

# Essential Science Plus 6<sub>PRIMARY</sub> Teacher's Resource Book

# Contents

Introduction .....	III
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## Worksheets

Reinforcement .....	6
Extension .....	30
Culture .....	42
Investigate! .....	54
Assessment .....	66

## Answer keys

Reinforcement .....	92
Extension .....	98
Culture .....	102
Investigate! .....	104
Assessment .....	105

# Introduction

**Essential Science Plus 6 Teacher's Resource Book** provides a wide variety of photocopiable worksheets designed to complement **Essential Science Plus 6 Student's Book** and **Essential Science Plus 6 Teacher's Book**.

These worksheets facilitate a flexible approach in the classroom. Students in the same class can be given different worksheets. Stronger students can expand on the material learnt in class. Weaker students can use the worksheets to revise. Alternatively, students can work together with stronger peers to complete the tasks. In addition, these worksheets can be photocopied and used for homework.

There are five categories of worksheets: **Reinforcement**, **Extension**, **Culture**, **Investigate!** and **Assessment**. Answer keys are provided at the back of this book.

## Reinforcement and Extension worksheets

There are twenty-four **Reinforcement worksheets** and twelve **Extension worksheets**. The Reinforcement worksheets are designed to provide additional support for students in need of further practice. They can be used after the relevant section in the Student's Book, before the *Show what you know* sections, or as extra preparation for the Unit assessment. Depending on the students, they can complete the worksheets with or without consulting their Student's Books, in the classroom or at home, individually or in pairs.


The Extension worksheets can be used for fast finishers or to expand on the material covered in class.

REINFORCEMENT


### 1 Nutrition

Name \_\_\_\_\_ Date \_\_\_\_\_


1 Match the photos to the nutrients. Then, write why each nutrient is necessary.




(A)



(B)



(C)

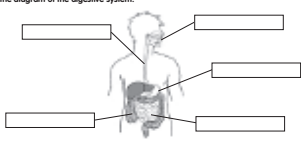


(D)

\_\_\_\_\_
\_\_\_\_\_
\_\_\_\_\_
\_\_\_\_\_

vitamins and minerals
carbohydrates
proteins
fats

2 Label the diagram of the digestive system.



3 Complete the diagram to show the path air travels through when we inhale. Then, answer the questions.

\_\_\_\_\_

→

pharynx

→

\_\_\_\_\_

→

\_\_\_\_\_

→

lung

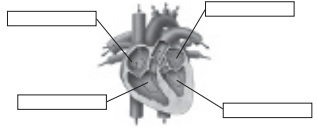
a. Which parts of the respiratory system are air passageways?

b. Which part of the respiratory system also belongs to another body system?





c. Where does gas exchange take place?

EXTENSION

4 Label the diagram. Colour the arrows purple where the blood enters the heart. Colour the arrows red where the blood leaves the heart.



5 Complete the table about blood.

component				
name	_____	_____	_____	_____
function	_____	_____	_____	_____

6 Use the words related to the excretory system to write four sentences.

kidneys
ureters
plasma
larynx

bladder
atria
urethra
liver

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

# Culture worksheets

There are twelve **Culture worksheets**, one for each unit. They provide opportunities to learn about different aspects of culture around the world. Students have the opportunity to relate their learning to the real world.

1

Nutrition


CULTURE

Name \_\_\_\_\_ Date \_\_\_\_\_

**The Slow Food Movement**

The Slow Food Movement is a worldwide movement to promote good, nutritious food. The aims behind the movement are threefold: to consume tasty foods, to eat foods grown and produced locally, and to produce foods without harming the environment. In addition, these foods should be bought from farmers at a fair price. The Slow Food Movement was started in Italy in 1986 by an Italian man, Carlo Petrini, who wanted to stop the spread of fast food chains in Rome.

The movement has created an international catalogue of heritage foods, known as the Ark of Taste. This catalogue includes foods considered at risk of disappearing, for example, California Mission olives. This is a variety of olive unique to California. It was cultivated by Spanish missions along the California Mission trail in the late 18<sup>th</sup> century. California Mission olives are unique because they can be pressed into oil or they can be consumed as table olives. Thanks to recent efforts, new groves of California Mission olives have been replanted in several areas throughout California.



1 Read the text and complete the table about the Slow Food Movement. Then, answer the questions.

description	aims
_____	_____
_____	_____

a. Can you name examples of both slow foods and fast foods in your diet? \_\_\_\_\_

b. Can you name any traditional local food from your region? \_\_\_\_\_

c. Do you think it is important to consume heritage foods? Why? \_\_\_\_\_

d. What is the Ark of Taste? \_\_\_\_\_

2 Search the Internet to find information about a heritage food from the Ark of Taste and write a brief description.

\_\_\_\_\_

\_\_\_\_\_

42

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# Investigate! worksheets

There are twelve **Investigate! worksheets**, one for each unit. These worksheets provide opportunities for students to carry out simple investigative tasks, either in the classroom or at home.

1

Nutrition

INVESTIGATE!

Name \_\_\_\_\_ Date \_\_\_\_\_



**1 What foods contain starch?**

**Instructions**

Starch is the most common carbohydrate in food. Like other carbohydrates, starch provides energy. Find out about starch content in different foods.

1. Work in pairs. You need the following things:

- a piece of bread
- a piece of ham
- a slice of boiled potato
- a slice of carrot
- a slice of banana
- a spoonful of cooked rice
- a biscuit
- some butter
- some iodine solution
- some aluminium foil



2. Place each food on a piece of aluminium foil.

3. Make predictions about the starch content for each food and write them in the table.


	bread	ham	potato	carrot	banana	rice	biscuit	butter
prediction	yes							
result	yes							

4. Test for starch content by adding a few drops of iodine solution to each food. Wait a few minutes.

5. Observe the foods. If a black stain appeared where you added the iodine solution, the food contains starch.

6. Record your results in the table above. Compare them to your predictions.

7. Make two lists: starchy foods and non-starchy foods.



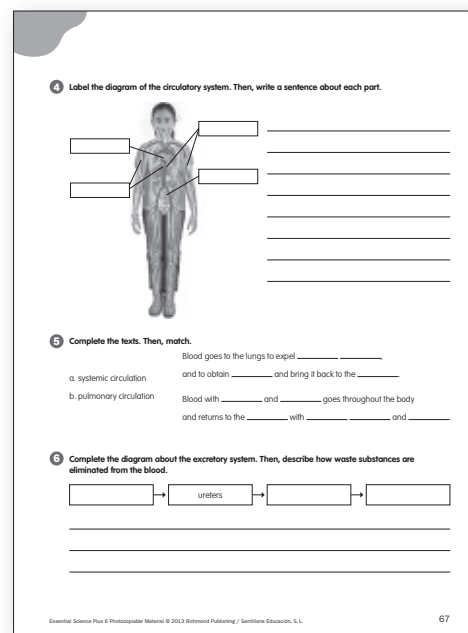
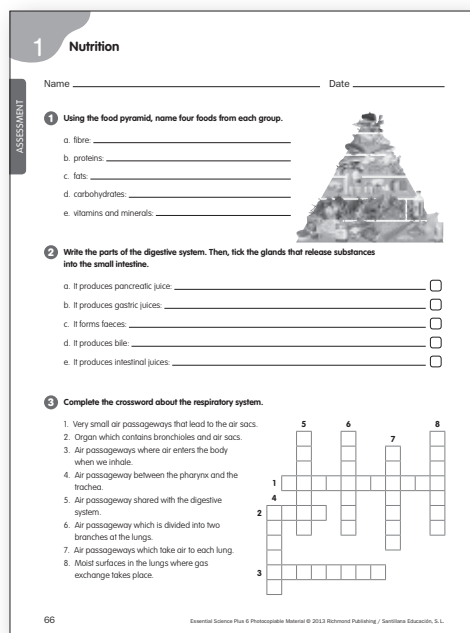
54

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## Assessment worksheets

There are twelve double-page **Assessment worksheets**, one for each unit. These worksheets can be given to students once the unit has been completed, as a revision test, or to check progress at any point during the year.



## Digital resources

### i-solutions

The **i-solutions** pack contains 4 CDs:

#### CD 1

#### Digital Flashcards, Digital Posters and Web bank

The digital flashcard bank offers over 100 images to project onto an interactive whiteboard or to print out. There are four digital posters which can be printed out. The web bank includes some of the best free web links for teaching Science, Geography and History.

#### CD 2

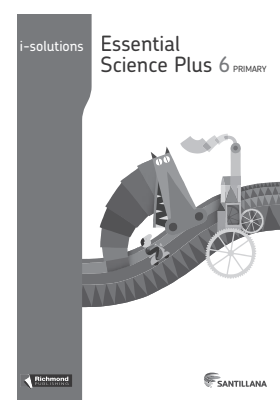
#### IWB Activities

The Interactive Whiteboard Activities CD contains five interactive activities per unit to help reinforce the Student's Book content in a fun way.

#### CD 3

#### i-book

The i-book contains the core course material in digital format: Student's Book, Activity Book and Teacher's Book. It can be used on an interactive whiteboard in the classroom or for class planning.



#### CD 4

#### Teacher's resources

This CD contains the PDFs of this Teacher's Resource Book.

Name \_\_\_\_\_ Date \_\_\_\_\_

**1 Match the photos to the nutrients. Then, write why each nutrient is necessary.**

vitamins and minerals

carbohydrates

proteins

fats

A



B



C

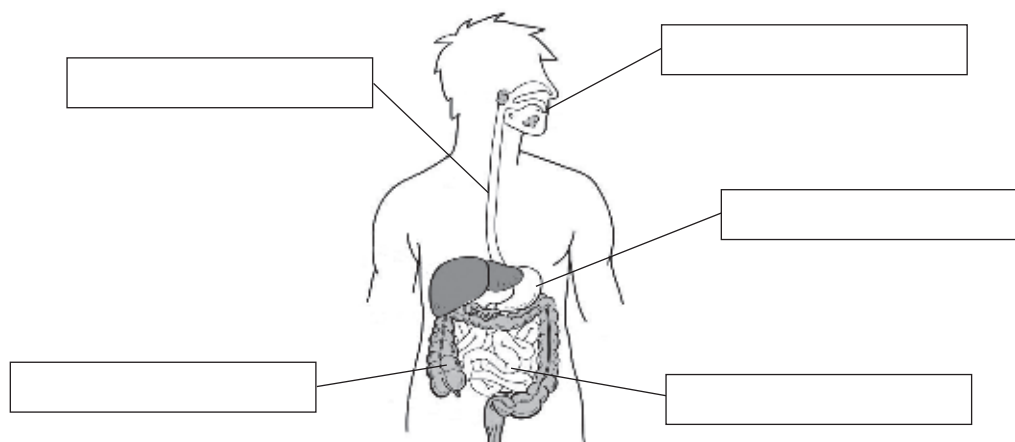
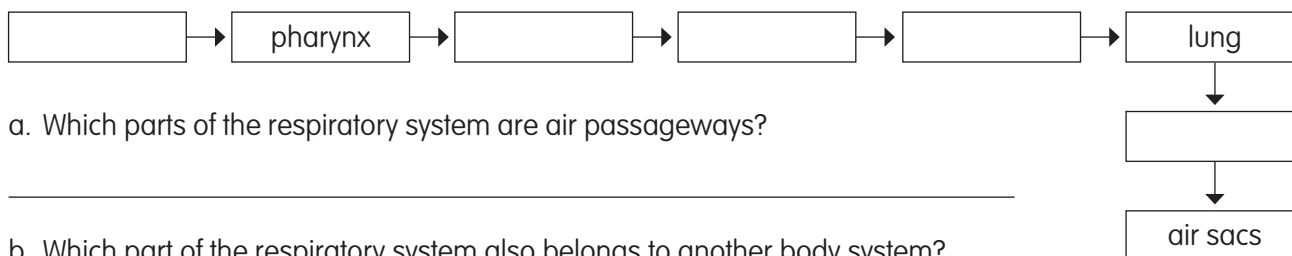


D



\_\_\_\_\_

\_\_\_\_\_

**2 Label the diagram of the digestive system.****3 Complete the diagram to show the path air travels through when we inhale. Then, answer the questions.**

a. Which parts of the respiratory system are air passageways?

\_\_\_\_\_

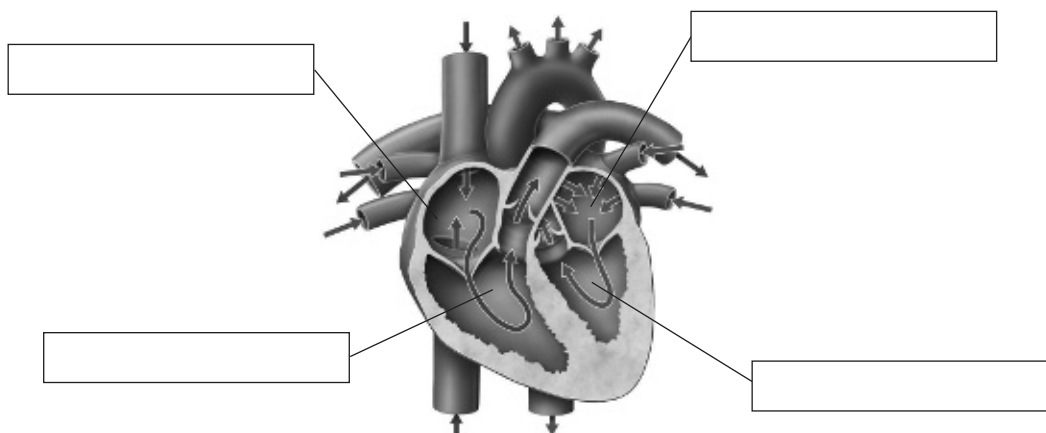
b. Which part of the respiratory system also belongs to another body system?

\_\_\_\_\_


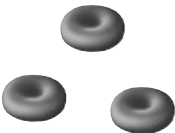

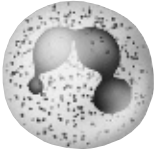
c. Where does gas exchange take place?

\_\_\_\_\_

- 4 Label the diagram. Colour the arrows purple where the blood enters the heart. Colour the arrows red where the blood leaves the heart.



- 5 Complete the table about blood.

component				
name				
function	  	  	  	  

- 6 Use the words related to the excretory system to write four sentences.

kidneys                      ureters                      plasma                      larynx  
bladder                      atria                      urethra                      liver

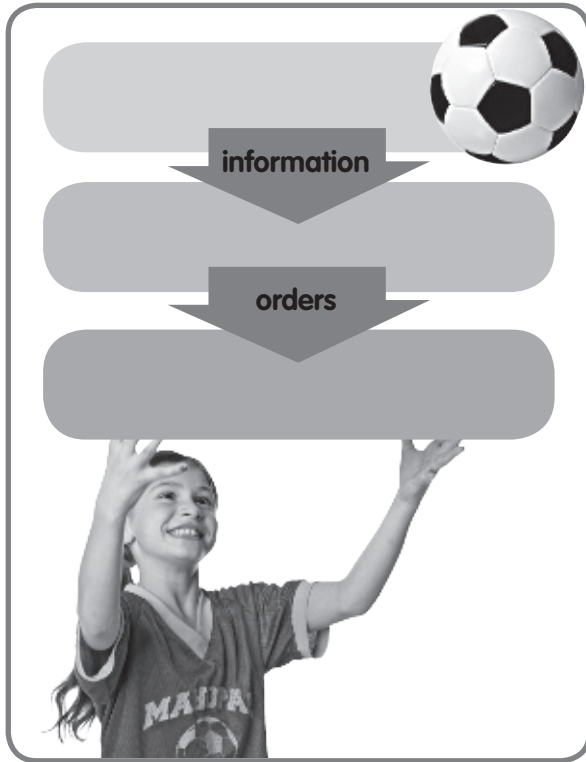
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Name \_\_\_\_\_ Date \_\_\_\_\_

**1 Complete the diagram. Then, answer the questions.**

a. Which sense organs are involved?

\_\_\_\_\_

b. What do these sense organs detect?

\_\_\_\_\_

c. Which part of the body interprets the information and decides how to act?

\_\_\_\_\_

**2 Where are the receptors located in each sense organ?**

a. the skin: \_\_\_\_\_

b. the tongue: \_\_\_\_\_

c. the nose: \_\_\_\_\_

**3 Match the three columns. Then, write the purpose of each action.**

In dim light

the iris contracts

and makes the pupil dilate

In bright light

the iris expands

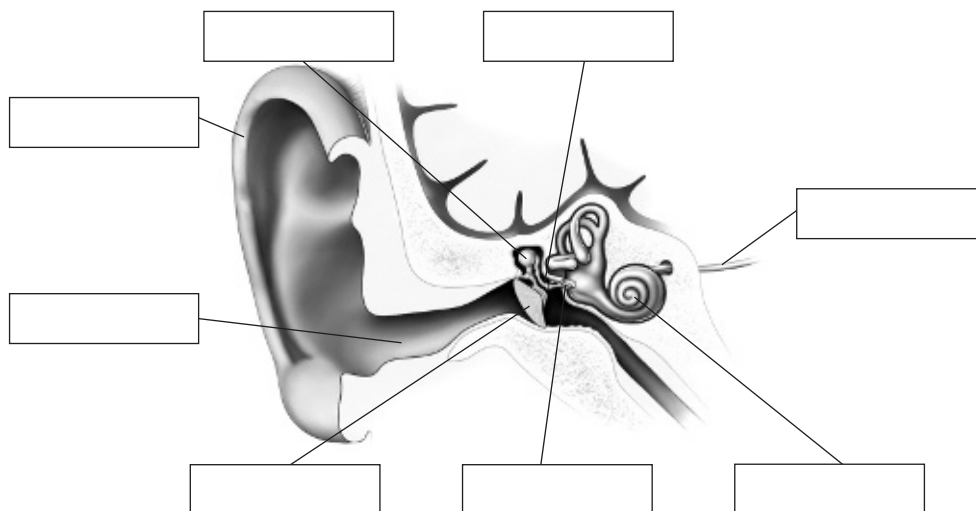
and makes the pupil constrict

\_\_\_\_\_

\_\_\_\_\_

**4 Label the diagram.**

- anvil
- auditory nerve
- hammer
- pinna
- stirrup
- cochlea
- ear canal
- eardrum

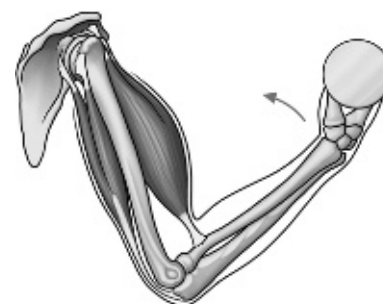


**5 Complete the table with two examples of each.**

	arms	legs	torso
bones	_____	_____	_____
	_____	_____	_____
muscles	_____	_____	_____
	_____	_____	_____

**6 Look at the diagram and answer the questions. Then, circle the joints.**

- a. What movement is this? \_\_\_\_\_
- b. Which muscles are involved? \_\_\_\_\_
- c. How do they work? \_\_\_\_\_



Name \_\_\_\_\_ Date \_\_\_\_\_

**1** Draw a neuron and label it. Then, write a sentence about each word.

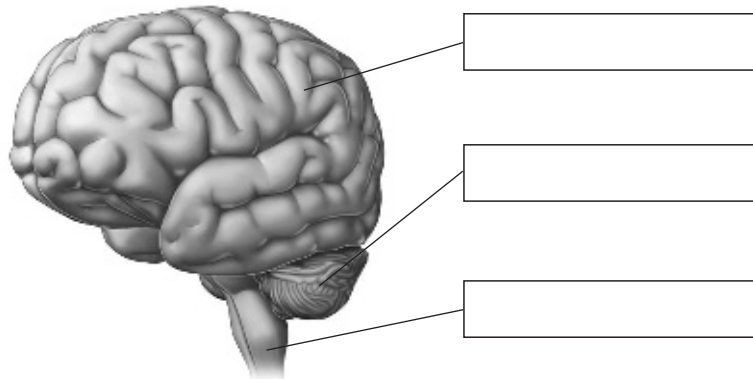
dendrites

axon

body



- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

**2** Label the diagram of the brain. Then, write a sentence about what each part controls.

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

**3** Read the actions and write *voluntary* or *reflex*.

a. running: \_\_\_\_\_

d. eating: \_\_\_\_\_

b. yawning: \_\_\_\_\_

e. shivering: \_\_\_\_\_

c. blushing: \_\_\_\_\_

f. writing: \_\_\_\_\_

- Can you name other reflex movements?

\_\_\_\_\_

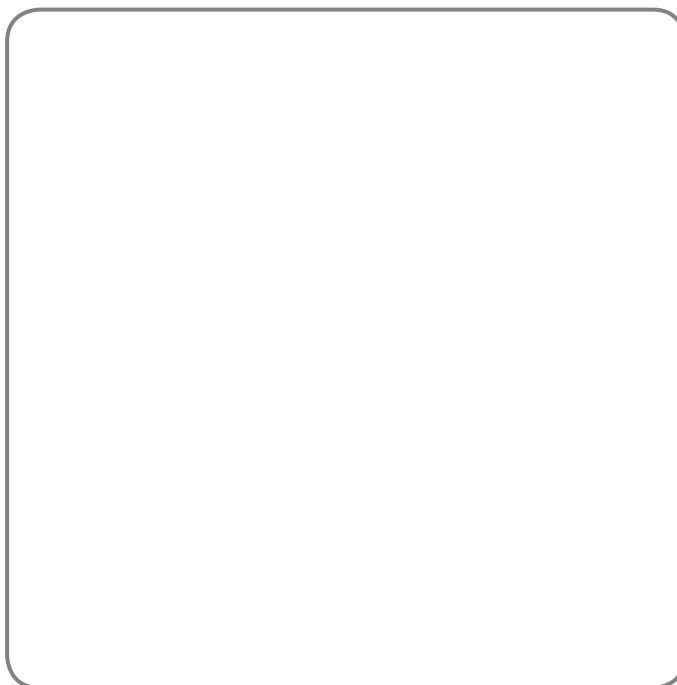
**4** Choose the words related to the endocrine system and write a sentence with each one.

hormones      axon      endocrine glands  
motor neurons      cerebrum      target organs

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

**5** Draw the outline of a girl. Label the position of the endocrine glands.

- The endocrine glands
  1. pituitary gland
  2. thyroid gland
  3. adrenal gland
  4. pancreas
  5. ovaries



**6** Complete the table.

involuntary muscles	
examples	what they do
_____	_____
_____	_____

Name \_\_\_\_\_ Date \_\_\_\_\_

**1 Name three secondary sexual characteristics.**

men

\_\_\_\_\_

women

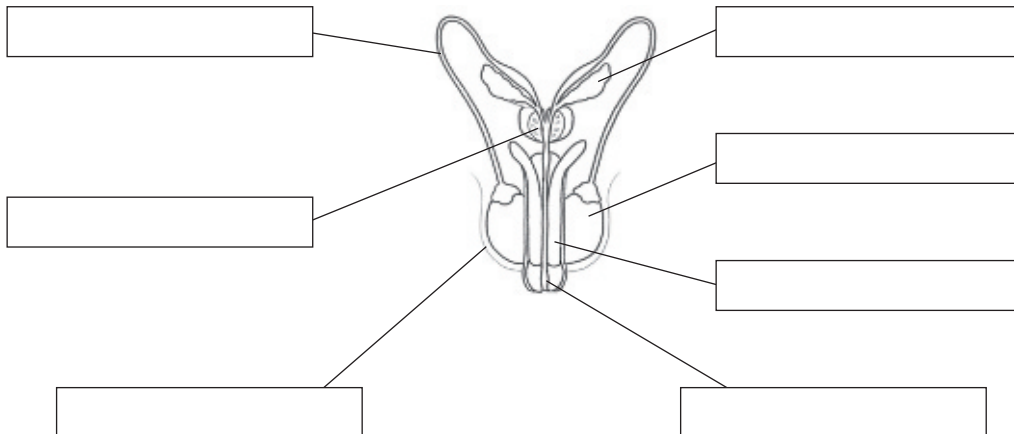
\_\_\_\_\_

**2 Complete the sentences.**

- a. The female sex cells are known as \_\_\_\_\_ or \_\_\_\_\_.
- b. The male sex cells are known as \_\_\_\_\_.
- c. The female genital organs which contain sex cells are the \_\_\_\_\_.
- d. The male genital organs which produce sex cells are the \_\_\_\_\_.
- e. The external protective part of the female reproductive system is the \_\_\_\_\_.
- f. The external part of the male reproductive system that protects the testes is the \_\_\_\_\_.

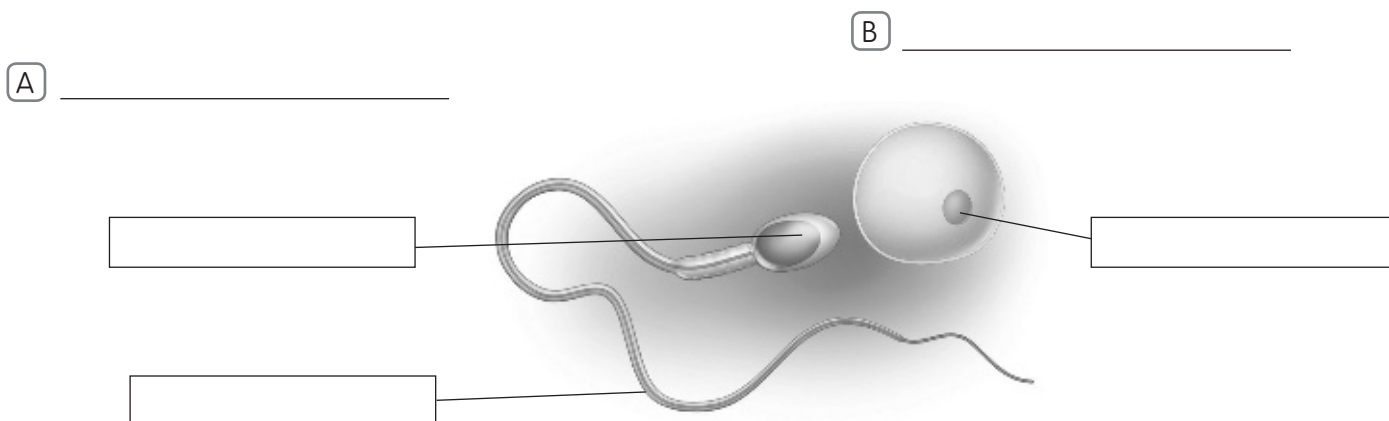
**3 Label the diagram of the male reproductive system.**

testes    seminal vesicle    penis    prostate    sperm duct    urethra    scrotum





**4 Label the reproductive cells and their parts. Then, answer the question.**



- Which reproductive cells are smaller in size, but bigger in number? \_\_\_\_\_

**5 Complete the sentences.**

oxygen    lactation    labour    amnion    placenta    birth  
Caesarean section    embryo    breasts    umbilical cord

- The embryo is surrounded by a sac called the \_\_\_\_\_.
- The \_\_\_\_\_ supplies nutrients and \_\_\_\_\_ from the mother to the embryo.
- The \_\_\_\_\_ and the placenta are connected by the \_\_\_\_\_.
- \_\_\_\_\_ is the process of giving \_\_\_\_\_.
- A \_\_\_\_\_ is performed when there are complications during birth.
- During \_\_\_\_\_, the mother's \_\_\_\_\_ produce milk.

**6 Cross out the odd one out. Then, write *pregnancy*, *birth* or *lactation*.**

- labour    fertilization    contractions    dilation    \_\_\_\_\_
- third stage    placenta    umbilical cord    amnion    \_\_\_\_\_
- breast    milk    zygote    mother    \_\_\_\_\_

Name \_\_\_\_\_ Date \_\_\_\_\_

**1 Look at the photographs. Write how to measure volume in each case.**

A



\_\_\_\_\_

B



\_\_\_\_\_

C



\_\_\_\_\_

**2 Find eight objects and classify them. Then, answer the questions.**

objects that float

 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

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

objects that sink

 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

- What do all the objects that float have in common? \_\_\_\_\_
- What do all the objects that sink have in common? \_\_\_\_\_

**3 Read and write T (true) or F (false). Then, correct the false sentences.**

- a. Matter is made up of atoms. ☐
- b. An element is made up of a combination of atoms. ☐
- c. A pure substance can be an element or a compound. ☐
- d. Mixtures consist of more than one pure substance. ☐
- e. Salt is a heterogeneous mixture. ☐

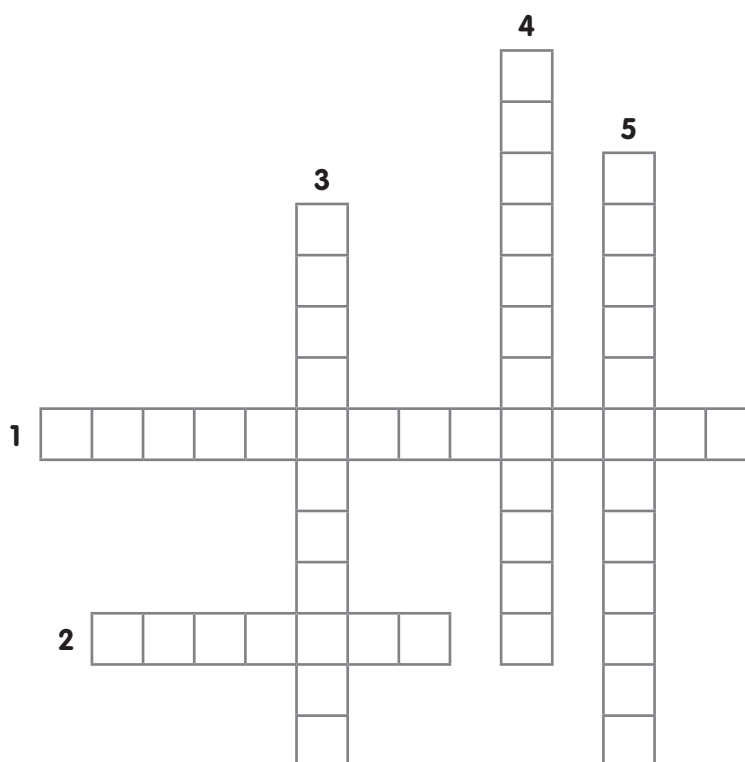
 \_\_\_\_\_  
 \_\_\_\_\_

- 4 Complete the table about the physical states of matter. Write *fixed* or *not fixed*.

	solids	liquids	gases
volume			
shape			

- 5 Complete the crossword about changes of state. Then, answer the question.

1. A liquid turns into a solid.
2. A solid turns into a liquid.
3. A solid turns into a gas.
4. A gas turns into a liquid.
5. A liquid turns into a gas.



- What change of state is missing? \_\_\_\_\_

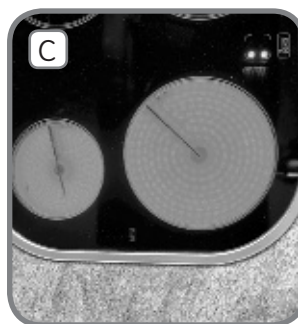
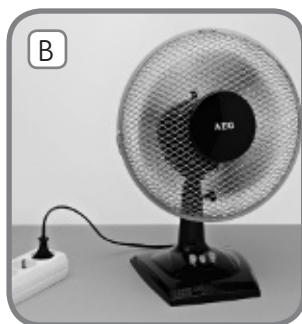
- 6 What is going to happen? Write *change of state* or *chemical change*.

- a. Water boiling in a saucepan: \_\_\_\_\_
- b. A match lighting a piece of paper: \_\_\_\_\_
- c. Ice cream at room temperature: \_\_\_\_\_
- d. An iron statue in an outdoor park: \_\_\_\_\_
- e. A bottle of water in a freezer: \_\_\_\_\_

Name \_\_\_\_\_ Date \_\_\_\_\_

**1 Cross out the odd one out. Then, write the corresponding form of energy.**

- |             |              |            |            |       |
|-------------|--------------|------------|------------|-------|
| a. computer | mobile phone | dishwasher | skateboard | _____ |
| b. radiator | the Sun      | road       | fire       | _____ |
| c. water    | batteries    | food       | fuel       | _____ |
| d. sunlight | candles      | snow       | torch      | _____ |

**2 Match each picture to its corresponding energy transformation. Then, complete the sentence.**

- ☐ chemical energy → kinetic energy
- ☐ chemical energy → thermal energy
- ☐ electrical energy → kinetic energy
- ☐ electrical energy → thermal energy

- Electrical energy can also be transformed into \_\_\_\_\_, for example, the energy emitted by \_\_\_\_\_.

**3 Write one energy source for each type of energy.**

- a. kinetic energy: \_\_\_\_\_
- b. nuclear energy: \_\_\_\_\_
- c. chemical energy: \_\_\_\_\_
- d. thermal energy: \_\_\_\_\_
- e. light energy: \_\_\_\_\_

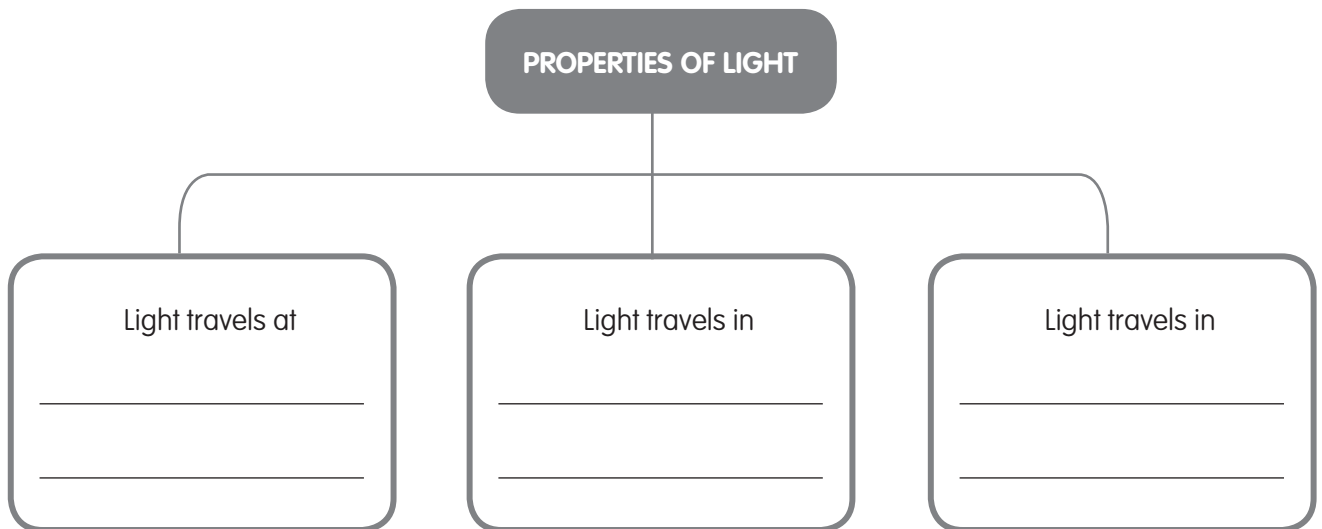
**4 Write the energy source used in each type of power plant. Then, answer the question.**

- a. thermal power plant: \_\_\_\_\_
- b. hydroelectric power plant: \_\_\_\_\_
- c. nuclear power plant: \_\_\_\_\_
- Which of these energy sources will never run out? \_\_\_\_\_

**5 Match and write the sentences about environmental problems.**

- |                                 |                        |
|---------------------------------|------------------------|
| a. Fossil fuels are             | acid rain.             |
| b. Burning fossil fuels         | radioactive waste.     |
| c. Toxic substances cause       | limited resources.     |
| d. Nuclear power plants produce | causes global warming. |
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

**6 Complete the word map.**



Name \_\_\_\_\_ Date \_\_\_\_\_

- 1** Draw arrows between the electrical charges to show attraction or repulsion. Then, write a sentence to explain each diagram.

A



B

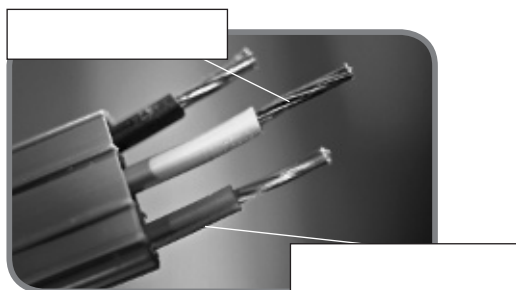


A



- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_

- 2** Label the materials of the electrical cable. Why are these materials used?

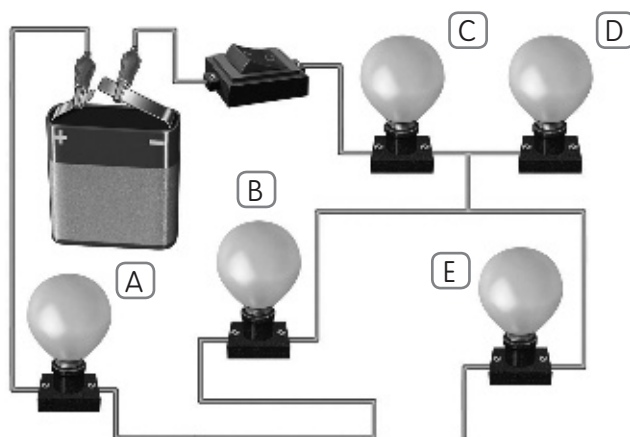


\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

- 3** Look at the diagram. Which bulbs will light up when the switch is on? Explain.



\_\_\_\_\_

\_\_\_\_\_

**4 Write a sentence with each group of words.**

wind

turbine

generator

solar power plants

sunlight

solar panels

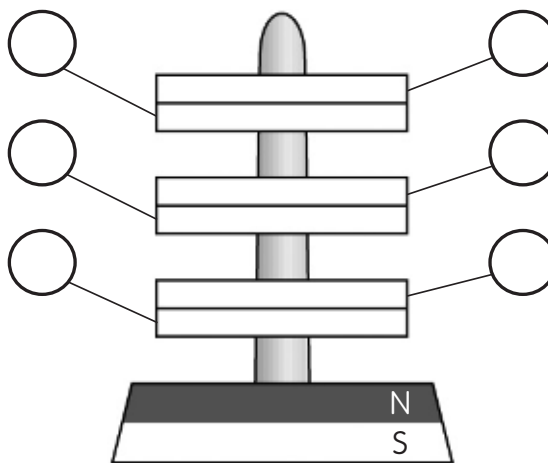
electricity

power plants

power lines

**5 Look at the picture. Then, label the poles of the magnets in the diagram.**

floating  
magnets



**6 Read and write *T* (true) or *F* (false). Then, correct the false sentences.**

a. Magnets attract all metals.

☐

b. Electromagnets consist of a silver core and a coil of wire.

☐

c. Electromagnets need electricity to work.

☐

d. Doorbells and microphones use electromagnets to work.

☐

Name \_\_\_\_\_ Date \_\_\_\_\_

**1 Match and write sentences to describe each machine.**

A



B



C



simple

energy from people

energy from fuel

complex

energy from electricity

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_

**2 Look at the pictures. Circle the machine that is not mechanical and answer the questions.**

A



B



C



D



- What machine did you circle? Why isn't it mechanical?

\_\_\_\_\_

\_\_\_\_\_

**3 Read these definitions of machine components and write the names.**

casing

mechanism

sensors

motor

- a. These allow a machine to detect information: \_\_\_\_\_
- b. It produces movement by transforming chemical energy into kinetic energy: \_\_\_\_\_
- c. The parts that work together to perform a specific task: \_\_\_\_\_
- d. The outer part of a machine. It protects the inner parts: \_\_\_\_\_



**4 Cross out the odd one out. Then, write *medicine, transportation, communications, or entertainment*.**

- |              |             |           |               |       |
|--------------|-------------|-----------|---------------|-------|
| a. telephone | television  | diagnosis | satellite     | _____ |
| b. X-ray     | computer    | MRI       | ultrasound    | _____ |
| c. radar     | air traffic | safety    | health        | _____ |
| d. tablet    | e-book      | radio     | 3D technology | _____ |

**5 Read and write *T (true)* or *F (false)*. Then, correct the false sentences.**

- a. The processor and the CD drive are hardware components. ☐
- b. A word processor and a web browser are hardware. ☐
- c. Smartphones are like small computers. ☐
- d. Applications are software programs for televisions. ☐
- e. Interactive whiteboards can show digital content and have touch screens. ☐

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**6 Complete the texts. Then, match them to their category.**

newspapers    videos    websites    digital    world    articles  
 network    online    telephone lines    groups of people

- a. They are \_\_\_\_\_ versions of printed \_\_\_\_\_.  
 They include \_\_\_\_\_ and \_\_\_\_\_ about the latest world events.
- b. They are special \_\_\_\_\_ that allow you to communicate \_\_\_\_\_  
 with different \_\_\_\_\_.
- c. It is a \_\_\_\_\_ of computers connected to each other by \_\_\_\_\_  
 or cables all over the \_\_\_\_\_.

☐ social networks      ☐ the Internet      ☐ digital newspapers

Name \_\_\_\_\_ Date \_\_\_\_\_

**1 Choose only the words related to the Great European Plain and write sentences.**

Pyrenees

Mediterranean Sea

Central Massif

Alps

River Volga

Ural Mountains

Atlantic Ocean

River Rhine

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**2 Match the columns and write a sentence for each. Then, circle the mountain ranges that are natural borders between countries.**

Mount Elbrus

3,404 m

Pyrenees

Mont Blanc

5,642 m

Alps

Aneto

4,807 m

Caucasus Mountains

a. \_\_\_\_\_

b. \_\_\_\_\_

c. \_\_\_\_\_

**3 Write an example for each description.**

a. An ocean to the west of Europe: \_\_\_\_\_

b. A sea to the south of Europe: \_\_\_\_\_

c. A peninsula in northern Europe: \_\_\_\_\_

d. A peninsula in southern Europe: \_\_\_\_\_

e. A Mediterranean gulf: \_\_\_\_\_

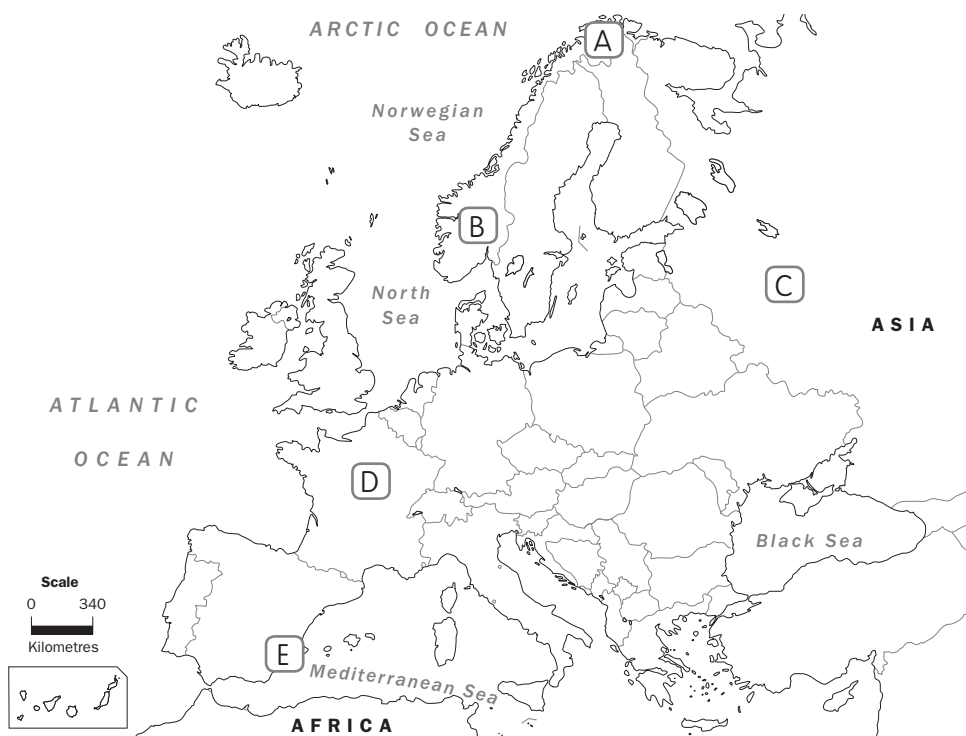
f. A cape in northern Europe: \_\_\_\_\_

g. A cape in southern Europe: \_\_\_\_\_

**4 Complete the table about European watersheds.**

	_____ watershed	Atlantic watershed	_____ watershed	Black Sea watershed	_____ watershed
description	rivers freeze in winter		rivers with irregular flow		
name of a river					the Volga

**5 Colour the key for the different climates. Then, use your key to colour the map.**



Oceanic	
Continental	
Mediterranean	
Polar	
Mountain	

**6 Match the vegetation to the different climates using the letters from Activity 5.**

- ☐ steppe
- ☐ deciduous forest
- ☐ alpine forest
- ☐ tundra
- ☐ mediterranean forest



Name \_\_\_\_\_ Date \_\_\_\_\_

**1 Look at the map and answer.**a. Name three countries with a population density of less than 10 inhabitants/km<sup>2</sup>. \_\_\_\_\_b. Name three countries with some areas where the population density is more than 500 inhabitants/km<sup>2</sup>. \_\_\_\_\_**2 Circle eight European countries. Write the names of the members of the European Union. Then, tick the ones that belong to the eurozone.**

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

EU members

\_\_\_\_\_ ☐

\_\_\_\_\_ ☐

\_\_\_\_\_ ☐

\_\_\_\_\_ ☐

\_\_\_\_\_ ☐

\_\_\_\_\_ ☐

\_\_\_\_\_ ☐

**3 Write sentences about the accomplishments of the European Union.**

a. market                      movement                      goods

---

b. laws                      environment                      global warming

---

c. members                      difficulty                      common funds

---

**4 Look at the map, then read and write the name of the Autonomous Community.**



a. It has the most provinces. \_\_\_\_\_

b. It is surrounded by the Atlantic Ocean. \_\_\_\_\_

c. It borders Portugal and has two provinces. \_\_\_\_\_

d. It borders France and Andorra. \_\_\_\_\_

Name \_\_\_\_\_ Date \_\_\_\_\_

- 1 Choose only the territories of the Catholic Monarchs' reign and write them in the order they were conquered. Then, answer the question.**

Kingdom of Leon

Kingdom of Navarre

Melilla

Kingdom of Granada

Kingdom of Naples

Canary Islands

Balearic Islands

Ceuta



- Which event led to the most important conquest of the Catholic Monarchs' reign?

- 2 Write two examples of each.**

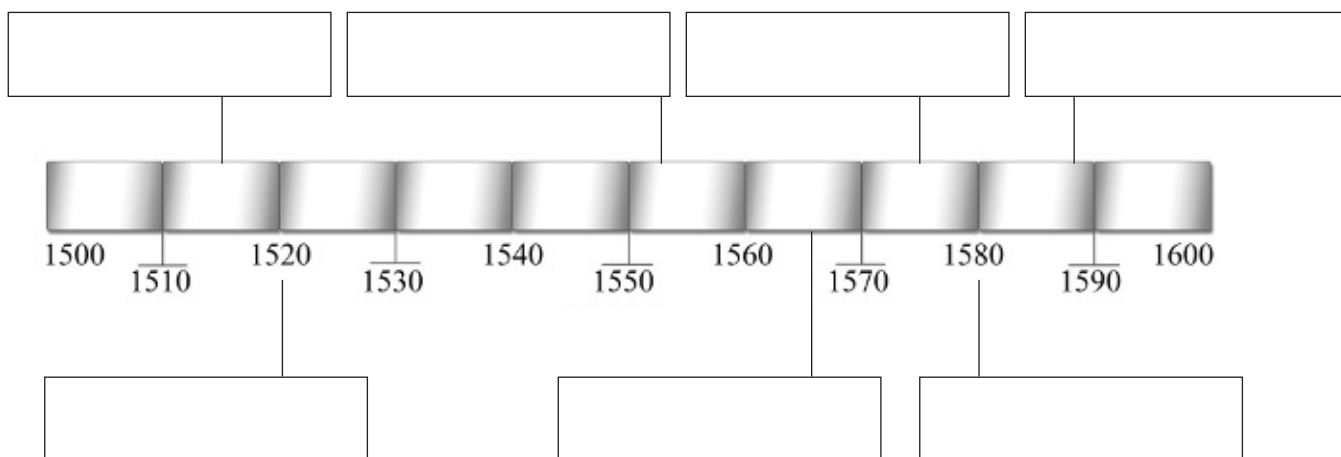
- a. Pre-Columbian cultures: \_\_\_\_\_
- b. Precious metals from the New World: \_\_\_\_\_
- c. New plants from the New World: \_\_\_\_\_

- 3 Read the sentences and write *Charles I* or *Philip II*.**

- a. He was the grandson of the Catholic Monarchs. \_\_\_\_\_
- b. He defeated the Turks. \_\_\_\_\_
- c. He did not accept the declaration of independence of the northern provinces. \_\_\_\_\_
- d. He had many foreign councillors to help him govern. \_\_\_\_\_
- e. He ruled the Spanish Empire at its peak. \_\_\_\_\_
- f. He abandoned the throne in 1556. \_\_\_\_\_

#### 4 Write the events on the timeline.

- Philip II became king.
- Charles I became king.
- The Kingdom of Portugal became a part of the Spanish Empire.
- The Spanish Armada was defeated.
- The Battle of Lepanto.
- Social revolts in Castile.
- The Netherlands rose up against Spanish rule.



#### 5 Match the monarchs to the dates. Then, answer the questions.

Philip IV	1598 – 1621
Charles II	1621 – 1665
Philip III	1665 – 1700

- Which dynasty did all these kings belong to? \_\_\_\_\_
- Who helped them govern? \_\_\_\_\_

#### 6 Complete the sentences with the name of the monarch.

- The Spanish Empire started to weaken during the reign of \_\_\_\_\_.
- Portugal became independent from Spain during the reign of \_\_\_\_\_.
- The Netherlands declared independence during the reign of \_\_\_\_\_.
- The War of the Spanish Succession began after the reign of \_\_\_\_\_.
- The Treaty of Utrecht initiated the reign of \_\_\_\_\_.

Name \_\_\_\_\_ Date \_\_\_\_\_

**1 Read the definitions and write the words.**

- a. A form of government in which the king had all the power: \_\_\_\_\_
- b. A king's helper with government tasks: \_\_\_\_\_
- c. Institutions created to stimulate the economy: \_\_\_\_\_
- d. Institutions created to stimulate culture and the sciences: \_\_\_\_\_

**2 Circle two errors in each sentence. Then, write the sentences correctly.**

- a. Joseph Bonaparte, Emperor of France, replaced King Ferdinand VII with his brother Napoleon Bonaparte.
- b. The Constitution of Cadiz limited the Parliament's power and established duties for citizens.
- c. After the absolute monarchy of Isabella II, a democracy was proclaimed.

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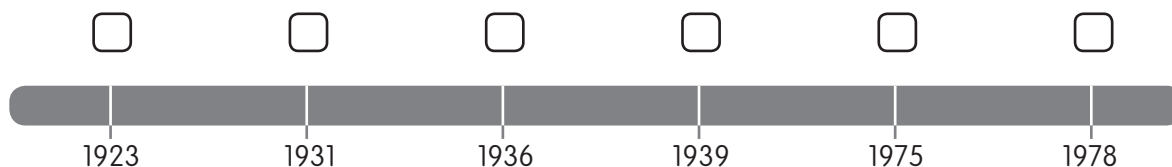
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**3 Write the dates, then match to complete the timeline.**

- a. Juan Carlos I was crowned King of Spain: \_\_\_\_\_
- b. General Franco led a coup: \_\_\_\_\_
- c. The Second Spanish Republic was proclaimed: \_\_\_\_\_
- d. The Spanish Civil War ended: \_\_\_\_\_
- e. A new constitution was approved: \_\_\_\_\_
- f. Jose Antonio Primo de Rivera established a dictatorship: \_\_\_\_\_





**4 Write two facts about each period.**

a. The Second Spanish Republic: \_\_\_\_\_

\_\_\_\_\_

b. The dictatorship of General Franco: \_\_\_\_\_

\_\_\_\_\_

c. The transition into democracy: \_\_\_\_\_

\_\_\_\_\_

**5 Write the name of the corresponding president in Spain's modern democracy.**

a. The current president:

\_\_\_\_\_

b. The only president who was not elected by the people:

\_\_\_\_\_

c. The president who won most elections:

\_\_\_\_\_

d. The first president to be elected:

\_\_\_\_\_

**6 Complete the sentences about major events in Spain's democracy.**

a. Spain joined the \_\_\_\_\_ in 1986.

b. The \_\_\_\_\_ of \_\_\_\_\_ for the Autonomous Communities and Cities were adopted.

c. The first \_\_\_\_\_ and coins were used in 2002.

d. Spain experienced rapid \_\_\_\_\_ over a decade.

e. The separatist group \_\_\_\_\_ declared a permanent \_\_\_\_\_ in 2011.

Name \_\_\_\_\_ Date \_\_\_\_\_

**Food allergies**

A food allergy is a reaction of the body's immune system to a particular substance in food. In other words, the body identifies a specific substance, called a food allergen, as harmful.

Allergic reactions vary from person to person. Some people experience irritation of the eyes or skin. Food allergens can also cause disorders of the digestive system, such as nausea and vomiting, or disorders of the respiratory system, such as difficulty breathing. They can cause disorders of the circulatory system, too. When allergies affect the respiratory or circulatory systems, the responses may be life-threatening and emergency care may be needed.

The most common allergies in children are allergies to peanuts and other nuts, milk, wheat, eggs and shellfish like shrimp. Peanut allergy can have very serious consequences. However, as they get older, children often outgrow allergies, especially allergies to milk and eggs.

It is extremely important to diagnose food allergies correctly. People with these allergies have to follow a strict diet and avoid eating certain foods.

**1 Read the text and answer the questions.**

- What are food allergies? \_\_\_\_\_
- What type of body reactions can food allergens cause? \_\_\_\_\_
- What are the most common food allergies in children? \_\_\_\_\_
- Which typical food allergies can children outgrow? \_\_\_\_\_
- What is the best way to control food allergies? \_\_\_\_\_

**2 Do a survey to find out how many people have food allergies in your class. Which allergies are the most common? Write the results in your notebook.**

allergy to peanuts and other nuts	allergy to shellfish	allergy to milk	allergy to wheat	allergy to eggs	allergy to other foods

Name \_\_\_\_\_ Date \_\_\_\_\_

**Colour blindness**

Colour blindness is the inability to distinguish certain colours. It is sometimes called Daltonism because John Dalton, a British scientist, discovered this deficiency in the late 18th century. Dalton was affected by red-green colour blindness.

There are over 250 million colour blind people in the world today. In most cases, colour blindness is an inherited trait, and males are more likely than females to suffer from it. Colour blind people can see things as clearly as other people, but have difficulty seeing red, green, blue or a mixture of these colours.

There are different types of colour blindness. The most common type is red-green colour blindness. The least common type is total colour blindness. People who are totally colour blind cannot see any colours at all. Everything is black, grey or white.

In general, people with colour blindness can lead normal lives and have all kinds of jobs, except for occupations where colour perception is essential, such as train drivers or airline pilots.

**1 Read the text and complete the table.**

colour blindness				
main cause	population affected	most common type	least common type	job limitations
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

**2 Search the Internet to find a test to see if you are colour blind. Do the test. What are your results?**


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Name \_\_\_\_\_ Date \_\_\_\_\_

**Sleepwalking**

Sleepwalking is a sleep disorder which consists of walking or doing other activities while asleep. These activities may include sitting up in bed, walking around the house or outdoors, climbing, or even driving! Sleepwalking episodes vary in length. They can last for just a few seconds or as long as thirty minutes.

Sleepwalkers usually have their eyes open so they can see what they are doing. However, their eyes appear glassy and unfocused. Most of the time, sleepwalkers do not remember anything when they wake up.

Sleepwalking is much more common in children than in adults. The causes of sleepwalking include fatigue, fever, certain medications and stress. Sleepwalking can also run in families. Most children stop sleepwalking when they get older.

Sleepwalking is not dangerous in itself. However, it may lead to accidents, like falling down or bumping into things. So, if you live with a sleepwalker, you must take precautions, such as removing obstacles and closing doors and windows. During sleepwalking episodes, do not wake sleepwalkers. Gently guide them back to their beds.

**1 Read the text and complete the index card.****SLEEPWALKING**

Definition: \_\_\_\_\_

Activities performed: \_\_\_\_\_

Causes: \_\_\_\_\_

Risks: \_\_\_\_\_

Precautions: \_\_\_\_\_

**2 Do a survey in your class. How many people sleepwalk or know a sleepwalker? What does he/she do when asleep? How does the family take precautions? Write the results in your notebook.**

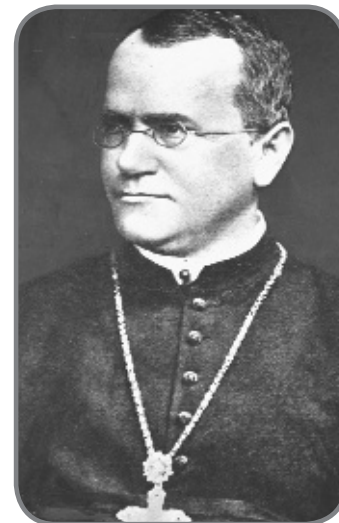
Name \_\_\_\_\_ Date \_\_\_\_\_

**Mendel: the father of genetics**

Genetics is the study of heredity, which is the transmission of genetic information from parents, or other ancestors, to their offspring. Until the 18<sup>th</sup> century, people did not know why children looked like their parents.

Gregor Mendel was an Austrian monk born in 1822. He was interested in finding out how living things pass physical characteristics, or traits, from one generation to the next. He carried out experiments with pea plants that showed particular traits. Mendel discovered that, after cross-pollinating plants, the traits were passed on intact from one generation to the next. For example, he pollinated a green pea plant with pollen from a yellow pea plant. To his surprise, Mendel observed that the new plants did not produce greenish yellowish peas, but only green peas or yellow peas. In other words, the trait for pea colour from the parent plants did not vary.

Mendel also learnt from his experiments that some traits showed up more often than others in the offspring plants. He called those characteristics 'dominant traits'. He named the characteristics that showed up less often 'recessive traits'.

**1 Read, think and answer the questions in your notebook.**

- Why is Mendel known as the father of genetics?
- Do you think Mendel's discoveries are applicable to people? Why?
- Do you think you have dominant traits and recessive traits? Name at least one of each.
- Why do you think some people resemble ancestors other than their parents?

**2 Who do you look like? Complete the table.**

	eye colour	hair colour	hair type	face shape	other physical characteristics
father					
mother					
me					

Name \_\_\_\_\_ Date \_\_\_\_\_

**Shrilk**

Shrilk is a new biologically engineered material inspired by nature, in particular, by the rigid exoskeleton of insects. Shrilk is thin, clear, flexible and as strong as aluminium, although much lighter. It is also biodegradable, and can be used as fertilizer.

Shrilk is made of chitin, a large molecule found in discarded shrimp shells, and fibroin, a protein from silk. The secret of shrilk is not only in its components, but also in how these components are arranged in layers. This layering results in a material that is both strong and light. Depending on its water content, shrilk can be rigid or elastic, so it can also be easily moulded into different shapes. In addition, shrilk can be produced at a very low cost since shrimp shells are basically a waste product.

Due to its unique properties, shrilk can be an environmentally friendly substitute for plastic. So far shrilk has been used as a bioplastic to make film, rubbish bags, nappies, packaging materials and medical supplies.

**1 Read the text and make an index card.****SHRILK**

Description: \_\_\_\_\_

\_\_\_\_\_

Components and structure: \_\_\_\_\_

Advantages: \_\_\_\_\_

\_\_\_\_\_

Uses: \_\_\_\_\_

**2 Search the Internet for general information about other bioplastics. Write their names and some of their advantages.**


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Name \_\_\_\_\_ Date \_\_\_\_\_

**Geothermal energy**

Geothermal energy, also known as the Earth's internal heat, is thermal energy generated inside the Earth. It is a clean, renewable source of energy that, unlike solar and wind energy, is always available. Geothermal energy can be found in deep wells or in shallow ground.

Geothermal energy can be used directly to heat buildings, including houses, spas or greenhouses. It can also be used to generate electricity by capturing steam from inside the Earth, which is then used to drive electric generators.

Geothermal energy is produced in over 20 countries worldwide. The United States, the Philippines and Indonesia are the main producers of geothermal energy in the world. The largest geothermal power plant, The Geysers, is in California. This plant produces enough electricity for a city the size of San Francisco.

However, Iceland is the leading country in the world in the use of geothermal energy. With at least twenty-five active volcanoes and many hot springs and geysers, Iceland can heat almost every building in the country with natural hot water. A favourite pass time in Iceland is swimming in hot water pools while the outside temperatures are below freezing!

**1 Read the text and answer the questions.**

- a. What is geothermal energy? \_\_\_\_\_
- b. What advantage does it have compared to solar and wind energy? \_\_\_\_\_
- c. How can geothermal energy be used? \_\_\_\_\_
- d. Which countries are the leading producers of geothermal energy? \_\_\_\_\_
- e. What is The Geysers? \_\_\_\_\_
- f. Which country is the leading user of geothermal energy? \_\_\_\_\_

**2 Search the Internet for information about geothermal energy in Spain and write a brief description.**


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Name \_\_\_\_\_ Date \_\_\_\_\_

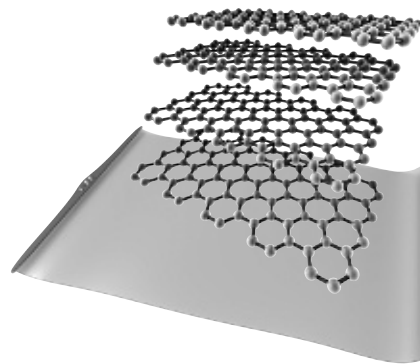
**Graphene**

Because of its unique properties, graphene is considered the material of the future. It is transparent and thinner than a sheet of paper, but, it is much stronger than steel! In addition, graphene is a better conductor of electricity than copper.

Graphene was discovered accidentally by two scientists at the University of Manchester. They pressed some tape over a thin layer of graphite and peeled it away. When looking at what was left of the graphite under the microscope, they discovered there was a single atomic layer.

Graphene basically consists of a layer of carbon that is just one atom thick. The atoms are arranged in a regular hexagonal pattern, like a honeycomb. This extremely light, two-dimensional structure allows electrons to pass through easily, which makes graphene a very efficient conductor of electricity.

Graphene has many technological applications. It can be used to make more efficient solar cells, optical devices, and advanced batteries with greater storage capacity. However, it may be particularly useful in the field of flexible electronics, to build faster, lighter and stronger personal communication devices.

**1 Read the text and complete the index card.****GRAPHENE**

Description: \_\_\_\_\_

\_\_\_\_\_

Properties: \_\_\_\_\_

Uses: \_\_\_\_\_

**2 Search the Internet for more information about graphene. What else is it used for?**


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Name \_\_\_\_\_ Date \_\_\_\_\_

**Watches over time**

In the past, all watches were mechanical. Mechanical watches do not have batteries. The source of energy in these watches is the mainspring. This spring can be wound into a tight coil mechanically or automatically. The energy from the spring is transformed into movement and transferred to a series of small gears.

Nowadays, most watches have a battery. The mineral quartz is the energy source for about 95% of these batteries. Quartz crystals can accumulate electrical charges which are then released as signals with very precise frequency.

Smartwatches are the most recent development in this field. They are computerized wristwatches that do a lot more than just tell the time. A smartwatch may include a touch screen, camera, thermometer, compass, calculator, mobile phone and GPS. It can provide access to news, weather, music, sports and social networks. Smartwatches run on rechargeable batteries similar to the ones in smartphones.

Eco-Drive technology is new in watch making. An Eco-Drive watch is powered by light energy. It recharges continuously using any natural or light artificial light source. An Eco-Drive watch runs forever!

**1 Read the text and complete the table.**

type of watch	description	energy source

**2 Search the Internet for photographs of the wristwatches described above. Print, cut and paste them onto a sheet of paper and write a short description.**

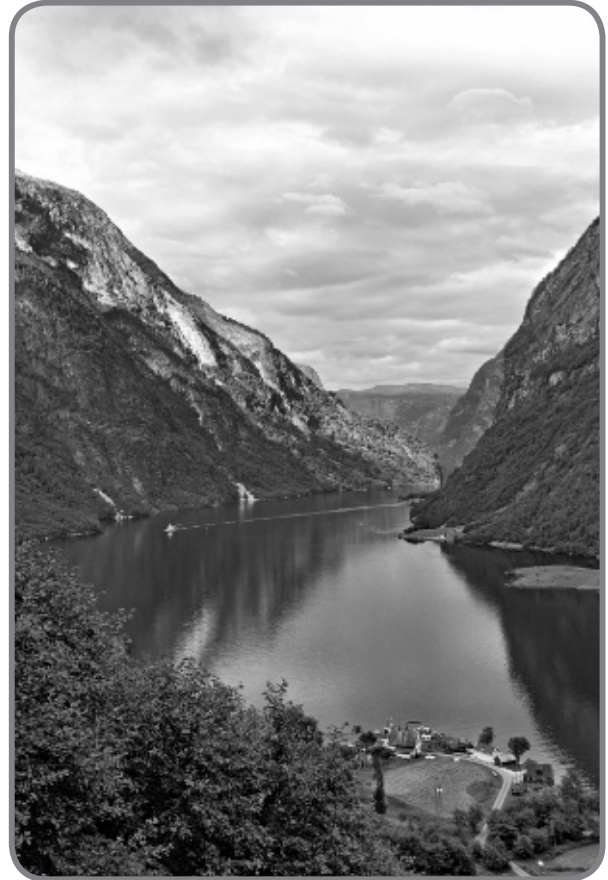
Name \_\_\_\_\_ Date \_\_\_\_\_

**Fjords in Norway**

Fjords are deep, narrow landforms, carved by massive glaciers. Over time, the glaciers retreated, leaving U-shaped valleys that were flooded with sea water, creating fjords. The opening of the fjord towards the sea is called the mouth, and it is usually quite shallow. The other three sides of the fjord are high cliffs with very steep walls of rock. Some fjords include small rocky islands called skerries.

Norway has many beautiful fjords. Sognefjord is one of the longest (204 km) and deepest (1,308 m) fjords in the world. However, Geirangerfjord and Nærøfjord in south western Norway are particularly spectacular. In fact, these two fjords are considered to be among the most impressive fjords in the world, and appear on the World Heritage list.

These pristine natural landscapes are home to a rich variety of fauna, including fish, marine mammals such as seals and porpoises, and eagles. Fjords are also home to extensive coral reefs, very different from tropical coral reefs, where few living things can survive in the cold, dark waters.

**1 Read the text and answer the questions.**

- a. What are fjords? \_\_\_\_\_
- b. How were they formed? \_\_\_\_\_
- c. What are skerries? \_\_\_\_\_
- d. Which fjords are included in the World Heritage list? \_\_\_\_\_
- e. Which animals live in the fjords? \_\_\_\_\_
- f. What marine mammals live in fjords? \_\_\_\_\_

**2 Search the Internet to find photographs of fjords in Norway and make a scenic presentation.**

Name \_\_\_\_\_ Date \_\_\_\_\_

**The European Union currency**

The EU currency consists of seven euro banknotes and eight euro coins. Banknotes are identical all over the eurozone, and banknotes of the same value have the same design and colour in all EU countries. For example, a 20 € banknote looks the same in France, Portugal or Austria. Euro banknotes display images of Europe's different architectural styles. In addition, they have several security features, such as a see-through number or a security thread, which are visible when holding the banknote up to the light.



Euro coins, on the other hand, vary according to the country they come from. They have a European side, common to all the countries, and a national side that varies from country to country. The common side of the euro coins displays maps of the European Union. The national side shows different images which may include historic, artistic or nature scenes or symbols of each country. In addition, each country in the eurozone can issue a 2 € commemorative coin twice a year. The national side of these coins includes a commemorative image, such as the anniversary of a historical event or a relevant current event.

**1 Read the text and answer the questions.**

- What images do euro banknotes display? \_\_\_\_\_
- What does the common side of the euro coins display? \_\_\_\_\_
- What are some of the security features in banknotes? \_\_\_\_\_
- What are commemorative coins? \_\_\_\_\_

**2 Search the Internet for information about euro banknotes and Spanish euro coins, and complete the tables.**

banknotes	colour	architectural style
500 €	purple	modern 20 <sup>th</sup> century

coins	colour	image
2 €, 1 €	silver and gold	King Juan Carlos I

Name \_\_\_\_\_ Date \_\_\_\_\_

**The Spanish Armada**

King Philip II sent the Spanish Armada to fight against England in 1588 for political and religious reasons. The fleet consisted of 130 ships and over 30,000 men. There were 22 fighting galleons and 108 converted merchant vessels.

The Spanish Armada's task was to overthrow the protestant English queen, Elizabeth I, who supported the Netherlands in their conflict with Spain. The Armada was led by the Duke of Medina Sidonia who was a qualified fighter on land, but lacked naval experience.

There were several reasons for the rapid defeat of the Spanish Armada. The main reason was poor naval tactics. For protection, the ships in the Spanish Armada sailed in a crescent formation. The larger, slower galleons were in the middle of the crescent, surrounded by smaller, faster vessels. One night during the battle, the English sent ships set on fire to scatter the Armada formation. This made the Spanish ships very vulnerable to attack.

The Spanish Armada decided to head back to Spain, but a series of storms with heavy rain and very strong winds contributed to the disaster. There were 65 ships loss and about 20,000 human casualties. The largest fleet Europe had ever seen suffered a humiliating defeat.

**1 Read the text and answer the questions.**

- Under whose reign was the Spanish Armada built? \_\_\_\_\_
- Why did Spain decide to fight against England? \_\_\_\_\_
- Which types of ships formed the fleet? \_\_\_\_\_
- Who was in charge of the Spanish Armada? \_\_\_\_\_
- What was the main reason for its defeat? \_\_\_\_\_
- How many ships and lives were lost? \_\_\_\_\_

**2 Search the Internet for information about the route of the Spanish Armada.**  
**Then, draw a map in your notebook.**

Name \_\_\_\_\_ Date \_\_\_\_\_

**Diary of the transition into democracy****20<sup>th</sup> November, 1975**

General Franco, who has ruled Spain for the last 39 years, died early this morning.

**22<sup>th</sup> November, 1975**

Today in a solemn ceremony, Prince Juan Carlos of the House of Bourbon was proclaimed King Juan Carlos I of Spain.

**3<sup>th</sup> July, 1976**

Adolfo Suarez, a young politician from the Franco regime, was appointed Prime Minister.

**15<sup>th</sup> June, 1977**

General elections. Adolfo Suarez was elected with high voter participation.

**29<sup>th</sup> December, 1977**

Today, Parliament received drafts of the Statutes of Autonomy for the Basque Country and Catalonia.

**6<sup>th</sup> December, 1978**

A new Constitution was largely approved by the Spanish people.

**29<sup>th</sup> January, 1981**

Unexpectedly, Adolfo Suarez resigned as Prime Minister of Spain.

**23<sup>th</sup> February, 1981**

At six o'clock this afternoon, there was an attempted coup by members of the Civil Guard.

**28<sup>th</sup> October, 1982**

The Socialist Party won the general elections with an absolute majority.



**1** Read the diary and make a timeline of the historic events of the transition into democracy in your notebook.

**2** In your opinion, which historic event is the most important? Explain your answer.

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Name \_\_\_\_\_ Date \_\_\_\_\_

**The Slow Food Movement**

The Slow Food Movement is a worldwide movement to promote good, nutritious food. The aims behind the movement are threefold: to consume tasty foods, to eat foods grown and produced locally, and to produce foods without harming the environment. In addition, these foods should be bought from farmers at a fair price. The Slow Food Movement was started in Italy in 1986 by an Italian man, Carlos Petrini, who wanted to stop the spread of fast food chains in Rome.



The movement has created an international catalogue of heritage foods, known as the *Ark of Taste*. This catalogue includes foods considered at risk of disappearing, for example, California Mission olives. This is a variety of olive unique to California. It was cultivated by Spanish missions along the California Mission trail in the late 18<sup>th</sup> century. California Mission olives are unique because they can be pressed into oil or they can be consumed as table olives. Thanks to recent efforts, new groves of California Mission olives have been replanted in several areas throughout California.

**1 Read the text and complete the table about the Slow Food Movement. Then, answer the questions.**

description	aims
_____	_____
_____	_____

- Can you name examples of both slow foods and fast foods in your diet? \_\_\_\_\_
- Can you name any traditional local food from your region? \_\_\_\_\_
- Do you think it is important to consume heritage foods? Why? \_\_\_\_\_
- What is the *Ark of Taste*? \_\_\_\_\_

**2 Search the Internet to find information about a heritage food from the *Ark of Taste* and write a brief description.**


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Name \_\_\_\_\_ Date \_\_\_\_\_

**Umami: the fifth taste**

The term *umami* was first used in the 20<sup>th</sup> century by a Japanese scientist to describe the distinctive taste of a type of seaweed called *kombu*. However, the umami flavour itself is hard to identify because it is subtle and blends well with the other four basic tastes: sweet, sour, bitter and salty. The umami taste enhances natural flavours, adding richness and complexity. It also provides a mild, but lasting aftertaste. Foods with the umami taste do not need additional salt.



Umami taste is found in various foods all over the world. In Asia, umami is present in soy beans, fermented fish, dried seafood, shiitake mushrooms and seaweed. In the western world, umami is found in broths, tomatoes, mushrooms, anchovies, cured ham, some strong cheeses and red wine. Parmesan cheese is considered the Western food with the most umami taste. Processes like slow cooking, drying, aging, fermenting or ripening foods bring out this flavour.

**1 Read the text and complete the index card.****THE UMAMI TASTE**

Description: \_\_\_\_\_

Found in: \_\_\_\_\_

Processes which bring out the umami flavour: \_\_\_\_\_

**2 Have an umami tasting session at school or at home. Write a list of the foods in which you can identify the umami flavour.**


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Name \_\_\_\_\_ Date \_\_\_\_\_

**The World Health Organization**

The World Health Organization (WHO) was established in 1948 as part of the United Nations. The organization is made up of 194 member nations. It has six official languages: Arabic, Chinese, English, French, Russian and Spanish. Its headquarters are in Geneva, Switzerland.

WHO promotes health worldwide. Its main campaigns are directed at preventing the spread of diseases. The organization's most remarkable success has been the eradication of smallpox. Smallpox is a highly infectious disease which killed about 300 million people worldwide in the 20<sup>th</sup> century. In fact, in 1980, after a global vaccination campaign, WHO officially declared the world was free of smallpox. Another highly infectious disease, polio, has also been eradicated from many areas of the world. Polio is now only present in Africa and South Asia.

The organization has not been as successful with campaigns for preventing other diseases such as malaria, tuberculosis and AIDS. There are still no effective vaccines for these. WHO also promotes public health worldwide by improving access to health care and recommending healthy lifestyle choices related to diet, exercise, and the consumption of alcohol and drugs.

**1 Read the text about the World Health Organization and complete the table.**

number of members	official languages	successful campaigns	public health actions
_____	_____	_____	_____
_____	_____	_____	_____

**2 Search the Internet for information about the flag of the World Health Organization. Draw a picture of the flag and explain its meaning.**


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Name \_\_\_\_\_ Date \_\_\_\_\_

**Midwives**

Every day about 800 women and more than 8,000 babies die in the world from complications before birth, during birth, or soon after birth. This is mainly due to the fact that more than one third of all births happen without a midwife or a doctor present. Most of these preventable deaths take place in developing countries and in remote rural areas.



Midwives help to save the lives of many women and babies around the world. The word 'midwife' was originally an Old English word, meaning 'being with woman', and in fact, this is what midwives do. They help women before, during and after giving birth. Midwives provide care during normal pregnancies and help deliver babies. They also teach new mothers how to handle their babies and how to breastfeed them.

Midwives can be men or women, although the majority are women. These professionals detect and control health problems and unusual conditions during pregnancy. They organize emergency care in the case of serious complications.

The World Health Organization promotes training and apprenticeship for midwives. WHO encourages governments worldwide to adopt policies to support the role of midwives.

**1 Read the text and answer the questions.**

- a. How many people die every day from complications during pregnancy and birth? \_\_\_\_\_
- b. What is the job of a midwife? \_\_\_\_\_
- c. What do midwives teach new mothers? \_\_\_\_\_
- d. Which worldwide organization supports midwives? \_\_\_\_\_

**2 Search the Internet to find information about the International Day of the Midwife and complete the index card.****INTERNATIONAL DAY OF THE MIDWIFE**

Celebration date: \_\_\_\_\_

Description: \_\_\_\_\_

Participating countries: \_\_\_\_\_

Name \_\_\_\_\_ Date \_\_\_\_\_

**Green clothing**

Green clothing refers to clothes made with eco-friendly fabrics. These fabrics have been produced with as little impact on the environment as possible. They are made with natural fibres such as organic cotton or bamboo; or man-made materials such as fleece or lyocell. In addition, eco-friendly fabrics are dyed naturally.



Organic cotton is a natural fibre. It is grown without pesticides, herbicides or fertilizers, and requires less water than traditional cotton. Bamboo plants can be easily grown without pesticides or fertilizers, and require very little water. Since they grow very fast, they can be replenished quickly, making bamboo a renewable resource. Bamboo fabrics are strong, soft and comfortable. They can keep us warm in winter and cool in summer. Bamboo fabrics are washable and wrinkle-resistant. In addition, all natural fibres are, of course, biodegradable.



Eco-friendly fleece is made of recycled polyester from plastic bottles. It is soft, light, washable and naturally wrinkle-free. Lyocell is another eco-friendly light fabric made from wood pulp. The production of lyocell requires less energy and water than making other synthetic fabrics.

**1 Read the text about green clothing and complete the table.**

material	description	benefits

**2 Look at clothing labels at home and in local shops. Identify items made with eco-friendly fabrics and make a list in your notebook.**

Name \_\_\_\_\_ Date \_\_\_\_\_

**Bioclimatic architecture**

Bioclimatic architecture is architecture that takes into consideration the climate and other environmental factors of a building's natural surroundings. Its purpose is to save energy and achieve optimal thermal and lighting conditions inside buildings. Bioclimatic architecture includes the use of natural resources, such as the Sun, wind, and vegetation.

In the past, traditional architectural styles used materials, such as adobe, or features, such as thick walls, to create stable indoor temperatures.

Andalusian courtyards are an example of traditional bioclimatic architecture. The courtyards capture cool air at night and release heat during the day. Fountains in these courtyards help to keep the air temperature cool.

The Sun is the biggest source of energy in bioclimatic architecture, so the orientation of a building, and in particular the windows, is important. Windows facing south receive the maximum amount of light and solar heat. In addition, the use of thermal insulating materials, such as stone, wood and adobe, prevents buildings from losing heat in winter, and keeps them cool in summer. Finally, insulating windows or using double windows is very important to prevent heat from escaping.

**1 Read the text and answer the questions.**

- What are the advantages of bioclimatic architecture? \_\_\_\_\_
- Name an example of traditional bioclimatic architecture. \_\_\_\_\_
- Why is the orientation of a building an important factor in bioclimatic architecture? \_\_\_\_\_
- Which architectural elements help buildings maintain the indoor temperature? \_\_\_\_\_

**2 Look around your home. In your notebook, make a list of architectural elements that can be considered bioclimatic.****3 Design and draw a bioclimatic house for the area in which you live. Decide on its orientation, materials and architectural elements.**

Name \_\_\_\_\_ Date \_\_\_\_\_

**The Shanghai Maglev train**

The Shanghai Maglev Train (SMT), also known as the Shanghai Transrapid, is one of the fastest trains in the world. It can reach speeds up to 431 km/h. This train travels a distance of 30.5 km, between Pudong International Airport and Shanghai's financial district, in seven minutes and twenty seconds. The SMT accelerates for three minutes, runs at full speed for one minute, and then decelerates for three minutes before coming to a complete stop at the station.



The Shanghai Maglev Train is a magnetic levitation train. *Maglev* is short for magnetic levitation. Generally, Maglev trains have many powerful magnets attached to the underside of the train, and they 'float' on electromagnetic tracks with guide ways. As a result, the train is lifted, guided and propelled at very high speed because there is no friction. How does this happen? The basic principle behind magnetic levitation is that opposite poles attract and like poles repel each other. In addition, electromagnetic tracks can be switched on and off.

Maglev trains are not only faster, quieter and smoother than conventional wheeled trains, they are also more environmentally friendly and energy efficient.

**1 Read the text and answer the questions.**

- What is the SMT? \_\_\_\_\_
- What speed can it reach? \_\_\_\_\_
- How long does the SMT take to reach its destination? \_\_\_\_\_
- How does a Maglev train work? \_\_\_\_\_
- What are other advantages of Maglev trains? \_\_\_\_\_

**2 Search the Internet for information about other high speed trains operating around the world and complete the table.**

name of train	country	top speed	distance travelled
_____	_____	_____	_____
_____	_____	_____	_____

Name \_\_\_\_\_ Date \_\_\_\_\_

**Product codes**

Product codes are identification labels attached to every manufactured product ready for sale. There are several types of product codes. One type is the UPC (Universal Product Code) barcode. It consists of a machine-readable bar code with a 12-digit number. The machine-readable code is a combination of black bars and white spaces. The sequence of 12 numerical digits is made up of the manufacturer's identification number (the first six digits), the item number (the next five digits), and the check digit (the last digit of the UPC code).



Another type of product code is the QR (Quick Response) code. It consists of small black squares organized in a square grid, on a white background. It is even faster to read than a UPC barcode. It can store much more information, as well as other data, including websites. It can be used for commercial tracking, entertainment and product marketing. QR codes can be read by a smartphone with a digital camera and QR-code decoding software. These days, in many museums, you can scan a QR code with your mobile phone to get further information about an exhibit.



- 1 Read the text and draw a Venn diagram to compare UPC barcodes and QR codes.**

- 2 Check the product code of some manufactured products at home or school. Make a list and specify whether they have a UPC barcode or a QR code.**

Name \_\_\_\_\_ Date \_\_\_\_\_

**The English Channel**

The English Channel is a stretch of the Atlantic Ocean between southern England and northern France. The Channel is about 560 km in length. It is 240 km at its widest point and 34 km at its narrowest point at the Straits of Dover. There are several islands in the Channel, the largest ones being the Isle of Wight and the Channel Islands.

About 450,000 years ago, England was attached to mainland Europe. A giant ice river, formed when a huge glacial lake overflowed, started to gradually carve the Channel. The process lasted several ice ages. In the warm periods between the ice ages, the sea level rose and the Channel filled with water. Eventually, England became completely separated from the rest of Europe.



In 1994, England and France were 'reconnected' when the Channel Tunnel, known as the Chunnel, opened. It is a 50.9 km long underwater rail tunnel beneath the English Channel at the Straits of Dover.

The English Channel is famous for the Cross Channel Swim across the Straits of Dover. People swim 21 kilometres in very cold waters, through one of the busiest shipping lanes in the world. In addition, there are other hazards such as jellyfish and debris floating in the water.

**1 Read the text and complete the index card.****THE ENGLISH CHANNEL**

Location: \_\_\_\_\_

Size: \_\_\_\_\_

Formed by: \_\_\_\_\_

Other interesting facts: \_\_\_\_\_

\_\_\_\_\_

**2 Search the Internet for more information about the English Channel. Print out pictures and write a brief description in your notebook.**

Name \_\_\_\_\_ Date \_\_\_\_\_

**A multilingual European Union**

The European Union has twenty-four official languages: Bulgarian, Croatian, Czech, Danish, Dutch, English, Estonian, Finnish, French, German, Greek, Hungarian, Irish, Italian, Latvian, Lithuanian, Maltese, Polish, Portuguese, Romanian, Slovak, Slovene, Spanish and Swedish. There are fewer official languages than members because some of the countries share common languages. For example, Greek is the official language in Greece and Cyprus.

In addition, over sixty other languages are spoken in the EU. Some of them have official status at a regional level, such as Basque, Catalan, Sami and Welsh.



The main languages used in the European Commission are English, French and German, but members have the right to use any of the official languages when speaking in the European Parliament. Most EU regulations and other legislative documents are translated into all the official languages. For this reason, the European Commission has one of the largest translation and interpretation services in the world.

The language policies of the European Union promote linguistic diversity. The aim is that all children should learn at least two other languages, apart from their native language, from an early age.

**1 Read the text and write a summary.**


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**2 Search the Internet for these basic phrases in three different European languages and complete the table. Then, add your own basic phrase and the translations in the last column.**

language	hello	goodbye	please	thank you	_____



Name \_\_\_\_\_ Date \_\_\_\_\_

**The Mayan civilisation**

The Mayan civilisation appeared about two thousand years ago in the Yucatan Peninsula and the lowlands of present-day Mexico, Guatemala and Honduras.

The Mayans lived in city-states governed by a supreme chief who lived in Mayapan. Their society was organized in four groups: nobles, priests, peasants and slaves. Most of the people worked in the fields. They grew corn, cacao, beans, tomatoes, pumpkins, spices and other plants.



The Mayans had an amazing knowledge of astronomy and mathematics. For example, they knew about the concept of zero, and they used two calendars: lunar and solar. They were also great architects and sculptors. Their pyramid temples, altars and stelae (sculpted monuments) are especially famous. For example, the Mayan temple at Palenque in southeast Mexico is a stone pyramid with a temple at the top. The outside of the pyramid is decorated with inscriptions about the history of the kings of Palenque.

The Mayans believed in many gods, but the most important one was the god of rain, as crop fertility depended on it.

Their favourite game was played with a ball. The object of the game was to pass the ball through a stone hoop. There were two teams and the players were not allowed to touch the ball with their hands.

**1 Read the text and answer the questions.**

- a. Where did the Mayans live? \_\_\_\_\_
- b. Where did their rulers live? \_\_\_\_\_
- c. How was Mayan society organized? \_\_\_\_\_
- d. What work did most people do? \_\_\_\_\_
- e. What did the Mayans build? \_\_\_\_\_
- f. Who was their most important god? \_\_\_\_\_
- g. What was their favourite sport? \_\_\_\_\_

**2 The Mayans inhabited the area of present-day Mexico, Guatemala and some parts of Belize, El Salvador and Honduras. Find these countries on a map.**



Name \_\_\_\_\_ Date \_\_\_\_\_

**The Cervantes Institute**

The Cervantes Institute is a worldwide, non-profit institution founded in 1991 by the Spanish Government. Its main aims are to promote the official languages of Spain, and to promote Spanish and Hispanic culture. It is the largest organization of its kind in the world. Today the Cervantes Institute has offices in 86 cities in 43 countries worldwide. In Spain, the headquarters are in Madrid, with another office in Alcalá de Henares, the birthplace of Cervantes. This office includes a training centre, the *Centro de Formación de Profesores*, for teachers of Spanish as a foreign language.

The Cervantes Institute runs a virtual office: *Centro Virtual Cervantes (CVC)* which offers resources and services, such as exhibits and forums, to promote the Spanish language online. The *Aula Virtual de Español (AVE)* is a virtual classroom for learning Spanish. The Institute even has a television channel on the Internet, *Cervantes TV*.

The Cervantes Institute has a network of 61 libraries all over the world, the *Red de bibliotecas del Instituto Cervantes (RBIC)*, funded by the Spanish government, to allow access to Spanish literature and cultural materials. In addition, the Institute publishes an annual review, *El español en el mundo*, which describes the current situation of the Spanish language in the world.

**1 Read the text and complete the index card.****THE CERVANTES INSTITUTE**

Description: \_\_\_\_\_

Aims: \_\_\_\_\_

Online services: \_\_\_\_\_

Other services: \_\_\_\_\_

**2 Search the Internet to find the main offices of the Cervantes Institute in each continent and make a list in your notebook.**


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Name \_\_\_\_\_ Date \_\_\_\_\_

**1 What foods contain starch?****Instructions**

Starch is the most common carbohydrate in food. Like other carbohydrates, starch provides energy. Find out about starch content in different foods.

1. Work in pairs. You need the following things:

- a piece of bread
- a piece of ham
- a slice of boiled potato
- a slice of carrot
- a slice of banana
- a spoonful of cooked rice
- a biscuit
- some butter
- some iodine solution
- some aluminium foil



2. Place each food on a piece of aluminium foil.

3. Make predictions about the starch content for each food and write them in the table.

	bread	ham	potato	carrot	banana	rice	biscuit	butter
prediction	yes							
result	yes							

4. Test for starch content by adding a few drops of iodine solution to each food. Wait a few minutes.

5. Observe the foods. If a black stain appeared where you added the iodine solution, the food contains starch.

6. Record your results in the table above. Compare them to your predictions.

7. Make two lists: *starchy foods* and *non-starchy foods*.



Name \_\_\_\_\_ Date \_\_\_\_\_

**1 Are two eyes better than one to estimate distance?****Instructions**

1. Work in pairs. You need: a plastic cup, a small object such as a marble, and a tape measure.
2. Place the cup on a table, near the edge. Measure the following distances from the cup: 50 cm, 100 cm and 150 cm, and mark them on the floor.
3. Take it in turns to perform the following experiment:  
Stand on the 50 cm mark on the floor, with both eyes uncovered. Your partner slowly moves the marble above the cup. When you think the marble is going to fall into the cup, say 'now'. Your partner releases the marble. Next, do the same thing with your right eye covered. Finally, do it again with your left eye covered.
4. Repeat the test from 100 cm distance and 150 cm distance.
5. Complete the table with your results.



distance	both eyes uncovered	right eye covered	left eye covered
50 cm			
100 cm			
150 cm			

6. Analyse your results and answer the questions.
  - a. What happened when you performed the test with both eyes uncovered?  
\_\_\_\_\_
  - b. What happened when you performed the test with one eye covered?  
\_\_\_\_\_
  - c. Was it easier or harder when the distance increased?  
\_\_\_\_\_

7. Now, write a conclusion.  
\_\_\_\_\_  
\_\_\_\_\_

Name \_\_\_\_\_ Date \_\_\_\_\_

**1 How can you challenge your brain?****Instructions**

1. Work in pairs. You need: a blank piece of paper, a pencil and a mirror.
2. Each of you chooses ten 3-5 letter words, such as *SUN*, *BIKE*, *PENCIL*. Don't show them to your partner. Try the following writing challenges. Always use capital letters.

**Challenge A**

Backwards writing:

Write your chosen words backwards, for example, NUS (SUN).

**Challenge B**

Mirror writing:

Write your chosen words as they appear in a mirror, for example, IUƆ (SUN).

3. Show your words to your partner and see if he or she can read them. Award your partner one point for each correct answer.
4. Use the mirror to double check that the words written in challenge B are correct.
5. Discuss with your partner the difficulties of each challenge. Which one was easier? Which one was more difficult?  
Easier: \_\_\_\_\_  
More difficult: \_\_\_\_\_
6. Compare your scores with the rest of the class.
7. Now try mirror writing with whole sentences. Copy these ones:  
LEONARDO DA VINCI WAS A FAMOUS PAINTER.  
HE PRACTISED MIRROR WRITING.




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# 1 What are human reproduction records? Make an index card of Guinness World Records.

## Instructions

1. Work in groups. You need a card and some felt-tip pens.
2. Decide on a human reproductive record you want to learn about, for example, the most babies born to one woman, the longest pregnancy, the biggest number of babies in a multiple birth, the heaviest baby, the tiniest baby, etc.
3. Divide the index card into two sections. Write a title.
4. Search the Internet for information about the record you have chosen in your group. Write the information as in the example. Add photographs or drawings to your index card.



## THE LONGEST BABY

**Who:** A baby boy born to Anna Bates

**Where:** Ohio, USA

**When:** In 1879



Name \_\_\_\_\_ Date \_\_\_\_\_

**1 Are all substances equally soluble?****Instructions**

1. Work in groups. You need: a teaspoon, 5 glass jars, water, salt, sugar, flour, bicarbonate of soda and baking powder.
2. Label the jars as follows: *S* (salt), *SG* (sugar), *F* (flour), *BS* (bicarbonate of soda) and *BP* (baking powder).
3. Fill the jars with the same amount of water (250 ml).
4. Start by adding a teaspoon of the corresponding substance to the water in each jar. Stir for one minute.
5. Wait for a few minutes and observe the jars. Look for any substance that has not dissolved and has sunk to the bottom of the jar.
6. Record your observations in the table below.
7. Repeat steps 4 to 6 until each substance no longer dissolves and sinks to the bottom.



number of teaspoons	salt	sugar	flour	bicarbonate of soda	baking powder
1					
2					
3					
...					

8. Answer these questions about your observations:

- Which substance was the most soluble? \_\_\_\_\_
- Which substance was the least soluble? \_\_\_\_\_

9. Write the substances in order from the most to the least soluble.

\_\_\_\_\_

Name \_\_\_\_\_ Date \_\_\_\_\_

**1 Do all colours absorb the same amount of heat?****Instructions**

1. Work in groups of four. You need: 4 glass jars, 4 elastic bands, water, a thermometer and white, yellow, red and black paper.
2. Fill all the jars with the same amount of water (250 ml).
3. Wrap each jar with a different coloured paper. Hold the paper in place with an elastic band.
4. Place the jars in a sunny place and wait for two hours.
5. Make a small hole in the paper and insert the thermometer to measure the temperature of the water in each jar.



6. Record your results in the table below.
7. Wait two more hours and measure the temperature again.

	white paper	yellow paper	red paper	black paper
temperature after 2 hours	_____	_____	_____	_____
temperature after 4 hours	_____	_____	_____	_____

8. Answer these questions about your observations:

- Which jar had the warmest water? \_\_\_\_\_
- Which jar had the coldest water? \_\_\_\_\_
- Can you talk about reflection of light to explain what happened? \_\_\_\_\_

Name \_\_\_\_\_ Date \_\_\_\_\_

**1 Make a timeline of the major advances in the field of electricity.****Instructions**

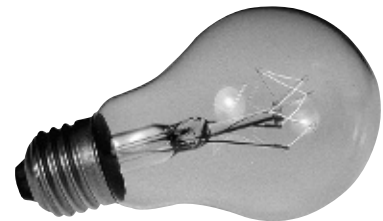
1. Work in groups of four. You need: a long strip of white card, felt-tip pens, scissors and glue.
2. Search the Internet for information about these advances in the field of electricity:
  - the telegraph
  - the radio
  - the electromagnet
  - the voltaic battery
  - the incandescent light bulb
  - the electric generator
3. Find out who invented these devices and when.
4. Draw a timeline on the strip of card.
5. Put the information you found out in the correct place on the timeline.
6. Find pictures of the inventors and their inventions to illustrate your timeline.
7. Glue the pictures in the corresponding places on your timeline.



the telegraph



the radio



the incandescent light bulb

8. Display your timeline and present it to the rest of the classroom.



Name \_\_\_\_\_ Date \_\_\_\_\_

**1 Which invention has changed the world most?****Instructions**

1. Work in groups of four. Look at the following inventions.



the printing press



the telephone



radio and television



the automobile

the personal  
computer

the Internet

2. Do a survey at school to find out which of these inventions has changed the world the most. Ask students, teachers, administrators and other school workers.

3. Write the results of your survey in the table.

printing press	telephone	radio and television	automobile	personal computer	Internet

4. Make a bar graph with the data from the table.

5. Answer these questions about your findings:

- Which invention is considered to have changed the world most? \_\_\_\_\_
- Did most people agree? \_\_\_\_\_

Name \_\_\_\_\_ Date \_\_\_\_\_

**1 Can you plan a European route by InterRail?****Instructions**

1. Work in groups of four. You need: an InterRail railway map and a felt-tip pen.
2. Choose which countries and cities you wish to visit during your summer holiday. Look at the railway map, discuss and choose a travel route. Mark it with the felt-tip pen.



3. Make a travel calendar. Decide how many days you want to spend at each stop along your route.
4. Search the Internet for the train timetables. Check departure and arrival times for each stretch of your travel route.
5. Complete the table with all your travel information.

origin	destination	departure date and time	arrival date and time	length of stay

6. Present your InterRail travel plan to the class.

Name \_\_\_\_\_ Date \_\_\_\_\_

**1 Can you describe countries in Europe?****Instructions**

1. Work in groups of four. You need a large piece of paper, scissors, felt-tip pens and glue.
2. Choose four European countries to investigate. Search the Internet for information about population, surface area, capital, language(s) and the most relevant monuments and buildings for each country.



3. Divide your piece of paper into four sections. Include the name of each country and its flag as the title for each section.
4. Then, add the information you found about each country. Include a brief description and photos of the monuments and buildings.
5. Present a 'guided tour of Europe' where each group describes its chosen countries.

Name \_\_\_\_\_ Date \_\_\_\_\_

**1 Can you make a timeline about a historical character?****Instructions**

1. Work in groups of four. You need a large piece of paper, felt-tip pens and a ruler.
2. Choose a historical character you are interested in learning about.
3. Search the Internet for information about your historical character. Find the date and place of birth, the main events and accomplishments of his/her life, etc.
4. List the information in chronological order.
5. Draw a timeline on the piece of paper. Include the dates of birth and death at each end. Then, divide the timeline into sections of 5 or 10 years, depending on the number of events and accomplishments you wish to include.
6. Write each event on the corresponding place on the timeline.
7. Display your timeline on the classroom wall and present it to the rest of the class.



Name \_\_\_\_\_ Date \_\_\_\_\_

### 1 Can you write a newspaper article?

#### Instructions

1. Work in pairs. You need a large sheet of white card, felt-tip pens, scissors and glue.
2. Choose a current event, something that has happened at school, in your town, or in your region.
3. Do research using newspapers and the Internet to find out information about the event. What happened, when and where did it happen?
4. Select and organize the information:
  - Title: choose a short, catchy title.
  - The lead: summarize the most interesting points of the article in a few sentences.
  - Put the information you have in this order:
    - What happened?
    - Who was involved?
    - Where did it take place?
    - When did it take place?
    - Why was it interesting?
5. Illustrate your article with photos.
6. Organize a news sharing session where you present your article to the rest of the class.



Name \_\_\_\_\_ Date \_\_\_\_\_

**1 Using the food pyramid, name four foods from each group.**

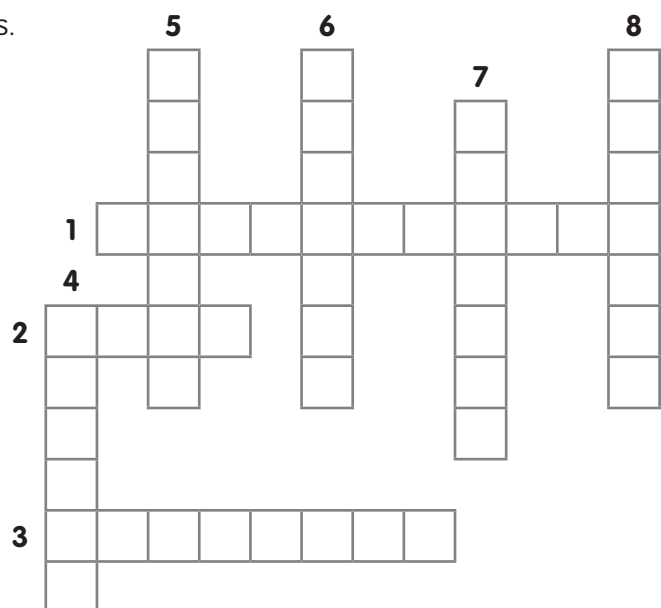
- a. fibre: \_\_\_\_\_
- b. proteins: \_\_\_\_\_
- c. fats: \_\_\_\_\_
- d. carbohydrates: \_\_\_\_\_
- e. vitamins and minerals: \_\_\_\_\_

**2 Write the parts of the digestive system. Then, tick the glands that release substances into the small intestine.**

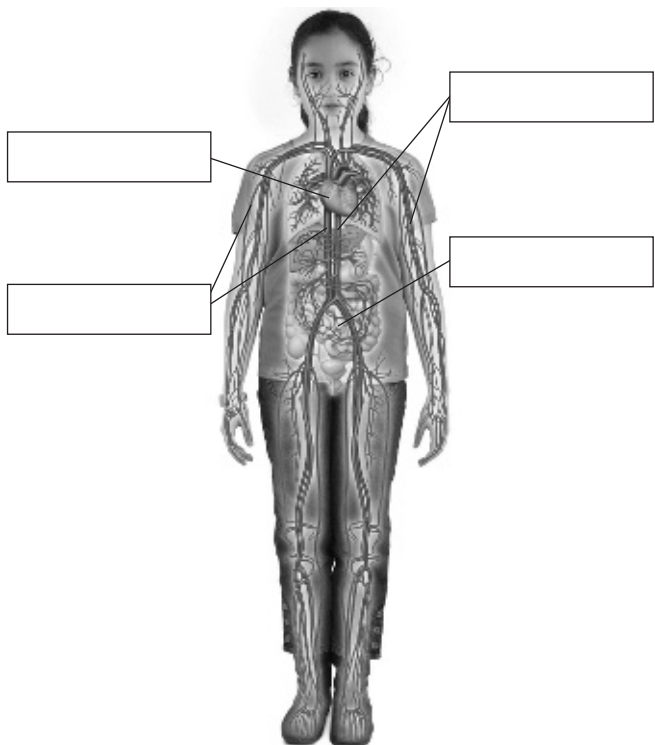
- a. It produces pancreatic juice: \_\_\_\_\_ ☐
- b. It produces gastric juices: \_\_\_\_\_ ☐
- c. It forms faeces: \_\_\_\_\_ ☐
- d. It produces bile: \_\_\_\_\_ ☐
- e. It produces intestinal juices: \_\_\_\_\_ ☐

**3 Complete the crossword about the respiratory system.**

- Very small air passageways that lead to the air sacs.
- Organ which contains bronchioles and air sacs.
- Air passageways where air enters the body when we inhale.
- Air passageway between the pharynx and the trachea.
- Air passageway shared with the digestive system.
- Air passageway which is divided into two branches at the lungs.
- Air passageways which take air to each lung.
- Moist surfaces in the lungs where gas exchange takes place.



**4** Label the diagram of the circulatory system. Then, write a sentence about each part.



\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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\_\_\_\_\_

\_\_\_\_\_

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\_\_\_\_\_

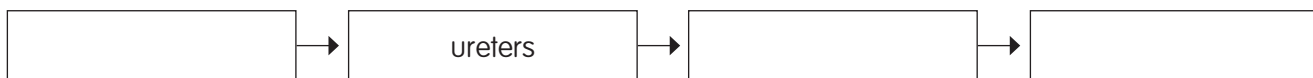
\_\_\_\_\_

\_\_\_\_\_

**5** Complete the texts. Then, match.

- |                          |   |
|--------------------------|---|
|                          | Blood goes to the lungs to expel _____, _____,      |
| a. systemic circulation  | and to obtain _____ and bring it back to the _____. |
| b. pulmonary circulation | Blood with _____ and _____ goes throughout the body |
|                          | and returns to the _____ with _____ and _____.      |

**6** Complete the diagram about the excretory system. Then, describe how waste substances are eliminated from the blood.



\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



Name \_\_\_\_\_ Date \_\_\_\_\_

**1 Read and write T (true) or F (false). Then, correct the false sentences.**

- a. The brain receives and interprets information sent from the sense organs. ☐
- b. The locomotor system sends orders to the brain. ☐
- c. The skin is the largest organ in the body. ☐
- d. Most receptors are located in the epidermis. ☐
- e. Receptors are sensitive to pressure and temperature. ☐
- \_\_\_\_\_
- \_\_\_\_\_

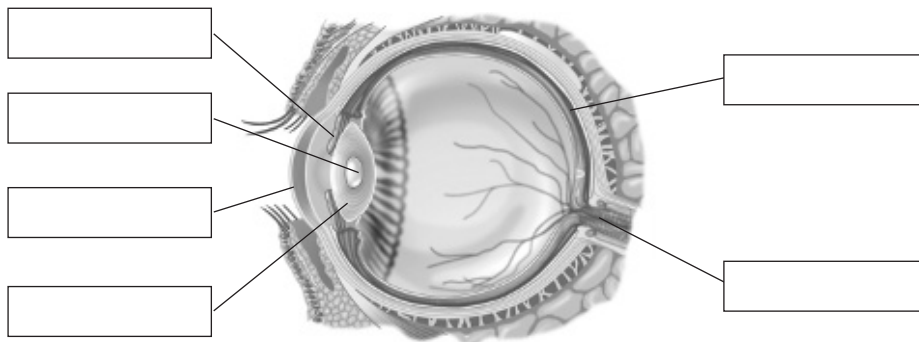
**2 Use the words in the box to write sentences about each sense organ.**

taste buds	papillae	olfactory nerve	dermis
hypodermis	olfactory epithelium	epidermis	

skin \_\_\_\_\_

tongue \_\_\_\_\_

nose \_\_\_\_\_

**3 Label the diagram. Then, write a sentence about the retina and the optic nerve.**

- retina: \_\_\_\_\_
- optic nerve: \_\_\_\_\_



- 4 Find the parts of the ear. Write them in the order that sound travels through the ear. Then, tick the part that vibrates.**

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

1. \_\_\_\_\_ ☐
2. \_\_\_\_\_ ☐
3. \_\_\_\_\_ ☐
4. \_\_\_\_\_ ☐
5. \_\_\_\_\_ ☐
6. \_\_\_\_\_ ☐
7. \_\_\_\_\_ ☐

- 5 Read the definitions and write the words.**

- a. System in the body that produces movement: \_\_\_\_\_
- b. Elastic material that covers the ends of bones: \_\_\_\_\_
- c. Where bones meet: \_\_\_\_\_
- d. Tissues that hold bones together: \_\_\_\_\_
- e. Organs that can change in length and shape: \_\_\_\_\_
- f. Tissues that connect muscles and bones: \_\_\_\_\_

- 6 Match and complete the texts.**

**1** flexing movement

**2** extending movement

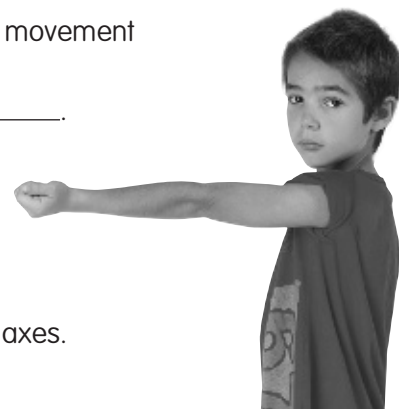
☐ The \_\_\_\_\_ relaxes and the triceps \_\_\_\_\_.

The triceps pulls the \_\_\_\_\_,

so the arm \_\_\_\_\_.

☐ The biceps \_\_\_\_\_ and the \_\_\_\_\_ relaxes.

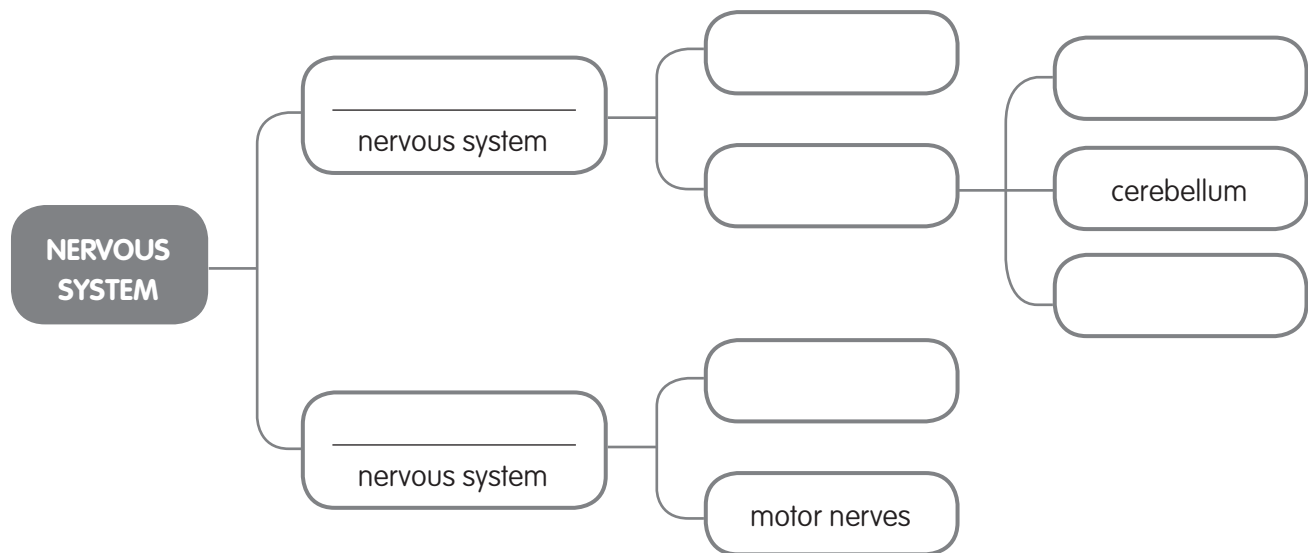
The biceps pulls the \_\_\_\_\_ so the arm \_\_\_\_\_.



Name \_\_\_\_\_ Date \_\_\_\_\_

**1 Complete the sentences. Then, number them in order.**

- a. The brain sends signals to the \_\_\_\_\_: muscles or \_\_\_\_\_.
- b. Receptors send \_\_\_\_\_ to the brain.
- c. \_\_\_\_\_ in our sense organs detect \_\_\_\_\_.
- d. \_\_\_\_\_ carry out the corresponding \_\_\_\_\_.
- e. The brain \_\_\_\_\_ this information.

☐  
☐  
☐  
☐  
☐
**2 Complete the word map about the nervous system. Then, answer the question.**

- What parts of the skeletal system protect the brain and the spinal cord? \_\_\_\_\_

**3 Name two examples of each.**

voluntary movement \_\_\_\_\_

\_\_\_\_\_

reflex movement \_\_\_\_\_

\_\_\_\_\_

**4 Read and write T (true) or F (false). Then, correct the false sentences.**

- a. The endocrine system controls short-term functions in our body. ☐
- b. Endocrine glands secrete hormones. ☐
- c. Hormones travel through the digestive system. ☐
- d. Hormones control the function of target organs. ☐
- e. The pancreas produces growth hormone. ☐

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**5 Match the three columns and write sentences.**

pancreas	neck	help to respond to stress or danger
adrenal glands	brain	controls amount of sugar in blood
pituitary gland	kidneys	controls other endocrine glands
thyroid gland	abdomen	regulates growth

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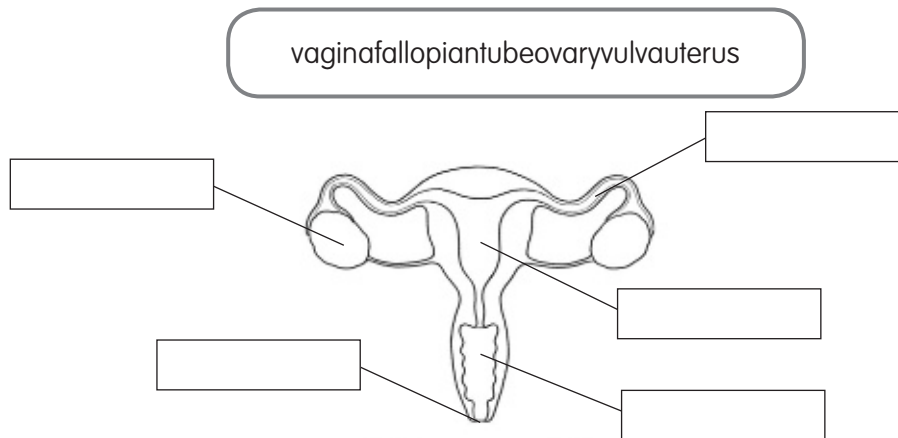
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**6 Complete the text about how our body regulates the amount of water it needs.**

Our body loses water through the \_\_\_\_\_, \_\_\_\_\_  
 and by expelling \_\_\_\_\_. Our \_\_\_\_\_ becomes too  
 concentrated when the amount of \_\_\_\_\_ falls. In this case,  
 the \_\_\_\_\_ orders our \_\_\_\_\_ to retain more water.

Name \_\_\_\_\_ Date \_\_\_\_\_

- 1 Find the words and label the diagram. Then, circle the organ where the baby develops during pregnancy.**



- 2 Write the correct word for each definition. Then, write *F* (female reproductive system) or *M* (male reproductive system).**

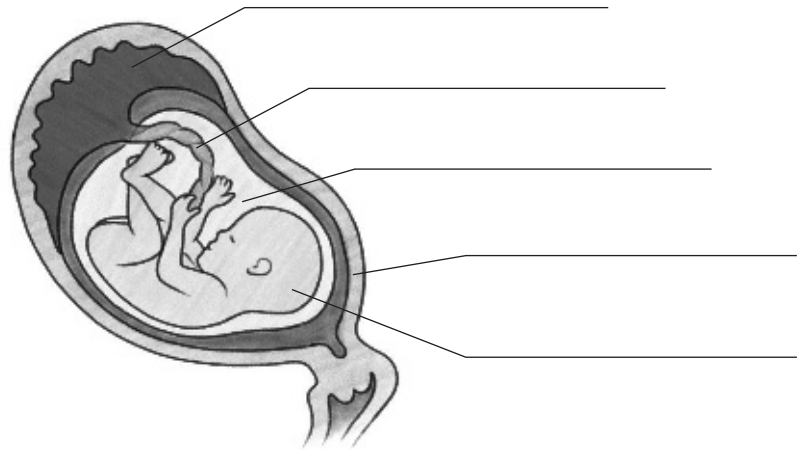
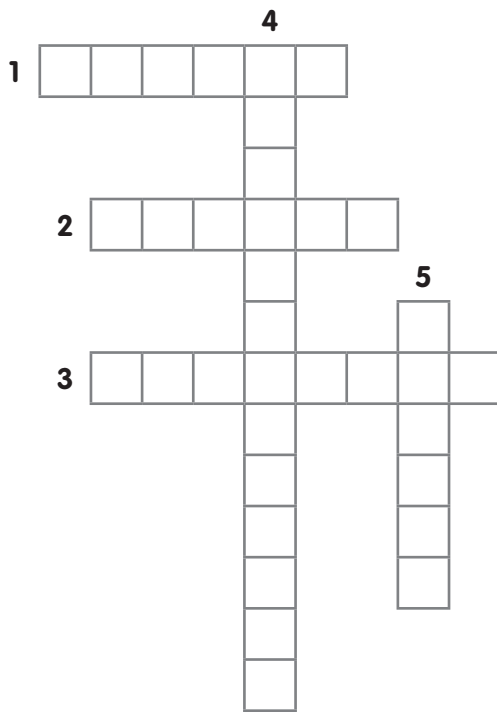
seminal vesicles and prostate gland    Fallopian tubes    urethra    vagina    sperm ducts

- a. Fine tubes connecting the testes and the urethra. \_\_\_\_\_ ☐
- b. Organs that produce liquids to transport and protect the sperm. \_\_\_\_\_ ☐
- c. Tubes connecting the ovaries and the uterus. \_\_\_\_\_ ☐
- d. A tube that releases semen to the outside of the body. \_\_\_\_\_ ☐
- e. A tube connecting the uterus and the outside of the body. \_\_\_\_\_ ☐

- 3 Read the sentences, underline the mistakes and correct them. Then, number the sentences in order.**

- a. When a sperm cell joins with an ovum, an embryo forms. \_\_\_\_\_ ☐
- b. The embryo attaches itself to the wall of the vagina. \_\_\_\_\_ ☐
- c. The egg cell divides many times and forms an embryo. \_\_\_\_\_ ☐
- d. The zygote travels through the Fallopian tube to the uterus. \_\_\_\_\_ ☐
- e. After sexual intercourse, the spermatozoa travel through the uterus into the vagina. \_\_\_\_\_ ☐

**4** Complete the crossword. Then, label the diagram.



1. An embryo in the later stages of development.
2. Protective sac around the embryo.
3. New nourishing organ that forms inside the uterus.
4. Connects the embryo and the placenta (two words).
5. Hollow organ with a muscular wall.

**5** Complete the stages of labour. Then, write **1** (first stage), **2** (second stage) or **3** (third stage).

- a. The \_\_\_\_\_ is expelled from the \_\_\_\_\_ through the vagina. ☐
- b. The mother pushes hard with her \_\_\_\_\_ muscles to deliver the \_\_\_\_\_. ☐
- c. The \_\_\_\_\_ muscles of the \_\_\_\_\_ contract. ☐
- d. The \_\_\_\_\_ of the uterus \_\_\_\_\_ due to the uterus contractions. ☐
- e. The \_\_\_\_\_ is clamped and cut. ☐
- f. The \_\_\_\_\_ breaks and the liquid around the \_\_\_\_\_ is expelled. ☐



Name \_\_\_\_\_ Date \_\_\_\_\_

**1 Complete the table.**

properties of matter	general or specific	definition	measurement unit and calculation
mass	_____	_____ _____	_____
volume	_____	_____ _____	_____
density	_____	_____ _____	_____

**2 Look at the photos and answer the question.**

A



B



- Which ball has the highest density?

Explain \_\_\_\_\_

\_\_\_\_\_

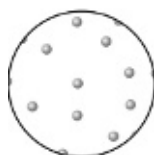
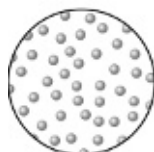
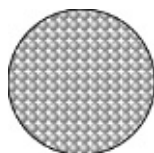
\_\_\_\_\_

**3 Circle the correct type of matter. Then, answer the question.**

- Perfume: pure substance / homogeneous mixture / heterogeneous mixture
- Salad: pure substance / homogeneous mixture / heterogeneous mixture
- Air: pure substance / homogeneous mixture / heterogeneous mixture
- Silver: pure substance / homogeneous mixture / heterogeneous mixture
- Water: pure substance / homogeneous mixture / heterogeneous mixture
- Rock: pure substance / homogeneous mixture / heterogeneous mixture

- Which of these substances is a compound? \_\_\_\_\_

- 4 Match the photos and the diagrams according to the physical states. Then, write the name and main characteristics of each state.**




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- 5 Unscramble the words and complete the sentences about changes of state. Write examples.**

soncodanenit

iponovratiza

faltidinosici

linatusibom

- a. \_\_\_\_\_ occurs when a liquid turns into a solid.  
 b. \_\_\_\_\_ happens when a solid turns into a gas.  
 c. \_\_\_\_\_ happens when a gas turns into a liquid.  
 d. \_\_\_\_\_ happens when a liquid turns into a gas.

Example: \_\_\_\_\_  
 Example: \_\_\_\_\_  
 Example: \_\_\_\_\_  
 Example: \_\_\_\_\_

- 6 Cross out the odd one out. Then, use the correct words to write sentences.**

a. oxidation    pressure    oxygen    rust

b. condensation    combustion    burn    smoke

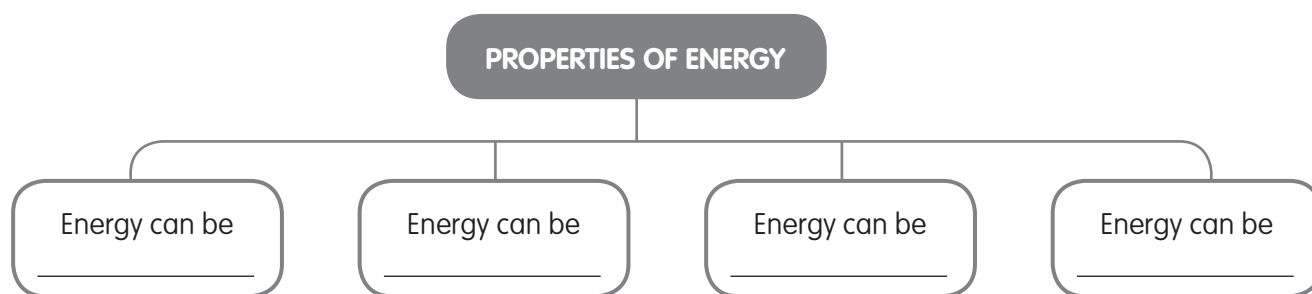
c. chemical changes    atoms    new substances    physical changes

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

Name \_\_\_\_\_ Date \_\_\_\_\_

**1 Write the form of energy for each situation.**

- a. Energy in a flying kite: \_\_\_\_\_
- b. Energy emitted by a star: \_\_\_\_\_
- c. Energy produced by the movement of charged particles: \_\_\_\_\_
- d. Energy released when splitting apart uranium atoms: \_\_\_\_\_

**2 Complete the word map.**

- Now, write in your notebook an example to explain each of these properties.

**3 Find eight energy sources and classify them. Then, answer the questions.**

renewable sources

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

non-renewable sources

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- Which energy sources come from rocks? \_\_\_\_\_
- Which energy source is organic matter? \_\_\_\_\_



- 4 Name the energy sources in the photographs. Then, write the name of the power plant where they are used.



\_\_\_\_\_

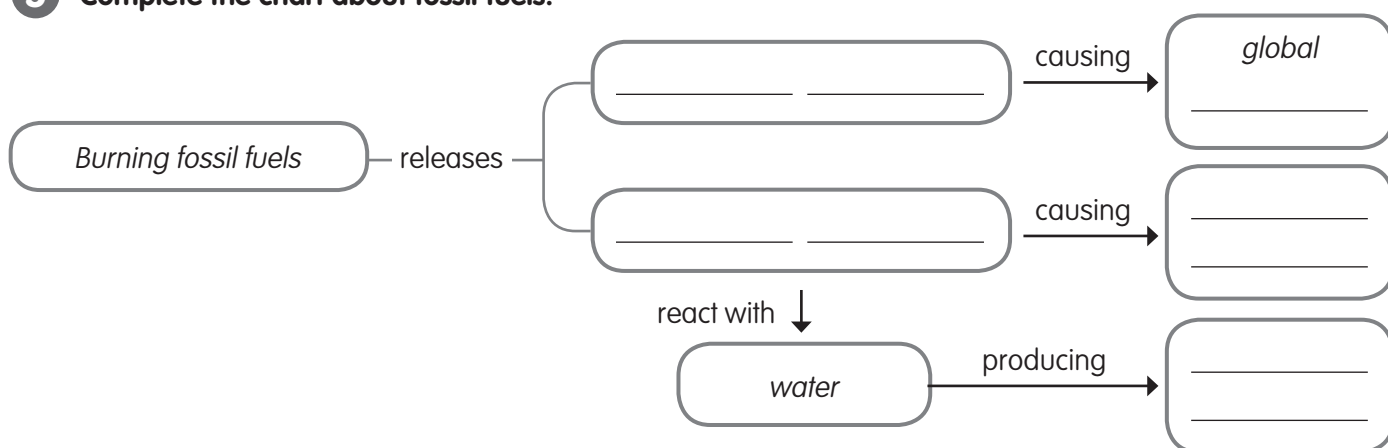
\_\_\_\_\_



\_\_\_\_\_

\_\_\_\_\_

- 5 Complete the chart about fossil fuels.



- 6 Look at the photographs and complete the sentences.



- When light \_\_\_\_\_ an object, it \_\_\_\_\_ off and changes \_\_\_\_\_.

- When light \_\_\_\_\_ from one material to another material with a different \_\_\_\_\_, it \_\_\_\_\_.



- Photograph ☐ is an example of reflection.
- Photograph ☐ is an example of refraction.

Name \_\_\_\_\_ Date \_\_\_\_\_

**1 Look at the pictures and answer the questions.**

- a. How are the objects in A electrically charged? \_\_\_\_\_
- b. How are the objects in C electrically charged? \_\_\_\_\_
- c. What is happening in B? \_\_\_\_\_

**2 Choose the correct words to write sentences about conductors and insulators.**

plastics	water	electrons	silver
electric current	air	glass	wood

conductors \_\_\_\_\_

insulators \_\_\_\_\_

**3 Label the electric circuit. Then, chose three components and write a sentence about each one.**

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

- 4** Write *production of electricity* or *distribution of electricity* under each photograph. Then, write a sentence about each photograph in your notebook.




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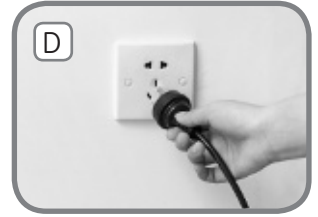
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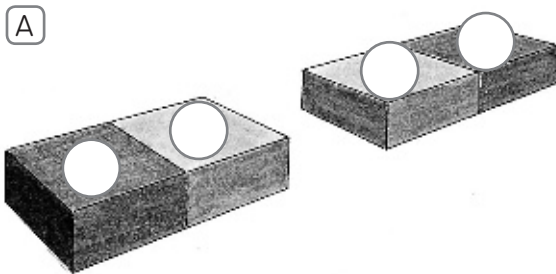

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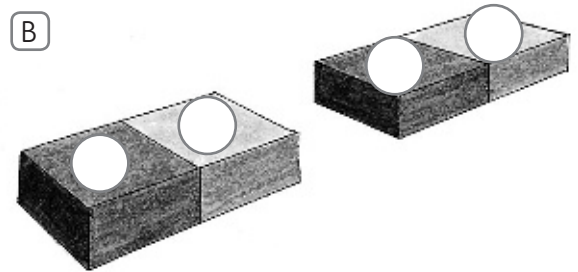
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- 5** Label the poles of the magnets. Then, draw arrows to show if the magnets attract or repel.

**A**



**B**



- 6** Answer the questions about magnets and electromagnets.

a. What are magnets?

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b. How are magnets used?

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c. What are electromagnets?

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d. How are electromagnets used?

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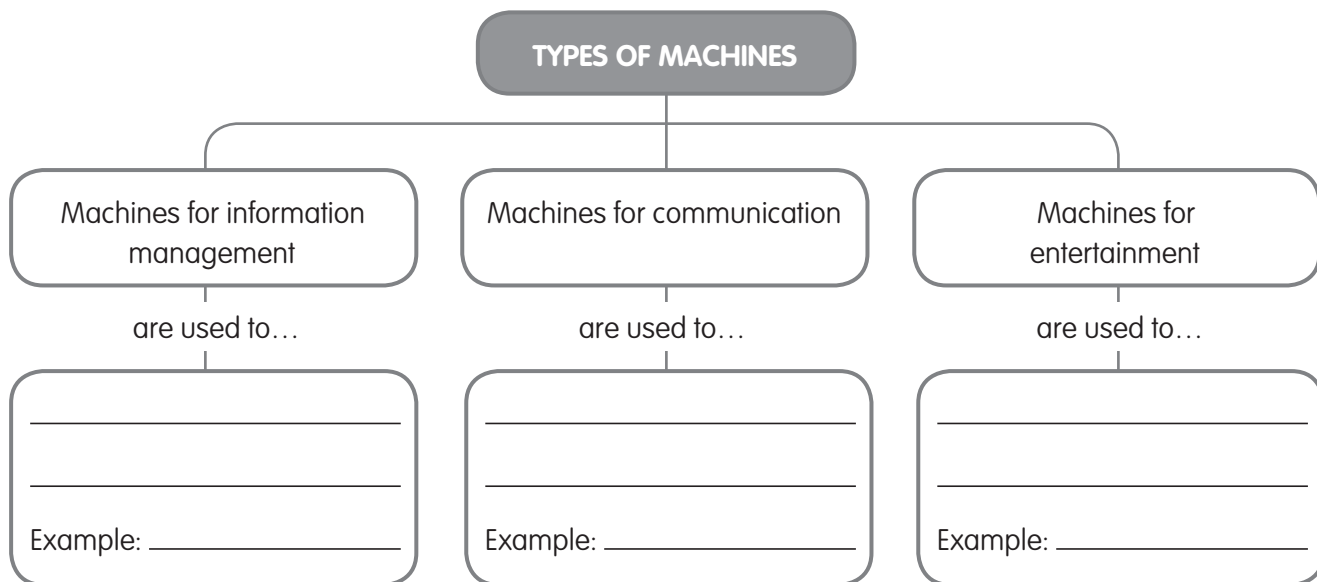
e. What is the main difference between magnets and electromagnets?

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Name \_\_\_\_\_ Date \_\_\_\_\_

**1 Complete the table with examples.**

	examples	energy required
simple machines	_____ _____	_____ _____
complex machines	_____ _____	_____ _____

**2 Complete the word map. Then, write an example for each type of machine.****3 Unscramble the words and write the names of eight machine components. Then, tick the ones that may work together in a mechanism.**cichromip \_\_\_\_\_ ☐ginsca \_\_\_\_\_ ☐rossne \_\_\_\_\_ ☐erag \_\_\_\_\_ ☐enengi \_\_\_\_\_ ☐ehwle \_\_\_\_\_ ☐xela \_\_\_\_\_ ☐neesrc \_\_\_\_\_ ☐

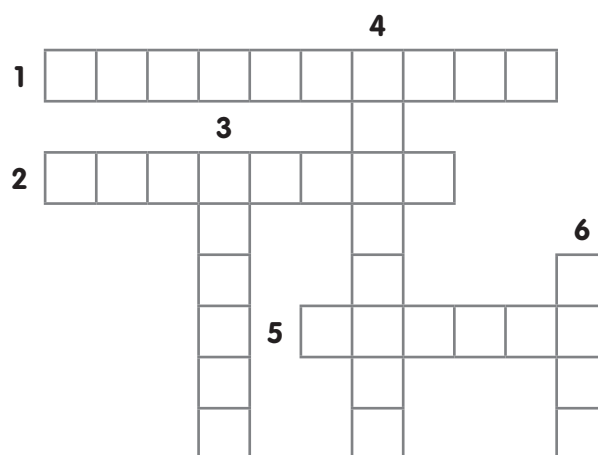
**4 Circle the technological advances. Then, classify them in the table.**

tabletradioradarultrasoundmotiongamingcomputersystemxraystheinternet

medicine	transportation	communications	entertainment
_____	_____	_____	_____
_____	_____	_____	_____

**5 Complete the crossword.**

- Telephone with many uses.
- Programs which allow a computer to work.
- Small computer with a touch screen.
- Physical parts of a computer.
- Portable computer.
- Software for smartphones and tablets.



**6 Write four things people can do on the Internet. Then, answer the questions.**

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

- How often do you use the Internet?

\_\_\_\_\_

- What is your favourite webpage?

\_\_\_\_\_



Name \_\_\_\_\_ Date \_\_\_\_\_

**1 Read the definitions and write the names.**

- a. The second smallest continent in the world: \_\_\_\_\_
- b. The largest European plain: \_\_\_\_\_
- c. The highest European peak: \_\_\_\_\_
- d. The largest European islands: \_\_\_\_\_
- e. The longest European river: \_\_\_\_\_
- f. The largest freshwater European lakes: \_\_\_\_\_

**2 Write the names of two mountain ranges for each area.**

Southern Europe

Northern Europe

**3 Circle the coastal landforms and classify them in the table.**

iceland lion balkan matapan bothnia italians cily genoan north cape scandinavian crete finisterre

peninsulas	gulfs	capess	islands
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

**4 Match the three columns and write sentences.**

Mediterranean watershed

Caspian Sea watershed

Arctic watershed

Atlantic watershed

Black Sea watershed

long rivers with abundant flow

rivers with most abundant flow

rivers with irregular flow

rivers with abundant flow

the Volga

River Pechora

the Danube

the Rhone

the Rhine

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**5 Write the name of the corresponding European climate.**

- Temperatures are mild in summer and cool in winter. Precipitation is abundant and regular. \_\_\_\_\_
- Temperatures are cool in summer and very low in winter. Precipitation is abundant. \_\_\_\_\_
- Temperatures are high in summer and mild in winter. Precipitation is low and irregular. \_\_\_\_\_
- Temperatures are high in summer and very low in winter. Precipitation is higher in summer. \_\_\_\_\_
- Temperatures are low all year round. Precipitation is scarce. \_\_\_\_\_

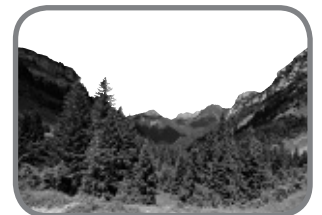
**6 Choose the correct words to label the photographs. Then, write the corresponding climate.**

Alpine forest

taiga

tundra

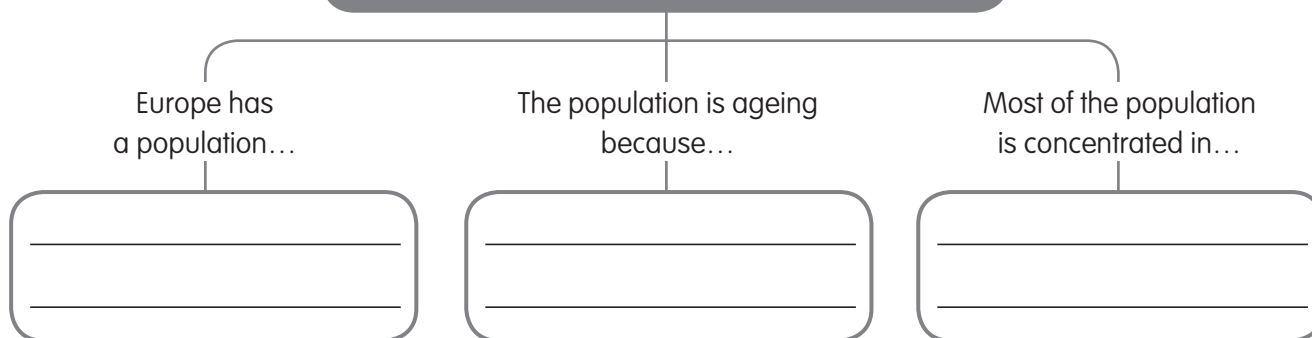
Mediterranean shrubland



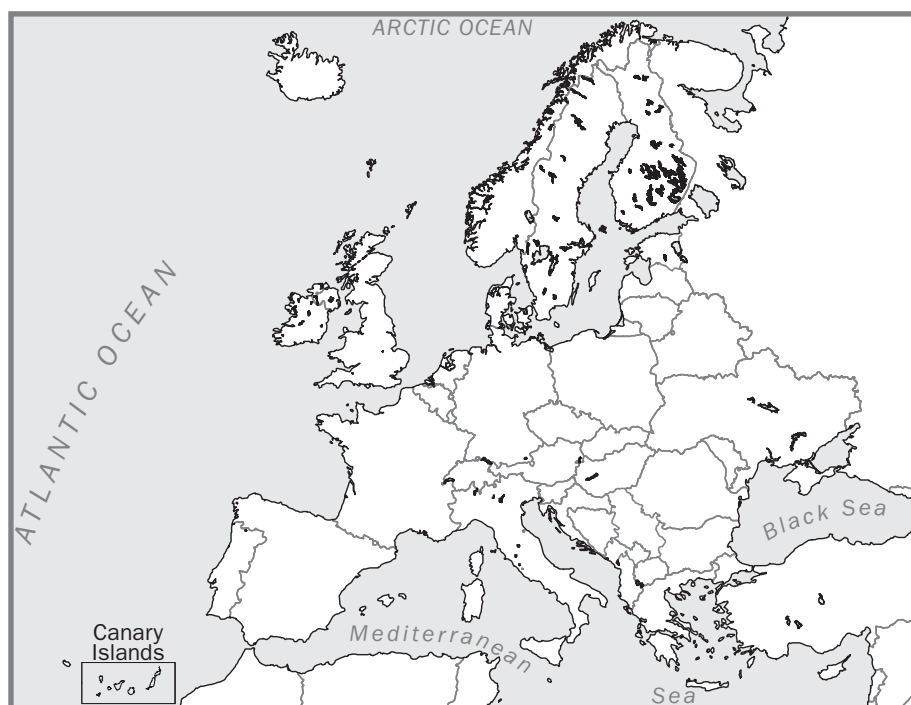

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Name \_\_\_\_\_ Date \_\_\_\_\_

**1 Complete the word map.****CHARACTERISTICS OF THE POPULATION OF EUROPE****2 Tick the countries in the eurozone. Then, colour the EU members blue on the map.**

- |                                   |   |                                  |                                    |
|-----------------------------------|---|----------------------------------|------------------------------------|
| <input type="checkbox"/> Austria  | <input type="checkbox"/> Czech Republic | <input type="checkbox"/> France  | <input type="checkbox"/> Ireland   |
| <input type="checkbox"/> Belgium  | <input type="checkbox"/> Denmark        | <input type="checkbox"/> Germany | <input type="checkbox"/> Italy     |
| <input type="checkbox"/> Bulgaria | <input type="checkbox"/> Estonia        | <input type="checkbox"/> Greece  | <input type="checkbox"/> Latvia    |
| <input type="checkbox"/> Cyprus   | <input type="checkbox"/> Finland        | <input type="checkbox"/> Hungary | <input type="checkbox"/> Lithuania |



- |   |
|---|
| <input type="checkbox"/> Luxembourg     |
| <input type="checkbox"/> Malta          |
| <input type="checkbox"/> Netherlands    |
| <input type="checkbox"/> Poland         |
| <input type="checkbox"/> Portugal       |
| <input type="checkbox"/> Romania        |
| <input type="checkbox"/> Slovakia       |
| <input type="checkbox"/> Slovenia       |
| <input type="checkbox"/> Spain          |
| <input type="checkbox"/> Sweden         |
| <input type="checkbox"/> United Kingdom |



**3 Circle the places and classify them in the table.**

salamancafrancearagoncaceresmelillagaliciaportugalrioja  
cordobaextremaduraalicanteceutaandalusiatarragonaandorra

borders of Spain	Autonomous Community	Autonomous City	province

**4 Match the institutions to the people. Then, complete the sentences and match them to the institutions.**

- a. Government
- b. Head of State
- c. Courts of Justice
- d. Parliament

President  
judges  
King Juan Carlos I  
Senate  
magistrates  
ministers  
Congress of Deputies

- ☐ It is responsible for creating and \_\_\_\_\_ laws, and for \_\_\_\_\_ the government.
- ☐ He does not make \_\_\_\_\_ decisions or establish \_\_\_\_\_.
- ☐ It is responsible for \_\_\_\_\_ the country according to the laws approved by \_\_\_\_\_.
- ☐ They are responsible for \_\_\_\_\_ that laws are \_\_\_\_\_.

Name \_\_\_\_\_ Date \_\_\_\_\_

**1 Read the text about the discovery of America and cross out the mistakes. Then, write the correct text.**

In 1482, Christopher Columbus, a Spanish explorer, led an expedition to Africa, by sailing west across the Atlantic Ocean. He reached an island in the Mediterranean Sea. The nearby continent was later named the Indies. Columbus led three further expeditions to the Old World.

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**2 Choose only the words related to the consequences of the conquest of America. Then, write sentences in your notebook.**

empire

Machu Picchu

calendar stone

Spanish language

Catholic religion

Mayan temple

new plants

world trade

**3 Read the text, then colour the territories of the Spanish Empire.**

The Spanish Empire had many territories: Spain, the Netherlands, part of Italy, territories in central Europe, colonies in the America and possessions in Africa and Asia. In 1580, the kingdom of Portugal was added.



**4 Match the events to the king who was ruling at the time.**

Charles I

Battle of Lepanto

Battles between France and Spain

Philip II

The Eighty Years' War

National social revolts

**5 Who were these people?**

- a. Philip IV: \_\_\_\_\_
- b. The Duke of Lerma: \_\_\_\_\_
- c. Charles II: \_\_\_\_\_
- d. The Archduke Charles of Austria: \_\_\_\_\_
- e. Philip V: \_\_\_\_\_



**6 Tick the events that led to the War of Succession. Then, answer the questions.**

- a. Prices increased and the population became poorer. ☐
- b. Charles II died without a successor. ☐
- c. The *validos* tried to give the king more power. ☐
- d. Two candidates claimed the Spanish throne, one from Austria and one from France. ☐
- e. European countries supported one candidate or the other, depending on their own interests. ☐
- f. In Spain, Castile supported Philip of Anjou, and Aragon supported the Archduke Charles. ☐



- What treaty recognized Philip V as King of Spain?

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- What royal dynasty did Philip V belong to?

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Name \_\_\_\_\_ Date \_\_\_\_\_

**1 Write two examples for each of the following categories from the 18<sup>th</sup> century.**

Bourbon Kings

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reforms

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scientific and cultural advances

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**2 Match each date to its corresponding historic event.**

- |           |  |
|-----------|--|
| a. 1808 → | The proclamation of the First Spanish Republic                         |
| b. 1873 → | The approval of the Constitution of Cadiz                              |
| c. 1812 → | The establishment of a constitutional monarchy under Queen Isabella II |
| d. 1814 → | The reestablishment of the Bourbon monarchy under Alfonso XII          |
| e. 1833 → | The start of the War of Independence                                   |
| f. 1874 → | The return of the absolute monarchy of Ferdinand VII                   |

**3 Put the following events from the 20<sup>th</sup> century in order. Number them from 1 to 5.**
☐ The dictatorship of Francisco Franco began.

☐ The transition into democracy began.

☐ The Spanish Civil War began.

☐ The dictatorship of Primo de Rivera began.

☐ The Second Spanish Republic was proclaimed.

**4 Read the sentences. Write *Second Spanish Republic*, *Dictatorship of General Franco* or *Transition into democracy*.**

- a. Political parties and trade unions became legal. \_\_\_\_\_
- b. The Constitution recognized the right of women to vote. \_\_\_\_\_
- c. There was no Constitution. \_\_\_\_\_
- d. The first Statutes of Autonomy were created. \_\_\_\_\_
- e. There was only one political party and one trade union. \_\_\_\_\_
- f. The first democratic elections since 1936 were held. \_\_\_\_\_

**5 Complete the table about the Spanish democratic presidents.**

president				Mariano Rajoy		
political party		UCD				
time in office			14 years (1982-1996)			

**6 Circle the date of each event. Then, write it to complete the corresponding sentences.**

7	4	2	0	1	1	0
2	0	0	2	7	9	6
5	2	0	5	1	9	3
3	6	4	1	9	7	8
9	4	2	1	8	9	1
8	0	7	4	6	2	5



- a. The current Constitution was approved in \_\_\_\_\_
- b. Spain joined the European Union in \_\_\_\_\_
- c. The housing construction boom started in \_\_\_\_\_
- d. Spain adopted the euro currency in \_\_\_\_\_
- e. A terrorist attack in Madrid killed 191 people and injured nearly 2,000 in \_\_\_\_\_
- f. ETA declared a permanent ceasefire in \_\_\_\_\_





# Answer keys

Reinforcement & Extension

# Reinforcement

## 1. NUTRITION

### PAGE 6

1. Match the photos to the nutrients. Then, write why each nutrient is necessary.

fats, for energy; vitamins and minerals, for our body to function properly; carbohydrates, for energy; proteins, for growth and to repair our body.

2. Label the diagram of the digestive system.

left, top to bottom: oesophagus; large intestine.

right, top to bottom: mouth; stomach; small intestine.

3. Complete the diagram to show the pathway air travels when we inhale. Then, answer the questions.

nostrils; pharynx; larynx; trachea; bronchi; lung; bronchioles; air sacs.

- The nostrils, pharynx, larynx, trachea, bronchi and bronchioles are air passageways.
- The mouth also belongs to another body system.
- Gas exchange takes place in the lungs.

### PAGE 7

4. Label the diagram. Colour the arrows purple where the blood enters the heart. Colour the arrows red where the blood leaves the heart.

left, top to bottom: right atrium; right ventricle.

right, top to bottom: left atrium; left ventricle.

Arrows in the left and right atria are purple; arrows in the left and right ventricles are red.

5. Complete the table about blood.

name: plasma; red blood cells; platelets; white blood cells.  
function: transports nutrients and waste; carry oxygen to all body cells; stop bleeding from wounds; protect from germs and diseases.

6. Use the words related to the excretory system to write four sentences.

Model Answer (MA)

The kidneys filter the blood.

The ureters carry urine from the kidneys to the bladder.

Urine is stored in the bladder.

Urine leaves the body through the urethra.

## 2. SENSITIVITY I

### PAGE 8

1. Complete the diagram. Then, answer the questions.

top to bottom: sense organs; information; brain; orders; muscles.

- The eyes and perhaps the ears are involved.
- The eyes detect the ball approaching.
- The brain interprets the information and decides how to act.

2. Where are the receptors located in each sense organ?

a. dermis; b. taste buds; c. olfactory epithelium.

3. Match the three columns. Then, write the purpose of each action.

In dim light, the iris expands and makes the pupil dilate.

In bright light, the iris contracts and makes the pupil constrict.

The pupil contracts to protect the eye from too much light.

The pupil dilates to allow us to see better.

### PAGE 9

4. Label the diagram.

clockwise from the top: hammer; anvil; auditory nerve; cochlea; stirrup; eardrum; ear canal; pinna.

5. Complete the table with two examples of each.

MA

arms: ulna, radius; biceps, triceps.

legs: tibia, femur; quadriceps, calf muscles.

torso: ribs, sternum; pectoral, abdominal.

6. Look at the diagram and answer the questions. Then, circle the joints.

- It is a flexing movement.
- The triceps and biceps are involved.
- The biceps contracts, the triceps relaxes, and the biceps pulls the radius so that the arm bends.

The shoulder joint, the elbow joint and the wrist joint are circled.



# Reinforcement

## 3. SENSITIVITY II

### PAGE 10

1. Draw a neuron and label it. Then, write a sentence about each word.

See page 26 of the Student's Book.

MA

Dendrites receive messages from the sense organs or from other neurons.

The axon transmits messages to other neurons and sends orders to our organs.

The body contains the nucleus and the organelles.

2. Label the diagram of the brain. Then, write a sentence about what each part controls.

top to bottom: cerebrum; cerebellum; brainstem.

The cerebrum controls emotions, memory, thought and voluntary actions.

The cerebellum controls movement, coordination and balance.

The brainstem controls automatic actions such as heart rate and breathing.

3. Read the actions and write *voluntary* or *reflex*.

a. voluntary; b. reflex; c. reflex; d. voluntary; e. reflex; f. voluntary.

### PAGE 11

4. Choose the words related to the endocrine system and write a sentence with each one.

MA

Hormones act like messengers and transmit orders to the body.

The endocrine system consists of endocrine glands.

Hormones control the function of specific body parts called target organs.

5. Draw the outline of a girl. Label the position of the endocrine glands.

See page 30 of the Student's Book.

6. Complete the table.

MA

examples: heart muscles, digestive tube muscles; what they do: contract and relax to create our heartbeat, moves food from our mouth to the large intestine.

## 4. REPRODUCTION

### PAGE 12

1. Name three secondary sexual characteristics.

MA

men: more developed muscles, deeper voice, more facial hair.

women: breasts, wider hips, less body hair.

2. Complete the sentences.

a. The female sex cells are known as egg cells or ova.

b. The male sex cells are known as spermatozoa.

c. The female genital organs which contain sex cells are the ovaries.

d. The male genital organs which produce sex cells are the testes.

e. The external protective part of the female reproductive system is the vulva.

f. The external part of the male reproductive system that protects the testes is the scrotum.

3. Label the diagram of the male reproductive system.

left, top to bottom: sperm duct, prostate, scrotum.

right, top to bottom: seminal vesicle; testes; penis; urethra.

### PAGE 13

4. Label the reproductive cells and their parts.

A. sperm cell; B. egg cell.

left to right: tail; nucleus; nucleus.

Sperm cells are smaller in size but bigger in number.

5. Complete the sentences.

a. The embryo is surrounded by a sac called the amnion.

b. The placenta supplies nutrients and oxygen from the mother to the embryo.

c. The embryo and the placenta are connected by the umbilical cord.

d. Labour is the process of giving birth.

e. A Caesarean section is performed when there are complications during birth.

f. During lactation, the mother's breasts produce milk.

6. Cross out the odd one out. Then, write *pregnancy*, *birth*, or *lactation*.

a. fertilization, birth; b. third stage, pregnancy; c. zygote, lactation.

# Reinforcement

## 5. MATTER

### PAGE 14

1. Look at the photographs. Write how to measure volume in each case.

A. water displacement; B. mathematical formulas;  
C. measuring cylinders.

2. Find eight objects and classify them. Then, answer the questions.

objects that float: rubber duck, bottle cap, cork, pencil, match; objects that sink: rock, key, screw.

They have lower density than water.

They have higher density than water.

3. Read and write *T* (true) or *F* (false). Then, correct the false sentences.

a. T; b. F; c. T; d. T; e. F.

An element is made up of only one type of atom.

Salt is a homogeneous mixture.

### PAGE 15

4. Complete the table about the physical state of matter. Write *fixed* or *not fixed*.

volume: fixed, fixed, not fixed; shape: fixed, not fixed, not fixed.

5. Complete the crossword about changes of state. Then, answer the question.

1. solidification; 2. melting; 3. sublimation; 4. condensation;  
5. vaporization.

Reverse sublimation is missing.

6. What is going to happen? Write *change of state* or *chemical change*.

a. change of state; b. chemical change; c. change of state;  
d. chemical change; e. change of state.

## 6. ENERGY

### PAGE 16

1. Cross out the odd one out. Then, write the corresponding form of energy.

a. skateboard, electrical; b. road, thermal; c. water, chemical; d. snow, light.

2. Match each picture to its corresponding energy transformation. Then, complete the sentence.

Order: D; A; B; C.

MA

Electrical energy can also be transformed into light energy, for example, the energy emitted by light bulbs.

3. Write one energy source for each type of energy.

MA

a. wind turbines; b. uranium; c. coal; d. fire; e. the Sun.

### PAGE 17

4. Write the energy source used in each type of power plant. Then, answer the question.

a. the Sun; b. water; c. uranium/plutonium.

Renewable energy sources will never run out.

5. Match and write the sentences about environmental problems.

a. Fossil fuels are limited resources.  
b. Burning fossil fuels causes global warming.  
c. Toxic substances cause acid rain.  
d. Nuclear power plants produce radioactive waste.

6. Complete the word map.

Light travels at 300,000 km/per second; Light travels in straight lines; Light travels in all directions.

## 7. ELECTRICITY

### PAGE 18

1. Draw arrows between the electrical charges to show attraction or repulsion. Then, write a sentence to explain each diagram.

A. attraction; B. repulsion; C. repulsion.

a. The objects attract because they have opposite charges. So they pull towards each other.  
b. The objects repel because they both have positive charges. So they push away from each other.  
c. The objects repel because they both have negative charges. So they push away from each other.

2. Label the materials of the electrical code. Why are these materials used?

top: copper; bottom: plastic.

Copper is used because it is a conductor. Plastic is used because it is an insulator.

# Reinforcement

3. Look at the diagram. Which bulbs will light up when the switch is on? Explain.

Bulbs A, B, and C will light up because they are part of a closed circuit. Electricity cannot flow when there is a gap.

## PAGE 19

4. Write a sentence with each group of words.

MA

Wind is used to move turbines connected to a generator.

Some solar power plants use sunlight which is absorbed by solar panels.

Electricity is transported from power plants along power lines.

5. Look at the picture. Then, label the poles of the magnets in the diagram.

left, top to bottom: north; south; north.

right, top to bottom: south; north; south.

6. Read and write *T* (true) or *F* (false). Then, correct the false sentences.

a. F; b. F; c. T; d. T.

Magnets attract certain metals.

Electromagnets consist of an iron core and a coil of wire.

## 8. MACHINES AND TECHNOLOGY

### PAGE 20

1. Match and write sentences to describe each machine.

- a. Electric toothbrushes are complex machines that use energy from electricity.
- b. Saws are simple machines that use energy from people.
- c. Scooters are complex machines that use energy from fuel.

2. Look at the pictures. Circle the machine that is not mechanical and answer the questions.

The iron. It is not mechanical because it does not lift objects or produce movement.

3. Read these definitions of machine components and write the names.

a. sensors; b. motor; c. mechanism; d. casing.

### PAGE 21

4. Cross out the odd one out. Then, write *medicine*, *transportation*, *communications*, or *entertainment*.

a. diagnosis: entertainment; b. computer: medicine;  
c. health: transportation; d. 3D technology: communications.

5. Read and write *T* (true) or *F* (false). Then, correct the false sentences.

a. T; b. F; c. T; d. F; e. T.

A word processor and a web browser are software.

Applications are software programmes for smartphones and tablets.

6. Complete the texts. Then, match them to their category.

- a. They are digital versions of printed newspapers. They include videos and articles about the latest world events. (digital newspapers)
- b. They are special websites that allow you to communicate online with different groups of people. (social networks)
- c. It is a network of computers connected to each other by telephone lines or cables all over the world. (the Internet)

## 9. LANDSCAPES OF EUROPE

### PAGE 22

1. Choose only the words related to the Great European Plain and write sentences.

MA

The Great European Plain extends from the Pyrenees and the Atlantic Ocean in the west to the Ural Mountains in the east. It includes low mountain ranges such as the Central Massif.

The River Volga flows through the Great European Plain.

2. Match the columns and write a sentence for each. Then, circle the mountain ranges that are natural borders between countries.

- a. Mount Elbrus is 5,642 m high and is in the Caucasus Mountains.
- b. Mont Blanc is 4,807 m high and is in the Alps.
- c. Aneto is 3,404 m high and is in the Pyrenees.

The Pyrenees and the Alps are natural borders between countries.

3. Write an example for each description.

a. Atlantic Ocean; b. Mediterranean Sea (MA);  
c. Scandinavian Peninsula (MA); d. Balkan Peninsula (MA);  
e. Gulf of Genoa (MA); f. North Cape (MA); g. Cape Finisterre (MA).

# Reinforcement

## PAGE 23

### 4. Complete the table about European watersheds.

Arctic watershed: rivers freeze in winter, the Pechora; Atlantic watershed: rivers have the most abundant flow in Europe, the Rhine; Mediterranean watershed: rivers with irregular flow, the Rhone; Black Sea watershed: rivers are long with abundant flow, the Danube; Caspian Sea watershed: rivers are long with an abundant flow, the Volga.

### 5. Colour the key for the different climates. Then, use your key to colour the map.

A. Polar; B. Mountain; C. Continental; D. Oceanic; E. Mediterranean.

### 6. Match the vegetation to the different climates using the letters from Activity 5.

steppe: C; deciduous forest: D; alpine forest: B; tundra: A; Mediterranean forest: E.

## 10. THE POPULATION AND ORGANIZATION OF EUROPE

### PAGE 24

#### 1. Look at the map and answer.

MA

- a. Iceland, Norway and Sweden have a population density of less than 10 km<sup>2</sup>.
- b. The UK, Belgium and Germany have some areas where the population is more than 500 inhabitants per km<sup>2</sup>.

#### 2. Circle eight European countries. Write the names of the members of the European Union. Then, tick the ones that belong to the eurozone.

Eight European countries: Austria; Malta; Ireland; Ukraine; Albania; Italy; Poland; Sweden.

EU members: Austria; Malta; Ireland; Italy; Sweden; Poland.

Eurozone: Austria; Malta; Ireland; Italy.

### PAGE 25

#### 3. Write a sentence about EU accomplishments with each group of words.

MA

- a. The EU is a single market which allows for the free movement of goods.
- b. The EU has laws to protect the environment and control global warming.
- c. The EU helps members that are in financial difficulty by providing money from common funds.

#### 4. Look at the map and answer the questions with the name of the Autonomous Community.

- a. Castile and Leon; b. Galicia; c. Extremadura; d. Catalonia.

## 11. SPAIN IN THE MODERN AGE

### PAGE 26

#### 1. Choose only the territories of the Catholic Monarchs' reign and write them in the order they were conquered. Then, answer the question.

Granada; Canary Islands; Naples; Melilla.

The discovery of America led to the most important conquest of the Catholic Monarchs' reign.

#### 2. Write two examples of each.

- a. MA. the Aztecs and the Incas; b. gold and silver;
- c. MA. potatoes and maize.

#### 3. Read the sentences and write *Charles I* or *Philip II*.

- a. Charles I; b. Philip II; c. Philip II; d. Charles I; e. Philip II; f. Charles I.

### PAGE 27

#### 4. Write the events on the timeline.

1516: Charles I became king; 1520: Social revolts in Castile; 1556: Philip II became king; 1566: The Netherlands rose up against Spanish rule; 1571: The Battle of Lepanto; 1580: The Kingdom of Portugal became a part of the Spanish Empire; 1588: The Spanish Armada was defeated.

#### 5. Match the monarchs to the dates. Then, answer the questions.

Philip IV, 1621-1665; Charles II, 1665-1700; Philip III, 1598-1621.

They belonged to the Habsburg dynasty.

Ministers called *validos* helped them govern.

#### 6. Complete the sentences with the names of the monarch.

- a. Philip III; b. Philip IV; c. Philip IV; d. Charles II; e. Philip V.

# Reinforcement

## 12. SPAIN FROM THE 18<sup>th</sup> CENTURY

### PAGE 28

#### 1. Read the definitions and write the words.

a. absolute monarchy; b. *valido*; c. royal factories and trading companies; d. museums and botanical gardens.

#### 2. Circle two errors in each sentence. Then, write the sentences correctly.

- a. Napoleon Bonaparte, Emperor of France, replaced King Ferdinand VII with his brother Joseph Bonaparte.
- b. The Constitution of Cadiz limited the King's power and established rights for citizens.
- c. After the constitutional monarchy of Isabella II, a republic was proclaimed.

#### 3. Write the dates, then match to complete the timeline.

a. 1975; b. 1936; c. 1931; d. 1939; e. 1978; f. 1923.

### PAGE 29

#### 4. Write two facts about each period.

MA

- a. Women had the right to vote and new state schools were built.
- b. General Franco controlled all powers of the State and many individual liberties were limited.
- c. Political parties and trade unions became legal again. There were serious economic and political problems.

#### 5. Write the name of the corresponding president in Spain's modern democracy.

a. Mariano Rajoy Brey; b. Leopoldo Calvo Sotelo; c. Felipe Gonzalez Marquez; d. Adolfo Suarez Gonzalez.

#### 6. Complete the sentences about major events in Spain's democracy.

- a. Spain joined the European Union in 1986.
- b. The Statutes of Autonomy for the Autonomous Communities and Cities were adopted.
- c. The first euro banknotes and coins were used in 2002.
- d. Spain experienced rapid economic development over a decade.
- e. The separatist group ETA declared a permanent ceasefire in 2011.

## 1. NUTRITION

### PAGE 30

#### 1. Read the text and answer the questions.

- Food allergies are a reaction of the immune system to a particular substance.
- Food allergies can cause irritation of the skin or eyes, nausea, vomiting and respiratory problems or disorders of the circulatory system.
- The most common food allergies in children are nuts, milk, wheat, eggs and shellfish.
- Children can outgrow allergies to milk and eggs.
- The best way to control food allergies is by having a strict diet and avoiding certain foods.

#### 2. Do a survey to find out how many people have food allergies in your class. Which allergies are the most common?

Open Answer (OA)

## 2. SENSITIVITY I

### PAGE 31

#### 1. Read the text and complete the table.

main cause: it is an inherited trait; population affected: 250 million people; most common type: red-green colour blindness; least common type: total colour blindness; job limitations: train drivers, commercial pilots.

#### 2. Search the Internet to find a test to see if you are colour blind. Do the test. What are your results?

OA

## 3. SENSITIVITY II

### PAGE 32

#### 1. Read the text and complete the index card.

Definition: a sleep disorder which consists of walking or doing other activities while asleep.

Activities performed: sitting up in bed, walking, climbing, driving.

Causes: fatigue, fever, certain medications and stress.

Risks: falling down, bumping into things.

Precautions: remove obstacles, close doors and windows, don't wake sleepwalkers.

#### 2. Do a survey in your class. How many people sleepwalk or know a sleepwalker?

OA

## 4. REPRODUCTION

### PAGE 33

#### 1. Read, think and answer the questions in your notebook.

- Because he was the first person to discover that traits were passed on intact from one generation to the next.
- Yes, because human traits are also passed on from one generation to the next.
- OA.
- They resemble other ancestors because they inherited some recessive traits.

#### 2. Who do you look like? Complete the table.

OA

## 5. MATTER

### PAGE 34

#### 1. Read the text and make an index card.

Description: shrilk is a new biologically engineered material inspired by nature.

Components and structure: it is made of chitin and fibrin, arranged in layers.

Advantages: strong and light, easily moulded into different shapes, produced at a low cost and uses a waste product.

Uses: a replacement for plastic, to make film, rubbish bags, nappies, packaging and medical supplies.

#### 2. Search the Internet for general information about other bioplastics. Write their names and some of their advantages.

OA

## 6. ENERGY

### PAGE 35

#### 1. Read the text and answer the questions.

- Geothermal energy is thermal energy generated inside the Earth.
- Geothermal energy is always available.
- Geothermal energy can be used to heat buildings and generate electricity.
- The US, the Philippines and Indonesia are the leading producers of geothermal energy.
- The Geysers is the largest geothermal plant.
- Iceland is the leading user of geothermal energy.

## Extension

2. Search the Internet for information about geothermal energy in Spain and write a brief description.

OA

### 7. ELECTRICITY AND MAGNETISM

#### PAGE 36

1. Read the text and complete the index card.

Description: a layer of carbon one atom thick, considered the material of the future.

Properties: transparent, thin, strong, light and a very efficient conductor of electricity.

Uses: solar cells, optical devices, advanced batteries and personal communication devices.

2. Search the Internet for more information about graphene.

OA

### 8. MACHINES AND TECHNOLOGY

#### PAGE 37

1. Read the text and complete the table.

mechanical watch: has no batteries, mainspring;  
battery watch: the most common watch, quartz crystals;  
smartwatch: computerized and can perform many functions, rechargeable batteries; Eco-Drive watch: can run forever, light energy.

2. Search the Internet for photographs of the wristwatches described above.

OA

### 9. LANDSCAPES OF EUROPE

#### PAGE 38

1. Read the text and answer the questions.

- Fjords are deep, narrow landforms carved by massive glaciers.
- Over time, the glaciers retreated leaving U-shaped valleys that flooded with sea water.
- Skerries are small rocky islands in fjords.
- Geirangerfjord and Nærøfjord in Norway are included in the World Heritage list.
- Fish, marine mammals and eagles live in the fjords.
- Seals and porpoises live in fjords.

2. Search the Internet to find photographs of fjords in Norway and make a scenic presentation.

OA

### 10. THE POPULATION AND ORGANIZATION OF EUROPE

#### PAGE 39

1. Read the text and answer the questions.

- Euro banknotes display images of Europe's different architectural styles.
- The common side of the euro coins displays maps of the European Union.
- Banknotes have a see-through number or a security thread.
- They are 2 € coins that can be issued every year by eurozone countries.

2. Search the Internet for more information about euro banknotes and Spanish euro coins, and complete the tables.

OA

### 11. SPAIN IN THE MODERN AGE

#### PAGE 40

1. Read the text and answer the questions.

- The Spanish Armada was built under the reign of King Philip II.
- Spain decided to fight against England for political and religious reasons.
- Fighting galleons and converted merchant vessels formed the fleet.
- The Duke of Medina Sidonia was in charge of the Spanish Armada.
- Poor naval tactics was the main reason for its defeat.
- 65 ships and around 20,000 lives were lost.

2. Search the Internet for information about the route of the Spanish Armada. Then, draw a map in your notebook.

OA

### 12. SPAIN FROM THE 18<sup>th</sup> CENTURY

#### PAGE 41

1. Read the diary and make a timeline of the historic events of the transition into democracy in your notebook.

OA

2. In your opinion, which historic event is the most important? Explain your answer.

OA







# Answer keys

Culture  
Investigate! & Assessment

## 1. NUTRITION

### PAGE 42

#### 1. Read the text and complete the table about the Slow Food Movement. Then, answer the questions.

Description: The Slow Food Movement is a worldwide movement to promote good, nutritious food.

Aims: to consume tasty foods, to eat foods grown and produced locally, and to produce foods without harming the environment.

a. OA; b. OA; c. OA; d. The *Ark of Taste* is a catalogue of foods considered at risk of disappearing.

#### 2. Search the Internet to find information about a heritage food from the *Ark of Taste* and write a brief description.

OA

## 2. SENSITIVITY I

### PAGE 43

#### 1. Read the text and complete the index card.

Description: a subtle taste that enhances natural flavours.

Found in: soy beans and seaweed; tomatoes, mushrooms, anchovies, cured ham, some strong cheeses.

Processes which bring out the umami flavours: slow cooking, drying, aging, fermenting, ripening foods.

#### 2. Have an umami tasting session at school or home.

OA

## 3. SENSITIVITY II

### PAGE 44

#### 1. Read the text about the World Health Organization and complete the table.

number of members: 194 member nations; official languages: Arabic, Chinese, English, French, Russian and Spanish; successful campaigns: eradication of smallpox, eradication of polio; public health actions: improving access to healthcare.

#### 2. Search the Internet for information about the flag of the World Health Organization.

OA

## 4. REPRODUCTION

### PAGE 45

#### 1. Read the text and answer the questions.

a. Every day 800 women and more than 8,000 babies die from complications during pregnancy and birth.

- b. The job of a midwife is to help women before, during and after giving birth.
- c. Midwives teach new mothers how to handle their babies and how to breastfeed them.
- d. The World Health Organization supports midwives.

#### 2. Search the Internet to find information about the International Day of the Midwife and complete the index card.

OA

## 5. MATTER

### PAGE 46

#### 1. Read the text about green clothing and complete the table.

organic cotton: natural fibre; grown without pesticides, herbicides or fertilizers, requires less water than traditional cotton.

bamboo: strong, soft and comfortable; grown without fertilizers, requires very little water, grows fast, is a renewable source, is wrinkle-resistant and biodegradable.

eco-friendly fleece: soft, light, washable; wrinkle-free.

lyocell: light, made from wood pulp; requires less energy and water.

#### 2. Look at clothing labels at home and local shops.

OA

## 6. ENERGY

### PAGE 47

#### 1. Read the text and answer the questions.

- a. Bioclimatic architecture saves energy and achieves optimal thermal and lighting conditions.
- b. MA. Adobe is an example of traditional bioclimatic architecture.
- c. Because it determines the indoor temperatures.
- d. Thick walls and windows facing south.

#### 2. Look around your home. In your notebook, make a list of architectural elements that can be considered bioclimatic.

OA

#### 3. Design and draw a bioclimatic house for the area in which you live.

OA

## 7. ELECTRICITY AND MAGNETISM

### PAGE 48

#### 1. Read the text and answer the questions.

- The SMT is one of the fastest trains in the world.
- It can reach 431 km/hour.
- The SMT takes 7 minutes and twenty seconds to reach its destination.
- It has powerful magnets attached to the bottom of the train which 'float' on electromagnetic tracks.
- Maglev trains are faster, quieter, smoother, more environmentally friendly and more energy efficient than normal trains.

#### 2. Search the Internet for information about other high speed trains operating around the world and complete the table.

OA

## 8. MACHINES AND TECHNOLOGY

### PAGE 49

#### 1. Read the text and draw a Venn diagram to compare UPC barcodes and QR codes.

UPC barcodes machine-readable, black bars and white spaces, 12-digit number, gives information on a specific product.

QR codes read by smartphones, small black squares organized in a square grid on a white background, can give many kinds of information, used for commercial tracking, entertainment, product marketing.

Both are product codes.

#### 2. Check the product code of some manufactured products at home or school.

OA

## 9. LANDSCAPES OF EUROPE

### PAGE 50

#### 1. Read the text and complete the index card.

Location: between southern England and northern France.  
Size: 560 km long and between 34 km and 240 km wide.  
Formed by: a giant ice river carved the Channel. Between ice ages, it filled with water.  
Other interesting facts: (MA) in 1994 England and France were 'reconnected' when the Channel Tunnel opened. It is famous for the Cross Channel Swim.

#### 2. Search the Internet for more information about the English Channel.

OA

## 10. THE POPULATION AND ORGANIZATION OF EUROPE

### PAGE 51

#### 1. Read the text and write a summary.

The European Union has 24 official languages and in the European Parliament members have the right to use any of the official languages when speaking. The language policies of the European Union promote linguistic diversity and the aim is for all children to learn at least two other languages apart from their native language.

#### 2. Search the Internet for these basic phrases in three different European languages and complete the table.

OA

## 11. SPAIN IN THE MODERN AGE

### PAGE 52

#### 1. Read the text and answer the questions.

MA

- The Mayans lived in the Yucatan Peninsula.
- Their rulers lived in Mayapan.
- Mayan society was organized into four groups: nobles, priests, peasants and slaves.
- Most people worked in the fields.
- The Mayans built temples, altars and stelae.
- The god of rain was their most important god.
- Their favourite sport was a game where players had to pass the ball through a stone hoop.

#### 2. The Mayans inhabited the area of present-day Mexico, Guatemala and some parts of Belize, El Salvador and Honduras. Find these countries on a map.

OA

## 12. SPAIN FROM THE 18<sup>th</sup> CENTURY

### PAGE 53

#### 1. Read the text and complete the index card.

Description: a worldwide, non-profit institution founded in 1991 by the Spanish government.

Aims: to promote the official languages of Spain and to promote Hispanic and Spanish culture.

Online services: a virtual office, a virtual classroom and a television channel.

Other services: a network of libraries and an annual review of the Spanish language.

#### 2. Search the Internet to find the main offices of the Cervantes Institute in each continent and make a list in your notebook.

OA

# Investigate!

## 1. NUTRITION

PAGE 54

1. What foods contain starch?

OA

## 2. SENSITIVITY I

PAGE 55

1. Are two eyes better than one to estimate distance?

OA

## 3. SENSITIVITY II

PAGE 56

1. How can you challenge your brain?

OA

## 4. REPRODUCTION

PAGE 57

1. What are human reproduction records? Make an index card of Guinness World Records.

OA

## 5. MATTER

PAGE 58

1. Are all substances equally soluble?

OA

## 6. ENERGY

PAGE 59

1. Do all colours absorb the same amount of heat?

OA

## 7. ELECTRICITY AND MAGNETISM

PAGE 60

1. Make a timeline of the major advances in the field of electricity.

OA

## 8. MACHINES AND TECHNOLOGY

PAGE 61

1. Which invention has changed the world most?

OA

## 9. LANDSCAPES OF EUROPE

PAGE 62

1. Can you plan a European route by InterRail?

OA

## 10. THE POPULATION AND ORGANIZATION OF EUROPE

PAGE 63

1. Can you describe countries in Europe?

OA

## 11. SPAIN IN THE MODERN AGE

PAGE 64

1. Can you make a timeline about a historical character?

OA

## 12. SPAIN FROM THE 18<sup>th</sup> CENTURY

PAGE 65

1. Can you write a newspaper article?

OA

# Assessment

## 1. NUTRITION

### PAGE 66

#### 1. Using the food pyramid, name four foods from each group.

MA

- a. fibre: cabbage, lettuce, carrots, whole grain bread.
- b. proteins: chicken, fish, eggs, nuts.
- c. fats: oil, butter, bacon, sausages.
- d. carbohydrates: cereals, rice, potatoes, pasta.
- e. vitamins and minerals: peppers, oranges, grapes, watermelon.

#### 2. Write the parts of the digestive system. Then, tick the glands that release substances into the small intestine.

- a. pancreas (✓); b. stomach; c. large intestine; d. liver (✓); e. small intestine.

#### 3. Complete the crossword about the respiratory system.

- 1. bronchioles; 2. lung; 3. nostrils; 4. larynx; 5. pharynx; 6. trachea; 7. bronchi; 8. air sacs.

### PAGE 67

#### 4. Label the diagram of the circulatory system. Then, write a sentence about each part.

left, top to bottom: heart; veins.

right, top to bottom: arteries; capillaries.

MA

The heart pumps blood around the body.

The veins carry blood back to the heart from all body tissues.

The arteries carry blood away from the heart to all body tissues.

The capillaries have very thin walls so that nutrients and oxygen can pass into the body cells and carbon dioxide and waste can leave the cells.

#### 5. Complete the texts. Then, match.

Blood goes to the lungs to expel carbon dioxide, and to obtain oxygen and bring it back to the heart. (b)

Blood with nutrients and oxygen goes throughout the body and returns to the heart with carbon dioxide and waste. (a)

#### 6. Complete the diagram about the excretory system. Then, describe how waste substances are eliminated from the blood.

kidneys; ureters; bladder; urethra.

MA

The kidneys filter the blood and retain waste substances to produce urine. They reabsorb nutrients and water and put them back into the blood. The ureters carry urine from the kidneys to the bladder. Urine is stored in the bladder until it leaves the body through the urethra.

## 2. SENSITIVITY I

### PAGE 68

#### 1. Read and write T (true) or F (false). Then, correct the false sentences.

- a. T; b. F; c. T; d. F; e. T.

The locomotor system receives orders from the brain.

Most receptors are located in the dermis.

#### 2. Use the words in the box to write sentences about each sense organ.

MA

The skin is made up of three layers; the epidermis, the dermis and the hypodermis.

The tongue is covered with papillae which have taste buds.

The olfactory epithelium has receptors which send information to the brain through the olfactory nerve.

#### 3. Label the diagram. Then, write a sentence about the retina and the optic nerve.

left, top to bottom: iris, pupil, cornea, lens.

right, top to bottom: retina, optic nerve.

The lens focuses light on the retina.

The optic nerve sends messages to the brain.

### PAGE 69

#### 4. Find the parts of the ear. Write them in the order sound travels through the ear. Then, tick the part that vibrates.

- 1. pinna; 2. ear canal; 3. eardrum (✓); 4. hammer; 5. anvil; 6. stirrup; 7. cochlea.

#### 5. Read the definitions and write the words.

- a. locomotor system; b. cartilage; c. joints; d. ligaments; e. muscles; f. tendons.

#### 6. Match and complete the texts.

(2) The biceps relaxes and the triceps contracts. The triceps pulls the ulna, so the arm straightens.

(1) The biceps contracts and the triceps relaxes. The biceps pulls the radius, so the arm bends.

## 3. SENSITIVITY II

### PAGE 70

#### 1. Complete the sentences. Then, number them in order.

- The brain sends signals to the effectors: muscles or glands.
- Receptors send nerve impulses to the brain.
- Receptors in our sense organs detect stimuli.
- Effectors carry out the corresponding responses.
- The brain interprets this information.

Order: 4; 2; 1; 5; 3.

#### 2. Complete the word map on the nervous system. Then, answer the question.

top row: central nervous system; brain, spinal cord; cerebrum, cerebellum, brainstem.

bottom row: peripheral nervous system; sensory nerves, motor nerves.

The skull protects the brain, and the spine protects the spinal cord.

#### 3. Name two examples of each.

MA

Running and talking are examples of voluntary movement.

Breathing and yawning are examples of reflex movement.

### PAGE 71

#### 4. Read and write T (true) or F (false). Then, correct the false sentences.

- F; b. T; c. F; d. T; e. F.

The endocrine system controls long-term functions of the body.

Hormones travel through the circulatory system.

The pancreas produces insulin, which controls the amount of sugar in the blood.

#### 5. Match the three columns and write sentences.

The pancreas is in the abdomen and controls the amount of sugar in the blood.

The adrenal glands are attached to the kidneys and help to respond to stress or danger.

The pituitary gland is in the brain and controls the other endocrine glands.

The thyroid gland is in the neck and helps to regulate growth.

#### 6. Complete the text about how our body regulates the amount of water it needs.

Our body loses water through the skin, lungs and by expelling urine. Our blood becomes too concentrated when the amount of water falls. In this case, the brain orders our kidneys to retain more water.

## 4. REPRODUCTION

### PAGE 72

#### 1. Find the words and label the diagram.

left, top to bottom: ovary; vulva.

right, top to bottom: Fallopian tube; uterus; vagina.

The uterus is circled.

#### 2. Write the correct word for each definition. Then, write F (female reproductive system) or M (male reproductive system).

- sperm ducts, M; b. seminal vesicles and prostate gland, M; c. Fallopian tubes, F; d. urethra, M; e. vagina, F.

#### 3. Read the sentences, underline the mistakes and correct them. Then, number the sentences in order.

- When a sperm cell joins with an ovum, a zygote forms.
- The embryo attaches itself to the wall of the uterus.
- The zygote divides many times and forms an embryo.
- The egg cell travels through the Fallopian tube to the uterus.
- After sexual intercourse, the spermatozoa travel through the uterus into the Fallopian tubes.

Order: 3; 5; 4; 1; 2.

### PAGE 73

#### 4. Complete the crossword. Then, label the diagram.

- foetus; 2. amnion; 3. placenta; 4. umbilical cord; 5. uterus.

See page 40 of the Student's Book.

#### 5. Complete the stages of labour. Then, write 1 (first stage), 2 (second stage) or 3 (third stage).

- The placenta is expelled from the uterus through the vagina. (3)
- The mother pushes hard with her abdominal muscles to deliver the baby. (2)
- The involuntary muscles of the uterus contract. (1)
- The opening of the uterus dilates due to the uterus contractions. (1)
- The umbilical cord is clamped and cut. (3)
- The amnion breaks and the liquid around the foetus is expelled. (1)

# Assessment

## 5. MATTER

### PAGE 74

#### 1. Complete the table.

mass: general; the amount of matter in an object; kilograms (kg) or grams (g).

volume: general; the amount of space an object occupies; litres (l) or millilitres (ml).

density: specific; the concentration of matter in a particular volume; mass by volume.

#### 2. Look at the photos and answer the question.

The ball in photograph A has the highest density because it has more mass concentrated in the same volume than the ball in photograph B.

#### 3. Circle the correct type of matter. Then, answer the question.

a. homogeneous mixture; b. heterogeneous mixture;  
c. homogeneous mixture; d. homogeneous mixture; e. pure substance; f. heterogeneous mixture.

Water is a compound.

### PAGE 75

#### 4. Match the photos and the diagrams according to the physical states.

See page 51 of the Student's Book.

Gases don't have a fixed volume or shape.

Solids have a fixed volume and shape.

Liquids have a fixed volume but not a fixed shape.

#### 5. Unscramble the words and complete the sentences about changes of state. Then, give an example of each.

- Solidification occurs when a liquid turns into a solid. (MA. ice)
- Sublimation happens when a solid turns into a gas. (MA. deodorant)
- Condensation happens when a gas turns into a liquid. (MA. rain)
- Vaporization happens when a liquid turns into a gas. (MA. boiling water)

#### 6. Cross out the odd one out. Then, use the correct words to write sentences.

- pressure; MA. Oxidation happens when substances combine with oxygen. Rust is an example.
- condensation; MA. Combustion occurs when objects are burned. Burning wood produces smoke and ashes.
- physical changes; MA. Chemical changes occur when atoms react and group together differently, producing new substances.

## 6. ENERGY

### PAGE 76

#### 1. Write the form of energy for each situation.

a. kinetic energy; b. light energy; c. electrical energy; d. nuclear energy.

#### 2. Complete the word map.

Energy can be transformed; Energy can be transferred; Energy can be stored; Energy can be transported.

OA

#### 3. Find eight energy sources and classify them. Then, answer the questions.

renewable sources: wind; water; sun; biomass.

non-renewable sources: uranium; plutonium; coal; petroleum.

Uranium and plutonium come from rocks.

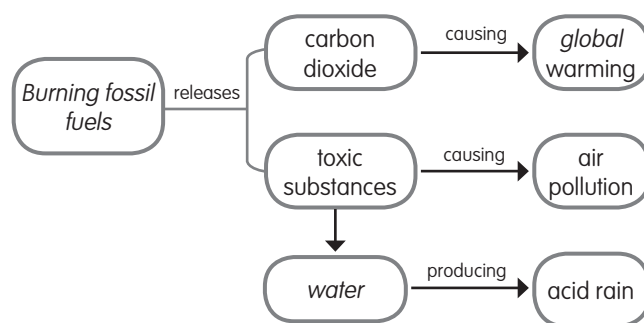
Biomass is an energy source made from organic matter.

### PAGE 77

#### 4. Name the energy sources in the photographs. Then, write the name of the power plant where they are used.

A. the Earth's internal heat, geothermal power plant.  
B. water, hydraulic power plant.

#### 5. Complete the diagram.



#### 6. Look at the photographs and complete the sentences.

When light hits an object, it bounces off and changes direction.

When light passes from one material to another material with a different density, it bends.

Photograph B is an example of reflection.

Photograph A is an example of refraction.



## 7. ELECTRICITY AND MAGNETISM

### PAGE 78

#### 1. Look at the pictures and answer the questions.

a. They are electrically neutral; b. The cloth is positively charged, the pen cap is negatively charged; c. Electrons are passing from the cloth to the pen cap.

#### 2. Choose the correct words to write sentences about conductors and insulators.

MA

Conductors are materials that allow electrons to move freely and so electronic currents flow easily. Conductors include water and silver. Insulators are materials that do not allow currents to move. Insulators include plastics, air, glass and wood.

#### 3. Label the electric circuit. Then, choose three components and write a sentence about each one.

left, top to bottom: cable; motor.

right, top to bottom: battery; switch; light bulb.

MA

The light bulb transforms electricity into light energy.

The cable transports electricity from the generator to the other components.

The switch controls the flow of electricity by closing or opening the circuit.

### PAGE 79

#### 4. Write production of *electricity* or *distribution of electricity* under each photo. Then, write a sentence in your notebook.

A. distribution of electricity; B. production of electricity;  
C. production of electricity; D. distribution of electricity.

OA

#### 5. Label the poles of the magnets. Then, draw arrows to show if the magnets attract or repel.

A. north, south, south, north (The arrows show they repel.);  
B. north, south, north, south (The arrows show they attract).

#### 6. Answer the questions about magnets and electromagnets.

- Magnets are objects that attract other objects made of certain metals.
- MA. Magnets are used, for example, in memory cards and credit cards.
- Electromagnets consist of an iron core surrounded by a coil of wire.

- MA. Electromagnets are used, for example, in microphones, doorbells and MRI scanners.
- The main difference is that the magnetism in electromagnets can be turned on or off.

## 8. MACHINES AND TECHNOLOGY

### PAGE 80

#### 1. Complete the table with examples.

MA

simple machines: hammer, energy from people; scissors, energy from people.

complex machines: computer, electricity; car, fuel.

#### 2. Complete the word map. Then, write an example for each type of machine.

Machines for information management are used to produce text, sound, images, videos or maps. Example: cameras.

Machines for communication are used to communicate over distances. Example: telephones.

Machines for entertainment are used to play music or games. Example: MP3 players.

#### 3. Unscramble the words and write the names of eight machine components. Then, tick the ones that may work together in a mechanism.

microchip; casing; sensor; gear (✓); engine; wheel (✓); axle (✓); screen.

### PAGE 81

#### 4. Circle the technological advances. Then, classify them in the table.

medicine: ultrasound, X-rays; transportation: radar, computer system; communications: radio, the Internet; entertainment: tablet, motion gaming.

#### 5. Complete the crossword.

1. smartphone; 2. software; 3. tablet; 4. hardware; 5. laptop; 6. apps.

#### 6. Write four things people can do on the Internet. Then, answer the questions.

MA

a. chat online; b. upload photos; c. read digital newspapers; d. listen to music.

OA; OA



# Assessment

## 9. LANDSCAPES OF EUROPE

### PAGE 82

#### 1. Read the definitions and write the names.

a. Europe; b. Great European Plain; c. Mount Elbrus; d. Great Britain, Iceland, Sicily, Sardinia, Cyprus, Corsica and Crete; e. River Volga; f. Lake Ladoga and Lake Onega.

#### 2. Write the names of two mountain ranges for each area.

Southern Europe: the Pyrenees, the Alps.

Northern Europe: the Scandinavian Mountains, the Ural Mountains.

#### 3. Circle the coastal landforms and classify them in the table.

peninsulas: Balkan, Scandinavian, Italian; gulfs: Lion, Genoa, Bothnia; capes: Finisterre, North Cape, Matapan; islands: Iceland, Crete, Sicily.

### PAGE 83

#### 4. Match the three columns and write sentences.

The Mediterranean watershed has rivers with irregular flow, for example, the Rhone.

The Caspian Sea watershed has long rivers with abundant flow, for example, the Volga.

The Arctic watershed has rivers with abundant flow, for example, the River Pechora.

The Atlantic watershed has rivers with the most abundant flow, for example, the Rhine.

The Black Sea watershed has long rivers with abundant flow, for example, the Danube.

#### 5. Write the name of the corresponding European climate.

a. Oceanic; b. Mountain; c. Mediterranean; d. Continental; e. Polar.

#### 6. Choose the correct words to label the photographs.

tundra, Polar climate; taiga, Continental climate; Mediterranean shrubland, Mediterranean climate; Alpine forest, Mountain climate.

## 10. THE POPULATION AND ORGANIZATION OF EUROPE

### PAGE 84

#### 1. Complete the word map.

Europe has a population of over 700 million people; The population is ageing because of a low birth rate, low death rate and increasing life expectancy; Most of the population is concentrated in urban areas.

#### 2. Tick the countries in the eurozone. Then, colour the EU members blue on the map.

Eurozone: Austria; Belgium; Cyprus; Estonia; Finland; France; Germany; Greece; Ireland; Italy; Luxembourg; Malta; Netherlands; Portugal; Slovakia; Slovenia; Spain.

### PAGE 85

#### 3. Find the places and classify them in the table.

borders of Spain: France, Portugal, Andorra; Autonomous Community: Aragon, Galicia, Rioja, Extremadura, Andalusia; Autonomous City: Melilla, Ceuta; province: Salamanca, Caceres, Cordoba, Alicante, Tarragona.

#### 4. Match the institutions to the people. Then, complete the sentences and match them to the institutions.

a. Government: President, ministers; b. Head of State: King Juan Carlos I; c. Courts of Justice: judges, magistrates; d. Parliament: Senate, Congress of Deputies.

It is responsible for creating and approving laws, and for monitoring the government. (d)

He does not make political decisions or establish laws. (b)

It is responsible for governing the country according to the laws approved by Parliament. (a)

They are responsible for making sure that laws are enforced. (c)

## 11. SPAIN IN THE MODERN AGE

### PAGE 86

#### 1. Read the text about the discovery of America and cross out the mistakes. Then, write the correct text.

In 1492, Christopher Columbus, an Italian explorer, led an expedition to Asia, by sailing west across the Atlantic Ocean. He reached an island in the Caribbean Sea. The nearby continent was later named America. Columbus led three further expeditions to the New World.

#### 2. Choose only the words related to the consequences of the conquest of America. Then, write sentences in your notebook.

There was a large increase in world trade and new plants arrived in Europe.

The Spanish language and Catholic religion were imposed on people.

Spain became the most powerful empire in Europe.

#### 3. Read the text, then colour the territories of the Spanish Empire.

OA

## PAGE 87

### 4. Match the events to the king who was ruling at the time.

Charles I: National social revolts; Battles between France and Spain.

Philip II: Battle of Lepanto; The Eighty Years' War.

### 5. Who were these people?

- King of Spain between 1621 and 1665.
- Valido* of King Philip III.
- King of Spain between 1665 and 1700.
- An Archduke who claimed the throne after Charles II.
- King of Spain from 1713.

### 6. Tick the events that led to the War of Succession. Then, answer the questions.

b; d; e; f.

The Treaty of Utrecht recognized Philip V as King of Spain.

Philip V belonged to the House of Bourbon.

## 12. SPAIN FROM THE 18<sup>th</sup> CENTURY

## PAGE 88

### 1. Write two examples for each of the following categories from the 18<sup>th</sup> century.

MA

Bourbon Kings: Charles III; Charles IV.

Reforms: roads and canals were built to improve transport; royal factories and trading companies were created to stimulate the economy.

Scientific and cultural advances: museums and botanical gardens were created; daily newspapers were printed.

### 2. Match each date to its corresponding historic event.

a. The start of the War of Independence; b. The proclamation of the First Spanish Republic; c. The approval of the Constitution of Cadiz; d. The return of the absolute monarchy of Ferdinand VII; e. The establishment of a constitutional monarchy under Queen Isabella II; f. The reestablishment of the Bourbon monarchy under Alfonso XII.

### 3. Put the following events from the 20<sup>th</sup> century in order. Number them from 1 to 5.

1. The dictatorship of Primo de Rivera began; 2. The Second Spanish Republic was proclaimed; 3. The Spanish Civil War began; 4. The dictatorship of Francisco Franco began; 5. The transition to democracy began.

## PAGE 89

### 4. Read the sentences. Write *Second Spanish Republic*, *Dictatorship of General Franco* or *Transition into democracy*.

a. Transition into democracy; b. Second Spanish Republic; c. Dictatorship of General Franco; d. Second Spanish Republic; e. Dictatorship of General Franco; f. Transition into democracy.

### 5. Complete the table about the Spanish democratic presidents.

president: Adolfo Suarez Gonzalez, Leopold Calvo Sotelo, Felipe Gonzalez Marquez, Jose Maria Aznar Lopez, Jose Luis Rodriguez Zapatero, Mariano Rajoy Brey;

political party: UCD, UCD, PSOE, PP, PSOE, PP;

time in office: five years (1976-1981), two years (1981-1982), 14 years (1982-1996), eight years (1996-2004), seven years (2004-2011), won the 2011 general elections.

### 6. Find the date of each event. Then, write it to complete the corresponding sentences.

a. 1978; b. 1986; c. 1997; d. 2002; e. 2004; f. 2011.



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