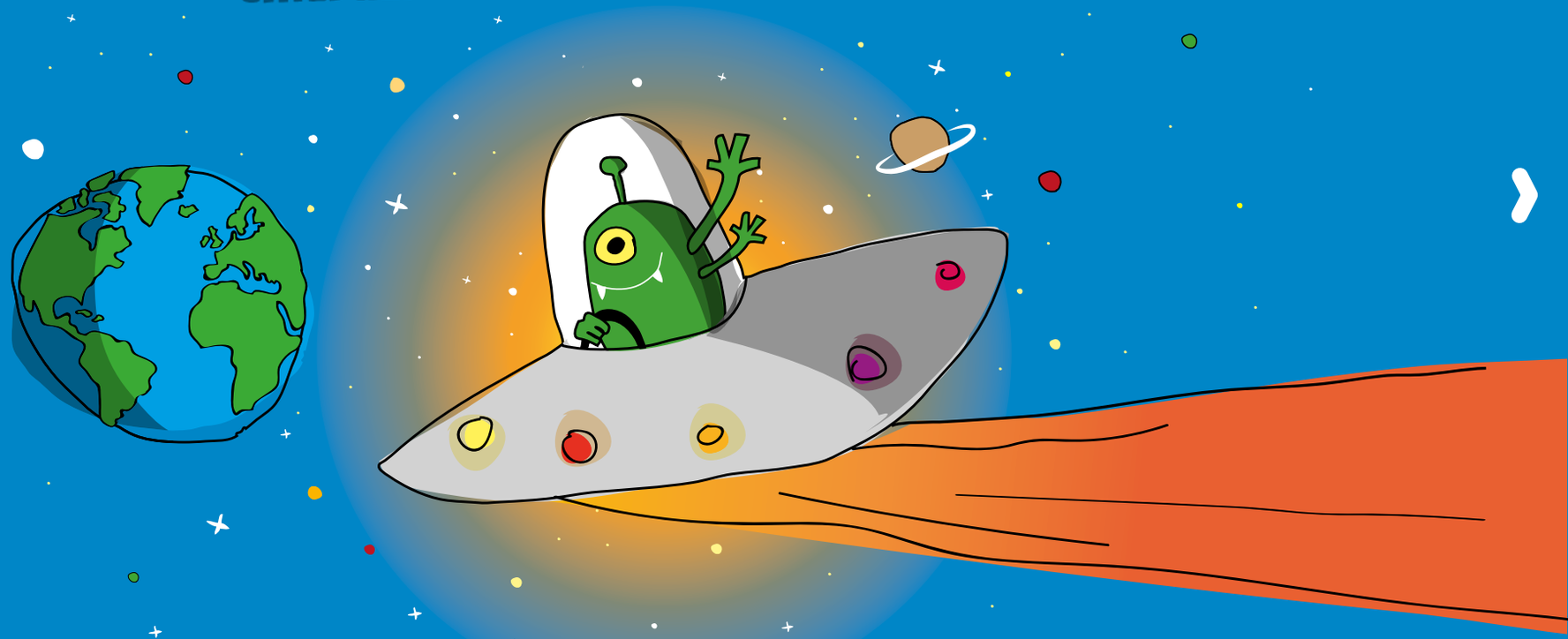
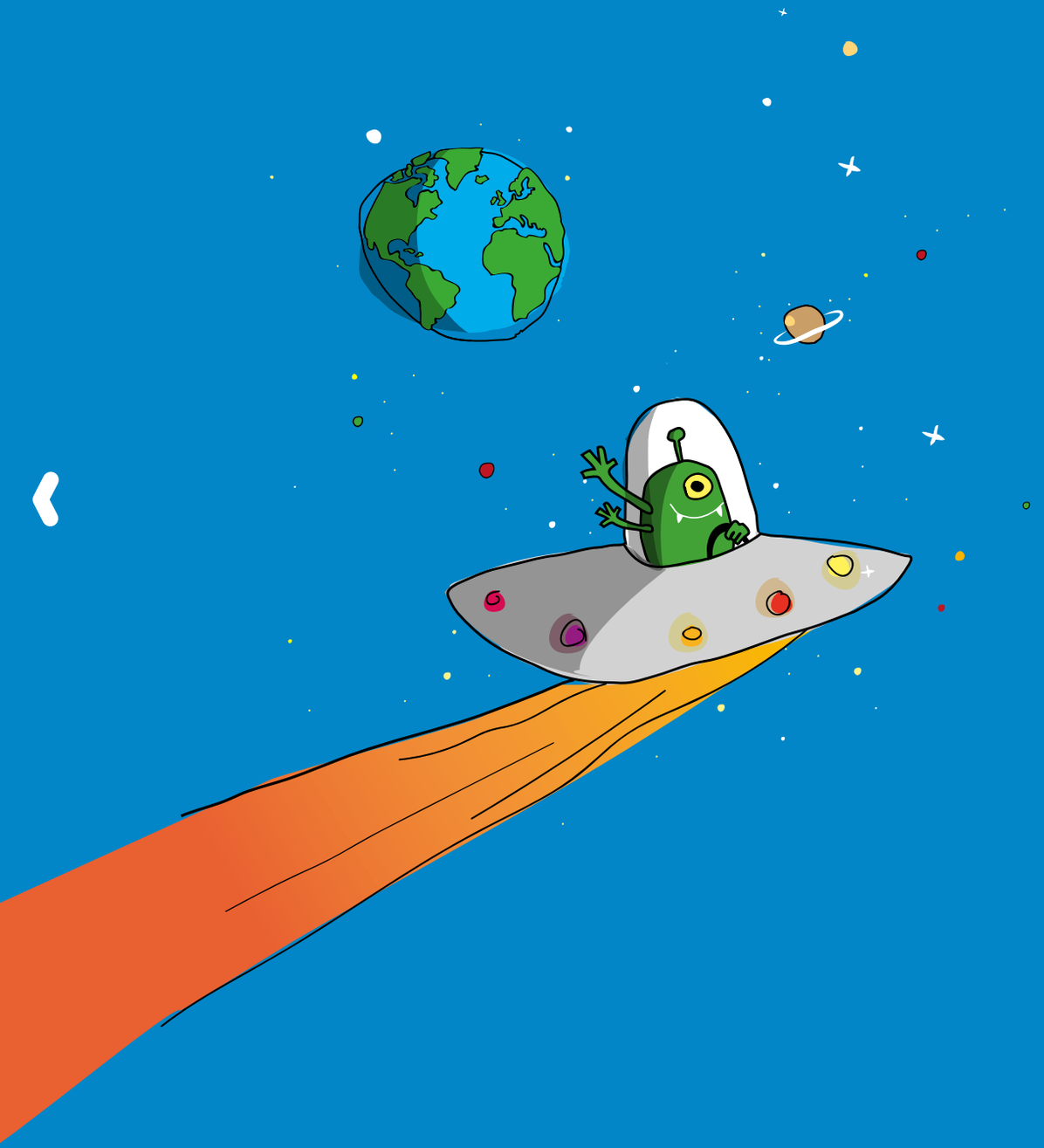
GEO EXPLORER

CHILDREN'S ACTIVITY NOTEBOOK



GOBIERNO DE ESPAÑA
MINISTERIO DE TRANSPORTES, MOVILIDAD Y AGENDA URBANA
INSTITUTO GEOGRÁFICO NACIONAL
cnig
150 Instituto Geográfico Nacional 1870-2020

NATIONAL CENTRE OF GEOGRAPHIC INFORMATION



GEO EXPLORER

Children's activity notebook from the National Centre of Geographic Information designed for beginners to have fun as they start learning about geography and the Earth sciences through games and experiments.

It is aimed at children from 6 years on.

The notebook is divided into four sections:

- **Astronomy**
- **The Earth**
- **Maps**
- **Geography**

In each of these sections, a series of activities is proposed on the front page whose solutions can be found on the reverse side. These are supplemented by additional information of interest to keep learning, visits and web resources are proposed through QR codes that can be scanned with a mobile phone.

At the end of each section an experiment and a project are suggested to develop creativity and manual skills.

The last pages of the notebook have stickers and stencils that will be used in the different activities.

GeoExplorer. Children's activity notebook.

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GOBIERNO DE ESPAÑA
MINISTERIO DE TRANSPORTES, MOVILIDAD Y AGENDA URBANA
INSTITUTO GEOGRÁFICO NACIONAL

National Centre of Geographic Information
National Geographic Institute of Spain
Calle General Ibáñez de Ibero, 3. 28003 Madrid
www.ign.es
consulta@cnig.es

NATIONAL GEOGRAPHIC INSTITUTE

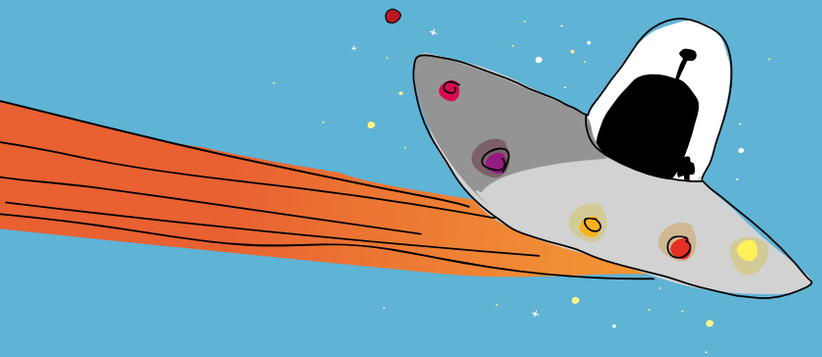
The National Geographic Institute of Spain (IGN) is a public institution founded in 1870 that is responsible for observing, measuring and collecting geographic information from all over Spain.

It has other important roles, such as monitoring volcanoes, providing earthquake warnings and also works in astronomy, space observation and developing technology that helps in research.

The National Center for Geographic Information is responsible for publishing and sharing results prepared by the IGN, both on the website and in the House of Maps shops, and also has a line of printed and digital educational materials, such as this notebook.

The National Centre of Geographic Information has invited GeoExplorer to help you discover a whole lot of things about our planet and to have some fun.

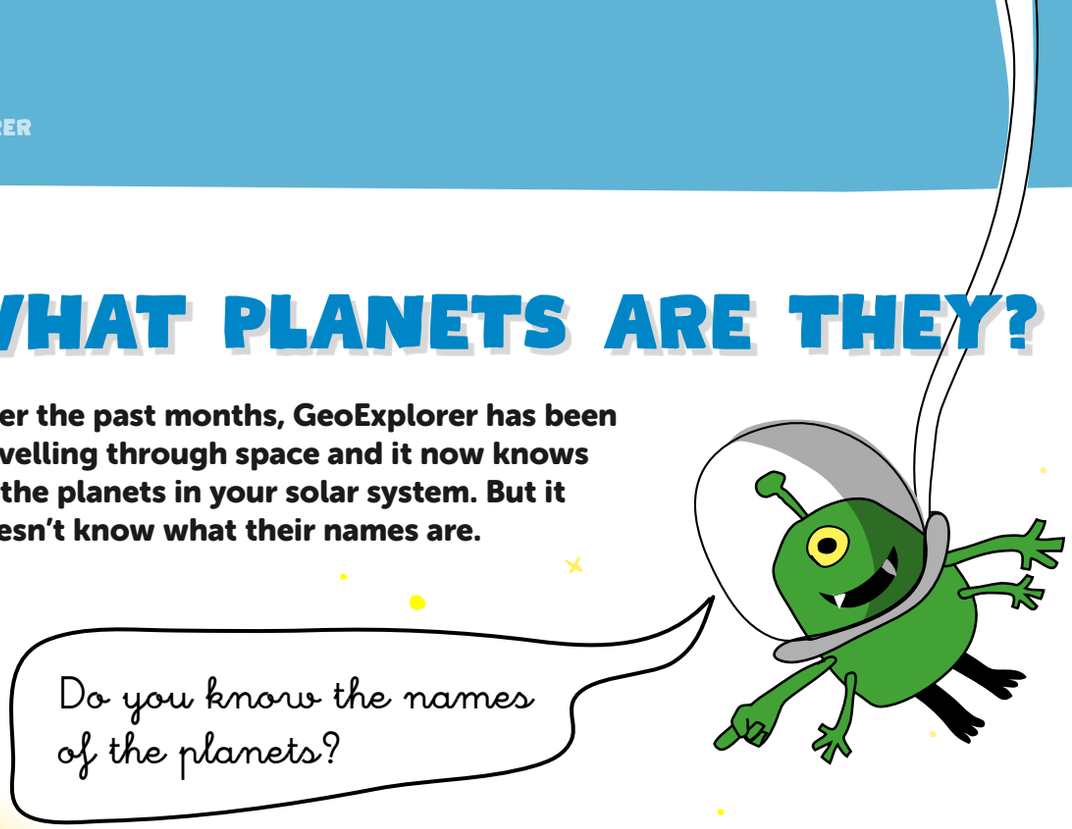
And if you want to continue learning much more, be sure to visit the IGN's educational resources at www.ign.es

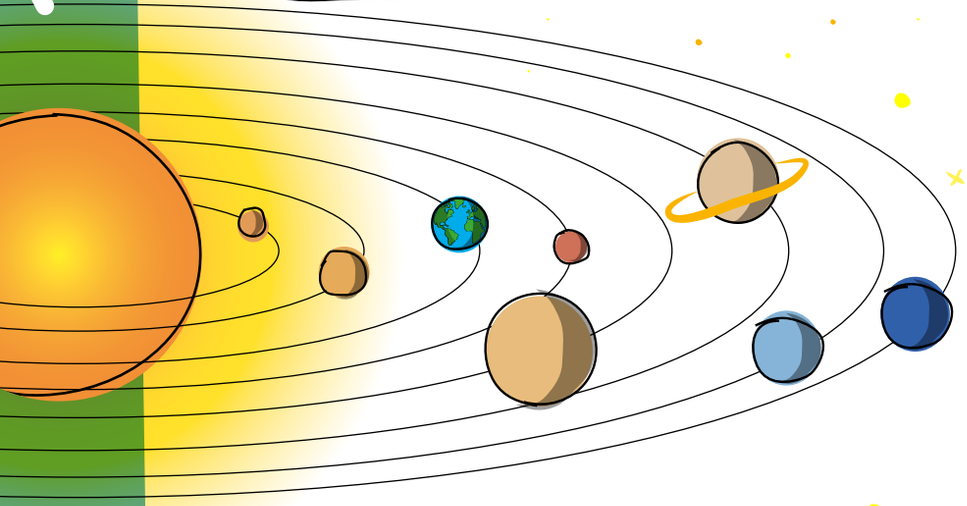


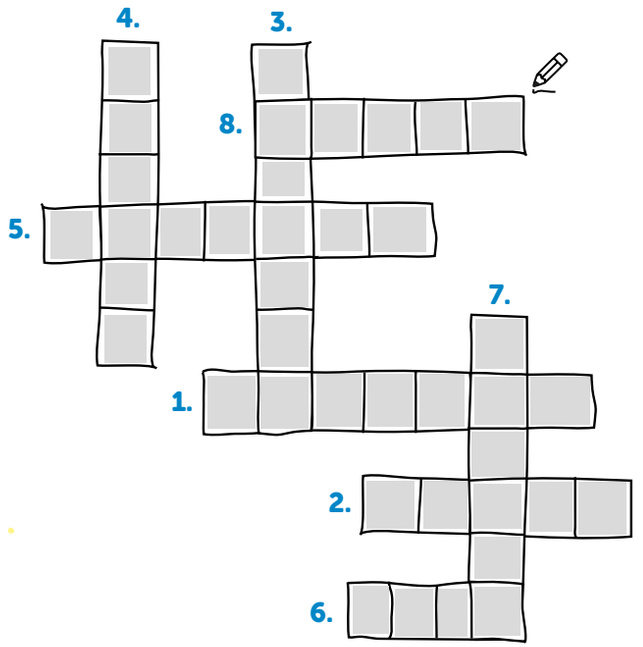
ASTRONOMY

WHAT PLANETS ARE THEY?

Over the past months, GeoExplorer has been travelling through space and it now knows all the planets in your solar system. But it doesn't know what their names are.







Clues:

1. There is a planet I was very hot in because it is the closest to the Sun and burns.

2. This one has been given the name of a goddess who appears in a famous painting that I will see when I get to Earth, in the city of Florence (Italy).

3. The farthest away in the solar system, where it took me a long time to arrive. Which one is it?

4. A fascinating planet that is surrounded by rings.

5. The planet that took me the most amount of time to travel around, as it is the biggest in the solar system.

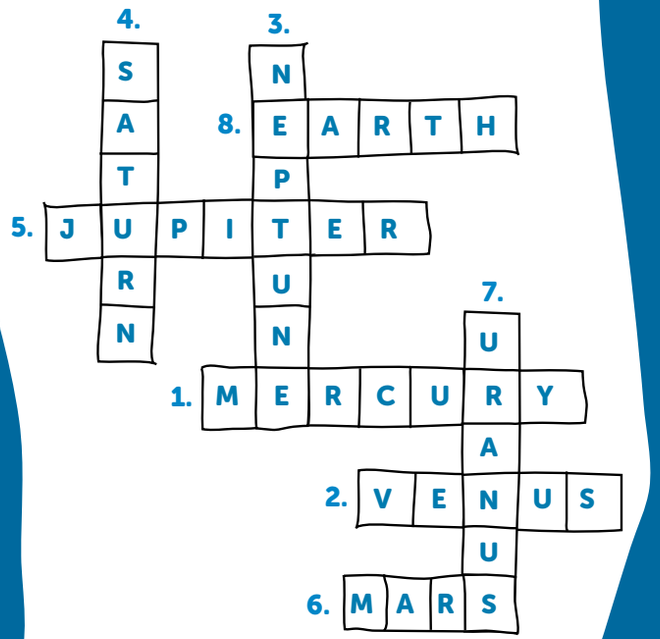
6. I was on another that is reddish in colour and has a lot of volcanoes.

7. Another planet is located between Neptune and Saturn. Do you know which one it is?

8. I like the planet where you live so much that I think I'm going to stay here long enough to explore. What is it called?

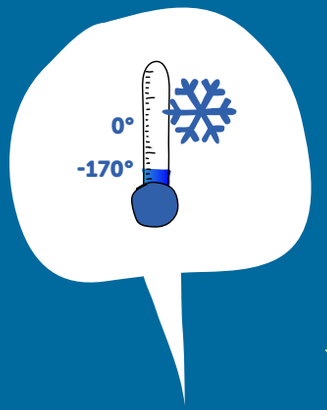
SOLUTION

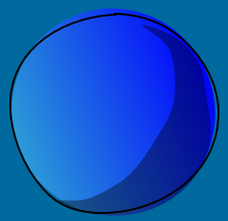
1. Mercury; **2.** Venus; **3.** Neptune;
4. Saturn; **5.** Jupiter; **6.** Mars;
7. Uranus; **8.** Earth.



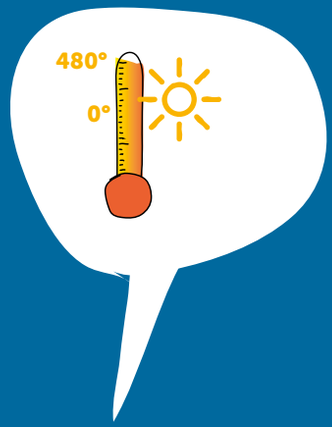
DO YOU KNOW WHICH PLANETS HAVE THE HIGHEST TEMPERATURES AND WHICH ONES HAVE THE LOWEST?

Neptune is the coldest planet with temperatures up to 170 degrees Celsius below zero as it is the planet that is farthest away from the Sun. On the other hand, Venus has extremely high temperatures of up to 480 degrees Celsius.





NEPTUNE



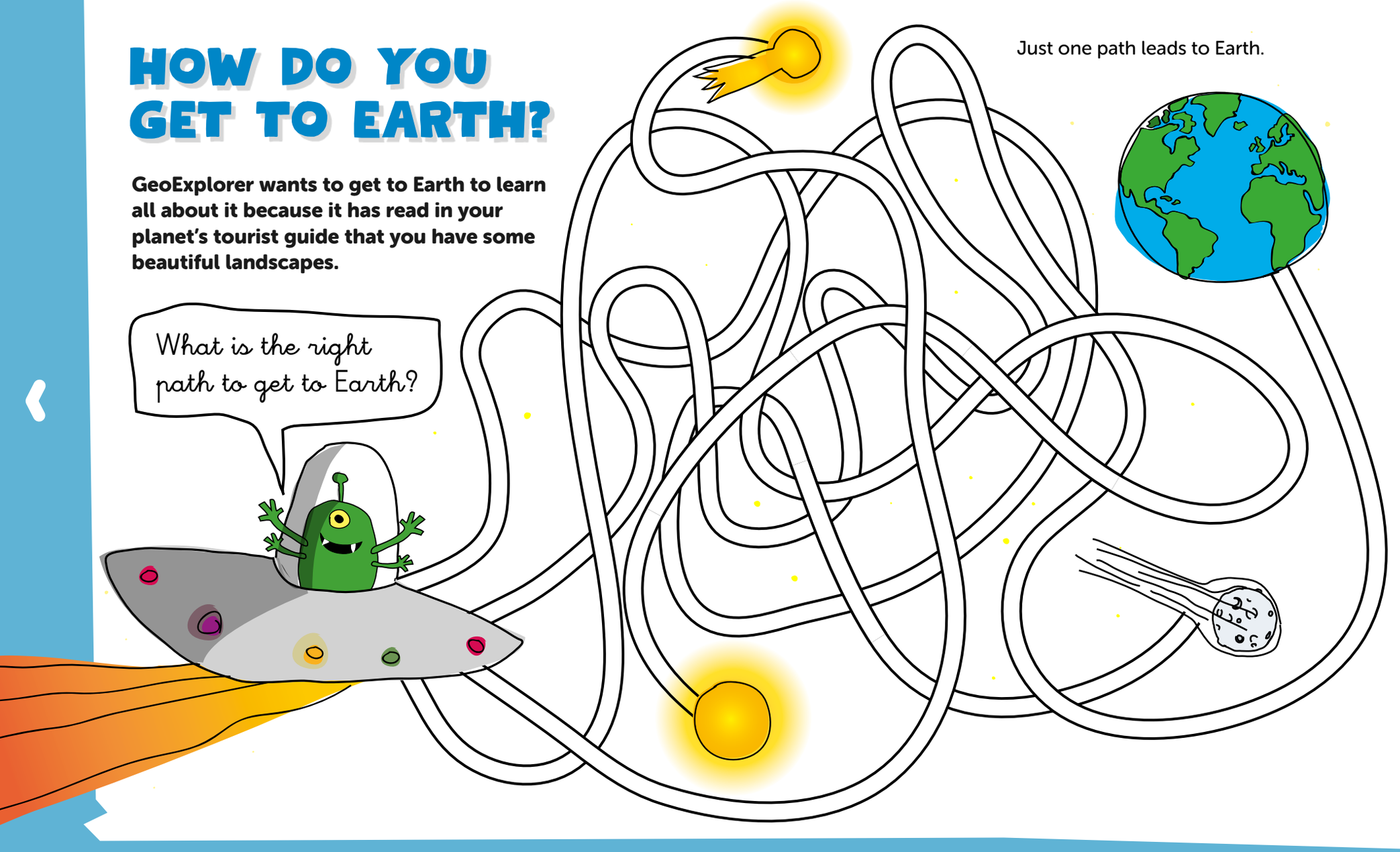
VENUS

DO YOU WANT TO DO MORE RESEARCH?

You can visit the Yebes Astronomy Center in Guadalajara, where you are going to have amazing first-hand experiences.

HOW DO YOU GET TO EARTH?

GeoExplorer wants to get to Earth to learn all about it because it has read in your planet's tourist guide that you have some beautiful landscapes.



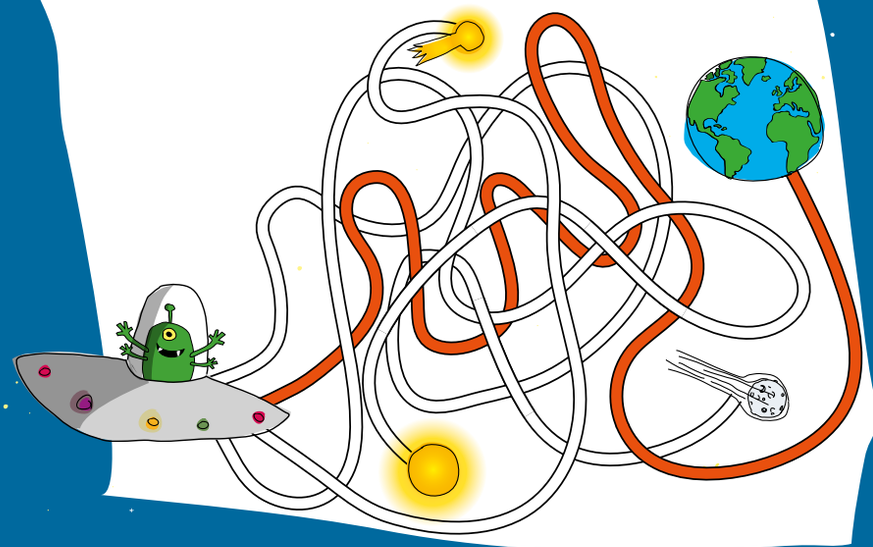
SOLUTION

In this maze, just one path reaches Earth. The others lead to stars, asteroids and comets. Do you know what they are?

Stars are huge balls of gas and can shine with their own light. That's why we see them from our planet.

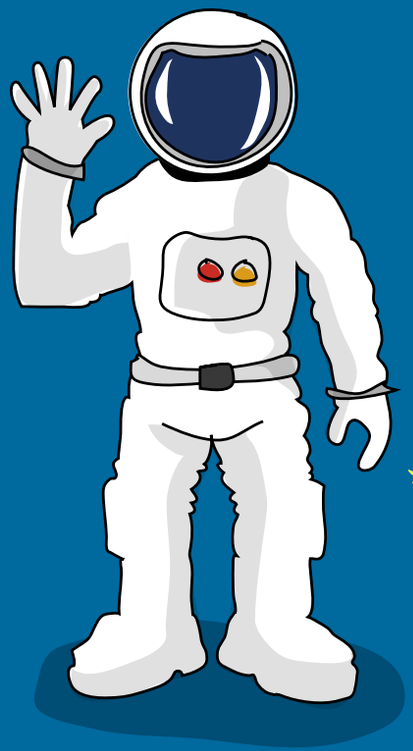
Asteroids are rocky objects, smaller than a planet. They are located around the Sun or float around the larger planets.

Comets are celestial bodies that are made up of ice, dust and rocks. They orbit around the Sun, and when they get close to it they leave a luminous tail behind them.



DO YOU KNOW WHEN THE FIRST HUMAN BEING TRAVELLED TO OUTER SPACE?

The first manned flight from Earth to outer space took place in 1961. Russian cosmonaut Yuri Gagarin was the first person who saw the Earth from space.

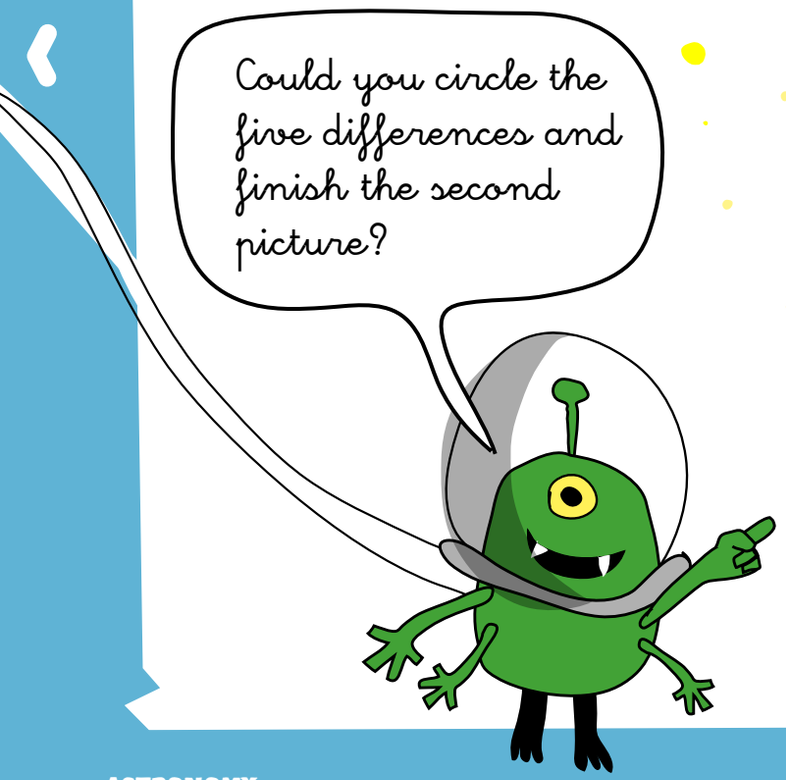


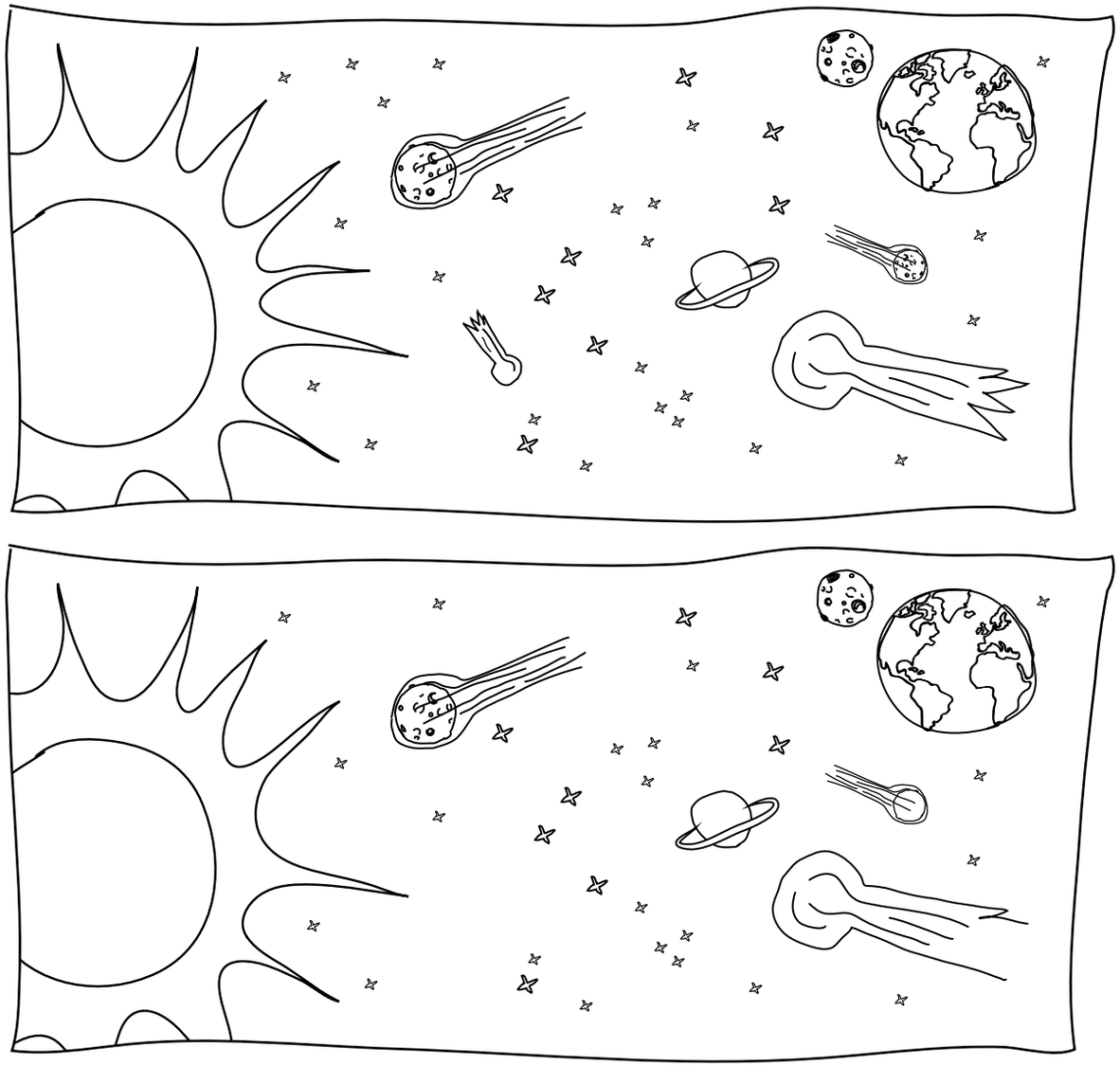
DO YOU WANT TO DO MORE RESEARCH?

Scan the QR code below to visit the Royal Observatory in Madrid, you are going to love it.

FIND THE FIVE DIFFERENCES

GeoExplorer took two photographs from space on its way to your planet, but it has found that in one of them some things have been lost.

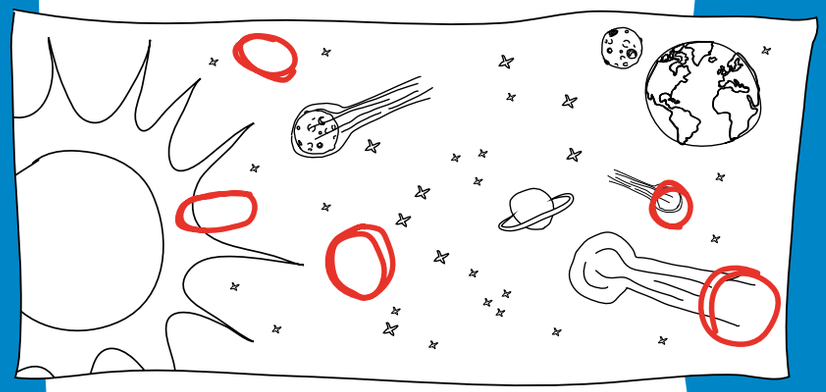




SOLUTION

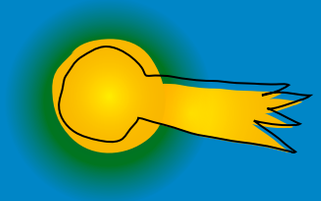
The Sun and the planets are not the only stars we can find in space.

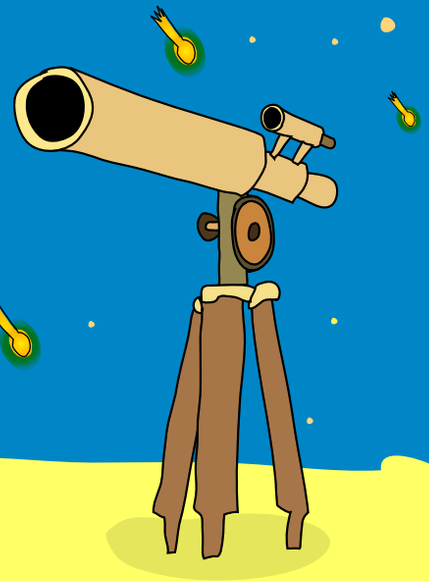
There are a multitude of stars, asteroids and comets that can be seen on clear nights. And although at times it seems we can touch them with our hands, it should be remembered that they are hundreds of thousands of kilometres from the Earth.



DO YOU KNOW WHICH COMET IS THE MOST FAMOUS?

Halley's Comet, which goes around the Sun approximately every 76 years. It was seen the last time in 1986 and we will see it again in 2061, so start getting ready!





DO YOU WANT TO DO MORE RESEARCH?

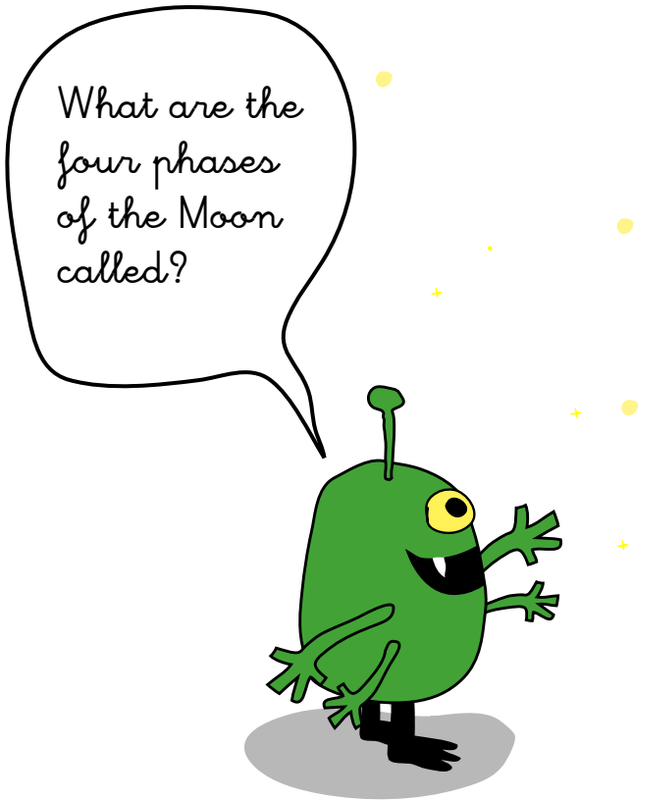
If you look up at the sky at night, around mid-August, in a place far from the city lights you will be able to see a meteor shower.

Scan the QR code below for more information:

HOW MANY PHASES DOES THE MOON HAVE?

Connect each name with its picture.

Watching from Earth, GeoExplorer has seen the moon with four different shapes.

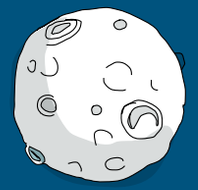


_E_ MOON

_I_S_QUARTER

F_ _L MOON

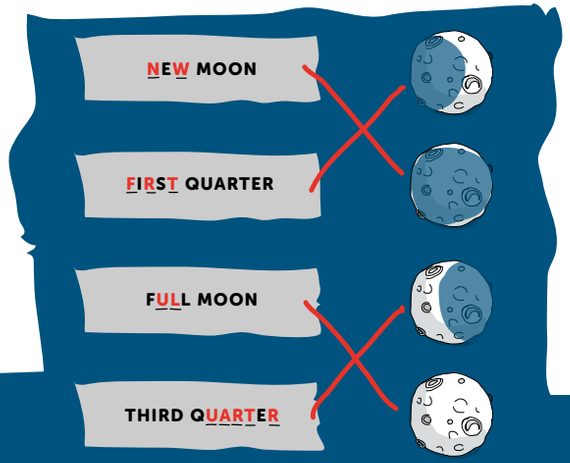
THIRD Q_____E_



SOLUTION

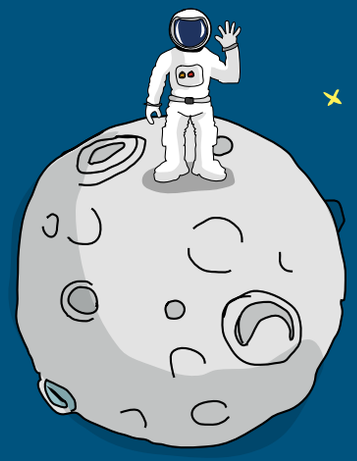
Depending on how rays from the Sun reach the Moon, from Earth we see the Moon illuminated in different ways, which we call the phases of the Moon:

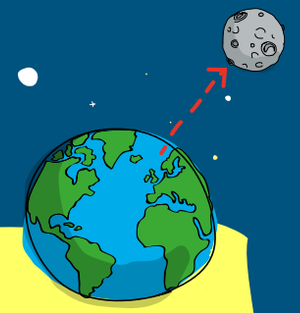
- **New Moon:** This is the Moon we cannot see from Earth, because from our planet we only see the part that is not illuminated.
- **First Quarter:** The bright side grows little by little as the Moon moves away from the Sun, taking on the form of the letter D.
- **Full Moon:** From Earth, the entire surface of the Moon can be seen illuminated by the light of the Sun.
- **Third Quarter:** The illuminated part gets smaller and smaller, taking on the form of the letter C.



DO YOU KNOW THAT HUMAN BEINGS HAVE ALREADY VISITED THE MOON?

NASA launched Apollo 11 into space on 16 July 1969. On 20 July, it had already landed on the lunar surface and two astronauts, Neil Armstrong and Edwin Aldrin, were able to step on its surface and walk around on it.

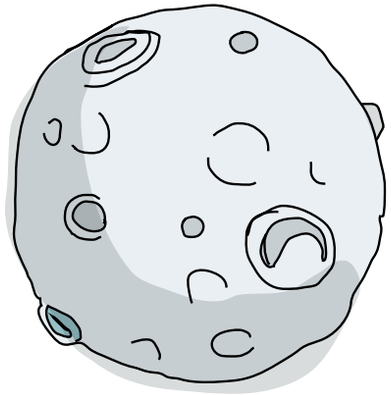




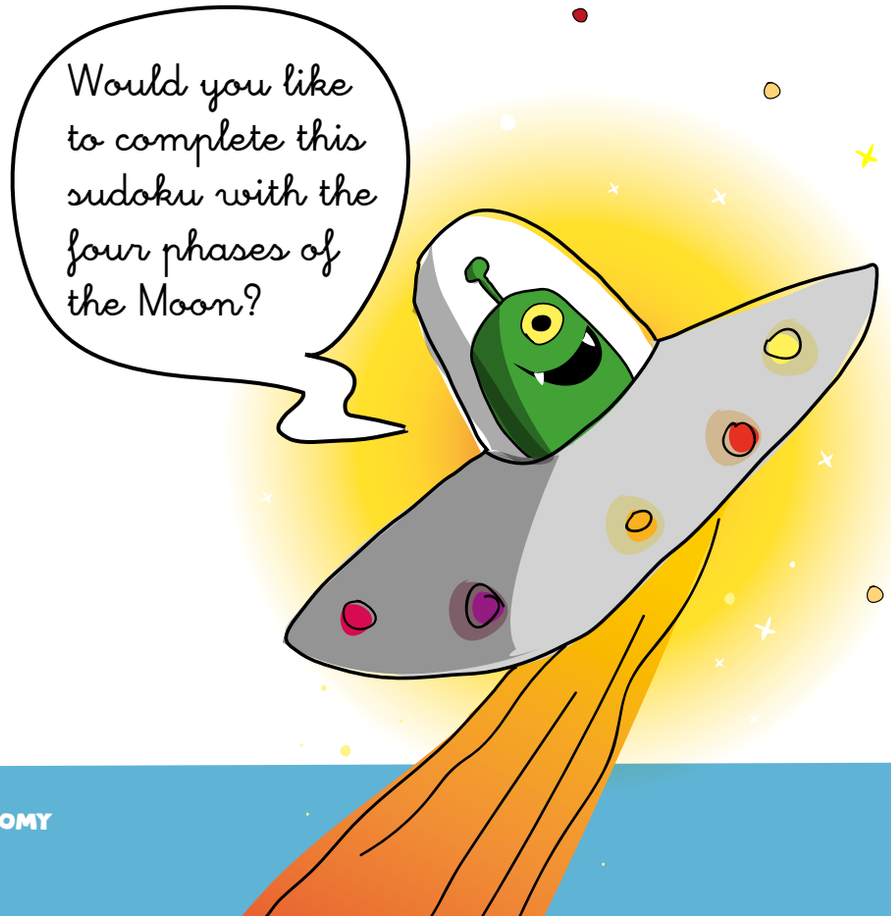
DO YOU WANT TO DO MORE RESEARCH?

If you want to know more about man's arrival on the Moon, you can go to the Space Centre and Lunar Science-Museum in Fresnedillas de la Oliva (Madrid).

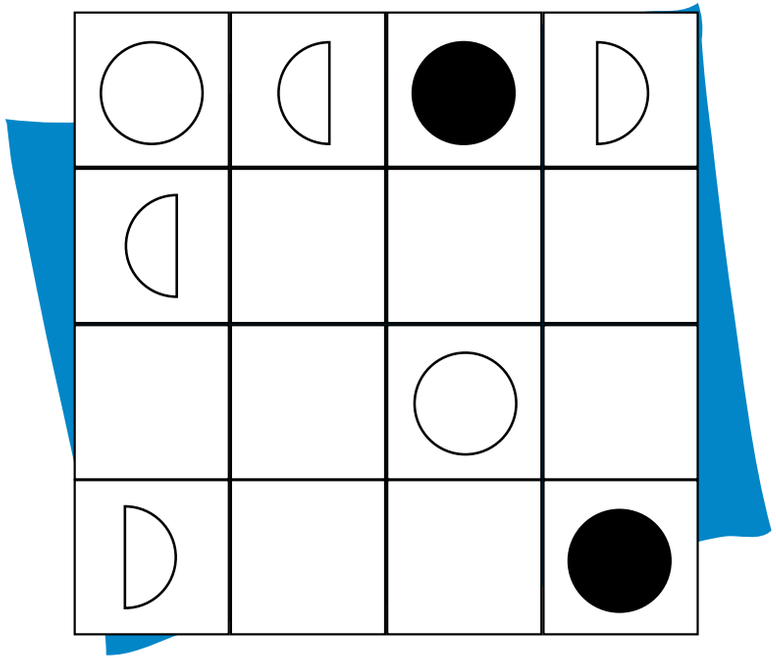
MOON SUDOKU



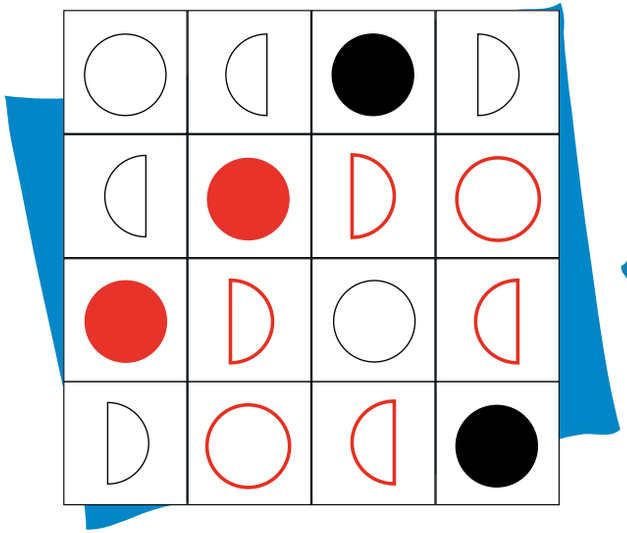
GeoExplorer is going on a research trip to the Moon and needs to learn a little bit more. From Earth, it can see that the Moon keeps changing what it looks like.



Attention!
Each moon cannot be repeated in the same row or in the same column.



SOLUTION



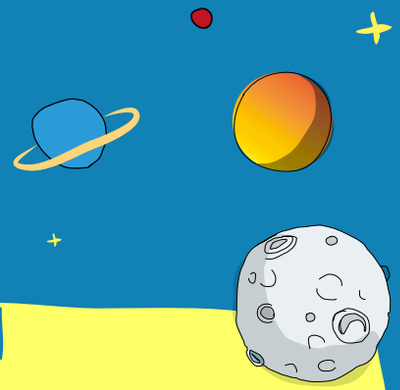
Did you know that the first quarter and third quarter moons are backwards in the Southern Hemisphere?

FIRST QUARTER

THIRD QUARTER

DO YOU KNOW WHY THE FOOTPRINT OF THE FIRST MAN TO SET FOOT ON THE MOON IS STILL INTACT?

Because there are no atmospheric elements or water on the Moon. So, as there is no wind, or rain, or snow, etc., the footprint is not erased.

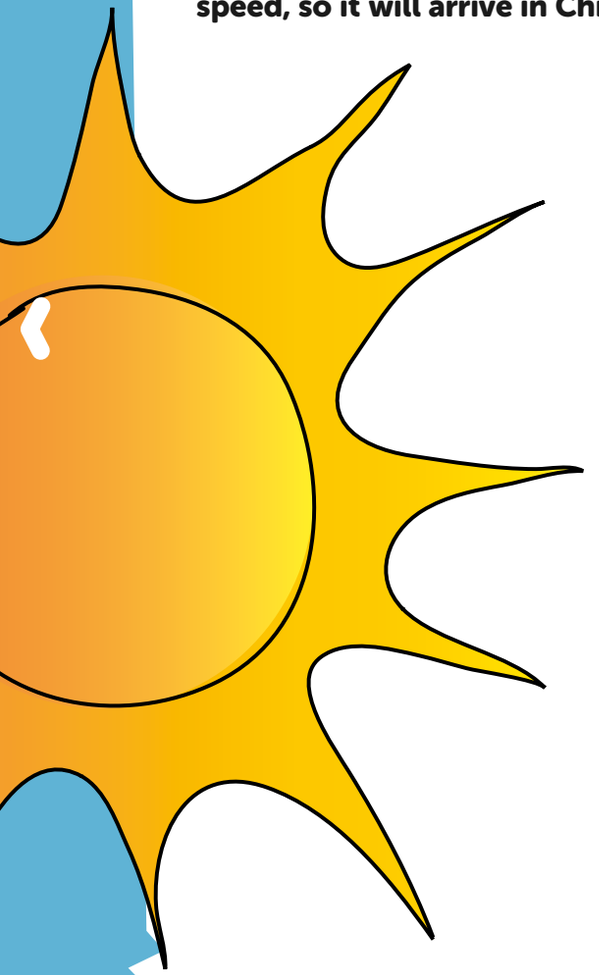


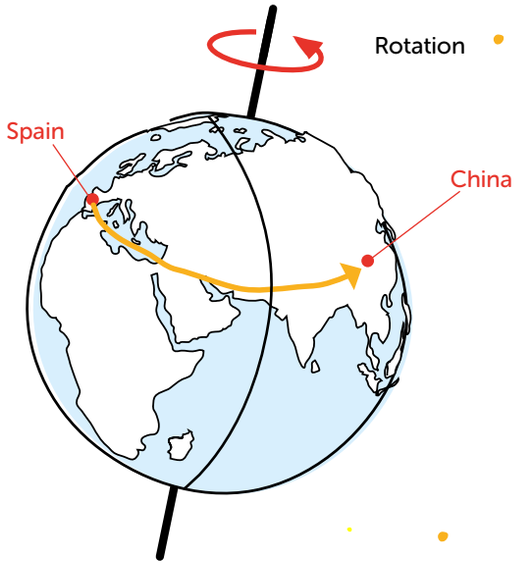
DO YOU WANT TO DO MORE RESEARCH?

If you want to know more about the phases of the Moon and its relationship to our planet, you can watch this video from the European Space Agency.

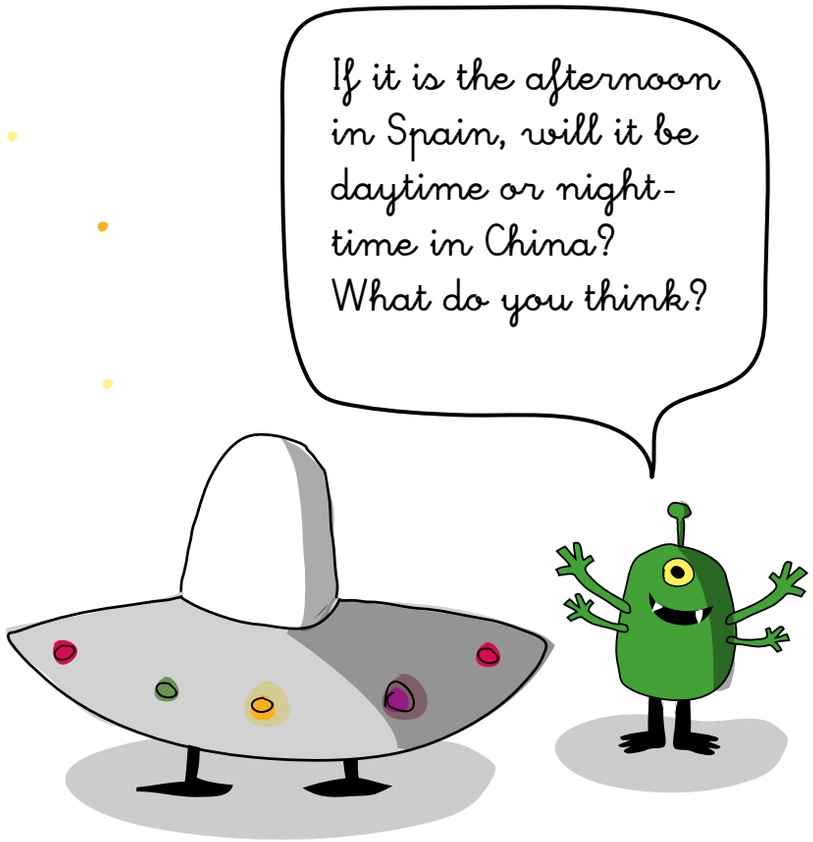
LET'S GO ON A TRIP

GeoExplorer leaves at 4:00 pm on a trip from Spain to China to visit its cousin, who has arrived from another galaxy. It will travel at supersonic speed, so it will arrive in China in a few seconds.





Colour the area of the world globe where it is day in yellow, and the area where it is night in black.

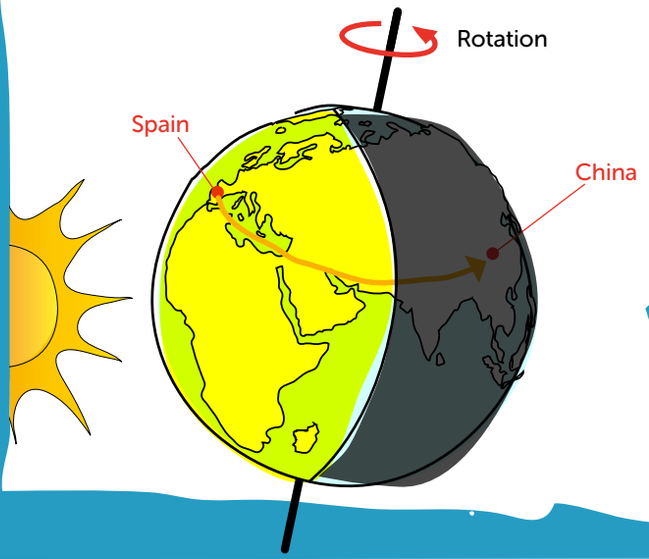


SOLUTION

The Earth rotates on its own axis and takes one entire day to do so, that is, 24 hours. This is the rotational movement.

The Earth receives the light from the Sun and, as it rotates, the countries get the sunlight. Thus, in the countries getting sunlight it is day, and in the countries where the sunlight does not reach them directly, it will be night.

So, while in Spain it is day, in China it will be night.

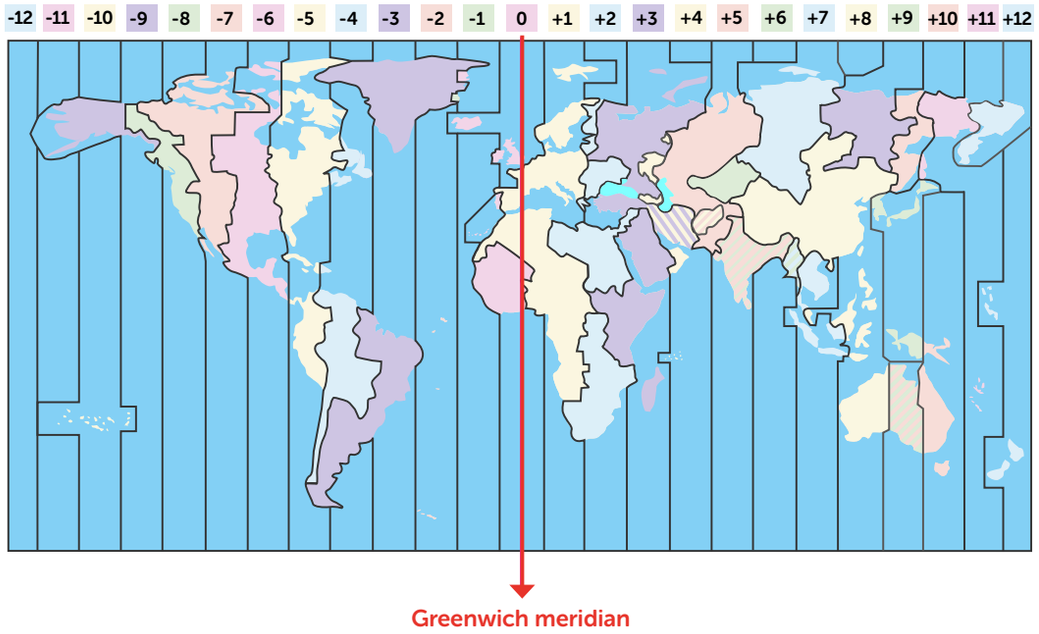


DO YOU KNOW WHAT TIME ZONES ARE?

The Earth is divided into 24 time zones with different time because it takes 24 hours to rotate on its axis. The Greenwich meridian marks the origin of the time zones.

To the right of the Greenwich meridian, one hour is added for each time zone.

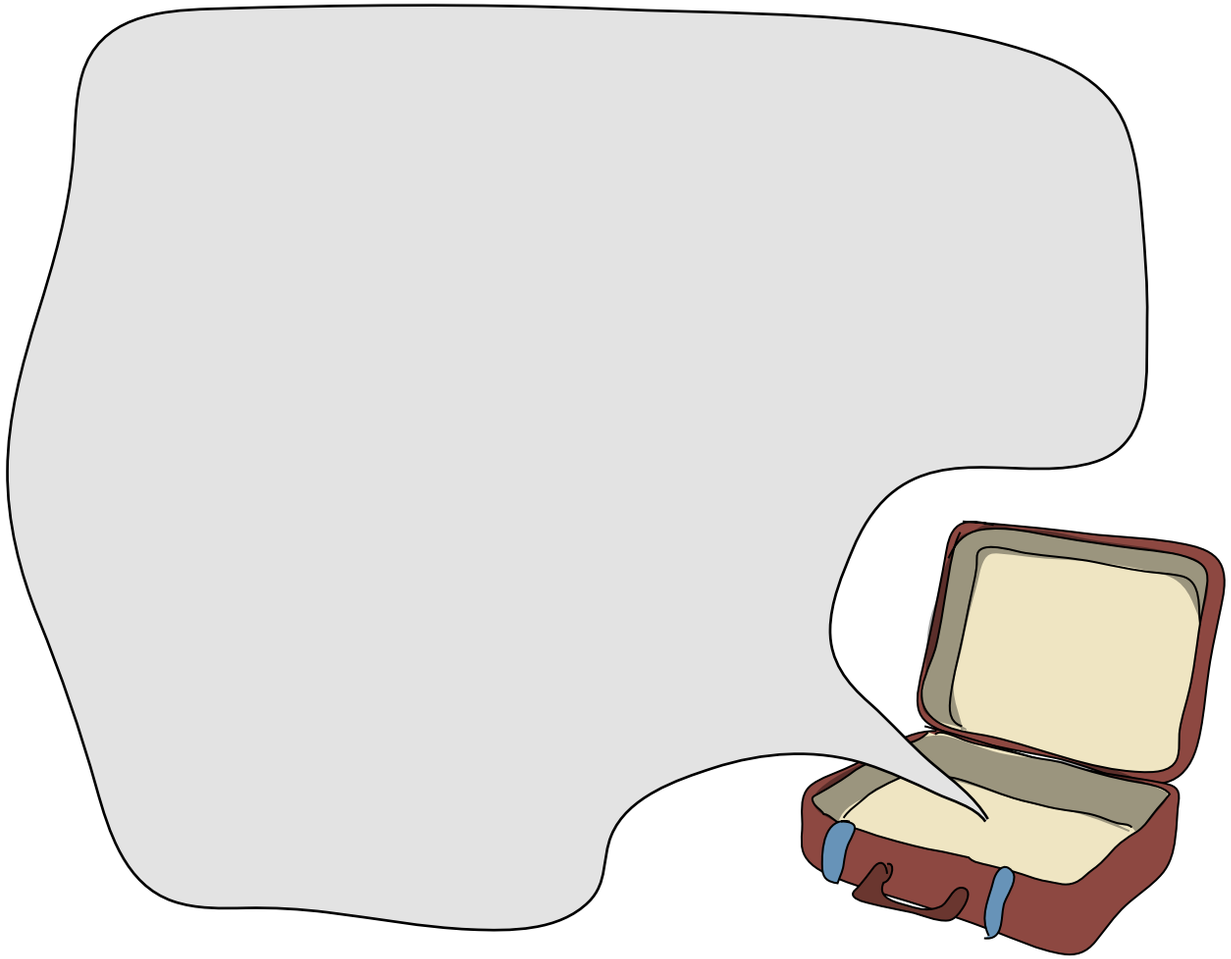
To the left of the Greenwich meridian, one hour is subtracted for each time zone.



WHAT SEASON WILL IT BE?

This year, in August, GeoExplorer has decided to travel on holiday to Argentina. But it doesn't know what type of clothing to put in its suitcase because it doesn't know if it will be summer or winter there.

Draw the clothes that GeoExplorer will need to bring to Argentina.

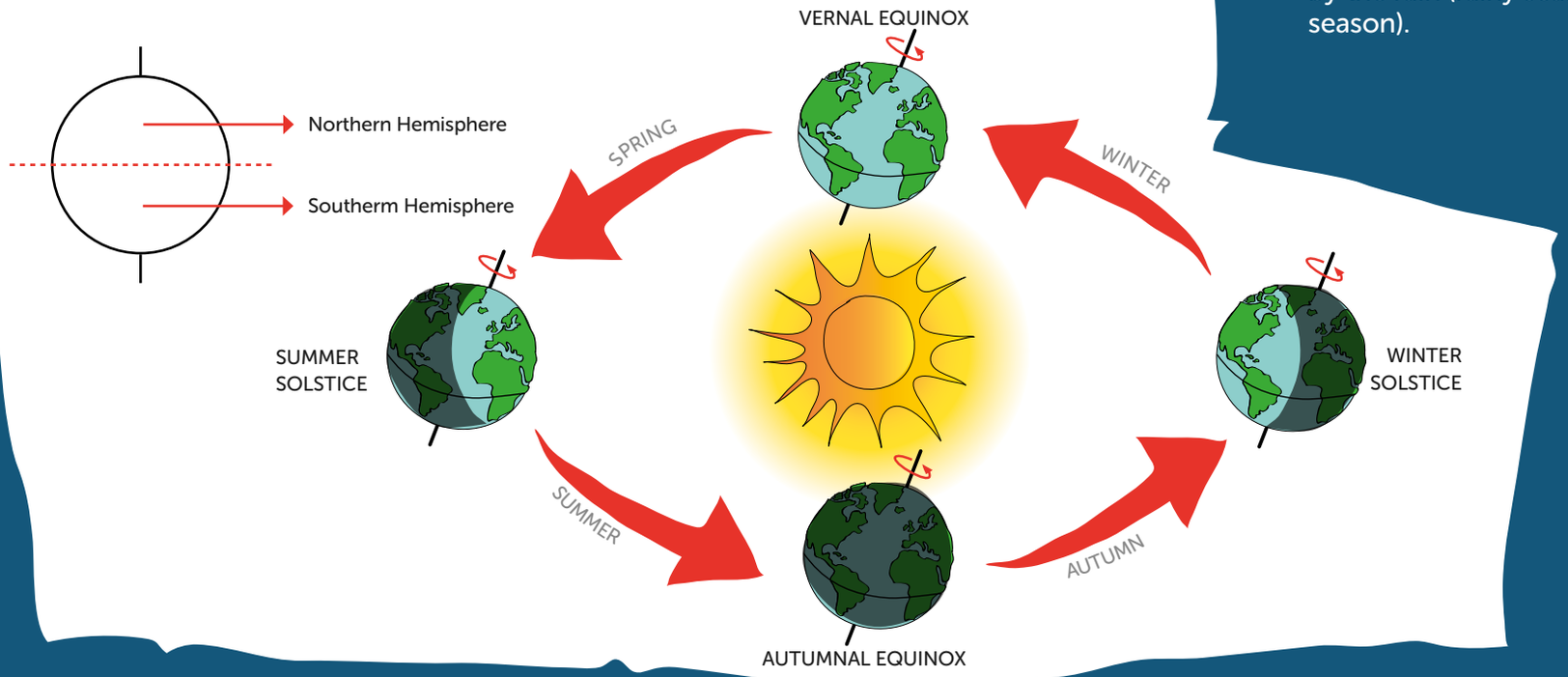


SOLUTION

As the Earth is tilted in its rotation around the Sun, the hemisphere that faces towards the Sun receives more heat and it is summer. In the other hemisphere, it will be winter. If it is summer in Spain, it is winter in Argentina, because Spain is located in the Northern Hemisphere and Argentina is in the Southern Hemisphere.

Therefore, our friend GeoExplorer will have to bring a coat, hat, scarf, gloves and everything necessary so he won't be cold.

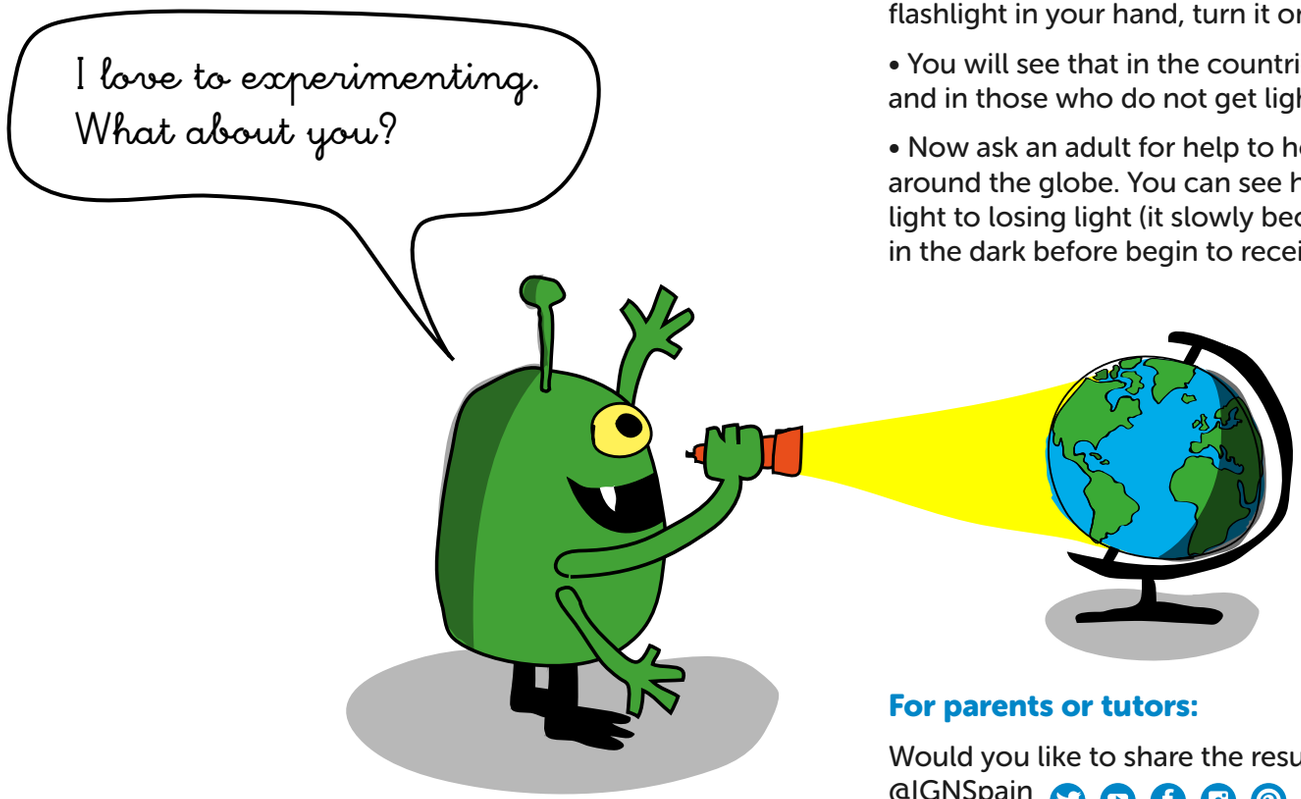
The movement of the Earth around the Sun, which lasts 365 days, is called translation movement. Along with the tilt of the Earth's axis, this is what causes the seasons: spring, summer, autumn and winter.



DO YOU KNOW IF THERE ARE FOUR SEASONS EVERYWHERE ON THE PLANET?

Not everywhere on the planet experiences the four seasons. For example, in areas near the Equator there are only two. And the seasons there differ not by temperature (hot or cold), but by the rain (rainy season and dry season).

EXPERIMENTING: WHERE IS IT DAY AND WHERE IS IT NIGHT?



Tip

Ask an adult to do the experiment with you and enjoy the experience together.

What are you going to need?

Materials: World globe and flashlight.

How do you do it?

• Turn off the lights in a room and leave your globe on a table, pick up a flashlight in your hand, turn it on and shine the light on Spain.

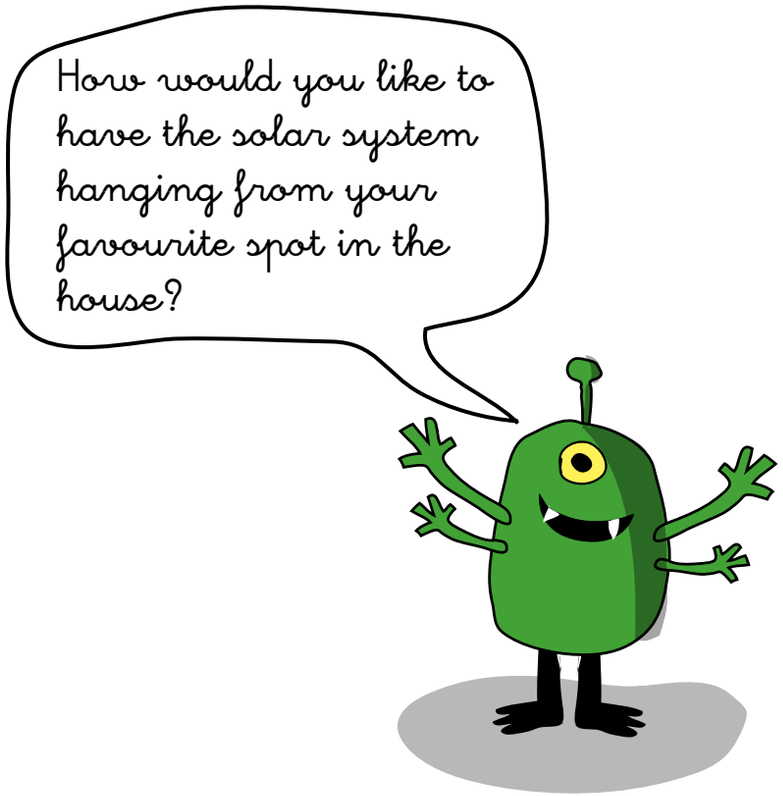
• You will see that in the countries that remain illuminated it is daytime and in those who do not get light from the flashlight, it is night.

• Now ask an adult for help to hold the lit flashlight while you walk slowly around the globe. You can see how, little by little, Spain goes from getting light to losing light (it slowly becomes night) and the countries that were in the dark before begin to receive light (it starts becoming day).

For parents or tutors:

Would you like to share the results of the experiment on our social media?
@IGNSpain

CREATING: DESIGN YOUR OWN SOLAR SYSTEM



What are you going to need?

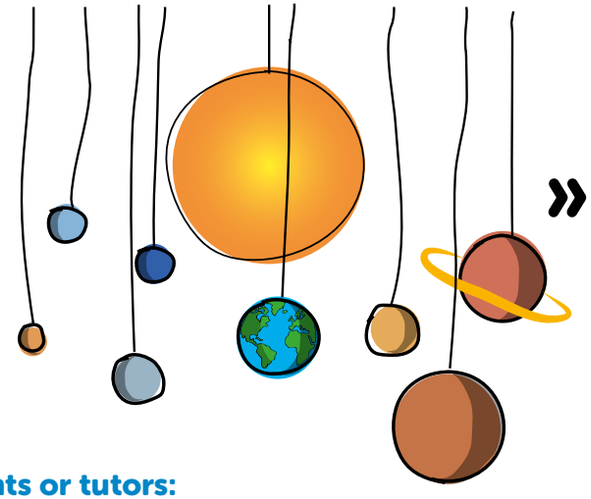
Materials: Stencils of the planets that you can find at the back of the notebook, glue, your favourite colours, string and sticks (they can be from some shoes, sticks you find in the country, etc.).

How do you do it?

• Cut out the planets and the Sun you will find at the back of your notebook and glue together both halves of each planet, leaving the part with the drawing on the outside. Later you can colour them.

• Join two sticks in the shape of a cross: to tie them together you can use string or twine. Make a tiny hole in the upper part of each planet and hang them from the sticks with the string.

• Finally, connect a piece of string or twine to hang it from the ceiling in your favourite spot.



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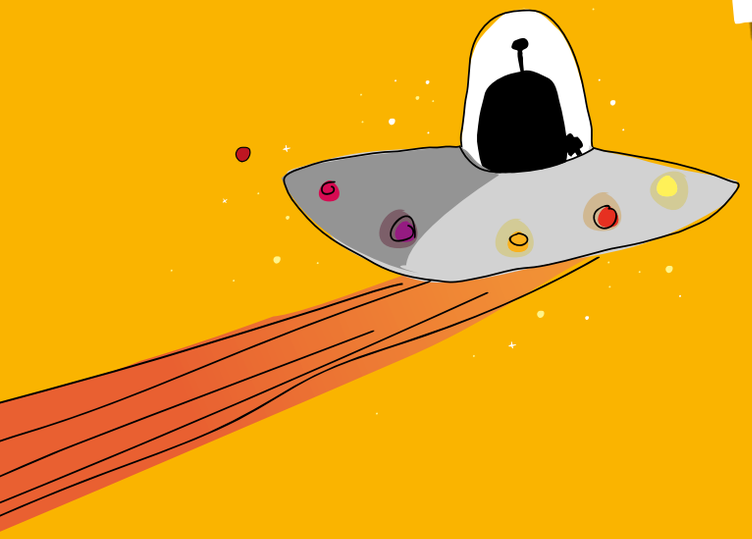
THE EARTH

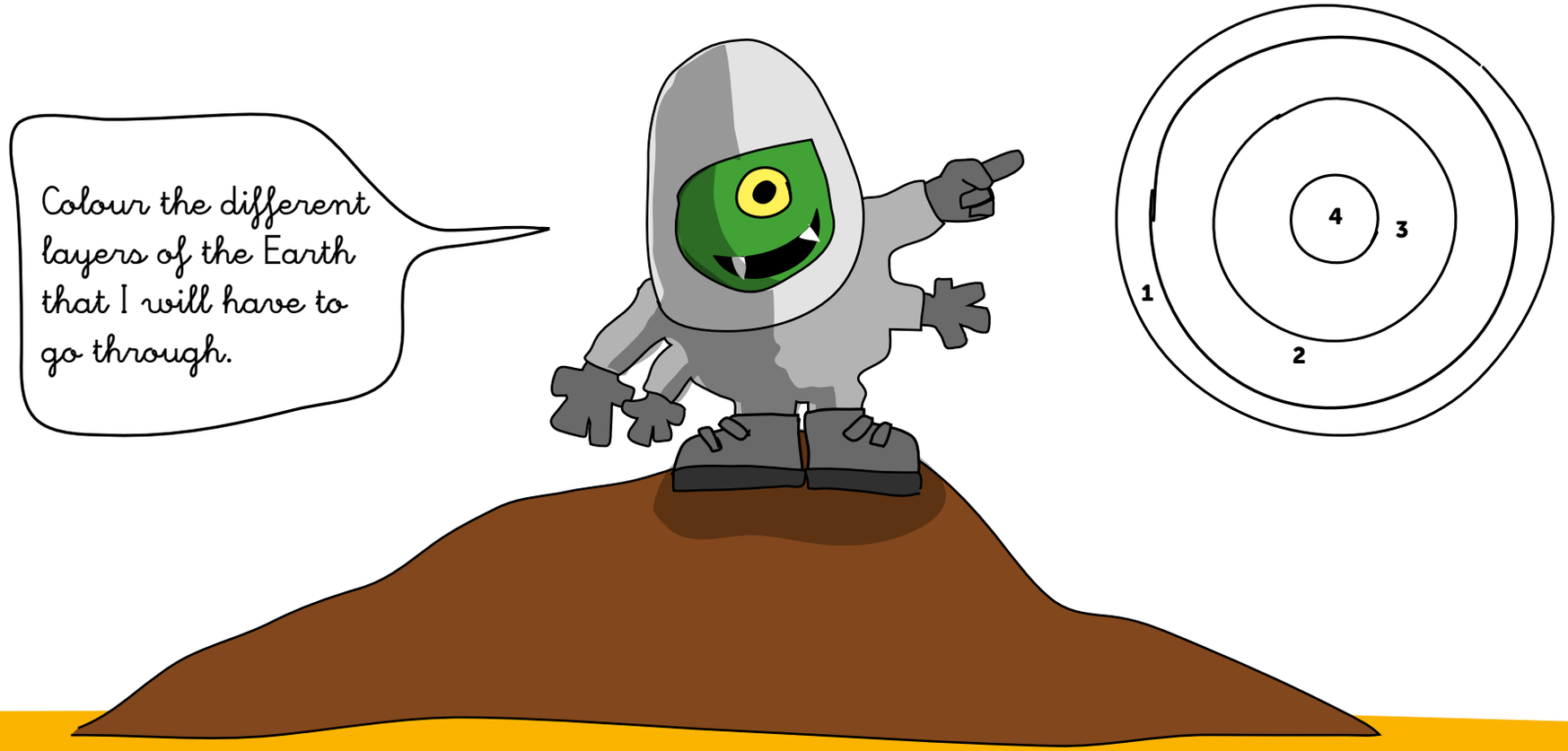


EXPLORING THE INSIDE OF THE EARTH

GeoExplorer is going to begin a journey to the inside of the Earth. It has put on its special suit, because it has studied that on the inside of your planet it is so hot that there can be materials that are very hot and even melted.

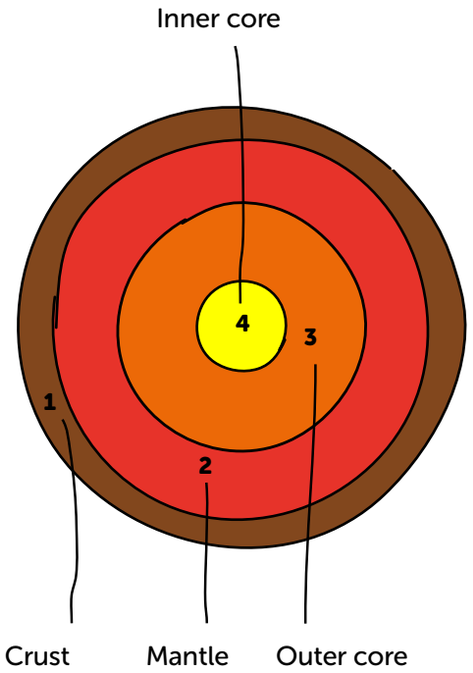
Use the following colours:

1. Crust = brown
2. Mantle = red
3. Outer core = orange
4. Inner core = yellow



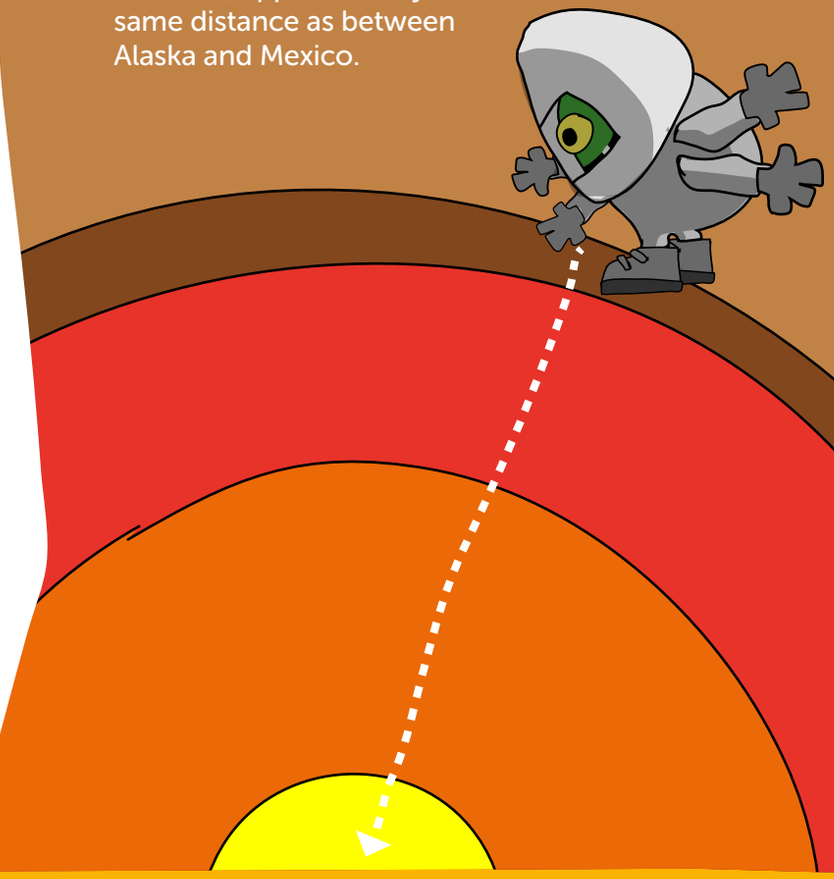
SOLUTION

To get to the centre of the Earth, GeoExplorer will have to go in through the Earth's crust, going through the mantle, entering the outer core and reaching the inner core.



DO YOU KNOW HOW MANY KILOMETRES WILL I HAVE TO GO DOWN TO REACH THE CENTRE OF THE EARTH?

6370 km, approximately the same distance as between Alaska and Mexico.

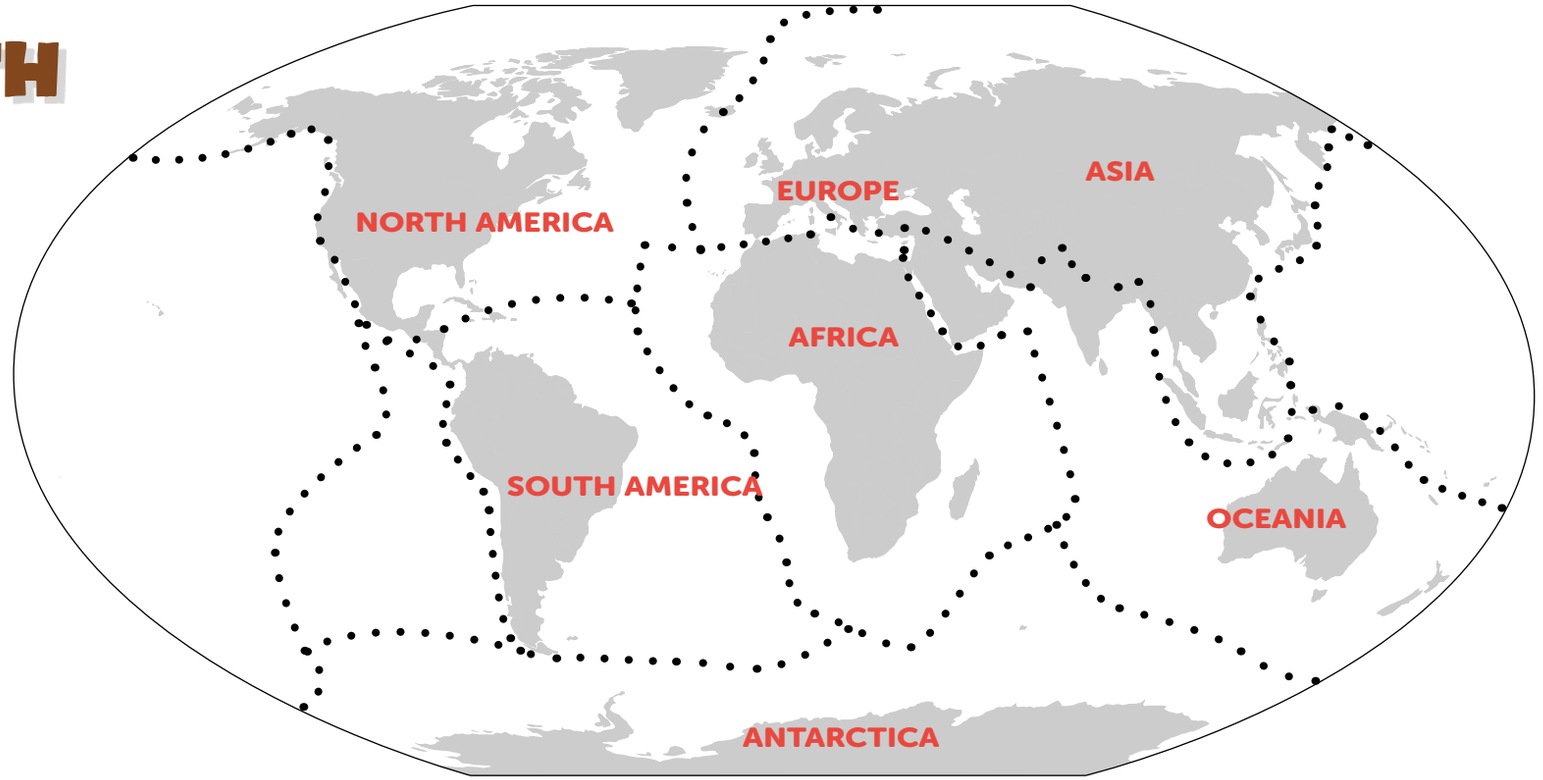


DO YOU WANT TO DO MORE RESEARCH?

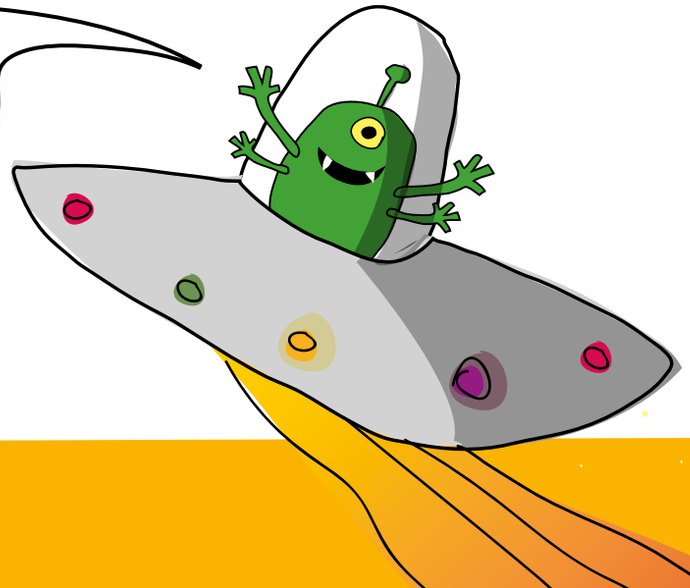
To learn more about how the existence of our planet's core was discovered, we invite you to download this document and get to know the scientist Inge Lehmann:

THE EARTH MOVES

GeoExplorer has found out that the Earth's crust is divided into lithospheric plates, which are like large pieces that move, crashing, rubbing into each other or slightly moving apart.

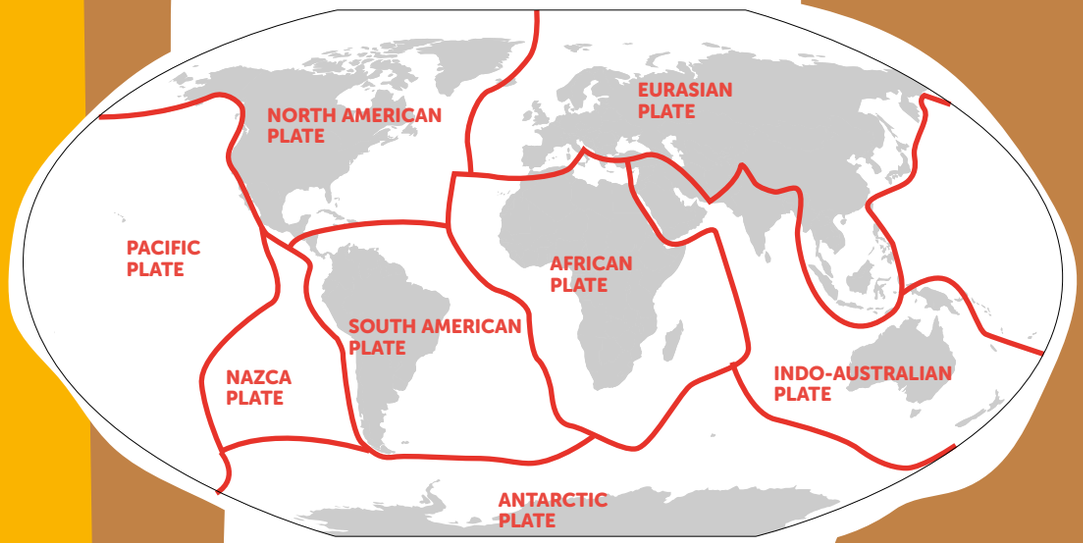


Connect the dots to divide the Earth's crust in lithospheric plates.



You will discover that the Earth is like a big puzzle. In fact, you can trace it on another sheet and cut out the pieces to create this puzzle.

SOLUTION



DO YOU KNOW THAT THE CONTINENTS HAVE NOT ALWAYS BEEN IN THE SAME PLACE?

The lithospheric plates are in constant movement and it is believed that millions of years ago the continents were united, forming just one that we call Pangaea.

Little by little, they began to separate until they formed different continents.

PANGAEA

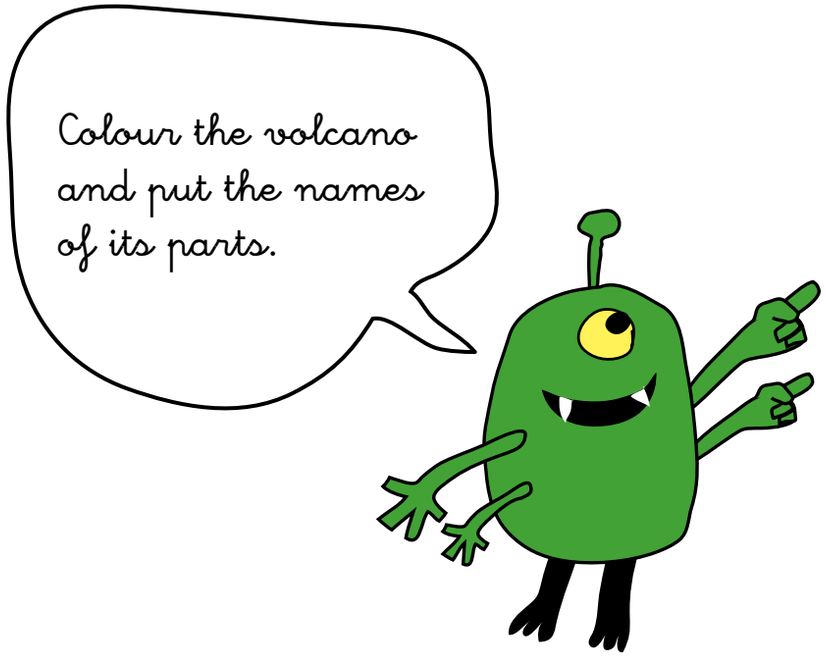
PRESENT

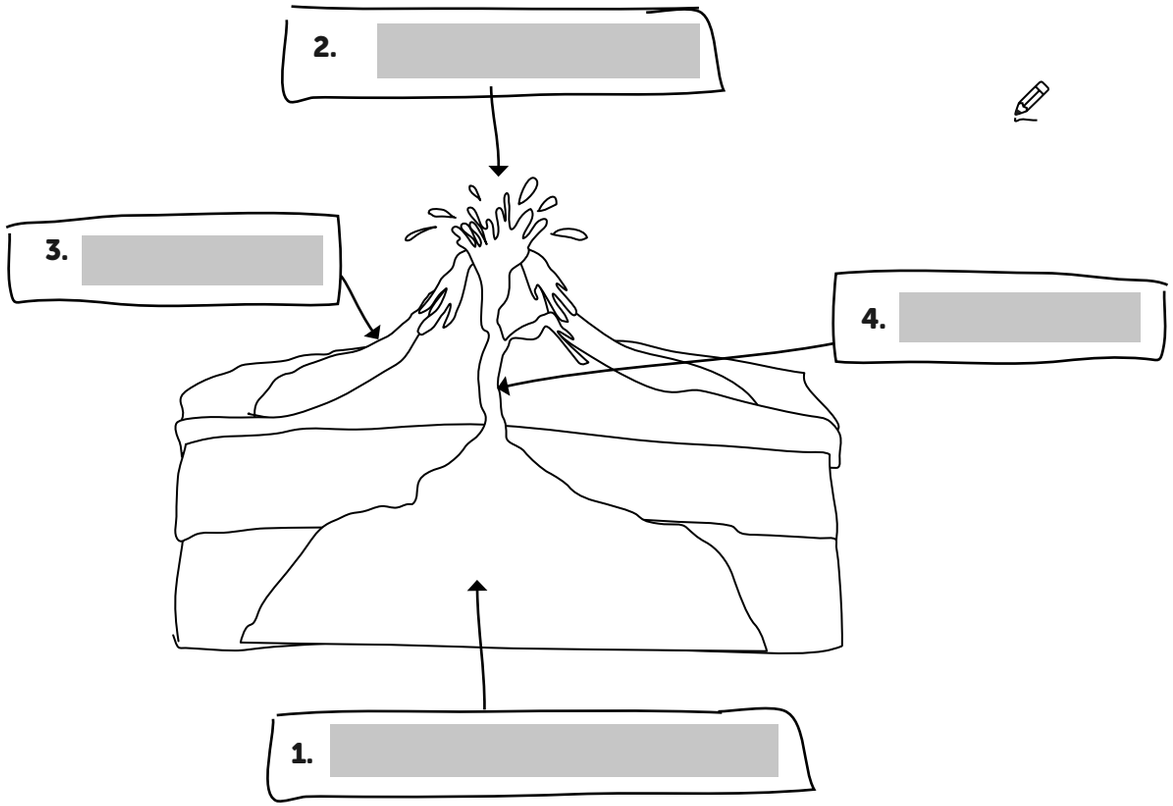
DO YOU WANT TO DO MORE RESEARCH?

To see a more detailed map of the tectonic plates scan the QR code below:

CAN YOU IDENTIFY THE PARTS OF A VOLCANO?

Volcanoes fascinate our friend GeoExplorer, and it has decided to visit the inside of one and learn about the different parts it is made of.





Clues:

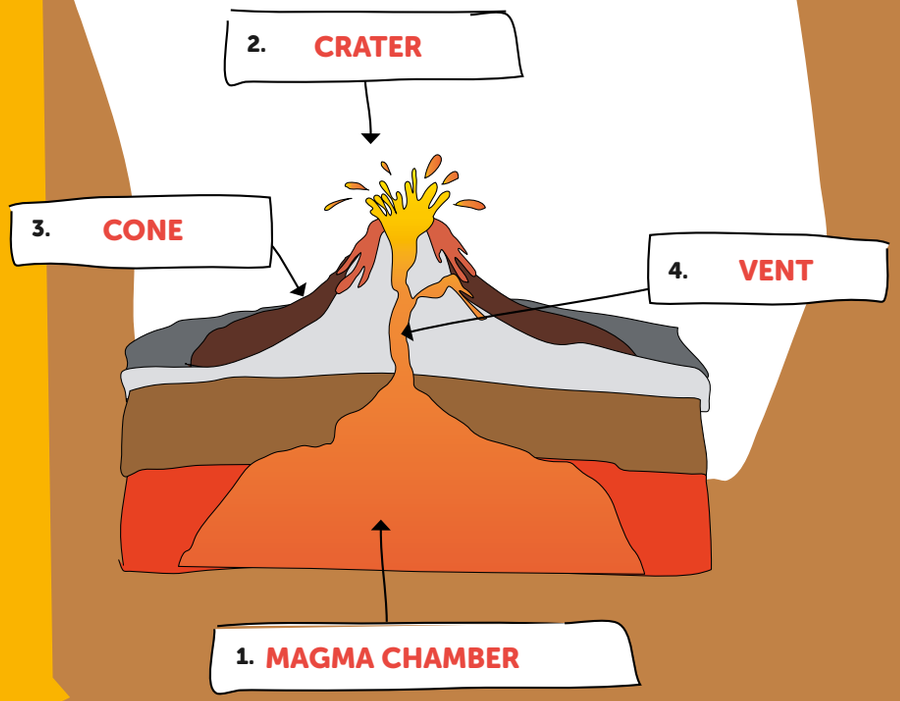
1. Another name for ROOM: MAGMA **BERCHAM**
2. Word that rhymes with later and is a large hole: **TERCRA**
3. When you eat an ice-cream, what do you call the cookie that holds the ice cream?: **NECO**
4. In the summer, cool air comes out of this opening from the air conditioning in your car. What is it called? : **TNEV**

*Words written backwards will give you a clue.

SOLUTION

The magma is the material inside of the Earth that is melted at high temperatures. When a volcanic eruption happens, the magma goes up the vent and then goes outside.

This can happen in a liquid form, which we call lava, or in the form of different sized rocks, as small as a grain of sand or as large as a ball.



DO YOU KNOW THAT VOLCANOES CAN BE USED TO COOK?

For example, in the Timanfaya National Park, in the canary island of Lanzarote, geothermal heat from the volcano is used to cook meat on a grill.

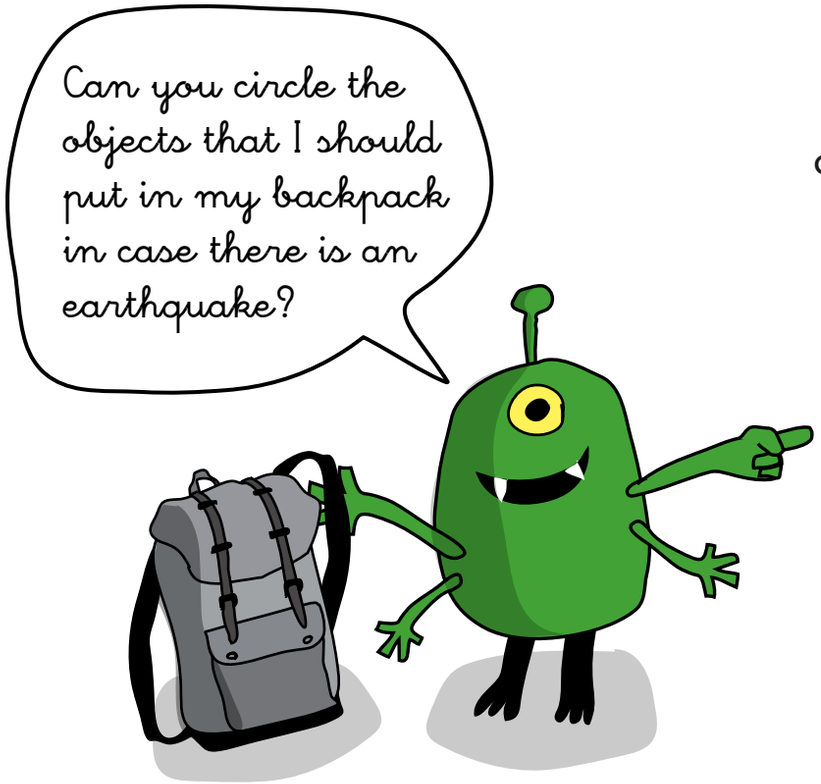
And in Owakudani (Japan) it is possible to eat black eggs, which are baked in the heat from the Hakone volcano. The eggs travel inside cages on ziplines and are immersed in the sulphurous waters surrounding the volcano.

DO YOU WANT TO DO MORE RESEARCH?

In Spain we have several areas of volcanic origin, being the Canary Islands the most active today. You can see photos of recent volcanic eruptions by scanning the QR code below:

MY EARTHQUAKE BACKPACK

GeoExplorer is going to travel to Santiago de Chile. As it is an area where there are often earthquakes, it is advisable to be prepared.



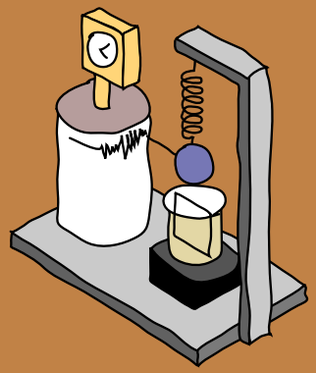
SOLUTION

With these items we will be prepared when an earthquake happens: we will have water, food, we will stay in contact by radio (which in the event of a disaster works better than a mobile phone), and we have a first aid kit to take care of ourselves and what is necessary for a period of time.

Do you know why earthquakes happen?
Earthquakes happen when the energy that builds up in the Earth's crust is suddenly released. This energy is released in the form of waves that spread out in all directions. It is an effect that is similar to the waves that are formed when we throw a stone into the water.

DO YOU KNOW THAT EARTHQUAKES CAN BE MEASURED?

This is done using an instrument called a "seismograph", which is used to locate where an earthquake has happened and to estimate its magnitude.



HAVE YOU EVER HEARD ABOUT THE EPICENTRE OF AN EARTHQUAKE?

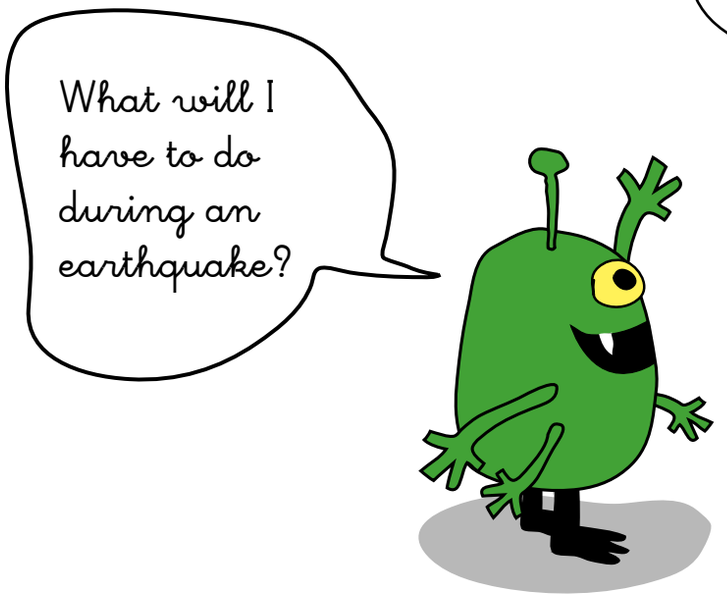
The epicentre is the point on the Earth's surface located directly above the hypocentre. The hypocentre is the point beneath the Earth where the earthquake begins.

DO YOU WANT TO DO MORE RESEARCH?

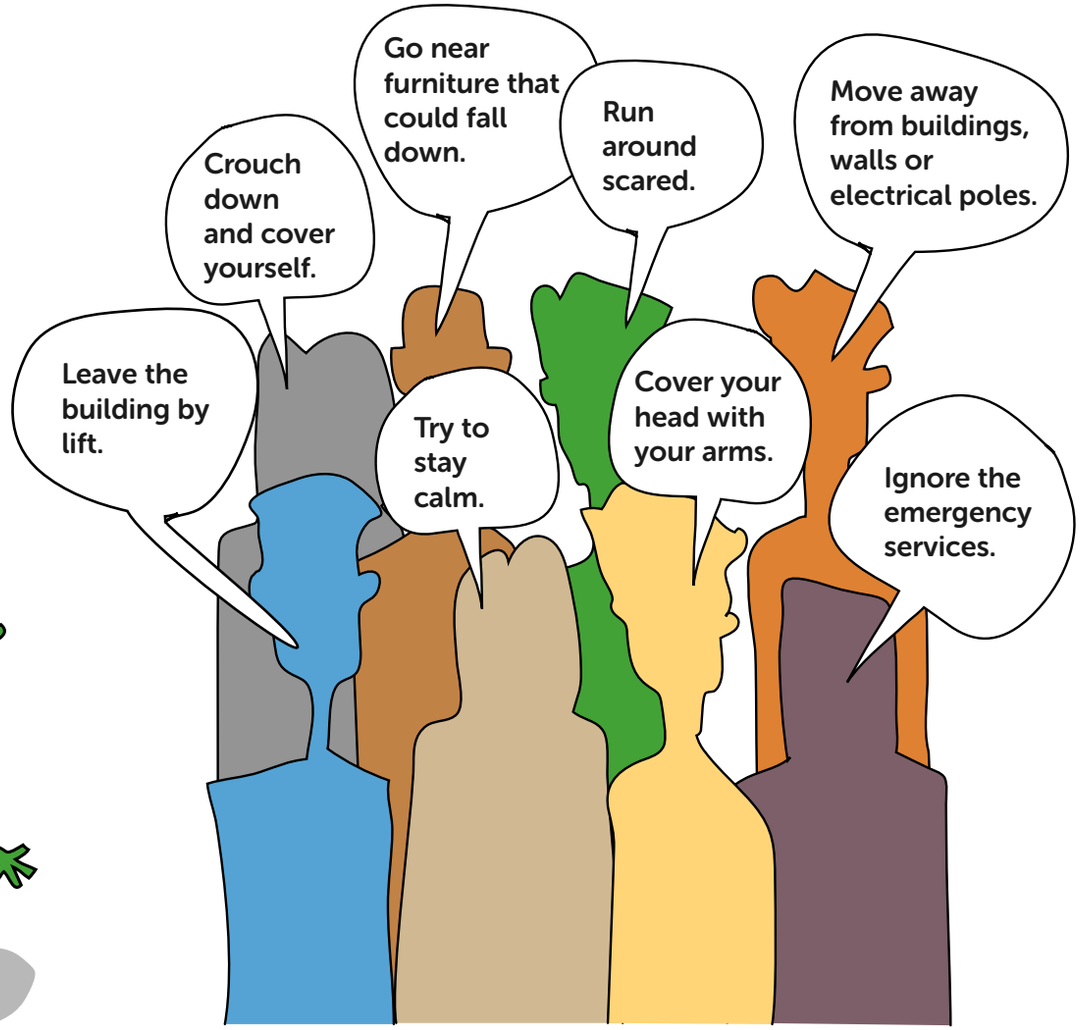
Scan the QR code below to see a world map of earthquakes from the National Geographic Institute of Spain and learn about which earthquakes are happening all over the world.

ATTENTION, EARTHQUAKE!

On GeoExplorer's planet there are no earthquakes, so it doesn't know what to do if one catches him by surprise. He has decided to ask some people in its family.



You can colour in the correct answers.



SOLUTION

These are the correct actions:

- Crouch down and cover yourself.
- Move away from buildings, walls or electrical poles.
- Try to stay calm.
- Cover your head with your arms.

WHAT TO DO DURING AN EARTHQUAKE

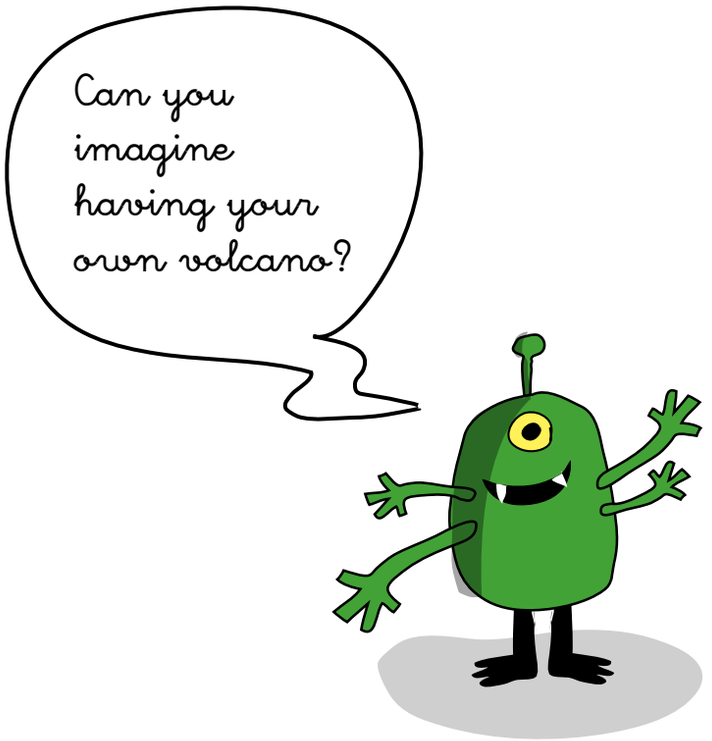
DO YOU KNOW THAT EARTHQUAKES CAN REPEAT?

Earthquakes can have aftershocks, that is, they can repeat in the same area or very close to it. These aftershocks can happen minutes, hours, days or even years after the first earthquake.

DO YOU WANT TO DO MORE RESEARCH?

Scan this QR code and you will learn more about how to act in the event of an earthquake:

EXPERIMENTING: LET'S MAKE A VOLCANO



Tip:

Ask an adult to do the experiment with you and enjoy the experience together.

What are you going to need?

Materials: A plastic bottle or cup, a base made of cardboard or wood (a tray also works), brown playdough, liquid soap, adhesive tape, red food colouring, vinegar, baking soda and a popsicle stick or spoon.

How do you do it?

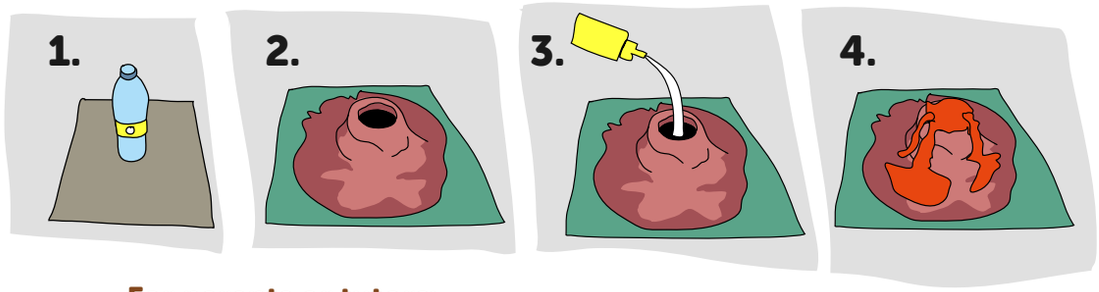
1. Paste the plastic bottle or cup to a cardboard or wood base. Next, cover the bottle with playdough and start forming it into the shape of a volcano.

2. Once the structure of the volcano is finished, put two or three spoonfuls of baking soda in the bottle or cup.

3. Then add liquid soap so that the lava has bubbles and add the food colouring so the lava will have a red colour.

4. Last, stir it with an ice lolly stick or a spoon and add a dash of vinegar.

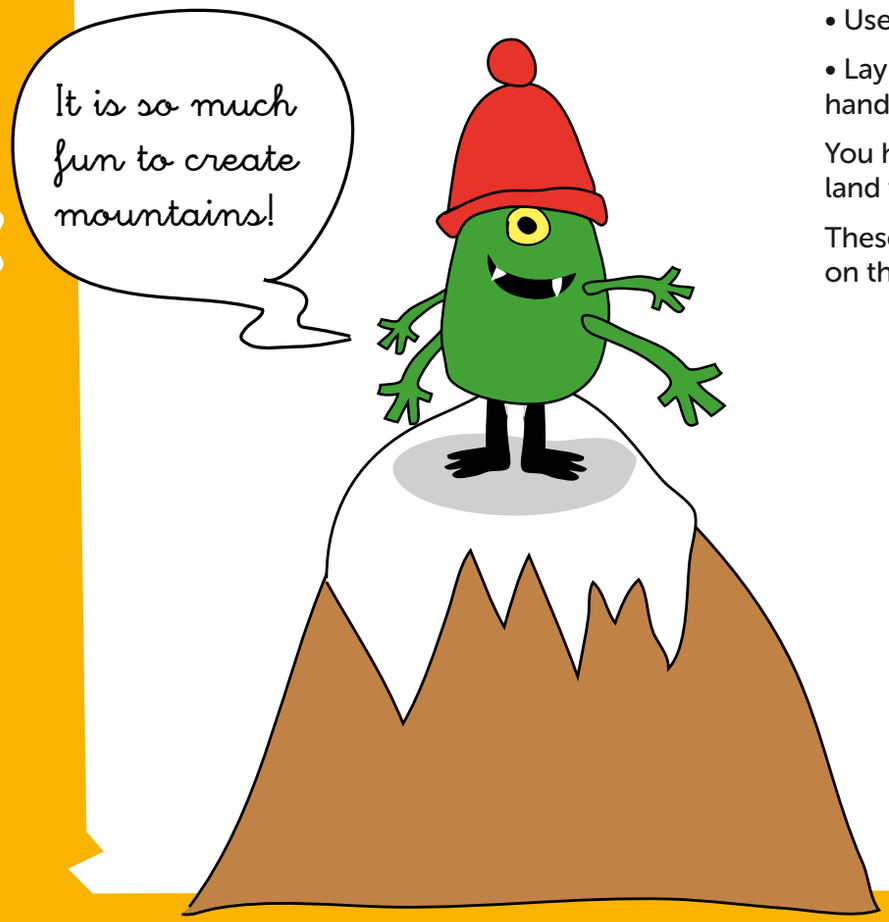
Pay attention, because it is going to produce an eruption!



For parents or tutors:

Would you like to share the results of the experiment on our social media? @IGNSpain

CREATING: HOW ARE MOUNTAINS FORMED?



What are you going to need?

The map sheet you will find at the back of the notebook, scissors and crayons.

How to make it?

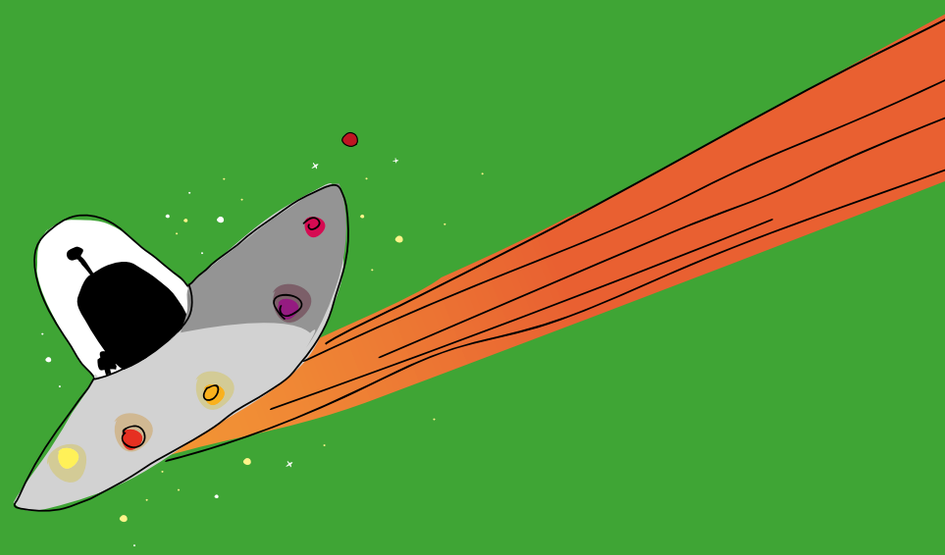
- Take out of the notebook the sheet with a representation of a piece of land.
- Colour the landscape according to this code: 1. White, 2. Brown, 3. Light green, 4. Dark green.
- Fold the drawing in half, following this sequence:
- Use scissors to cut on the following dotted line:
- Lay out the sheet on a table and put one hand on each side of the landscape, sliding your hands and pressing upwards, so that the sheet folds toward the dotted line.

You have recreated the movement of the lithospheric plates (our hands), which deform the land when they crash together, bending it, and you have created a mountain range!

These types of tectonic phenomena led to the appearance of, for example, the Pyrenees on the Iberian Peninsula.

For parents or tutors:

Would you like to share the results of the experiment on our social media? @IGNSpain

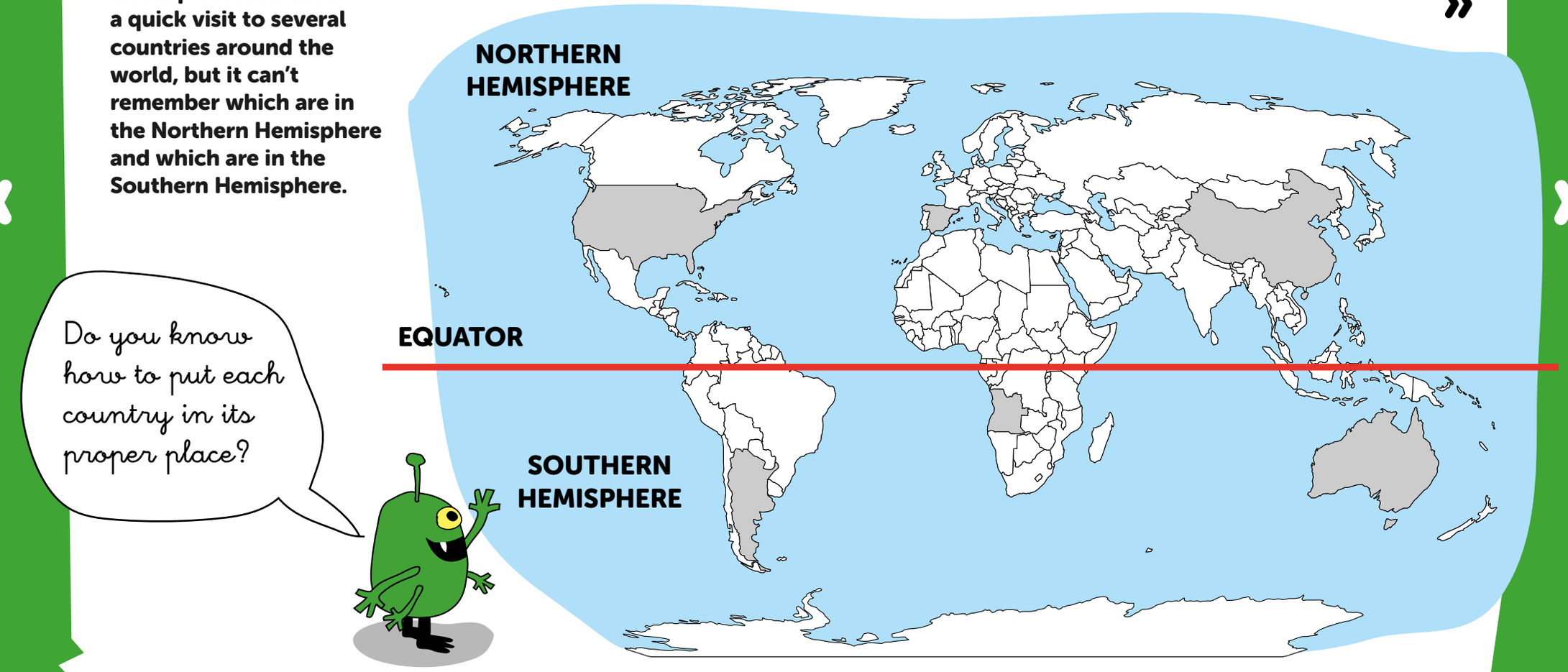


MAPS

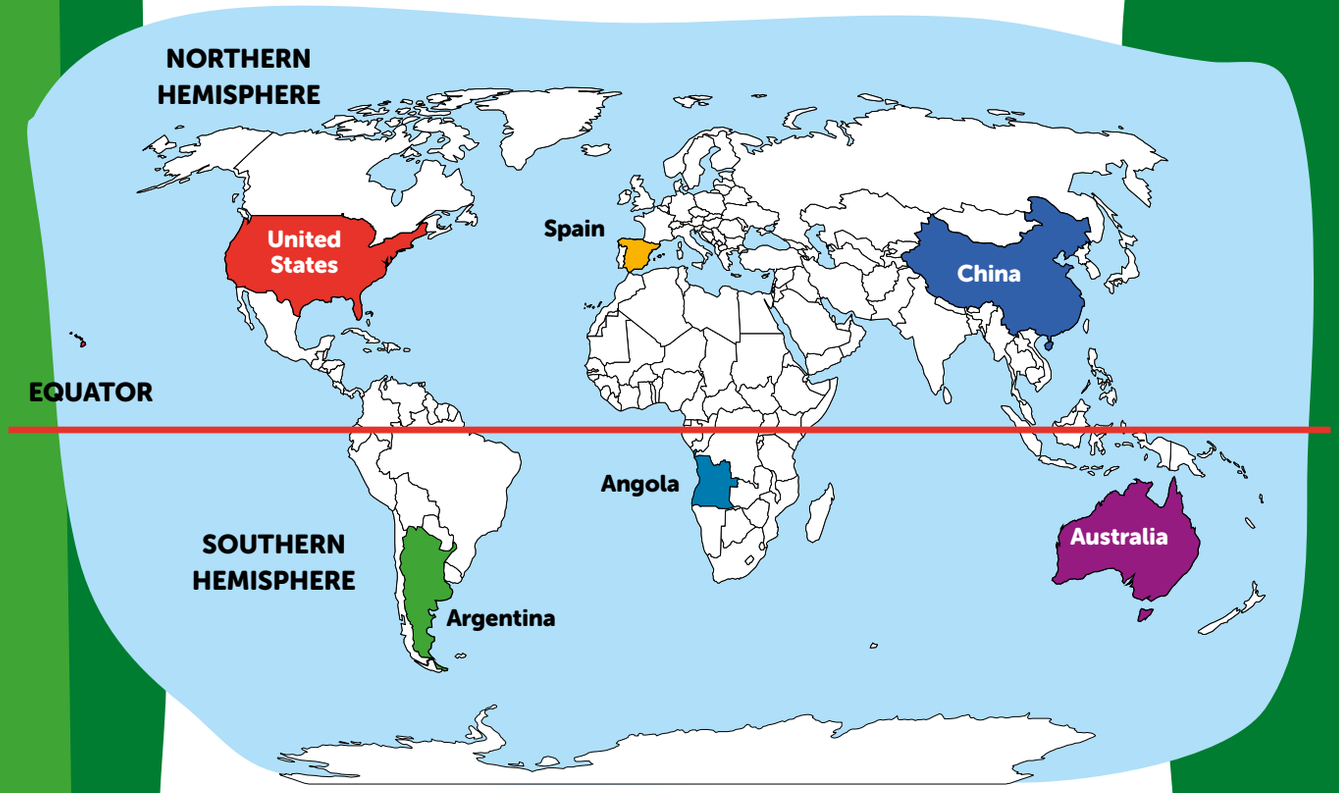
IN WHAT HEMISPHERE IS EACH COUNTRY LOCATED?

GeoExplorer has made a quick visit to several countries around the world, but it can't remember which are in the Northern Hemisphere and which are in the Southern Hemisphere.

At the back of the notebook you will find the outline of different countries. Place them on the map.



SOLUTION



The Equator divides the Earth into two: the Northern Hemisphere and the Southern Hemisphere. Each hemisphere represents one half of the Earth.

DID YOU KNOW THAT WE DO NOT SEE THE SAME STARS FROM THE NORTHERN HEMISPHERE AS WE SEE FROM THE SOUTHERN HEMISPHERE?

In the north, the North Star (Polaris) is one of the most well-known because it always points north.

One of the highlights of the Southern Hemisphere is the Southern Cross, which is used to know where the south is.

DO YOU WANT TO DO MORE RESEARCH?

You can see thousands of maps from around the world on the internet thanks to the digital map library from David Rumsey at Stanford University.

FROM PARALLEL TO PARALLEL

GeoExplorer has learned that the parallels are imaginary circular lines that surround the Earth. The most important parallels enclose areas with similar conditions of light and weather.

Clues:

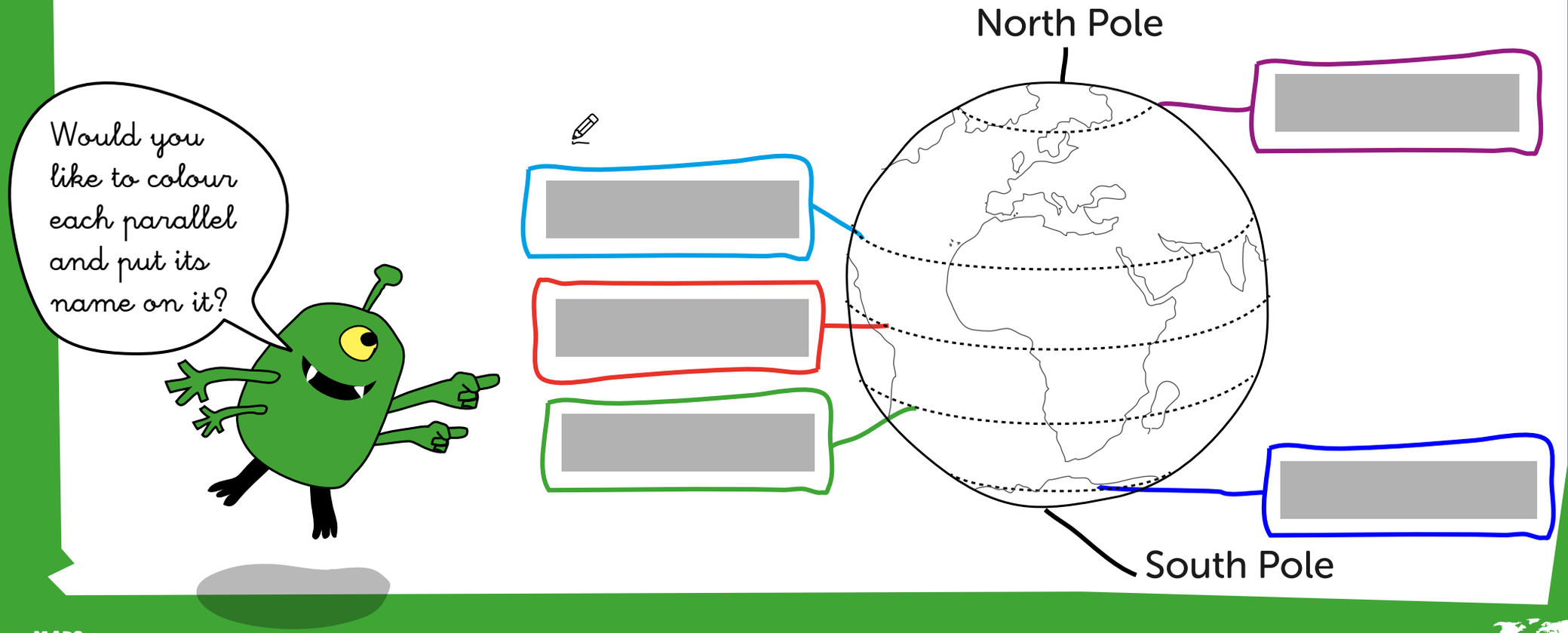
1. The **Equator** is the imaginary horizontal line that divides the Earth into two halves.

2. The tropics are very close to the Equator, where the sun's rays arrive vertically in the solstices. To the north is **Cancer**, with its claws.

3. And south of the Equator, **Capricorn**, with its horns, sunbathes.

4. And we finish with the **polar circles** because you will be **Arctic** if you want to get close to the North Pole.

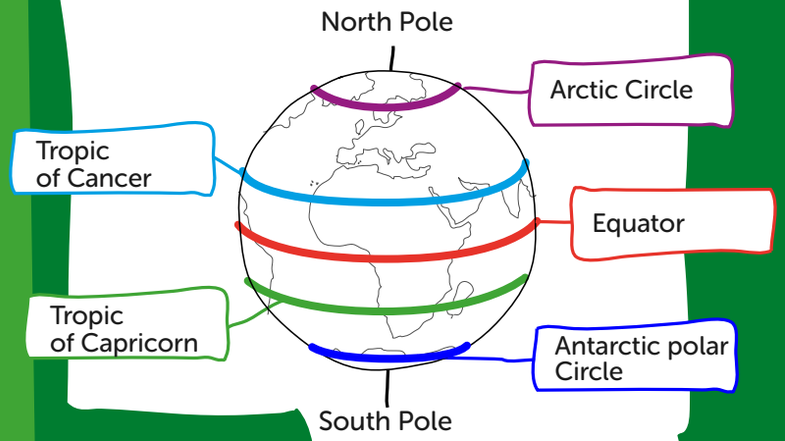
5. On the contrary, you will be **Antarctic** when you take a peek at the South Pole



SOLUTION

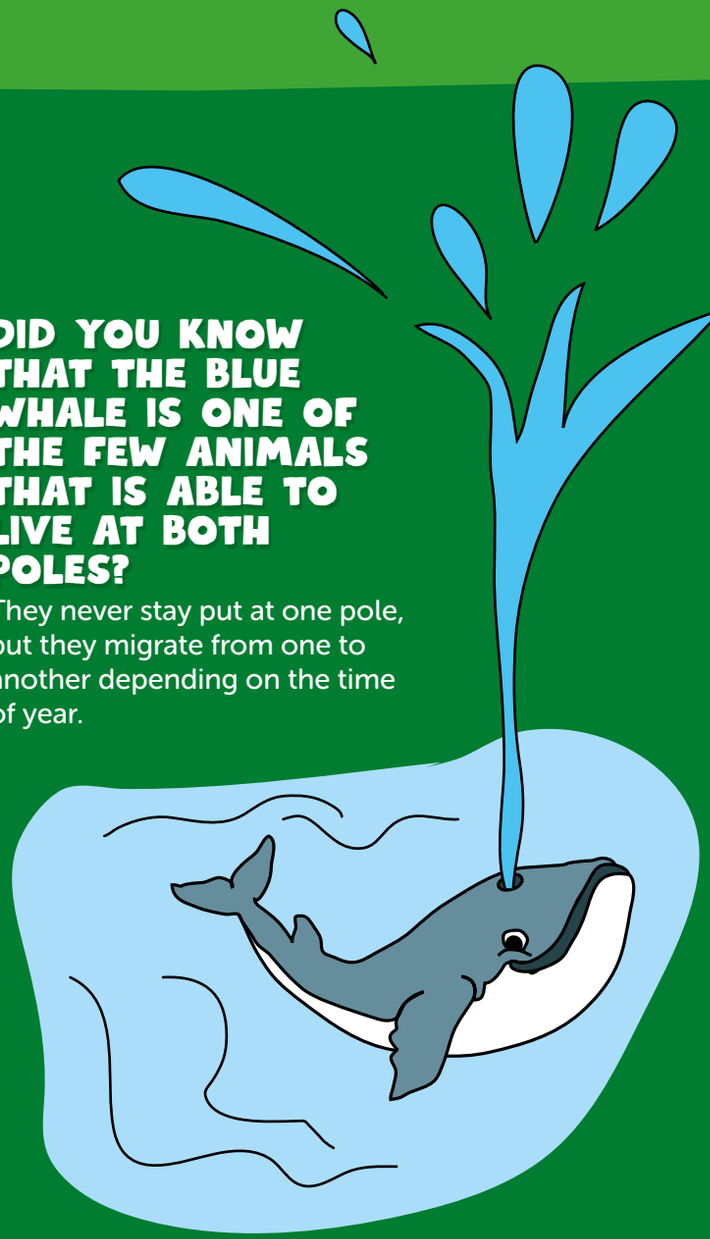
The parallels are imaginary horizontal lines that surround the Earth. Some of them are especially important, such as the Equator, the tropics and the polar circles.

The parallels are used to determine the latitude of a place, which represents how far a particular point on the Earth is in respect to the Equator.



DID YOU KNOW THAT THE BLUE WHALE IS ONE OF THE FEW ANIMALS THAT IS ABLE TO LIVE AT BOTH POLES?

They never stay put at one pole, but they migrate from one to another depending on the time of year.



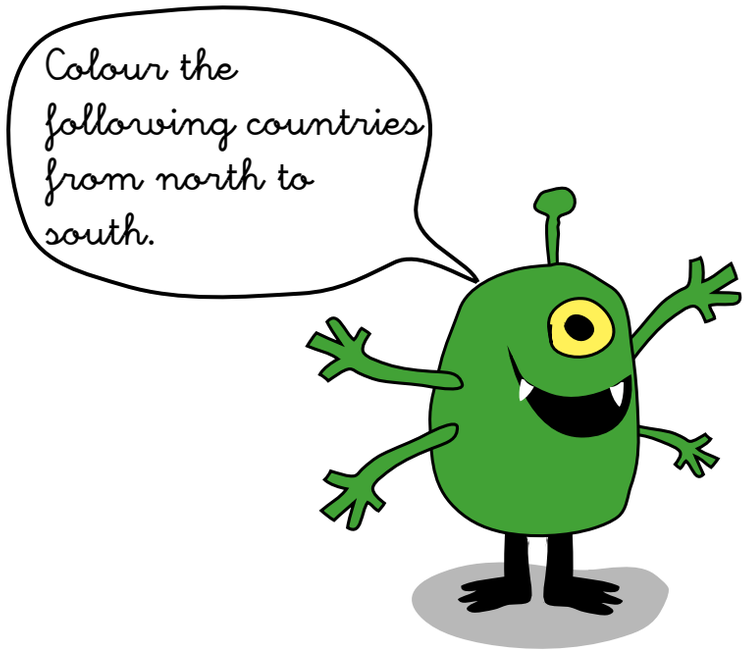
DO YOU WANT TO DO MORE RESEARCH?

You can surf the virtual globes in the IGN's Map Library by scanning this QR code.

TOUR ALONG THE MERIDIAN

GeoExplorer is studying the meridians and wants to visit all the places that the Greenwich meridian passes through.

1. United Kingdom
2. France
3. Spain
4. Algeria
5. Mali
6. Burkina Faso
7. Togo
8. Ghana

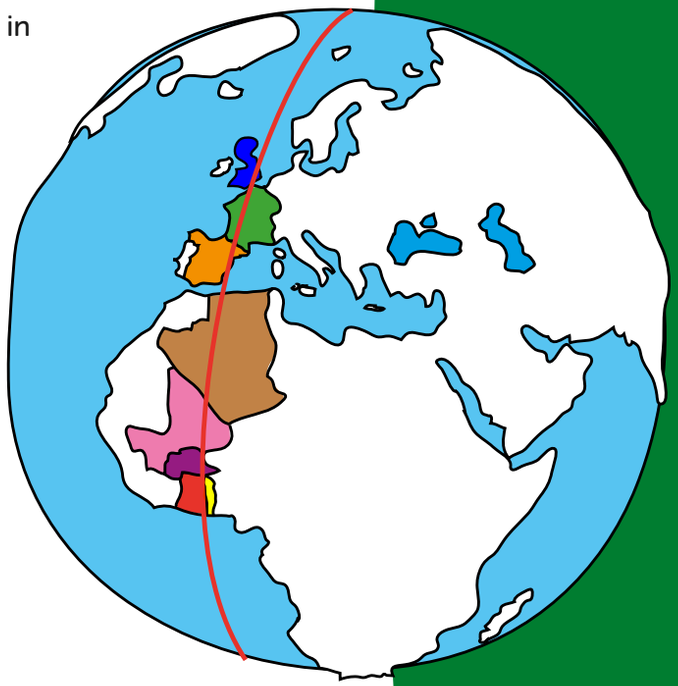


SOLUTION

Meridians are imaginary lines that connect the poles from north to south, enclosing areas like the segments of a tangerine. The Greenwich meridian is the most important because it is the initial meridian for longitude. Did you know that it also passes through Castellón de la Plana in Spain?

The Greenwich meridian is not in nature, like the moon or stars, but rather scientists decide where to place it.

In the past, each country used its own meridian of origin, for example in Spain it was on the island of El Hierro in the Canary Islands.



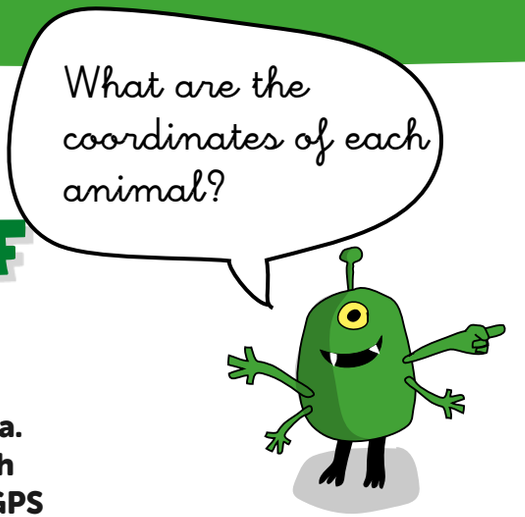
DO YOU KNOW WHAT THE MERIDIANS MEASURE?

They measure longitude, which is the distance in degrees from any point on the Earth to the Greenwich meridian.

DO YOU WANT TO DO MORE RESEARCH?

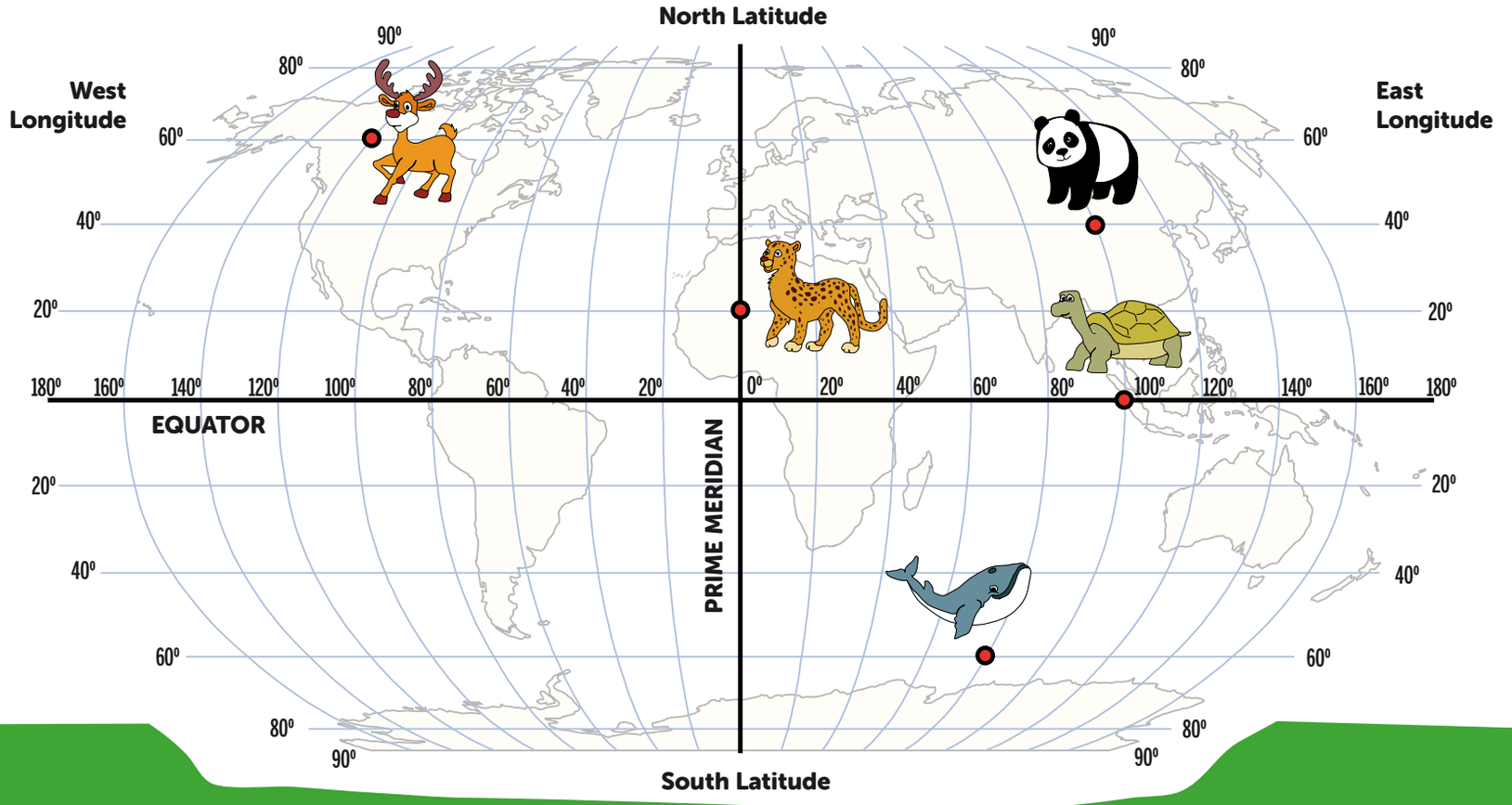
Scan this QR code and you will be able to visit the Royal Observatory website in Greenwich:

FIND THE COORDINATES OF THE ANIMALS



GeoExplorer wants to know the Earth's fauna. It needs to know the coordinates where each animal is found so it can put them into the GPS on its spaceship and travel there.

Look for the animals on the map and find their coordinates. Then, put the stickers you will find at the back of the notebook in the correct place on the panel to the right.



Latitude 60º South, Longitude 80º East

Latitude 40º North, Longitude 100º East

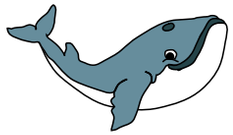
Latitude 60º North, Longitude 120º West

Latitude 0 º, Longitude 100º East

Latitude 20º North, Longitude 0º

SOLUTION

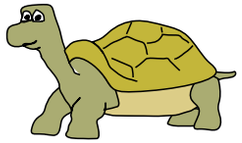
Latitude 60º South,
Longitude 80º East



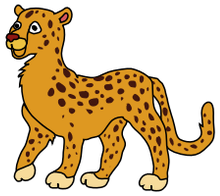
Latitude 40º North,
Longitude 100º East

Latitude 60º North,
Longitude 120º West

Latitude 0º,
Longitude 100º East



Latitude 20º North,
Longitude 0º



The network of lines of parallels and meridians or geographical coordinates let us know the exact location of an object, a person or a place on our planet.

The latitude can be north, if we are above the Equator, or south if we are below it.

The longitude can be east or west depending on whether we are on the right or on the left of the Greenwich meridian.

DID YOU KNOW THAT TODAY NAVIGATION ON THE SEAS AND OCEANS IS BASED ON LOCALIZATION VIA SATELLITE OR GPS?

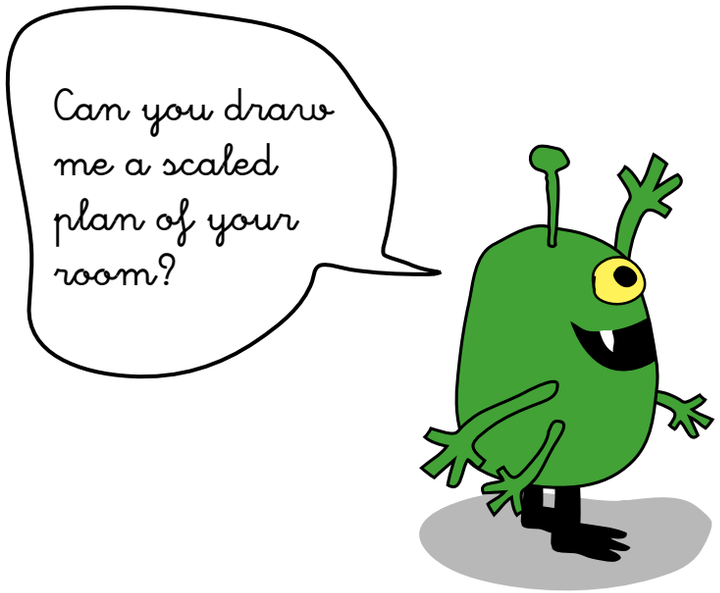
However, in ancient times the Sun and stars were used to get the most exact location possible for a boat and calculate the best route for navigation.

DO YOU WANT TO DO MORE RESEARCH?

If you are interested in navigation, visit any of the naval museums of the Spanish Army. Scan this QR code to know where they are:

DRAW A SCALED PLAN OF YOUR ROOM

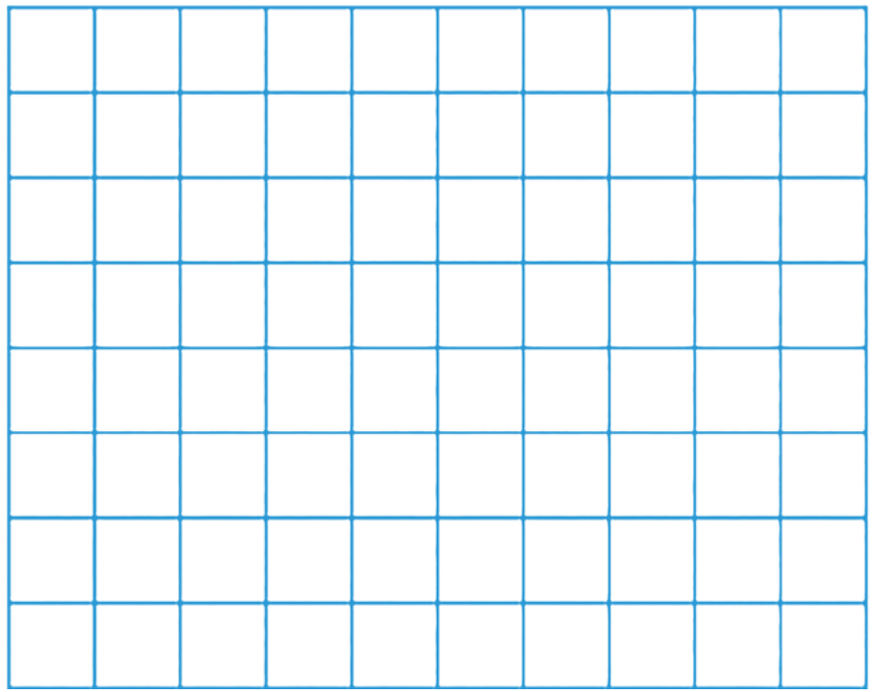
GeoExplorer has visited the homes of some friends and it thinks they are very nice, especially the children's rooms.



Each small square of the grid is equivalent to one real step. Measure like this the length of your room.

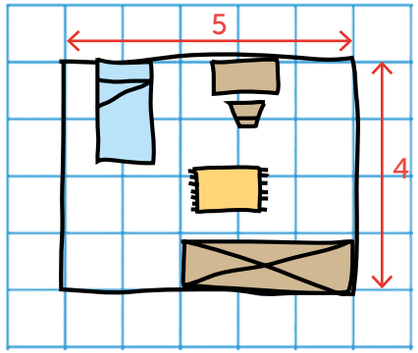
You can copy the symbols we propose or design your own.

Bed **Table and chair** **Wardrobe** **Rug**



SOLUTION

This is an example of a child's room. You can draw your bed, desk, chair, carpet and wardrobe. As you can see, the furniture is shown from above, as if you were looking at them from the ceiling. You can also put the number of steps that each of the walls measure.



Scale is the relationship between each small square and one of your steps, that is, the proportion between the drawing and reality.

Scale lets you know the measurements of the objects that we see on a plan.

DID YOU KNOW THAT THE OLDEST KNOWN PLAN WAS FOUND IN TURKEY?

It is a painted mural located on a wall at the Çatalhöyük site on the peninsula of Anatolia (Turkey) and is dated to around 6200 BC.

The plan would represent the city of Çatalhöyük with an erupting volcano near it, identified as the Hasan Dag volcano.

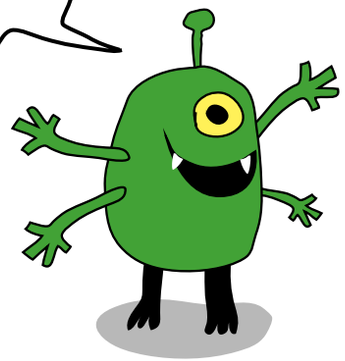
DO YOU WANT TO DO MORE RESEARCH?

Use this QR code to find your nearest archaeological museum and learn more about ancient civilizations.

HIDDEN LETTERS

GeoExplorer has discovered that on Earth there are many ways to communicate, and one of them is Morse code.

Complete the words by translating the letters into Morse code.



MORSE CODE

A •–
B –•••
C –•–•
D –••
E •
F ••–•
G ––•
H ••••
I ••

J •–––
K –•–
L •–••
M ––
N –•
O –––
P •––•
Q ––•–
R •–•

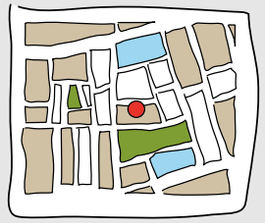
S •••
T –
U ••–
V •••–
W •––
X –••–
Y –•––
Z ––••

(•––)O(•–•)(•–••)D (––•)L(•––)B(•)

__O__ __D __L__B__

(––)A(•––•)

__A__



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SOLUTION

Using globes, maps and plans we can orient ourselves and understand the world and the landscape around us.

But, do you know the differences between them?

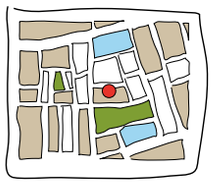
WORLD GLOBE

WORLD GLOBE: It is a sphere on which the Earth's lands and seas are shown.

MAP

MAP: It is a geographical representation of the Earth or part of it on a flat surface. For example, it can help us to find a hidden treasure.

If it depicts the entire world, it is called a world map or planisphere.



PLAN

PLAN: This is a more detailed depiction of a specific area, such as a piece of land, a town or a building. We can, for example, depict our home or our city on a plan.

DID YOU KNOW THAT, DEPENDING ON WHERE WE ARE, THE COUNTRY THAT APPEARS IN THE CENTRE OF A WORLD MAP CAN CHANGE?

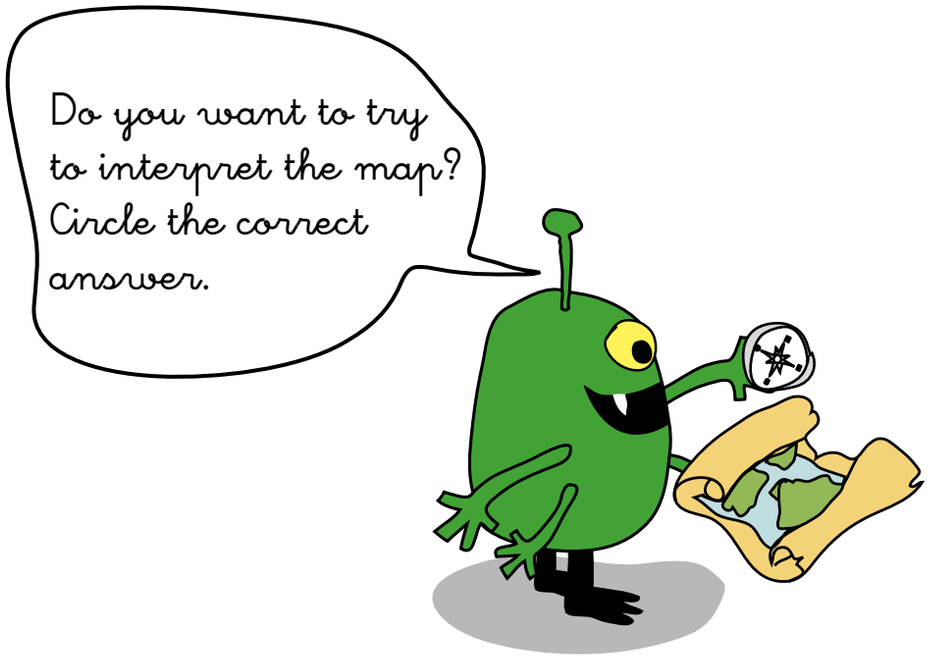
If we consult a world map made in the United States, this country will appear in the centre.

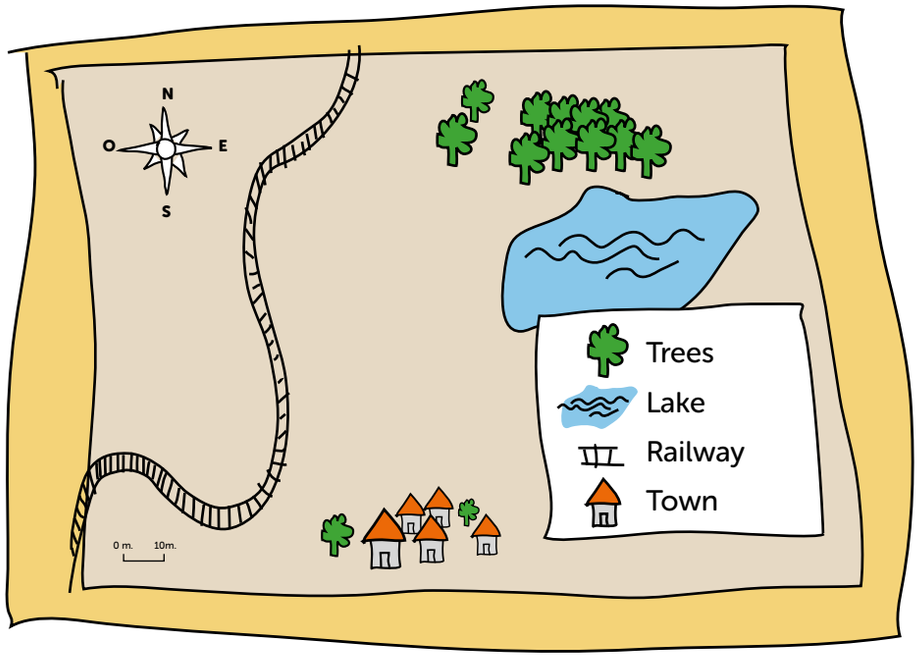
And if we do this in Spain, this is the country that appears in the centre.

WHAT DOES THE MAP TELL ME?

GeoExplorer has been hiking in the mountains and has drawn a map of the area using common symbols.

1. Where are there more  ? North / South
2. Where is the  found? East / West
3. Where is the  located ? North / South
4. Where is the  ? East / West





SOLUTION

1. North, 2. West, 3. South, 4. East

Using symbols on a map makes it easier for us to be able to interpret it and to find what we are looking for more quickly. It is a simple way to represent cities, roads, airports, important buildings such as hospitals, places like train stations and many other points.

- Bus station
- Museum
- Taxi rank
- Petrol station
- Airport
- Parking lot
- Factory
- Information point

DO YOU KNOW THAT THE FIRST MAPS WERE MADE ON STONE?

Then they came to be represented on clay tablets, papyrus and, later, on parchment.

One of the oldest is the Babylonian world map, which is dated between 600 and 500 BC and is made on baked clay. We can find it in the British Museum in London.

DO YOU WANT TO DO MORE RESEARCH?

To have fun while learning about map symbols, scan this QR code that will take you to the National Geographic Institute of Spain website.

HOW TO GET FROM ONE POINT TO ANOTHER?

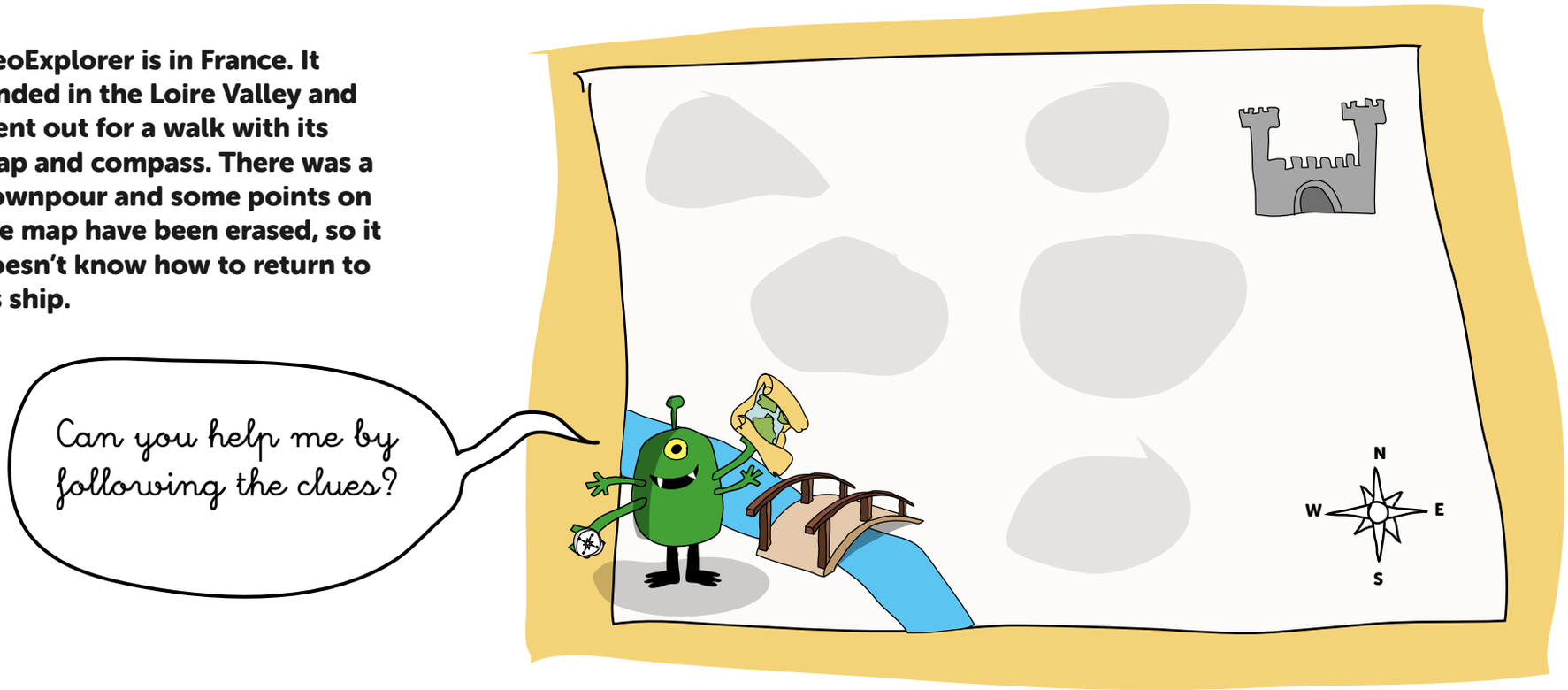
GeoExplorer is in France. It landed in the Loire Valley and went out for a walk with its map and compass. There was a downpour and some points on the map have been erased, so it doesn't know how to return to its ship.

Follow the clues to get to the ship, and in the shaded areas of the map draw the symbols that are missing: houses, forest, mountains, spaceship.

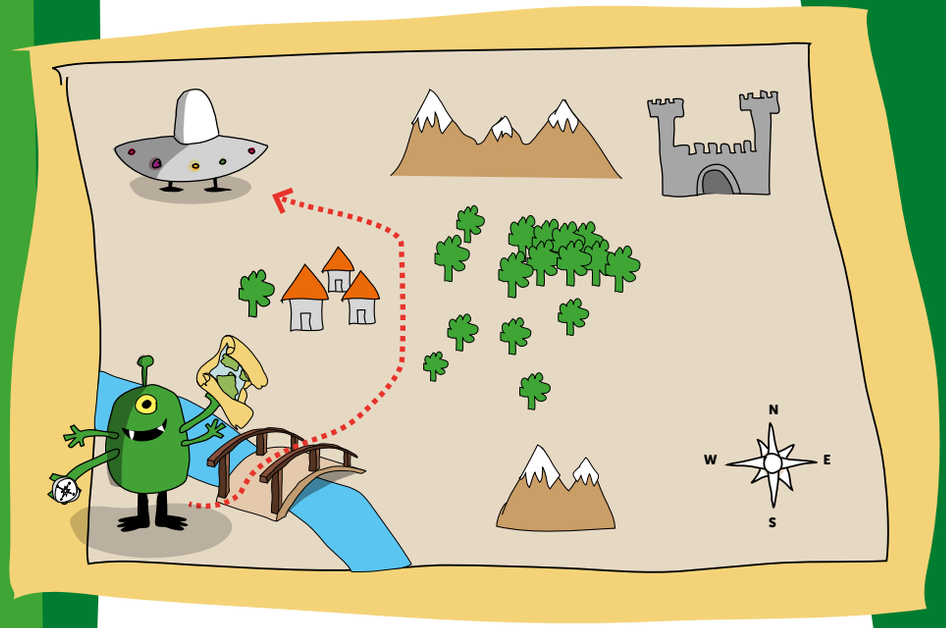
1º To the north of the bridge you will find a village with three houses.

2º To the east of the village there is a forest, and to the south and north of this forest there are mountains.

3º To the west of the northern mountains is the ship.



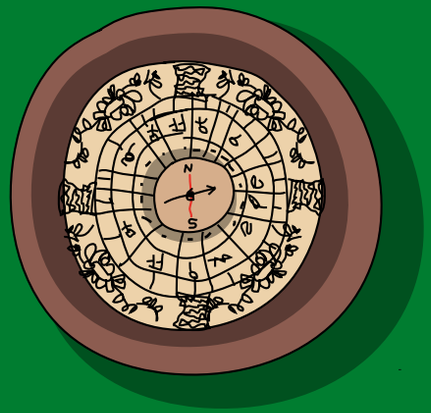
SOLUTION



With the help of the compass and a number of indications we can move over the terrain and locate places on a map. It must be remembered that the compass is the tool that best helps to guide us because it always points to the north.

DO YOU KNOW THAT THE FIRST COMPASS WAS INVENTED IN CHINA IN THE 9TH CENTURY AND THAT IT DIDN'T ARRIVE TO EUROPE UNTIL THE 12TH CENTURY?

When the compass came to Europe during the Renaissance, Europeans thought it was magic. So this instrument was for a long time related to the witchcraft's world.

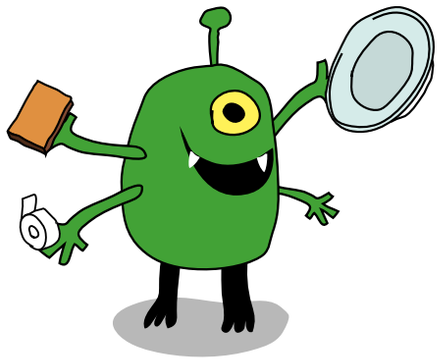


DO YOU WANT TO DO MORE RESEARCH?

To learn more about guiding yourself with a compass, scan this QR code that will take you to the National Geographic Institute of Spain website:

EXPERIMENTING: SHALL WE PLAY AT GUIDING OURSELVES?

What do you think about making a compass and learning to guide ourselves?



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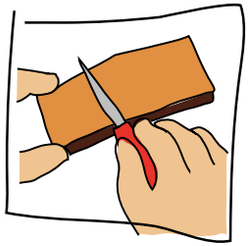
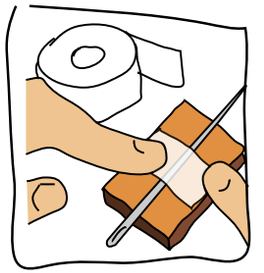


2.



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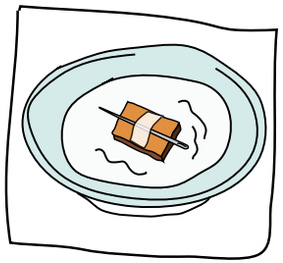


Tip

Ask an adult to do the experiment with you.

What are you going to need?

A sewing needle, a piece of cork, a magnet, adhesive tape, water and a deep bowl.

How do you do it?

1. First, cut the cork in a strip approximately 12 millimetres thick.

Next, rub the tip of the needle with the magnet, always in the same direction. You will have to do it around 50 or 60 times for the needle to become magnetised

2. Next, tape the needle to the piece of cork.

3. Fill the dish with water and put the cork with the needle inside so that it floats.

You will see that the needle rotates until it points to the Earth's magnetic north.

You already have your compass! Now you can experiment: stand in different places in the house and you will see how the compass always points north.

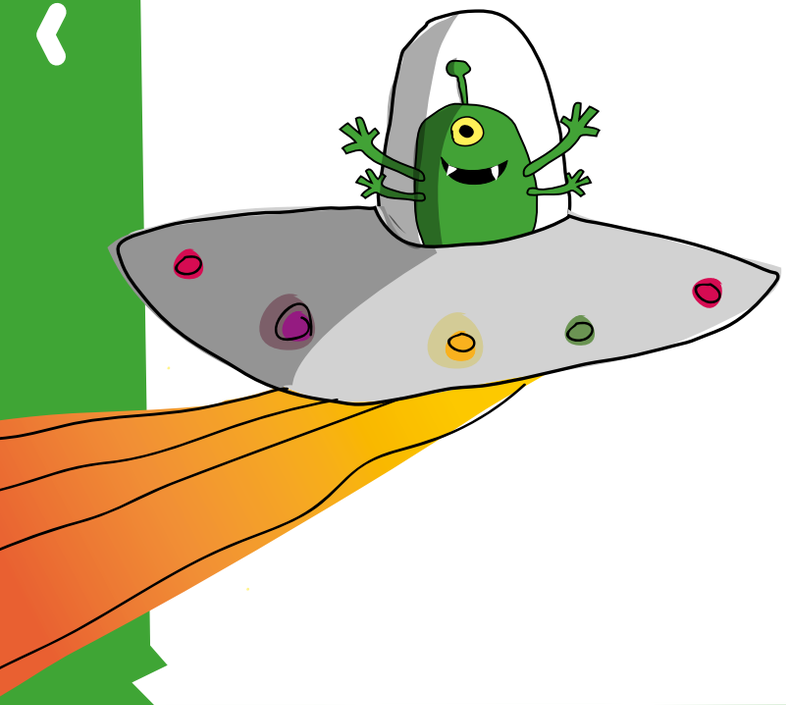
Our planet has a big giant magnet inside of it, with two magnetic poles, north and south. The needle of our compass, as it is a magnetised metal, feels attracted by the giant magnet the Earth has inside and it always points to the Magnetic North Pole.

For parents or tutors:

Would you like to share the results of the experiment on our social media? @IGNSpain

CREATING: DESIGN YOUR OWN WORLD GLOBE

Would you like to have a model of planet Earth hanging in your bedroom?

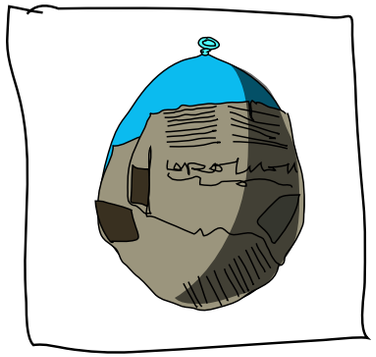


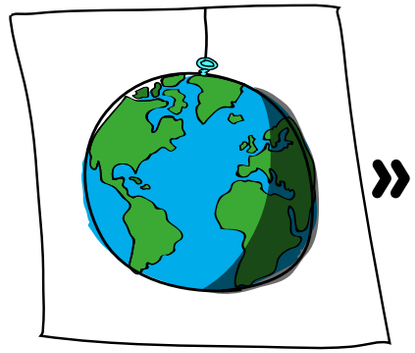
What are you going to need?

A balloon, newspaper, glue, water, brushes, a bowl, tempera or acrylic paints, string and the stencils of the continents you will find at the back of the book.

How do you do it?

- Mix equal parts of glue and water in a bowl.
- Cut the newspaper into strips.
- Next, blow up the balloon, make a knot and paste the strips of paper on it using the glue and water mixture and a thick paintbrush.
- When you have completely covered it with two or three layers, leave it to dry.
- Once dry, you can draw the continents on it with magic marker or paste the stencils at the back of the notebook on it and colour them.
- When you are finished, you can tie the string on it and hang it up.

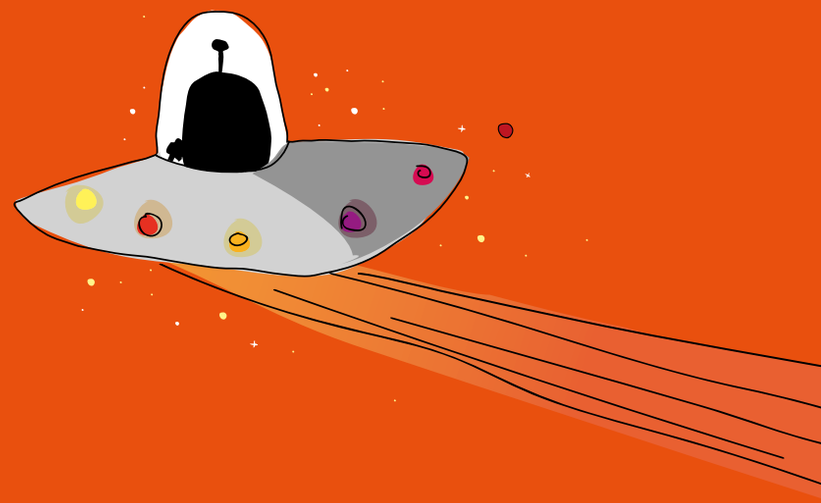




For parents or tutors:

Would you like to share the results of the experiment on our social media? @IGNSpain

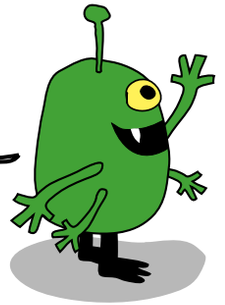
GEOGRAPHY



LET'S GO TO A FESTIVAL

GeoExplorer has decided to visit the places where some of Spain's festivals take place.

Paste the stickers of the festivals in their correct province.



You will find the stickers at the back of the notebook. Clues: »

- **CÁDIZ** is famous for its carnivals.
- In San Fermín the bulls run through the streets of Pamplona (**NAVARRA**).
- If you go to the Fallas in **VALENCIA**, be careful with fire.
- What better place for dancing than the April Fair in **SEVILLA**.
- To have a celebration in a canoe, you need to travel across the Sella River in **ASTURIAS**.

SOLUTION

Thanks to all the cultures that have lived together in Spain over the centuries and the diversity of the different territories, we can enjoy a large number of popular celebrations and traditions.

DO YOU KNOW HOW SPAIN'S TERRITORY IS ORGANISED?

Spain is organised into 17 autonomous regions and two autonomous cities.

In turn, the autonomous regions have one or several provinces.

There are a total of 50 provinces in Spain.

DO YOU WANT TO DO MORE RESEARCH?

You can see a full map with Spain's territorial organization by using this QR code:

RIVERS OF SPAIN

GeoExplorer wants to know the most important rivers in Spain and it needs your help.

Look at the map key and write the name of each river. You can use different colours.

Tajo: 1-9

Guadalquivir: 10-19

Miño: 20-25

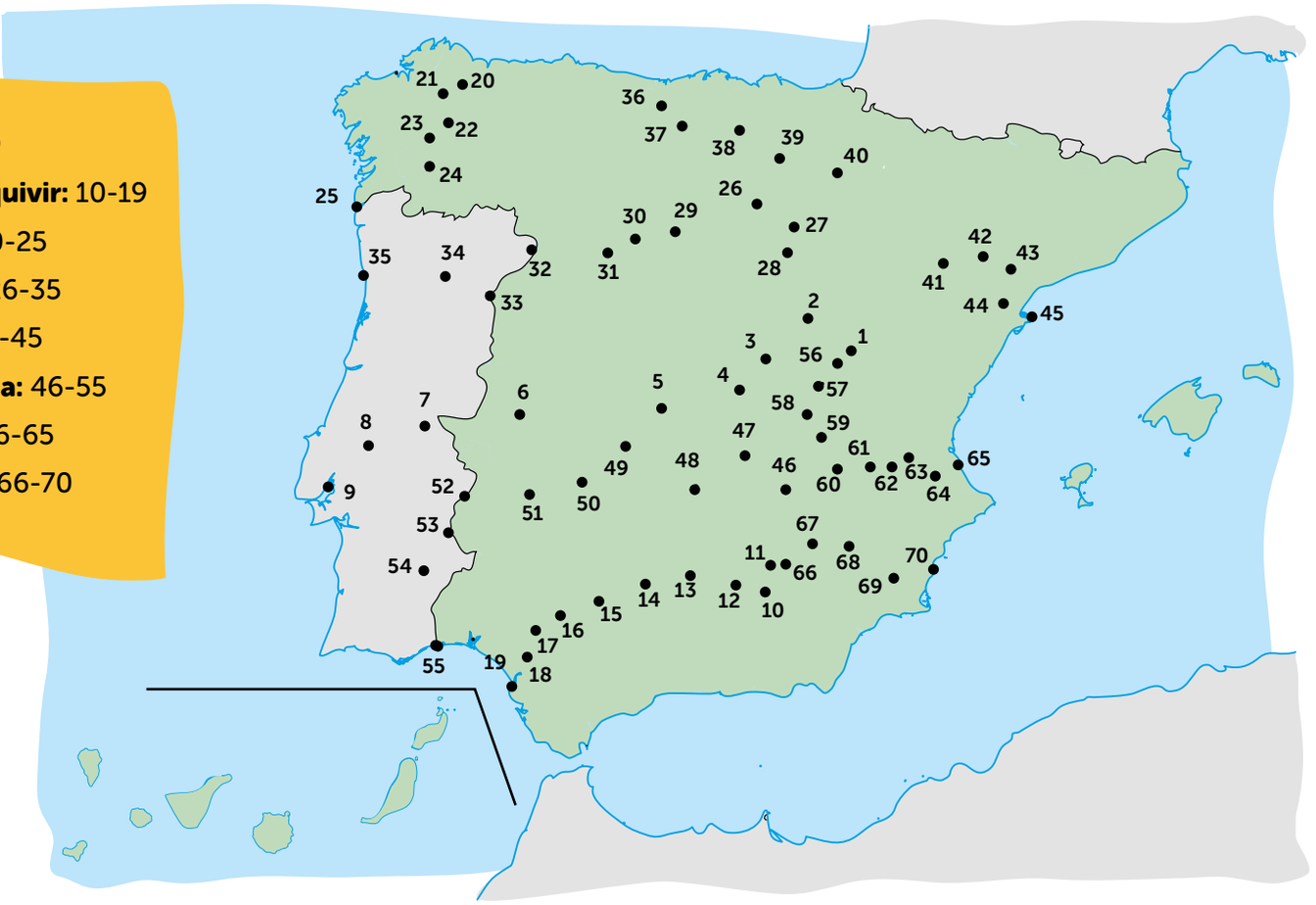
Duero: 26-35

Ebro: 36-45

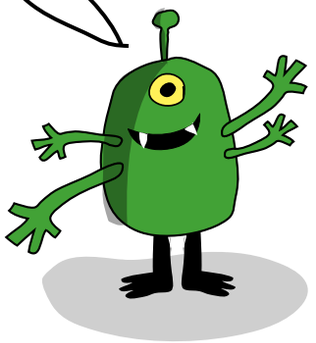
Guadiana: 46-55

Júcar: 56-65

Segura: 66-70



If you connect the different dots, you can draw the path of the rivers.



SOLUTION

There are a large number of rivers in Spain. We use water from rivers for drinking, to water crops and to produce electricity.

Hydroelectric power plants take advantage of the force of flowing water to create electricity.

DO YOU KNOW THAT EBRO RIVER IS THE LONGEST RIVER IN SPAIN?

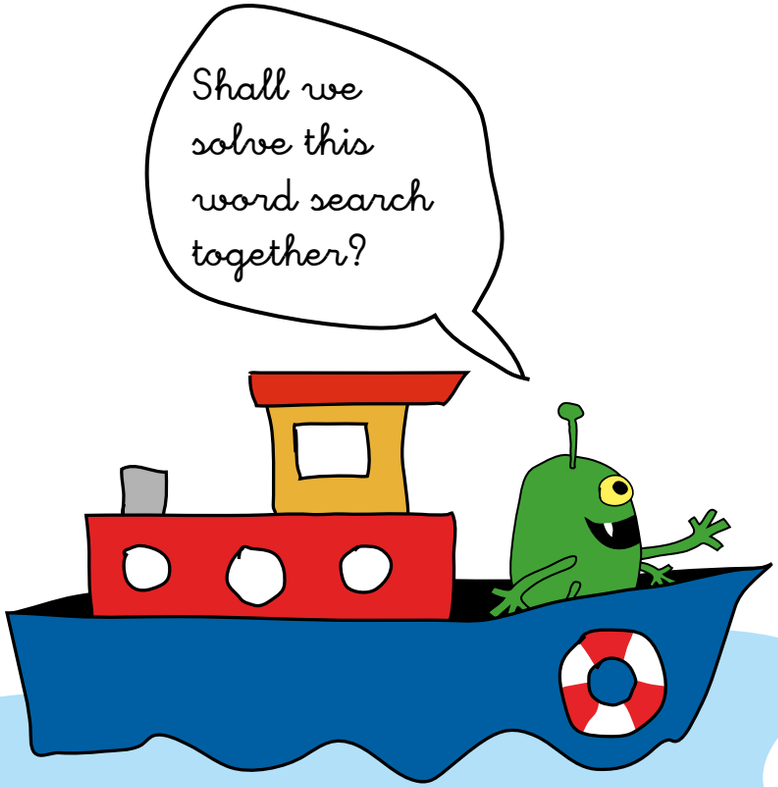
It has a total length of 956 kilometres and crosses seven autonomous regions: Cantabria, Castilla y León, La Rioja, País Vasco, Navarra, Aragón y Cataluña. However, the longest river on the Iberian Peninsula is the Tajo, with 1,007 kilometres, taking into account that part of its route runs through Portugal.

DO YOU WANT TO DO MORE RESEARCH?

Scanning this QR code you will have all the information you need to learn about Spanish rivers:

SEA SEARCH

GeoExplorer has sailed over seas and oceans, having big adventures.



These are the names of the oceans and seas hidden in the word search:
Atlantic, Pacific, Arctic, Antarctic, Indian, and Mediterranean.

Search for them in vertical and horizontal.

I	R	D	G	A	N	T	A	R	C	T	I	C
M	E	D	I	T	E	R	R	A	N	E	A	N
I	O	V	D	X	U	G	M	Q	K	S	P	I
Y	M	U	M	A	R	L	J	Q	B	E	Q	N
W	T	S	Z	T	D	M	F	S	L	J	A	D
H	I	R	E	L	T	L	G	U	Z	D	D	I
X	L	N	P	A	C	I	F	I	C	Q	T	A
Y	V	E	B	N	X	Z	Z	R	B	O	P	N
V	C	A	P	T	M	Q	T	Q	S	G	N	S
D	Z	F	N	I	B	A	R	C	T	I	C	X
P	D	X	Z	C	J	H	Z	P	V	D	V	K

SOLUTION

I	R	D	G	A	N	T	A	R	C	T	I	C
M	E	D	I	T	E	R	R	A	N	E	A	N
I	O	V	D	X	U	G	M	Q	K	S	P	I
Y	M	U	M	A	R	L	J	Q	B	E	Q	N
W	T	S	Z	T	D	M	F	S	L	J	A	D
H	I	R	E	L	T	L	G	U	Z	D	D	I
X	L	N	P	A	C	I	F	I	C	Q	T	A
Y	V	E	B	N	X	Z	Z	R	B	O	P	N
V	C	A	P	T	M	Q	T	Q	S	G	N	S
D	Z	F	N	I	B	A	R	C	T	I	C	X
P	D	X	Z	C	J	H	Z	P	V	D	V	K

On this map you can see where the seas and oceans you found in the word search are.

DO YOU KNOW THAT SPAIN HAS APPROXIMATELY 8.000 KM OF COASTLINE?

The fact that the Iberian Peninsula is surrounded by water everywhere except in the Pyrenees has made Spain one of the countries with the greatest richness of coastal landscapes in all of Europe.

DO YOU WANT TO DO MORE RESEARCH?

Check all the beaches of Spain on this interactive map and find out about their features.

MOUNTAIN ANIMALS

The mountains in Spain are full of animals and GeoExplorer has decided to track them so it can take their picture.

Follow the footprints and write on the map the name of the mountain system where the following animals live:

We can find **brown bears** in **Pirineos.**

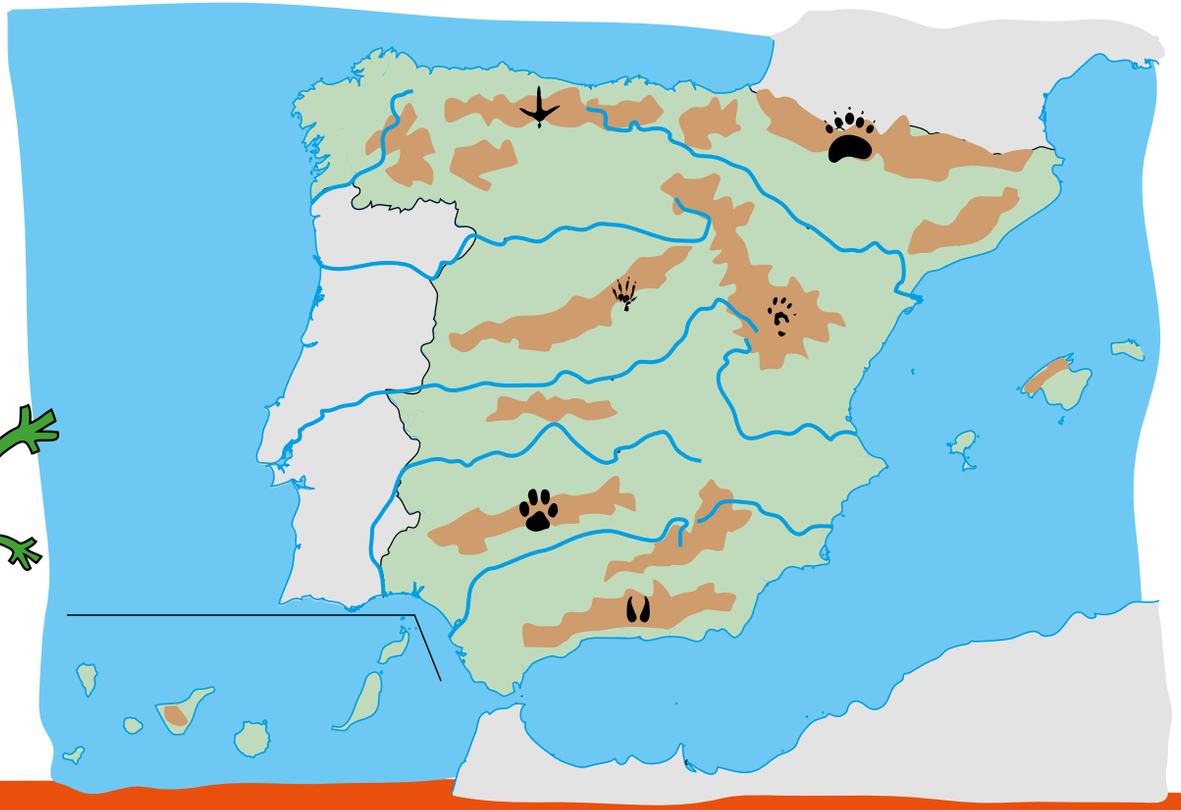
The **Sistema Bético** is home to the **muflon.**

The **Iberian lynx** lives in the **Sierra Morena.**

We can see the **wood grouse** in the **Cordillera Cantábrica.**

The **marten** plays in the **Sistema Ibérico.**

And the **ocellated lizard** sunbathes in the **Sistema Central.**



SOLUTION

The physical environment in Spain has some features that make it very special:

- An average high altitude of about 650 metres above sea level.
- What stands out is its great central plateau surrounded by other mountain systems.
- It has two large mountain ranges on the outer edges: the Pirineos and the Sistema Bético.
- In the Balearic Islands, on the island of Majorca, the serra de Tramuntana stands out.
- The highest peak in Spain is the Teide in the Canary Islands, with 3,715 metres of altitude.

DO YOU KNOW WHICH PROVINCE CAPITAL OF A PROVINCE HAS THE HIGHEST ALTITUDE?

It is Ávila, at 1,131 metres above sea level.

DO YOU WANT TO DO MORE RESEARCH?

On this map from the National Geographic Institute of Spain website you can see the topography of Spain:

WHICH FLAG IS IT?

GeoExplorer is going to sail and needs to know from which countries the ships it encounters come from.

Place the flags you find at the back of the notebook on the correct boat by following the clues: »

The stars and stripes are the symbol of the **United States.**

A yellow stripe belongs to the **Spaniards.**

The **Italians** fly their three colours.

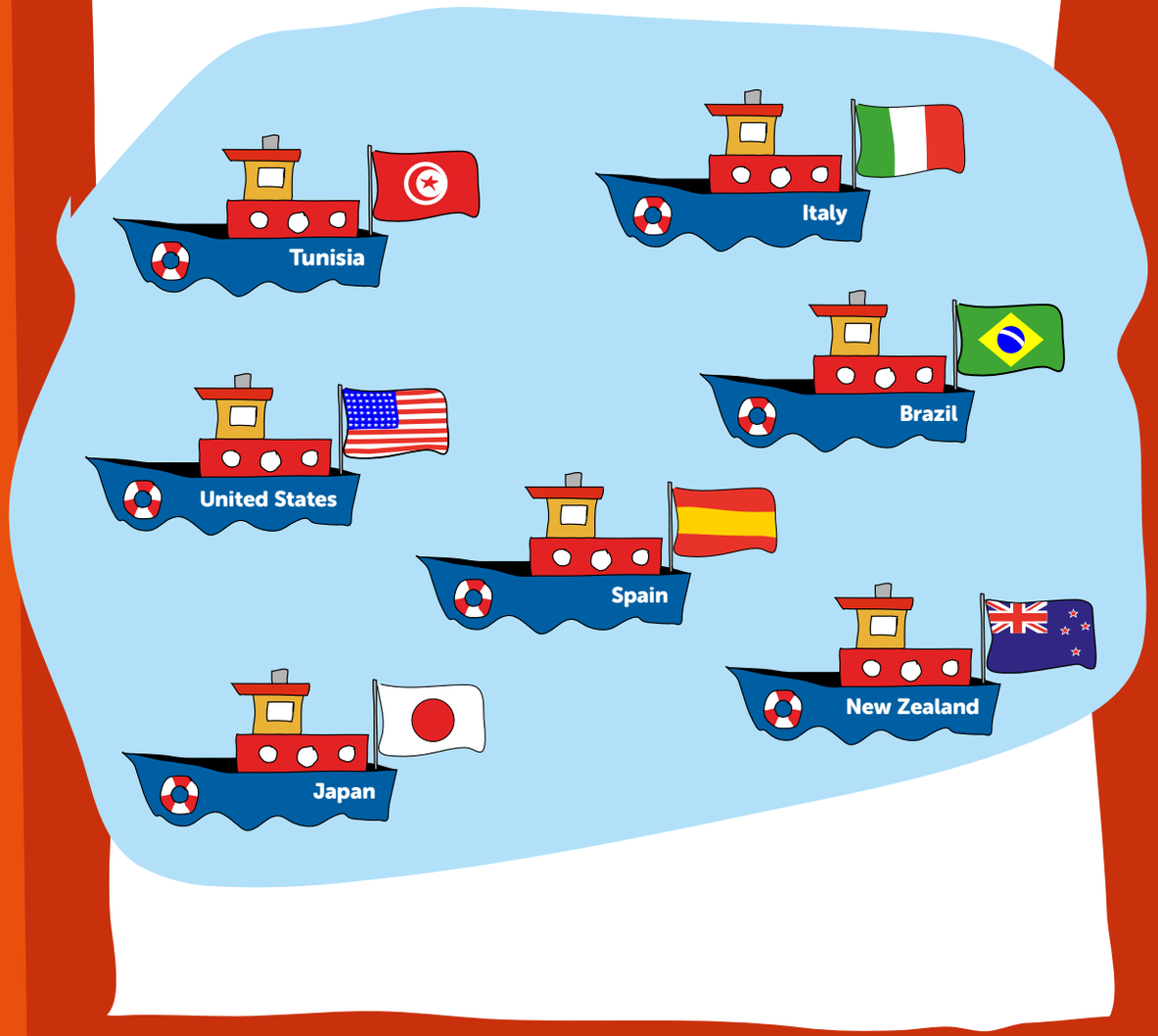
A moon and a star will guide you through **Tunisia.**

The Sun is the symbol of the **Japanese.**

In **Brazil**, the green of the Amazon takes up almost all the space.

Four stars will tell you where **New Zealand** is.

SOLUTION



DO YOU KNOW THAT THE FLAG IS ONE OF THE MOST IMPORTANT SYMBOLS FOR A COUNTRY?

Its main role is to represent the country abroad, as well as its citizens.

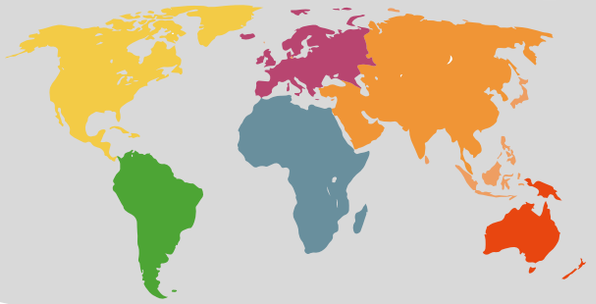
DO YOU WANT TO DO MORE RESEARCH?

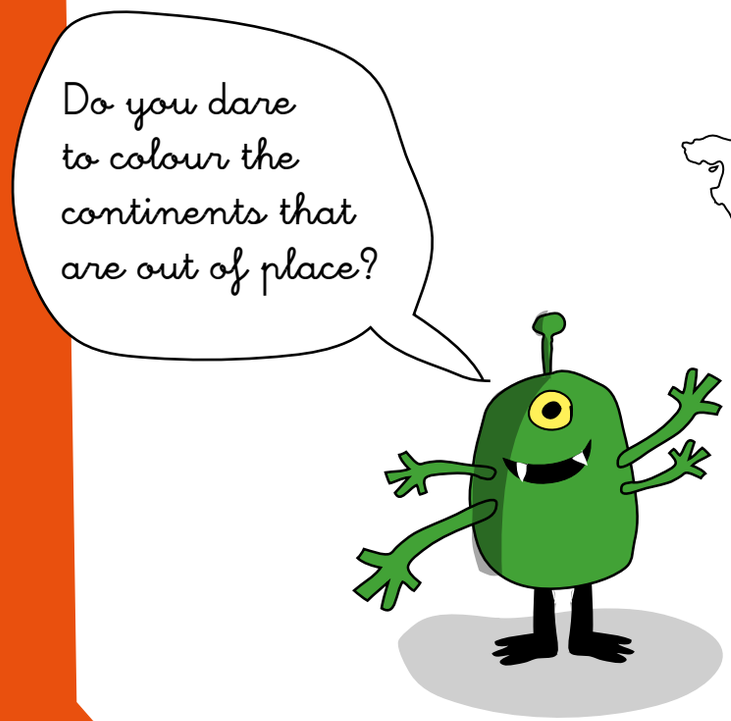
Scan the following QR code and play with the flags of the countries that are members of the European Union:

CLUELESS CONTINENTS

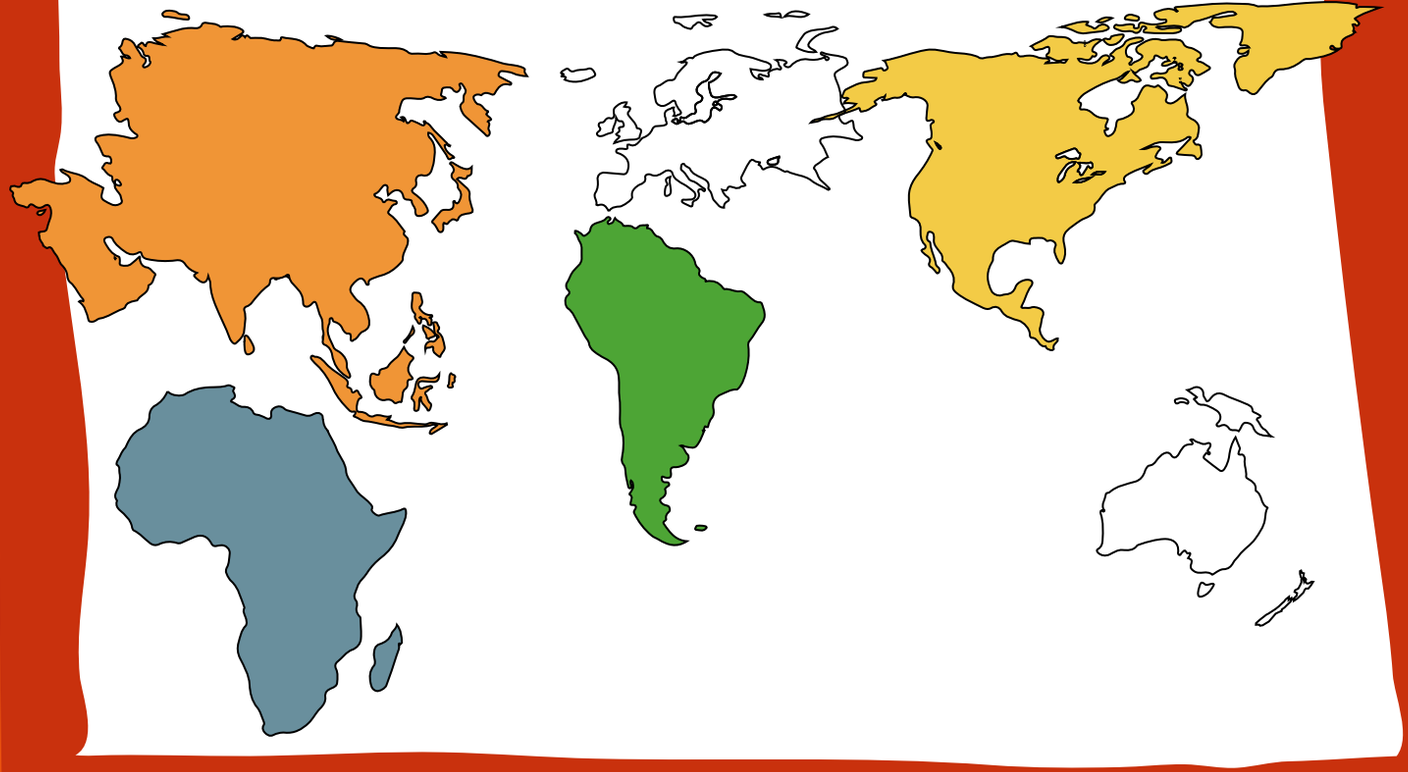
The continents have gone mad and some have decided to move.

You can look at the following map where the continents are in the right place.





SOLUTION



DO YOU WANT TO DO MORE RESEARCH?

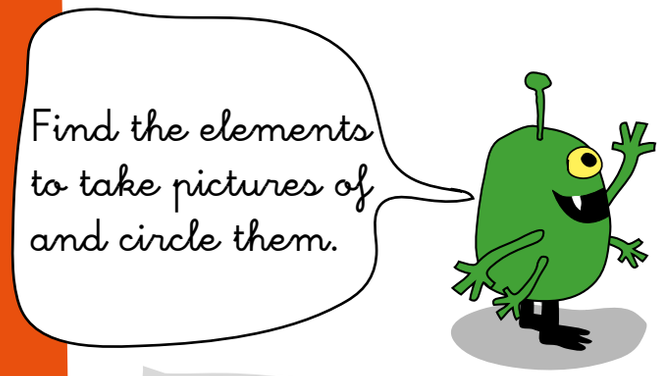
You can play with this puzzle of the world's continents.

DO YOU KNOW THERE IS A COUNTRY THAT IS BIGGER THAN SOME CONTINENTS?

The country in question is Russia, which has more than 17 million square kilometres. An area greater than that of the European continent (approximately 10 million square kilometres) or Oceania (with nearly 9 million square kilometres).

SEEK AND YOU SHALL FIND

GeoExplorer is going to travel around the world taking photos of the most amazing sites.

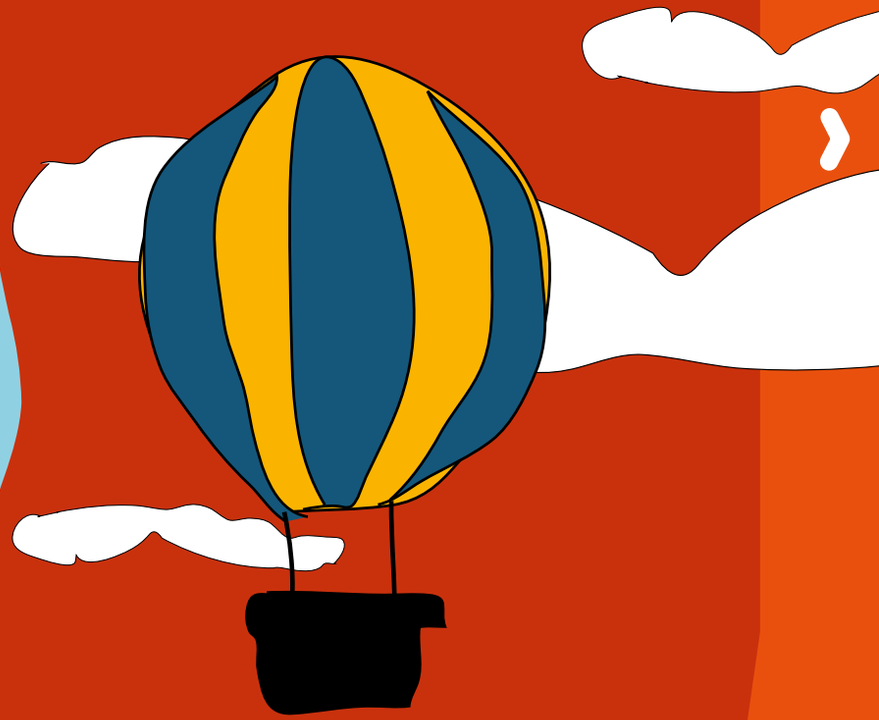


Lion in Africa
Panda bear in China
Kangaroo in Australia
Eiffel Tower in Paris (France)
Red Square in Moscow (Russia)
Petronas Twin Towers in Malaysia
Christ the Redeemer in Rio de Janeiro (Brazil)
Statue of Liberty in New York (USA)

SOLUTION

DO YOU KNOW THAT ONE OF THE MOST IMPORTANT NOVELS IN WORLD LITERATURE IS ABOUT A TRIP AROUND THE WORLD?

It is called Around the World in 80 Days and was written by Jules Verne in 1872.



SPAIN BY TRAIN

GeoExplorer wants to travel by train to explore some Spanish cities, but the tracks have disappeared.

Draw the path of the train tracks following the colours indicated and GeoExplorer's route.

Sevilla-Madrid: blue track.
Madrid-Valencia: green track.
Valencia-Barcelona: red track.
Barcelona-Santiago de Compostela: yellow track.

SOLUTION

DO YOU KNOW WHICH WAS THE FIRST HIGH-SPEED TRAIN?

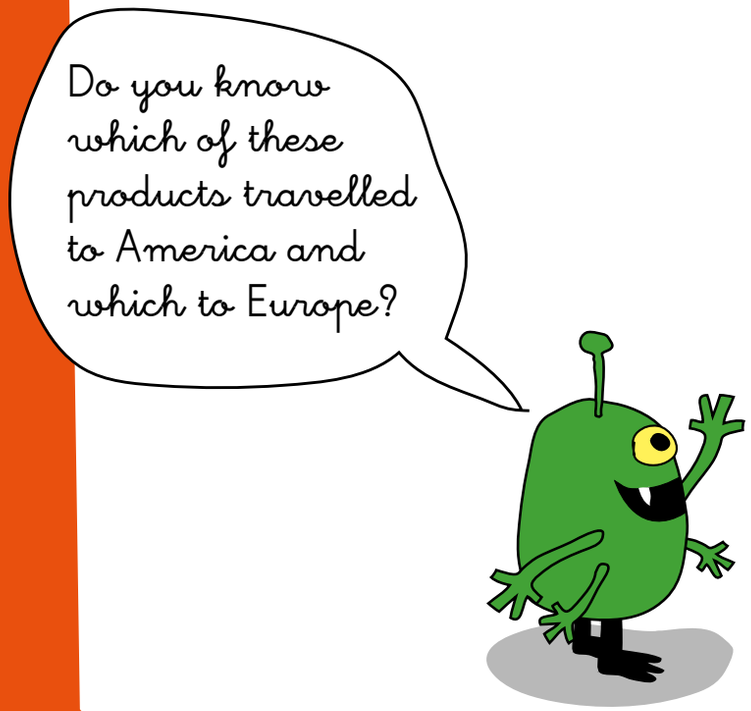
The first high-speed rail line in Spain, which is called AVE in Spanish, was inaugurated in 1992 and it is the railway Madrid – Sevilla.

DO YOU WANT TO DO MORE RESEARCH?

The Greenways are old railway lines that are out of service. Today they are set up for walking or cycling. Find your nearest Greenway on this map.

CROSSING THE ATLANTIC

GeoExplorer has learned about the voyages of Christopher Columbus and the discovery of America. It wonders which products the sailors brought back from America and which ones they brought with them from Europe.



Draw each product in the circles following the colour code:

Bread is frequently made from **wheat** flour.

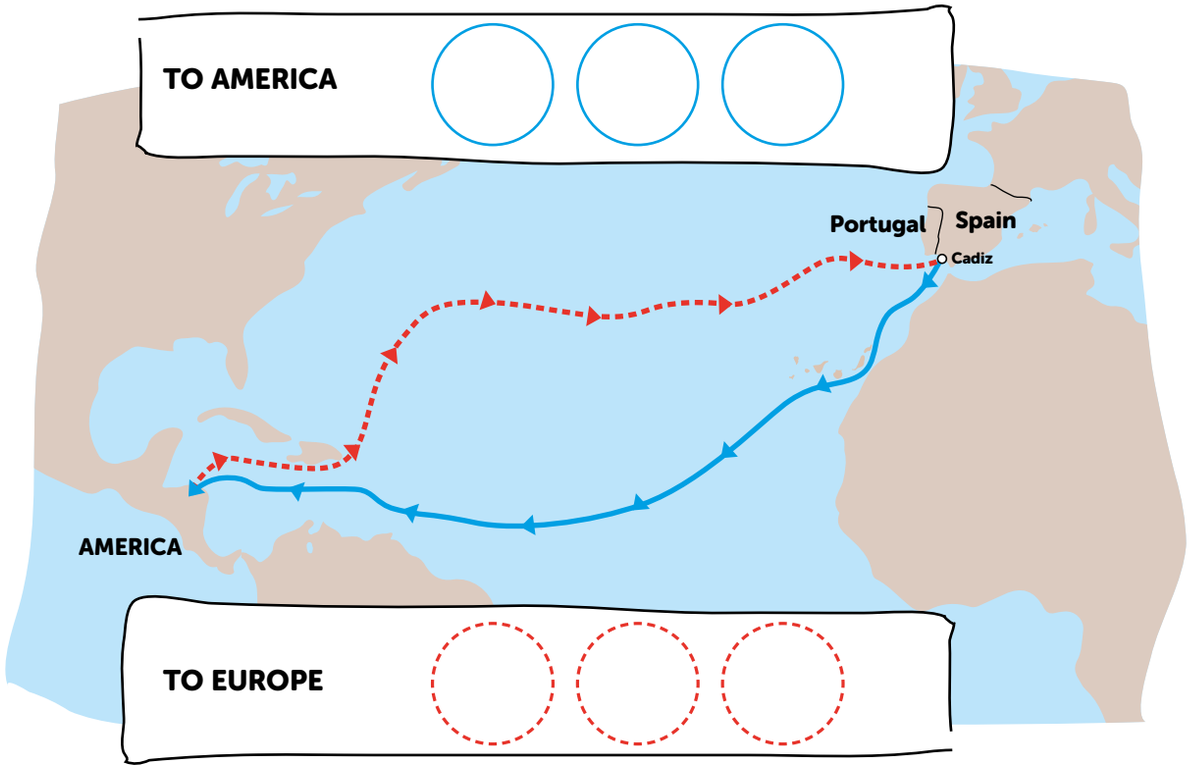
Cocoa is used to prepare delicious chocolate desserts.

Tomatoes are a tasty fruit.

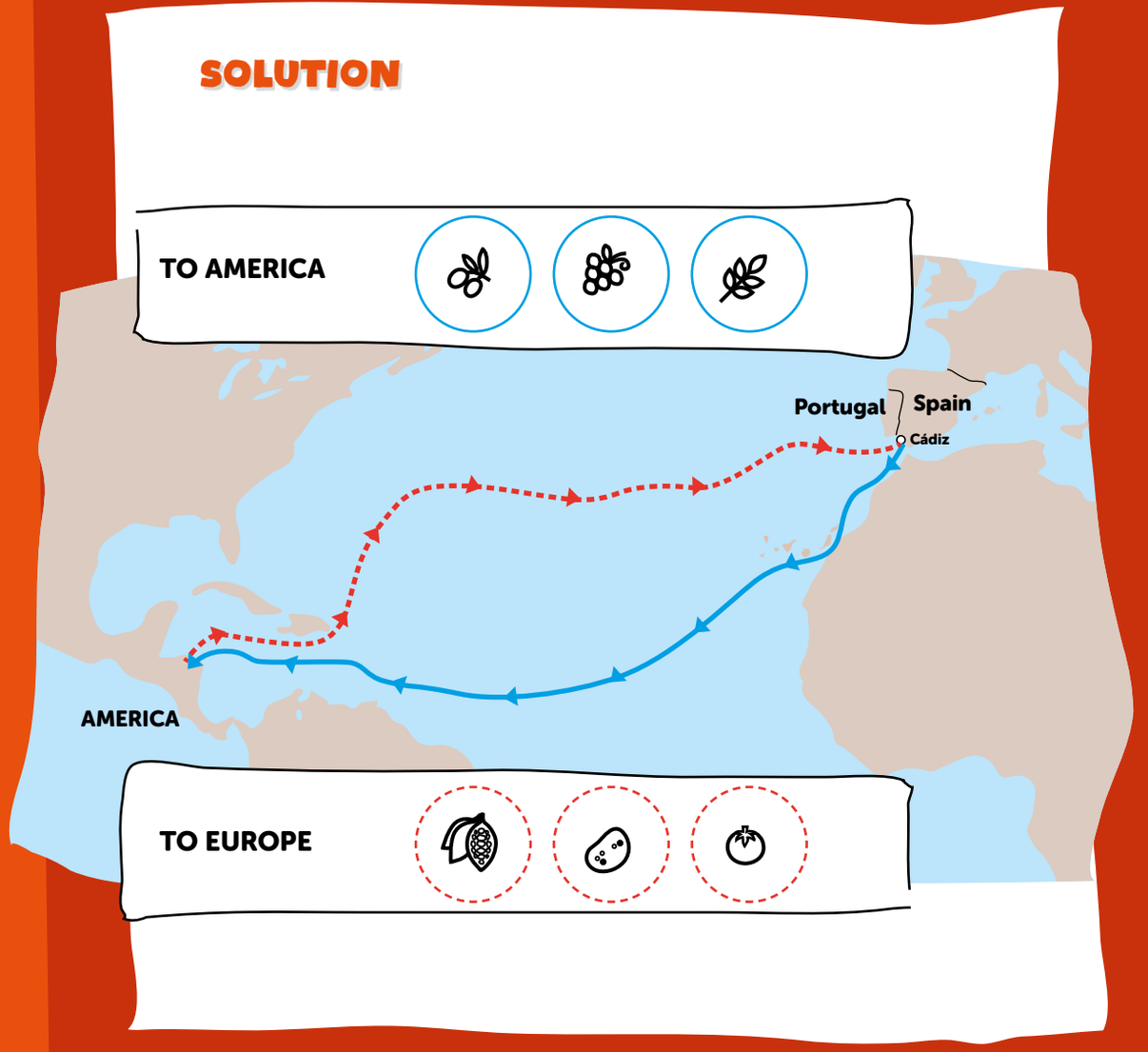
Olive oil is extracted from **olives**.

We make delicious omelettes with **potatoes.**

Wine comes from pressing **grapes**.



SOLUTION



DO YOU KNOW THAT WHEN COLUMBUS DISCOVERED AMERICA IN 1492 HE DID NOT CALL THE NEW CONTINENT THIS NAME?

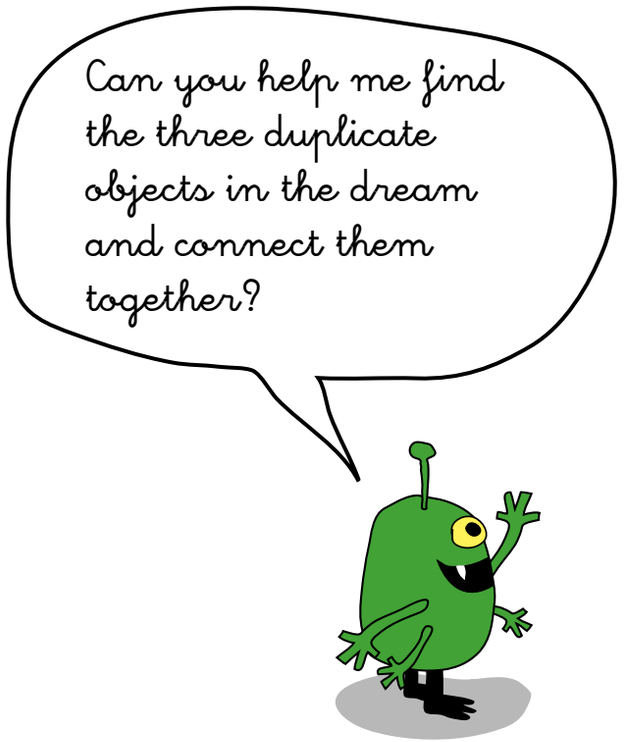
He didn't know he had discovered a new continent, he thought he had arrived in Asia. The name of America was put later in honour of an Italian sailor named Americo Vespucio, who was given credit for the discovery of the New World.

DO YOU WANT TO DO MORE RESEARCH?

To learn more about American culture you can visit the Museum of America in Madrid.

MISMATCHED COUPLES

GeoExplorer has been so fascinated with the story about the first trip around the world by Magellan and Elcano that it has fallen asleep and is seeing double of some objects.



SOLUTION

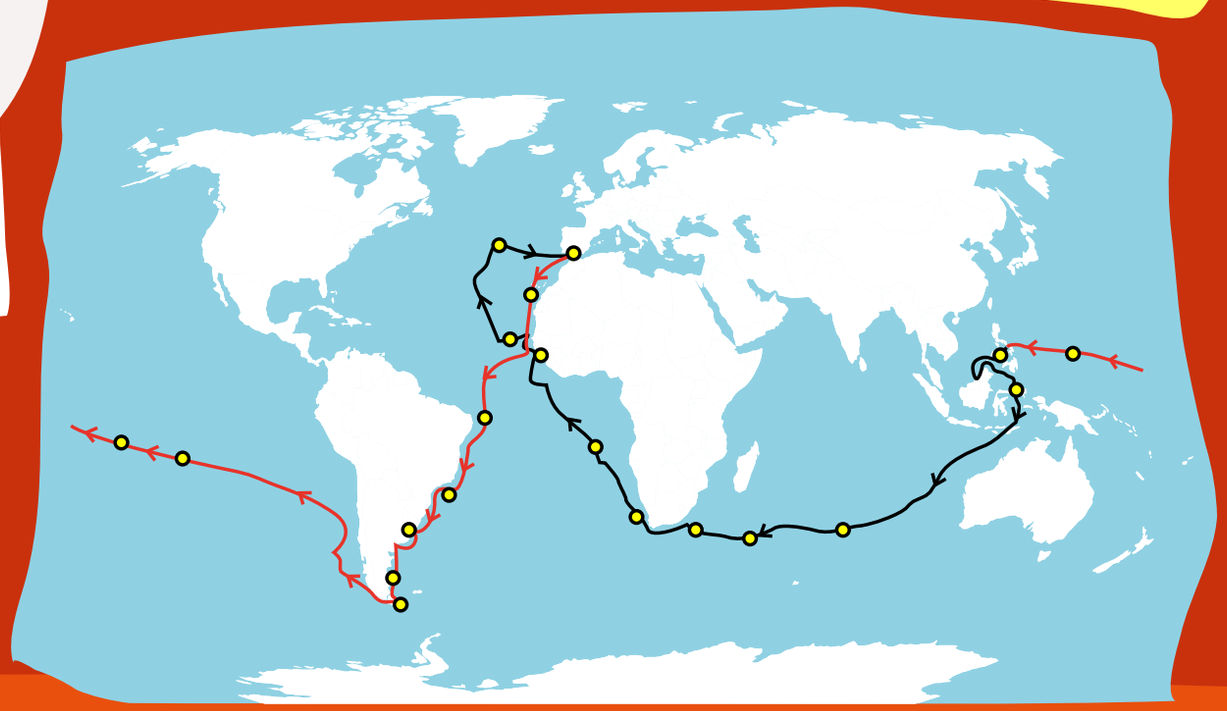
DO YOU KNOW THAT OF THE FIVE SHIPS THAT BEGAN THE EXPEDITION IN 1519 ONLY ONE RETURNED TO SPAIN IN 1522?

It was the Nao Victoria under the command of Elcano, as Magellan had died during the expedition.

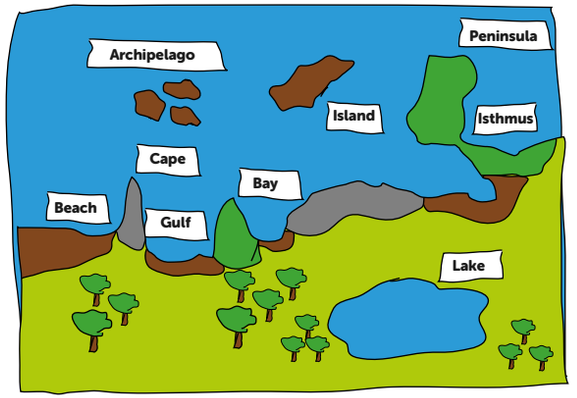
Only 18 survivors, from around 240 crew members who had left three years earlier, arrived on this boat.

DO YOU WANT TO DO MORE RESEARCH?

Tour the first trip around the world by scanning this QR code:



EXPERIMENTING: THE COAST AT A GLANCE



What are you going to need?

A blue poster board sized DIN A4, cut-outs from the sheet that you can find at the back of the notebook, scissors, glue and paints to colour.

How do you do it?

- On the cut-out sheet, paint and cut the part that refers to the area of land and the islands.
- Also cut the signs with the names and set them aside.
- Then use the glue to stick the portion of land you cut onto the blue poster board. Make the bottom corners match on the left and on the right.
- Also paste the largest island and make a composition with the small ones to form an archipelago.
- Finally, paste the signs next to each topographical form using the following definitions:

Archipelago: group of islands that are near each other and interrelated.

Island: piece of land completely surrounded by water.

Peninsula: piece of land surrounded by water, except for a part that connects it to another larger piece of land.

Isthmus: tongue of land that joins a peninsula with a continent or joins two continents with each other.

Lake: large continuous body of water surrounded by land.

Beach: shoreline of the sea, of a lake or of a river, with sandy soil and an almost flat surface.

Cape: piece of land that sticks out into the sea.

Gulf: large portion of sea that is placed between two capes.

Bay: natural entrance of the sea onto the coast, usually smaller than a gulf.

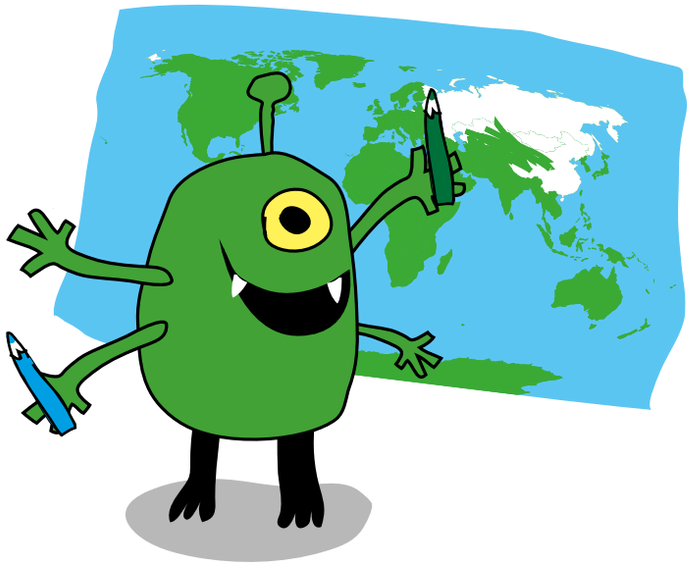
If you prefer, you can use some playdough to give it topography and continue enjoying your experiment.

For parents or tutors:

Would you like to share the results of the experiment on our social media? @IGNSpain

CREATING: DRAWING THE WORLD

Do you dare to draw the world on a map?



What are you going to need?

You can make your work with any painting technique: coloured pencils, watercolour, oil, collage, etc.

How do you do it?

You surely have your own vision of what our planet is like or how you would like it to be.

We suggest you make a drawing of the entire world or a large part of it.

Get inspiration from the drawings made by other boys and girls around the world:

If you enjoyed the experience you can participate individually or with your class in the Barbara Petchenik Drawing Competition, organised every two years by the International Cartographic Association. Here is more information:

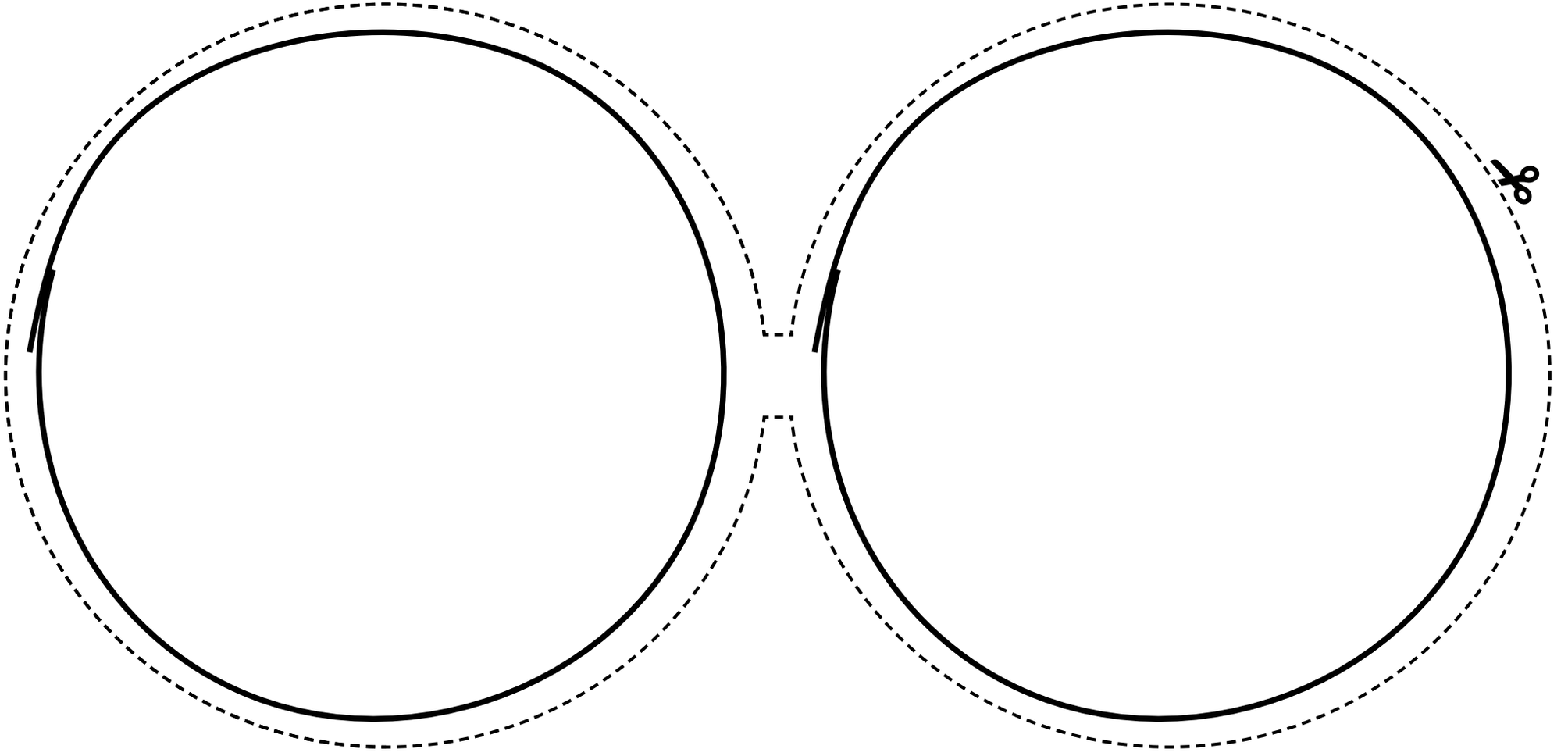
For parents or tutors:

Would you like to share the results of the experiment on our social media? @IGNSpain

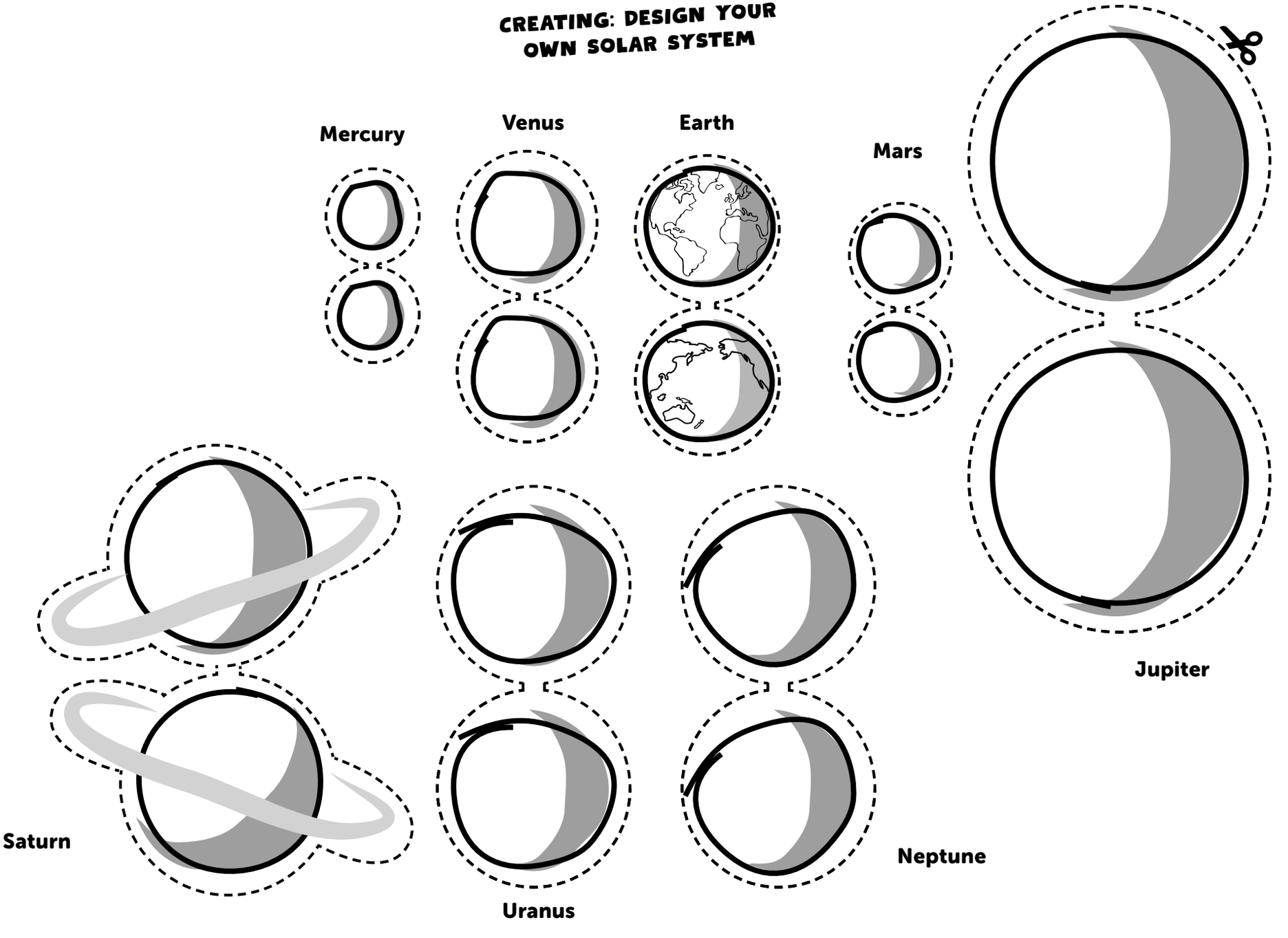
STENCILS

CREATING: DESIGN YOUR OWN SOLAR SYSTEM

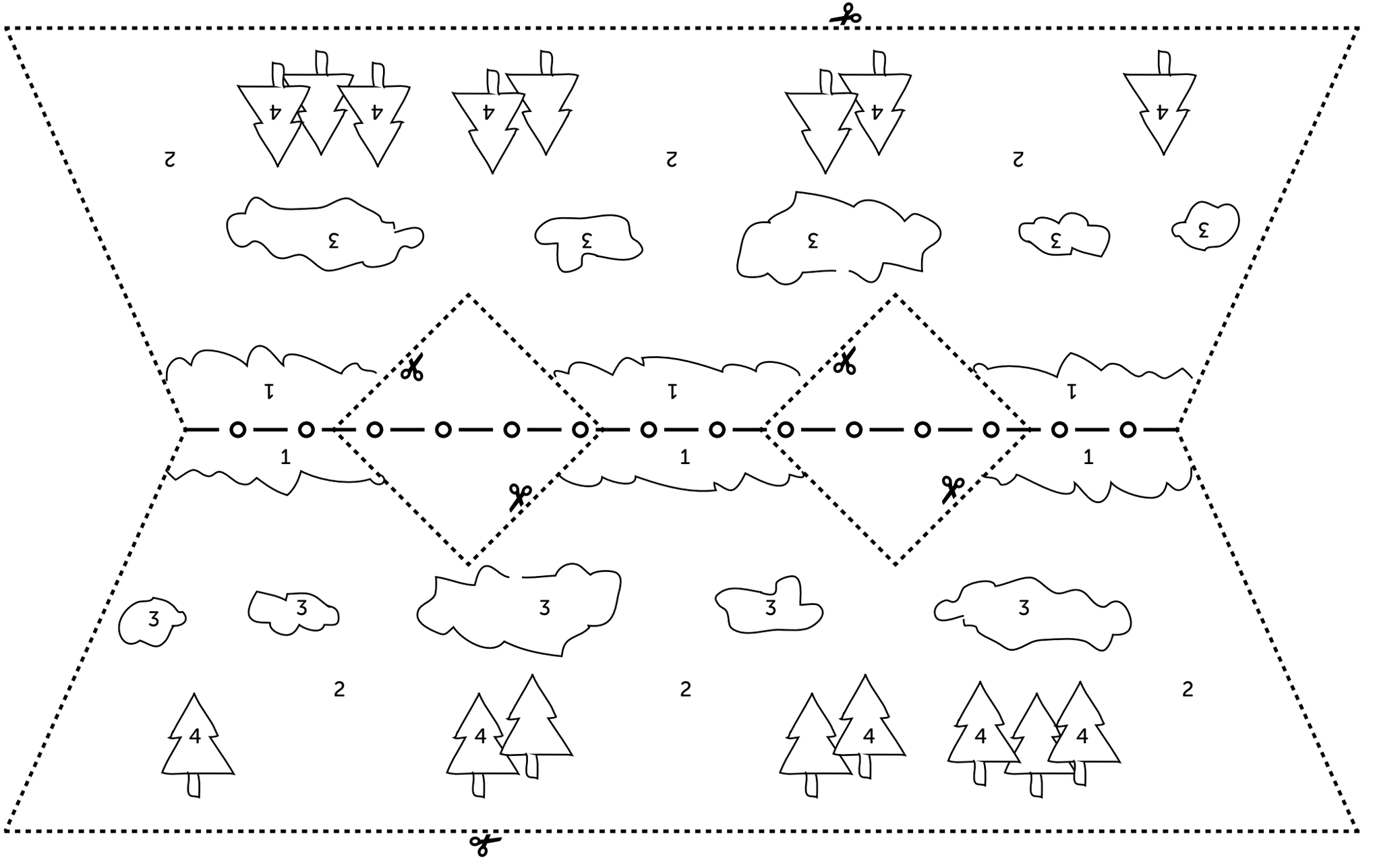
Sun



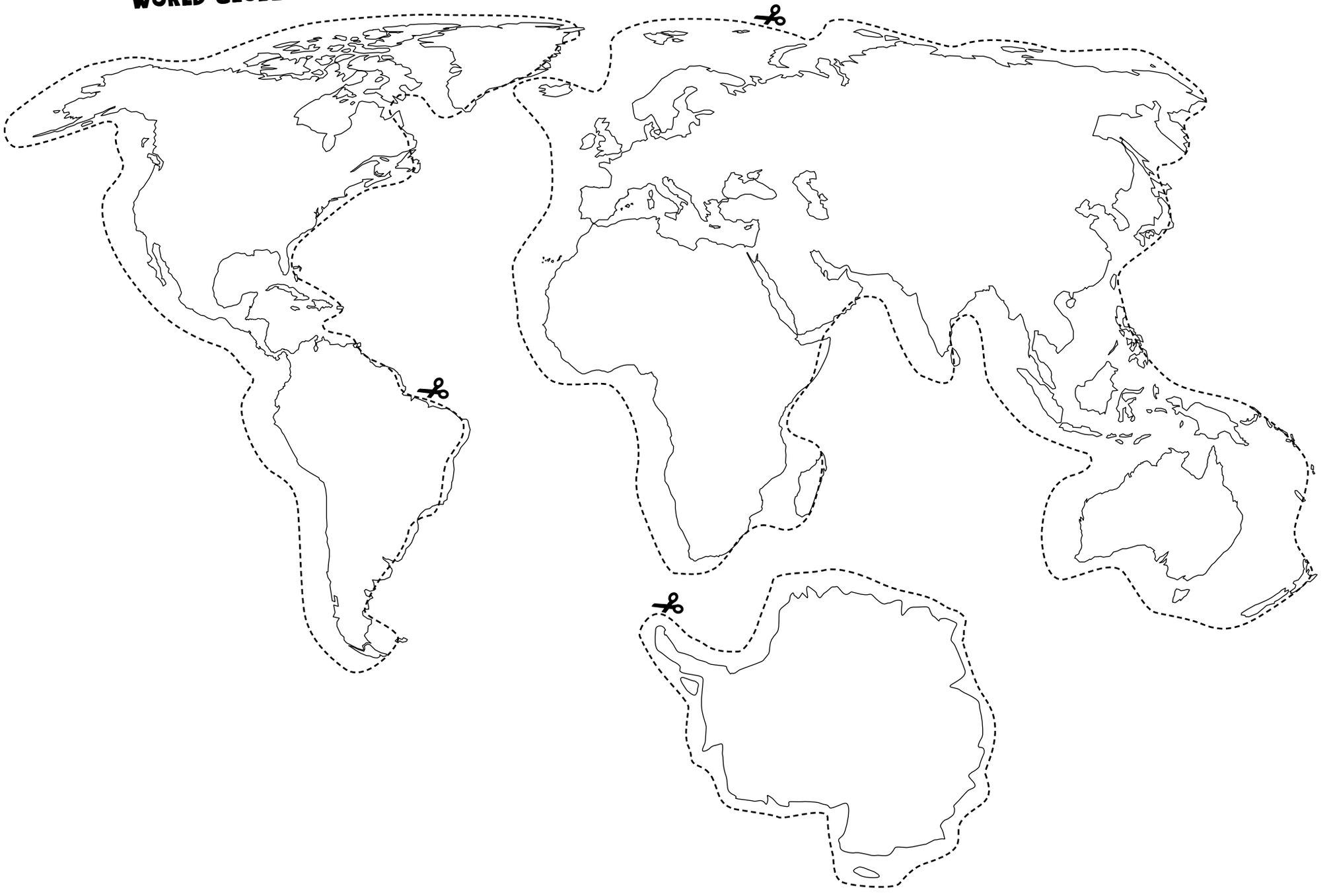
CREATING: DESIGN YOUR OWN SOLAR SYSTEM



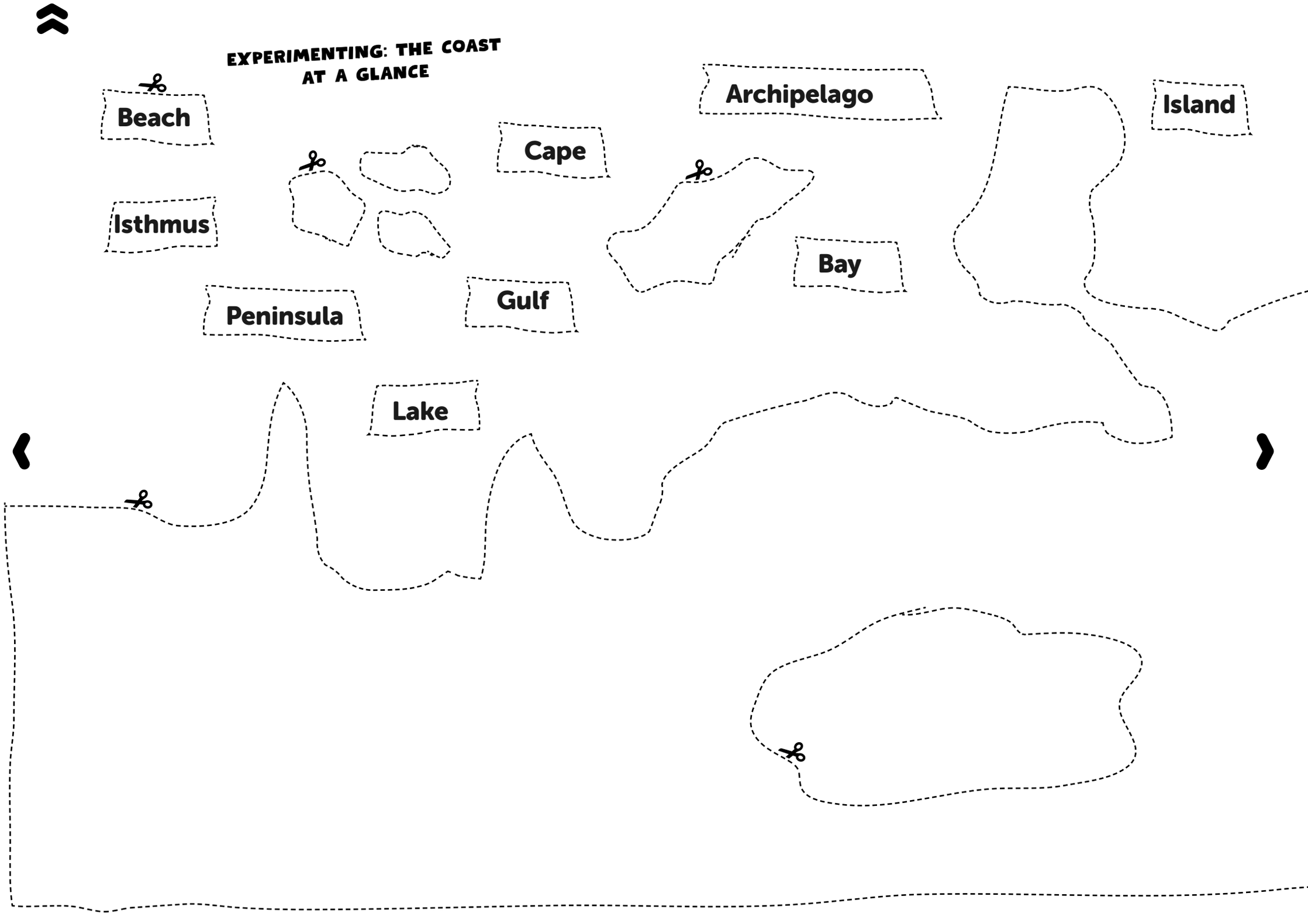
CREATING: HOW ARE MOUNTAINS FORMED?



CREATING: DESIGN YOUR OWN WORLD GLOBE

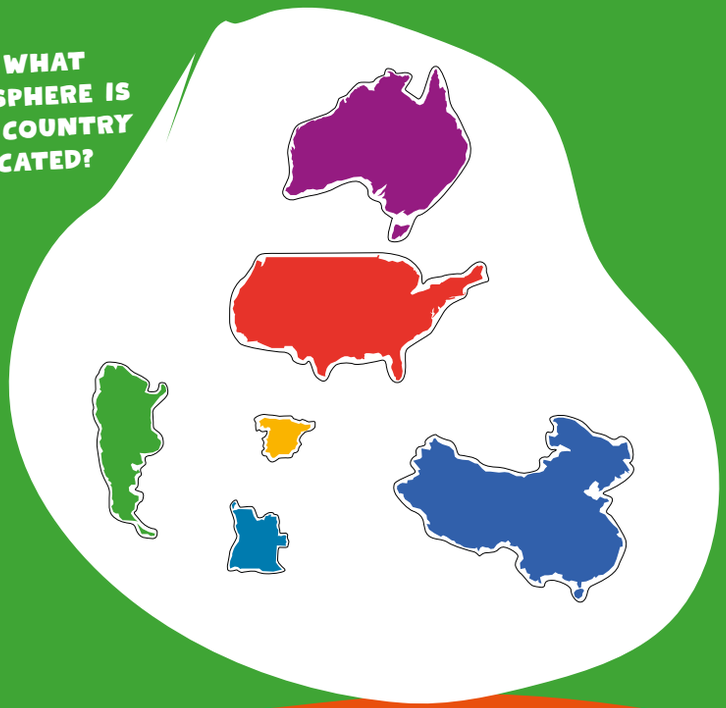


EXPERIMENTING: THE COAST AT A GLANCE



STICKERS

IN WHAT HEMISPHERE IS EACH COUNTRY LOCATED?

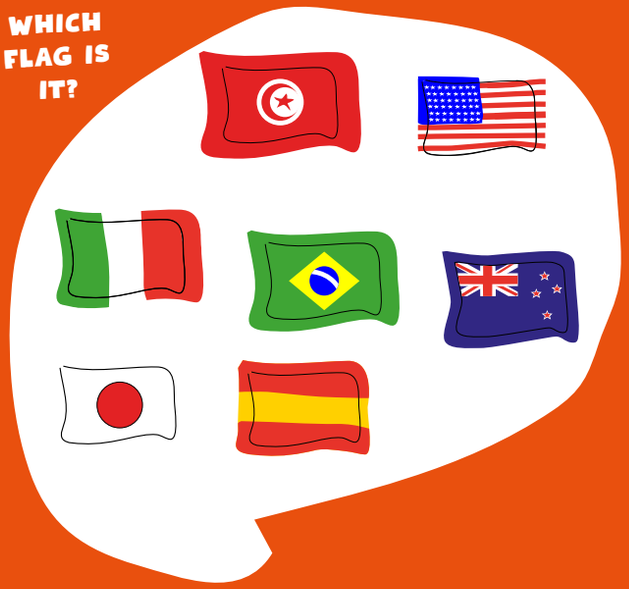


FIND THE COORDINATES OF THE ANIMALS

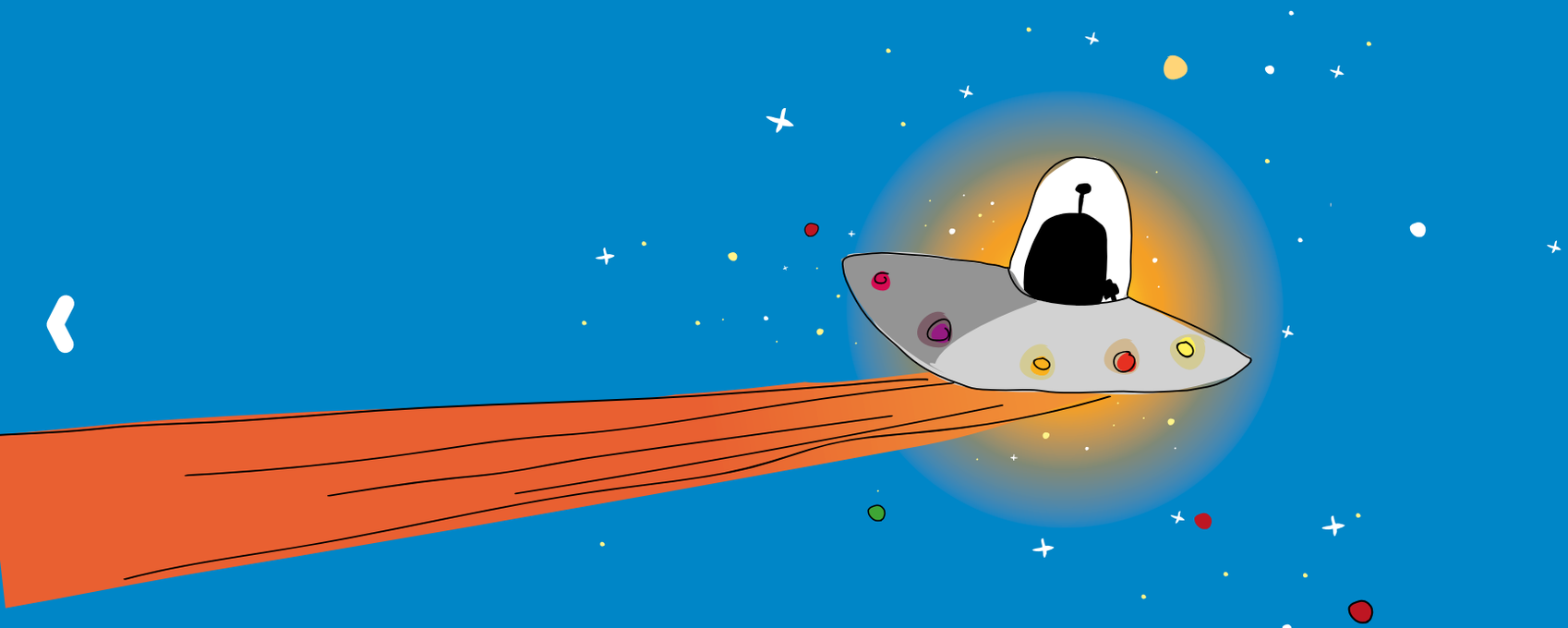
MAPS

LET'S GO TO A FESTIVAL

WHICH FLAG IS IT?



GEOGRAPHY



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