



# 3 Natural Science

**Natural Science 3 Learning Lab** is a collective work, conceived, designed and created by the Primary Education department at Santillana, under the supervision of **Teresa Grence**.

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2 <b>Food and health</b>	<ul style="list-style-type: none"> <li>• We eat many different foods!</li> <li>• What are nutrients?</li> <li>• The food wheel</li> </ul>	<ul style="list-style-type: none"> <li>• What is a healthy diet?</li> <li>• What is the digestive system?</li> </ul>
REVIEW	<b>Learning Lab game</b>	
3 <b>Animals</b>	<ul style="list-style-type: none"> <li>• Where do animals live?</li> <li>• How do animals stay alive?</li> <li>• What is sensitivity in animals?</li> <li>• How do animals reproduce?</li> </ul>	<ul style="list-style-type: none"> <li>• Where do animals live?</li> <li>• What are vertebrate animals like?</li> <li>• How are vertebrates different?</li> <li>• What are invertebrate animals like?</li> </ul>
4 <b>Plants</b>	<ul style="list-style-type: none"> <li>• What do plants need?</li> <li>• What do the parts of plants do?</li> <li>• What are seed-producing plants?</li> <li>• How do flowering plants reproduce?</li> </ul>	<ul style="list-style-type: none"> <li>• The life cycle of a flowering plant</li> <li>• Do all plants produce seeds?</li> <li>• How do we study plants?</li> </ul>
REVIEW	<b>Learning Lab game</b>	
5 <b>Matter</b>	<ul style="list-style-type: none"> <li>• Solid, liquid or gas?</li> <li>• What is matter?</li> <li>• What are the properties of matter?</li> <li>• What are the states of matter?</li> </ul>	<ul style="list-style-type: none"> <li>• What are the states of water?</li> <li>• What are changes of state?</li> <li>• Pure substances</li> <li>• Mixtures</li> </ul>
6 <b>Energy and machines</b>	<ul style="list-style-type: none"> <li>• What makes machines work?</li> <li>• How do we use information technology?</li> <li>• What are different forms of energy?</li> <li>• How does energy change?</li> </ul>	<ul style="list-style-type: none"> <li>• How does electricity reach our homes?</li> <li>• What are conductors and insulators?</li> <li>• What are thermal conductors and insulators?</li> </ul>
REVIEW	<b>Learning Lab game</b>	

RAP	MINI LAB	FINAL TASK
Inside my body!	<p>Can you identify which direction sounds come from?</p> <p>Is your skin equally sensitive in all parts of your body?</p>	<p><b>Values education</b> Take care of our senses</p> <p><b>Task</b> Explore the senses</p>
Thank you, nutrients!	<p>Find out about fibre</p> <p>Which foods contain fats?</p> <p>How long is the digestive system?</p>	<p><b>Values education</b> How to keep teeth healthy</p> <p><b>Task</b> Be a dentist for a day</p>
Animals, what do you eat?	<p>Draw a habitat for a rainforest animal</p>	<p><b>Values education</b> Respect animals</p> <p><b>Task</b> Make an animal wheel</p>
What am I?	<p>Do plants need water?</p> <p>Do mosses need a lot of water?</p> <p>Do plants react to light?</p>	<p><b>Values education</b> Respect nature</p> <p><b>Task</b> Make a field journal</p>
The water rap!	<p>Is air matter?</p>	<p><b>Values education</b> The importance of water</p> <p><b>Task</b> Experiment with mixtures</p>
Energy everywhere!	<p>How do we look for information on the internet?</p> <p>How does heat flow through different materials?</p>	<p><b>Values education</b> Electricity can be dangerous</p> <p><b>Task</b> Make a poster about electrical safety</p>

# Be a scientist!

Scientists study the world around us. They **ask many questions**. They **use different skills** to find answers to their questions.

## ► Observe



## ► Classify



1 Can you answer these questions? Tell your partner.

*What animal can you see?*

*Are the foods from animals or plants?*

*Where does this animal live?*

*Which foods give us energy?*

*What does it eat?*

*Which foods help us to grow?*

## ► Investigate



*Do plants grow towards the light?*

*What experiment can you do to show this?*

## ► Compare



*How many red ladybirds are there?*

*Do all ladybirds have the same number of spots?*

## ► Predict



**2** What will happen to the snowman next week if...

- a. the weather stays very cold?
- b. the weather gets warm?

**3** Can you think of new questions for all the photos?



# 1

# The human body

**What do you know about the body?**



A



B

Energy from food helps us to **grow** and to **be active**.

## ► **Observe**

- 1 What activities can you see in the photos? Do we need energy for all of them? Tell your partner.



C

*The girl in photo A is swimming.*

*I think she needs a lot of energy.*

## 🎯 **You already know!**

- Muscles and bones work together to move our bodies.
- Our senses provide information about our environment.
- Each sense is connected to different organs in our body.

## What is inside our body?

Our body has many **organs** inside to help it to work. **Bones** and **muscles** are organs. The **brain**, the **heart**, and the **lungs** are also organs.



### ► Think about it



- 2 Listen and say where the organs are. Are they inside the head or the chest? Or, are they all over the body?

### Final task

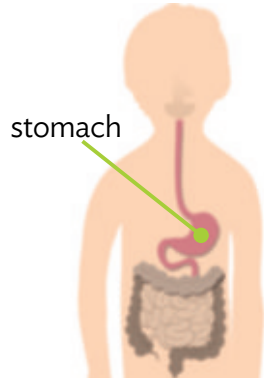
Explore the senses.



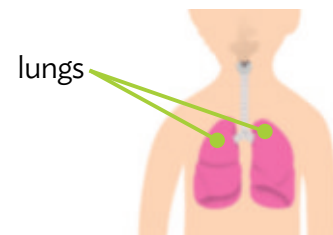
# What is nutrition?

The process of obtaining energy from food is called **nutrition**. There are **four body systems** involved in nutrition.

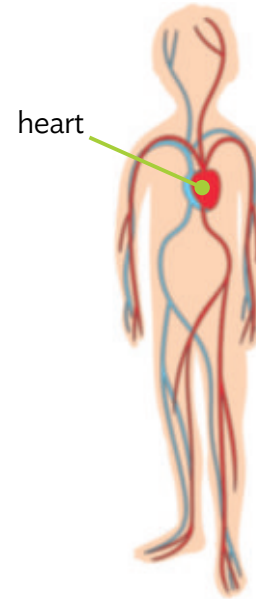
We digest food and absorb nutrients through our **digestive system**.



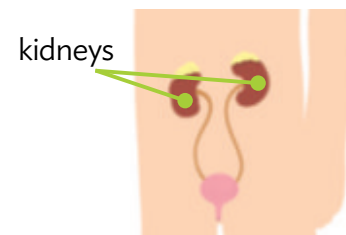
We breathe air in and out through our **respiratory system**. We need oxygen from air to obtain energy from food.



Our **blood** carries nutrients and oxygen around our body through the **circulatory system**.



We expel waste from our body through our **excretory system**.



1

**Let's rap!** *Inside my body!*



**Think about it**



2

**Which systems work in each situation? Copy and write.**

- a. When you go to the toilet. ➤ **Excretory system.**
- b. When you run a fast race.
- c. When you eat an apple.
- d. When you breathe in and out.

3

**Is eating food the same as carrying out nutrition?**

# What is reproduction?

**Reproduction** is the ability to have **offspring** similar to ourselves.

- Men and women have different **reproductive organs**.
- People can reproduce when they are adults.
- Children often look like their parents. They share **physical characteristics**.



## 4 Read and copy the correct words to make sentences.

- People are **oviparous / viviparous**.
- Our body is ready to reproduce when we are **a child / an adult**.
- The reproductive organs are **the same / different** in men and women.
- Men / Women** carry babies in their womb.

## ► Compare

- Bring in photos of different families. Talk about their physical characteristics.

They have **similar eyes**.

They have **different noses**.

# What is sensitivity?

**Sensitivity** is the ability to **detect** and **respond** to information about the **environment**. We detect this information with our **senses**.



We receive information from the environment.



We think of a response.



We carry out the response.



1 Look at the pictures and listen.

2 Answer the questions in your notebook.

- What is the information the girl detects? ► *It starts to rain.*
- Which senses help the girl to detect this information?
- How does she respond to the information?

► **Think about it**



3 Think of an everyday situation, then draw three pictures in your notebook.

**Picture 1** You detect information about the environment.

**Picture 2** What do your senses detect?

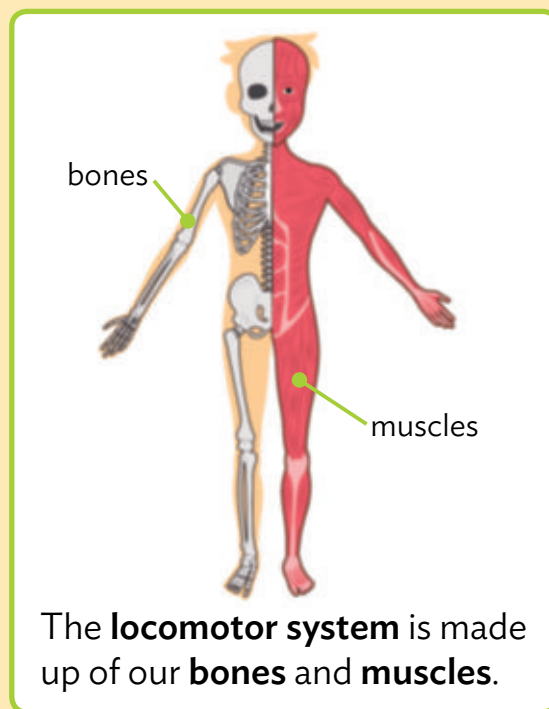
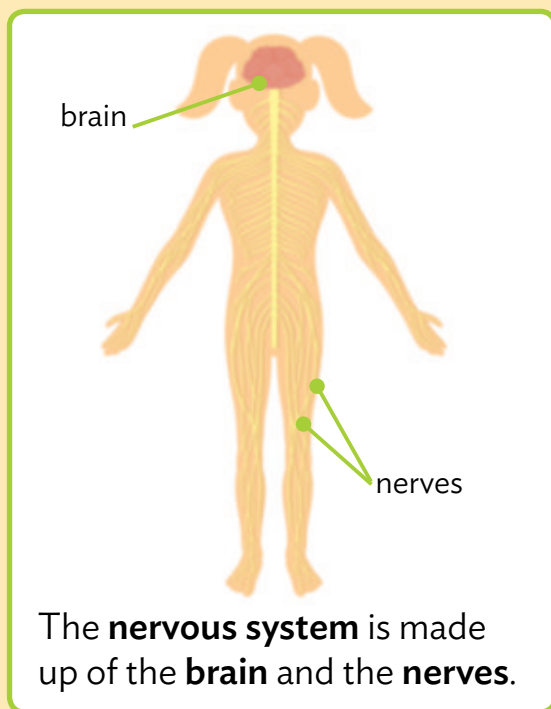
**Picture 3** How do you respond?

- Role-play your situation in front of the class.

## How do we control movement?

**Two systems** work together to move our body:

- The **nervous system**: our **brain** and **nerves** work together. Nerves are connected to all parts of our body. They **send** and **receive** messages to and from the brain. The brain interprets the messages and thinks of a response.
- The **locomotor system**: all our **bones** and **muscles** work together. They carry out the response to move our body.



4 How many bones and muscles do you know? Tell your partner.



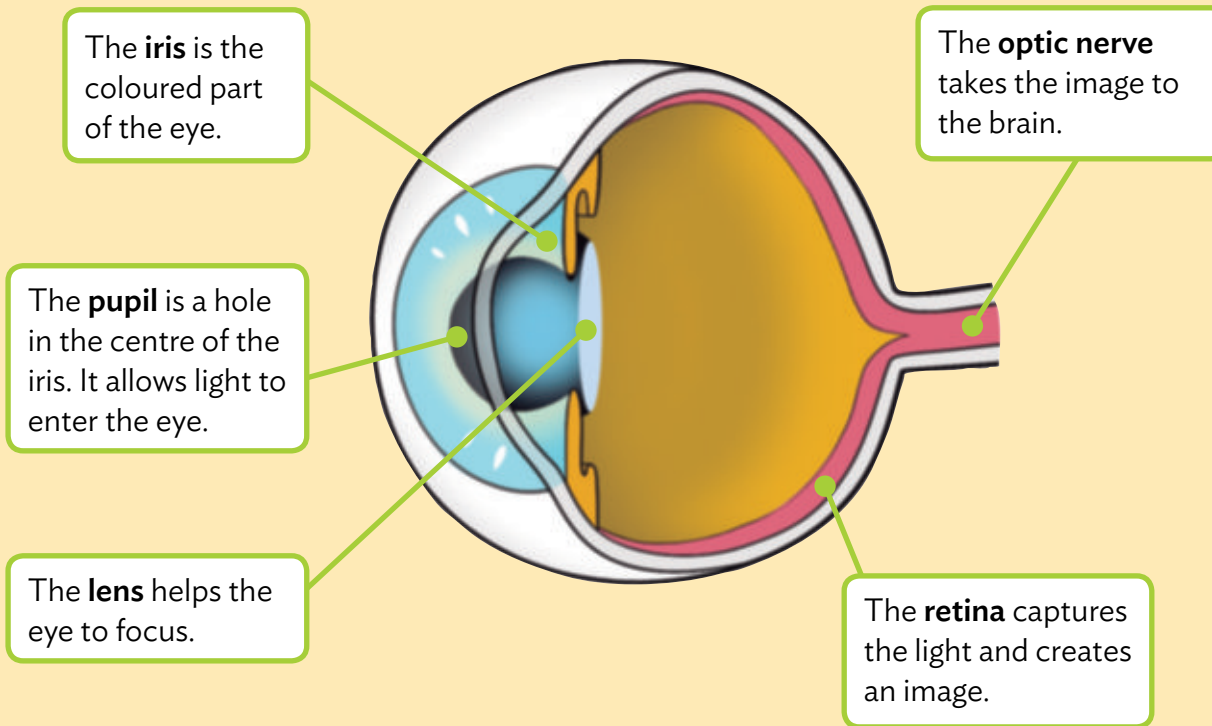
5 Listen and say *nervous system* or *locomotor system*.

6 Write the sentences in order in your notebook.

- Your brain sends the message through your nerves.
- Your bones and muscles work together to bend your arm.
- Your bones and muscles receive the message.
- Your nerves are connected to your bones and muscles.
- You want to bend your arm. ▶ 1

# How do we see things?

Our **eyes** are our organs of **sight**. We use them to identify **colour**, **size**, **shape** and **distance**.



**1** Look at the diagram. Which part of the eye gives us our eye colour?

**2** How do we see things? Write complete sentences in your notebook.

- a. Light enters the eye through the ...
- b. The ... focuses the light.
- c. The ... produces an image.
- d. The ... sends the image to the brain.

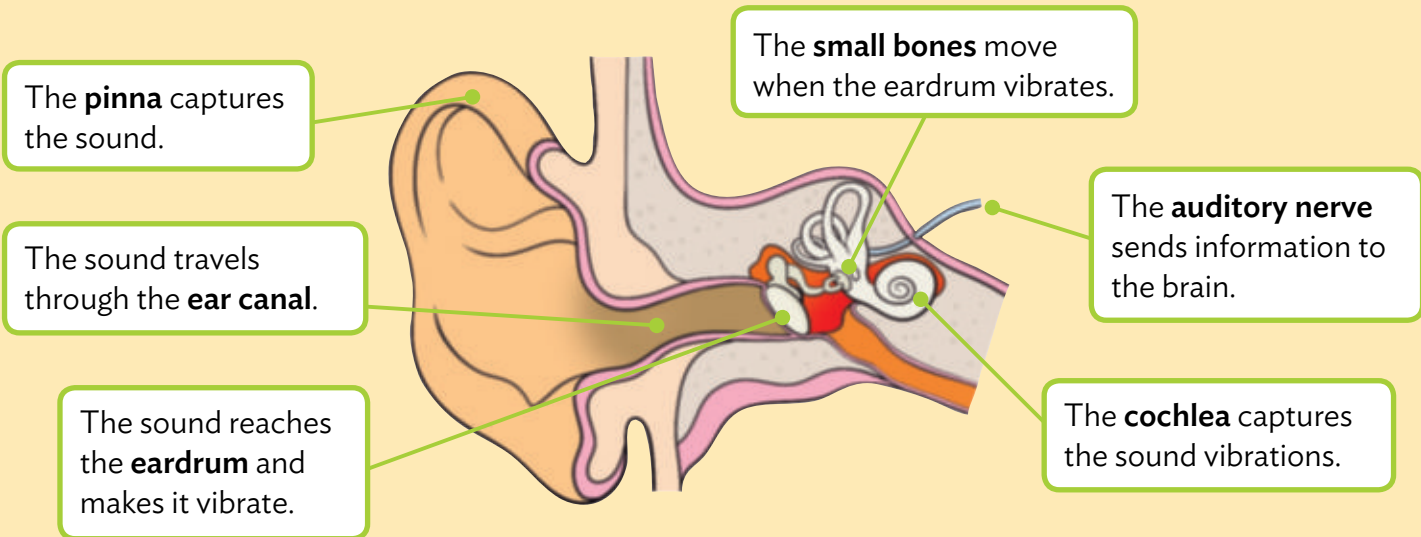
## ► Think about it

**3** Why do we have two eyes? Investigate.

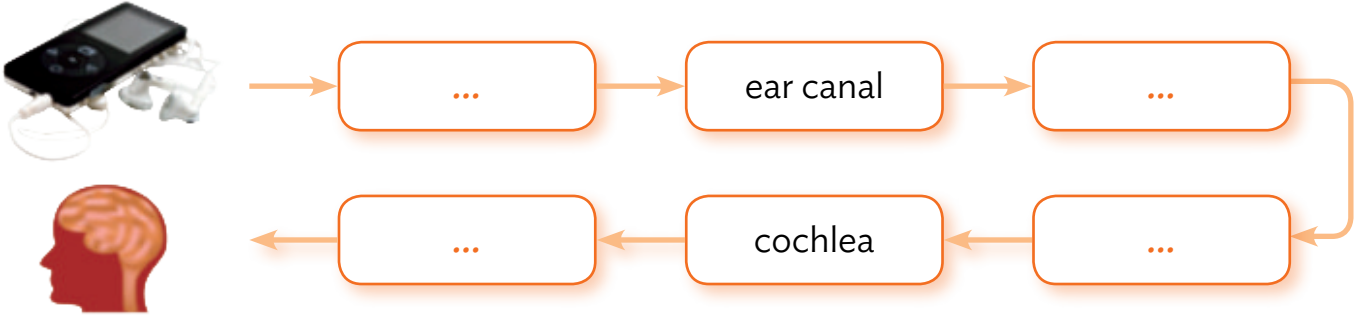
- Close one eye at a time.
- Hold a finger about 20 cm away from your eyes.
- Then, look at your finger with both eyes open.
- Can you draw what you see each time?
- Write a conclusion: We see things better with **one eye / two eyes**.

# How do we hear things?

Our **ears** are our organs of **hearing**. We use them to identify different **sounds**.



4 What path does sound take? Copy the flow diagram and write the parts of the ear.



## Mini Lab

**Can you identify which direction sounds come from?**

### Do your experiment

- 1 Close your eyes.
- 2 Your partner claps their hands in front, above and behind you.
- 3 Say which direction the sound comes from.

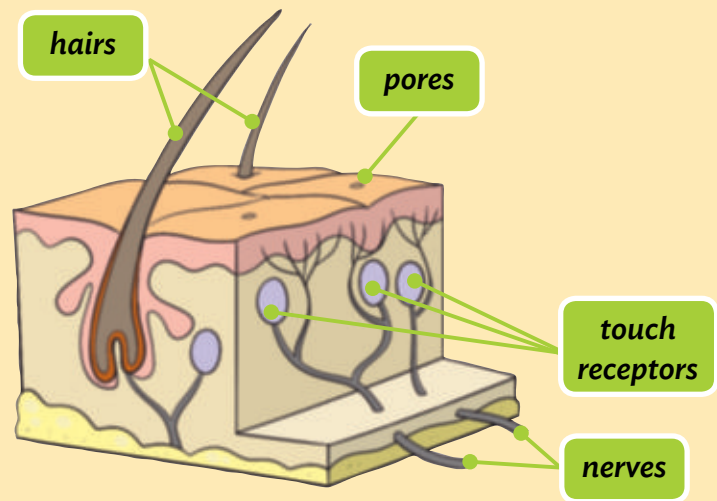
### Write your conclusion

- We **can / cannot** identify which direction sounds come from.

# How do we feel things?

Our body is covered with **skin**. Our skin is our organ of **touch**. It is the largest organ in our body.

The skin has many **touch receptors**. We can feel **temperature**, **textures** and **pain** with our skin.



## Mini Lab

### Is your skin equally sensitive in all parts of your body?

You need

- some ice cubes
- a blindfold

#### Do your experiment

- 1 Put on the blindfold. Your partner touches different parts of your body with the ice cube.
- 2 Copy the table and record your results.
- 3 Compare your results with your partner.



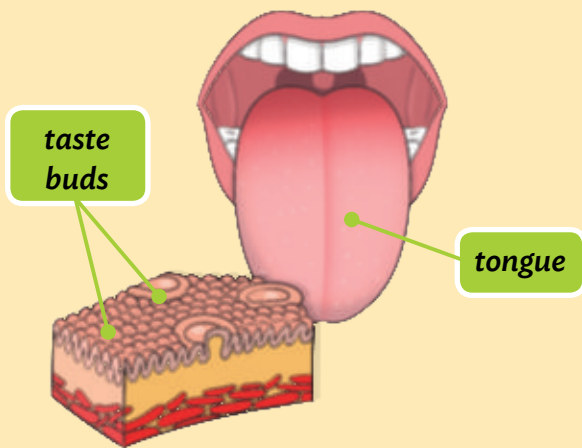
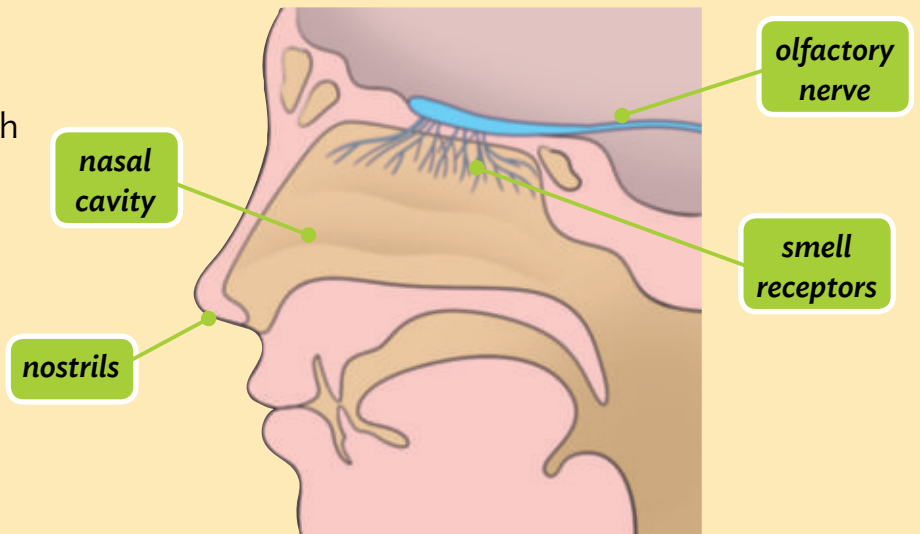
#### Write your conclusions

- The skin in different parts of our body **is / is not** equally sensitive.
- The skin in the more sensitive parts of our body has **more / fewer** touch receptors.

body part	very sensitive	less sensitive
arm		
palm of hand		
back of neck		
bottom of feet		
lips	✓	

# How do we smell and taste things?

Our **nose** is our organ of **smell**. We use it to identify smells. We detect different smells through **smell receptors**. These send messages to the brain via the **olfactory nerve**.



The **tongue** is our organ of **taste**. We use our **taste buds** to identify different **flavours: sweet, salty, sour and bitter**.



**1** Answer the questions. Then, listen and check your answers.

- a. Where do smells enter the body? ► **Through the nostrils.**
- b. What part of the nose helps us detect the different smells?
- c. How does the information reach the brain?

## ► Compare

**2** Collect these foods. What flavour are they? Taste them, then tell your partner.

- lemons
- ham
- vinegar
- ice cream
- dark chocolate
- cheese

*What flavour is ice cream?*

*It's sweet.*



# Check your progress .....

## Vocabulary

1 Listen and say *nutrition, reproduction or sensitivity*.

2 In your notebook, write the sense organ and the sense.

- retina ► *the eye, sight*
- taste buds
- eardrum
- pupil
- touch receptors
- nostrils
- pinna
- olfactory nerve



## Concepts

3 Copy and complete the sentences.

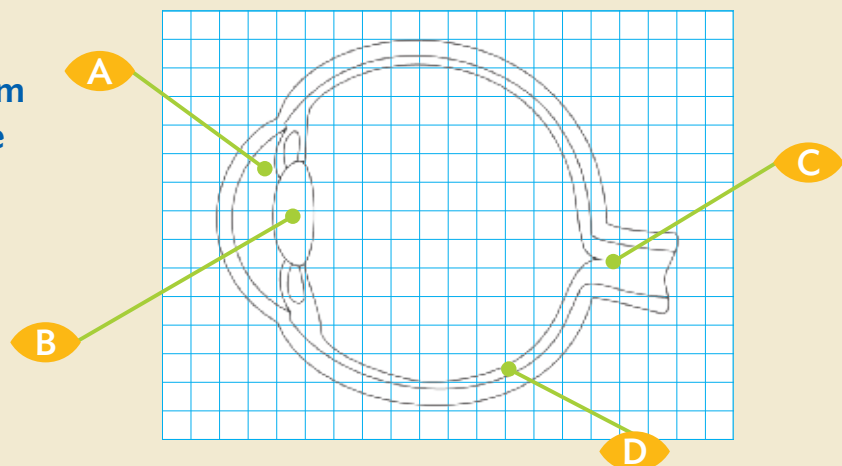
All our bones and muscles together form the ...

Our brain and nerves are part of our ...

Nerves are connected to all ...

Nerves send and receive messages to ...

4 Copy and label the diagram of the eye. Then, draw the pupil.



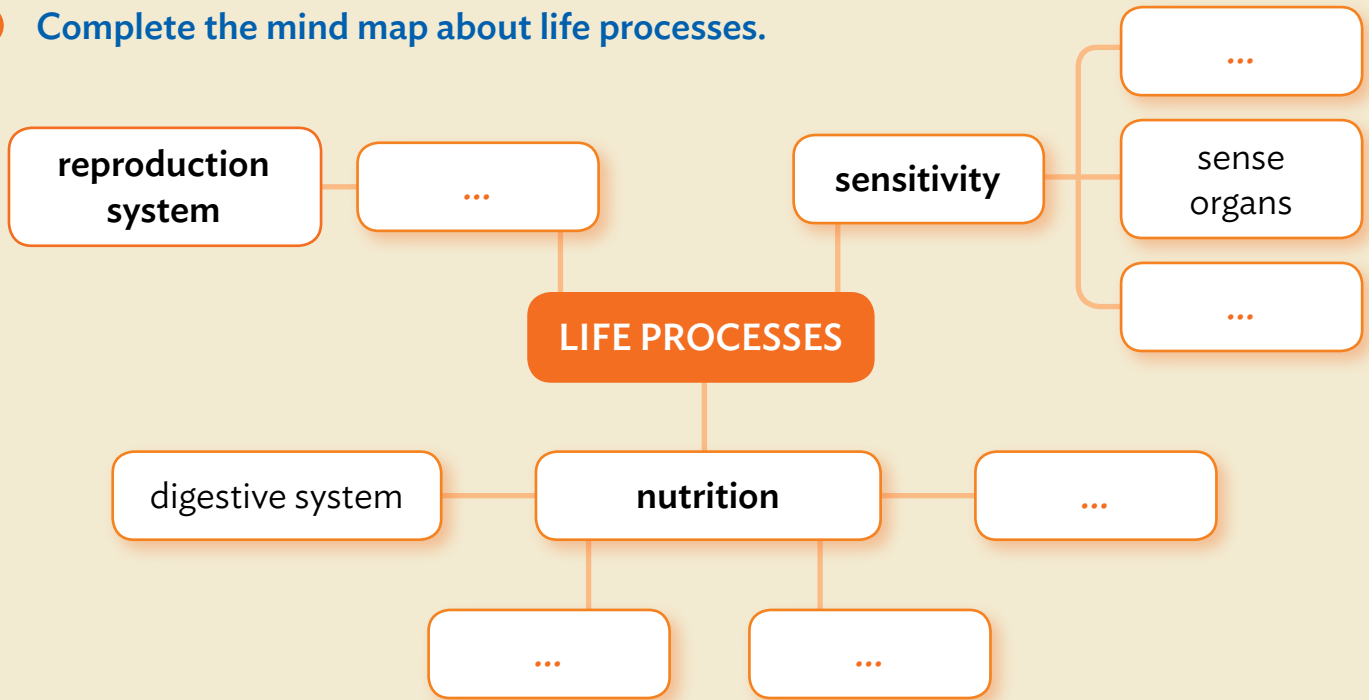
**Apply what you know**

5 Look at the drawings. Number them in order in your notebooks.



• Which senses are involved?

6 Complete the mind map about life processes.



**My progress** How is my work?



Think about your work in this unit. Copy and complete.

	Very well	OK	I need practice
I can describe life processes.	...	...	...
I can identify some systems in the body.	...	...	...
I can explain how the senses work.	...	...	...

## Explore the senses

### You need

- 5 sheets of card
- a pencil
- coloured pencils

### How can we look after our sense organs?

When we look after our senses, we help them to do their job.

### Make information cards

#### 1 In groups, choose one of the senses.

- Find information about how to look after the sense organs.

#### 2 Make a card for each sense.



#### 3 Present your information and care tips to the class.

- First, practise in pairs what you will say.

*How can I look after my eyes?*

*Never look directly at the Sun!*

*What parts protect the eye?*

*The eyelashes and the eyelids.*



## Be a scientist!

### Explore the senses

**Do experiments to find out more about the senses**



#### 4 Do each experiment with your partner.

- Take turns to wear a blindfold for each experiment.
- Exchange conclusions. Which experiments are the easiest / the most difficult?



#### Explore smell

##### You need

- 5 zip bags
- crisps
- an onion
- toothpaste
- a banana
- orange peel
- a glass of water
- Your partner puts on the blindfold.
- Put the foods in the zip bags. Careful your partner doesn't see them!
- Open each bag. Your partner smells the contents and tries to identify each smell.



#### Explore taste

- Your partner is still blindfolded. They pinch their nose.
- Give your partner a sample of the same foods on a toothpick. Don't give them the onion to eat!
- Your partner tastes each sample and tries to identify the flavour.
- Drink water between samples to clear your taste buds.



#### 5 Create a new experiment about one of the senses.

- In groups, think of a new experiment to explore the senses.
- Exchange ideas with another group.
- Try out the experiment, then present it to the class.