



# NATURAL SCIENCES

Class Book



# 5

Oxford  
EDUCACIÓN



# NATURAL SCIENCES 5

	Contents	Experiment time!
<b>1 The organisation of living things</b>	<ul style="list-style-type: none"> <li>• Cells</li> <li>• The organisation of animals</li> <li>• Life processes in animals</li> <li>• Life processes in plants</li> </ul>	How do yeast perform nutrition?
<b>2 The classification of living things</b>	<ul style="list-style-type: none"> <li>• The Monera, Protocista and Fungi kingdoms</li> <li>• Plants</li> <li>• Invertebrates</li> <li>• Vertebrates: mammals and reptiles</li> <li>• Vertebrates: fish, birds and amphibians</li> </ul>	What kinds of invertebrates live around your school?
<b>3 Ecosystems</b>	<ul style="list-style-type: none"> <li>• Ecosystems</li> <li>• Trophic relationships</li> <li>• The classification of ecosystems</li> <li>• The biosphere</li> <li>• Changes to ecosystems</li> </ul>	How polluted is the air in your ecosystem?
<b>4 The human body</b>	<ul style="list-style-type: none"> <li>• The organisation of human beings</li> <li>• Life processes in human beings</li> <li>• Advances in medicine</li> </ul>	What is the best design for a stethoscope?
<b>5 Our health</b>	<ul style="list-style-type: none"> <li>• A healthy diet</li> <li>• Health and illness</li> <li>• Health at school</li> </ul>	How healthy are you?
<b>6 Machines, electricity and inventions</b>	<ul style="list-style-type: none"> <li>• Simple machines</li> <li>• Complex machines: the computer</li> <li>• Electricity</li> <li>• Electric current</li> <li>• Electric circuits</li> <li>• Inventions and important machines</li> </ul>	What materials does an electromagnet attract?
<b>Group-work projects</b>	<ul style="list-style-type: none"> <li>• The respiratory system in human beings</li> <li>• Make a fact file to classify living things</li> <li>• Make a 3D model of an ecosystem</li> <li>• Make a human body flap poster</li> <li>• Do a class survey</li> <li>• Invent a machines</li> </ul>	

Search and discover!	Let's revise!	Study skills!
Reference material for unit 1	Revision of unit 1	<ul style="list-style-type: none"> <li>• Concept map of unit 1</li> <li>• Glossary of unit 1</li> </ul>
Reference material for unit 2	Revision of unit 2	<ul style="list-style-type: none"> <li>• Concept map of unit 2</li> <li>• Glossary of unit 2</li> </ul>
Reference material for unit 3	Revision of unit 3	<ul style="list-style-type: none"> <li>• Concept map of unit 3</li> <li>• Glossary of unit 3</li> </ul>
Reference material for unit 4	Revision of unit 4	<ul style="list-style-type: none"> <li>• Concept map of unit 4</li> <li>• Glossary of unit 4</li> </ul>
Reference material for unit 5	Revision of unit 5	<ul style="list-style-type: none"> <li>• Concept map of unit 5</li> <li>• Glossary of unit 5</li> </ul>
Reference material for unit 6	Revision of unit 6	<ul style="list-style-type: none"> <li>• Concept map of unit 6</li> <li>• Glossary of unit 6</li> </ul>

# The organisation of living things

## Objectives

In this unit you will learn about...

- what living things are made up of.
- how animals are organised.
- how plants are organised.
- the basic life processes in animals.
- the basic life processes in plants.



**Experiment time!**

Discover how yeast perform nutrition!

1



Baby birds hatch from eggs. The egg contains food that helps them grow. When they are strong enough, they break the shell with their beak and come out.

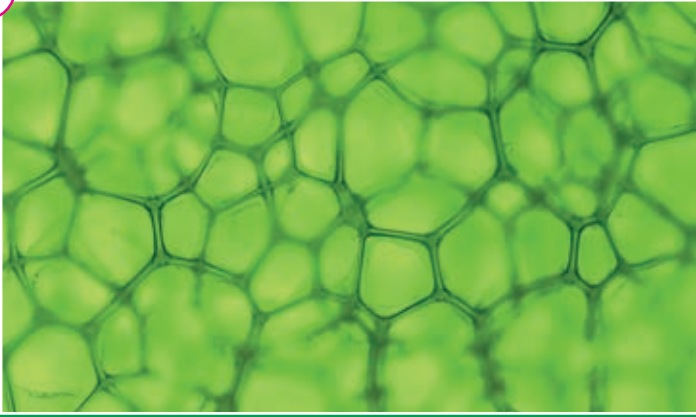
2



These flowers will slowly change into fruit which contains seeds. When the fruit is ready, it falls to the ground and the seeds begin to grow into a new plant.



3



Living things are made up of cells. Cells can be many different sizes and shapes and each performs a different function. Plant cells like these have rigid cell walls that help protect the plant.

4



These bacteria are so small that we can't see them without a microscope. They have a long tail-like extension called flagellum. The flagellum helps them swim in the liquid they live in.

5



Plants are living things. These trees have roots that absorb water and nutrients from the soil.

6



The dog's locomotor system allows it to jump up and catch the frisbee in mid-air. Its eyes allow it to see. This animal's body is reacting to something in its environment.

1.

**Think, pair, share!** Look at the photos and answer the questions.

- a) How many living things can you find in the photos?
- b) Compare the living things you found. How are they similar? How are they different?

*The ... is similar to/different from the ... because it is/isn't/has/doesn't have...*

2.



**Listen and answer the questions.**

Where do we find microscopic living things? Name three places.

3.

**Think...** Read the information about each photo and answer the questions.

- a) What different life processes are described?
- b) How do bacteria move in the medium in which they live?

*This photo shows ... and it says that...*

*I think the life process being described in this text is...*

*It says that bacteria...*

# Cells



Are all cells the same size and shape?

## Read and think

### 1. Read and find out.

- a) What do cells do?
- b) How are plant and animal cells the same?
- c) How are plant and animal cells different?
- d) What is a unicellular organism?

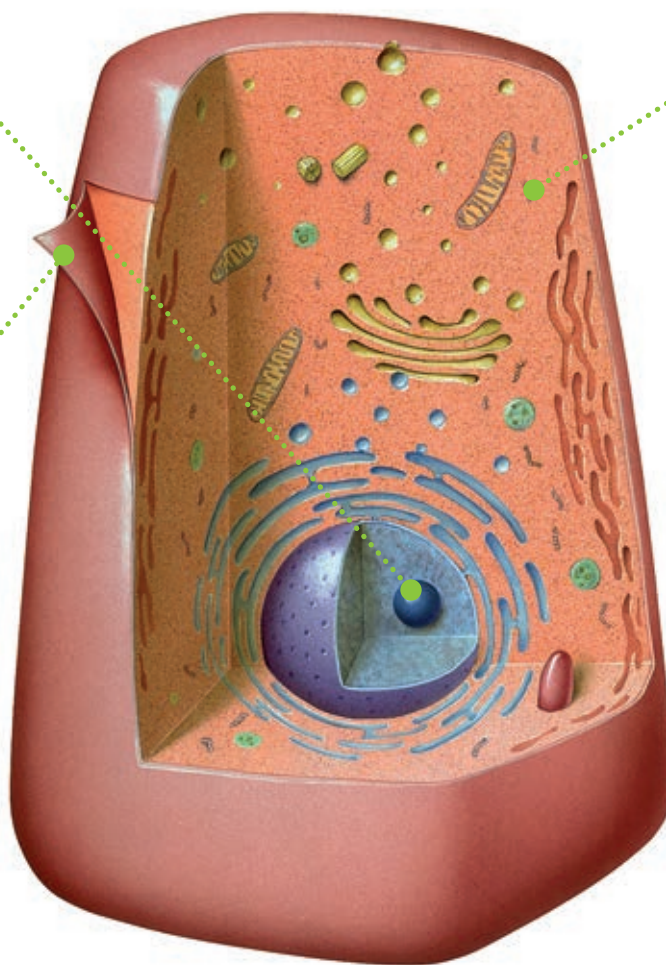
All living things are made up of **cells**. Cells are the basic units of life.

Cells are very small, so we need a microscope to see them. Cells carry out the **basic life processes** of **interaction**, **nutrition** and **reproduction** and therefore are **living things**. Most cells reproduce by dividing to form two new cells.

## Animal cells

The **nucleus** controls everything that happens inside the cell. It controls the cell's activities.

The **membrane** surrounds and protects the cell. The nucleus and cytoplasm are found inside the membrane. It also controls what goes into and out of the cell.



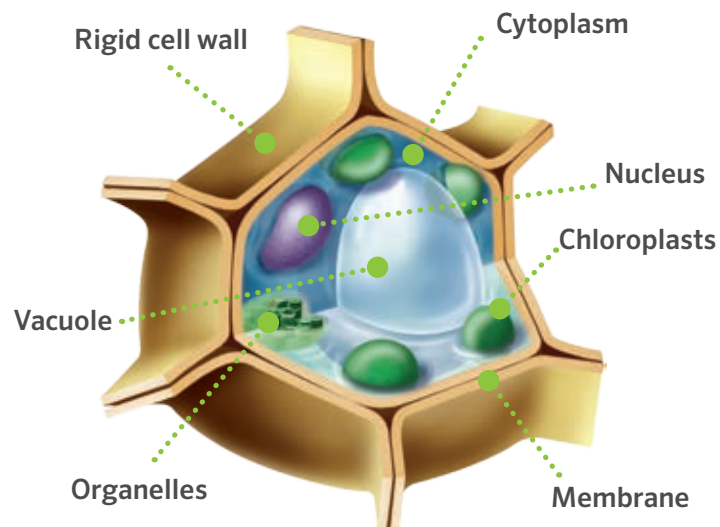
The **cytoplasm** is a thick, clear liquid protected by the membrane. It is composed mainly of salts and water and contains all the **organelles** outside the nucleus. **Vacuoles** are a type of organelle. Animal cells have several small vacuoles. Each of the specialised organelles carry out different life processes. For example, they carry out nutrition by transforming nutrients into energy.

## Plant cells

Plant and animal cells are different shapes and have different components, but most cells have a nucleus, a membrane, cytoplasm and organelles.

Plant cells have a rigid **cell wall** around the membrane. This helps support the plant.

Plant cells have a large **vacuole**. It is a storage bubble that contains water and nutrients or, sometimes, waste products.



In the **cytoplasm** of plant cells, there are specialised **organelles** called **chloroplasts**. They contain a green substance called **chlorophyll**. This liquid helps to carry out **photosynthesis**.

## Unicellular and multicellular organisms

Some living things, such as bacteria and yeast, are made up of only one cell. They're **unicellular organisms**.

Other living things, such as trees or butterflies, have many cells. They're **multicellular organisms**.

### Activities

2. **Think, pair, share!** With a classmate copy and complete the sentences in your notebook.

- a) All living things are made up of...
- b) Plant cells have a ... around the membrane ... that animal cells don't have.
- c) Plant and animal cells have...
- d) Living things can be ... , such as yeast and bacteria, or ... , such as ... and...

3. **Listen. Then choose the correct answer.**

- a) her hands – her hair
- b) mould – soap
- c) make you ill – make you strong
- d) in the fridge – in the bin

4. **Use Search and discover! or the Internet to answer the questions.**

- a) What three shapes are typical of bacteria?
- b) Where are red blood cells filtered?
- c) How does pasteurisation affect the bacteria in milk?
- d) How do bacteria help change milk into yogurt?

5. **QUIZ** Check your learning.



## Experiment time!

### DO RESEARCH

The first step of **the scientific method** is to carry out research of the question under investigation. In this case the question we want to answer is how yeast carry out nutrition. Yeast is a unicellular organism. Before carrying out your experiment, use the Internet, reference books and observation to find out what yeast needs to perform nutrition. Make notes on template 1.1.

### ASK A QUESTION



### MAKE HYPOTHESES

Once you have found out more, you will have an idea of what to expect in your experiment. Before starting the experiment, you should predict what you think will happen. We call this prediction a **hypothesis**.

- a) **Think, pair, share!** Refer to your observations and research and discuss the following question with a classmate.

*What do you think yeast needs in order to carry out nutrition?*

- b) Write a sentence on template 1.1. This sentence is your hypothesis.

### TEST YOUR HYPOTHESES

The next step is to test your hypotheses. To do this you need **materials** to carry out your experiment and a **step-by-step** process of the experiment.

#### MATERIALS

- template 1.1 
- 2 spoonfuls of sugar
- 3 balloons
- 3 plastic 1 l water bottles
- 200 ml warm water
- fresh yeast (about 15 g)

#### PROCEDURE

Follow the instructions and make notes on your observations. Your notes can include sentences, pictures and diagrams.



1. Label the plastic bottles: **A** – water, sugar and yeast, **B** – water and yeast, **C** – sugar and yeast.
2. Add the following materials to each bottle:
  - Bottle A: 100 ml warm water, 1 spoonful of sugar and 5 g of yeast.
  - Bottle B: 100 ml warm water and 5 g of yeast.
  - Bottle C: 1 spoonful of sugar and 5 g of yeast.
3. Put a balloon over the neck of each bottle. Then leave the bottles in a warm place for 20 minutes.



### ANALYSE YOUR DATA AND MAKE CONCLUSIONS

Collect and analyse your results and use them to make the conclusions of your experiment. Refer back to your hypothesis to check if your prediction was correct.

1. After 20 minutes, describe the three balloons. Which balloon has inflated the most? Which balloon has inflated the least?  
*The balloon on bottle A inflated the most/least.*
2. Yeast produces carbon dioxide as it carries out nutrition. Which combination produced carbon dioxide? How do you know?  
*The combination of ... produced carbon dioxide. I know this because...*
3. What does yeast need to carry out nutrition?  
*Yeast needs ... to carry out nutrition.*



**DON'T FORGET TO WATCH THE VIDEO!**

# The organisation of animals



How many cells do unicellular organisms have?

## Read and think

### 1. Read and find out.

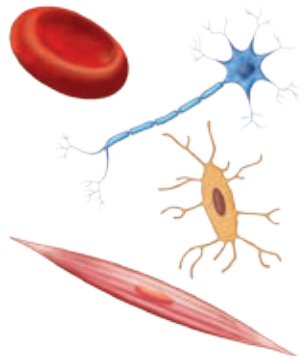
- a) What are systems, organs and tissue made up of?
- b) What is the function of the circulatory system?
- c) Which type of cells can swim?

In **multicellular organisms**, such as animals, groups of cells work together to carry out a variety of functions. Each type of cell has a specific function within the organism.

Groups of cells form tissue. Depending on the type of cell, the tissue has a specific function. For example, groups of muscle cells form muscle tissue. Different tissues make up different organs and the organs work together to form systems.

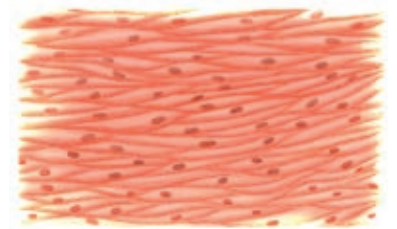
## Cells

Multicellular organisms have many types of cells. The cells are **different shapes** according to their function. For example, the long shape of the muscle cell helps it combine with other cells to form strong, flexible muscles.



## Tissue

Cells join together to form **tissue**. Each type of tissue has a **specific function**. This picture shows long, thin muscle cells forming muscle tissue. Muscle tissue is composed of layers of muscle cells. This tissue is strong but flexible so that the muscle can contract and expand easily.



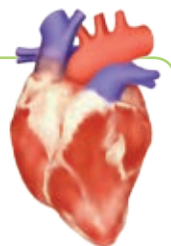
## Systems

Systems are groups of organs that work together to perform a function. For example, our body has a **circulatory system** that is made up of the heart, blood, blood vessels and lymph. It helps us carry out nutrition as it transports oxygen and nutrients to and from cells. It also helps protect our body from diseases.



## Organs

Organs are made up of different **tissues**. The heart is an organ formed from muscle tissue that pumps blood and fibrous tissue that makes up the valves.

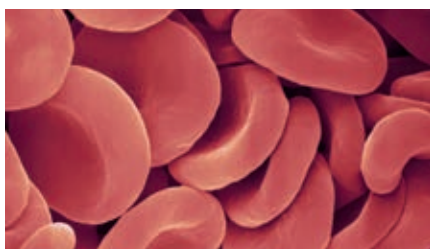


The basic life processes are carried out by different systems.

There are many types of cells in multicellular organisms. Each type has a specific function and a unique appearance. Here are three examples.

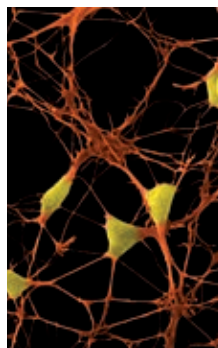
### Red blood cells

They are flat and circular. They carry oxygen from the lungs to the muscles and organs. They transfer the oxygen they carry to the muscles. Finally, they travel back to the lungs, where they collect more oxygen and begin the cycle again.



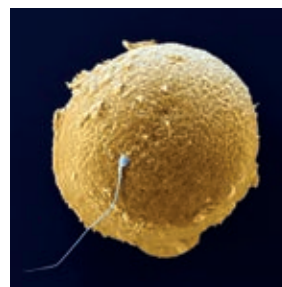
### Nerve cells

They are star-shaped. They transmit nerve impulses from different parts of the body to the brain and vice-versa. The many short extensions receive nerve impulses from other nerve cells. These impulses are then passed on to other cells. In this way, nerve impulses travel from one nerve cell to another.



### Reproductive cells

They enable us to reproduce. Female reproductive cells are spherical. Male reproductive cells are oval with a long tail for swimming. The female and male cells combine in a process called **fertilisation**.



## Activities

2. **Think, pair, share!** Copy and complete the sentences in your notebook. Include as much information as you can. Then compare your answers with a classmate.

- a) Tissues are made up of...
- b) Organs are ..., for example...
- c) Systems are...
- d) Cells can have...

3. **5** What organs do we use for interaction? Listen and write the organs.

4. **Collaborate** Use Search and discover! or the Internet to complete the activity.

- a) Choose an organ and answer the questions.

liver    brain    heart    pancreas

- What is the function of this organ?
- What system does it belong to?
- b) Make a group with people who researched different organs. Tell your group what you found out.
- c) With your group, make a poster to show all the organs you found out about.

5. **QUIZ** Check your learning.

# The organisation of plants



What type of organisms are plants?

## Read and think

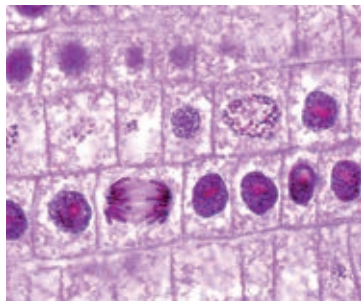
### 1. Read and find out.

- a) What shape are plant cells?
- b) Why are leaf cells green?
- c) What are the parts of a plant?

Plants are organised in a similar way to animals and other multicellular organisms. They have cells, tissues, organs and systems.

## Cells

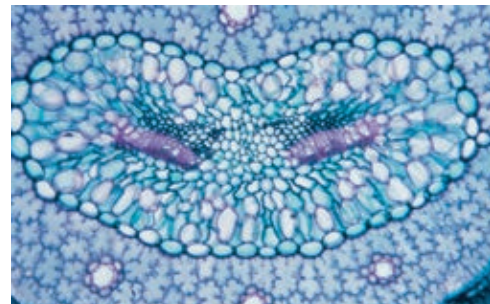
Plant cells differ from animal cells in some ways. Plant cells have a **rigid cell wall**, so they are usually rectangular or polygonal. Plant cells can make their own food using **photosynthesis**. They transform sunlight, water, mineral salts and carbon dioxide into nutrients. Photosynthesis takes place in leaf cells and they need a green substance called **chlorophyll** to perform it. The chlorophyll is contained in the **chloroplasts**. The water and mineral salts are inside the vacuole. The carbon dioxide is absorbed from the air.



## Tissues

Plant tissue, like animal tissue, is made up of many cells joined together.

This picture shows the different tissues that make up a leaf. Each tissue plays a specific role: protection, transportation of nutrients or supporting the plant.



## Organs

Organs are made up of tissue. A leaf is an organ. Its function is to absorb sunlight and carbon dioxide. It needs both in order to produce food for the plant by photosynthesis.



## Systems

Systems are groups of organs and tissue that work together to carry out a function. For example, the vascular system is composed of different tissues that transport water, mineral salts and nutrients around the plant.

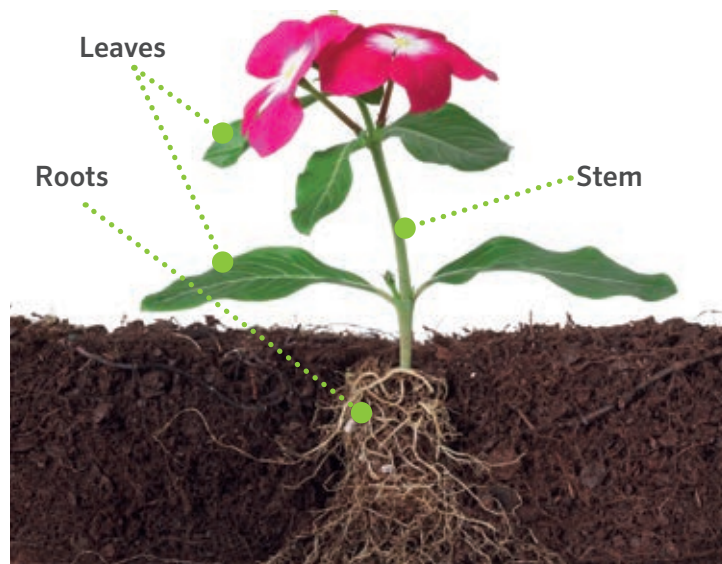




Most plants have **three main parts**: a stem, roots and leaves.

### Leaves

The function of the leaves is to make food for the plant. The leaves are made up of different tissue that are made up of different cells. One of these types of cells is where photosynthesis takes place.



### Stems

The function of the stem is to support the plant and transport water, minerals and nutrients throughout the plant. Stem tissue forms rigid tubes that liquids can pass through easily.

### Roots

The function of the roots is to absorb water and nutrients from the soil. To do this, root cells have **root hairs**. These hairs increase the area of the root that is in contact with the soil. As a result, the roots can absorb more water and minerals.

## Activities

### 2. Copy and correct the false sentences in your notebook.

- a) Plant cells are usually circular.
- b) Plant cells have a rigid cell wall.
- c) Leaves, roots and the stem are the organs of a plant.
- d) The function of the leaves is to absorb water and minerals.

### 3. Make a Venn diagram to answer these questions.

- a) How are plant cells different from animal cells?
- b) How are they similar?

### 4. Listen. Which answer is not correct?

- a) They turn their stems.
- b) They move from place to place.
- c) Their roots grow towards water.
- d) They open and close their leaves.

### 5. Check your learning.

# Life processes in animals



Do mammals and birds reproduce in the same way?

## Read and think

### 1. Read and find out.

- a) How do animals detect information about the world around them?
- b) How do animals use the environment around them?
- c) Do all animals absorb oxygen in the same way?

All living things carry out the **basic life processes** of **interaction**, **nutrition** and **reproduction**, but they do this in different ways.

## Interaction

All living things detect information in their environment. Then they react to this information in different ways. For example, it can help animals defend their territory. Many animals also move around, and use parts of their environment as shelter. For example, birds build nests in trees and foxes dig burrows underground.

Vertebrates use their **locomotor** and **nervous system** to **interact** with the environment.

The senses, which form part of the nervous system, detect information about the world around us and nerves transmit this information to the brain. The brain is responsible for interpreting these messages and responding to them by sending information to muscles and glands. In response, animals may move a part of their body using their locomotor system (muscular and skeletal systems). For example, when a tropical fish sees a predator, it might move to a safer place behind some coral.



## Nutrition

All living things take in essential **nutrients** from their environment. These nutrients give them energy and enable them to grow and develop.



When vertebrates eat and drink, they use the digestive system to extract nutrients from the food. Animals use their respiratory system to absorb oxygen from their surroundings as part of the process of nutrition, and to expel carbon dioxide. Some vertebrates absorb oxygen from the air, but fish and young amphibians absorb oxygen from water. The circulatory system then transports the nutrients around the body to the muscles and organs. Finally, waste products are expelled using the excretory system.



## Reproduction

Living things can create new members of their own **species**. Different organisms reproduce in a specific way.

There are two different reproductive processes: **asexual reproduction** and **sexual reproduction**. Most animals use sexual reproduction. They can be classified into three types depending on their type of sexual reproduction:

- **Oviparous animals:** These are animals that reproduce by laying eggs.
- **Viviparous animals:** These are animals that reproduce by growing their young inside the mother's body.
- **Ovoviviparous animals:** These are animals that reproduce with eggs that hatch inside the mother's body.

Animals have different types of reproduction. They use their reproductive systems to make new individuals.

## Activities

### 2. Answer the questions. Write sentences in your notebook.

- What systems do animals use to get energy?
- What substances do animals take in? What substances do they expel?
- Which system is responsible for transporting nutrients around the body?

### 3. **Create** **Make a table to show which systems animals use to carry out interaction, nutrition and reproduction.**

### 4. **Collaborate** **Use Search and discover! or the Internet to complete the activity.**

- In groups of three, each student should choose one animal. Answer the questions about the animal you chose.

fish      dolphins      frogs

- Does it absorb oxygen from the air or water?
  - What organs does it use?
- Tell your group what you found out. Write sentences to compare the animals.  
*The ... absorbs oxygen from ..., but the ... absorbs oxygen from...*  
*Both the ... and the ... use ... to breathe.*

### 5. **QUIZ** Check your learning.



# Life processes in plants



Why are plants living things?

## Read and think

### 1. Read and find out.

- a) Why do sunflowers turn?
- b) How do plants absorb carbon dioxide?
- c) Which plants don't produce seeds?

## Interaction

Like other living things, plants interact with their environment.

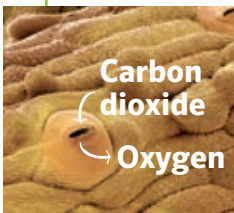
Most plants can't move around because their roots anchor them to the ground. But their roots grow towards water and nutrients in the soil, and their leaves grow towards sunlight. Sunflowers move to take advantage of the sunlight.



## Nutrition

Plant cells make their own food using **photosynthesis**.

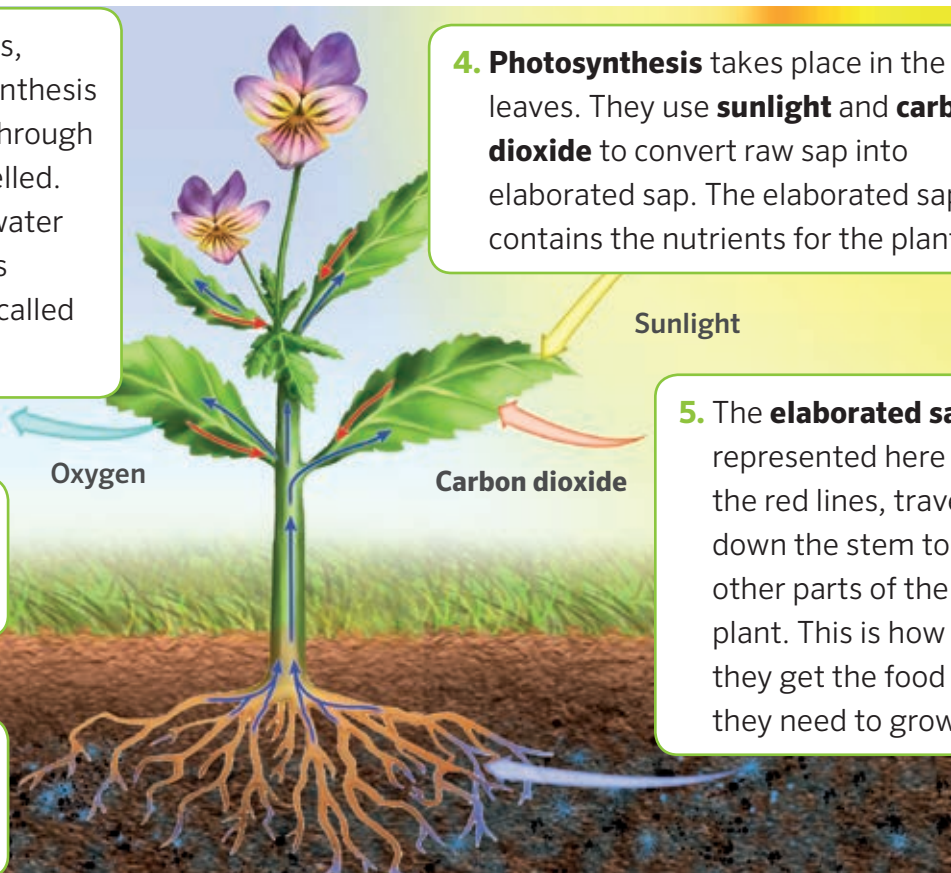
3. The leaves have very small holes, called **stomata**. During photosynthesis carbon dioxide enters the leaf through the stomata and oxygen is expelled.



Small quantities of water are also expelled this way. This process is called **transpiration**.

2. The **raw sap**, represented here by the blue lines, travels up the stem to the leaves.

1. The **roots** absorb water and minerals from the soil to make a special liquid called raw sap.



4. **Photosynthesis** takes place in the leaves. They use **sunlight** and **carbon dioxide** to convert raw sap into elaborated sap. The elaborated sap contains the nutrients for the plant.

5. The **elaborated sap**, represented here by the red lines, travels down the stem to other parts of the plant. This is how they get the food they need to grow.



## Reproduction

Plants reproduce in different ways:

**Seed plants**, such as oak and pine trees, produce **seeds**. Some seed plants, such as rose bushes, produce flowers and fruit. When a flower is pollinated, it turns into a fruit. The fruit contains the seeds. Others produce cones. The seeds, or nuts, are found inside the cones. When the seeds fall to the ground, they grow into a new plant.

**Non-seed plants** don't produce seeds:

- **Ferns** reproduce by producing special cells called **spores**.
- **Mosses** reproduce by producing **capsules**.

The spores are transported by the wind. When they fall on to the ground, they grow into a new plant.



Like all other living things, plants reproduce to make new individuals. They can reproduce in different ways.

## Activities

### 2. Complete the sentences to describe basic life processes in plants.

- a) Plants interact with their environment by...
- b) Plants carry out nutrition by...
- c) Some plants reproduce by ... but others...

### 3. Listen and write *true* or *false*.

- a) Plants increase the amount of oxygen in the air around them.
- b) Plants do not affect the amount of water vapour in the air around them.
- c) The stomata are found mostly on the undersides of leaves.

### 4. Create Make a flow chart to show how plants carry out nutrition.



### 5. **QUIZ** Check your learning.

## Search and discover!

Animal	Classification	It absorbs oxygen from...	What organ does it use to breathe?
<b>Fish</b>	fish	the water	gills
<b>Dolphin</b>	mammal	the air	lungs
<b>Frog</b>	amphibian	the water/the air	As a tadpole it has gills. As an adult frog it has lungs. It also absorbs oxygen through its skin.

## Our dairy lives

Yogurt is a product we consume in our diet regularly but how do we make it? Specific bacteria are added to milk. The bacteria eat the sugars in the milk. As they eat, they produce a substance called lactic acid. This acid reacts with the milk, turning it into yogurt. In fact milk already has some bacteria in it. Some of the bacteria we find in milk is good for us, but some of them can make us ill. Therefore, the milk is pasteurised in order to remove the bacteria before it is put into cartons or bottle and sold to us in the supermarket. But unfortunately, both the beneficial and the harmful bacteria are destroyed in pasteurisation.

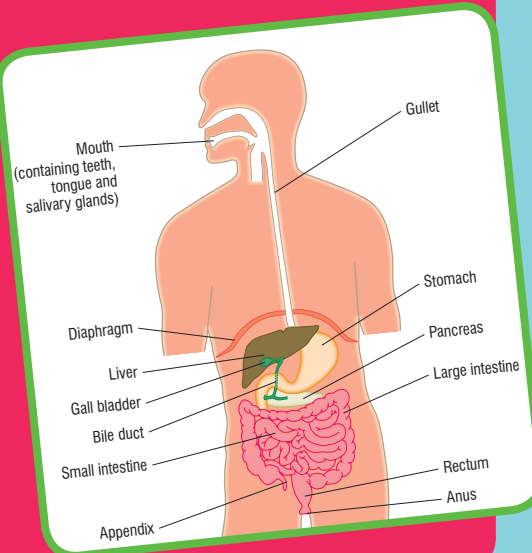
## What are accessory organs?

Accessory organs of the digestive system include the liver, gall bladder, pancreas and spleen.

The liver is a large organ that produces bile, which we use to break down foods so that the nutrients can easily be absorbed. The liver also removes toxic substances from food, and it produces certain proteins for the blood.

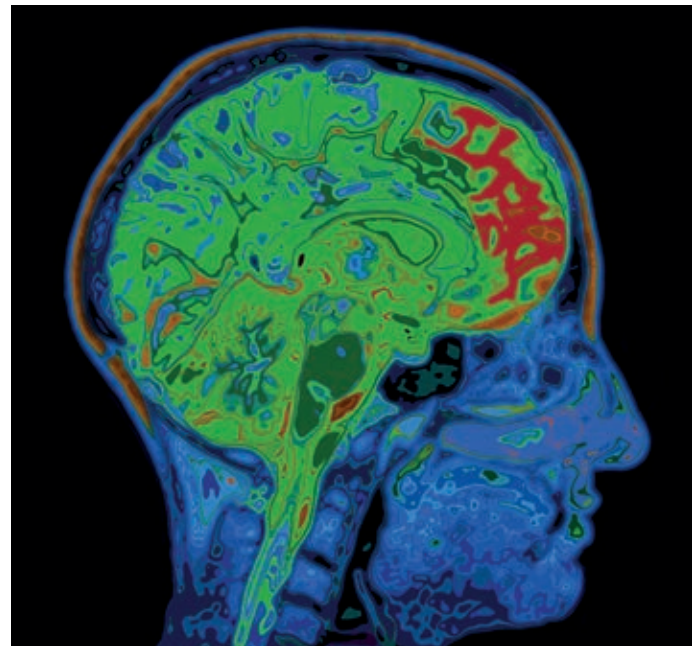
The pancreas produces chemicals that help us digest proteins, carbohydrates and fats. It also produces insulin, a substance that helps control the levels of sugar in the blood.

The spleen helps filter blood. Blood cells are stored there, and as blood passes through the spleen, old blood cells are removed and replaced with the new cells.



# OUR COLOURED BRAINS!

Surely you've seen images of the brain with different colours. These images are obtained using complex techniques such as functional magnetic resonance imaging (MRI). The brain is part of the nervous system. It helps us move, speak, read, remember and even controls the internal organs. With these images you can see which regions of the brain are active when doing a particular activity. For example, in this image you can see the regions of the brain that are active in red. Isn't the mind incredible?

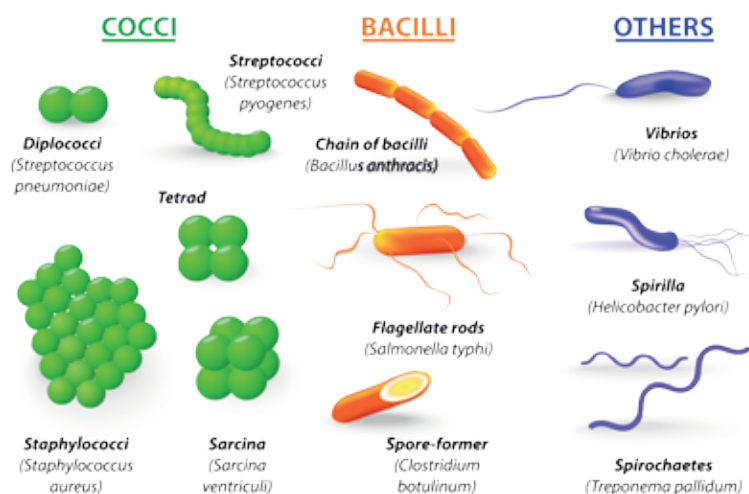


## DR. BROWN'S PRESCRIPTION: TAKE CARE OF YOUR HEART

*"One of the main causes of death in the world is problems with the circulatory system. These diseases lead to heart attacks or obstructions in circulatory vessels, where the blood cannot reach the cells in the body to carry nutrients and oxygen and so the cells die. But, don't panic! You can prevent these diseases by changing some of your daily habits. You can follow a low-fat diet, do exercise three days a week, reduce stress levels and sleep eight hours a day. Your body will thank you."*



### SHAPES OF BACTERIA



## Let's revise!

- 1. Nutrition, interaction or reproduction? Make a table and classify the terms.**

sense organs    food    nerves    digestive system    water vapour    brain    oxygen  
fertilisation    nervous system    carbon dioxide    reproductive system  
nerve impulses    respiratory system    muscular system    eggs  
nutrients    stomach    reproductive cells    intestines    skeletal system  
lungs    circulatory system    asexual

- 2. Think** Order the parts of a multicellular organism from smallest to largest. Then, give an example of each for an animal and for a plant.

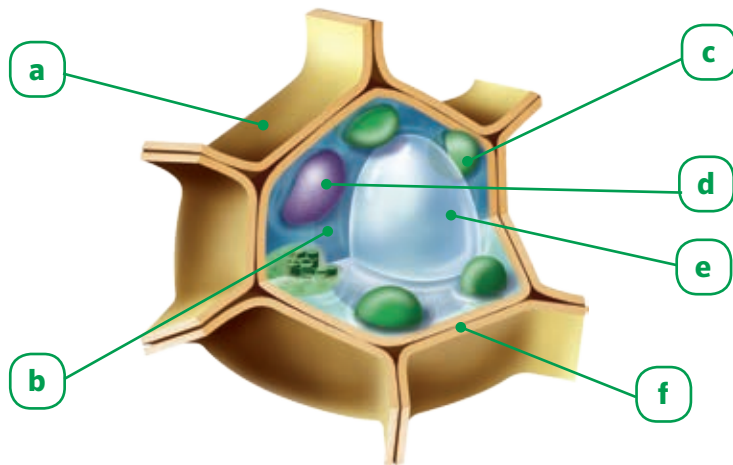
systems      organs      cells      tissue

- 3. Create**  **Write a systems quiz for your classmates.**

- a) Write four questions about systems, their functions and characteristics.
- b) Write three multiple choice answers for each question.
- c) With a classmate, take turns to read out your questions and multiple choice answers.
- d) Correct each other's answers.

- 4. In your notebook, copy and label the diagram of this cell.**


- Describe each part. Write sentences.
- What kind of cell is it? Write a title.



cell wall    membrane    nucleus    cytoplasm    vacuole    chloroplasts

*The ... is located ... are found... It controls/supports... They contain/carry out...*



5. **Collaborate**  Think about how plants carry out the three basic life processes of interaction, nutrition and reproduction. Answer the questions. Compare your answers with a classmate.

- a) How do plants interact with their surroundings?
- b) Where do plants get their food from?



6. **Think, pair, share!** Write five true and false statements about the organisation of plants and animals.

- a) Exchange your statements with a classmate.
- b) Decide which of your classmate's statements are true and which are false. Correct the false statements.
- c) Check your classmate's answers.

7. **Look at the pictures and answer the questions in your notebook.**

- a) What systems do these pictures show?
- b) What basic life process does each system carry out?
- c) Which other systems help us to carry out this basic life process?
- d) Which organ does picture b) show?



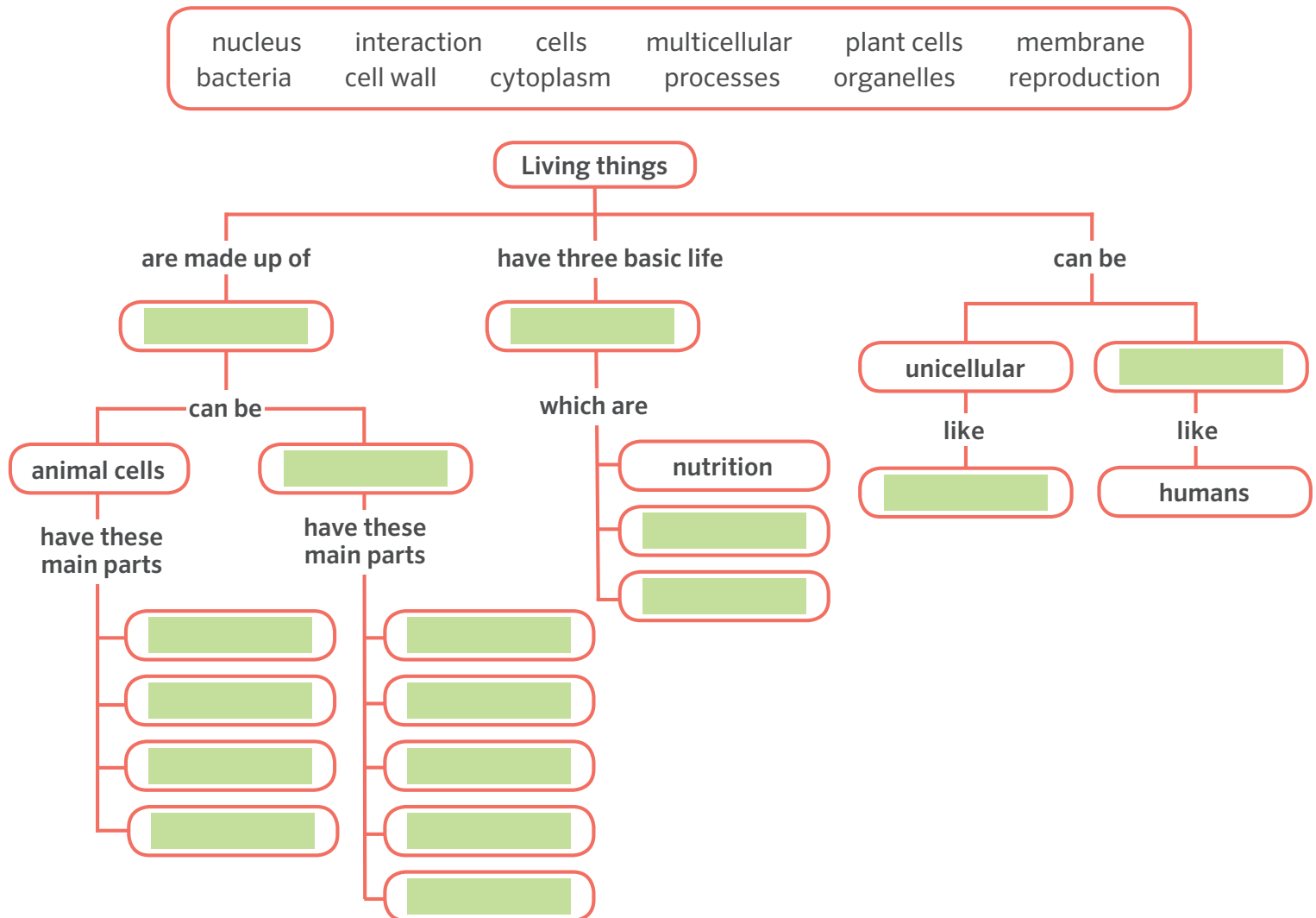
8.  **QUIZ** Check your learning.

### My work in this unit

Write a sentence in your notebook describing your favourite topic in this unit and say why you liked it.

# Study skills!

1. Copy and complete the concept map to summarise the unit.



2. Make a picture dictionary.

- Choose three words from the glossary for this unit you would like to remember.
- Copy the words into your notebook, and draw a picture to help you remember the meaning of each one.

3. Choose a basic life process you have learned about in this unit.

- Make a list of the systems we use to perform this process.
- Write sentences to describe how we perform this life process.

*To carry out nutrition/interaction/reproduction, we use....*

*We carry out the process of ... when we...*

## GLOSSARY

**cell:** the basic unit that all living things are made up of.



**chlorophyll:** a green substance in plants and algae that transforms sunlight, carbon dioxide, water and minerals into food.

**chloroplast:** organelle in plant cells where photosynthesis takes place.

**interaction:** a basic life process. An action or movement made in reaction to another object or living thing.



**nutrition:** a basic life process. The action of absorbing nutrients or gases to provide energy to live and grow.



**nucleus:** the part of a cell that contains DNA and chromosomes.

**organelles:** are specialised units embedded within the cytoplasm of a cell that perform specific functions.

**photosynthesis:** the process by which plants transform water, nutrients and carbon dioxide into food. For photosynthesis to take place, the plant needs sunlight.

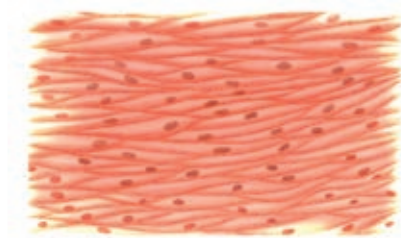
**reproduction:** a basic life process. How a living thing produces one or more new members of the species.



**root hairs:** very small extensions that grow from root cells in plants.

**species:** a group of living things that share the same characteristics and can reproduce to create new members of the group.

**tissue:** part of a living thing made up of many cells. Each of the cells that make up tissue has a similar function.



# Think about ANDALUSIA Project

Being healthy when we travel





## Discover Andalucía

Being healthy makes us feel good. A healthy body is not just about being fit, it is a combination of many factors. Exercise is important, but rest is too. The things you put into your body give it the energy you need to study, do sports and play. Knowing how to take care of your body is important wherever you go.

1. **Think, pair, share!** With a classmate, make a list in your notebook of ten things we can do to keep our bodies and minds healthy. Then, tick the things you did the last time you travelled.
2. Read Sean's travel diary. Answer the questions below and your answers with a classmate.

### Day 1

Today we arrived in Málaga by boat. We spent the morning sightseeing in the city. We walked for hours! We had a packet of crisps for lunch, then we went hiking in Ronda. Málaga is a really lovely city, and Ronda was spectacular, but my feet are covered in blisters and my legs are aching! I feel like I have no energy at all!



### Day 2

Today we drove along the coast to Almería. In the morning we visited the Cabo de Gata Natural Park, and in the afternoon we went to the Tabernas desert to visit the cowboy village where they filmed loads of westerns. The park was unbelievably beautiful, and I had fun pretending to be a cowboy, but it was so hot in the sun and I didn't have any water with me. I have a terrible headache now!



### Day 3



Today we visited Sevilla. In the morning we toured the whole city on a tour bus. La Giralda is spectacular! Then we went on a boat trip along the river. We could see La Torre del Oro from the boat. I learned all about the history of the city, but I spent all day sitting down and now my back hurts.



- a) Do you think Sean looked after his health on the trip?
- b) What advice would you give him?

**It's important to remember to ... when you are ... And don't forget...**

**3. Look at these snack swaps. Can you think of any others?**

Instead of...	Try...	Or...
Fizzy cola 	Unsweetened fruit juice diluted with water or sparkling water, milk or fruit smoothies	
Crisps 	Rice cakes or breadsticks with low-fat cream cheese	

**4. Read about some situations which could be dangerous for your health.**

- With a classmate, discuss what you would do in each case.
- In groups of four, prepare a role-play of one to show what you would do.
- Perform your role-play for the class. Do they agree with your solution?

**1.** You and your friend Jenny are playing in the park when she finds something that looks like sweets. Jenny wants to eat them and suggests you both eat them. What should you do?

- Eat them/Ask another friend/Ask an adult/ Put them back where you found them/Throw them away/...

**2.** Your younger brother and his friends are playing doctors. Your brother knows where your parents keep the medicines and he thinks it would be more fun to play with real medicine. What should you do?

- Nothing/Tell your parents/ Stop your brother from touching the medicines/ Phone the emergency services/...

**3.** Sara, your friend, is at football camp with you. She has been coughing during a match. She sees a teammate's asthma inhaler and thinks this might help stop her coughing. What should you do?

- Give Sara the inhaler/ Tell the coach /Take the inhaler away from her/ Phone the emergency services/...

**5. Think, pair, share! Draw an outline of a person. Inside draw a body system, write about how you can look after it and then compare with a classmate.**



## Research

1. How much rest do you get? Do you spend too much time looking at screens? Keep a diary for a week then compare to your classmates. Who has healthier habits?

	Monday	Tuesday	Wednesday	Thursday	Friday
Wake up time:					
Total time spent looking at screens:					
Bedtime:					

2. Investigate food packets.

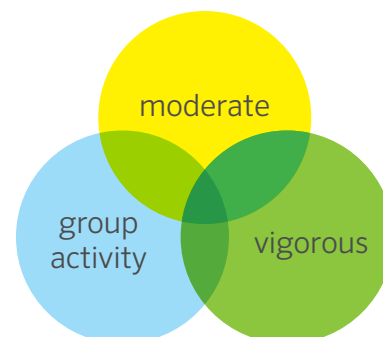
- a) **Think** Look at the picture and discuss the questions with a classmate.
  - What type of information does the label include?
  - Is the food in this packet healthy or unhealthy? How do you know?
- b) Find some food packaging. Read the nutritional information and answer the questions in groups.
  - What type of nutritional information is included?
  - Which foods were more or less healthy than you thought?
  - How can nutritional labels like these help us make good decisions about what we eat?

**Nutritional food labels can help us make good decisions because we can find out the ... of each food.**

Nutrition Facts	
Serving Size 100 g	
Amount Per Serving	
Calories 250	Calories from fat 10
% Daily Value*	
<b>Total Fat</b> 4%	4%
Saturated Fat 1.5%	4%
Trans Fat	
<b>Cholesterol</b> 50mg	28%
<b>Sodium</b> 150mg	15%
<b>Total Carbohydrate</b> 10g	3%
Dietary Fibre 5g	
Sugars 3g	
<b>Protein</b> 16%	
<b>Vitamin A</b> 1%	<b>Vitamin C</b> 3%
<b>Calcium</b> 2%	<b>Iron</b> 2%
*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs.	

3. **Think** Classify the activities as vigorous (very energetic) or moderate (quite energetic), and think about if it is normally a group activity or not.

walking to school   cycling   playing chase  
riding a scooter   skateboarding   swimming   rollerblading  
dancing   football   walking the dog   gymnastics



**You should do at least 60 minutes of exercise each day and try to do vigorous intensity exercise at least three days a week. Vigorous activities keep your heart and lungs healthy.**

b) Make an exercise plan for a week using the information you found out.

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday

4. **Think . . .** A group of friends want to go on a summer camp together. Read about what they like to do and look at the leaflets. Which camp should they choose? Why?



**Nadia** loves football and plays for her local team but she spends all her free time playing football and doesn't have much time to relax with friends, so she would like to try something different this summer.



**Lewis** loves meeting new people and he loves sports too, especially tennis and swimming. He wants to go to a camp where he can do lots of different types of activities with his friends.



**Marcus** doesn't usually play sports and is quite shy. He knows he spends most of his time looking at screens, so he wants to be more active. He also loves cooking but doesn't know how to prepare healthy food.

**Sports crazy camp**

Activity schedule

Mornings:

9-11 a.m. Football

11.30-12.30 p.m. Swimming pool

Afternoons:

2-4 p.m. Tennis

4-5 p.m. Free time

5-6 p.m. Sports excursion  
(rock climbing, surfing,  
skateboarding)

**New friends summer camp**

Activity schedule

Mornings:

9-11 a.m. Team-building activities (escape room, treasure hunt,  
science projects)

11.30-12.30 p.m. Swimming pool

Afternoons:

2-4 p.m. Excursion (to the beach, windsurfing, shopping, cinema)

4.30-5.30 p.m. Cooking workshop: learn to make healthy snacks

5.30-6.30 p.m. Try a new sport! (pickleball, croquet, dodgeball)

7-8 p.m. Drama workshop or yoga class



## Collaborate

Plan a healthy school trip in Andalucía!

### MATERIALS

- coloured pencils
- markers
- paper
- the Internet or reference books

### CREATE

**Imagine you and your classmates are going on a five-day school trip in Andalucía. Your teacher has asked you and your friends to make sure everyone stays healthy on the trip.**

**1.** Work in groups of four.

Students A and B: You are responsible for making sure everyone eats healthy and keeps well on the trip.

Students C and D: You are responsible for making sure everyone does enough exercise and gets enough rest on the trip.

**2.** Do some research to help you plan the trip. You should visit five different places.

**Students A and B:**

- Make a list of different foods you would like to include on the menus for the trip.
- Research the nutritional value of each food and make a table. Find out if anyone in your class has food allergies and identify what food they should avoid.

Food	Nutritional information
Pasta	Made of: wheat High in: calories, carbohydrates Low in: fat, salt

**Students C and D:**

- Make a list of vigorous and moderate intensity activities. Include activities that involve team-working, collaborating and socialising to do in each place on the trip.
- Find out how much sleep is recommended for your age group and decide what time your class should go to bed and wake up each day.
- Include time for taking care of personal hygiene in the schedule.



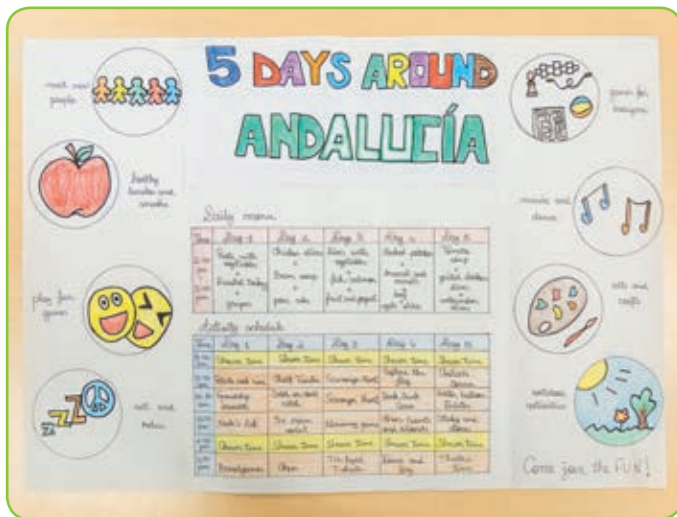
3. Plan your five-day menu or activity schedule based on your research.
4. Exchange your menu or activity schedule with the other members of your group. Discuss them together and decide:

- a) Is the menu balanced and healthy?
- b) Is the activity schedule balanced? Does it include enough social activities and time for sleep?
- c) Do we need any more information about staying healthy?

## SHARE

### Make a brochure!

1. Create a brochure for your trip. Include information about the menus and the activity schedule.
2. Present your trip to the class. Show them your brochure and explain what you have chosen.
3. Hold a class vote to decide which trip is best.



**Think, pair, share!** Answer the questions individually. Then discuss your answers with your group.

- a) What was the most challenging part of the project? Why?
- b) How could you do it better next time?
- c) What did you learn by doing the project that you didn't know before?