WORLD'S KEY

COMMON CORE State Standards

Science

LEVEL 2





WORLD'S KEY

SCIENCE

LEVEL 2

2023



شركة البشرى للتربية والعلوم
المدارس الدولية

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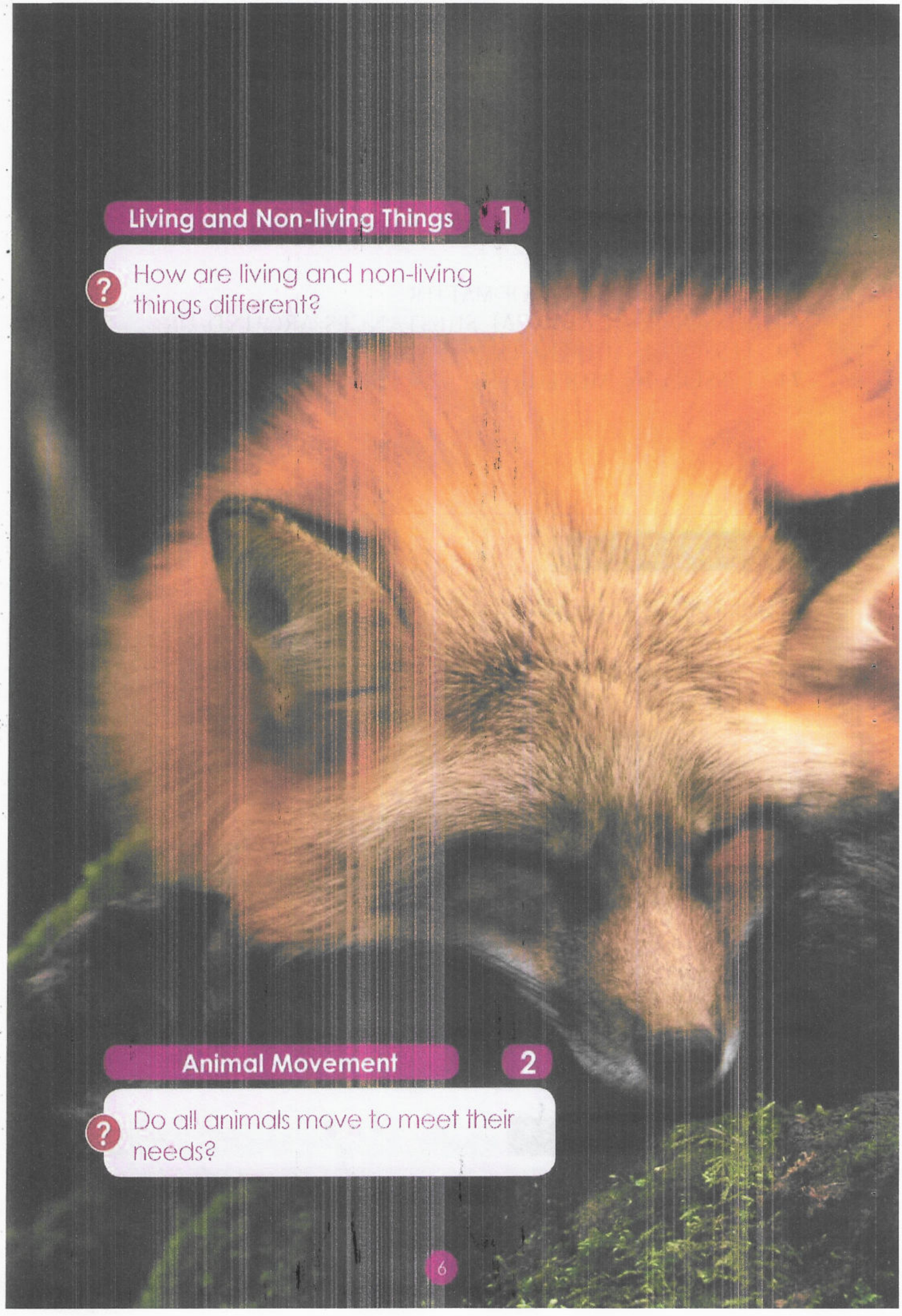
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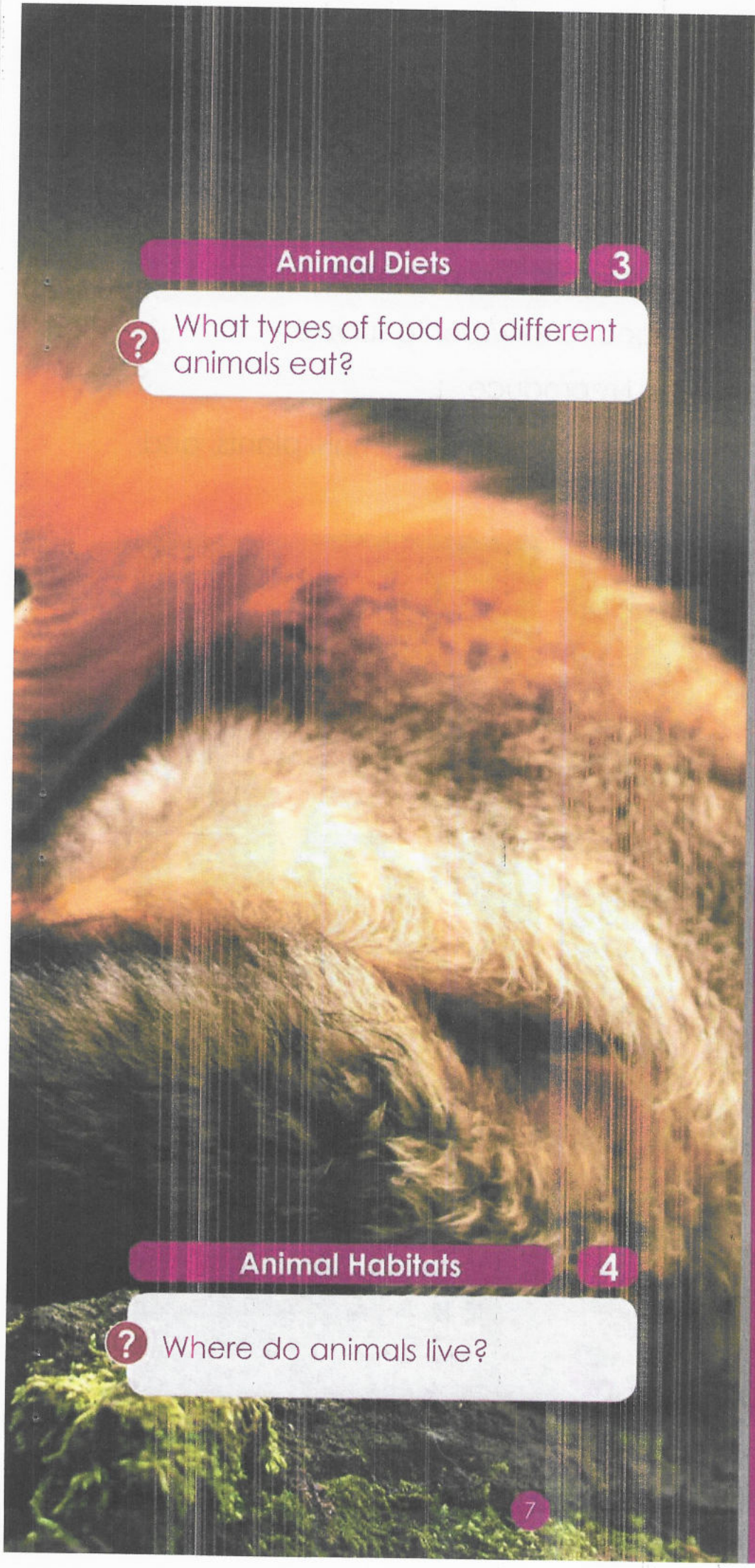


Living and Non-living Things 1

? How are living and non-living things different?

Animal Movement 2

? Do all animals move to meet their needs?



WORLD'S KEY

UNIT 1

ANIMALS

Animal Diets 3

? What types of food do different animals eat?

Animal Habitats 4

? Where do animals live?

LESSON 1 LIVING AND NON-LIVING THINGS

Things in this world are either living or non-living.

Living things need air, food, and water to survive.

They breathe, grow, and reproduce.

Some examples of living things include animals, plants, and fungi.



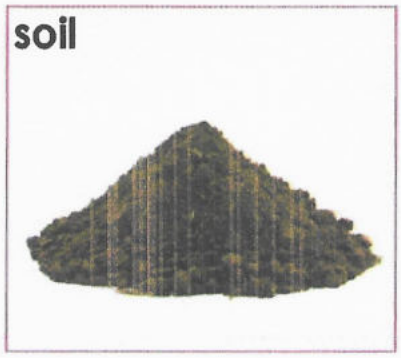




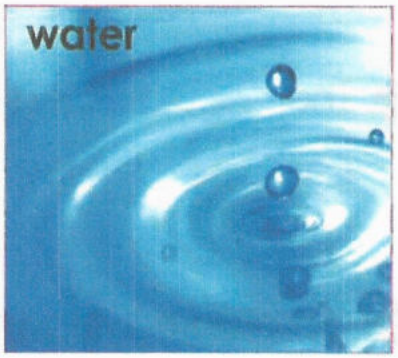
KEY TERMS

- living things
- non-living things
- breathe
- reproduce

Non-living things do not need air, food, or water.
They do not breathe, grow, or reproduce.
Some examples of non-living things are soil, wind, and water.







Non-living things are vital to the life of living things.
For example, some living things use rocks as their shelter.



WEIRD FACT

Corals are sea animals that do not move from their places.

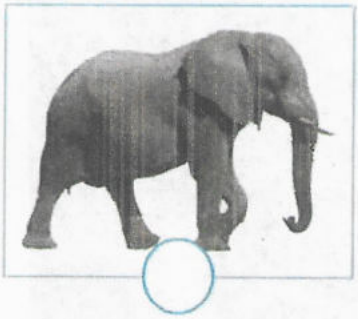
A. Choose the correct answer.

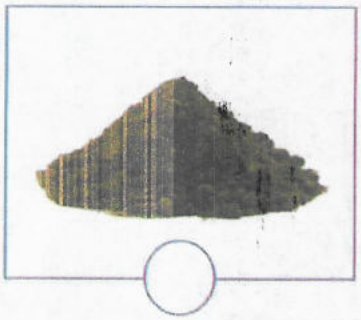
1. People, animals, and plants are ..... things.
   - ○ non-living
   - ○ living

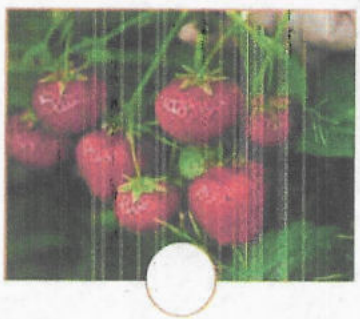
2. The ..... is a non-living thing.
   - ○ cat
   - ○ wind

3. Corals are living things that live in the .....
   - ○ forests
   - ○ sea

B. Choose the living things.







C. Read the words in the box. Then find and circle them.

e	o	v	e	s	t	a	c
l	i	v	i	n	g	i	p
a	f	o	o	d	l	r	l

Word Box

living
air
food

D. **Classify each of the following under the correct heading.**

wind - cat - bird - water - soil - baby - air - dog

Living Things	Non-living Things

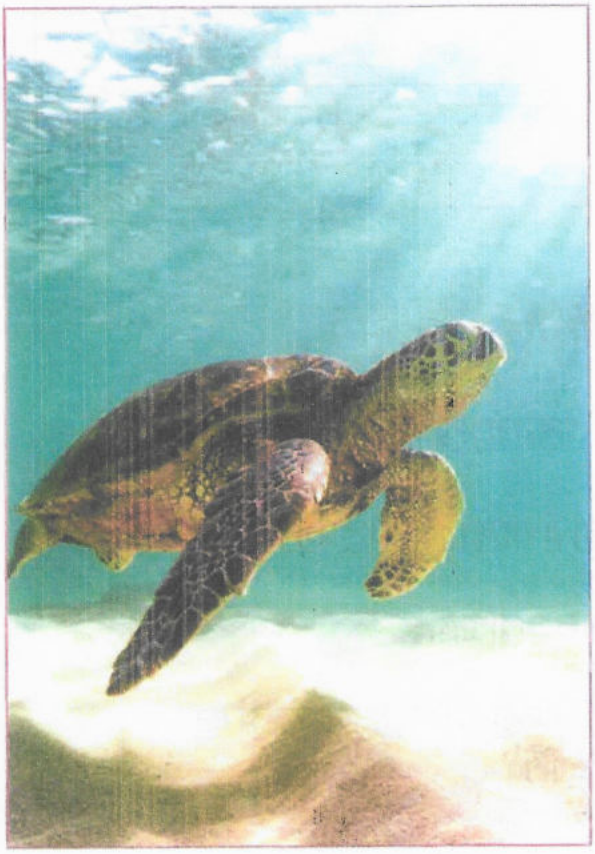
E. **Activity**

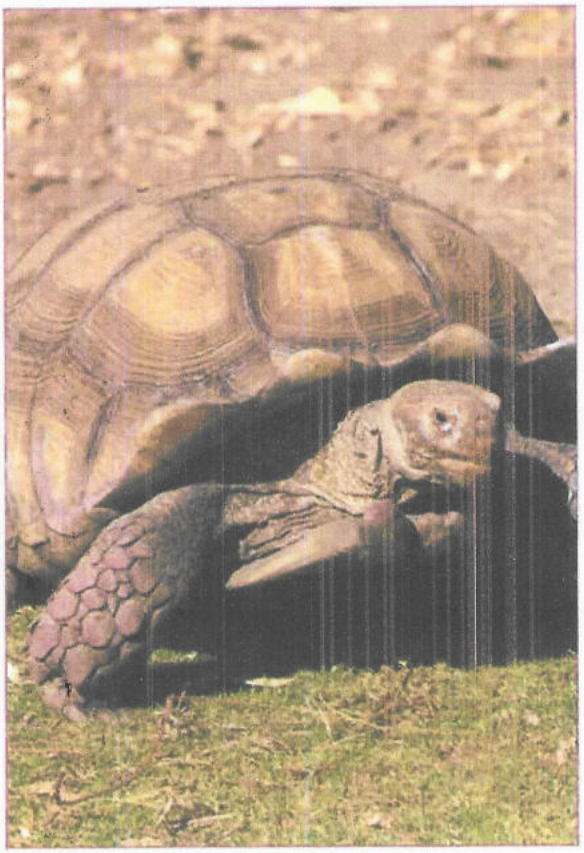
- Draw the table below on big cardboard.
- Draw or get pictures of different living and non-living things.
- Paste them under the correct heading.
- Write one characteristic of the living things and the non-living things under each heading.

Living Things	Non-living Things
	 .....

Most animals move from one place to another in search of food and shelter.

Turtles that live in the sea swim using their front and hind flippers. Turtles that live on land move around using their front and hind legs.

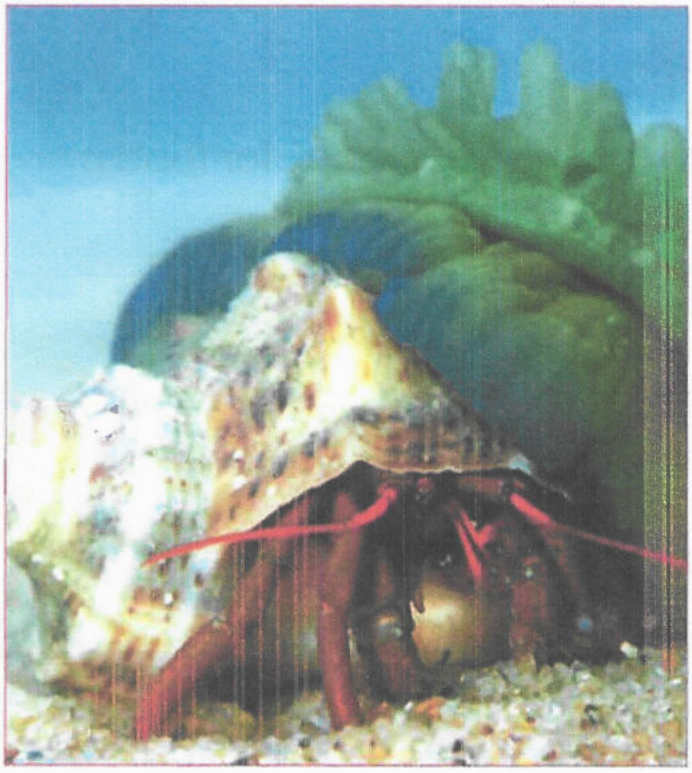




KEY TERMS

- move
- stay fixed

Some animals stay fixed in their places and do not move around. They move parts of their body.







Sea sponges are animals attached to underwater surfaces. They remain fixed in their places. They feed from the water that goes through their pores.
Corals also do not move and remain fixed in the same spot. They use their tentacles to eat.

WEIRD FACT

Some animals, such as the sea anemone, depend on others, such as the hermit crab, for movement.

A. Choose the correct answer.

1. An example of an animal that does not move is the .....
   - ○ dog
   - ○ sea sponge

2. An example of an animal that moves to look for food is the .....
   - ○ lion
   - ○ coral

3. The sponge obtains food through its .....
   - ○ eyes
   - ○ pores

B. Read the following statements. Decide whether each is true (T) or false (F).

1. Most animals move. ☐
2. Corals move from one place to another. ☐
3. The sea sponge does not move. ☐
4. Tigers and lions move to get food. ☐

C. Read the words in the box. Then find and circle them.

s	t	m	o	v	e
p	g	n	g	k	l
o	f	i	x	e	d
n	g	e	n	q	t

Word Box

move
sponge
fixed

D. **Classify the following animals under the correct heading.**

sea sponge - bee - sheep - tiger - ant - coral

Move	Do Not Move

E. **Activity**

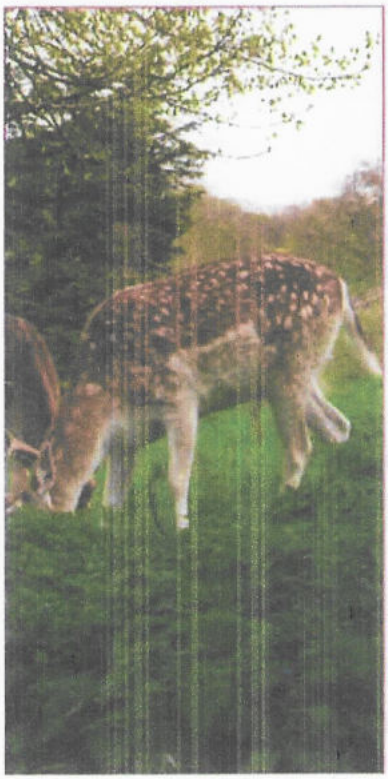
- Learn more about animals that do not move by either reading an article or watching a video about them.
- Choose one of these animals.
- Draw or get a picture of it.
- Write its name under the picture.

Animal's Name:

.....

All animals need energy to grow, stay alive, and perform different activities. They get energy from the food they eat.

The types of food animals consume differ from one another. Thus, based on what they eat, animals are classified into three types: herbivores, carnivores, and omnivores.







KEY TERMS

- herbivore
- carnivore
- omnivore
- energy

Herbivores

Animals that eat only plants are called herbivores. Examples include giraffes, deer, horses, sheep, and cows.



Carnivores

Animals that eat only other animals are called carnivores. Examples include lions, tigers, wolves, spiders, and sharks.



Omnivores

Animals that eat both plants and other animals are called omnivores. Examples include raccoons, bears, squirrels, badgers, and monkeys.



WEIRD FACT

The huge elephant is a herbivore, while the small domestic cat is a carnivore.

LESSON 3 ANIMAL DIETS

A. **Choose the correct answer.**

1. Food provides ..... for animals to stay alive.
   - ◯ water
   - ◯ energy

2. Animals are classified according to what they .....
   - ◯ eat
   - ◯ drink

3. The raccoon's diet is similar to that of the .....
   - ◯ cow
   - ◯ human being

B. **Read the following statements.**
Decide whether each is true (T) or false (F).

1. All animals are herbivores. ☐
2. The bear is an omnivore. ☐
3. The wolf is a carnivore. ☐
4. Herbivores eat only other animals. ☐

C. **Read the words in the box. Then find and circle them.**

c	a	r	n	i	v	o	r	e	r
o	m	n	i	v	o	r	e	d	l
h	e	r	b	i	v	o	r	e	y

Word Box

herbivore
carnivore
omnivore

D. **Classify each animal under the correct heading.**

giraffe - rat - horse - tiger - shark - monkey

Herbivore	Carnivore	Omnivore

E. **Activity**

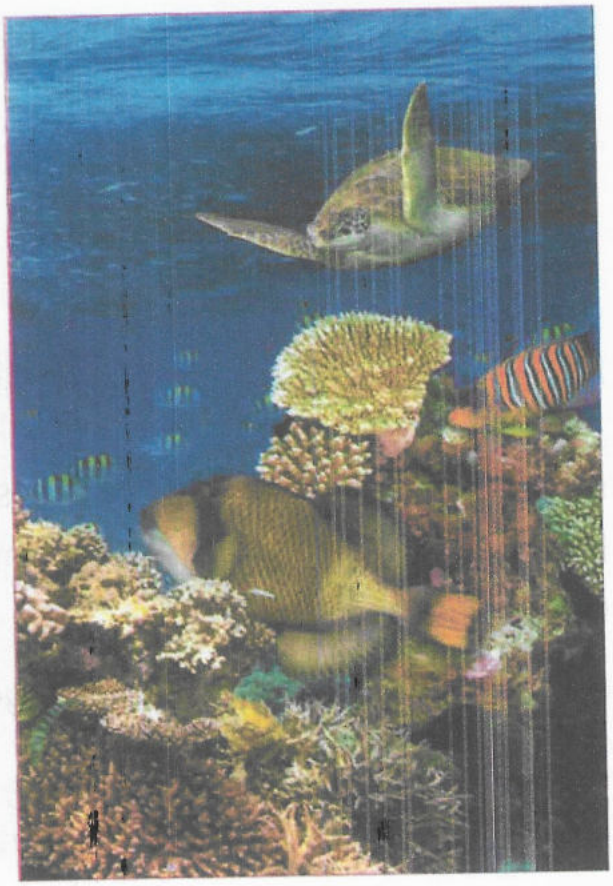
- Learn more about animal diets by reading an article or watching a video about them.
- Choose one animal. Draw or get a picture of it.
- Write its name under the picture.
- It lives in .....
- It eats .....
- It is classified as .....

Animal's Name:
.....

LESSON 4 ANIMAL HABITATS

Animals live in different places called habitats.
There are two kinds of habitats: terrestrial and aquatic.
Animals that live in terrestrial habitats are called terrestrial animals.
Animals that live in aquatic habitats are called aquatic animals.

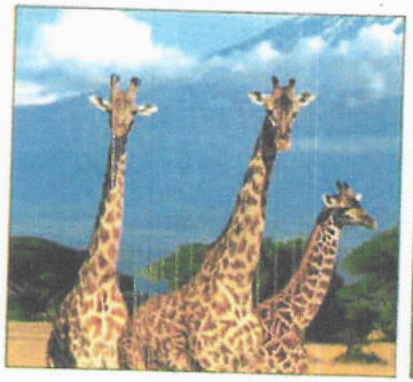




KEY TERMS

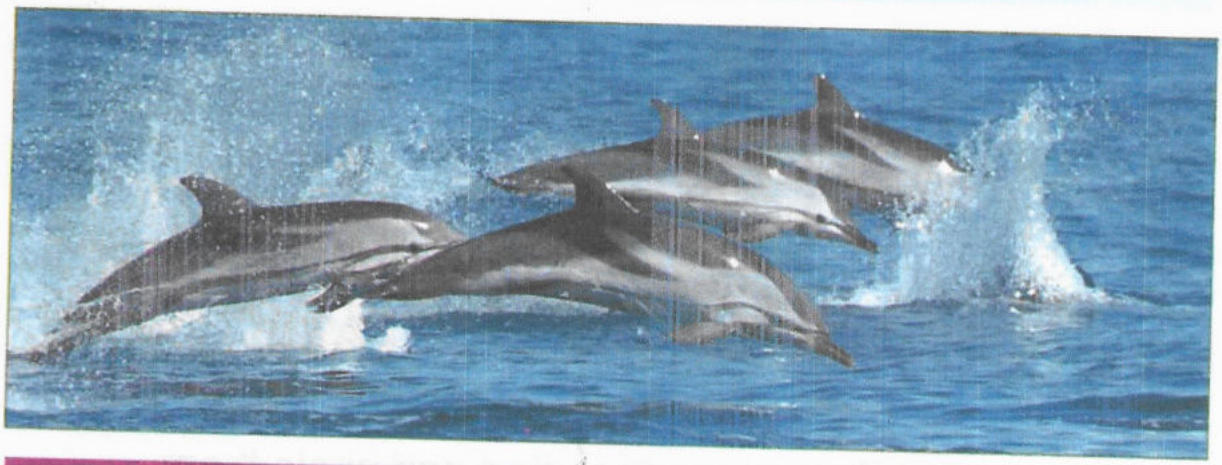
- habitat
- terrestrial
- aquatic

Terrestrial habitats are characterized by the presence of land, such as forests, deserts, and mountains.
Giraffes, cows, and eagles are terrestrial animals.





Aquatic habitats are characterized by the presence of water, such as oceans, rivers, and lakes.
Fish, dolphins, and octopuses are aquatic animals.



WEIRD FACT

The cave angelfish can leave water and crawl on land.

A. Choose the correct answer.

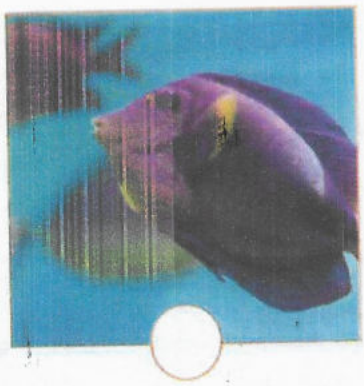
1. Habitats are of ..... basic kinds.
   - ○ three
   - ○ two

2. Cows live in ..... habitats.
   - ○ aquatic
   - ○ terrestrial

3. Dolphins live in ..... habitats.
   - ○ aquatic
   - ○ terrestrial

B. Choose the terrestrial animals.







C. Read the words in the box. Then find and circle them.

x	f	h	a	q	u	a	t	i	c	r
t	e	r	r	e	s	t	r	i	a	l
b	h	a	b	i	t	a	t	a	t	s

Word Box

terrestrial
aquatic
habitat

D. **Classify each animal under the correct heading.**

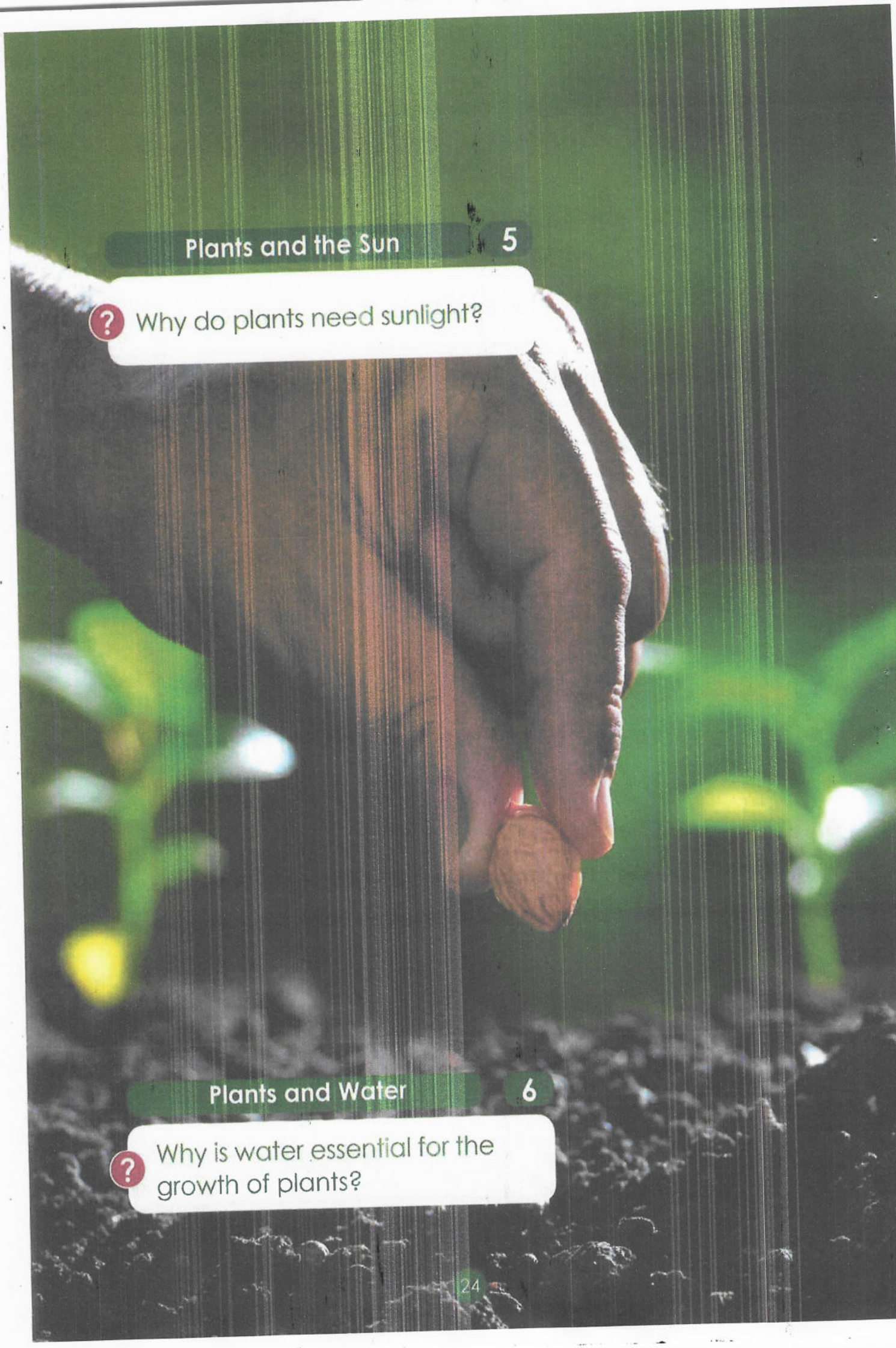
fish - cat - land turtle - whale - cow - dolphin

Terrestrial Animals	Aquatic Animals

E. **Activity**

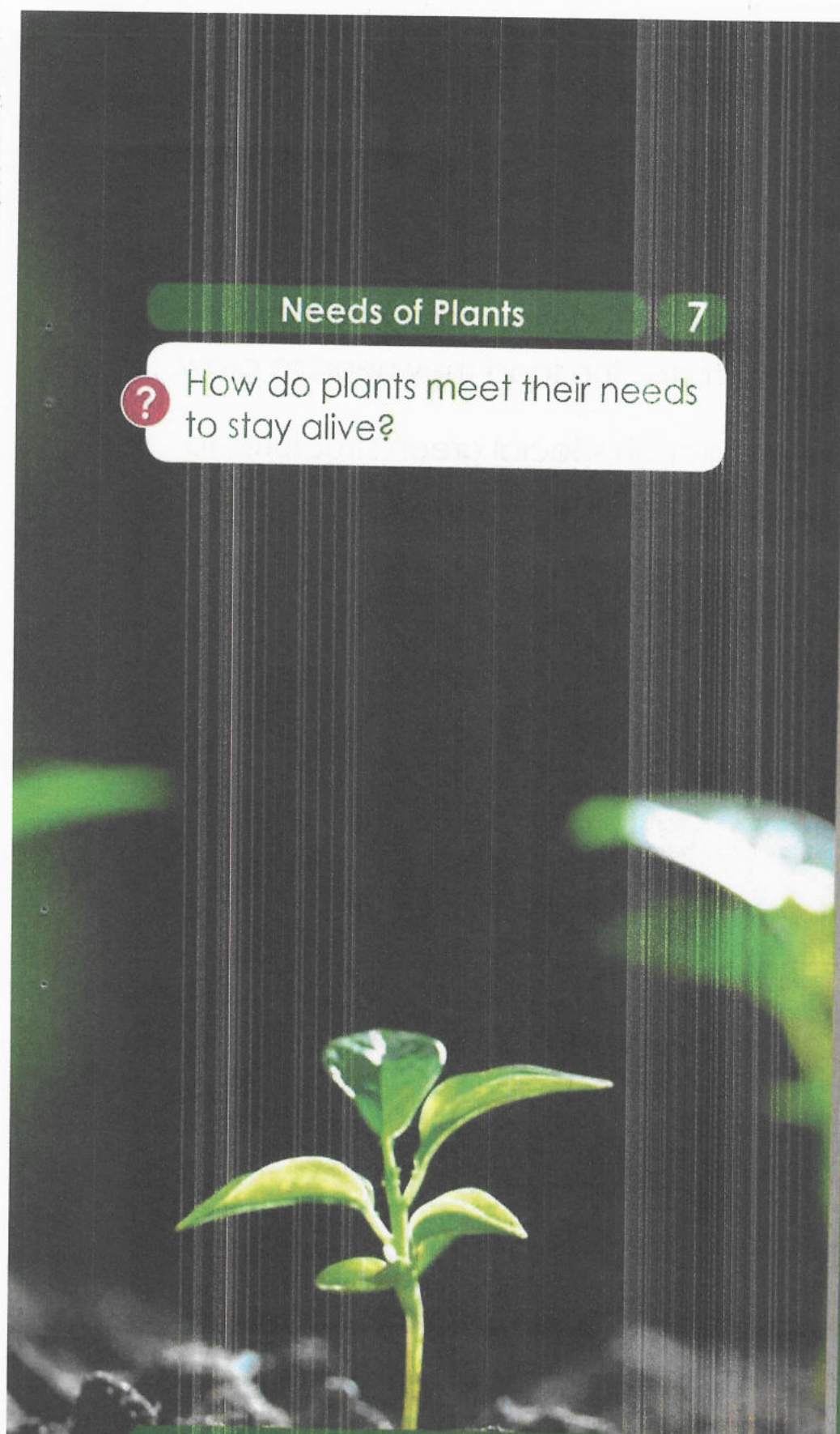
- Choose one animal habitat.
- Draw or paste a picture of the animal habitat in the space below.
- Draw or get pictures of animals that live in that habitat.
- Write the name of the habitat.
- Write the names of the animals you got under each picture.

..... Habitat


Plants and the Sun 5
Why do plants need sunlight?
Plants and Water 6
Why is water essential for the growth of plants?

UNIT 2

PLANTS



Needs of Plants 7

? How do plants meet their needs to stay alive?

Parts of Plants 8

? What are the basic parts of a plant?

LESSON 5 PLANTS AND THE SUN

The Sun is the direct source of energy for plants. Without sunlight, plants cannot make the food they need to grow.

Plants absorb sunlight through special green structures to make their own food.





KEY TERMS

- Sun
- plants
- energy

Experiment

Procedure

- Place two plants in two different places for three days.
- Water the plants regularly.
- Place pot **A** in sunlight.
- Place pot **B** in darkness.

Observe how the plants change after three days.



pot **A** in sunlight



pot **B** in darkness

- Plant **A** grows well in the presence of sunlight.
- Plant **B** withers in the absence of sunlight.
- Plants use energy from the Sun to make food.



WEIRD FACT

Most plants lean toward the light wherever it is.

LESSON 5 PLANTS AND THE SUN

A. **Choose the correct answer.**

1. Plants depend on the ..... to grow.
   - ○ Moon
   - ○ Sun

2. Without sunlight, plants will .....
   - ○ grow well
   - ○ wither

3. A ..... makes its own food.
   - ○ cat
   - ○ tree

B. **Fill in the blanks with the suitable words from the box.**

sunlight	plants	energy	food

1. Without ....., plants cannot make the ..... they need to grow.
2. ..... make their own food.
3. Plants use ..... from the Sun to make their food.

LESSON 6 PLANTS AND WATER

Water is important for plants. Water helps plants make their own food. Without water, plants do not grow or survive.

Watering plants regularly helps them grow better. Water helps plants absorb minerals from the soil and distribute these minerals to all their parts.



KEY TERMS

- plants
- watering
- grow

C. **Activity**

Refer to the experiment on page 27.

- Check the differences between the two pots.
- Write your observation in the table below. You can use the word box.



Word Box
has withered - has grown well - greenish - yellowish

Pot	A	B
Color		
Appearance		

- Which plant has grown well?

.....

- Why has the other plant withered?

.....

- The Sun gives plants .....

LESSON 6 PLANTS AND WATER

A. **Choose the correct answer.**

1. Plants need ..... to grow.
   - ○ water
   - ○ juice

2. The cactus plant stores water in its .....
   - ○ stem
   - ○ roots

3. Plants must be watered .....
   - ○ during winter
   - ○ regularly

B. **Read the following statements.**
Decide whether each is true (T) or false (F).

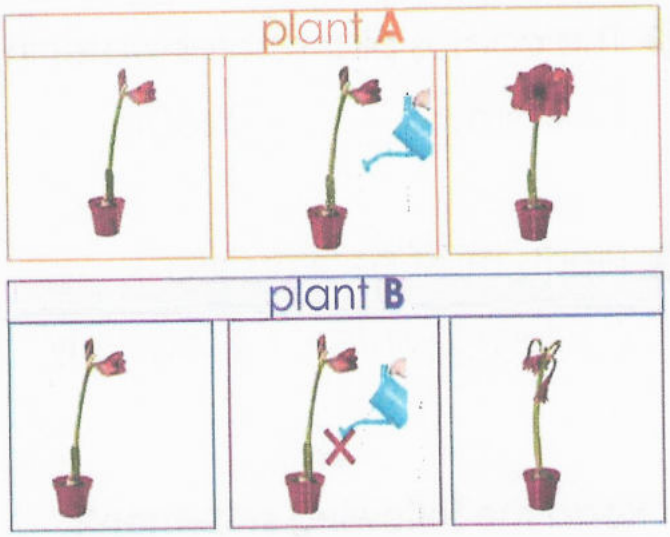
1. Water helps plants absorb minerals from the soil. ☐
2. Plants can live without water. ☐
3. A plant with water grows well, while a plant without water withers. ☐
4. The cactus plant can live in the desert. ☐
5. Rain is good for plants. ☐

What happens if a plant does not get water?

Experiment

Procedure

- Put two plants (**A** and **B**) in a sunny place.
- Water plant **A** regularly.
- Do not water plant **B**.
- Watch your plants for a week.
- Indicate what happens to the plants.



Cacti and other plants that live in deserts and dry places store water to help them survive in dry and hot seasons.



WEIRD FACT

In deserts, cacti store large amounts of water in their stems.

C. **Read the words in the box. Then find and circle them.**

p	s	u	r	v	i	v	e	k
a	g	r	o	w	s	w	y	s
w	a	t	e	r	i	n	g	g

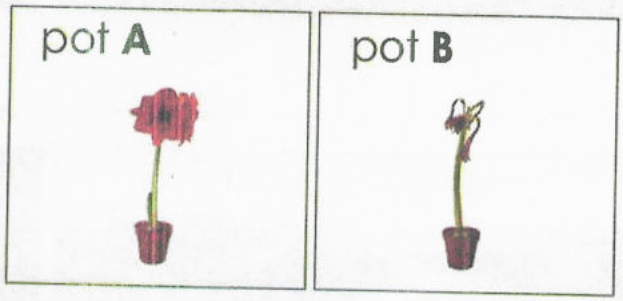
Word Box

survive
watering
grow

D. **Activity**

Refer to the experiment on page 31.

- Check the differences between the two pots.
- Write your observation in the table below.



Pot	Color	Appearance
A		
B		

- Conclusion:

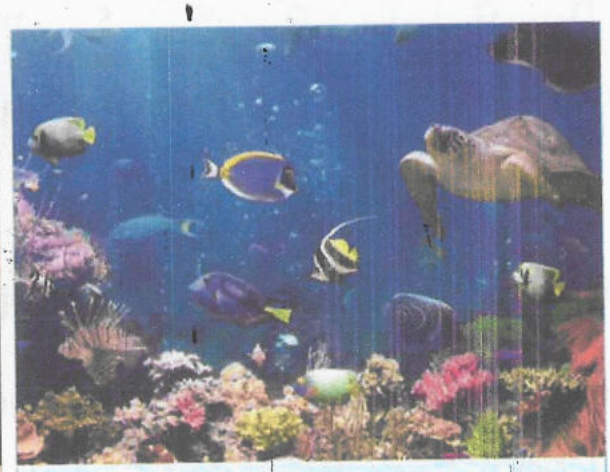
Plants need ..... to .....

LESSON 7 THE NEEDS OF PLANTS

Plants need water, sunlight, and air to grow.
Plants get the water they need from many sources, like soil, sea, rivers, or ponds. They get energy from sunlight.



soil



sea



river

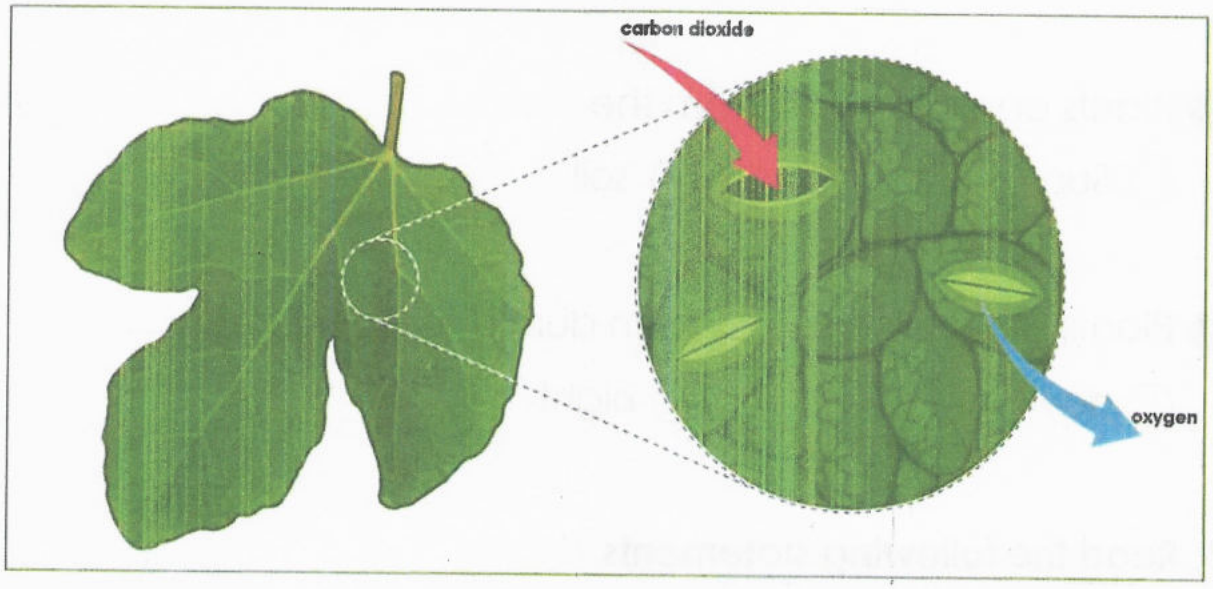


pond

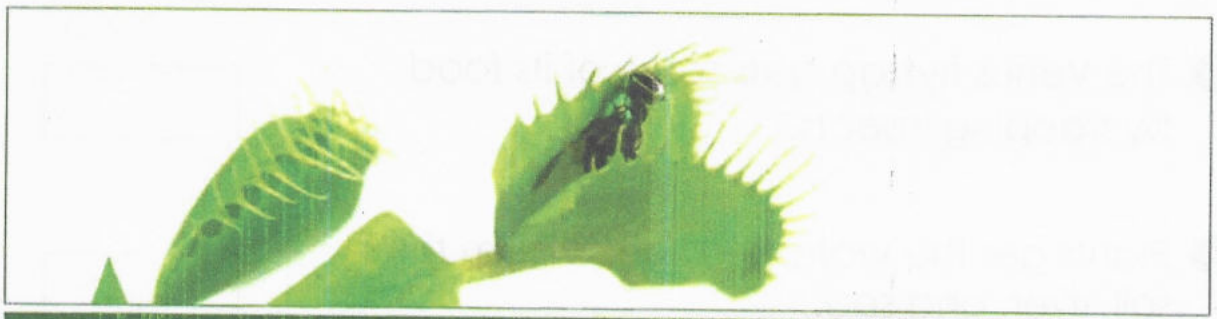
KEY TERMS

- sunlight
- oxygen
- carbon dioxide

During the day, most plants take in carbon dioxide gas from the air through their leaves and release oxygen. Oxygen is a gas that is essential for living things.



Without carbon dioxide, plants would die. Without plants, life would be completely lost.



WEIRD FACT

Venus flytrap is a plant that gets some of its food by trapping insects and frogs.

LESSON 7 THE NEEDS OF PLANTS

A. **Choose the correct answer.**

1. Plants take in ..... from the air to make their food.
   - ○ oxygen
   - ○ carbon dioxide

2. Plants can get water from the .....
   - ○ Sun
   - ○ soil

3. Plants mainly release oxygen during the .....
   - ○ day
   - ○ night

B. **Read the following statements.**
Decide whether each is true (T) or false (F).

1. Plants need sunlight to grow. ☐
2. The Venus flytrap gets some of its food by trapping insects. ☐
3. Plants get the water they need from the soil, river, and sea. ☐
4. Plants usually take in carbon dioxide through their roots. ☐
5. Without carbon dioxide, plants would grow well. ☐

C. **Read the words in the box. Then find and circle them.**

c	u	n	l	t	g	h	t	t
a	g	w	a	t	e	r	s	s
r	s	u	n	l	i	g	h	t
b	s	o	u	r	c	e	s	d
o	k	o	x	y	g	e	n	n
n	d	i	o	x	i	d	e	e

Word Box
sunlight water carbon dioxide oxygen sources

D. **Activity**

Complete the following table with words from the word box.

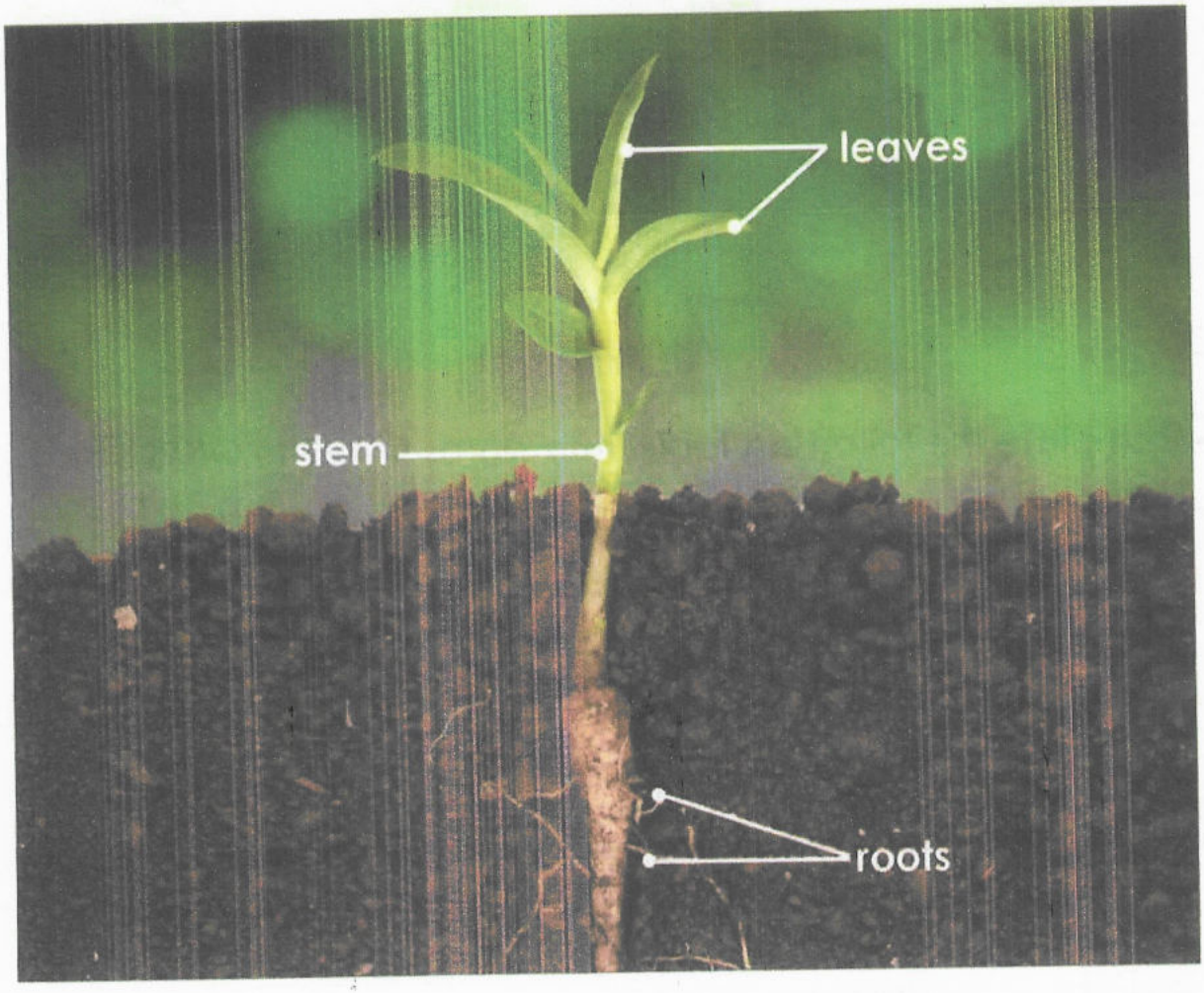
Word Box
would die - oxygen - carbon dioxide

During the day, plants mainly	take in	.....
	release	.....
Without	carbon dioxide, plants	.....

LESSON 8 PARTS OF PLANTS

Many plants are made up of different parts. The basic parts of a plant are the roots, the stem, and the leaves. Each part has a different role in keeping the plant healthy.

The Basic Parts of a Plant



KEY TERMS

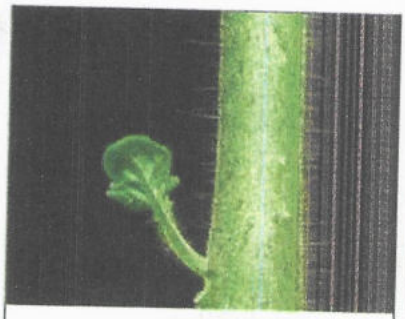
- leaves
- stem
- roots

Each part of the plant has a specific role.



Roots

They fix the plant in the soil and help it absorb water.



Stem

It gives support to the plant and carries water and food to all plant parts.

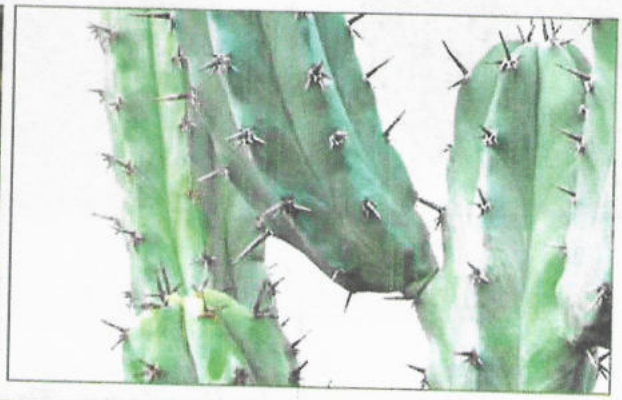


Leaves

They make food for the plant.

Plants are extremely important to life on Earth. They grow everywhere. They provide food, medicine, shelter, and oxygen that we need to breathe.





WEIRD FACT

Unlike some plants that make food through their leaves, cacti make food through their stems.

LESSON 8 PARTS OF PLANTS

A. **Choose the correct answer.**

1. The ..... gives support to the plant.
   - ◯ stem
   - ◯ root

2. The roots fix the plant in the .....
   - ◯ air
   - ◯ soil

3. Cacti plants make food through their .....
   - ◯ leaves
   - ◯ stems

B. **Name the following plant parts.**



.....



.....



.....

C. **Read the words in the box. Then find and circle them.**

r	s	r	o	o	t	s
l	e	a	v	e	s	r
b	s	t	e	m	a	l

Word Box

leaves
stem
roots

D. **Activity:** **Planting Seeds**

Materials

- 4 bean seeds
- paper towel or cotton
- water
- transparent plastic bag

Plant Picture

Procedure

- Put the bean seeds on a damp paper towel.
- Gently put the paper towel inside a plastic bag and seal it.
- Put the bag in a sunny place.
- Spray your paper towel with water every day.

Observation

- Paste or draw a picture of one plant and label it.
- Choose the best answer.

1. After a few days, the seeds start to .....
   ◯ die ◯ sprout

2. The ..... grow first.
   ◯ roots ◯ leaves

3. Green ..... appear on the stem.
   ◯ roots ◯ leaves

The Basic Body Parts 9

? What are the basic body parts?



Internal Body Organs 10

? What are the internal body organs?

WORLD'S KEY

UNIT 3

HUMAN Beings

Sense Organs 11

? What are the sense organs and their roles?



Cells, Tissues, and Organs 12

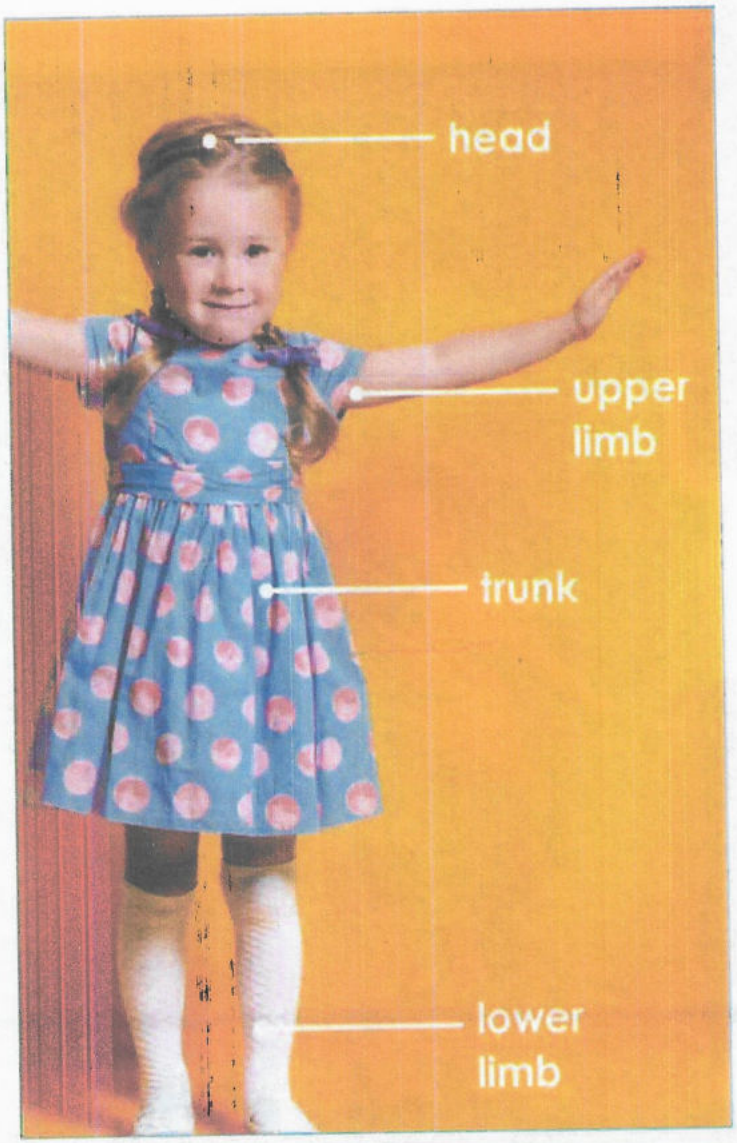
? How do cells, tissues, and organs complement each other?

Our body is well-organized. It is made up of three basic parts: head, trunk, and limbs.

The head is at the top of the body. It controls the balance, movement, and coordination among all organs.

The trunk gives support to the body. It includes the chest, back, shoulders, and abdomen.

The limbs include the upper and lower limbs. The upper limbs are the two arms, and the lower limbs are the two legs.



KEY TERMS

- head
- trunk
- limbs

We can perform different types of movement.

- walking
- jumping
- running
- bending



WEIRD FACT

About 200 muscles are used when you take a single step.

LESSON 9 THE BASIC BODY PARTS

A. Choose the correct answer.

1. The ..... is at the top of the body.
   - ○ head
   - ○ trunk

2. The ..... gives support to the body.
   - ○ head
   - ○ trunk

3. We walk by using our .....
   - ○ upper limbs
   - ○ lower limbs

B. Read the following statements. Decide whether each is true (T) or false (F).

1. The body has six limbs. ☐
2. The trunk is at the top of the body. ☐
3. The trunk controls the balance, movement, and coordination among all organs. ☐
4. The limbs include the arms and the legs. ☐
5. The arms are the two upper limbs. ☐
6. The upper limbs support the body. ☐

C. **Read the words in the box. Then find and circle them.**

b	e	l	i	m	b	s	e	e
g	o	v	h	e	a	d	o	y
r	t	d	g	h	t	e	y	p
c	s	i	y	t	r	u	n	k

Word Box
head
trunk
limbs
body

D.

Activity

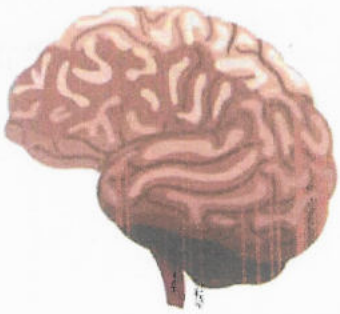
Cut out and paste (or draw) pictures of the types of movement in the word box. Then complete the table.

Word Box
jumping - running - swimming

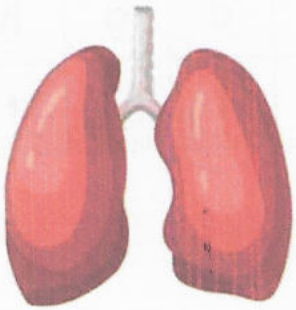
Picture	Movement
	.....
	.....
	.....

LESSON 10 INTERNAL BODY ORGANS

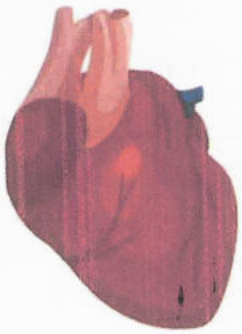
All our body organs work together to keep us alive. Some major internal organs of the body are the brain, the lungs, the heart, and the stomach. They come in different shapes and sizes.



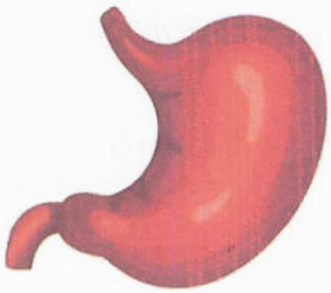
brain



lungs



heart



stomach

KEY TERMS

- brain
- lungs
- heart
- stomach

brain



It is in our head.
It is protected by the skull.
It controls our body.

lungs



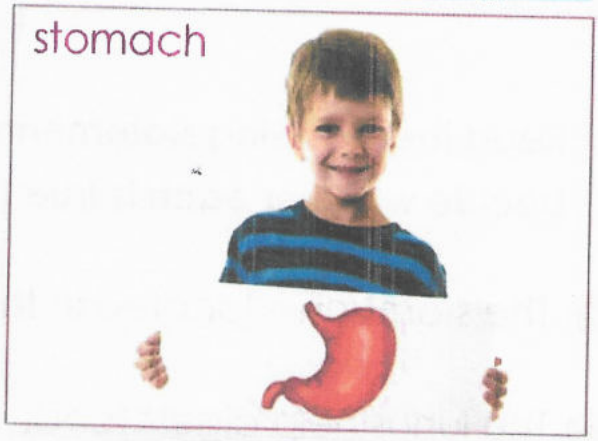
There are two lungs in the chest cavity. They are protected by the rib cage. They help with breathing.

heart



It is located in between the lungs. It supplies blood to all body parts.

stomach



It lies in the upper abdomen.
It helps digest food.

WEIRD FACT

The acidity in the stomach can dissolve a coin.

LESSON 10 INTERNAL BODY ORGANS

A. Choose the correct answer.

1. The heart is located in the .....
   - ○ chest
   - ○ head

2. The brain is located in the .....
   - ○ head
   - ○ trunk

3. The number of lungs in our body is .....
   - ○ three
   - ○ two

B. Read the following statements. Decide whether each is true (T) or false (F).

1. The stomach is located in the abdomen. ☐
2. The lungs help digest food. ☐
3. The heart is responsible for the digestion of food. ☐
4. The brain supplies blood to all body parts. ☐
5. The brain controls the body. ☐
6. The lungs are protected by the rib cage. ☐

C. **Read the words in the box. Then find and circle them.**

h	e	a	r	t	b	e	e
e	a	b	r	a	i	n	m
s	t	o	m	a	c	h	b
v	r	l	u	n	g	s	b

Word Box
brain lungs heart stomach

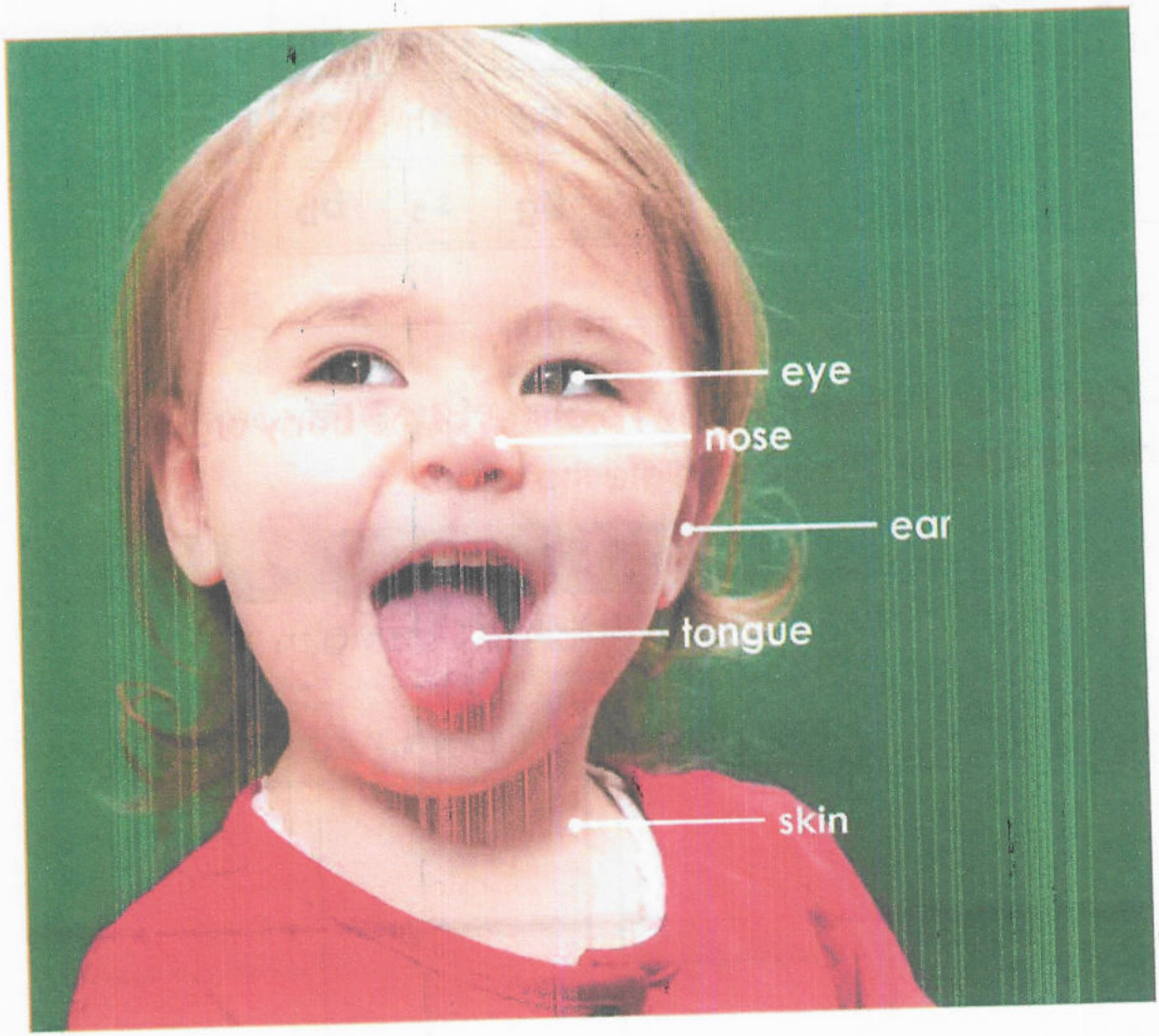
D. **Activity**

Cut out and paste (or draw) pictures of the body organs in the word box. Then complete the table.

Word Box
heart - brain - lungs - stomach

Picture	Body Organ	Picture	Body Organ
	.....		.....
	.....		.....

Our body has various sense organs that allow us to communicate with the environment. These sense organs are the eyes, nose, ears, tongue, and skin.



KEY TERMS

- sense organs
- eyes
- ears
- nose
- tongue
- skin



The eyes are responsible for seeing.



The ears are responsible for hearing.



The nose is responsible for smelling.



The tongue is responsible for tasting.

The skin is responsible for touching.
It covers the whole body.



WEIRD FACT

The human nose breathes more than 20,000 liters of air per day.

LESSON 11 SENSE ORGANS

A. Choose the correct answer.

1. The nose is the sense organ of .....
   - ○ touching
   - ○ smelling

2. The eyes are the sense organs of .....
   - ○ seeing
   - ○ hearing

3. We hear with our .....
   - ○ skin
   - ○ ears

B. Read the following statements. Decide whether each is true (T) or false (F).

1. The mouth is the sense organ of taste. ☐
2. The skin covers a part of the body. ☐
3. The eyes, ears, tongue, and nose are in the head. ☐

C. Read the words in the box. Then find and circle them.

s	o	t	y	i	b	e
e	a	s	m	e	l	l
e	m	e	h	e	a	r

Word Box

smell
hear
see

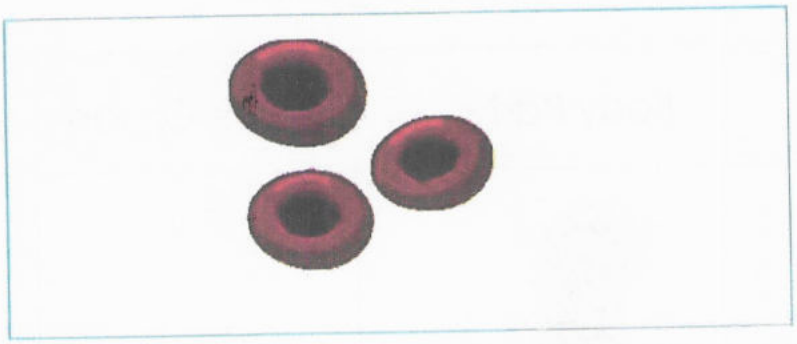
D. **Activity**

Complete the following table.

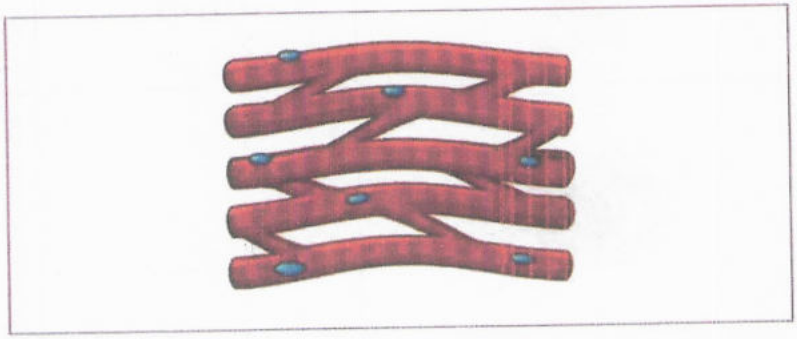
Body Part	Sense Organ	Function
	.....	.....
	.....	.....
	.....	.....
	.....	.....
	.....	.....

Human bodies are made up of increasingly complex parts, like cells, tissues, and organs.

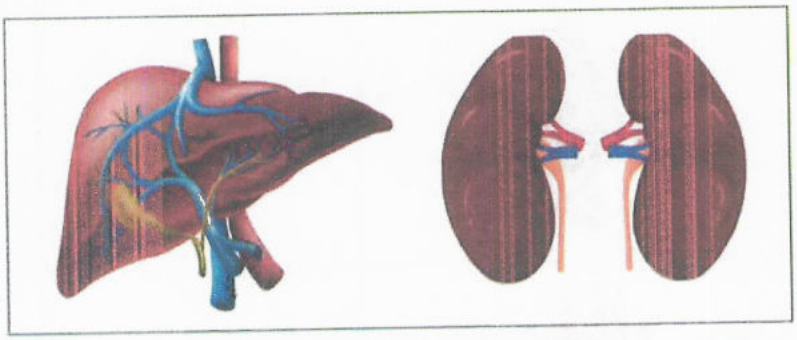
cells
(red blood cells)



tissues
(muscle tissue)



organs
(liver, kidneys)



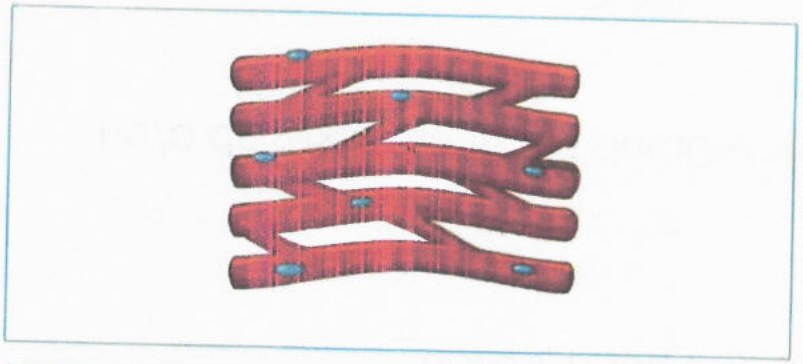
The cell is the smallest functional unit of life.

KEY TERMS

- cell
- tissue
- organ

An organ (heart, lung, or stomach) is made up of a group of different tissues. A living tissue is made up of a group of cells.

muscle tissue



nerve tissue



skin tissue
(epidermis)



WEIRD FACT

There are trillions of cells in the human body.

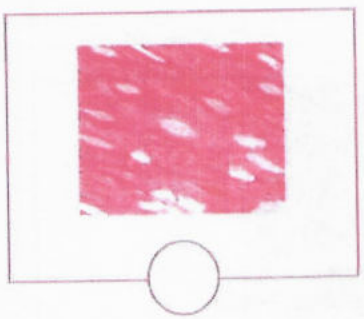
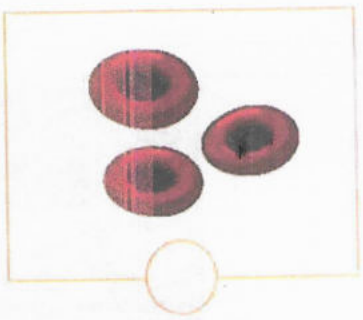
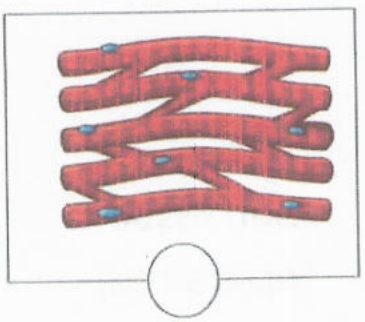
A. Choose the correct answer.

1. A group of cells makes up a/an
   - ○ tissue
   - ○ organ

2. A group of tissues makes up a/an
   - ○ organ
   - ○ stem

3. The heart is a/an
   - ○ cell
   - ○ organ

B. Choose the pictures that stand for a tissue.

C. Read the words in the box. Then find and circle them.

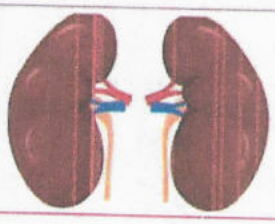
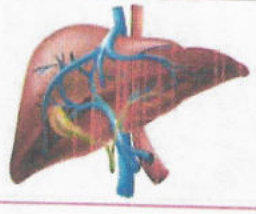
t	i	s	s	u	e	s
o	y	l	k	m	b	r
r	v	c	e	l	l	s
g	a	n	s	a	n	n

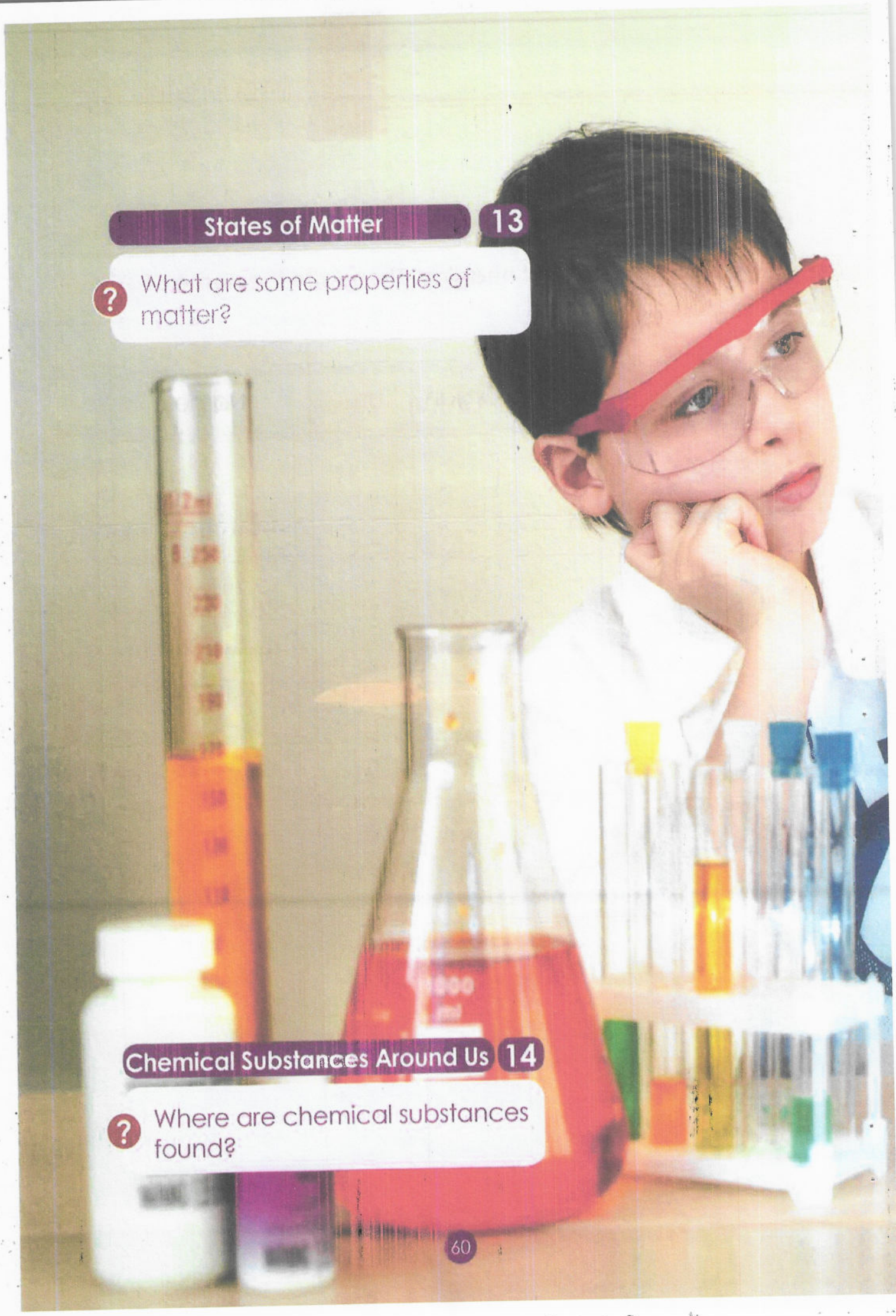
Word Box

cells
organs
tissues

D. **Activity**

Put (√) under the correct heading. Then write the name of each picture.

Picture	Cell	Organ	Tissue	Name
				.....
				.....
				.....
				.....
				.....
				.....



States of Matter 13

? What are some properties of matter?

Chemical Substances Around Us 14

? Where are chemical substances found?

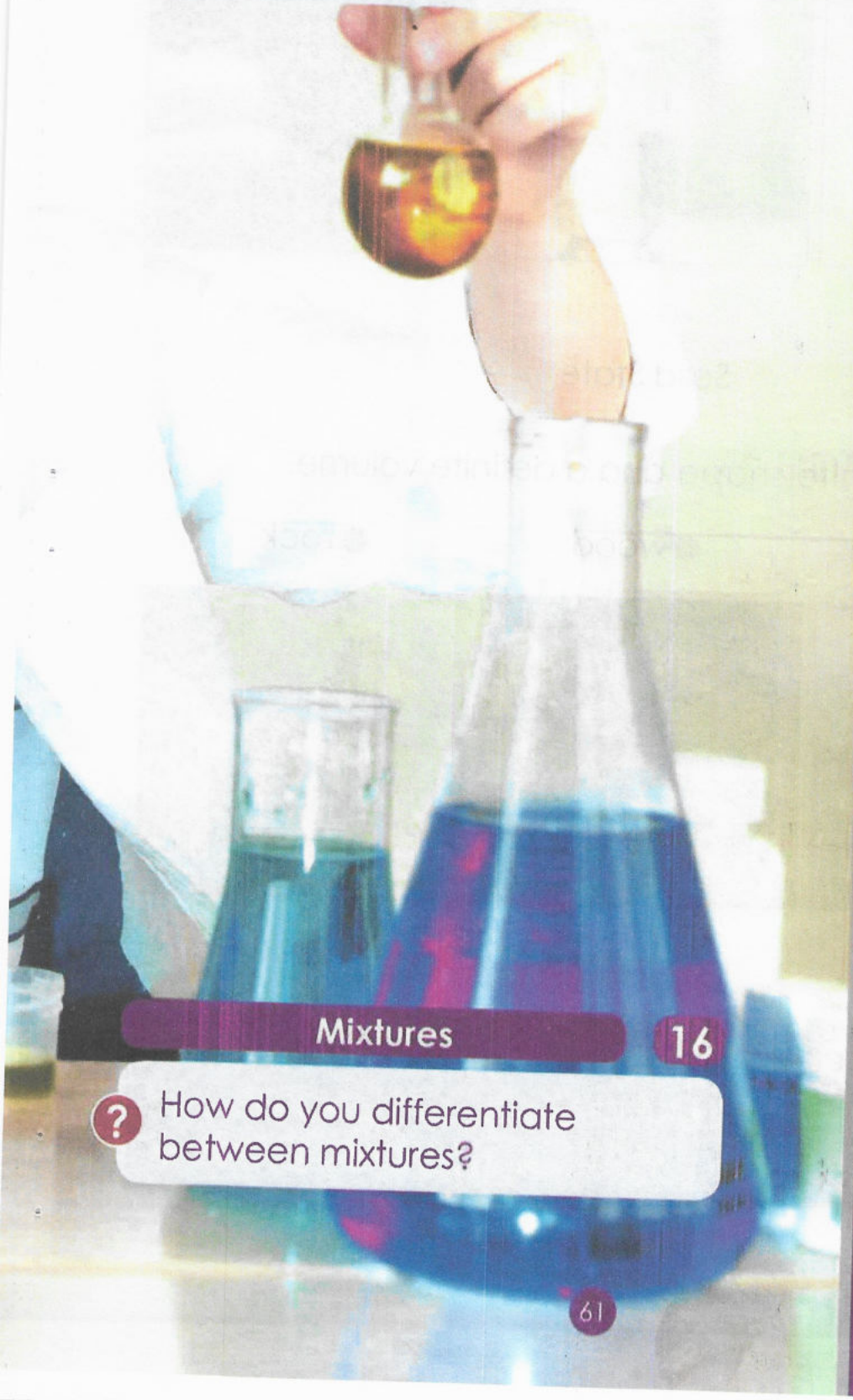
WORLD'S KEY

UNIT 4

CHEMISTRY

Changes in Matter 15

? What are the changes in matter?



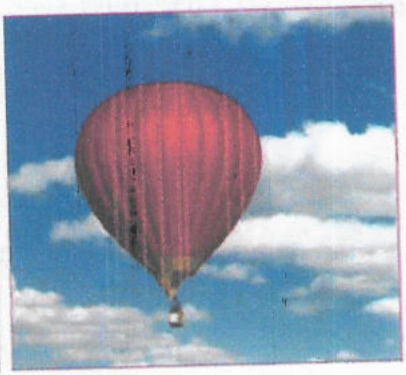
Mixtures 16

? How do you differentiate between mixtures?

LESSON 13 STATES OF MATTER

Matter is all around us. It is anything that takes up space. The three basic states of matter are solid, liquid, and gas.

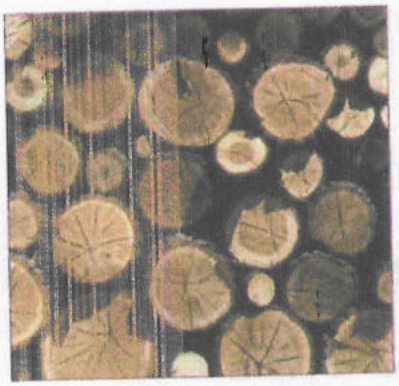
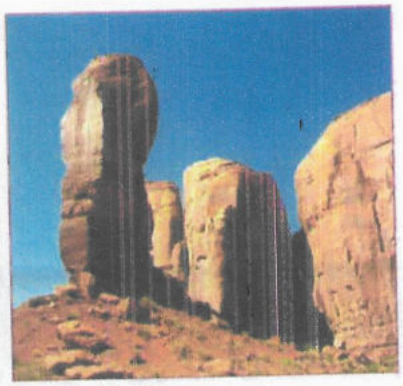




Solid State

Solids have a definite shape and a definite volume.

- ice cube
- wood
- rock

KEY TERMS

- solid
- liquid
- gas

Liquid State

All liquids have a definite volume but not a definite shape. Liquids flow and take the shape of their container.

- juice
- honey
- oil





Gaseous State

All gases spread out easily. They have neither a definite shape nor a definite volume. Gases expand freely to fill their container.

- air
- oxygen
- helium



WEIRD FACT

Helium is a very light gas. When we fill a balloon with helium, it flies up high into the sky.

A. Choose the correct answer.

1. ..... take the shape of their container.
   - ◯ Liquids
   - ◯ Solids

2. ..... expand freely to fill their container.
   - ◯ Solids
   - ◯ Gases

3. ..... have a definite shape.
   - ◯ Solids
   - ◯ Liquids

B. Write (L) for liquid, (S) for solid, and (G) for gas.



C. Read the words in the box. Then find and circle them.

n	r	a	s	o	l	g	i
l	i	q	u	i	d	a	y
s	f	v	a	t	e	s	r
s	s	o	l	i	d	r	b

Word Box

liquid
solid
gas

D. **Activity**

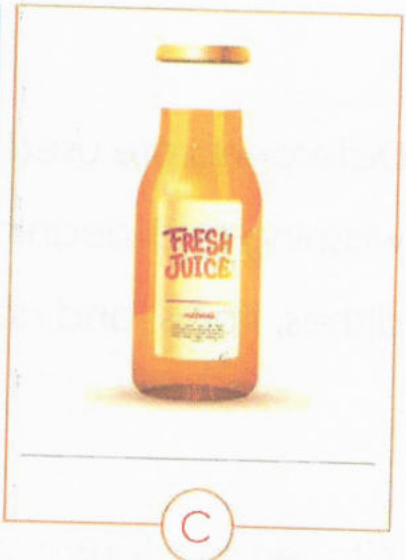
1. **Consider the following pictures. Write the name of each one on the line provided.**



A



B



C

2. **Write the state of matter of the above pictures. Then put (√) under the correct heading.**

	State of Matter	Has a Definite Shape	Has a Definite Volume
A			
B			
C			

LESSON 14 CHEMICAL SUBSTANCES AROUND US

Everything, including us, is made up of chemical substances. We are also surrounded by chemical substances of all types.

Detergents are used for washing and cleaning dishes, floors, and carpets.



Kitchen substances are used for preparing food.
Baking soda and baking powder are widely used in baking.
Vinegar, sugar, and salt are examples of kitchen substances.



KEY TERMS

- detergents
- medicine
- kitchen substances
- laboratory chemicals

Tablets like paracetamol and penicillin are used as medicine to cure different diseases. Alcohol is used to disinfect the skin against infections.



Laboratory chemicals are used in experiments. Acids, bases, and indicators are laboratory chemicals. These types of chemicals are not safe to consume or touch.



WEIRD FACT

Some acids are used in car batteries; others are used in beverages.

A. **Choose the correct answer.**

1. Penicillin is a .....
   - ◯ detergent
   - ◯ medicine

2. Baking powder is a .....
   - ◯ detergent
   - ◯ kitchen substance

3. Acids are types of .....
   - ◯ medicine
   - ◯ laboratory chemicals

B. **Classify the chemical substances in the table below.**

Word Box
paracetamol - baking soda - vinegar alcohol - sugar - vitamins

Kitchen Substances	Medicine
.....	.....
.....	.....
.....	.....

C. **Read the words in the box. Then find and circle them.**

n	s	u	b	s	t	a	n	c	e	s
t	c	r	m	e	d	i	c	i	n	e
c	h	e	m	i	c	a	l	s	y	r
d	e	t	e	r	g	e	n	t	s	s

Word Box

chemicals
medicine
detergents
substances

D. **Put (√) under the correct heading.**

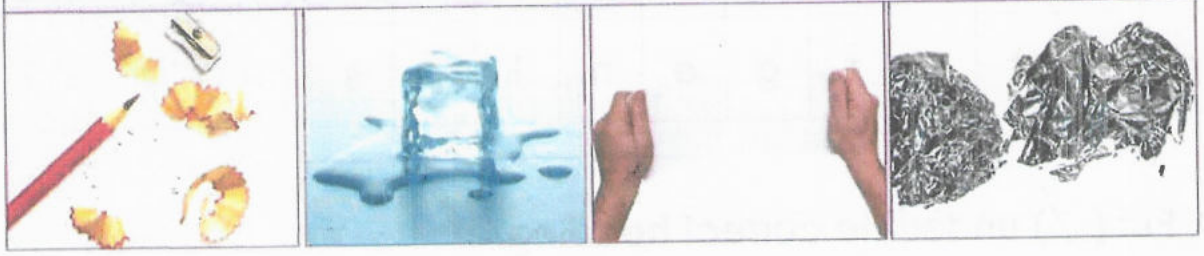
	Detergent	Kitchen Substance	Medicine	Laboratory Chemical
used for preparing food				
used for curing diseases				
used for cleaning clothes				
used in labs				

LESSON 15 CHANGES IN MATTER

Matter Can Change

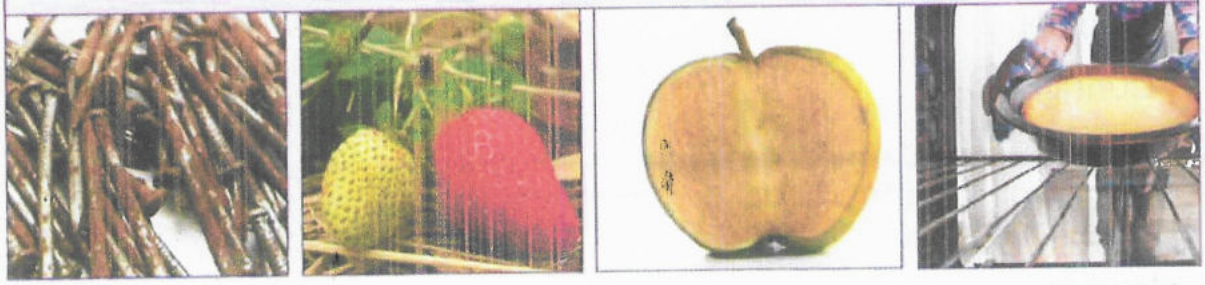
A change in matter can be physical or chemical.
A physical change is a change in the shape, size, or state of matter without changing its kind.

Common Physical Changes



A chemical change happens when one or more substances are changed into new substances.
A chemical change is also called a chemical reaction.

Common Chemical Changes



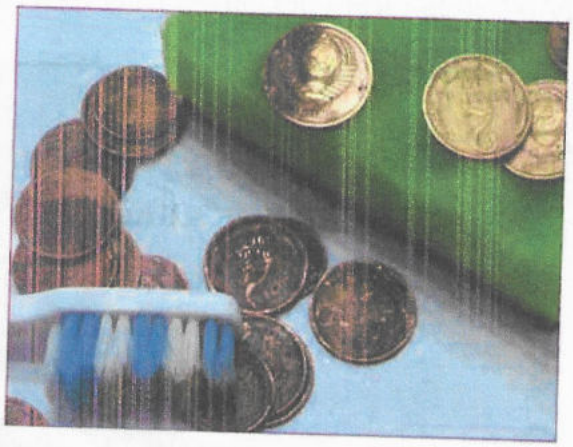
KEY TERMS

- physical change
- chemical change
- chemical reaction

Experiment: Brightening Dull Coins

Materials

- vinegar
- salt
- dull coins
- toothbrush



Procedure

- Place the dull coins in a mixture of vinegar and salt.
- Brush them well.

Observation

The coins will be brighter than before.

Conclusion

Cleaning dull coins is a chemical reaction.

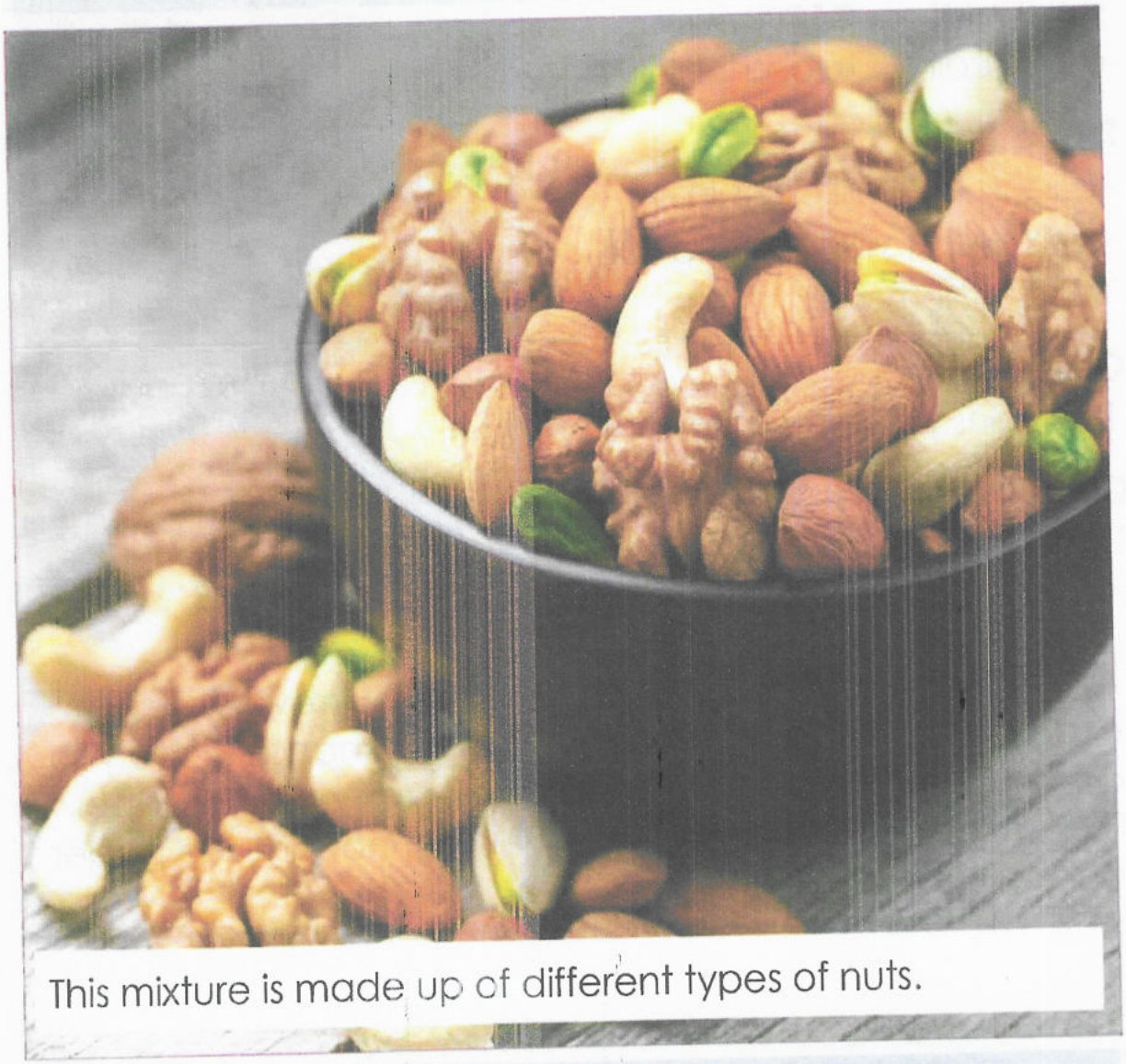
A change in matter can be reversible or irreversible. For example, freezing water is a reversible change since you can get water back. On the other hand, burning paper is an irreversible change since you cannot get the paper back.

WEIRD FACT

The formation of stalactites takes millions of years.

LESSON 16 MIXTURES

A mixture is made up of two or more substances.
Mixtures are classified as homogeneous and heterogeneous.



This mixture is made up of different types of nuts.

KEY TERMS

- mixture
- homogeneous
- heterogeneous

Homogeneous Mixture

A homogeneous mixture is made up of only one phase. While looking at a homogeneous mixture, we observe only one color.



Heterogeneous Mixture

A heterogeneous mixture is made up of more than one phase.
While looking at a heterogeneous mixture, we observe many colors or layers.



WEIRD FACT

Air around us is a homogeneous mixture.

LESSON 16 MIXTURES

A. **Choose the correct answer.**

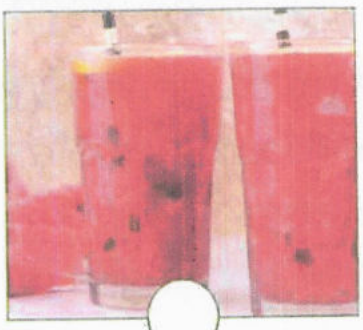
1. Oil and water do not mix; they form a ..... mixture.
   - ◯ homogeneous
   - ◯ heterogeneous

2. Salty water is a ..... mixture.
   - ◯ homogeneous
   - ◯ heterogeneous

3. A homogeneous mixture is made up of .....
   - ◯ one phase
   - ◯ two or more phases

B. **Choose the picture that contains a homogeneous mixture.**





C. **Read the words in the box. Then find and circle them.**

h	h	b	a	p	o	r	a	p	o	r
e	o	m	i	x	t	u	r	e	e	s
t	m	o	g	e	n	e	o	u	s	u
e	r	o	g	e	n	e	o	u	s	r

Word Box

mixture
homogeneous
heterogeneous

D. Activity: Mixtures

Materials

- four beakers
- stirring rod
- salt
- sugar
- sand
- oil
- water
- tablespoon

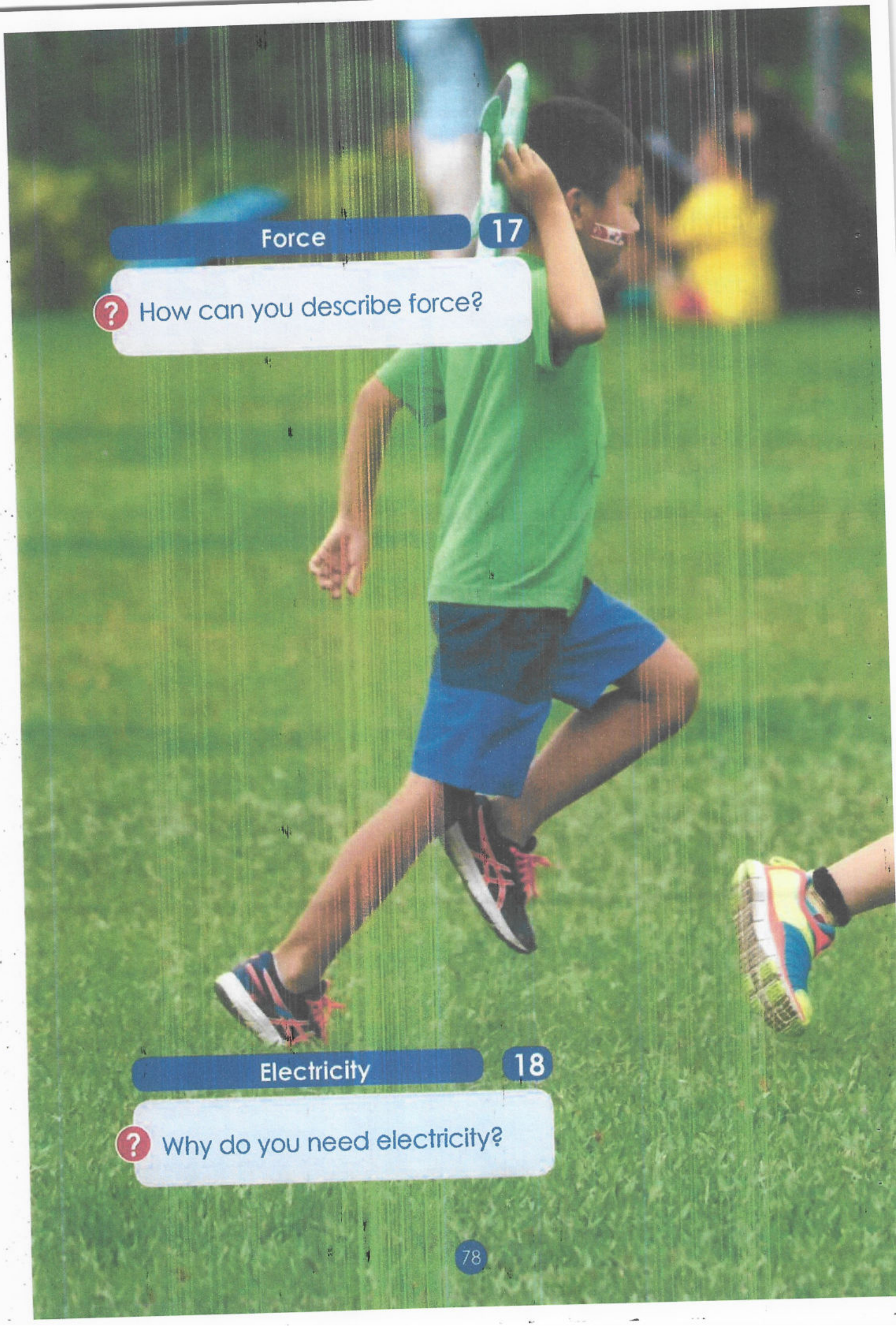
Procedure

- Pour water into the four beakers A, B, C, and D.
- Add one tablespoon of sand to beaker A, sugar to beaker B, oil to beaker C, and salt to beaker D.
- Stir the content of each beaker, and allow it to settle.

Analysis

- Observe the number of phases in each beaker. Then complete the chart.

Beaker		Number of Phases	Type of Mixture
A			.....
B			.....
C			.....
D			.....



Force 17

? How can you describe force?

Electricity 18

? Why do you need electricity?



WORLD'S KEY

UNIT 5

PHYSICS

Magnet 19

? What does a magnet do?

Solar System 20

? What is the solar system made up of?

LESSON 17 FORCE

Forces are found everywhere. Force is the energy that causes things to move and change direction.



Some forces are weak; others are strong.

The crawling of an ant on your skin is a weak force.

The walking of an elephant on the ground is a strong force.





KEY TERMS

- push force
- pull force
- gravitational force
- strong force
- weak force

Forces are of various types, like push force, pull force, and gravitational force.

Push Force

Some forces are push forces that tend to move objects away from you.



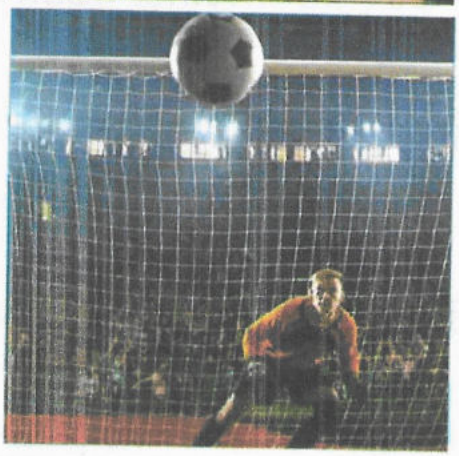
Pull Force

Some forces are pull forces that tend to move objects toward you.



Gravitational Force

The force that causes a ball you throw in the air to come down again is a gravitational force.



WEIRD FACT

Without gravitational force, we would float in space.

A. **Choose the correct answer.**

1. The falling of a ball is due to a .....
   ○ gravitational force ○ pull force

2. The walking of an elephant on the ground is a .....
   ○ weak force ○ strong force

3. The launching of a rocket is due to a .....
   ○ strong force ○ weak force

B. **Read the following statements.**
Decide whether each is true (T) or false (F).

1. A horse pulling a cart is an example of a push force. ☐

2. An athlete throwing a ball is an example of a push force. ☐

3. An apple falling to the ground is an example of a gravitational force. ☐

4. A feather blown by the wind is an example of a strong force. ☐

C. **Read the words in the box. Then find and circle them.**

g	r	a	v	i	t	a	t	i	o	n	a	l
t	w	e	a	k	t	y	p	i	u	l	a	p
f	o	r	c	e	r	r	u	o	t	r	m	u
s	e	a	s	u	r	e	l	s	u	k	e	s
s	t	r	o	n	g	r	l	o	t	r	r	h

Word Box

force
push
pull
gravitational
weak
strong

D. **Put (√) under the correct heading.**



Pull Force	Push Force	Gravitational Force

LESSON 18 ELECTRICITY

Electricity comes mainly from power plants using fossil fuels.

Windmills, solar panels, and water currents are also used to generate electricity.



Electricity can also be generated from batteries. Electricity comes to your house through cables.

Electricity can light up lamps, run the TV, and charge the iPad.



KEY TERMS

- electricity
- fossil fuels
- windmills
- solar panels
- water currents

Experiment: A Battery Lighting up a Bulb

Materials

- battery
- light bulb
- wires

Procedure

Connect the bulb to the battery using the wires, as shown in figures **A** and **B**.

Observe what happens to the bulb.

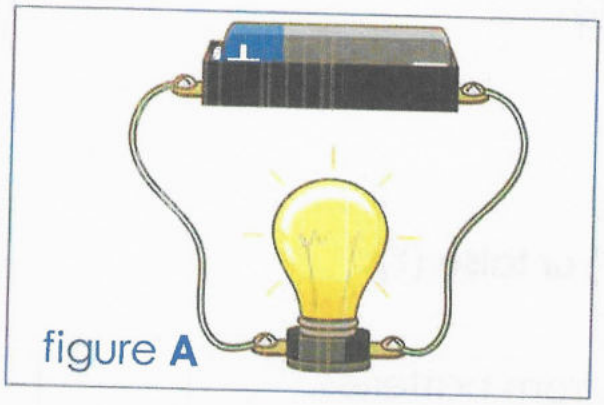


figure **A**

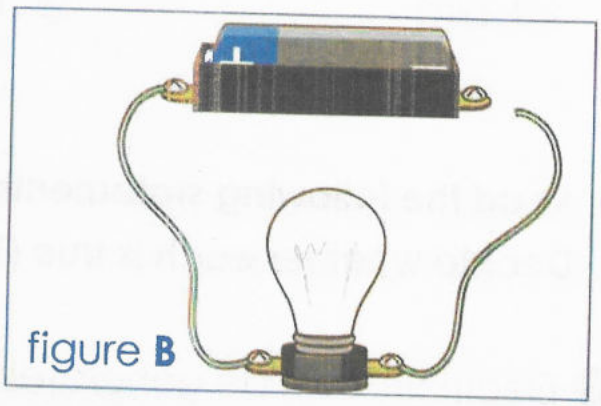


figure **B**

Conclusion:

The bulb lights up when it is connected to the battery.

WEIRD FACT

The electric eel is a fish that can generate electricity.

LESSON 18 ELECTRICITY

A. **Choose the correct answer.**

1. Electricity is a type of .....
   - ○ food
   - ○ energy

2. We can use ..... to get electricity.
   - ○ windmills
   - ○ cars

3. The electric eel is a ..... that can generate electricity.
   - ○ bird
   - ○ fish

B. **Read the following statements.**
Decide whether each is true (T) or false (F).

1. Electricity can be generated from batteries. ☐
2. The most important source of electricity is wind. ☐
3. Electricity can light up lamps. ☐
4. The bike needs electricity to function. ☐
5. Solar panels are used to generate electricity. ☐

C. **Read the words in the box. Then find and circle them.**

g	r	w	i	y	d	f	o	s	s	i	l	f
t	l	p	a	n	e	l	s	r	u	l	a	u
e	l	e	c	t	r	i	c	i	t	y	m	e
w	i	n	d	m	i	l	l	s	u	k	e	l
c	u	r	r	e	n	t	s	o	t	r	r	s

Word Box

electricity
fossil fuels
windmill
panels
currents

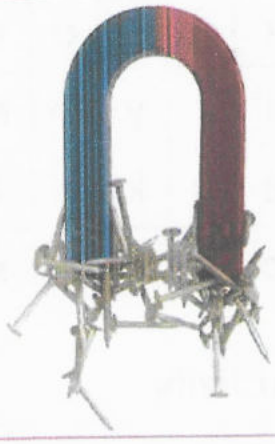
D. **Activity**

Cut out and paste or (draw) pictures of the objects in the word box. Then complete the table with their names, and tick (√) the object that needs electricity to work.

Word Box: television - bike - light bulb - car

Picture	Name	Needs Electricity to Work
	.....	
	.....	
	.....	
	.....	

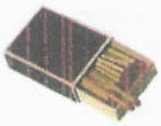
Magnets attract metals like iron and nickel.



A magnet does not attract wood and plastic.
Examples of things that are not attracted by a magnet:


candle


ball


matches


thread spool


buttons


book

KEY TERMS

- magnet
- north pole
- south pole

Magnets come in different forms, sizes, and shapes.



bar magnet



cylindrical magnet



ring magnet



circular magnet

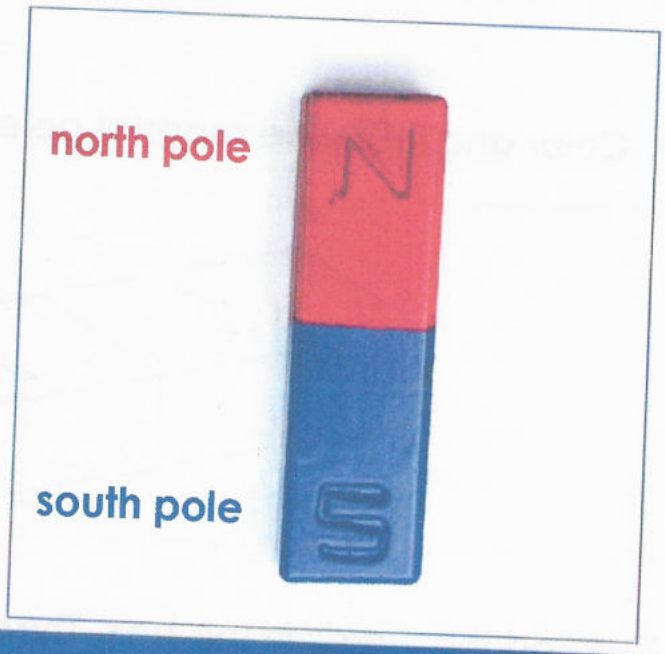


U-shaped magnet



horseshoe magnet

A magnet has two poles: a north pole and a south pole.



WEIRD FACT

The world's largest magnet weighs 1,000 tons.

LESSON 19 MAGNET

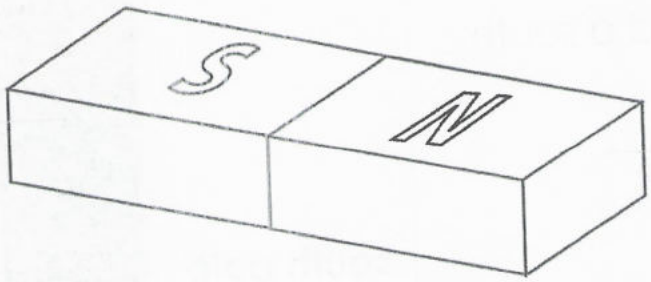
A. **Choose the correct answer.**

1. Magnets attract .....
   - ○ iron
   - ○ wood

2. Magnets attract .....
   - ○ plastic
   - ○ nickel

3. A magnet has .....
   - ○ one pole
   - ○ two poles

B. **Color and label the magnet poles.**



C. **Read the words in the box. Then find and circle them.**

e	s	s	o	u	t	h	c	e	h
n	o	r	t	h	l	p	o	l	e
n	m	a	g	n	e	t	g	h	t

Word Box

magnet
south
north
pole

D. Activity: Magnets Exploration

Materials

- magnet
- bowl
- sand
- marbles
- iron nails
- coins
- screws
- sawdust

Procedure

- Put the sand in the bowl.
- Put the coins, marbles, screws, sawdust, and iron nails in the sand, and mix them.
- Bring the magnet closer to the objects in the bowl.

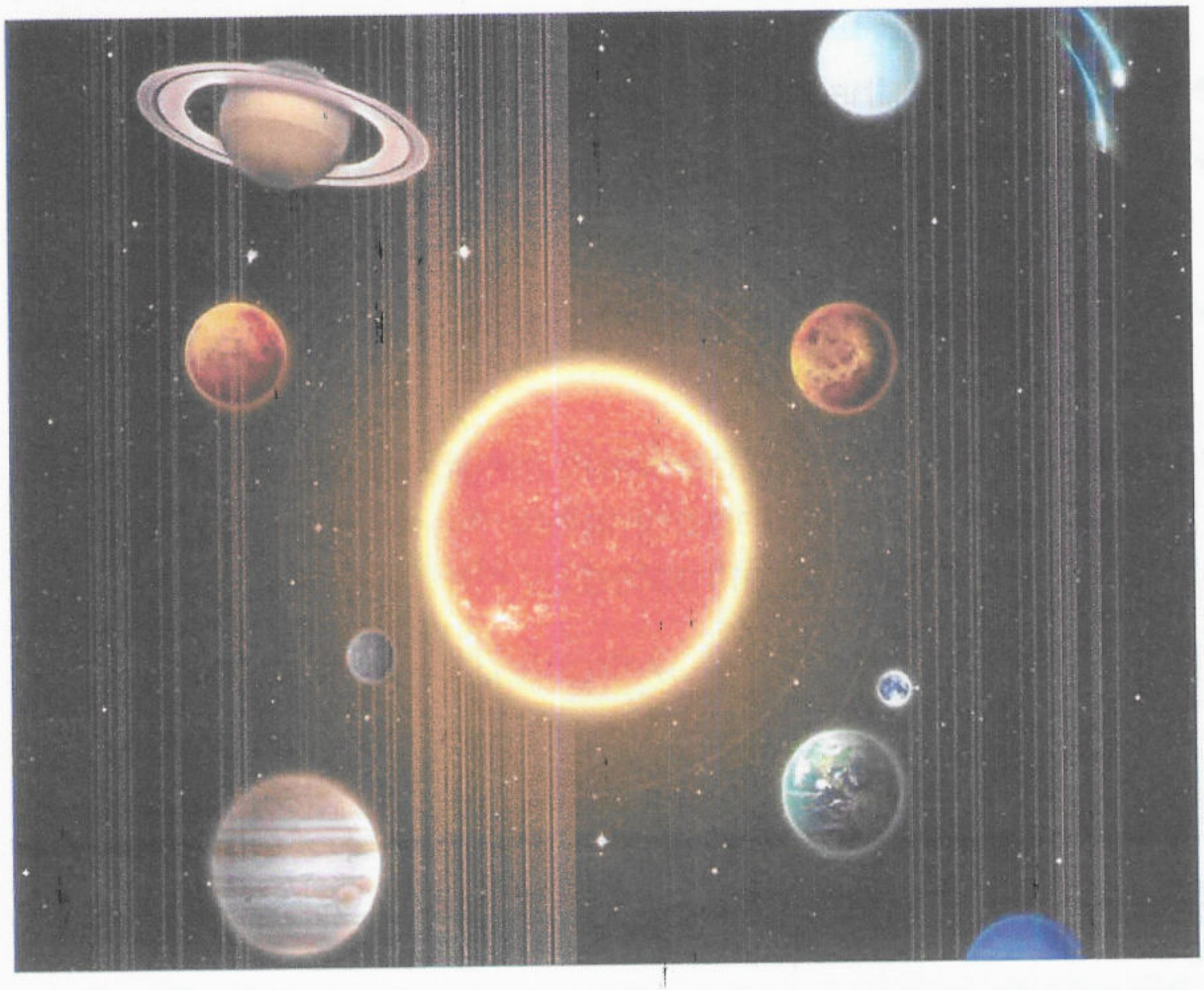
Analysis

- Observe the attraction between the magnet and the objects in the bowl. Then complete the table, and add a (✓) if the objects are attracted by the magnet.

Objects	Attracted by the Magnet
.....	
.....	
.....	
.....	
.....	
.....	

LESSON 20 SOLAR SYSTEM

We live in a huge universe. The system we live in is called the solar system.
The solar system is made up of the Sun, planets, and smaller bodies that rotate around the Sun.
The Sun is the center of the solar system.



KEY TERMS

- solar system
- planet
- Sun
- Earth

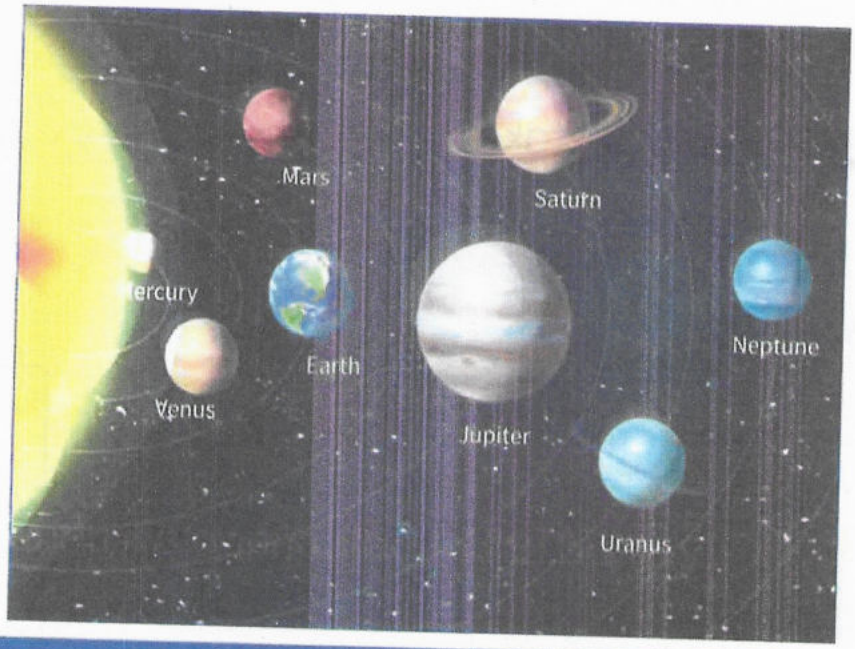


People live on planet Earth.

- It is the third planet in the solar system.
- It is a spherical planet that revolves around the Sun.

There are eight planets in the solar system.

The biggest planet is Jupiter, and the smallest planet is Mercury.



WEIRD FACT

The Sun is extremely hot. The temperature of the outer surface of the Sun is about 6,000 °C.

A. Choose the correct answer.

1. The center of the solar system is .....
   - ○ Earth
   - ○ the Sun

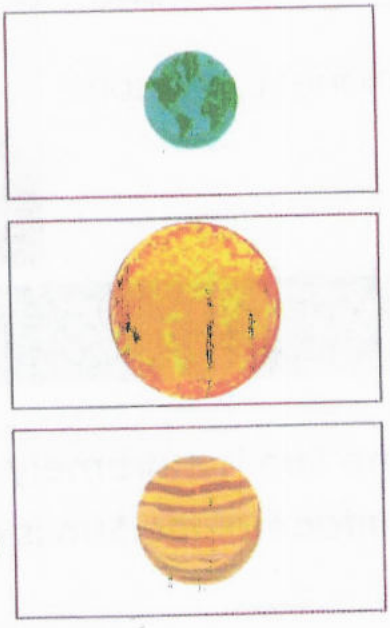
2. Earth is a ..... planet.
   - ○ spherical
   - ○ triangular

3. Planet Earth revolves around .....
   - ○ the Sun
   - ○ Jupiter

4. Planet Earth takes light from .....
   - ○ Mercury
   - ○ the Sun

B. Match.

Jupiter	•
Earth	•
Sun	•



C. **Read the words in the box. Then find and circle them.**

J	u	p	i	t	e	r	r	s	E
u	a	u	m	o	y	a	o	r	a
S	M	e	r	c	u	r	y	o	r
u	p	l	a	n	e	t	o	r	t
n	a	i	s	o	l	a	r	a	h

Word Box

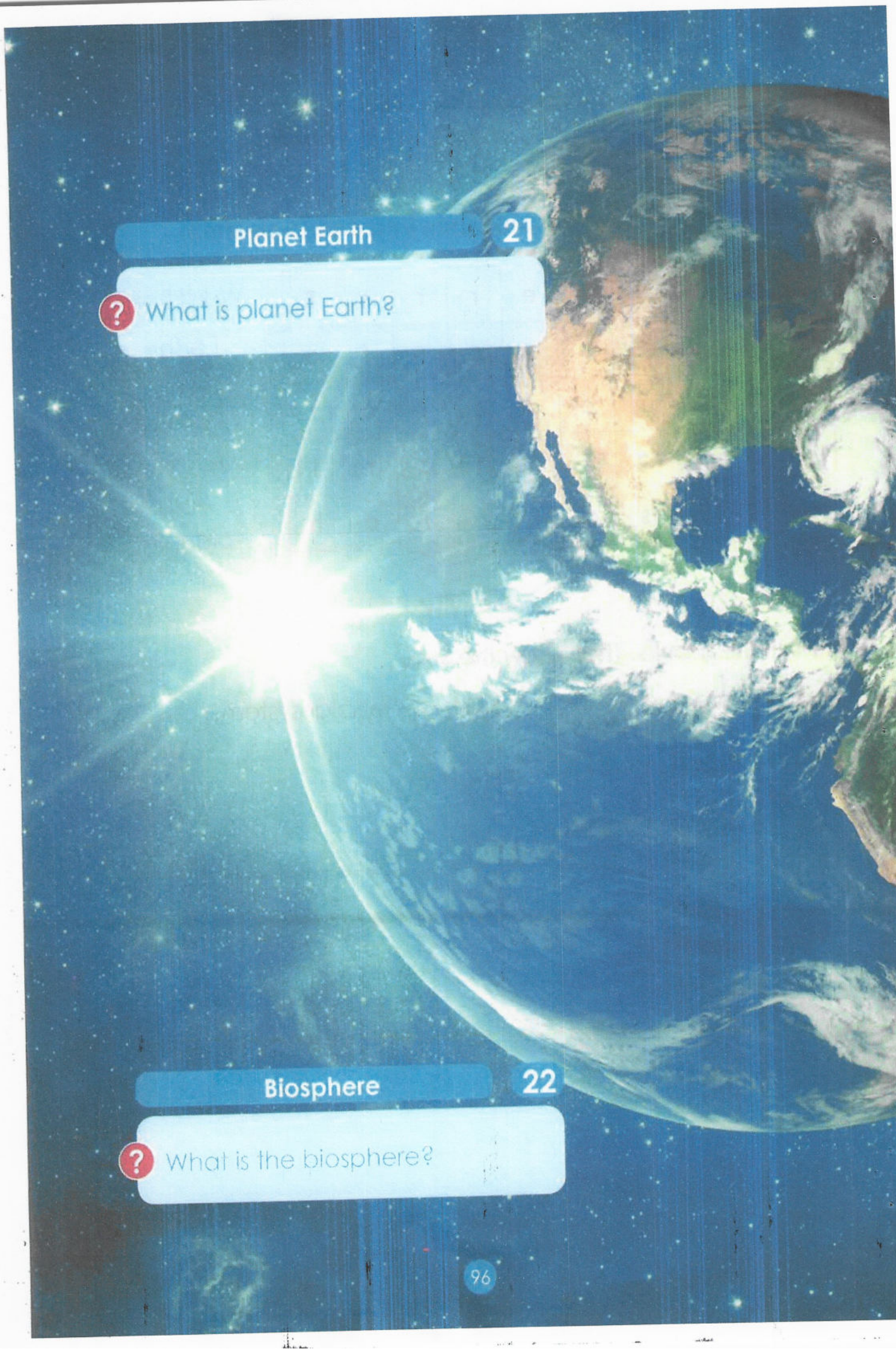
Earth
Sun
Jupiter
Mercury
solar
planet

D.

Activity

- **Fill in the blanks. Then draw the Sun.**

1. There are ..... planets in the solar system.
2. The biggest planet is .....
3. The smallest planet is .....



Planet Earth 21

? What is planet Earth?

Biosphere 22

? What is the biosphere?



WORLD'S KEY

UNIT 6

EARTH

Ecosystem 23

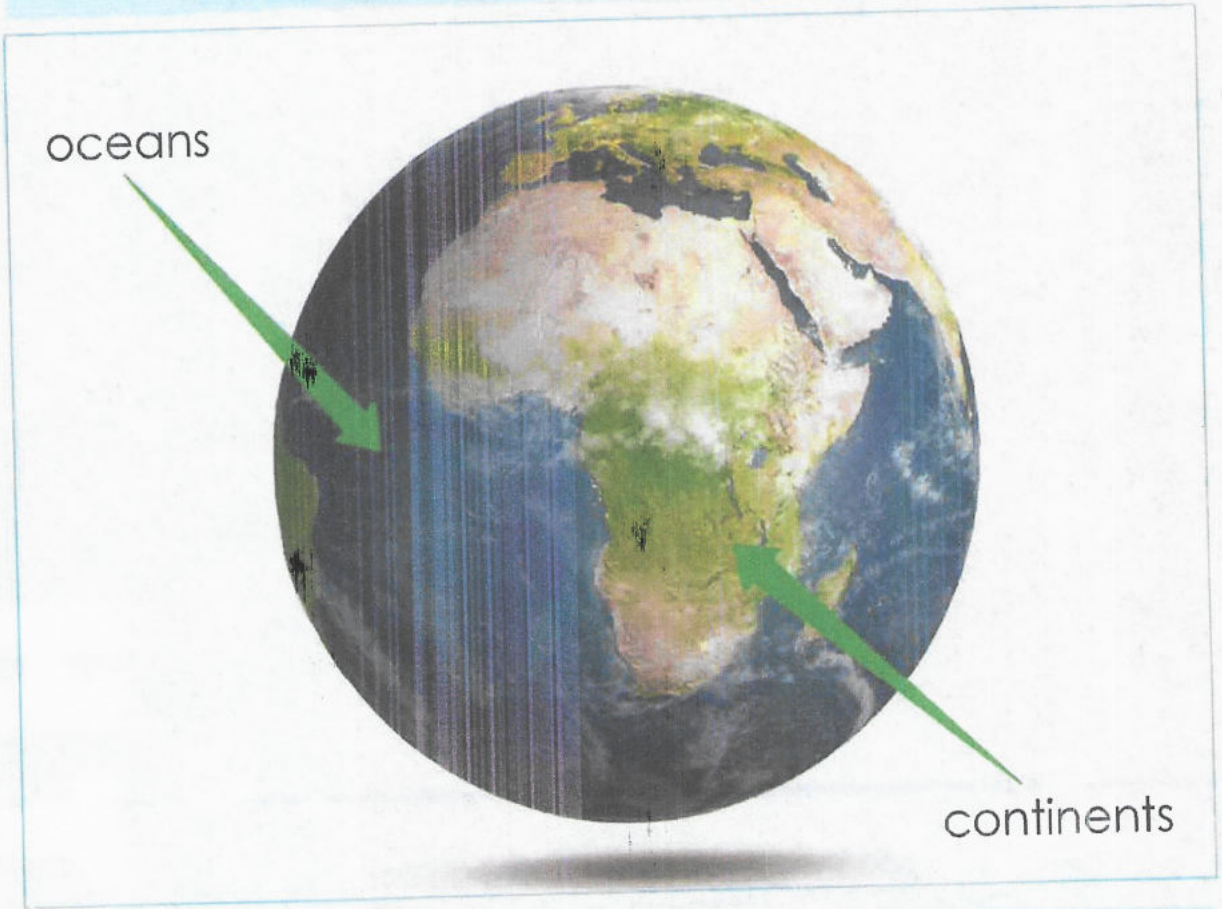
? What does the ecosystem include?

Food Chain 24

? How does a food chain work?

Planet Earth is a spherical planet. It is the only planet in our solar system that supports life. It has one Moon that revolves around Earth every day.

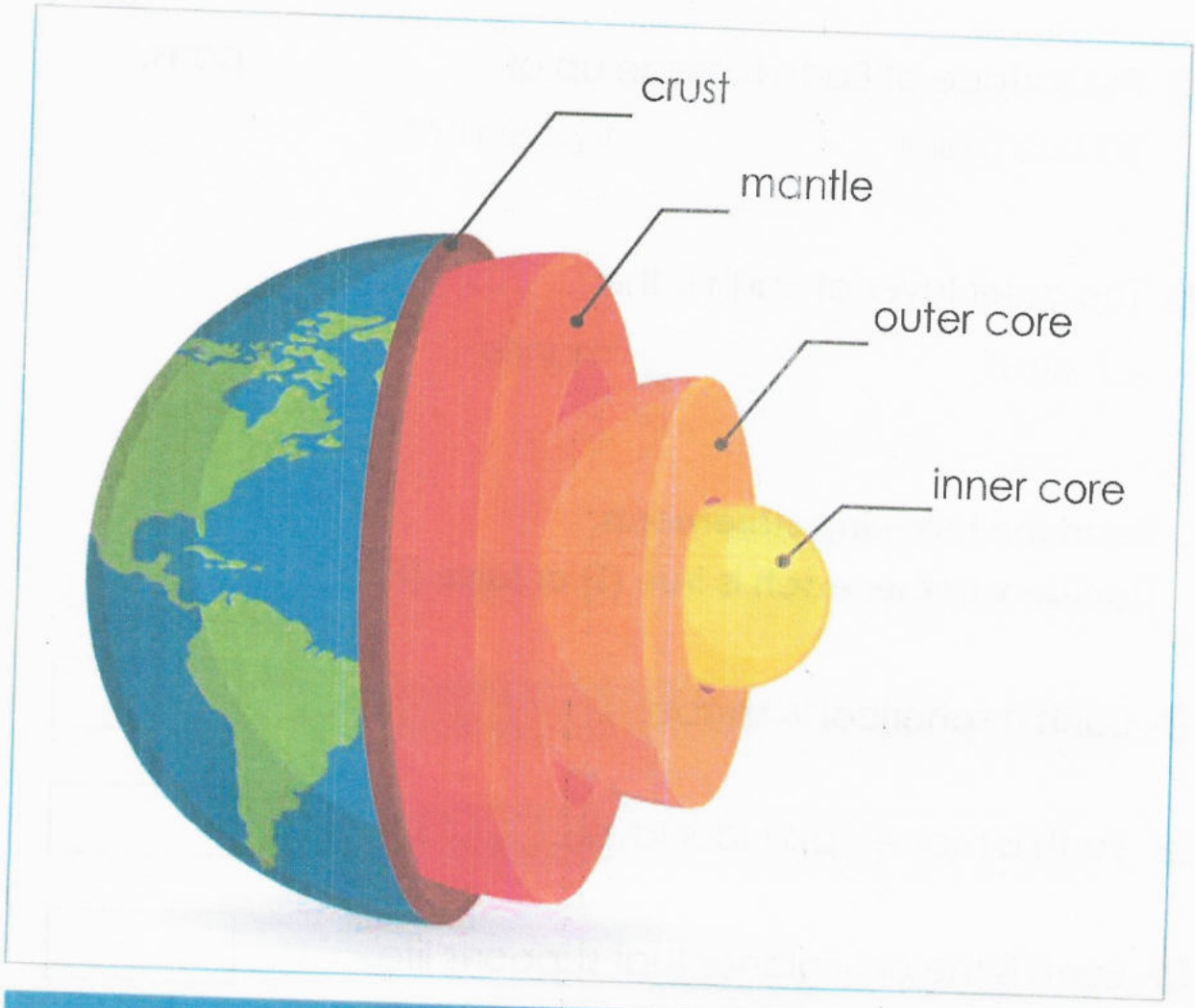
The surface of Earth is made up of two distinct parts: oceans and continents.



KEY TERMS

- Earth
- Moon
- oceans
- core
- continents
- crust
- mantle

Earth is made up of four layers. These layers are the crust, the mantle, the outer core, and the inner core.



WEIRD FACT

The inner core is as hot as the Sun's surface.

A. Choose the correct answer.

1. Planet Earth has .....
   - ○ one moon
   - ○ many moons

2. The surface of Earth is made up of ..... parts.
   - ○ two similar
   - ○ two distinct

3. The outer layer of Earth is the .....
   - ○ crust
   - ○ mantle

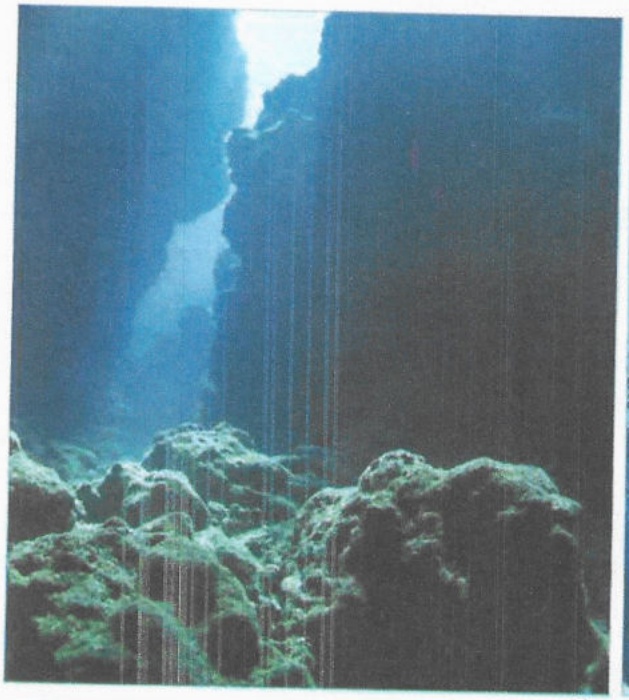
B. Read the following statements. Decide whether each is true (T) or false (F).

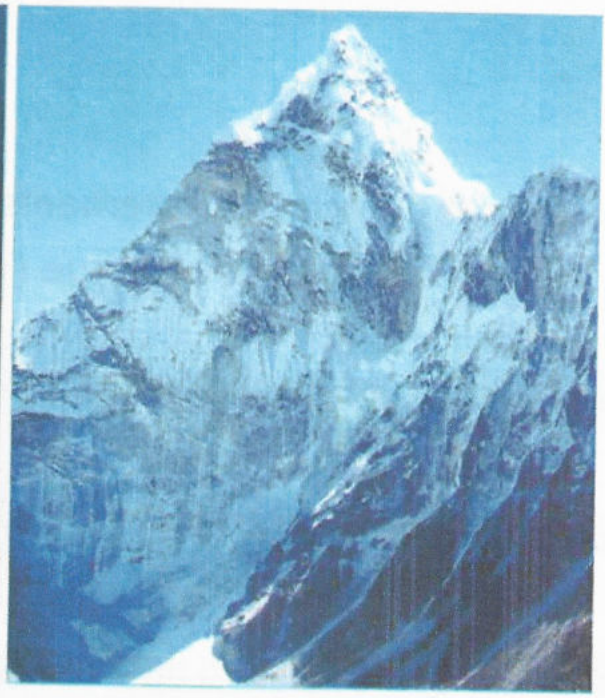
1. Earth is spherical in shape. ☐
2. Earth is made up of four layers. ☐
3. Earth is the only planet that supports life. ☐
4. The surface of Earth is made up of continents and oceans. ☐
5. The Moon revolves around the Sun. ☐

There is more water than land in Earth's biosphere. The aquatic habitats include all organisms living in the oceans, seas, rivers, and ponds.



The biosphere extends from the deepest point in the ocean, the Mariana Trench, to the highest mountain, Mount Everest.





WEIRD FACT

The Mariana Trench, located in the Pacific Ocean, is the deepest point on Earth.

A. Choose the correct answer.

1. The ..... includes all the habitats on Earth.
   - ◯ aquatic habitat
   - ◯ biosphere

2. The aquatic habitat is dominated by .....
   - ◯ water
   - ◯ animals

3. The deepest point on Earth is
   - ◯ the Mariana Trench
   - ◯ Mount Everest

B. Read the following statements. Decide whether each is true (T) or false (F).

1. Earth is a huge biosphere. ☐
2. The highest point on Earth is Mount Everest. ☐
3. Fish live in the terrestrial habitat. ☐
4. The terrestrial habitat includes all the organisms living in water. ☐
5. Whales live in the aquatic habitat. ☐

C. Read the words in the box. Then find and circle them.

a	q	u	a	t	i	c	e	r	r	e	r
u	f	n	h	a	b	i	t	a	t	e	n
b	i	o	s	p	h	e	r	e	s	r	s
n	t	e	r	r	e	s	t	r	i	a	l

Word Box

biosphere
terrestrial
aquatic
habitat

D. Complete the following chart.

	Name	Habitat
	.....	.....
	.....	.....
	.....	.....
	.....	.....

An ecosystem is a place where living things live and interact. Ecosystems range in size from a small pond to the entire Earth.

There are different types of ecosystems, such as deserts, forests, rainforests, rivers, lakes, and oceans.



KEY TERMS

- ecosystem
- organisms

The ecosystem is divided into two parts: a living part and a non-living part.

The living part includes plants, animals, and other organisms.

The non-living part includes water, soil, sand, air, and many other elements.



WEIRD FACT

The deepest ecosystem is found at 11,000 meters.

A. **Choose the correct answer.**

1. A/an ..... is a place where living things live and interact.
   - ○ space
   - ○ ecosystem

2. Ecosystems range in size from a small pond to the entire .....
   - ○ Earth
   - ○ Sun

3. There are ..... types of ecosystems.
   - ○ two
   - ○ different

B. **Read the following statements.**
Decide whether each is true (T) or false (F).

1. The desert is a type of ecosystem. ☐
2. The biggest ecosystem is the pond. ☐
3. The smallest ecosystem is the biosphere. ☐
4. The living part of an ecosystem includes animals, plants, and other organisms. ☐
5. Sand is a living part of an ecosystem. ☐

C. Read the words in the box. Then find and circle them.

r	i	n	t	e	r	a	c	t	r
o	r	g	a	n	i	s	m	s	n
e	c	o	s	y	s	t	e	m	n
n	u	e	l	e	m	e	n	t	s

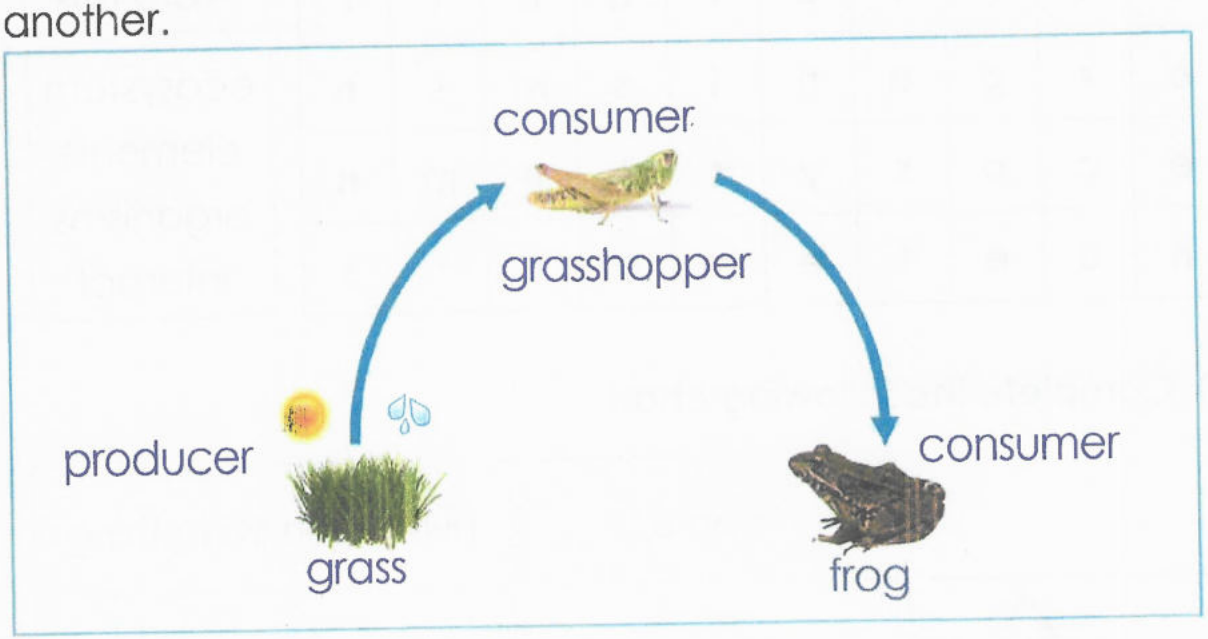
Word Box

ecosystem
elements
organisms
interact

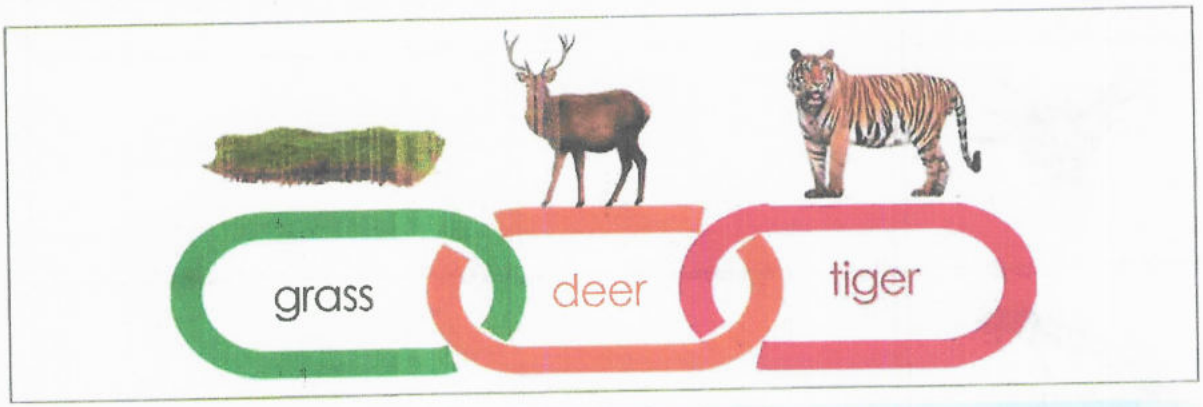
D. Complete the following chart.

	Name	Living/Non-living Thing
	.....	.....
	.....	.....
	.....	.....
	.....	.....

A food chain shows the diet of each living thing. A food chain shows how nutrients pass from one creature to another.



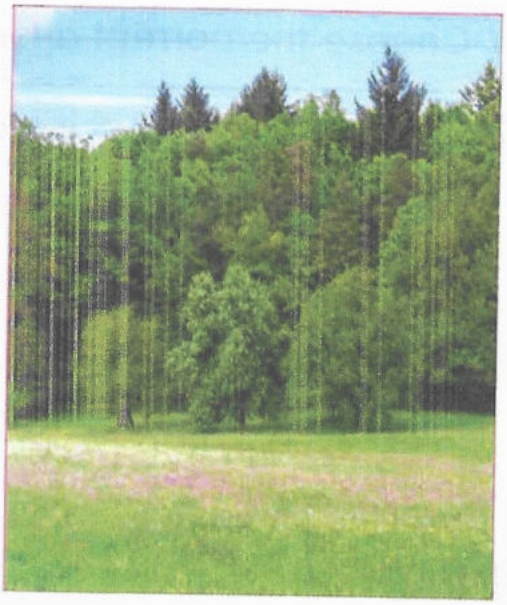
A food chain is made up of links. Each link in a food chain is food for the next link.



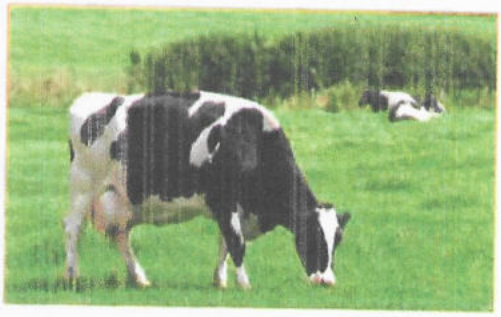
KEY TERMS

- food chain
- producer
- consumer

Plants are the first element of a food chain. They are called producers, like grass, moss, and trees.
Animals are called consumers because they cannot make their own food, so they need to consume plants and animals.



Animals that eat plants are called consumers.
Examples include deer, cows, and horses.



Animals that consume other animals are also called consumers.
Examples include lions, tigers, and wolves.



WEIRD FACT

The large giraffe eats grass, while the tiny weasel eats animals.

A. Choose the correct answer.

1. A food chain shows the diet of each ..... .
   - ○ living thing
   - ○ non-living thing

2. Plants are the ..... element of a food chain.
   - ○ first
   - ○ last

3. Animals are the ..... in the food chain.
   - ○ producers
   - ○ consumers

B. Tell whether each living thing below is a producer or a consumer.

1. apple tree .....
2. pigeon .....
3. carrot .....
4. sheep .....
5. grass .....
6. frog .....

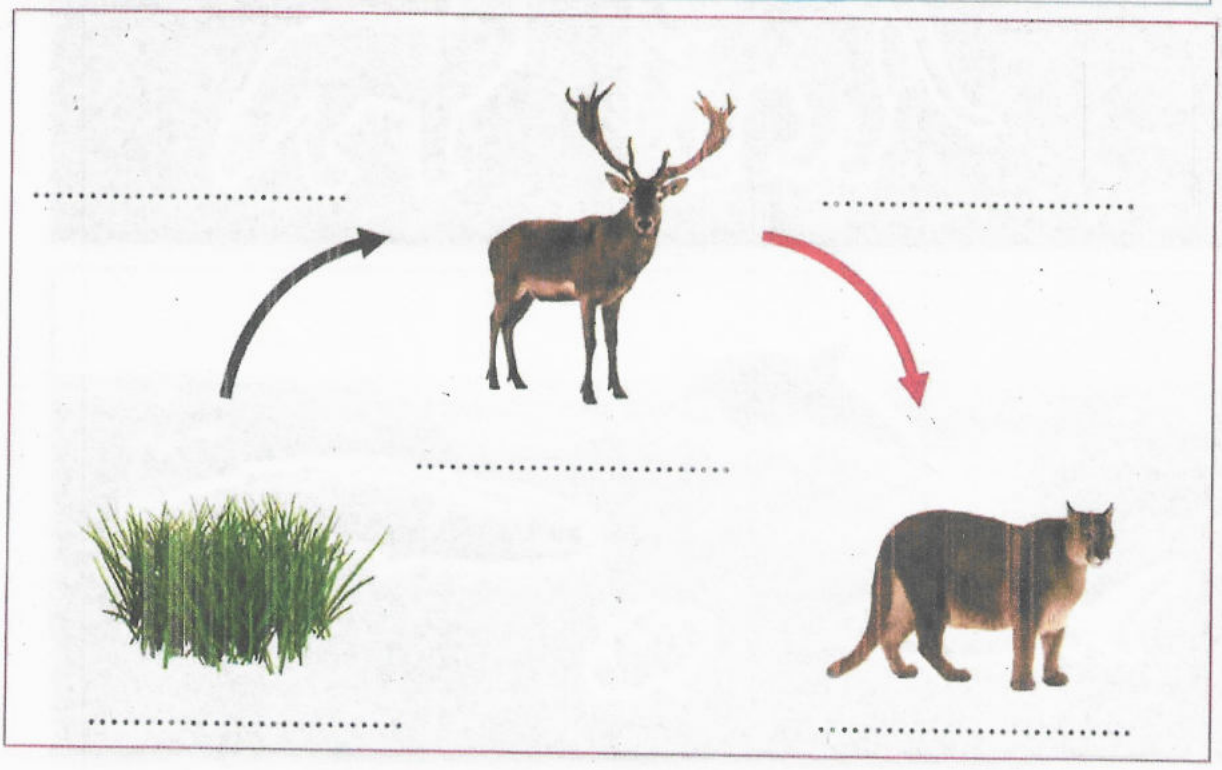
C. Read the words in the box. Then find and circle them.

f	p	r	o	d	u	c	e	r	f
o	c	c	o	n	s	u	m	e	r
o	u	l	a	n	d	s	n	d	o
d	c	h	a	i	n	y	n	i	d

Word Box
food chain consumer producer

D. Label the elements of the food chain below using the terms in the word box.

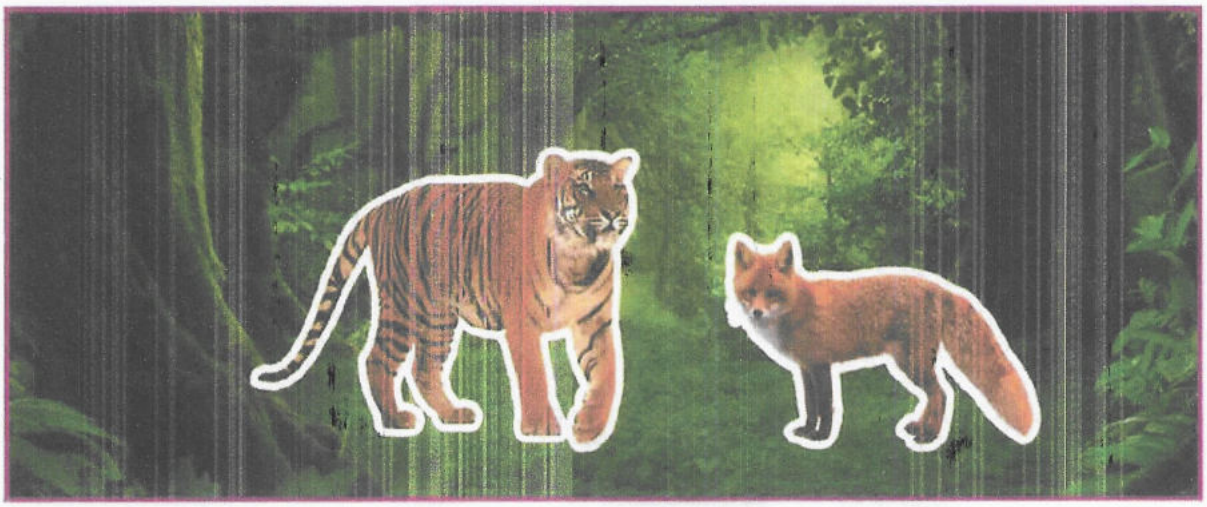
Word Box
deer - grass - puma - consumer - producer

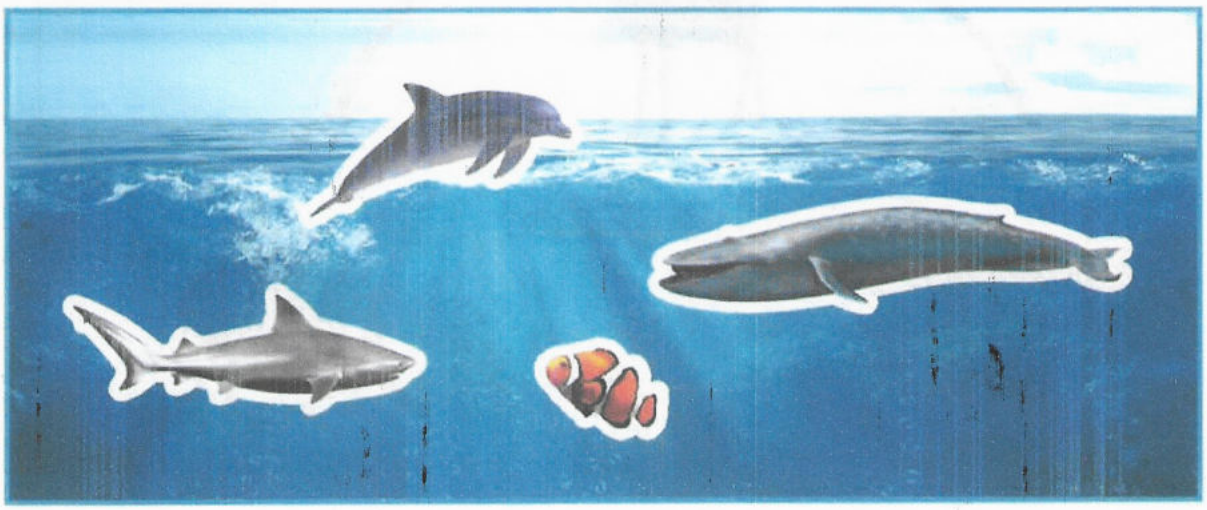


Project 1

Animals live in different habitats.

- Choose one habitat.
- On big cardboard, draw or get pictures of plants and animals that live in this habitat.
- Share your work with your classmates.





Project 2

Bees play an important role in the pollination of flowers.

Materials

- cardboard, two cups, and a woolen bee
- red and yellow coloring pencils
- yellow and white powder
- glue and a pair of scissors



Procedure

- Draw two flowers on the cardboard, and label them "A" and "B", respectively.
- Cut the two flowers, and color the petals of flower "A" red and those of flower "B" yellow.
- Paste in the center of flower "A" a cup containing yellow powder and in flower "B" a cup containing white powder.
- Place the woolen bee over flower "A".
- Move the woolen bee from flower "A" to flower "B".
- Remove the woolen bee from flower "B".
- Conduct your observation.



Note: You can get a ready woolen bee or make it using black and yellow wool.

Project 3

Earth is a spherical planet that is covered with continents and oceans at its outer crust.

Build your Earth model.

Materials

- large foam ball
- photos of the continents
- blue coloring pencil
- green coloring pencil
- pair of scissors
- glue



Procedure

- Cut the continents with the pair of scissors.
- Paste them using the glue on the foam ball.
- Color the continents with green color.
- Color the oceans with blue color.

Project 4

Earth Events

Some Earth events, such as volcanic eruptions, take place in a fast manner.

Create your volcanic eruption.



Materials

- play-dough
- baking soda
- white vinegar
- food coloring

Procedure

- Build a volcano model using play-dough.
- Add three spoons of baking soda inside the volcano opening.
- Add a red food colorant to a small amount of vinegar, and then pour them onto the baking soda.
- Watch what happens, and record your observation.

Project 5

Magnets

Materials

- iron nail
- wood
- pencil
- steel sharpener
- magnet
- cardboard
- steel spoon
- plastic spoon

Procedure

- Put the materials on a desk.
- Bring the magnet near each material.
- Classify the materials in the table below.
- On the cardboard, draw or get pictures of the materials mentioned above.
- Share your work with your classmates.

Materials	Attracted by the Magnet	Not Attracted by the Magnet
1.		
2.		
3.		
4.		
5.		
6.		
7.		

Project 6

Rocks on Earth can be eroded and shaped under the effects of many factors, such as water and wind. When air moves grains of rock from their place through the air, this is called wind erosion. When water moves the grains from the rock into water, this is called water erosion.





Procedure

- On big cardboard, paste or draw three pictures showing wind erosion examples and three other pictures showing water erosion examples.