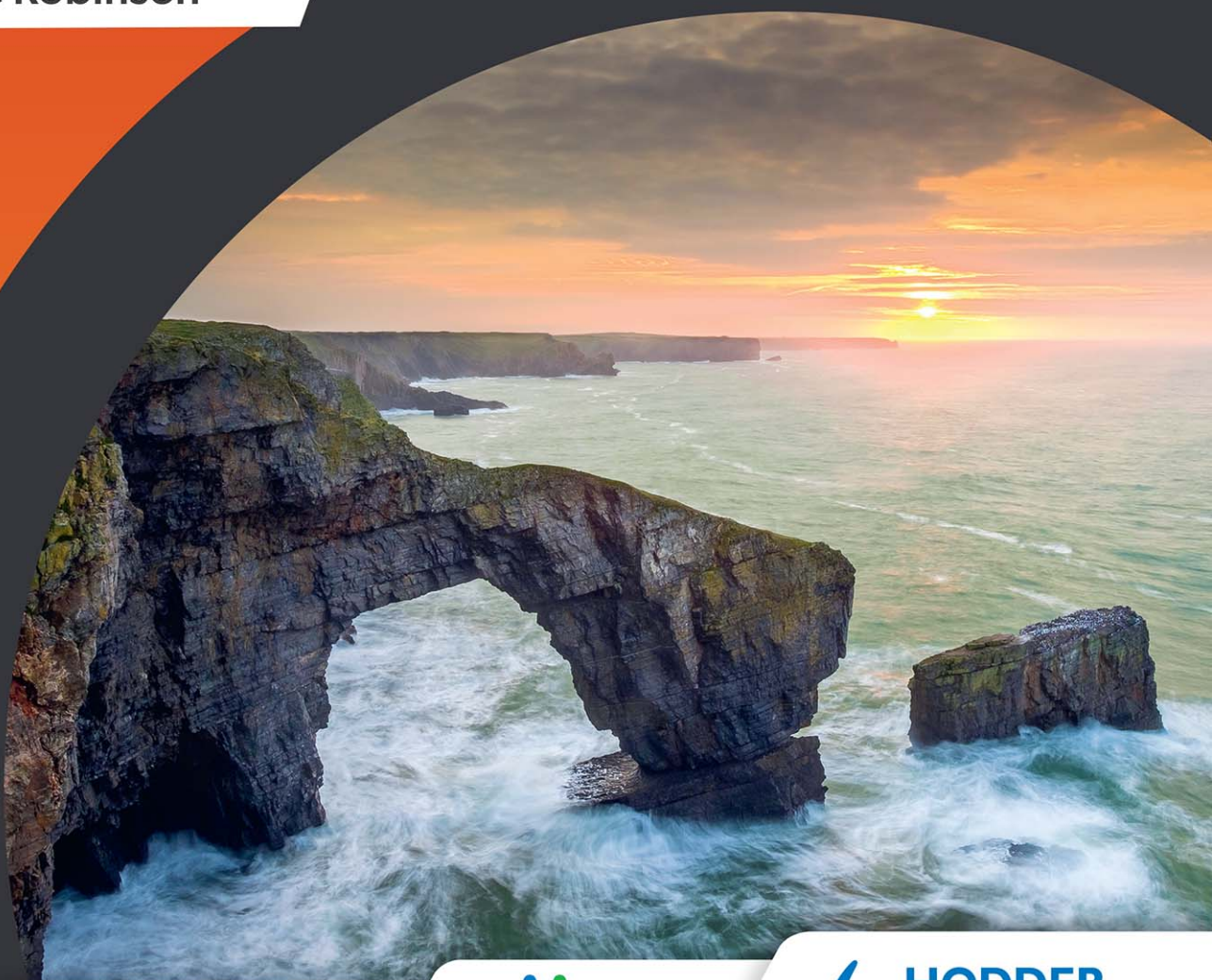


Geography

FOR 11–14 YEARS

Stephanie Robinson



IN COLLABORATION WITH
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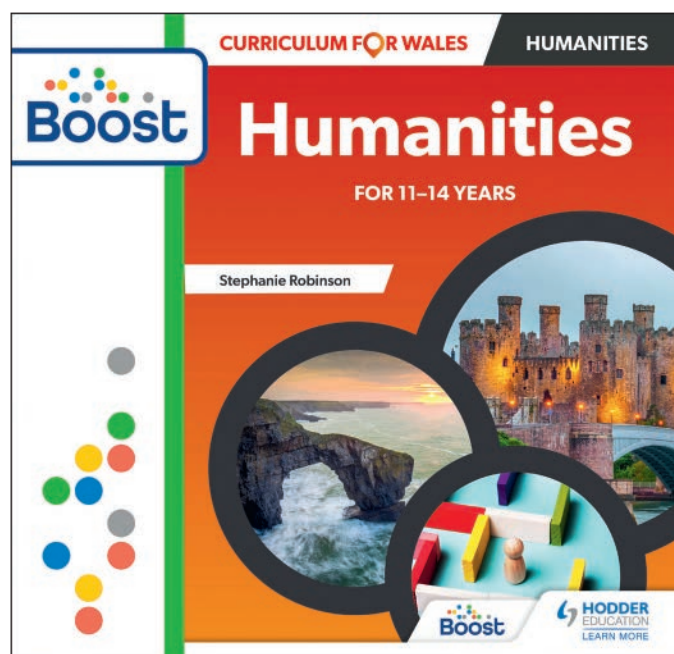
Our Geography curriculum planner provides detailed information on how the content and activities of each lesson link to the elements in the Curriculum for Wales, and the Humanities Area of Learning and Experience. It includes:

- **Chapter title** – the overarching enquiry question
- **Spread number and title** – the enquiry question that forms the focus of the two-page spread
- **What Matters** – the statements that relate to the content on the pages
- **Progression Steps** – the progression steps that you should be able to make through the activities on the pages. These will be either Progression step 3 or Progression step 4, or a mixture of steps 3 and 4
- **Skills** – the cross-curricular skills that will be used in the activities
- **Humanities AoLE links** – where the content is relevant to specific subjects of History, RVE, Business Studies or Social Studies
- **Cross-curricular links** – where the content is relevant to other AoLEs, including Science and Technology, Mathematics and Numeracy, and Health and Well-being.

Additional resources for approaching Humanities thematically

To support teachers who are planning a thematic approach for Humanities, teaching Geography as a separate subject, but within overall cross-subject themes, or within an integrated Humanities course, we have developed *Curriculum for Wales: Humanities for 11 to 14 years Teaching and Learning Boost*. This consists of:

- a thematic curriculum planner, showing how the content of this book can be used alongside our History and RVE books so that all the subjects are taught together in themes
- planning and teaching presentations for six individual themes for teachers to use to help them prepare for their lessons if they are teaching thematically.



What do we understand by 'cynefin' in geography?

This chapter explores the concept of 'cynefin', which means a sense of place. We look at what this means in the context of Geography, and the geographical scales of local, national and global. We look at how asking questions to investigate our local, national and global place can help to develop our own cynefin, and how this links to our own sense of identity.

1.1 What is 'geography' and what is 'cynefin'?

Learning objectives

- To understand what 'geography' means, and what the difference is between the physical, human and environmental world
- To understand what is meant by 'cynefin'
- To know what place and cynefin is on a local, national and global scale

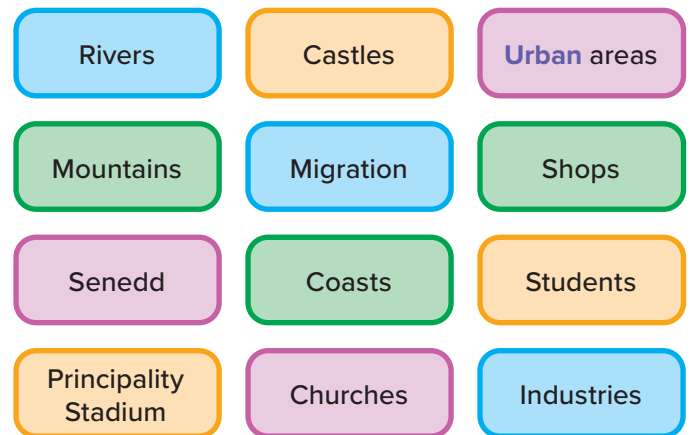
What is 'geography'?

The word 'geography' stems from the Greek words 'geo', which means Earth, and 'graphia', which means to write about, so geography literally means writing about our planet Earth! Geography helps us to make sense of:

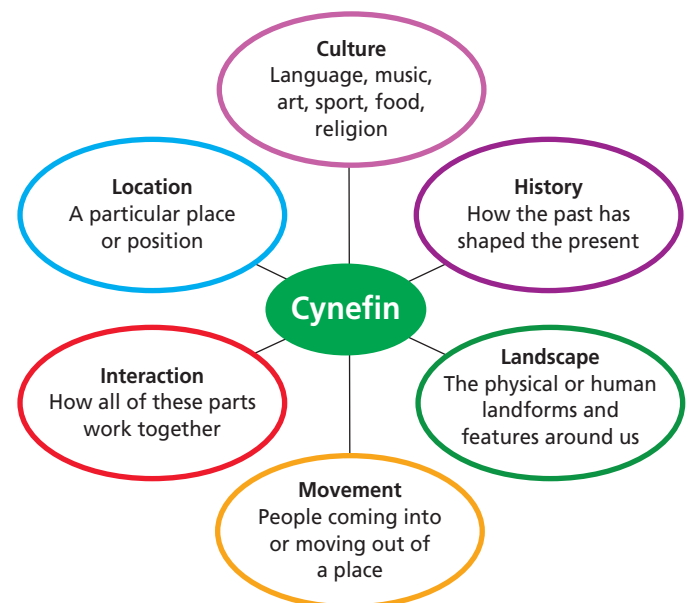
- the **physical world** – what our planet is like, the work of the rivers, the sea and ice
- the **human world** – how and where people live, develop and earn a living
- the **environmental world** – habitats, such as mountains, forests, oceans and how they develop and change
- the connections and interactions between the physical, human and environmental worlds.

What is 'cynefin'?

We need to consider geography in terms of '**cynefin**' (ker-nev-in), which is a Welsh word for 'habitat' or 'place'. Cynefin is the *place* where we feel we belong, where the people and landscapes around us are familiar, and the sights and sounds are reassuringly recognisable.



▲ **Figure 1** All of these are things that we look at in geography



▲ **Figure 2** The key parts of cynefin

Local, national and global

When we look at cynefin, we need to consider sense of place on a **local**, **national** and **global** scale.

Cynefin on a global scale is thinking about your sense of place within the whole world. Think about how your local area and the country of Wales links with the rest of the world. Wales has good transport connections to other countries by roads, railways and airports. Wales sells goods to countries across the world, such as aircraft wings, wool and sea salt. The Welsh language is also global, with Welsh being spoken in Patagonia, Argentina. As a geographer, you should explore places and environments outside of Wales.

Cynefin on a national scale is thinking about your sense of place within your country, and how you recognise areas of national importance outside of your own local area, such as Snowdonia National Park. As a geographer, you should aim to understand the geography of Wales and what it means to be Welsh.

Cynefin on a local scale is your sense of place within the neighbourhood or small community that you belong to, whether that is in a village, town or city, or in the countryside. As a geographer, you should explore your local surroundings. Within your own local place, there may be many unique signs of geography like a local river or beach, a historical building like a church or castle, or a modern-day human feature like a stadium or shopping centre.



▲ **Figure 3** Cynefin and place on a local, national and global scale

Activities

- 1 What does 'cynefin' mean?
- 2 What are the key parts of cynefin?
- 3 Think about your own local cynefin. What is distinctive about it?
- 4 Using Figure 1, sort the words into two lists to show whether they are about the physical world or the human world.
- 5 Look through this chapter to find some more examples of physical or human environments and add them to your lists from question 4.
- 6 What is meant by 'local', 'national' and 'global'?

My place

- 1 Write a list of all the things you already know about geography in your own local place; for example, write down the names of the local rivers, or what the area is famous for.
- 2 Look at Figure 1. Give an example of each of these things that can be found in your local area.
- 3
 - a Find two images related to your local place. These could be photos you have taken yourself or photos that you have found on the internet.
 - b On each image, label three physical features.
 - c On each image, label three human features.

1.2 What questions can we ask about place?

Learning objectives

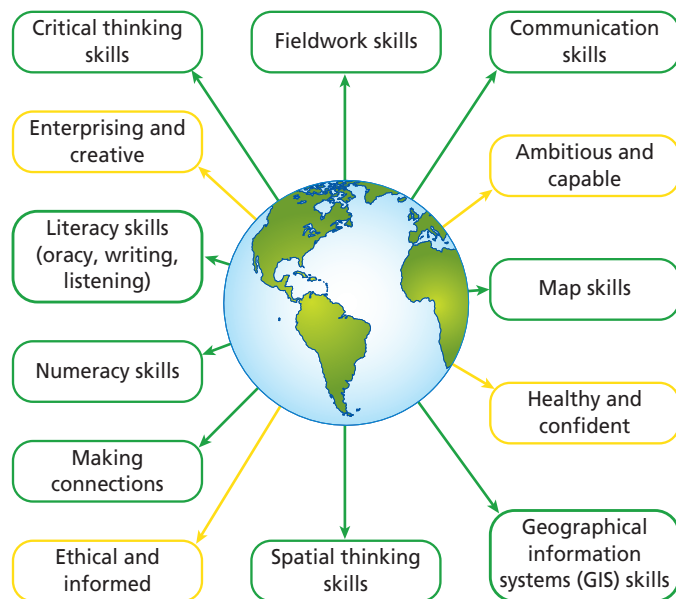
- To understand what a geographer is
- To understand what skills and qualities a geographer has
- To know why geographers ask questions
- To know how to ask geographical questions

To understand more about our own cynefin, it is important that we ask questions to help us learn more about the world and our place in it.

What is a geographer?

A good geographer:

- investigates and understands all the physical, human and environmental aspects of the world in which we live, and the interactions between them
- develops a locational knowledge of where places are in the world
- asks questions and uses a wide range of geographical data to investigate places.



▲ **Figure 1** The skills (green) and qualities (yellow) of a geographer

What skills and qualities do geographers need?

As geographers, we will often need to use skills. These include:

- **critical thinking** – questioning the information we hear or read
- **data analysis** – interpreting the information that we are given or gather ourselves
- **communication** – giving opinions, expressing our ideas in discussions, listening to others
- **digital competency** – using technology confidently, creatively and critically
- **making connections** – understanding the links between one concept or piece of information and another.

Asking geographical questions

It is really important that geographers can ask questions and use the information that they are surrounded by to suggest answers to these questions, in order to make sense of the world.



▲ **Figure 2** Asking geographical questions

	IS? DOES?	HAS? DID? WAS?	CAN?	SHOULD?	WOULD? COULD?	WILL?
WHAT? EVENT						
WHERE? PLACE						
WHEN? TIME						
WHICH? CHOICE						
WHO? PERSON						
WHY? REASON						
HOW? MEANING						

▲ **Figure 3** Question matrix grid to help you ask questions about Cardiff Bay Wetlands Reserve

Activities

- 1 What is a geographer?
- 2 Which three aspects of the world does a geographer study?
- 3 Create your own poster to show what skills and qualities a geographer should have.
- 4 **a** Use the question matrix grid in Figure 3 to create five enquiry questions that students could ask about the photo of Cardiff Bay Wetlands Reserve.
 Step 1: Choose a stem from the left-hand column; for example, 'who'.
 Step 2: Choose a stem from the top row; for example, 'can'.
 Step 3: Now create a question based around the image of Cardiff as a place; for example, 'Who can visit this place?'
b Answer your five enquiry questions by using information from the photo and carrying out some research online.
- 5 Geographers are curious about the world around them. Why do you think this is important?

My place

Using the question matrix grid and your own local place, which could be right outside your window, produce five enquiry type questions and try to answer them. For example: 'What is the noise level like in my local place?' or 'What could be the effect of this on the environment?'

1.3 What is my local place like?

Learning objectives

- To define place in its local sense
- To know what factors affect the character of a place
- To know what endogenous and exogenous factors are
- To know what affects people's view of a place

A local place is an immediate area around a location. This could be a neighbourhood or small community. By learning more about our local place, we develop our *cynefin* on a local scale. We gain an understanding of what makes our local place unique, how it influences our **identity**, and what part it plays in the world we live in.

What factors make up the character of a local place?

There are several factors that affect the character of a place. We can categorise these factors into **endogenous** (internal) and **exogenous** (external).

- **Endogenous factors** are typically naturally occurring characteristics or factors that started within that local place. An example of this for Cardiff would be the coal-exporting business. Cardiff had vast amounts of coal that originally came from within places such as the Rhondda Valley before being exported globally.
- **Exogenous factors** are those that originate externally (from outside) and could be events that happen, including students migrating into an area. An example of this could be international students coming to Wales for education. They will support culture, industry and language in Wales and with it bring about an exchange of heritage and ideas.

Physical and human factors contribute to a place's unique identity. Both types of factors can affect how we see our own place. For example, without the physical mountains of North Wales, the area would be less distinctive to visitors. Without the influence of migration, the culture of the area could look very different.

How do we view our local place?

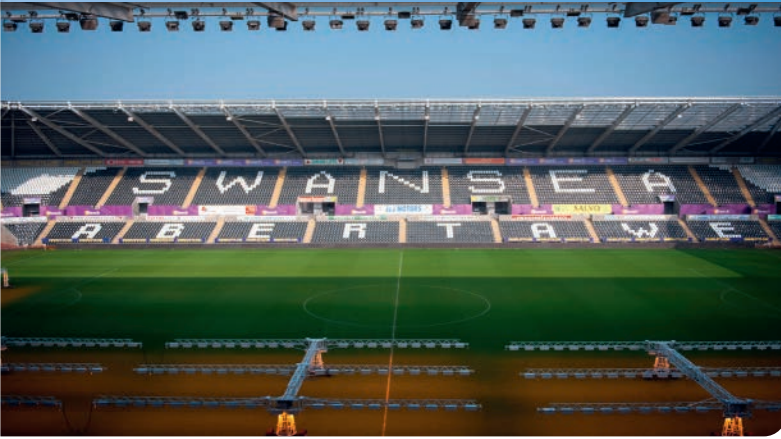
Your view of a place depends on how you experience it. This can be affected by whether you are from the place or not, the news stories that you have heard or read about it, TV programmes that have been set there, songs that have been written about the place, and the languages spoken in it.



▲ **Figure 1** Tenby – an example of a unique local place. The houses were originally painted to allow fishermen to find their homes once they returned from sailing.



▲ **Figure 2** Devil's Bridge and the Hafod Estate. The three bridges are built one on top of each other and are the main tourist attraction in the area.



▲ **Figure 3** Liberty Stadium, Swansea. This is the home of Swansea City Football Club, originally named the White Rock Stadium because it was built near the site of the old copper works.



▲ **Figure 4** Big Pit, within the town of Blaenavon. This is a historic local coal-mining feature which was originally an iron mine.

Our school as a local place

We can also consider local places by looking at our school grounds. Schools are a fantastic resource for studying the local sense of place because there are a wide variety of geographical aspects we can study within them, for example:

- What is the school environment like?
- What is the vegetation (plants and trees) like?
- What are the sound levels like?
- What do students think about different areas of the school?

Activities

- 1 Describe what is meant by local place.
- 2 Define 'endogenous' and 'exogenous' factors.
- 3 What would affect someone's perception of local place?
- 4 Using the images of places across Wales in Figures 1–4, compare what is similar and what is different. What would 'cynefin' mean to people who live in each area?

Stretch and challenge

Research your local area to find out more about the following factors that affect people's perception of your local place:

- a Crime rates – see www.police.uk
- b Unemployment levels – see <https://statswales.gov.wales/>
- c Schools – see <https://mylocalschool.gov.wales>

My place

- 1 What makes your own local place unique? What is it known for?
- 2 Write down the endogenous and exogenous factors that make up the character of your local place.
- 3 Write five enquiry questions that you could use to explore your local place, using 'who', 'what', 'where', 'when' and 'how'. For example, how has Big Pit influenced the geography of the area? Why has Cardiff hosting the Champion's League final had a strong economic effect on the city?
- 4 What different geographical questions do you think you could ask about your school grounds?
- 5 How do people affect your local environment; for example, can you see any litter or graffiti?

1.4 How can I investigate my local school environment?

Learning objectives

- To understand the geographical enquiry process
- To understand the importance of planning an investigation
- To carry out a mini-enquiry into the quality of your school environment

To learn more about the world around us, so that we can develop our cynefin, we can investigate places through **geographical enquiry**.

► **Figure 1** Kate Humble, TV presenter

Fieldwork makes geography come to life, puts everything into context in glorious 3-D and helps students really grasp how geography literally shapes the world around us.

What is a geographical enquiry?

Enquiries allow us to explore the local community and move outside the classroom to learn about a place. We carry out enquiries by doing fieldwork.

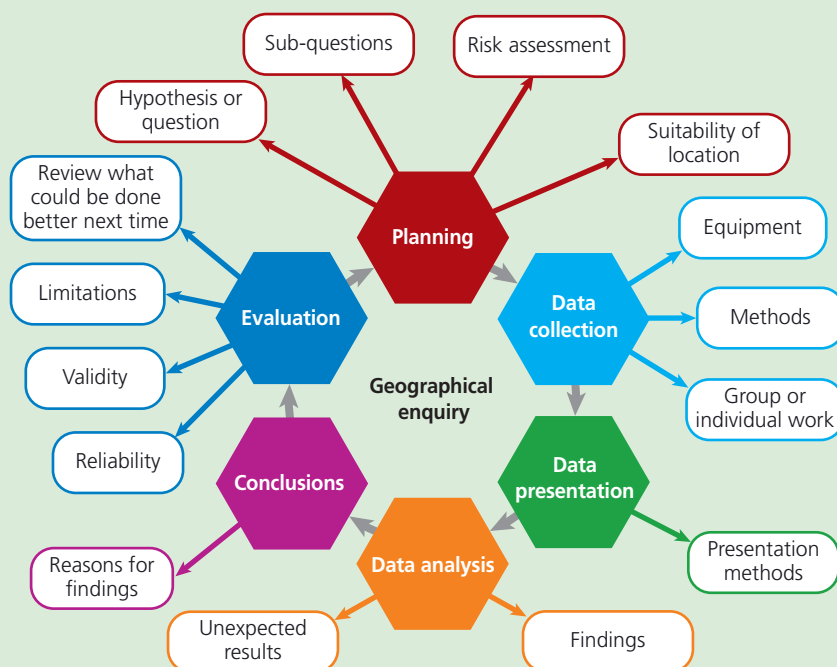
Your enquiry should focus on a question that you then attempt to answer by gathering evidence from a range of sources. One example might be, 'What is the quality of my local school environment?' You could also test a **hypothesis**, which is something you can prove or disprove through investigation. For example, 'The quality of my local school environment is high.'

Geographers have fieldwork in their DNA. It brings the classroom to life and enables students to see and experience places differently. Fieldwork stimulates curiosity and engagement about places they may take for granted. It inspires them to understand more of the challenges and solutions facing places in a rapidly changing real world. Above all, fieldwork combines their understanding of place with unforgettable experiences, wonder, excitement, and of course, fun.

▲ **Figure 2** Gill Miller, former President of the Geographical Association, 2020–21

Activities

- 1 What is a geographical enquiry?
- 2 Explain why studying and exploring your local environment, such as the school grounds, is important.
- 3 Explain why planning an enquiry is important. What could happen if you didn't plan geography fieldwork very well?



▲ **Figure 3** The geographical enquiry process

Investigating your school grounds

In this section you will carry out a mini-enquiry. Completing fieldwork in your own school grounds helps you to easily apply knowledge and understanding that you have learned in class to real life geography in an area that you are already familiar with.

By working in your own school environment, you can develop skills and confidence to complete Geography work in a wider area. Your enquiry question is: 'What is the quality of the environment in different places around my school?'

Fieldwork steps

1 Planning

- Download a suitable map of your school grounds from sites like ArcGIS (www.arcgis.com) or Digimaps for Schools (<https://digimapforschools.edina.ac.uk/>).
- Choose up to ten sites to explore and label them on your map.

2 Data collection

- Copy and complete the environmental quality index (EQI) survey for each site (see Figure 4).

3 Data presentation

- Now draw a suitable graph to show your results. A vertical bar chart is good for this type of data.

4 Data analysis

- What have you found out from your data about your local school environment? Try to write a short analysis of each area saying which one scored the best and why.

5 Conclusion

- Summarise what you investigated about your local school grounds. What factors did you look at? Which area scored the worst and why? How could you use this investigation in a larger context?

6 Evaluation

- How could you improve your mini-investigation into your local grounds? What went well in your enquiry?

Location 1: _____						
Location 2: _____						
Location 3: _____						
Low quality	1	2	3	4	5	High quality
Lots of litter						No litter
Noisy						Quiet
Lots of graffiti						No graffiti
Lack of open/ green space						Lots of open/ green space
Bad smells						No bad smells
Untidy/dirty						Tidy/clean
Not colourful						Colourful
Difficult access						Easy access



▲ Figure 5 Map of school grounds

◀ Figure 4 Environmental quality index (EQI) survey

1.5 How can I investigate my local high street?

Learning objectives

- To plan an enquiry and develop a question or hypothesis and sub-questions
- To collect and present data
- To analyse data to reach conclusions
- To evaluate your fieldwork

Exploring your local high street

Carrying out fieldwork to investigate your local high street can help you to explore a variety of issues including those covered in this book: a person's sense of place; the impact of humans on the environment; how an urban area is changing. Working your way through the different stages of geographical enquiry from Figure 3 on page 8, plan an enquiry into your local high street. Follow the steps below.

Fieldwork steps

1 Planning

- Decide on an enquiry question or hypothesis that you want to test about your local high street; for example, 'The development of St David's 2 shopping centre has had a negative effect on Queen Street.' You could look back at pages 4–5 to help you think of some questions you might want to ask.
- Decide on the sub-questions that you want to investigate as part of your enquiry (see Figure 2 for examples).

2 Data collection

- Collect information that will help you to answer your question or test your hypothesis. You could use a range of data collection methods, such as the environmental quality index (EQI) survey in Figure 3.

3 Data presentation

- Now draw a suitable graph to show your results. For example for the EQI, you could create a graph like Figure 4.

4 Data analysis

- What have you found out from your data about your local high street? Try to write a short analysis.

5 Conclusion

- Summarise what you investigated about your local high street. What were the answers to your sub-questions and main enquiry question or hypothesis? Use Figure 5 to help you.

6 Evaluation

- How could you improve your mini-investigation into your local high street? What went well for you in this enquiry? How could you link this enquiry to a wider location? Use Figure 6 to help you.



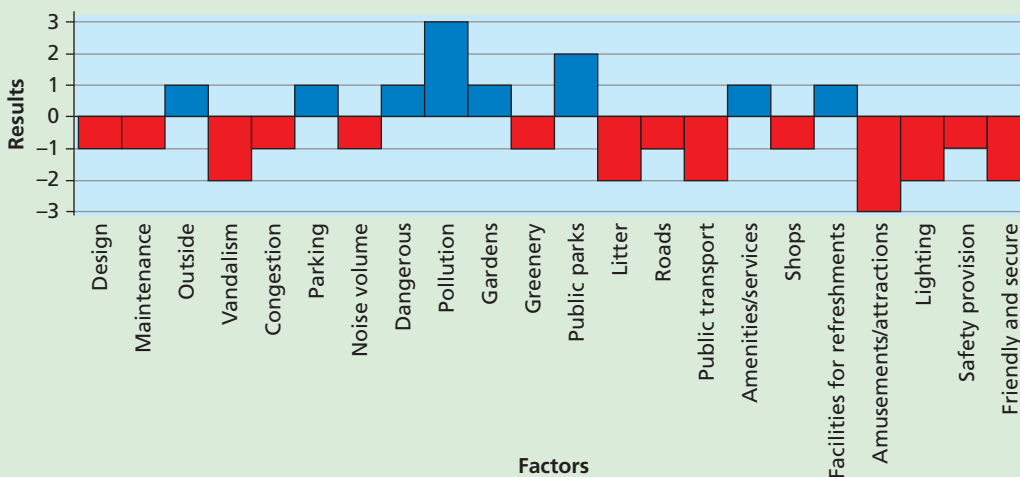
▲ **Figure 1** Queen Street, Cardiff

- 1 Where is Queen Street?
- 2 What impact has St David's 2 shopping centre had on pedestrian footfall traffic in Queen Street?
- 3 What signs are there that Queen Street, Cardiff, is in decline?
- 4 Suggest what other factors, besides St David's 2 shopping centre, have had a negative effect on Queen Street.
- 5 What geography theories can help explain death of the high street in Queen Street, Cardiff?

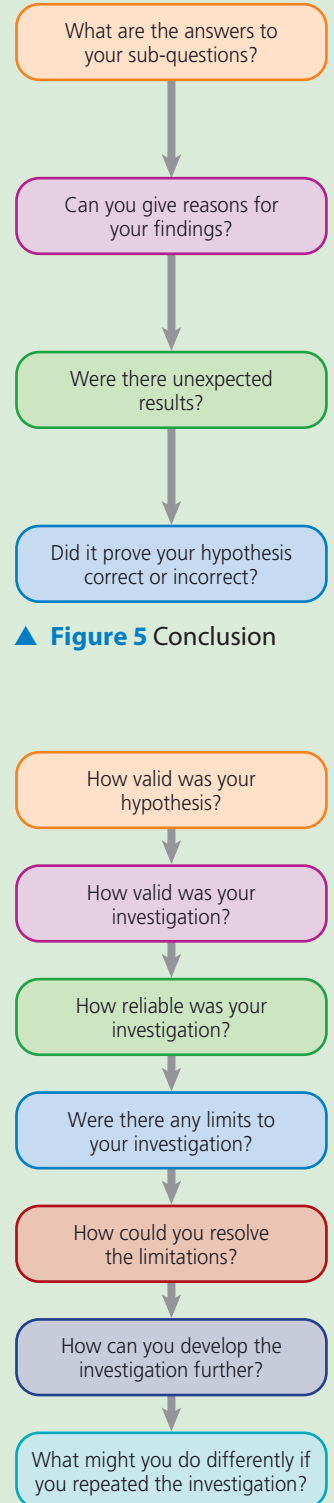
▲ **Figure 2** Sub-questions for the enquiry

Assessing Social and Environmental Quality		-3	-2	-1	+1	+2	+3	
Buildings	Badly designed/ugly			X				Well designed/pleasing to the eye
	Poor maintenance			X				Well maintained
Traffic	Roads are badly congested			X				Roads have no traffic congestion
	Parking is very difficult; no parking provision				X			Parking is easy; garages or spaces provided
	High noise volume from traffic			X				No traffic noise
	Dangerous for people				X			Safe for people
Open space/gardens	No garden/open space – door opens to street				X			Large gardens or open space outside buildings
	No greenery visible from buildings			X				Trees/shrubs/greenery visible from close by
	No public parks easily accessible				X			Public parks within easy distance
General quality	Much litter		X					No litter
	Roads poorly maintained/broken paving, etc.			X				Roads well maintained with paving, etc., well kept
	Heavily polluted						X	No pollution
	No public transport		X					Available public transport
	No facilities for refreshments (lack of cafés, restaurants, etc.)	X						A range of eating establishments, cafés, restaurants, etc.
Crime	Poor lighting, the area may feel unsafe at night		X					Well lit, the area would feel safe at night
	Lots of vandalism					X		No vandalism
	The area feels insecure, no security cameras or burglar alarms			X				Security cameras and safety provision visible

▲ **Figure 3** A completed environmental quality index (EQI) survey



▲ **Figure 4** Assessing social and environmental quality. This takes the data from the EQI survey for Queen Street, Cardiff, in Figure 3 and presents it in a graph to help with data analysis.



▲ **Figure 5** Conclusion

▲ **Figure 6** Evaluation

1.6 What is Wales like as a nation?

Learning objectives

- To define place in its national sense by looking at Wales as a nation

National place is about a whole country. For example, Cardiff is a local place for some people, but Wales would be their national place. Learning about Wales gives us a better understanding of the national identity in Wales and how we are all connected by trade, politics, landscapes and the economy.

Where is Wales located?

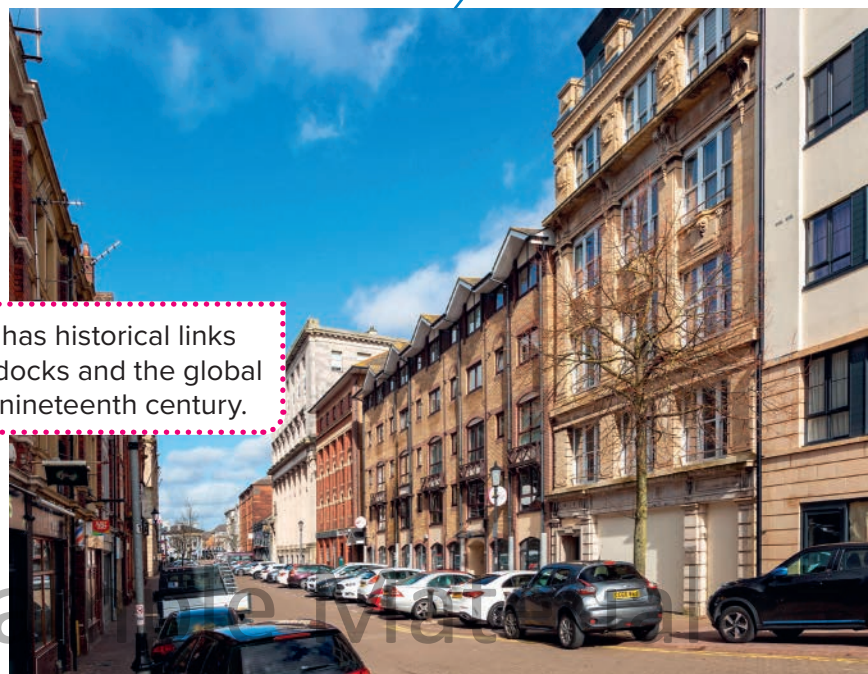
Our national place is Wales. Wales is a country that is part of the United Kingdom, and is bordered by England to the east, the Irish Sea to the north and the west, and the Bristol Channel to the south. It covers around 20,800 km².



Snowdonia National Park, North Wales. Known for camping, walking and diverse landscape.



Brecon Beacons is one of three national parks in Wales and one of fifteen in the UK.



Butetown in Cardiff has historical links with Tiger Bay, the docks and the global coal industry in the nineteenth century.

▲ Figure 1 Wales

What is the culture of Wales like?

Wales has a distinctive **culture** which includes Welsh music, language, history, government, religion, sport and food. The Welsh culture has created a unique identity for Wales.

Opera singers –
Katherine Jenkins

Welsh teams in sport – football, rugby,
the Commonwealth Games

Welsh poetry and literature –
Dylan Thomas

The Welsh language – Cymraeg

Welsh history

Welsh government –
the Senedd

Daffodils and leeks

Welsh festivals –
The National Eisteddfod



Welsh food – Welsh cakes, cawl,
laverbread, bara brith

Welsh male choirs

BBC Wales – Doctor Who, Sherlock

Christianity is the largest religion

Saint David

Welsh bands and singers – Tom Jones,
Super Furry Animals

▲ **Figure 2** Wales has a distinctive culture

What is the future for Wales?

The seven well-being goals for Wales

The Welsh government has established seven well-being goals for Wales:

- 1 **A prosperous Wales** – reducing unemployment, developing the Welsh economy and businesses
- 2 **A resilient Wales** – improving the health of the nation and reducing air pollution
- 3 **A healthier Wales** – developing healthy lifestyles, improving the mental health of everyone
- 4 **A more equal Wales** – making sure wages are equal among men and women; girls and boys achieving equally in school
- 5 **A Wales of cohesive communities** – everyone feeling a sense of community and belonging
- 6 **A Wales of vibrant culture and thriving Welsh language** – increasing the amount of Welsh speakers and reducing barriers to participation in sport and cultural activities
- 7 **A globally responsible Wales** – reduce carbon emissions and pollutants



▲ **Figure 3** The seven well-being goals for Wales

Activities

- 1 When we think of Wales, what images and words come to mind? Create a spider diagram with your research and own ideas.
- 2 Look at Figure 3, showing the Welsh government's well-being goals for Wales. What do you think each of the goals means for Wales? Write a brief sentence on each, showing the links to Wales and how it might be achieved.
- 3 'The Welsh culture has created a unique identity for Wales.' How far do you agree with this statement?

My place

- 1 Look at your own local place. Describe how it plays a vital role in Wales' identity. Include any local businesses, buildings, artwork or history. Is there anything that shows the importance of your area in a Welsh context?
- 2 Describe to what extent there is a local sense of well-being in your own local place? Is this different to the well-being of Wales as a whole?

1.7 How does cynefin link to our sense of identity?

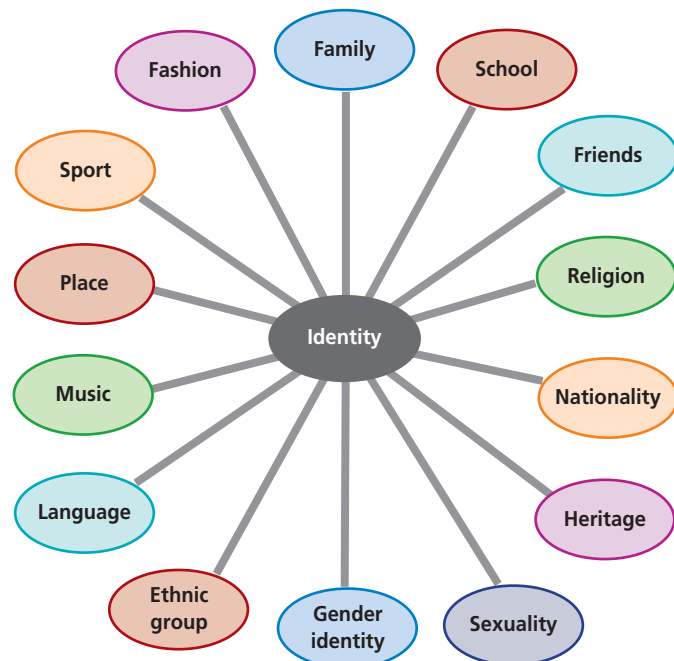
Learning objectives

- To understand what identity is
- To consider what factors influence our sense of identity

Cynefin is also about how our place affects us and our identity.

What is identity and what influences our identity?

Everyone has their own unique identity which is personal to them. Identity is shaped by a range of factors. These can be things that we are born into, such as family, ethnic group, heritage, or things that we choose, such as the friends we make or the type of music we like.



▲ **Figure 1** What influences our identity?

How does our cynefin influence our identity?

Cynefin is the *place* where we feel we belong, where the people and landscapes around us are familiar, and the sights and sounds are reassuringly recognisable.

Our local place and our national place both influence our identity.

Our local place

The local area where a person comes from can influence their identity:

- the local community, such as a local youth group
- the local school, the school's values, what the school teaches children and what events are celebrated
- family values in the home and local area, and whether family lives nearby
- cultural factors, such as music or art that comes from the local area
- the physical environment and landscape, such as whether they feel at home near the mountains, or have a connection to the sea
- festivals that are celebrated
- local sports teams that we support
- activities that we like doing in the local area.



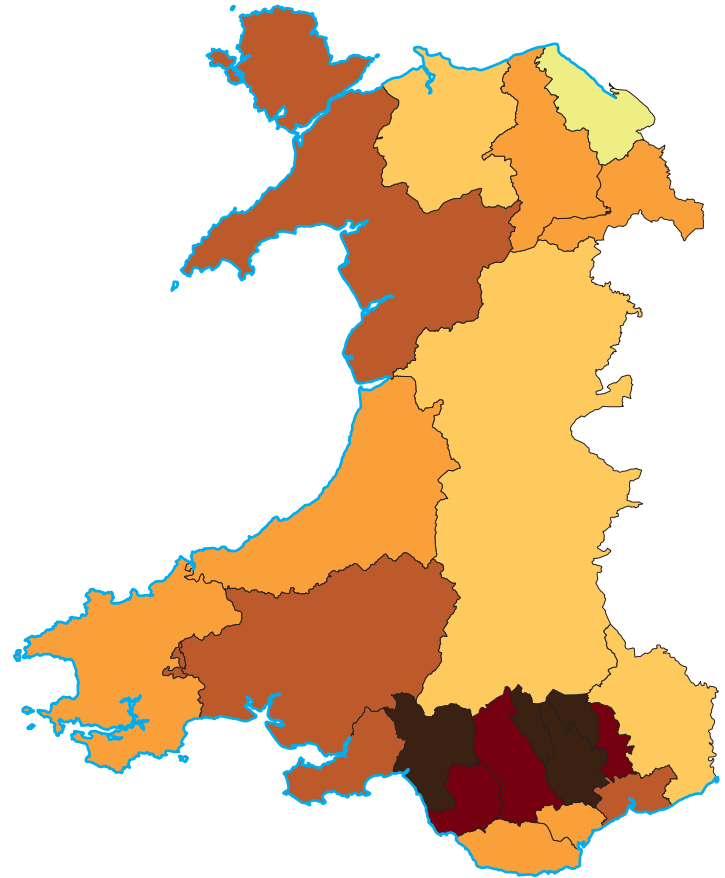
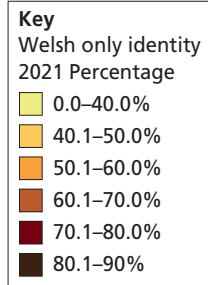
◀ **Figure 2** The Eisteddfod comprises eight days of poetry and music competitions in Wales. Those who take part in the festival may consider it to be part of their identity.

Wales

Being Welsh can be a big part of a person's identity:

- speaking and understanding the Welsh language
- listening to and playing Welsh music and instruments
- reading Welsh books and poems
- going to a Welsh school
- eating Welsh food
- going to Welsh festivals like Eisteddfod.

National identity is complex and unique to individuals. Many people in Wales identify as fully Welsh (see Figure 3), whereas some people might identify as being Welsh and something else, for example Welsh-Asian. Some second and third generation immigrants might identify ethnically as an ethnic group such as Black Caribbean, but identify culturally as Welsh and therefore consider themselves Welsh.



▲ **Figure 3** Percentage of people who consider themselves Welsh, 2021

Activities

- 1 Define 'identity'.
- 2 What do you understand by the term 'Welshness'?
- 3 Describe the pattern shown in Figure 3.

My place

- 1 Create a spider diagram to show what influences your identity:
 - a from your local area
 - b from Wales.
- 2 Add anything else that you feel influences your identity to your spider diagram.
- 3 Carry out a short survey with your classmates to find out what influences their identity. Create a word cloud using www.edwordle.net to analyse what the biggest influences are on the identities of your classmates.
- 4 What proportion of people in your class:
 - a have a Welsh identity only
 - b have a different identity to Welsh
 - c have a mixed identity of Welsh and another identity?

1.8 How is Wales connected to the rest of the world?

Learning objectives

- To understand what global place is
- To understand what is meant by globalisation
- To understand where Wales fits within a global context

Global place explains how a place relates to the entire world and how we are interconnected; for example, looking at the role that Wales plays across the globe through sport, culture, business and the arts. Global scale is increasingly important in geography because of **globalisation** – the increasing links between countries around the world as a result of the movement of goods, **services**, people and money.

How Wales is connected to the rest of the world

Even though it is a small nation of around 3.15 million people, Wales still has much to offer the world. Wales has historically led the way with coal, iron and copper industries. Wales was well known for supplying these products to the world and quickly became known as the industrialised capital of the world. UNESCO in 2018 decided to give world protection status to Gwynedd. This area is a tourist hotspot and has a key status with the National Slate Museum. Wales was known as King Coal and was the crown jewel in the British Empire.

Today Wales has morphed into a creative industry centre with growing links to contemporary industries around the UK through green screen animation and film making, such as the Bad Wolf and Pinewood Studios in Cardiff.



Wales is home to migrants from many nationalities across the world. Figure 2 shows one of the local businesses that have developed, showing the impact of migration on Cardiff. Migration into Wales increased in 2004 due to the expansion of the EU (European Union), meaning people could travel freely between member countries.



▲ **Figure 2** A Polish deli shop in the community of Cardiff

Country of origin	Number of migrants settling in Wales
Poland	23,000
India	13,000
Germany	11,000
Republic of Ireland	10,000
China	7,000
Pakistan	7,000
Bangladesh	6,000
Philippines	6,000
South Africa	5,000
USA	4,000
Australia	3,000
Somalia	3,000
Zimbabwe	3,000

▲ **Figure 3** Wales' immigration figures, 2015

◀ **Figure 1** GE Aviation Wales – Nantgarw, near Caerphilly, is home to GE Aviation who are suppliers of aircraft engines to the world. Founded in the 1940s, it has links to the USA, where its headquarters are based.

By promoting and developing Wales' rich tourism sector and educational institutions, such as universities, the government is strengthening opportunities for Wales to be even more competitive internationally with other countries.



▲ **Figure 4** Swansea University's new campus on the SA1 development site which opened fully in 2018. This building shows Swansea's strong links with education, mechanics and architecture. Many international and local students will attend lectures here.



▲ **Figure 5** Cardiff Castle decorated with photographs of players ahead of the Champion's League Final in 2017 between Real Madrid and Juventus. During the Champion's League final, 170,000 extra visitors came to Cardiff, which brought in around £45 million from local spending in shops and in local facilities, such as pubs and cafés. There was a fantastic cultural atmosphere with fans and locals. Hosting major sporting events like these also improved the reputation of Cardiff on a global scale.

Activities

- 1 What does 'global place' mean in geography?
- 2 What is globalisation?
- 3 Draw a bar chart to represent the data in Figure 3.
- 4 Look at Figure 3. How many migrants come from EU countries into Wales?
- 5 Figure 4 shows Swansea University developing its buildings and attractions for students. What impact do you think Swansea attracting international students will have on the local culture?
- 6 Give two examples of how Wales links with the rest of the world.
- 7 Explain why it is important for Wales to continue to develop global links with other countries for industry and education.

My place

Using a blank map of the world, start by labelling your own local place. Then label how your local place is connected to the rest of the world. Think about the following:

- a Is there a port that imports and exports goods across the world?
- b Are there any international tourist destinations?
- c Are there any major global events that take place?
- d Are there migrants from other countries who live in your local area?
- e Where does the food that you eat and the clothes that you wear come from?

Review

- 1 What is meant by 'cynefin' in geography? Refer to place on a local, national and global scale.
- 2 How is my local place connected to the rest of the world?

2

What are natural resources?

This chapter looks at how the Earth's spheres interact and work together. It is important for us to understand this interaction, and also how people use the natural resources of the Earth, before we look more closely at topics such as the impact of humans on our planet in Chapter 7. We look at how we use natural resources including rocks, soil, water, oil and different forms of energy.

2.1 How do we use our planet as a natural resource?

Learning objectives

- To understand how the Earth is a system
- To know how we use natural resources
- To understand the difference between renewable and non-renewable resources

The Earth as a system

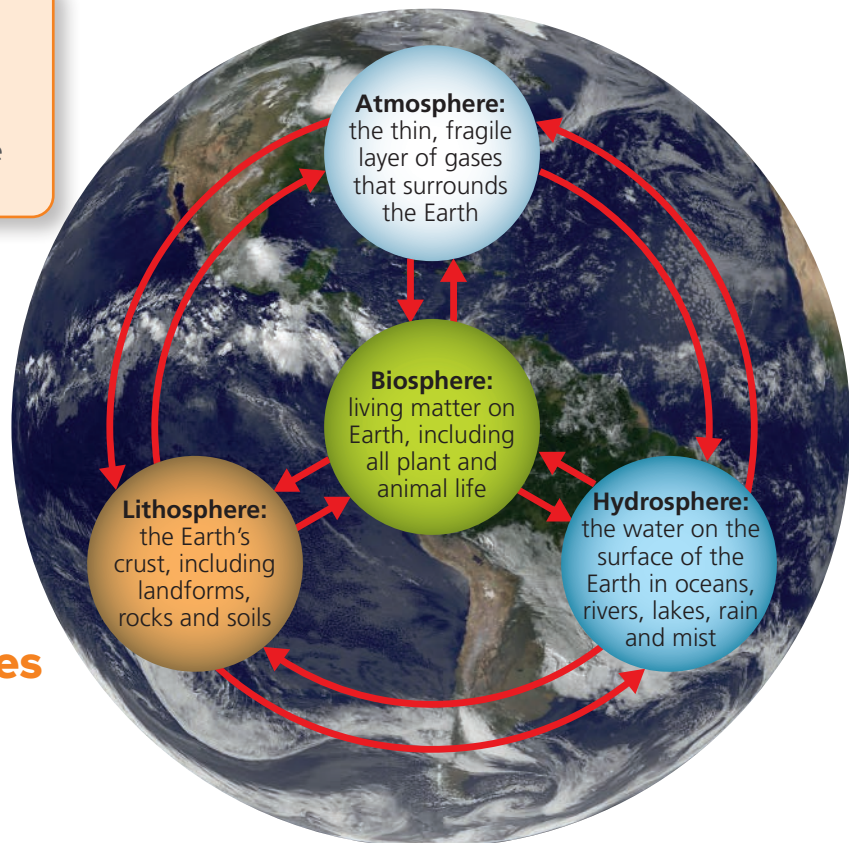
The Earth is a complex system that has evolved over millions of years. The Earth has four major parts, all working in harmony to make the planet function properly. These four parts are called spheres (see Figure 1). They contain **biotic** (living) and **abiotic** (non-living) elements that are all interconnected. The Earth's **natural resources** are formed and exist in these spheres.

How we use natural resources

Natural resources are materials found in nature that humans need for everyday life, such as clean drinking water or fertile soil for growing crops and keeping animals.

The Earth's natural resources are not evenly distributed across the planet. Different countries can have uneven access to fresh water, fuel sources for energy, or fertile soil depending on their location. This can lead to conflict between countries. As the world's population increases, so does the demand for resources. This can lead to over-farming, overfishing and more pollution in the world around us.

▼ Figure 1 The Earth's spheres



My place

Think about the natural resources that you use and where they come from. Which are from Wales and which come from countries outside of Wales? For example, you may use energy generated from coal that has been mined in the Welsh valleys.

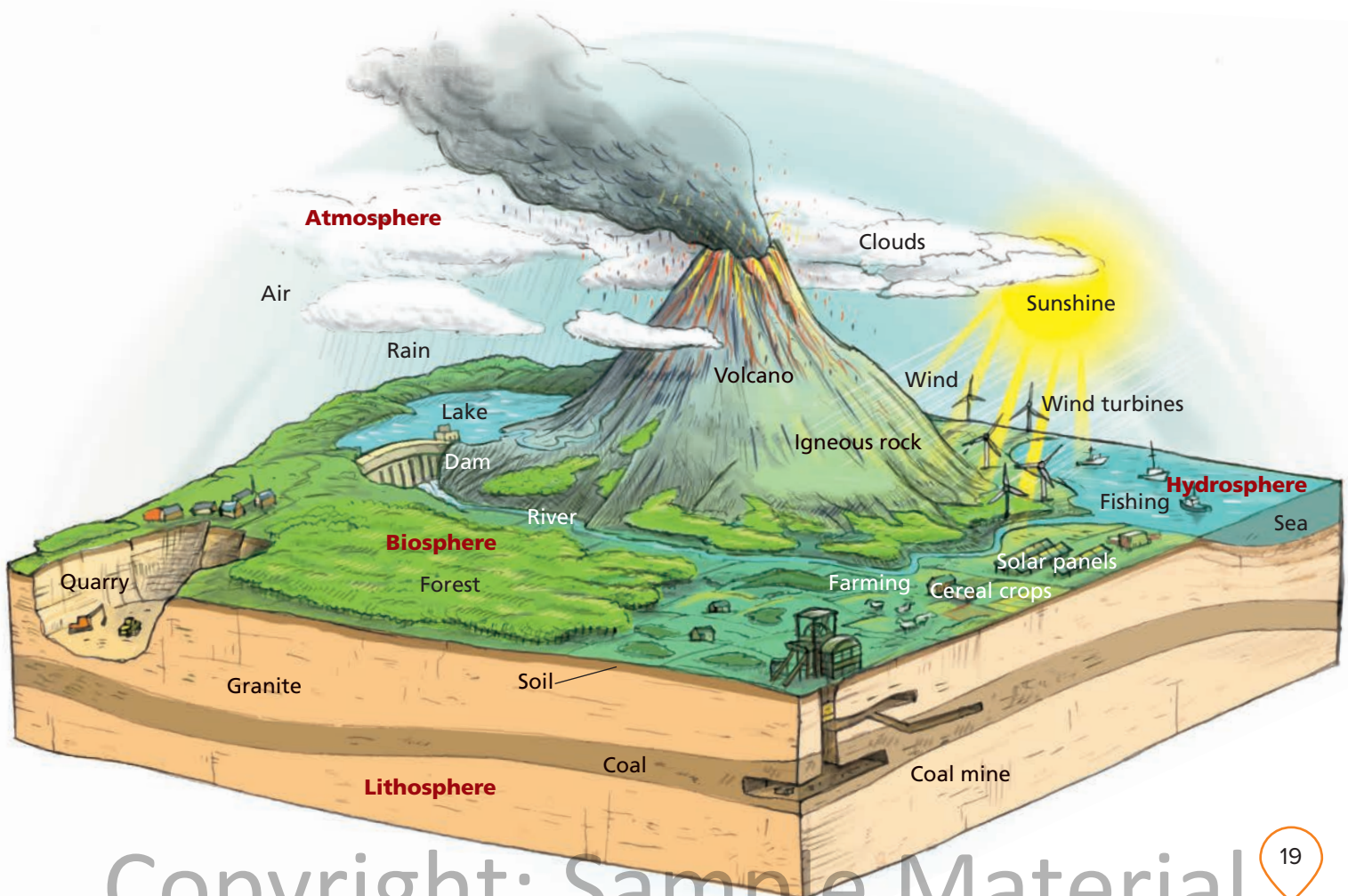
Renewable and non-renewable resources

Resources can be divided into **renewable** or **non-renewable**. The time taken for a resource to be replaced determines whether it is described as renewable or non-renewable.

- A **renewable resource** is one that is replaced by the natural processes of the Earth's spheres, which take place in less time than an average human life. Some examples are water, wind, sunlight and living things.
- A **non-renewable resource** is one that has a limited supply that takes a very long time to replace. Some resources like **fossil fuels** (such as coal, oil and natural gas) take millions of years to be replaced naturally. In the lifetime of humans, these resources would seem like they are never replaced.

Figure 2 shows some of the natural resources found in each sphere.

▼ **Figure 2** The Earth's spheres and natural resources



Activities

- 1 Look at Figure 2, which shows some of the natural resources that are found on Earth. Create a mind map to show which natural resources are found in each of the four spheres.
- 2 Create a table with the headings 'renewable resources' and 'non-renewable resources'. Try to complete the table with at least four examples of each source.
- 3 Using Figure 2, describe how humans interact with the Earth's spheres and natural resources.
- 4 Explain the problems humans create as a result of using the Earth's natural resources.

Stretch and challenge

Create a mind map to show how the four spheres of the Earth are interconnected. For example, how do plants in the biosphere affect the atmosphere?

2.2 What are rocks and how are they a natural resource?

Learning objectives

- To understand the qualities of the three rock types
- To understand how rocks are weathered
- To know about the geology of Wales
- To understand how we use rocks as a natural resource

Geology is the study of the earth, minerals, structure and the history of the Earth.

Types of rocks

Rocks are natural resources made up of minerals. There are different types of rock, classified into three groups depending on how they were formed: **igneous**, **sedimentary** and **metamorphic**. The different rock types have different properties; for example, granite is hard rock, which is resistant to **erosion** and weathering, whereas sandstone and clay are soft rocks, are less resistant and can be easily worn away. Rocks that allow liquid to pass through are described as porous, while non-porous rocks are impermeable and liquid cannot easily pass through.

▼ **Figure 1** The three rock types

Igneous rock

This is formed from molten rock often linked to volcanoes. The molten rock may cool slowly, allowing time for minerals to form large crystals that lock together. Granite and basalt are types of igneous rock. Igneous rocks are very hard and durable. People use them to construct buildings and surface roads, and they are important sources of minerals like diamonds.

Sedimentary rocks

Most of these types of rocks are formed under the sea. Rock particles carried by rivers were washed out to sea and settled on the sea floor. On the sea bed they were buried by newer sediment, squeezed and cemented together over thousands of years to form new rock. These rocks also include the fossilised remains of sea creatures. Chalk and limestone are made up almost entirely of fossils. Other examples include coal, iron ore, sand, gravel and clay. These can be used in construction.

Metamorphic rocks

These rocks form from existing rocks that are transformed by great heat or pressure. These changes lead to the existing minerals melting and forming new minerals. Marble and slate are examples of metamorphic rocks. The sedimentary rock mudstone is transformed into slate, and limestone is transformed into marble. Slate is very durable and is ideal for making roof tiles. Marble is used for building and to make sculptures.

Types of weathering

Rocks on the **lithosphere** are exposed to the Earth's other spheres. Air, water, changing temperatures, plants and animals all attack rocks, causing them to break down and rot away. This process is called **weathering**. There are three types of weathering:

- **Freeze-thaw weathering** occurs when water gets into a crack in a rock and freezes. As the water turns to ice, it expands and causes the crack to widen. Repeated freezing and thawing weakens the rock, which eventually splits into pieces.
- **Chemical weathering** occurs when rainwater, which is slightly acidic, comes into contact with rock. The acid attacks the rock, causing it to rot and crumble.
- **Biological weathering** is when plants and animals break down rock. The roots of plants and trees can get into cracks in rocks, causing them to split. Burrowing animals and worms can also weaken rock.



Develop your geographical knowledge and understanding by engaging with the most important issues that face humanity today.

This *Curriculum for Wales: Geography for 11–14 Years* book will inspire you to learn more about the world around you – how it developed, what it is like now, and what it could be like in the future, by helping you develop an enquiry-based approach to learning.

- Explore key geographical issues through 18 engaging chapters packed full of geographical resources, including maps, charts, diagrams and data.
- Develop a sense of *cynefin* at a local, national and global scale, with a focus on Wales and its place in the wider world.
- Build core geographical skills with fieldwork enquiries embedded into the context of topics, to encourage you to investigate your local area.
- Think about the content of topics in the context of your life and the local area in which you live with regular 'My Place' activities.
- Choose from crucial content areas including: weather and climate; ecosystems; landscapes and national parks; rural and urban places; sport and culture; climate change; disease and global consumers.



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ISBN 978-1-3983-4997-1



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