

New



# Science Basics 4

Second Edition



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التوزيع والانتشار  
Be where the World is going

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## Theme 1 Living and Non-living Things

We see different things around us. Some of them are living things. We are living things. Animals and plants are also living things.

There are many things which are non-living. Our toys are non-living things. Our bags and books are also non-living. How can we find out which things are living and which are not?



Can you find the living things in this picture?

All living things have a few things in common.

- 1- They move.
- 2- They grow.
- 3- They need food.
- 4- They feel and respond to changes around them.
- 5- They breathe.
- 6- They reproduce.
- 7- They pass waste.

### Living Things Move

Animals move from place to place in search of food and shelter. They can also move to escape from predators. They use their legs, wings and even their bodies in their movement. For example, snakes depend on strong flexible muscles for their movement.



Plants move differently. Their leaves and flowers move towards the sun and their roots spread in search of water and nutrients. If you touch the leaves of a touch-me-not plant, they gather together and close.

## Living Things Grow

All living things grow. Kittens grow into cats.



Seeds grow into plants.



When they become old, they die.

## Living Things Need Food

All living things need energy. They get energy from food. Animals search for food and plants make their own food.

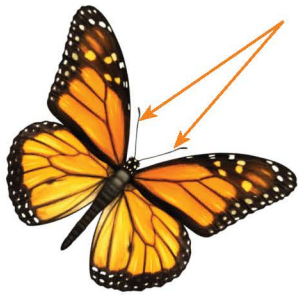
Food provides us with energy which helps us move around and do all sorts of activities. It also provides us with the nutrition needed for our growth and health.



## Living Things Feel and Respond to Changes Around Them

Animals feel things around them. Some use their sense organs such as: eyes, ears, nose, skin and tongue to explore their surroundings. Some insects have antennas to feel. For example, when an animal feels cold, it tries to find shelter. When they smell a food they like, saliva production increases in their mouths.

A butterfly has sensitive antennas.



A dog has a very good sense of smell.



Plants do not have sense organs, but they can also feel changes around them. A plant can feel the sun and grows towards it. The leaves of the touch-me-not plant can 'feel' something touching them and react by closing. A sunflower turns towards the sun during the daylight.



## Living Things Breathe

All living things need air. Without air, the food that we eat cannot create energy. That is why we cannot live without air.

We breathe using lungs. Many other animals also breathe using lungs.

Fish breathe using gills. Some animals such as cockroaches, grasshoppers, locusts and butterflies breathe through air holes in their bodies.

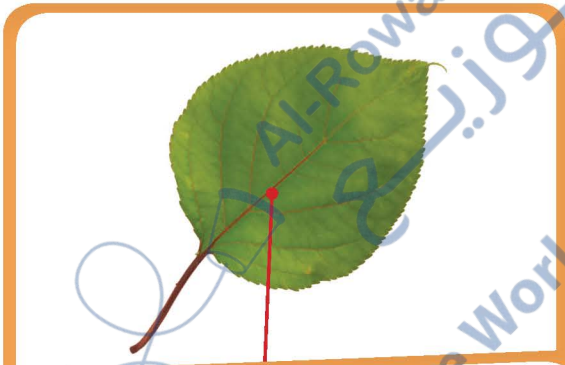


lungs



air holes

Plants have small holes in their leaves, called stomata, through which they breathe.



stomata



gills



Dolphins don't have gills. How do they breathe in the ocean? Research and display your findings.

## Living Things Reproduce

All living things have a life cycle.

Birth, growth and death are natural parts of our life cycle.



Many plants produce seeds.  
These seeds grow into new plants.



Female animals give birth to live young or lay eggs from which babies hatch.



## Living Things Pass Waste

Passing waste gets rid of carbon dioxide, water and other, some harmful, substances from a living thing's body.

## Remember

1. All living things move, grow, need food, feel and respond to changes around them, breathe, reproduce and pass waste.
2. Living things do all these in different ways.
3. Plants and animals differ in many ways.

### The major differences are:

- Plants make their own food but animals get and eat their food.
- Plants remain fixed at one place whereas animals move around.

 Circle the things that are alive.



 Look around you. Find things that are living, non-living and non-living things that have come from living things.

Things that are living	Things that are non-living	Non-living things that have come from living things
A cat	Plastic ruler	Wooden desk

Put a  for true or an  for false.

(Explain if the answer is false).

a) All animals use legs to move.

Explanation \_\_\_\_\_

\_\_\_\_\_

b) Plants do not move from place to place, but their bodies may move.

Explanation \_\_\_\_\_

\_\_\_\_\_

c) Living things get energy from food.

Explanation \_\_\_\_\_

\_\_\_\_\_

d) Air is necessary for living things.

Explanation \_\_\_\_\_

\_\_\_\_\_

e) Fish are not living because they do not move using feet.

Explanation \_\_\_\_\_

\_\_\_\_\_

f) Plants cannot breathe.

Explanation \_\_\_\_\_

\_\_\_\_\_

g) All animals lay eggs.

Explanation \_\_\_\_\_

\_\_\_\_\_

h) Plants do not have sense organs, so they cannot feel.

Explanation \_\_\_\_\_

\_\_\_\_\_

## AWARENESS BEYOND THE CLASSROOM

### Plants that eat insects

The Venus flytrap is a plant that can move its leaves quickly to catch an insect; it digests the soft parts of the insect's body. This plant is found in soil which is not very good. By catching insects for food it is able to live in bad soil.



 Draw a picture of a living thing that breathes using:

stomata

lungs

gills

air holes

 **Think and answer.**

a) Why do animals move from place to place?

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b) Give one major difference between animals and plants.

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 **Discuss and answer.**

a) A car moves. It needs petrol. It uses air to burn the petrol to get energy to move.  
Is the car a living thing?

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b) A wooden chair comes from a tree. Is it a living thing?

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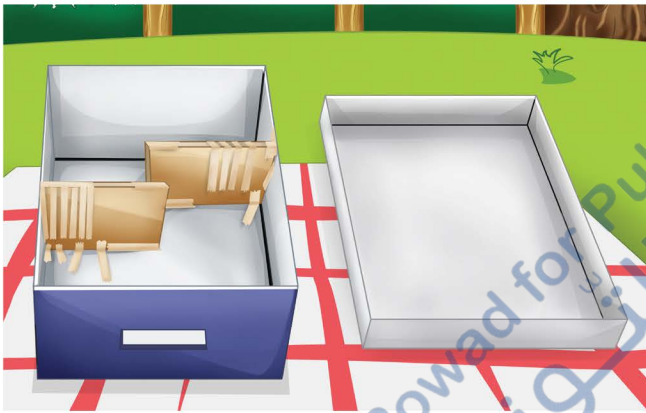
## Project

### Make a shoe box maze.

1 You need:

- shoe box
- extra cardboard
- tape
- scissors
- small potted bean plant
- water

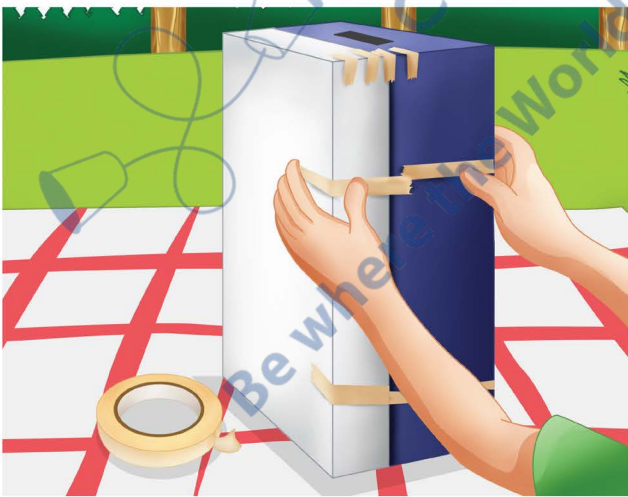
Take a shoe box and cut a window at one of its ends. Take a piece of cardboard to cut and fix as shown.



2 Put the small potted bean plant in the shoebox opposite the hole, make sure that it is well watered.



3 Tape the box closed and put it in a sunny window.

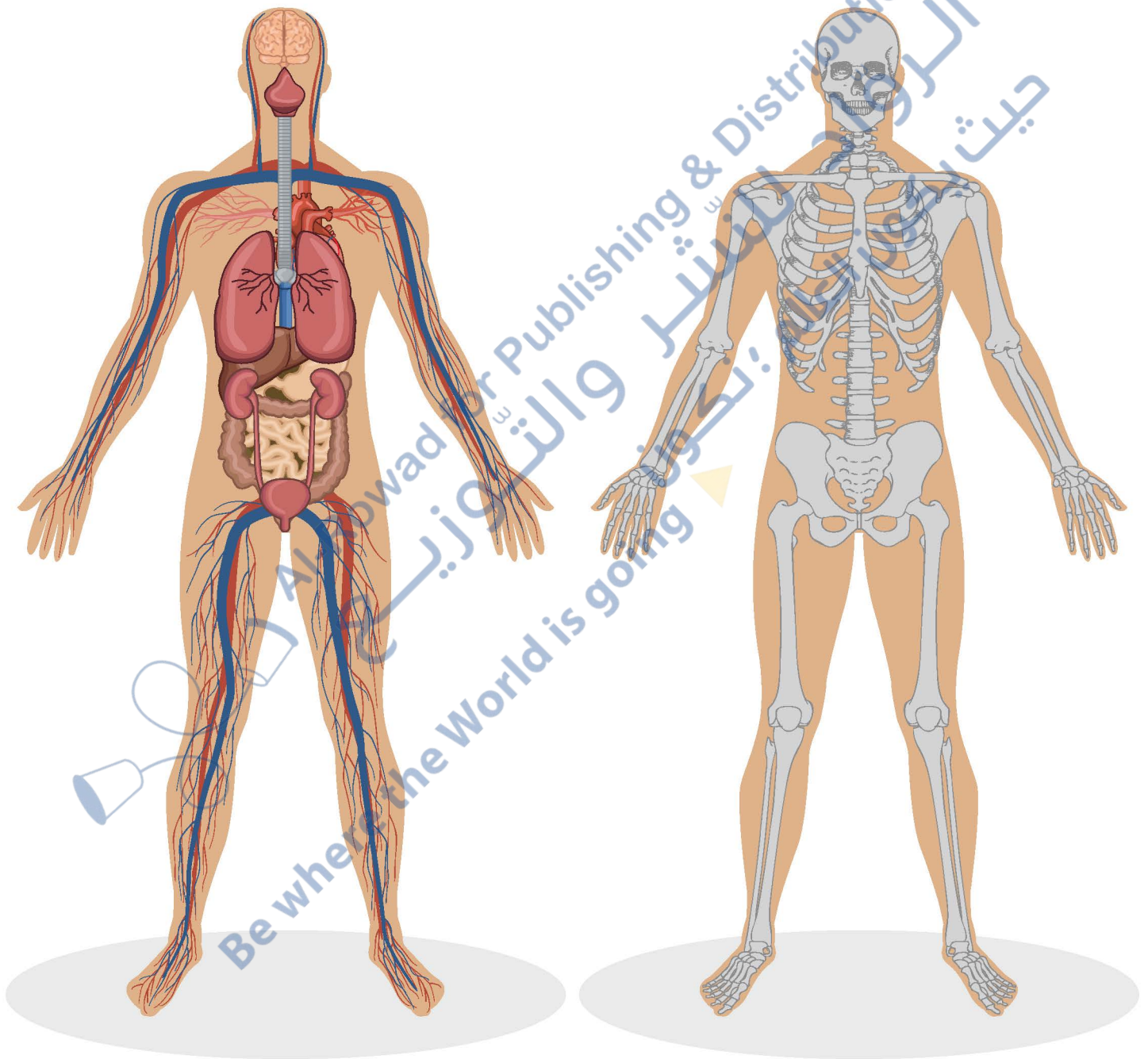


4 After five days, open the shoe box. Draw your result here.

5 It grows around the cardboard searching for light. Make more windows in the box. Can the plant still feel where the light is coming from?

## Theme 2 Understanding Ourselves

Our body is like a machine. It has many different parts which work together to keep us alive. They enable us to see, hear, taste, feel, smell, play, study and do so many other things. Some parts are outside and can be easily seen. Many parts are inside. The inside parts are just as important as the outer ones even though we cannot see them.



Many parts of our body are integral to stay alive. Without a brain or a heart we will die.

## The Brain

Our brain is the part of our body that controls all other parts and their functions. Our brain is linked to the other parts of our body by nerves. Through nerves the brain sends and receives messages from all parts of our body.



## The Blood

Blood is the transport system of our whole body. Water, food and oxygen are all carried by the blood. It also collects waste material from all parts of the body. Blood travels through blood vessels.



Do other animals also have brains and blood?