials and try to move the paper clip when the magnet is moved underneath the sheet. *Which materials allow magnetic attraction to pass through? Which do not?* Non-magnetic materials allow magnetic attraction to pass through them. They include paper and plastic. However, magnetic materials such as iron and steel do not. In groups, ask students to think-pair-share. *Look around you. Can you find any objects making use of magnets?* Take the responses and write them on the board e.g. magnets are used for closing the cupboards, pencil boxes, door-stoppers, hand bags etc. *There are three main uses of magnets:* *Holding things together* *Lifting and separating iron and steel objects* *Finding directions* Ask children to read pages 62, 63 and 64 in pairs, and relate to the experiments done above. Let's Find Out for Ourselves, Exercise 1 parts d and e and Exercise 2 can be completed in the class.
5 mins	**Recap:** Summarize the main points discussed: *The two ends of the magnets are called poles. A magnet has the greatest force at the poles. Unlike poles attract, like poles repel. The magnetic field of a magnet is the part around where its force can be felt. Magnets are very useful and can be used in variety of ways.*
	Evaluation and Activities: The exercise below or the worksheet **Magnets** may be given for evaluation. 1. Name any three uses of magnets. **Investigation 1** S N S N **Investigation 2** N S S N 2. Look at the two magnets in the pictures above. In each investigation, Jane starts to bring the two magnets together.

What will the magnets do?

Write **ATTRACT** or **REPEL** for each investigation below:

Investigation 1	Investigation 2
_____	_____

Answers

Exercise 1

a. A metal is an object that attracts metals such as iron and steel towards itself. A magnet will only attract magnetic materials and repel non-magnetic objects, which are usually non-metallic.

b. Magnetic materials are pulled by magnets, e.g. metals like iron, steel, cobalt, nickel.

c. Materials that are attracted by magnets are called magnetic materials such as iron and steel. The materials that are not attracted by magnets are called non-magnetic materials such as wood and plastic.

d. The magnetic field of a magnet is the part around a magnet where its force can be felt.

e. Similar (like) poles push each other away, whereas different (unlike) poles attract each other.

Unit 4

Chapter 9

Testing materials

Objectives	By the end of the lesson, students should be able to: • understand the importance of testing for the properties of the materials • investigate absorbency as one of the properties of materials • identify different ways of testing the properties of materials • identify some materials used in each test
Vocabulary Bank	materials, properties, absorbency, waterproof, strength, break, bend, scratches, breakages, dents, twist, protection, suitability, flexibility
Resources	droppers, plastic ruler, tissue paper, paper, sponge, cotton, towel, cloth, wooden ruler or pencil.

LESSON 1: 80 mins

10 mins	**Warm up:** Using page 68 and 69 lead the discussion regarding properties of materials as in Chapter 8 and brainstorm different properties using appropriate adjectives like: hard, shiny, soft, light, dark etc. Ask if some water spills on the table from a child's bottle, which property of the material will be best to clean it up? *Should it be soft cloth? Should it be a woollen cloth? Should it be a cotton cloth? Can paper be used? Why or why not?* Introduce the words '**absorbent**' and '**waterproof**'. Explain that to test the absorbency of liquids a material should be absorbent. *A material that absorbs liquid easily is an absorbent material like paper, cotton, towel and wool. A material that does not have any effect of liquids are waterproof materials such as rubber, plastic and glass.*
30 mins	**Main Lesson:** Divide the class in groups of four. Provide each group some water, a dropper, plastic ruler, tissue paper, paper, sponge, cotton, towel, cloth, wooden ruler or pencil. Ask children to identify which materials are absorbent and which are not. *Why we need to test for absorbency? Which kind of materials should be protected from water and why?*

	We need to test for absorbency to tell if a material is absorbent or waterproof. Materials that can absorb water should be protected from water because they can destroy that particular thing like cameras, watches etc. Exercise 1 part a and b on page 74 can be done in the class.
5 mins	**Recap:** Summarize the main points discussed. *The materials to be used for any object must first be tested. There are different ways of testing the properties of the materials. We need to test for absorbency to tell if a material is absorbent or waterproof.*

LESSON 2: 80 mins

10 mins	**Warm up:** Start the lesson and take the students to the resource room. Play this online testing of materials with them. First take the prediction of each material from the students then test it. Play the online quiz with them. http://www.bbc.co.uk/schools/scienceclips/ages/7_8/characteristics_materials.shtml
65 mins	**Main Lesson:** Make six groups of three students each. Group 1 and Group 4 will read and discuss testing for strength. Group 2 and Group 5 will read and discuss testing for shaping. Group 3 and 6 and will read and discuss testing for protection. Take one member from groups 1, 2m and 3 and form a new group. Do the same for the other two remaining members and form two new groups. Now repeat this for groups 4, 5, and 6 and form three new groups by taking a member from each group. Ask them to share their understanding. Now ask students why testing of materials is important, what will happen if we use a material to work with electricity without testing it first., *If a material is too hard to bend, twist or turn, can we still change its shape?* *Testing of material is important because it determines the suitability of use. If we will not test a material for working with electricity we can might hurt or harm our lives. If a material is too hard to bend, twist or turn, it's difficult to shape.* In groups ask students to think-pair-share and fill in the table on page 73. Students will share their responses.

5 mins	**Recap:** Summarize the main points discussed. *Testing of material is important because it determines the suitability of use. If we will not test a material for working with electricity we might hurt or harm ourselves. If a material is too hard to bend, twist or turn, it is difficult to shape.*
	Evaluation: Give the students the worksheet **Testing Materials** or the exercise below to evaluate them. 1. *Why cannot a towel be made up of plastic?* A towel must be absorbent to clear or mop up water as plastic isn't absorbent. 2. *Metal is used to make nails. Why?* Metal is used to make nails because metal is hard and it doesn't bend easily.

Answers

Exercise 1

a. Testing for properties of materials help us to determine if it is suitable for making an object.
b. The absorbency test tells us if a material is absorbent or waterproof.
c. The strength test tells us if a material can be scratched, dented or broken.
d. Materials can be shaped by bending, cutting or twisting.
e. The protection test tells us if a material allows heat or electricity to pass through or not.

Exercise 2

a. Insulators
b. Cracks
c. Wet
d. Liquids

Exercise 3

a. False
b. False
c. False
d. Yes
e. False

Unit 4

Chapter 10

Machines

Objectives	By the end of the chapter, students should be able to • identify machines and their purpose • recognize the different kinds of simple machines • understand the properties and working of simple machines • realize the usefulness of spring
Vocabulary Bank	force, cart, engine, machines, lever, inclined plane, pivot, screw, curves, wheel, axle, direction, pulley, flexible, wedge, edge, spring, bounce, stretched, squashed, absorbing, released
Resources	springs, elastic bands

LESSON 1: 40 mins

5 mins	**Warm up:** Write the word 'machine' on the board and ask students what they know about machines. *Machines make our work easier. Machines make our wok compete quickly. Without machines will we be able to do our work easily? Why?* Write the responses on the board.
30 mins	**Main Lesson:** Take the students on a school round and ask them to observe simple machines around them. Take the responses and ask what they observed. Door-stoppers, staplers, door handles, scissors and seesaws are all simple machines used in the school. With the help of pictures on pages 77 and 78 explain the six types of simple machines with examples to the students. Make them understand their application in daily life also. It is explained in detail in the book so use it as a resource. After the explanation, ask students to come up with more examples of machines and their application in our daily lives. Use these links as a resource:

	http://www.soundcityreading.com/rsstories5-4.pdf and http://prezi.com/fgftbadk1koc/simple-machines-and-how-we-use-it-in-our-daily-lives/ Ask students to make "A Big Book of Simple Machines" on a scrap book by pasting or drawing pictures of each simple machine and writing about them as homework or project work.
5 mins	**Recap:** Summarize the main points discussed. Machines make our work easy. Simple machines are the most basic machines. There are six types of simple machines: the lever, the inclined plane, the screw, the wheel and axle, the pulley and the wedge. Simple machines help us in our daily lives.

LESSON 2: 40 mins

5 mins	**Warm up:** To begin the lesson, tell the students that in last class we learned what are simple machines, its types and applications in daily life. *Let's name them together and review what a machine is. How many types of machines are there? Can you give examples how each machine helps us to make our work easier and quicker?*
30 mins	**Main Lesson:** Show a spring to the student and tell them that it is also a kind of machine; they only bounce when they carry some force by push or pull. Provide an elastic band and spring to the students and, in pairs, ask students to read pg 79 and then discuss in groups. Ask students how springs work and how they are useful for us. *Springs work by absorbing the force applied on it. A spring can be attached to other objects to make them work. Elastic bands also behave like a spring as they are springy and 'bounce' back. Springs help in holding things together, pushing objects apart, stopping things from touching and making things move.*

5 mins	**Recap:** A spring is also a type of machine. Springs bounce only when they carry some force by push or pull. Elastic bands also behave like springs.
	Evaluation: The worksheet **Machines** may be given for evaluation.

Answers

Exercise 1

a False

b True

c True

d False

e True

Exercise 2

1. b
2. c
3. c
4. a
5. a
6. a

Unit 5

Chapter 11

Rocks

Objectives	By the end of the lesson, students should be able to: • identify different types of rocks • observe different kinds of rocks • use appropriate words to describe a simple rock • identify the different shapes, sizes and features of rocks • recognize the various uses of different kinds of rocks • realize that rocks erode
Vocabulary Bank	drilled, digging machines, boulders, round, oval, pointy, texture, patterns, particles, crystals, layers, minerals, igneous, metamorphic, sedimentary, magma, solidify
Resources	a variety of rocks, sandpaper, droppers

LESSON 1: 40 mins

5 mins	**Warm up:** Start the lesson by making a K-W-L (What you **Know**, What you **Want** to know, What you have **Learned**). sheet on 'Rocks' by using a big chart pasted on the board. Take the responses and fill in the column for K and W. Ask questions like what they already know about are rocks, where they are used, how they look, what they want to learn about rocks. Leave L column for the end of the chapter. Keep the chart safe.
30 mins	**Main Lesson:** Explain to the students that there are three main types of rocks. 1. Igneous Rocks 2. Metamorphic Rocks 3. Sedimentary Rocks

*These rocks are produced over millions of years by a process known as **rock cycle.** Igneous Rocks are formed when **magma erupts** from the Earth's surface in the form of **lava** and cools. Over time, these igneous rocks are **worn** by the process of **weathering** and **erosion**. Small fragments of shells, stones and pebbles for years **sediments** on the igneous rocks to form **sedimentary Rocks**. If these igneous rocks go again deep down in the Earth's surface, **metamorphic rocks** are formed.*

Type of rock	Appearance	Examples
Igneous	Hard, contain crystals of different minerals	Granite, basalt
Sedimentary	Formed in layers, tends to be crumbly, fossils are common	Lime stone, sandstone
Metamorphic	Crystals often distorted	Marble, slate

Divide the class into groups of four. Provide students with some samples of rocks and ask them to observe them closely with a hand lens. Observe their texture and their size. Ask students to share and present their observation in groups.

5 mins

Recap:
Summarize the main points discussed.

Rocks make up the surface of our planet Earth. Rocks can be collected, dug out or drilled from the Earth's surface. We can find rocks of different shapes and sizes. Rocks can be of different colours and textures depending upon on where they are found on the Earth's surface. There are three main kinds of rocks: igneous , sedimentary and metamorphic rocks.

LESSON 2: 80 mins

5 mins

Warm up:
Recall the previous lesson by asking questions like: *What are rocks? How many types of rocks are there? What is rock cycle? What are the uses of rocks in our daily lives.*

65 mins

Main Lesson:
Explain to the students that a rock can be hard or soft. Discuss different features of rocks and their uses with reference to page 86. Explain that for choosing a rock for a building/fountain/statue, it first undergoes several tests like absorbency and hardness.

	Divide the class in groups of four. Give samples of rocks labeled as Rock 1, Rock 2, Rock 3 and Rock 4. Give each group a piece of sand paper and a water dropper. Rub the sand paper on the rock to check for hardness and drop water on the rock to check for absorbency. If a rock is hard enough that on rubbing no particles come off and/or it doesn't wear off; and if it stays intact when it absorbs water, it means it is the best rock to make a building/structure . Ask students to share their observations. Let's Find Out for Ourselves, and Exercises 1 and 2 on page 74 are to be completed in class.
10 mins	**Recap:** Summarize the main points discussed. Rocks are hard as well as soft, some our rough and some are smooth. Many rocks are also a mixture of many types of rocks. Different rocks have special qualities that make them useful for specific purposes. Rocks wear down due to the effects of the weather, water and ice.
	Evaluation: The worksheet **Rocks** may be given for evaluation.

Answers

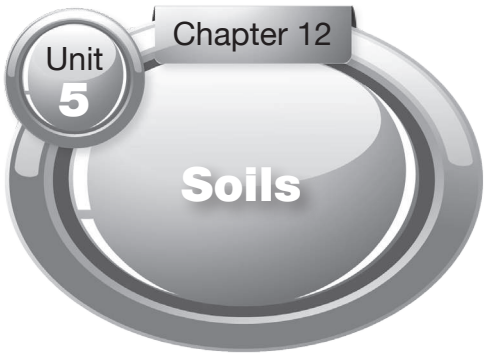
Exercise – 2

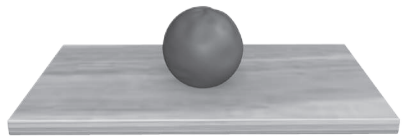
a. Limestone, sandstone, coal, marble

b. Sandstone, marble, limestone (answers will vary)

c. Rocks wear down due to the effects of the weather, water and ice. This wearing down of rocks is known as erosion.

d. Sandstone, marble, limestone (answers will vary)





Objectives	• observe and identify different kinds of soils • use appropriate words to describe different samples of soil • understand that different kind of soils have different properties • realize the different layers of soils • identify the type of soil that is good for plants • compare the permeability of different types of soils through an activity
Vocabulary Bank	flourish, constructing, raw material, bricks, cement, loam, sand, clay, retains, absorbed, ingredients, humus, peat, texture
Resources	samples of different types of soil, magnifying glass, clear plastic bags, filter paper, funnel, beakers

LESSON 1: 80 mins

5 mins	**Warm up:** Start the lesson by making a K-W-L sheet on 'Soils' on the board. Ask questions like: *What is soil made of? How is it made? How is it useful?* Write the responses. Explain to the students that soil is a mixture of many things. It is made up of rock material that has been broken down over time into tiny particles by wind and rain. Soil also contains a variety of materials including minerals, and dead plant and animal material. It is useful in many ways. It helps to grow plants, it removes many particles from the flowing river, it is used in making cement and bricks.
30 mins	**Main Lesson:** Divide the class in groups of four. Provide them with different samples of soil in a clear bag and a magnifying glass/hand lens. Ask them to observe the samples carefully and fill in the table.

Sr. No	Sample of soil	Observations (colour, texture, moisture content)
1.		

Ask students to read pg. 93 in groups and identify the type of soil after matching its properties from their observations. *Which type of soil is best to grow plants? How can you say that?*

Loam is the best to grow plants because it's a mixture of clay and sand. It contains air, water and humus.

5 mins

Recap:
Summarize the main points discussed.

Soil is the thin, outermost layer of the ground. Soil is used in construction activities and in filtering water, besides growing plants. Soil provides important nutrients for the growth of plants. Soil is a mixture of many things like rock particles of different sizes, and remains of dead animals and plants.

LESSON 2: 40 mins

5 mins

Warm up:
Recall the previous lesson by asking questions like: *What is soil? How many types of soils are there? What are the uses of soil?*

30 mins

Main Lesson:
Discuss and read page 94 in the text book. Explain different layers of soil to the students. Divide the class in groups of four. Provide soil samples (sand, clay and humus), funnel, filter paper and a beaker to the students. Explain to the students that they will perform an activity to differentiate between each of the given samples of soil. Investigate which soil is best for plants.

Carry out the investigation and answer the questions on page 95.

Loam is the best type of soil for plants because it has large air content, humus and water can easily pass through them.

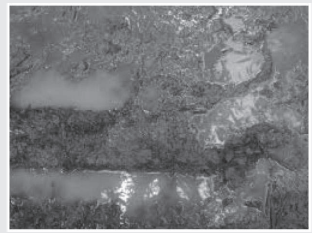
5 mins

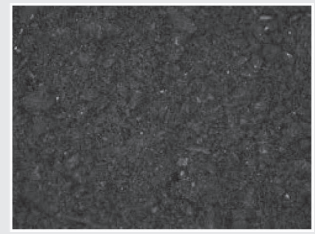
Recap:
Review the lesson.
Soils are made up of different layers such as topsoil, subsoil, parent rock or bedrock. The kinds of soil differ from place to place on Earth. Three basic kinds of soils according to the size of rock particles are sand, loam and clay. Plants grow very well in loam soil as it is nutrient-rich. Soils can be identified by their texture and their ability to hold water.

Evaluation:
Evaluate the students by giving the exercise below or the worksheet **Soil.**

1. Radish is grown in three different areas. Rocky area (a), puddles (b), soil (c).


a


b


c

Radish grew best in 'c' than in 'a' and 'b'. Why? Give three reasons.

Answers

Exercise 1

a. The top part of a soil is different from the bottom because it contains mostly dead plants and animal matter.

b. Yes, the colour changes along the surface of the different soils.

c. The soil that is a mixture of clay, sand and humus is called loam. It is best kind of nutrient rich soil to grow plants.

d. Soils can be identified by their texture and ability to hold water.

e. Peat is also a nutrient rich soil, but it does not contain any rock particles.

Exercise 2

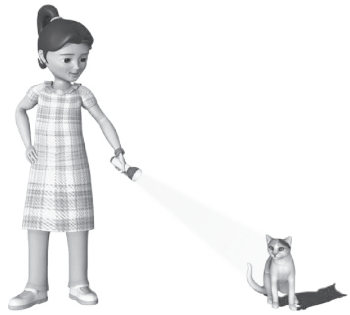
a. cleans b. plant roots c. dead animals, dead plants and rocks

d. humus e. peat f. top soil g. loam h. particles

Unit 6

Chapter 13

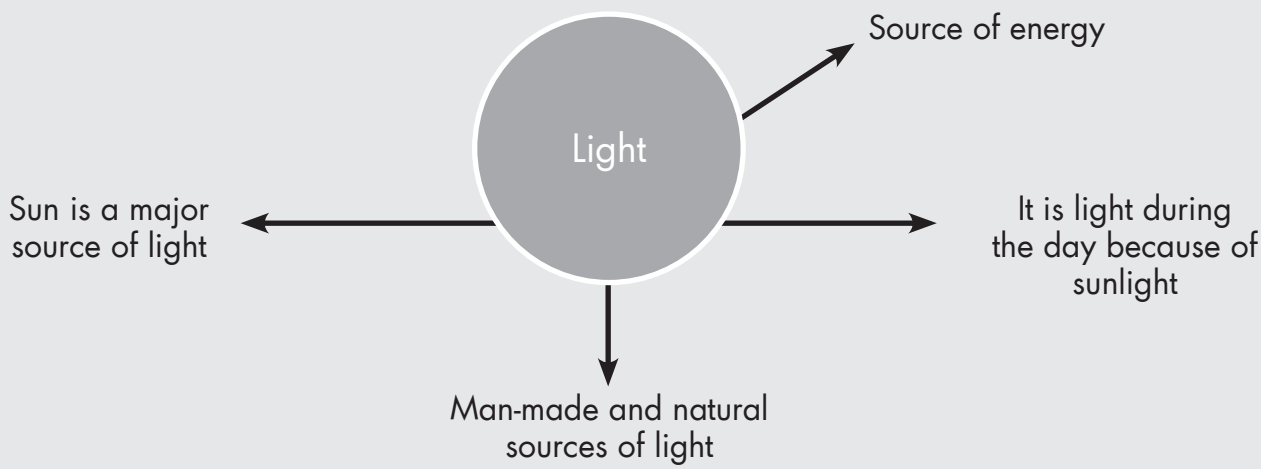
Light and Shadows



Objectives	By the end of the lesson, students should be able to: • understand the reflection of light • recognize the way light travels • realize the way light makes shadows • realize the way light interacts with objects around it
Vocabulary Bank	strikes, bounces, smooth, directions, reflected, shiny, rough, shadow, translucent, transparent, opaque, light, sources, bulb, candle
Resources	a wooden board, plastic sheet, tissue paper, frosted plastic, piece of cloth, piece of metal and torch

LESSON 1: 80 mins

5 mins	**Warm up:** Start the lesson by recalling their prior knowledge about light, by making a concept map on the board. Ask questions like: *Is it always light during the day? Why? Is it ever light at night?*



65 mins	**Main Lesson:** Take the students to the resource room and show the following video: http://vimeo.com/4889738 Now in pairs, ask them to read page 99 and 100. Take the students in a dark room. In groups of four provide them with few things like a wooden board, plastic sheet, tissue paper, frosted plastic, piece of cloth, piece of metal and torch. Ask them to investigate which materials allow light to pass through them and which do not. Also investigate which materials have shiny, translucent and opaque surfaces. Explain that light travels in straight lines. Transparent materials allow light to pass, translucent materials allows some light to pass and opaque materials do not allow light to pass, while shiny surfaces reflect light. Exercise 1 part a, b and c on page 104 and Let's Find Out for Ourselves on page 102 can be done in class.
5 mins	**Recap:** Summarize the main points discussed. We need light to see things. To see an object, light must enter our eyes after being reflected off that object. The light hitting off the surface doesn't always reflect. Some of the light may be absorbed by the surface and some may pass through it. Light travels in straight lines. When light is reflected by a surface it changes its direction.

LESSON 2: 40 mins

5 mins	**Warm up:** Review the key points discussed in the previous lesson. *Name some sources of light. What is the main source of light? How does light help us? In which direction does light travel?*
30 mins	**Main Lesson:** Revise the concepts of shadows with the students. Ask questions e.g. *Which material forms a shadow? Why are shadows formed?* Divide the class in groups of four. Give three kinds of materials (transparent, translucent and opaque) and a torch to students, take them in a dark room and ask to investigate which material forms a shadow. Exercise 1 part d and e, Exercise 2 and Exercise 3 to be completed in the classroom.

5 mins

Recap:
Summarize the main points discussed:

Shadows are formed when light from a source of light is blocked by an object. Opaque objects create dark, sharp and clear shadow because they block the light well. Translucent objects create soft shadows because they block some light and let some light through. Transparent objects cannot cast a shadow because they do not block light.

Evaluation and Activity:

Circle the artificial light sources in the pictures given below:

The worksheet **Light and Shadows** may also be given.

Answers

Exercise 1

a. Light travels in straight lines.

b. A light ray is a very thin beam of light that moves in straight direction from the source.

c. Light reflects off straight back as it hits a smooth and shiny surface like a mirror whereas life is not reflected well by dull, rough and dark surfaces.

d. Reflection is when light bounces off an object.

e. Shadows are formed when light from a source is blocked by an object.

Exercise 2

a. reflected b. the source c. our eyes d. block e. dark, sharp and clear

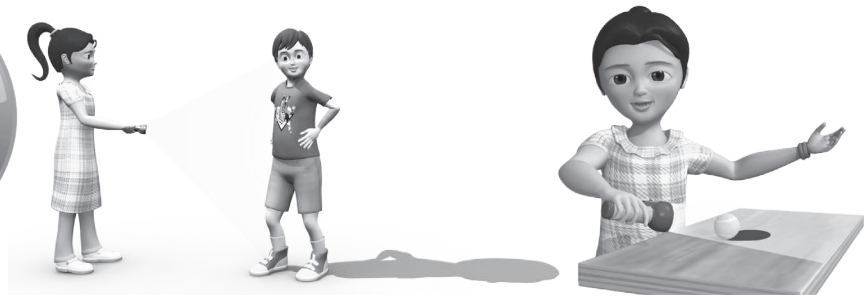
Exercise 3

a. true b. false c. true d. false e. true f. false g. true

Unit 6

Chapter 14

Shifting shadows



Objectives	By the end of the lesson, students should be able to: • understand the presence of sunlight as a source of natural light that changes position • recognize the formation of shadows through the course of a day under the sunlight • realize how shadows can be made in different shapes and sizes • recognize the sundial as an invention used to tell time using sunlight
Vocabulary Bank	strikes, bounces, smooth, directions, reflected, shiny, rough, shadow, translucent, transparent, opaque, sundial
Resources	lamp or torch

LESSON 1: 40 mins

5 mins	**Warm up:** Revise the concepts of shadows with the students. Ask relevant questions: *What type of material forms a shadow? Why are shadows formed? What is the position of the source of light with respect to the shadow?*
30 mins	**Main Lesson:** Explain to the students that a shadow depends on the positioning of the light source. A shadow always forms on the opposite side of the light source. Take the students to a dark room to observe what is happening when the light source is moved away and brought near the object. Exercise 1 on page 110 can be done in class.
5 mins	**Recap:** Review the main points discussed in the lesson. Shadows are cast by different objects on the ground are joined to the object. Shadows maybe formed behind, beside or in front of the object. The position of

	the shadow depends on the light source. When light falls on one side of the object, the shadow is formed on the other side, when light falls behind the object, the shadow is in front of the object and when the light falls from the front, the shadow is formed behind the object.

LESSON 2: 40 mins

5 mins	**Warm up:** Recall the previous lesson by asking questions like: *What are shadows? How does the rising of the Sun affect the size of the shadows?*
30 mins	**Main Lesson:** The students will read page 108 in pairs. Explain that a sundial is a simple device to tell the time by the position of the Sun. With the help of an art teacher if possible, ask them to make their own sundials out of clay. They will dry them under the Sun and try reading out time.
5 mins	**Recap:** Review the main points discussed. *In sunlight, shadow change in size and position through the course of the day. In the morning and the evening when the Sun rises, shadows are long. At mid-day when the Sun is directly on top of us, shadows are the smallest. A sundial is a simple device to tell the time by the position of the Sun.*
	Evaluation: The worksheet **Shifting Shadows** may be given for evaluation.

Answers

Exercise 1

1. a 2. b 3. a 4. b 5. b

Exercise 2

a. The shadow is on your left side.

b. When the Sun is directly above the object, its shadow becomes short.

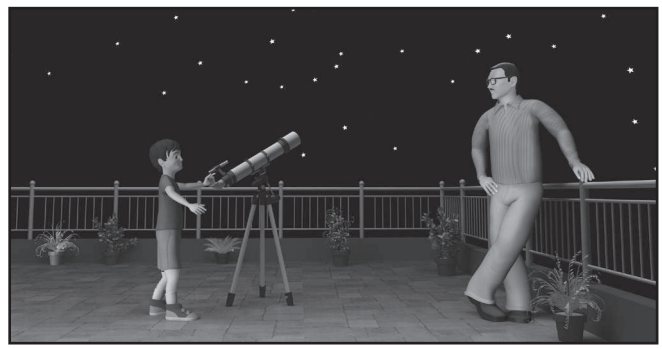
c. The Sun seems to move across the sky throughout the day because of the change we observe in the position and shape of our shadow. However, it is actually due to the rotation of the Earth.

d. The Sun doesn't have a shadow because it's the biggest light source in the universe.

Unit 7

Chapter 15

The stars up high



Objectives	By the end of the lesson, students should be able to: • realize that the Sun is a giant star and the main source of heat and light • define planet as an object revolving around the Sun. • understand that all planets revolve around the Sun • understand that the solar system consists of 8 planets • recognize that Earth has two ideal conditions for living things to survive: water and air
Vocabulary Bank	giant, explosions, dangerous, solar flare, protection, spins, orbit, million, planet, revolving, crashes, comet, solar scientist

LESSON 1: 40 mins

10 mins	**Warm up:** Start the lesson by giving and introduction to the students about the solar system through this video. http://www.godtube.com/watch/?v=WLYZKPNX
25 mins	**Main Lesson:** Introduce the lesson by telling the students that a solar scientist is a person who studies about the Sun. In pairs, ask students to read pages 112 and 113. They will share their understanding in groups by comparing what they have watched and read. Ask questions like: *What is a star? What is the Sun? What kind of energy does the Sun give off?* Ask students to write three things they have learnt about the solar system in groups or individually in their copies.
5 mins	**Recap:** Review the main points of the lesson. *The Sun is the largest body of the Solar System. It is a huge star. We get heat and light from the Sun. The Sun is 140 million kilometres away from the Earth. The temperature of*

	the surface of the Sun is about 5000 degrees centigrade. The surface of the Sun is made up of very hot gases and boiling liquid. The Sun produces heat and light by explosions known as solar flares. The Sun is the centre of the Solar System.

LESSON 2: 40 mins

5 mins	**Warm up:** Recall the previous lesson by asking questions like: *What is a solar system? What are the objects that make up the solar system? We know that Sun is a star. Why it doesn't look like the other stars?* The Solar System is the collection of 8 planets and their moons in orbits round the Sun. There are other bodies, too in the solar system like stars, comets, and meteors. The Sun is a star it doesn't look like the other stars because it is the closest star to Earth and it looks much larger.
30 mins	**Main Lesson:** Show this clip to the students for a clear and detailed understanding about planets. http://www.videojug.com/film/the-planets-explained Alternatively you can also use this handout to teach about planets. https://www.aiaa.org/uploadedFiles/Education_and_Careers/STEM_K-12_Outreach/Kids_Place/Solar_System_and_Planets_Activities/Our%20Solar%20System%20-%20grades%20K-3[1].pdf Explain to the students that 8 planets revolve around the Sun. *Each planet follows its own special path around the Sun. This path is called an orbit.* There are eight planets in order from the Sun: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune *There is an interesting way to remember the names of the planets:* ***M**y **V**ery **E**ducated **M**other **J**ust **S**erved **U**s **N**aans.* Make a 3D mobile of solar system by using different size balls, a hanger and labelled tags for each planet. You can take help from the following link: http://www.enchantedlearning.com/crafts/astronomy/solarsystemmodel/ Help them complete Let's Find Out for Ourselves. The following link is also full of useful activities: http://www.enchantedlearning.com/subjects/astronomy/planets/index.shtml Exercise 1 and 2 on pages 116 and 117 should be completed.

5 mins	**Recap:** Summarize the main points discussed. *There are planets, Moon and other objects in our solar system. Each planet has its own separate orbit. There are 8 planets. Planets revolve round the Sun.*
	Evaluation and Activity: The questions below or the worksheet **The Stars Up High** may be given for evaluation *What gas is the Sun made up of ?* Hydrogen *What are solar flares?* Huge explosions of hot gases in the Sun are called solar flares

Answers

Exercise 1

a. 24 hours 37 minutes b. higher c. smaller d. 166 e. 210 degrees centigrade

Exercise 2

a. There are 8 planets in our solar system.

b. Moon is the natural satellite of Earth.

c. A planet is a body that revolves around a star, especially the Sun.

d. The distance of Earth from the Sun is 149,600,000 Km

e. Earth is the only planet which has liquid water, air and a moon which makes it a suitable place for the growth of life. Other planets have dry land, frozen ice, or gas. There is no water or air for living things to grow and survive in.

Unit 7

Chapter 16

The atmosphere

Objectives	• identify the surrounding atmosphere • identify the components that make up the air • differentiate between different types of air
Vocabulary Bank	atmosphere, meteor, northern lights, protects, breathe, snowflakes, giant, explosions spins, orbit, million, planet, revolving, comet

LESSON 1: 40 mins

5 mins	**Warm up:** Link the discussion with the previous chapter 'The Stars Up High'. Ask questions like: *What is the solar system? What makes up a solar system?*
30 mins	**Main Lesson:** Explain to the students that atmosphere of Earth is the layer of gases surrounding the planet Earth. There are many advantages of this layer. It absorbs harmful rays from the Sun, reducing temperature extremes, and it works through the greenhouse effect. Atmospheric gas use for breathing is called air. Components of air are 78.09% nitrogen, 20.95% oxygen, 0.93% argon, 0.039% carbon dioxide, and small amounts of other gases. Air also contains a variable amount of water vapour. In pairs read pages 118 and 119. Share your understanding in groups. Divide the class in groups of four. Complete Let's Find Out for Ourselves on page 121, or depending upon the availability of gases, a whole class demonstration may be done.
5 mins	**Recap:** Summarize the lesson. *The air we feel and breathe is only present in a certain quantity on the surface of the Earth. The atmosphere is made up of different gases. Other than gases, the air contains dust, smoke, water vapour and ice.*

LESSON 2: 40 mins

5 mins	**Warm up:** Recall the previous lesson by asking questions like: *What is air? What are the components that make up the air? Why is atmospheric air important?*
30 mins	**Main Lesson:** In pairs ask students to read page 120. Students will share their understanding in groups. Take the students outside for a walk. Ask them to close their eyes and feel the air around them. In the class take the feedback how they felt and write the responses on the board. Explain to the students that gentle wind is cool and nice called wind. Very fast blowing wind is called gale. Air can be hot and cold. Warm air always rises and cool air settles down. Exercises 1 and 2 on pages 122 and 123 should be completed in the class.
5 mins	**Recap:** Review the main points. *What is a breeze?* A breeze is a nice and cool blowing air. *A gale*? It's is fast moving and harmful air. *Air can be hot and cold. Warm air always rises and cool air settles down.*
	Evaluation: The following short exercise or the worksheet **The Atmosphere** may be given for evaluation. 1. What is the composition of the air? 2. Write any two benefits of air around us?

Answers

Exercise 1:
1. Space 2. Breeze 3. Dirty air 4. Water vapours 5. Hot air

Exercise 2

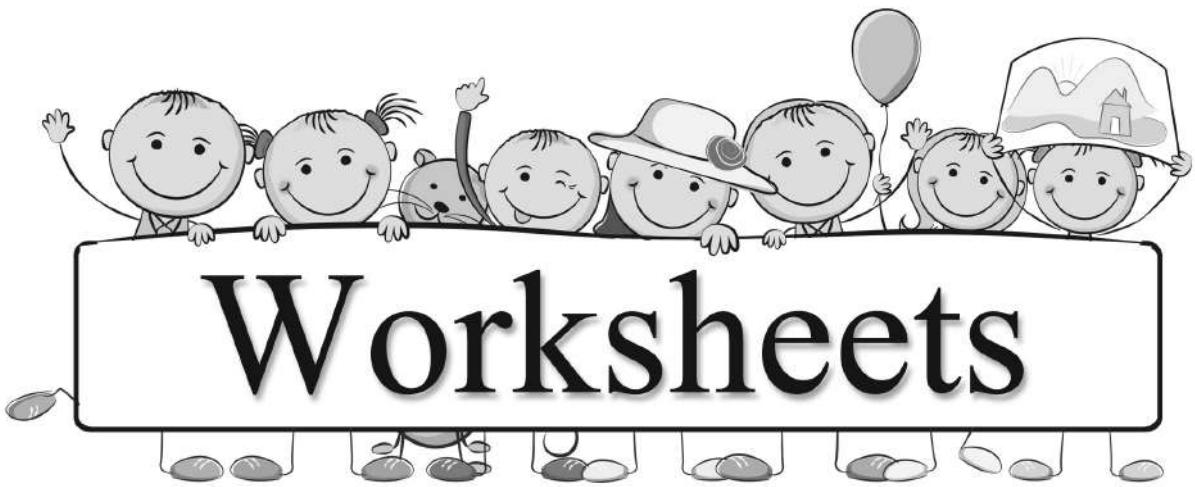
a. When air becomes hot it rises. It causes the atmosphere to become warm.

b. Cold air always comes back down towards the surface.

c. Atmosphere is the Earth's layer of gases surrounding the planet Earth.

d. Fast blowing air is called a gale. It harms the objects.

e. The smoke in the air makes the air dirty that causes various illnesses.


Worksheets

Chapter 1

Unit 1

The human senses

Name: _____

Class: _____

Date: _____

Look at the pictures below. Write the sense you would use for each in the blank space (e.g. sight, touch, smell, taste, hearing).

_____

_____

_____

_____

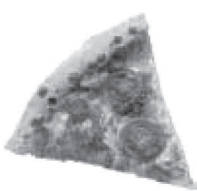
_____

_____

_____

_____

_____



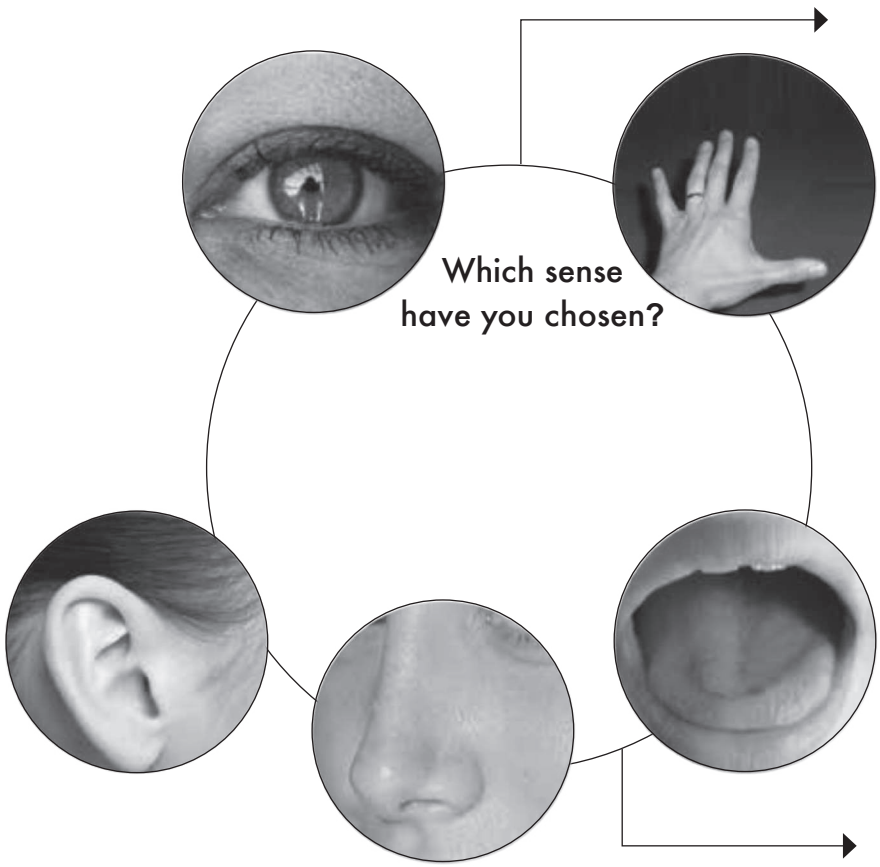
_____

Name: _____

Class: _____

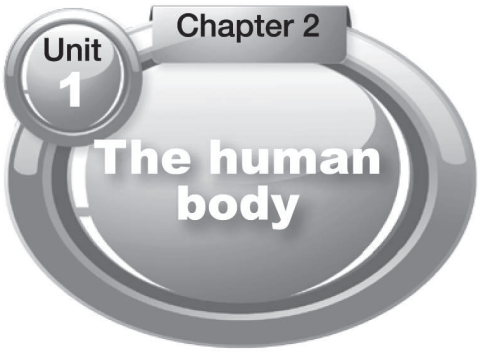
Date: _____

Choose and circle one sense from those given below and complete the information in the boxes.



Things I have chosen to describe using this sense.

What does it look smell/taste/ feel/sound like?



Name: _____

Class: _____

Date: _____

I. Choose the best answer:

1. How many bones are there in the human body?
   a. 500 b. 206 c. 300

2. What protects the heart and lungs?
   a. Skull b. Ribs c. Backbone

3. Bones are made of…
   a. Calcium, protein and minerals
   b. Sugar, blood, minerals
   c. Protein, carbohydrates, salt

4. As you grow, your skeleton…
   a. Grows b. Stays the same size c. Gets smaller

5. How many muscles are there in the body?
   a. 500 b. Over 600 c. Under 120

6. We have muscles to help our bodies
   a. Slide b. Move c. Walk

II. Write any two functions of a skeleton.

1. _____

2. _____

III. Write any two functions of muscles.

1. _____

2. _____

Unit 1

Chapter 3

Our teeth

Name: _____

Class: _____

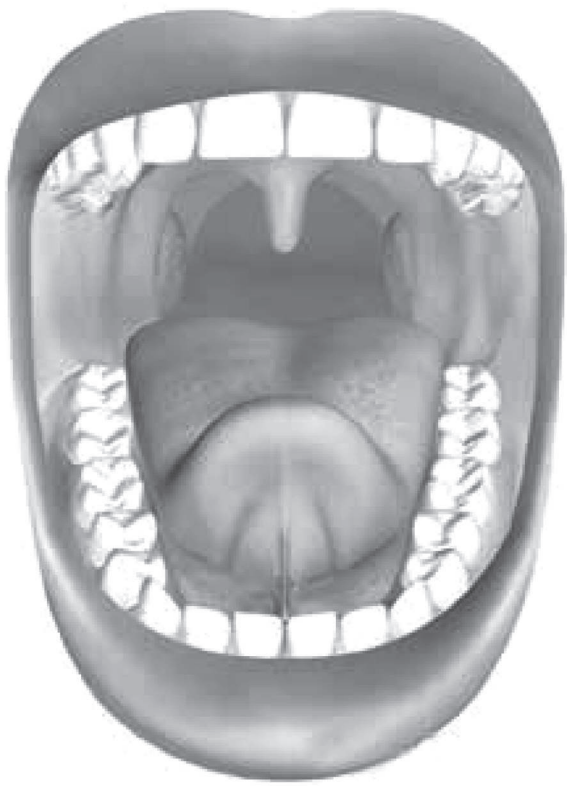
Date: _____

1. **Draw lines from the labels to the correct teeth in the picture below.**
2. **Imagine that this is your mouth.**
   Colour your milk teeth green and mark with an M.
   Colour your permenant teeth blue and mark with a P.
   Colour your missing teeth brown and mark with an X.

Incisor tooth

Canine tooth

Molar tooth



Name: _____

Class: _____

Date: _____

Identify the function of the different types of teeth. Also write how many of each an adult human has.

1. **Incisor:**

   Total Number:_____

   Where is it found? _____

   What is its shape? _____

   Function: _____

2. **Canines:**

   Total Number: _____

   Where is it found? _____

   What is its shape? _____

   Function: _____

3. **Premolars:**

   Total Number: _____

   Where is it found? _____

   What is its shape? _____

   Function: _____

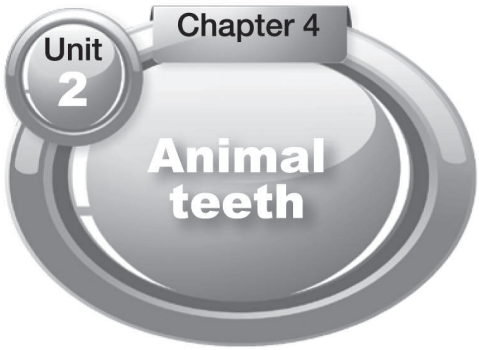
4. **Molars:**

   Total Number: _____

   Where is it found? _____

   What is its shape? _____

   Function: _____



Name: _____

Class: _____

Date: _____

Fill in the blanks with the correct answer.

1. Omnivores are animals that eat _____

   Herbivores are animals that eat _____

   Carnivores are animals that eat _____

2. Write O if the animal is an omnivore, H if herbivore and C if carnivore.

_____ tiger	_____ rhinoceros
_____ bats	_____ snakes
_____ mice	_____ rabbits
_____ eagle	_____ crocodiles
_____ caterpillar	_____ bears
_____ chicken	_____ baboon
_____ elephant	_____ frog
_____ horse	_____ dog
_____ parrots	

3. Teeth of a carnivore and its particular use.

   _____

   Teeth of an omnivore and its particular use.

   _____

   Teeth of a herbivore and its particular use.

   _____

4. How are animals useful to us? Give 2 examples.

   _____

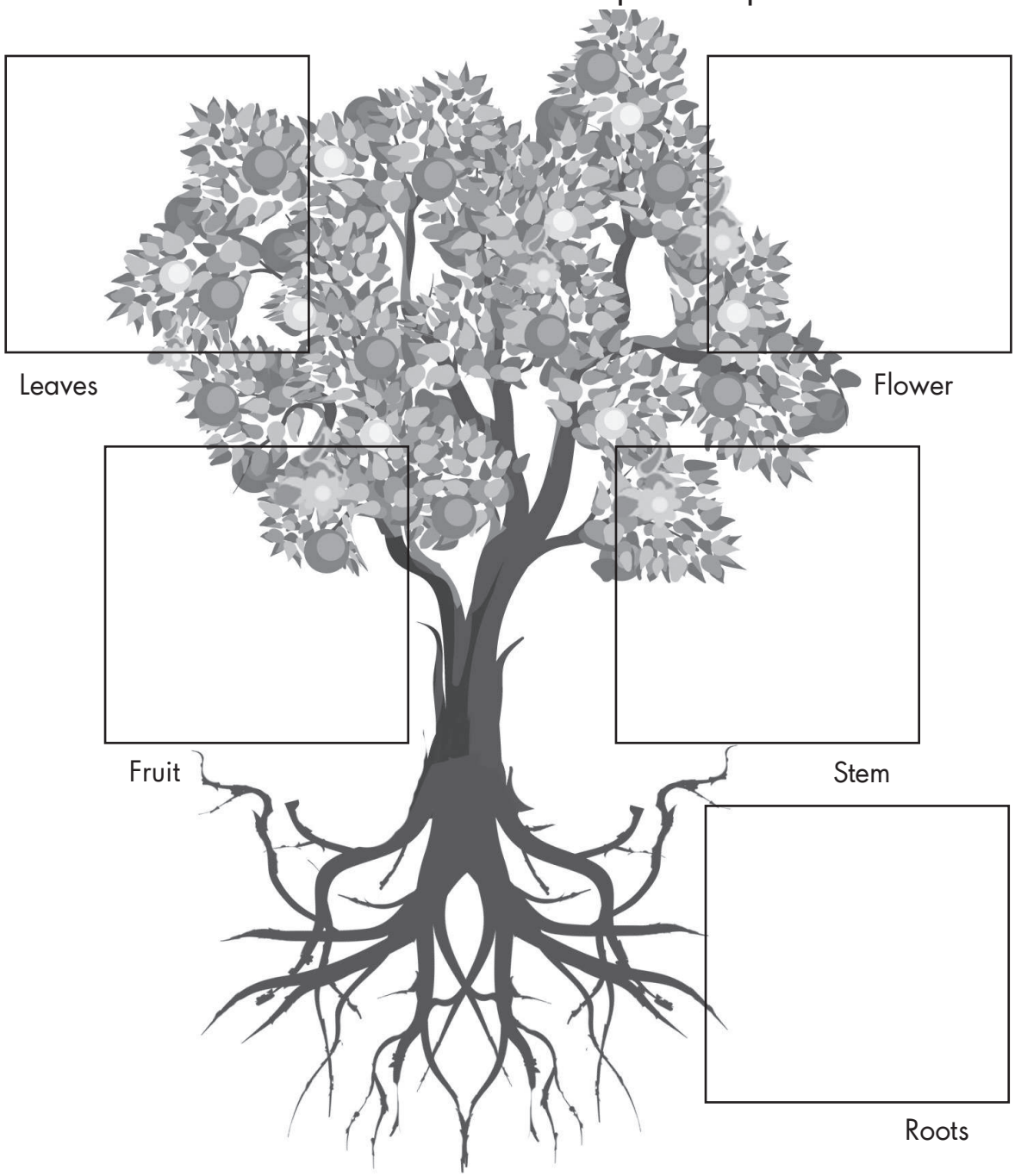
   _____

Name: _____

Class: _____

Date: _____

Draw one food we eat from each of the different parts of a plant.

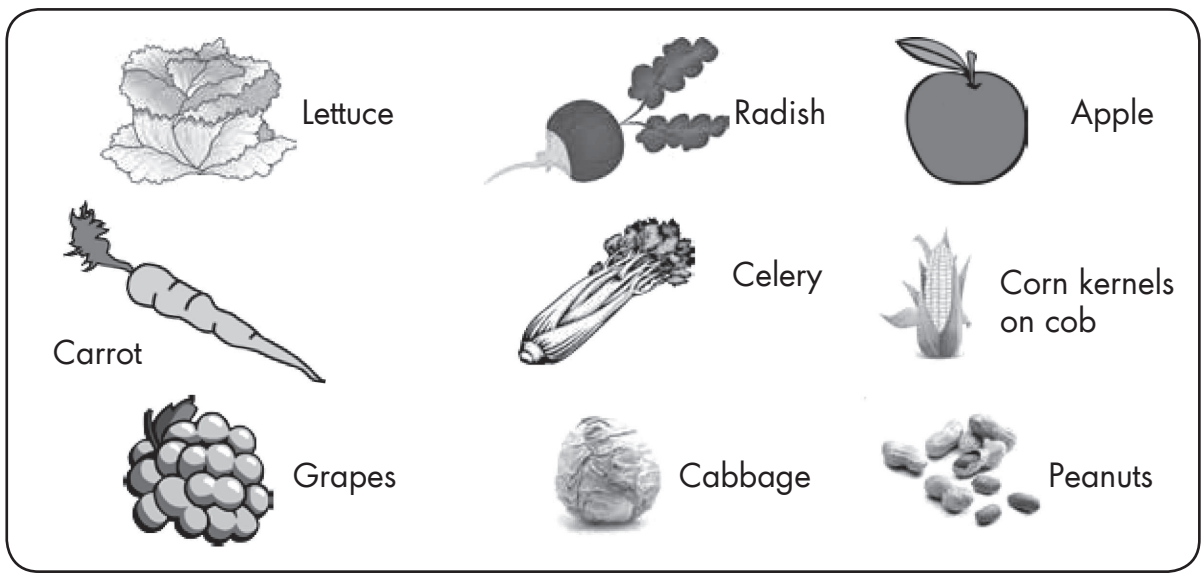


Name: _____

Class: _____

Date: _____

Place each food correctly in the chart below.



Edible Fruits	Edible Stems	Edible Roots	Edible Leaves	Edible Seeds

Unit 3

Chapter 6

Helping plants grow well

Name: _____

Class: _____

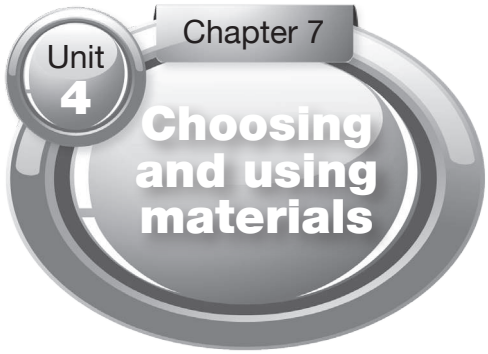
Date: _____

Label the parts of a plant in the picture below correctly.

Write down what each part of the plant does.

Root: _____ Leaf: _____

Stem: _____ Flower: _____



Name: _____

Class: _____

Date: _____

Material Tally Chart

Can you find things that are made out of the following materials?

Write their names in the boxes. Then write the total number of objects you have found.

Wood	Metal	Plastic
Total:	Total:	Total:

Cloth	Glass	Clay
Total:	Total:	Total:

Name: _____

Class: _____

Date: _____

Look around the classroom and find some things that are.....

Hard	Soft	Shiny	Bendy

Heavy	Light	Straight	Curved

Name: _____

Class: _____

Date: _____

Draw a picture of your house. Label it to show what different materials it is made out of.

Brick	Plastic	Wood
Metal	Glass	Cloth

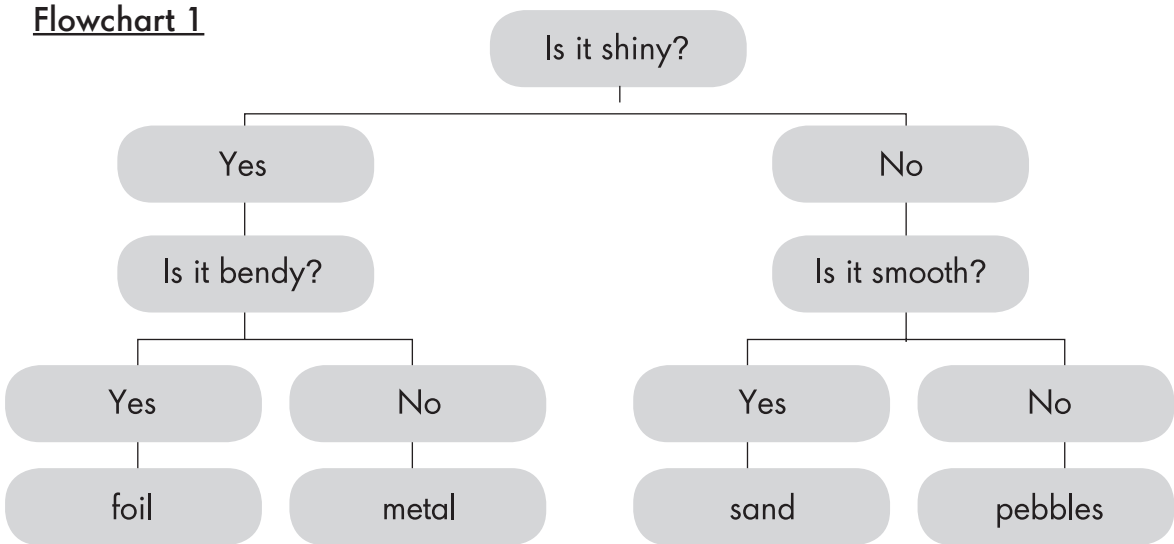
Name: _____

Class: _____

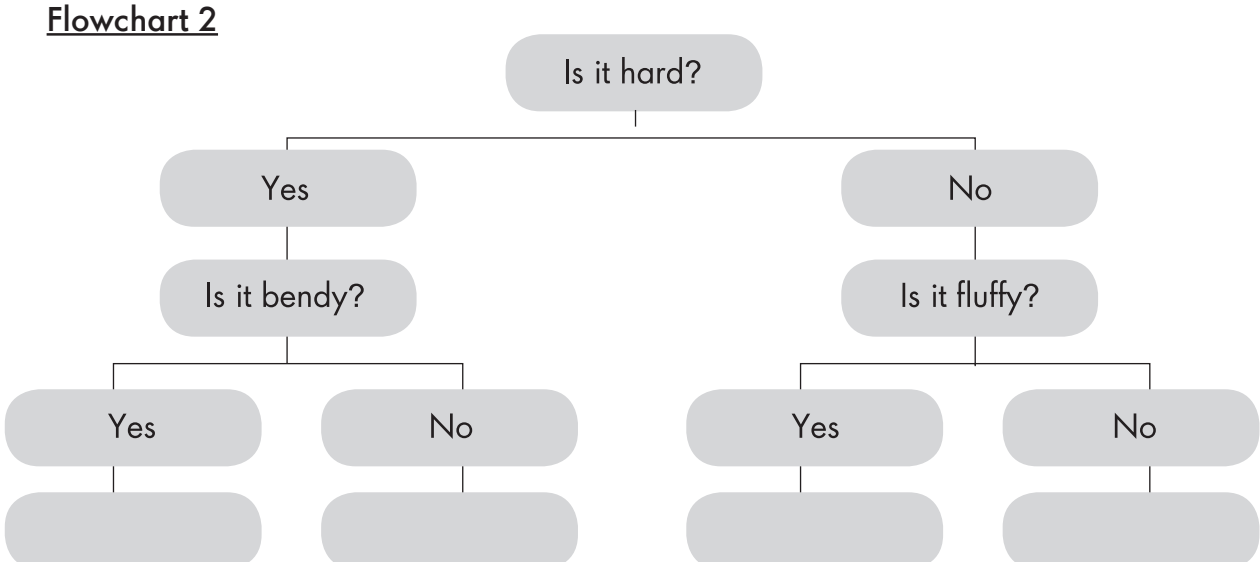
Date: _____

Using the example in Flowchart 1 below, fill in Flowchart 2 with the appropriate materials.

Flowchart 1



Flowchart 2



Name: _____

Class: _____

Date: _____

Which objects will a magnet attract? Write them in the correct boxes below.

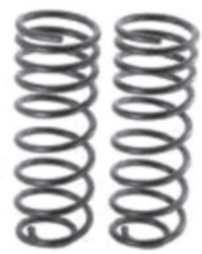
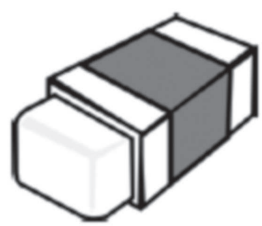





Magnet will attract

Magnet will not attract



Name: _____

Class: _____

Date: _____

Look at these pictures and carefully note what material each objects is made of. Write in three sentences what is wrong with them and what material they should be made out of.

paper umbrella

_____

_____

wax kettle

_____

_____

concrete mattress

_____

_____

cardboard shoes

_____

_____

jelly spoon

_____

_____

Unit 4

Chapter 10

Machines

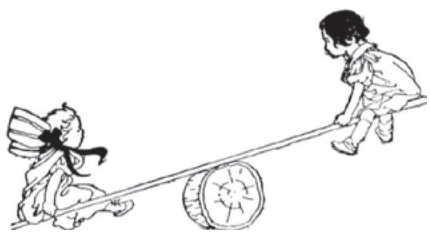
Name: _____

Class: _____

Date: _____

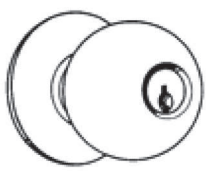
The six types of simple machines are:

- Inclined Plane
- Wedge
- Screw
- Lever
- Pulley
- Wheel and axle

1. 

The seesaw moves up and down easily, without applying much force.

The seesaw is an example of _____

2. 

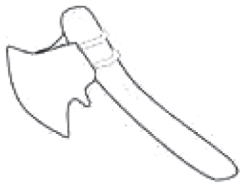
The knob on the door releases a latch when we turn it. It would be difficult to turn the rod if the knob was not attached to it.

The door knob and rod are an example of _____

3. 

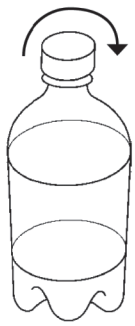
The ramp is used to load the material onto the truck. It is easier than lifting the heavy objects and placing them inside the truck.

Which simple machine is on the back of this truck?_____

4. 

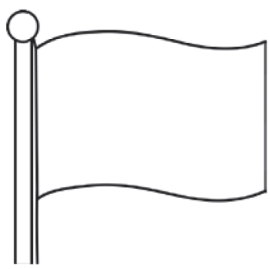
The axe pushes through the wood to form smaller sections.

The head of the axe is an example of _____.

5. 

When the cap on this bottle is twisted, it pulls itself towards the bottle.

The bottle cap is an example of _____.

6. 

The wheel and rope help to raise the flag on the flagpole. It can be done by applying very little force.

The wheel and rope is an example of_____

7. 

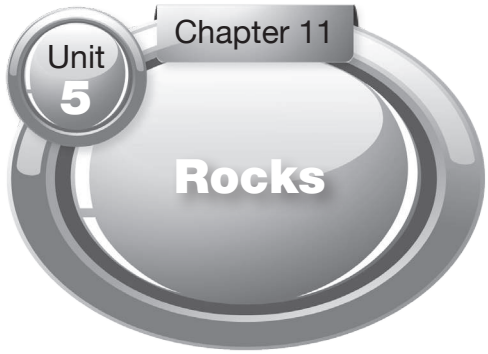
What types of simple machines do you see in the picture

The slide is_____

The shovel is_____

The broom is_____

The screwdriver is_____



Name: _____

Class: _____

Date: _____

Fill in the blanks with the right answer.

geology	hardness	diamond	microscope
sedimentary rock	igneous rock	magma	fossil
metamorphic rock			

1 _____ Rock formed from layers of clay sediments.

2 _____ A science that deals with the history of Earth by studying rocks

3 _____ Rock changed by pressure and heat

4 _____ The remains of a plant or animal that existed in the past and that has been excavated from the soil

5 _____ Being strong and resistant to pressure; not easily scratched

6 _____ Rock formed by hardening of magma

7 _____ Very hard crystalline carbon, valued as a precious gem

8 _____ Molten rock found in the Earth's crust

9 _____ Geologists use this to examine different minerals that make up rocks

Unit 5

Chapter 12

Soils

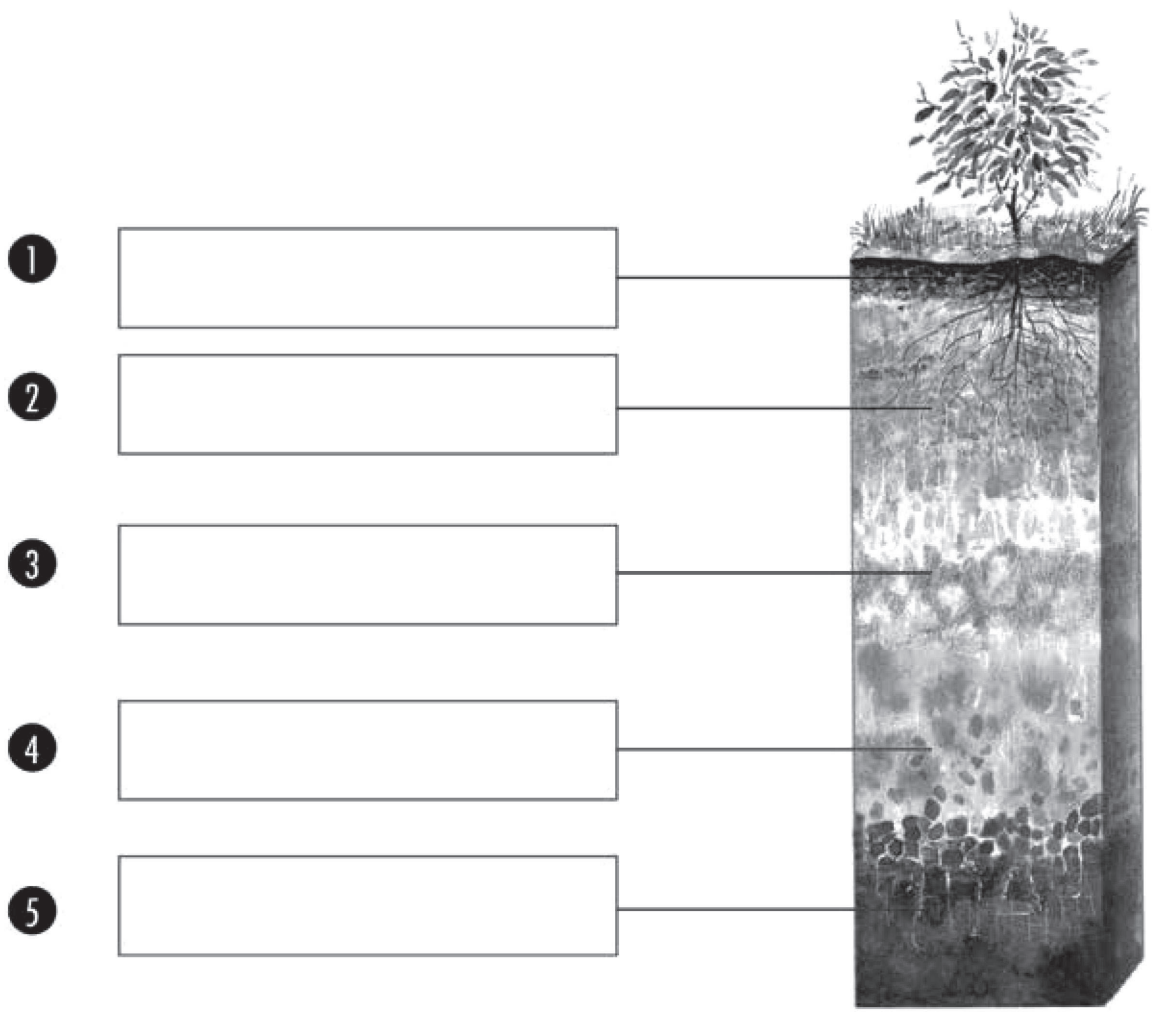
Name: _____

Class: _____

Date: _____

Label and colour the layers of soil.

Humus	Parent Material	Topsoil	Subsoil	Bedrock



Unit 6

Chapter 13

Light and shadows

Name: _____

Class: _____

Date: _____

1. Which things below give out light?

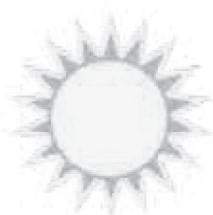
candle

lamp

mirror

moon

owl



sun

torch

eyes

2. Decide if the objects above are natural or artificial sources of light. List them in the table.

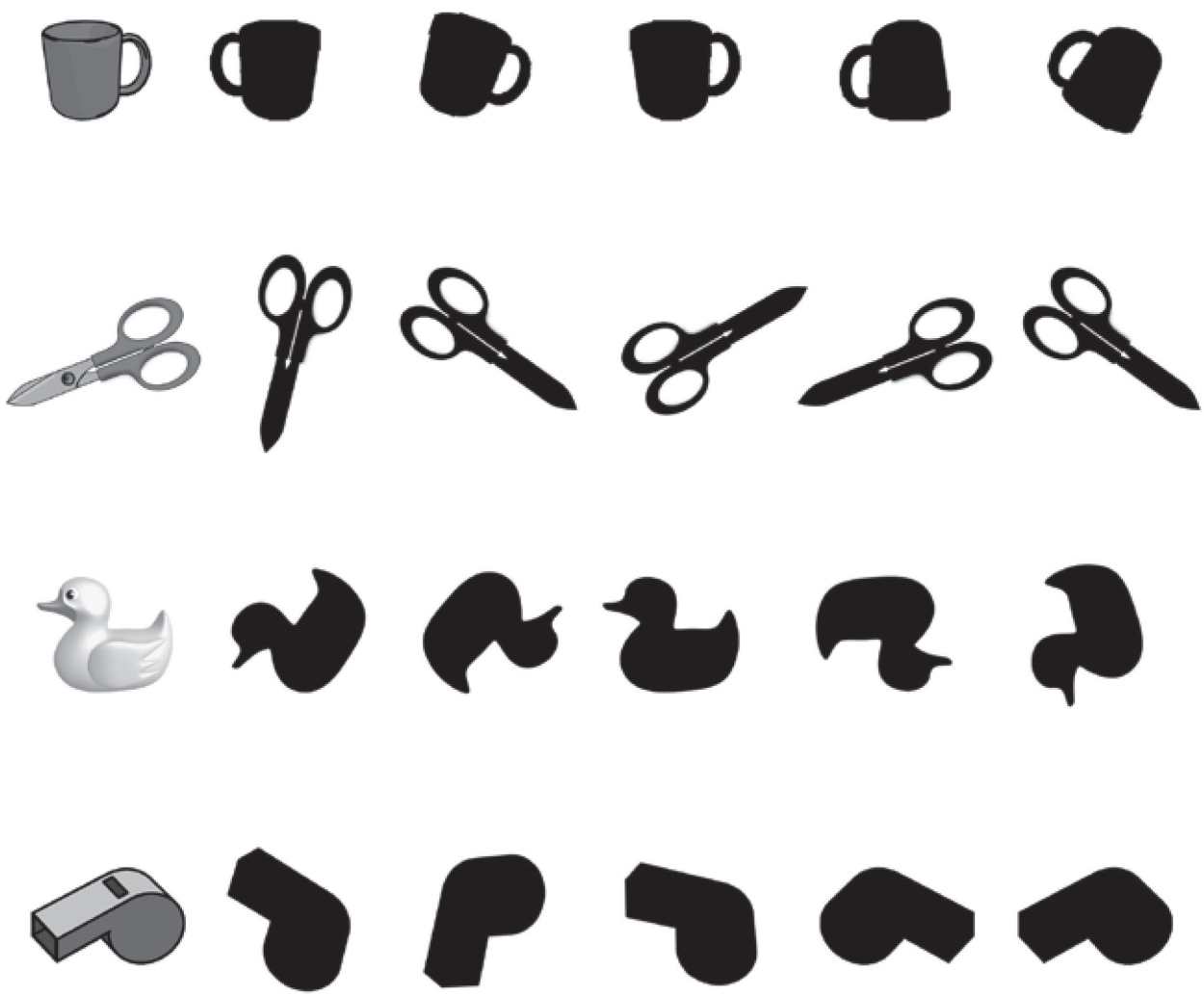
Natural	Artificial

Name: _____

Class: _____

Date: _____

Match the objects with their correct shadow.

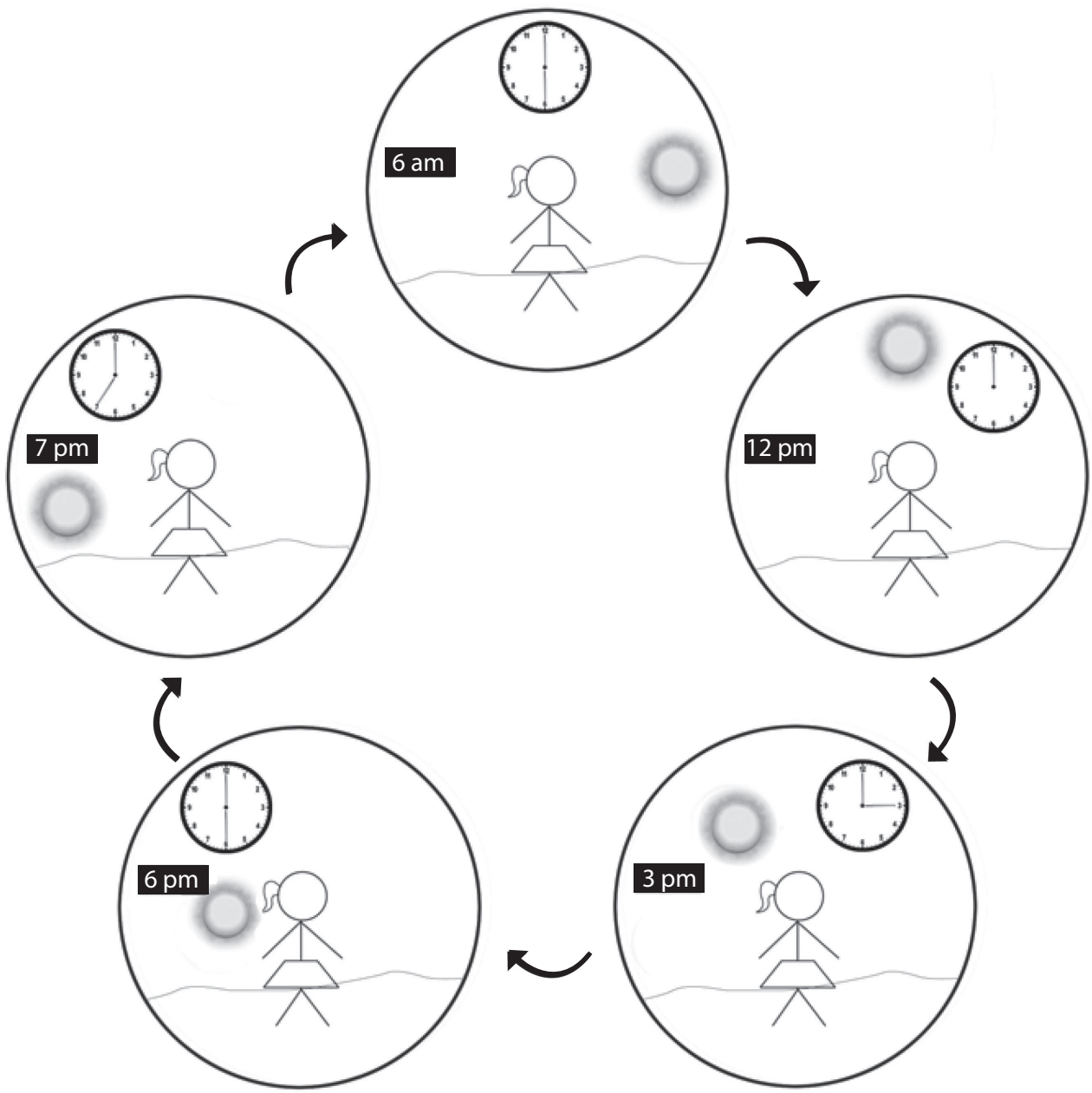


Name: _____

Class: _____

Date: _____

In each picture, look at the time and position of the sun. Draw the shadow of the girl.

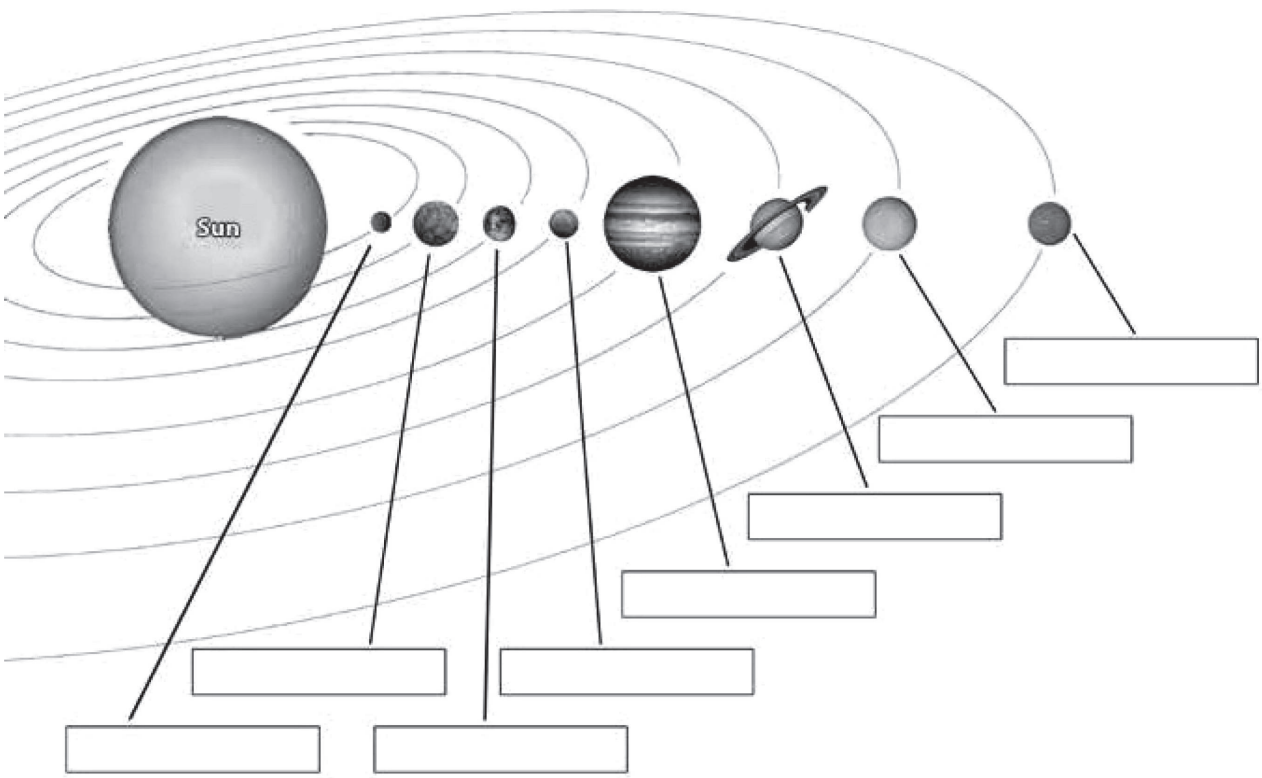


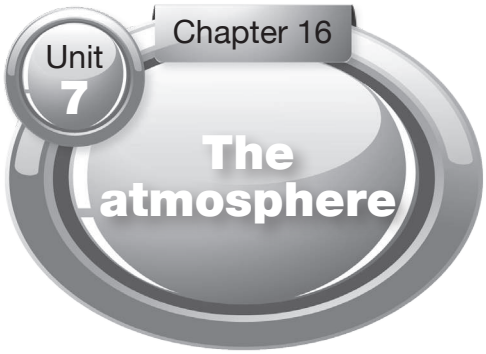
Name: _____

Class: _____

Date: _____

Label each member of the solar system correctly.





Name: _____

Class: _____

Date: _____

Here are words related to the atmosphere, see if you can find them all!

Oxygen Breeze Smoke Gale Air Earth
Nitrogen Sun Gases Atmosphere

N	A	T	M	O	S	P	H	E	R	E
E	I	C	T	M	U	K	O	A	E	Q
G	R	T	F	J	N	N	D	R	K	J
Y	A	B	R	E	E	Z	E	T	O	M
X	A	L	I	O	M	L	Q	H	M	F
O	E	D	E	R	G	A	S	E	S	A
M	C	G	B	S	T	E	Y	U	R	R
P	F	H	H	Z	V	H	N	X	V	B

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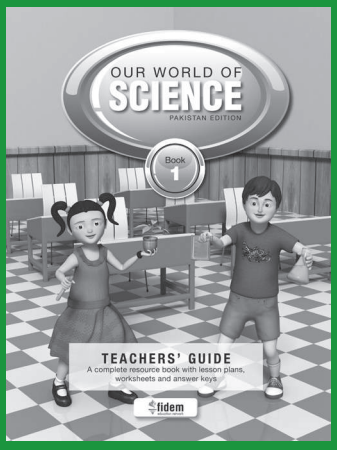

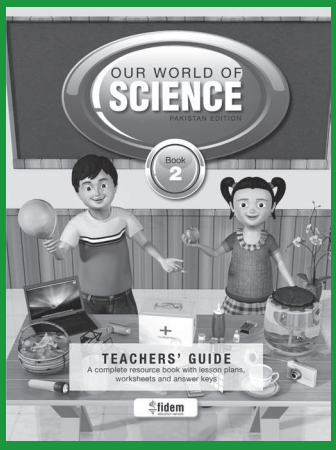

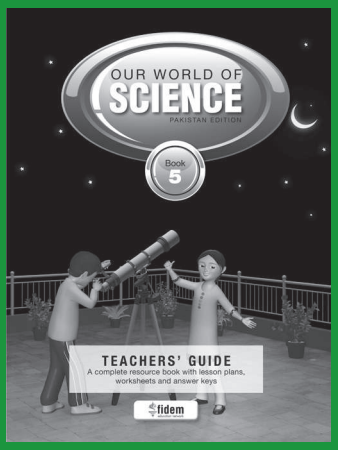

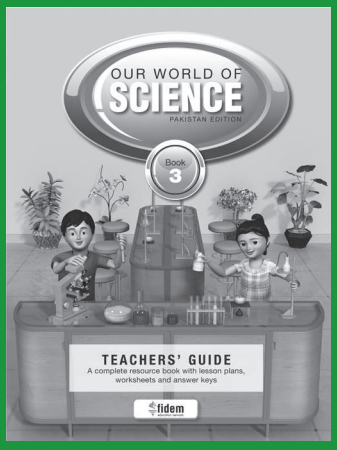

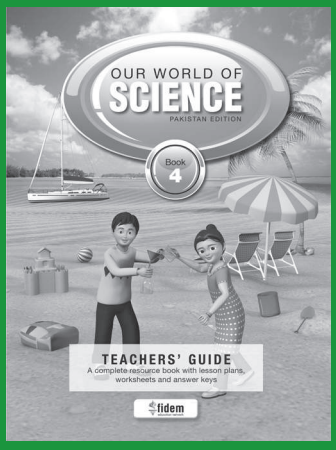

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