

THIS IS HOW 1 ESO GEOGRAPHY AND HISTORY INICIA DUAL IS

The contents of the 1 ESO Geography and History INICIA DUAL project are offered both in printed format – the book you are holding in your hands – and digital format – the associated digital book INICIA DUAL. The guidelines on these two pages will show you how to get the maximum benefit out of the digital and print formats combined.

This volume consists of 6 units, which are structured as follows:

- Unit Presentation
- Content Development
- Key concepts
- Consolidation
- Final task

The units are supported by appendices, which include a collection of related maps, as well as a glossary of key terms from each unit.

1 PLANET EARTH AND ITS REPRESENTATION

YOU WILL LEARN TO...

- Identify the characteristics of the planet Earth.
- Explain the effects of the Earth's rotation and revolution.
- Recognize the scope of the Hemisphere: the Northern and Southern.
- Distinguish between longitude and latitude.
- Locate places on a map using geographic coordinates.
- Classify and distinguish between different types of maps and map projections.
- Differentiate between similar time zones on the same map.

Did you know?
A well-mapped route
For centuries, our ancestors argued about the Earth's shape and about its place in the universe. They reached the correct conclusions with the help of the Sun and the stars and found ways of heading our planet. They even created maps to represent the Earth's surface by creating images. Accurate map-making was a matter of life or death for mariners and sailors. Nowadays, with much more advanced technological resources, we are able to trace our exact position and find our way across automatically.

Why is the Earth called 'The blue planet'?
How does the Earth rotate?
How long does the Earth take to make one revolution?
Can you name three cities in the Southern Hemisphere?

UNIT PRESENTATION

The opening spread provides a striking and evocative topic-relevant image, designed to stimulate interest and curiosity. On the first page, there is a user-friendly feature:

You will learn to... : this section explains what is going to be covered in each unit step by step. It also provides clear learning objectives, outlining what you should be able to accomplish by the unit's end.

CONTENT DEVELOPMENT

These pages present the core material you have to study.

You may find that you are already familiar with some of the subject matter covered.

The **Important** section provides extra supporting information which complements the main content and enhances or deepens your knowledge of the subject matter. The **Did you know?** feature provides interesting and quirky additional facts and information. Both sections will help you develop and expand your knowledge by introducing important concepts, interesting facts, specific topic vocabulary, relevant data and further recommended sources of reading.

At the end of each section, there are carefully chosen activities that will enable you to put what you have learned into practice.

The units have charts, maps, data tables, photos, drawings and other graphic elements to complement the content covered, and exemplify and develop key points, helping you to better understand, absorb and retain new information.

2. THE EARTH'S MOVEMENTS

Just like the other planets, the Earth moves in two different ways: **rotation** and **revolution**.

2.1. Rotation
Rotation is the movement of the Earth as it turns on its own axis, once every 24 hours each day.
The Earth rotates on an imaginary line called the Earth's axis. This axis is a little tilted and runs through the center of the planet between the North and South Poles.
Important: Starting on the west and ending on the east allows us to travel conveniently, to identify east and to find the cardinal points: north, south, east and west.
In the Middle Ages, the compass was invented in China. A compass indicates north, and its opposite, south, and its opposite, east and west.

2.2. Revolution
Revolution is the movement of the Earth around the Sun, creating an elongated or elliptical orbit.
It takes the Earth 365 days and 6 hours to complete one revolution. A solar year is 365 days, so the hours accumulate. Every 4 years we add one day to the usual number of February, which goes from 28 days to 29. A year with 366 days is called a **leap year**.
Because the Earth's axis is tilted, the Sun's rays hit the Earth differently depending on the time of year, causing variations in temperature and the length of the day.
So, in the Earth's northern hemisphere, we can get different seasons: spring, summer, autumn and winter. The seasons in the Northern and Southern Hemispheres are opposite: when it's summer in the Northern Hemisphere, it's winter in the Southern Hemisphere.

Did you know?
*Tilted orbit
*Made the rotation on an orbit
*Turns around another object in space

THE SEASONS IN THE NORTHERN HEMISPHERE

Important: Spring begins with the vernal equinox. At this time, the Earth's axis is perpendicular to the Sun's rays. The day and night are the same length, 12 hours. At the summer solstice, the Sun is at its highest point in the Northern Hemisphere and is almost directly overhead.

Did you know? Summer begins with the summer solstice. At this time, the Earth's axis is tilted towards the Sun. At the autumn equinox, the Earth's axis is perpendicular to the Sun's rays and the day and night are the same length.

Activity: 11. If the Earth rotates on its own axis and moves in space around the Sun, why don't we feel the Earth moving? Investigate and write your findings in your notebook.

Activity: 10. Compare the four photos above of the same place in different seasons. Identify the main differences, and explain what causes them.

3. GEOGRAPHIC COORDINATES

The geographic coordinate system is a system of imaginary horizontal and vertical lines that are drawn on a globe or map. These lines are called **parallels** (lines of latitude) and **meridians** (lines of longitude).

Parallels and meridians form an imaginary grid or network, in the form of a grid, which allows us to locate the position of any place in the world.

3.1. Parallels
The Equator is an imaginary circle around the middle part of the Earth. It is 40075 kilometers long. It divides our planet into two equal halves: the Northern Hemisphere and the Southern Hemisphere. The top half is the Northern Hemisphere and the bottom half is the Southern Hemisphere.

Parallels are imaginary lines that circle the Earth parallel to the Equator.

The Equator is 0° latitude. Other latitudes are 90° parallel to the north and another 90° to the south.

One of these parallels are the Tropics. In the Northern Hemisphere, there is the Tropic of Cancer and the Arctic Circle. The area between the Equator and the tropics (the Tropic of Convergence Zone) has the most biodiversity. The area between the tropics and the polar circles, the mid-latitude zone, is the area between the polar circles and the Tropic of High Latitudes.

3.2. Meridians
The prime meridian is the Greenwich meridian. It is 0° longitude. It is named after the Royal Observatory of Greenwich because the prime meridian runs through the observatory. This is the point of reference for all other meridians.
There are 180 more meridians to the east and another 180 to the west.

Meridians are imaginary lines that run from the North Pole to the South Pole.

HOW TO LOCATE A POINT ON EARTH

Any point we want to find on the Earth's surface can be located using a parallel of latitude and a meridian of longitude (coordinates).

Latitude is the angular distance between any point on Earth and the Equator.

Longitude is the angular distance between any point on Earth and the prime meridian or Greenwich meridian.

Longitude ranges between 0° and 180° east (between 0° and 180° longitude) and 0° and 180° west (between 0° and 180° longitude). The latitude is 0° at the Equator, 90° at the North Pole, and 90° at the South Pole.

Activity: 12. Explain the relation between parallels and meridians and between meridians and longitude.

Activity: 13. Look at the map and answer the questions.
 a. Are all the meridians and parallels on our planet the same length and a similar size?
 b. In which hemisphere is the Tropic of Cancer? What is its longitude?
 c. What latitude is the Tropic of Capricorn? What is its longitude?
 d. Look at an artificial island of Spain. What latitude is the northernmost point of the Iberian Peninsula? And the southernmost point?

Activity: 14. Look at an artificial island of Spain. What latitude is the northernmost point of the Iberian Peninsula? And the southernmost point?

Activity: 15. Look at a world political map. Indicate the hemisphere where the following cities are located: Moscow, California, Barcelona and Pretoria.

Activity: 16. Here are an outline world political map and mark the following coordinates.
 a. Latitude 30° 32' 30" N and longitude 50° 50' 15" W
 b. Latitude 30° 32' 30" N and longitude 130° 34' 52" E
 c. Latitude 10° 52' 00" N and longitude 90° 00' 00" W
 d. Latitude 30° 32' 30" N and longitude 110° 12' 24" E
 e. Latitude 10° 52' 00" N and longitude 110° 12' 24" E

Activity: 17. On a world map, find the location of the above coordinates. Then label the world map with the cities and their coordinates.

KEY CONCEPTS

This section aims to highlight and summarise the most important unit content. This provides further support to help you absorb key concepts.

KEY CONCEPTS

The Earth's movement

Rotation is the movement of Earth around its own axis. One rotation takes 24 hours and causes day and night.

Revolution is the movement of the Earth around the Sun. It takes 365 days and causes Earth and the seasons.

Geographic coordinates

Meridians and **parallels** form an imaginary geographic network on the Earth's surface which is used to identify points or geographic coordinates of any place in the world by combining latitude and longitude.

Parallels are imaginary circles parallel to the Equator. Meridians are imaginary semi-circles going from pole to pole.

Latitude is the angular distance between any point on Earth and the Equator (0° latitude). Latitude can be north or south and range from 0° (the Equator) to 90° (at the poles).

Longitude is the angular distance between any point on Earth and the prime or Greenwich meridian. It can be east or west and range from 0° (Greenwich) to 180° (the International Date Line in the Pacific Ocean).

The representation of the Earth

Maps are two and three-dimensional representations of the Earth, or a part of the Earth, on a flat surface. The shape of modern maps is called cartography.

Map projections are used to show the Earth's spherical surface flat. The most common are cylindrical, conical and planar projections.

Maps can be topographical if they show natural or man-made features, or thematic, if they show specific features (physical, political, climate, etc.).

Street maps show smaller areas, usually cities, towns, urban construction or buildings. Plans show the chosen representation of buildings.

The scale is the ratio between the size of the area represented on the map and its size on reality. The scale can be large, medium or small, depending on the representation and the area.

Time zones

Time zones are imaginary vertical strips on the Earth's surface of 15° longitude each. There are 24 time zones and each is about 15° wide.

Time can be used to estimate the difference between different areas and countries.

Planet Earth

Earth is the third planet from the Sun. The Earth is spherical and slightly flattened at the poles.

The Solar System is located on a spiral galaxy called **Milky Way**.

The distance from the Sun, the abundance of water and the movement of an atmosphere make life on our planet possible.




CONSOLIDATION

26. Look at the picture of the Solar System on page 15-11 of this unit and copy the following table in your notebook.

27. What is the main cause of the differences in temperatures between the planets?

PLANET	Distance from the Sun (km)	Temperature (°C)
Venus	41	472
Earth	150	15.8
Mars	228	-63
Jupiter	778	-121
Saturn	1,430	-173
Uranus	2,871	-212
Neptune	4,500	-213

28. Write true (T) or false (F) and correct the false statements in your notebook.

29. Look at the image of daylight spreading over Asia.

30. Describe which regions of our planet can be seen.

31. Match each area with its corresponding cardinal point.

Arctic Circle	SOUTH
Tropic of Capricorn	WEST
Equator	NORTH
Tropic of Cancer	EAST
Antarctic Circle	

32. Explain the differences between the following terms.

a) Latitude and longitude.

b) Rotation and revolution.

c) A top scale map and a small scale map.

33. Copy the following in your notebook in alphabetical order and write definitions.

Equator	rotation	revolution
scale	projection	time zone
meridian	latitude	cartography
longitude	tropics	GMT

34. Answer the following questions.

a) Does a small scale map represent a large area? Does it show any details? Why?

b) What imaginary circle divides the Earth into two equal halves?

c) What is the relation between the distance of the Earth from the Sun and its resistance to life on the planet?

d) In which point do the globe and the map of the Earth feature come into contact in a planet projection?

35. Look at the main islands in the Caribbean, such as Cuba and Puerto Rico, on the map of these zones on page 29 of this unit and explain the following:

a) How many time zones are between these islands and the Eastern Hemisphere?

b) How many time zones are between the islands and the Western Hemisphere?

36. Look at the map of the different time zones in the United States. It is 12 pm in London (prime meridian), what time is it in New York? And in Los Angeles?

37. Copy and complete the sentences in your notebook.

a) New York is located at 74° longitude _____.

b) The prime meridian passes through _____.

c) The longest day of the year occurs in _____.

d) During the autumn equinox, the Sun's rays fall on the Equator _____.

38. Imagine that your town is the starting point of a trip around the world in a straight line.

a) Work out the geographical coordinates of your town.

b) Follow the profile of your town around the world and choose four places you find interesting.

Write the name, the complete geographical coordinates and some local information for each place.

39. Write a presentation briefly summarizing the contents of this unit.



CONSOLIDATION

The tasks presented on this two-page spread are designed to require you to put your learning into practice to help you identify how well you have absorbed the unit's content and how successfully you can apply this knowledge, as well as areas for improvement that may require some revision.

The icons which appear on the upper part of the page indicate specific task types. Here, and throughout the unit, a range of different tasks requiring the use of a variety of skills are employed.

FINAL TASK

This is a group-work project section, where you have the opportunity to apply the knowledge, skills and techniques learned in the unit in a team environment.

The development of the task is carried out in three stages: (1) preparation, (2) procedure and (3) communication and publication.

At the end, you will be given the opportunity to evaluate your own progress, answering eight questions which prompt you to reflect on what you have learnt.

A well-mapped route

You are going to plan a trip (either real or virtual) to a real-world setting in the area you live in. To do this, you will need a map of the area to mark your itinerary. Then, in order to follow the route, you will apply some basic geographic orientation techniques.

Preparation 1

In groups of four or five, choose where you want to go.

Procedure 2

If you really go on the trip, try and find your way using some of the following methods.

If you do a virtual trip, explain the methods you could have used to find your way.

ORIENTATION WITHOUT INSTRUMENTS

Observe the position of the Sun. At dawn, stand with your arms out in a cross. Keep your right eye in the direction of the Sun, in the east. You will have to point your north in front of you and behind your back.

If you turn your back to the Sun at 12 noon, take your shadow and point north, your right hand, east, your left hand, west and your feet will point south.

Observe the shadow of a stick. In a flat area, push a half-metre-long or longer stick into the ground and observe its shadow.

1 Place a stone chip on the equator. Sit on top of the stick.

2 Three hours later, the shadow will have moved. Place another stone chip on the shadow, the same distance from the stick as the first stone. Mark a straight line between both points.

3 If that a shadow were cast at 6:00, you mark a line from the stick to the centre of the circle and behind the stick will be south.

Observe the stars, in case there are any. The North star has never fallen or fallen on or over the side. This star is usually the side facing north, which is wider and smaller than the southern side.

Observe the Moon. When the Moon is close to its first quarter, or waxing crescent (1), the top part seen. In contrast, in the last quarter, or waning crescent (2), the top part east.

Final task

ORIENTATION WITH INSTRUMENTS

Nowadays there are many maps to find your way with different instruments. Some of these have been mentioned already.

1 A compass, placed on a flat surface and without marks.

2 A map is used to work out a route. Choose specific places to help you follow the itinerary and mark the directions you need to go to get to them. For example, to get to the forest (green) hill, go west. This will help you find the right path and correct your route if necessary.

3 On a GPS, the coordinates of a place can be introduced and the directions followed. It is easy to use but do not do it with the phone you have.

4 Many mobile phones now have location tracking services. These show you a map of the area, your location and other a close by.

Communication and publication 3

Each group presents their experience to the rest of the class. They discuss the methods of orientation used and difficulties. You can prepare your planned itinerary, maps of the route you took, the methods of orientation you used and what you did if you did not get lost.

Be prepared if you are asked to go on the site, show your itinerary and explain the methods of orientation you would have used.

SELF-ASSESSMENT

1. What instruments would you put in your notebook for an excursion? Explain what you would use each instrument for.
2. Which methods of orientation would you recommend to someone who wants to go on an excursion to the country? Explain why.
3. If you went somewhere you had never been before, what methods would be the best to avoid getting lost?
4. What information have you got from maps to do this task?
5. Which aspect of orientation did you find the most difficult?
6. Evaluate your participation in group work. Did you participate? What difficulties did you have?
7. Which of the other group members would you like to do this task?
8. What have you learnt from doing this task?

CONTENTS IN DIGITAL FORMAT

Icons key



Start



Download



Audio



Portfolio

The digital content of 1 ESO Geography and History INICIA DUAL is referenced in this volume so that you are aware at all stages of when you can or should use the digital book.

- On the opening page of each unit, the **start button** indicates that there is digital content available. This digital feature, called **Interesting facts!** introduces the topic in an engaging way. It presents a documentary and some questions with the aim of awakening your curiosity for the subject matter of the unit.
- The **download icon** marks a point where there is associated general digital content

or section-specific digital features (*Reading comprehension, Interactive activities, Cinema room, Virtual explorers...*).

- Some activities in the book have **blue** text to indicate the presence of a digital hyperlink that will allow you to access a related page, video or map from the associated digital book, INICIA DUAL.
- You will also find the **audio icon** linked to the **Key concepts** section.
- Some project sections display the portfolio icon , allowing you to archive all the work you do.