# 2 Changing Climate

Scheme of work

GCSE geography OCR B

## 2.1 Earth's changing climate

### Summary of content

On this spread students discover how Earth's climate has changed and fluctuated during the last 2.6 million years.

### Geographical vocabulary

- Quaternary period
- Pleistocene epoch
- Holocene epoch
- interglacial period
- glacial
- period
- ice age

### Learning outcomes

By the end of this spread, most students should be able to:

- Define the terms 'Quaternary period', 'ice age', 'glacial period' and 'interglacial period'
- Explain why we are currently living in an ice age and what happened to Earth's temperature about 11 700 years ago
- Describe trends, changes and fluctuations in temperature over different lengths of time from the beginning of the Quaternary period to the present day
- Debate whether the Earth is getting warmer or not

### Skills practised

**Graphical skills:** interpret and analyse line graphs

**Numeracy and statistical skills:** understand numbers; draw and justify conclusions from statistical data

**Enquiry and argument skills:** interpret diagrams

### Specification coverage

- What evidence is there for climate change?
- The pattern of climate change from the beginning of the Quaternary period to the present day.

### Exam link

**Paper 1**
Our Natural World
**Section B**
Changing Climate

### What's on Kerboodle?

**Digital books**
Student Book: Pages 48-49
Teacher Handbook: Pages 54-55

**Resources**
2 Glossary
2 Glossary worksheet

**Assessment**
2 Test yourself
2 On your marks

# 2 Changing Climate

Scheme of work

## 2.2 Evidence of climate change – 1

### Summary of content

On this spread students explore how studying ice cores and sea ice positions gives evidence of climate change.

### Geographical vocabulary

- sea ice maximum
- sea ice minimum
- global warming
- ice core
- isotope
- carbon dioxide

### Learning outcomes

By the end of this spread, most students should be able to:

- Define the terms 'ice core', 'sea ice maximum' and 'sea ice minimum'
- Explain the importance of data from ice cores in identifying prehistoric changes in Earth's temperature and how scientists know such data is reliable
- Explain the importance of sea ice maximums and minimums in the Arctic as evidence of climate change over recent decades
- Justify a prediction of when there will be no Arctic sea ice in September

### Skills practised

**Cartographic skills:** construct maps; interpret and analyse GIS maps

**Graphical skills:** interpret line graphs

**Numeracy and statistical skills:** understand area; identify trends and make predictions

**Enquiry and argument skills:** interpret and analyse photos

### Specification coverage

- What evidence is there for climate change?
- The range and reliability of evidence relating to climate change including evidence from sea ice positions, ice cores, global temperature data, paintings and diaries.

### Exam link

**Paper 1**
Our Natural World

**Section B**
Changing Climate

### What's on Kerboodle?

**Digital books**
Student Book: Pages 50-51
Teacher Handbook: Pages 56-57

**Resources**
2 Glossary
2 Glossary worksheet

**Assessment**
2 Test yourself
2 On your marks
2.2 Practice question – presentation
2.2 Practice question – mark scheme

**Practice question**
*Explain how ice cores can be used to find evidence of climate change.* [4 marks]

# 2 Changing Climate

Scheme of work

## 2.3 Evidence of climate change – 2

### Summary of content

On this spread students evaluate the evidence of climate change found in temperature data, paintings and diaries.

### Geographical vocabulary

This is no key vocabulary on this spread.

### Learning outcomes

By the end of this spread, most students should be able to:

- Understand that the study of climate change depends to a great extent on the availability and reliability of temperature records
- Identify and evaluate different types of evidence for climate change
- Draw some conclusions about changes in climate since 1309
- Explain why artefacts such as paintings and diaries can provide evidence of climate change
- Interpret a painting and a diary entry to describe winter weather in the Little Ice Age

### Skills practised

**Cartographic skills:** interpret and analyse choropleth maps

**Numeracy and statistical skills:** understand numbers; interpret tables of data; extrapolate trends from data

**Enquiry and argument skills:** interpret paintings; analyse diary entries; suggest issues with using maps

### Specification coverage

- What evidence is there for climate change?
- The range and reliability of evidence relating to climate change including evidence from sea ice positions, ice cores, global temperature data, paintings and diaries.

### Exam link

**Paper 1**
Our Natural World

**Section B**
Changing Climate

### What's on Kerboodle?

**Digital books**
Student Book: Pages 52-53
Teacher Handbook: Pages 58-59

**Resources**
2 Glossary
2 Glossary worksheet

**Assessment**
2 Test yourself
2 On your marks
2.3 Practice question – presentation
2.3 Practice question – mark scheme

**Practice question**
*Evaluate how reliable sources like diaries and paintings are in providing evidence of climate change.* [4 marks]

# 2 Changing Climate

Scheme of work

## 2.4 Natural causes of climate change

### Summary of content

On this spread students find out about Milankovitch cycles, Sunspots and volcanic eruptions as natural causes of climate change.

### Geographical vocabulary

- Milankovitch cycles
- eccentricity
- obliquity
- precession
- Sunspot

### Learning outcomes

By the end of this spread, most students should be able to:

- Identify different natural causes of climate change
- Explain why Milankovitch cycles, Sunspots and volcanic eruptions can be natural causes of climate change
- Evaluate and discuss the natural causes of climate change

### Skills practised

**Numeracy and statistical skills:** understand numbers

**Enquiry and argument skills:** interpret photos; analyse diagrams

### Specification coverage

- Is climate change a natural process?
- Outline the causes of natural climate change including the theories of Sunspots, volcanic eruptions and Milankovitch cycles.

### Exam link

**Paper 1**
Our Natural World

**Section B**
Changing Climate

### What's on Kerboodle?

**Digital books**
Student Book: Pages 54-55
Teacher Handbook: Pages 60-61

**Resources**
2 Glossary
2 Glossary worksheet

**Assessment**
2 Test yourself
2 On your marks
2.4 Practice question – presentation
2.4 Practice question – mark scheme

**Practice question**
*Explain one natural cause of climate change.* [4 marks]

# 2 Changing Climate

Scheme of work

## 2.5 Human causes of climate change – 1

### Summary of content

On this spread students begin to consider whether human activity is enhancing the greenhouse effect and causing climate change.

### Geographical vocabulary

- natural greenhouse effect
- greenhouse gas
- radiation
- enhanced greenhouse effect
- global warming potential
- deforestation

### Learning outcomes

By the end of this spread, most students should be able to:

- Describe and differentiate between the natural greenhouse effect and the enhanced greenhouse effect
- Identify different greenhouse gases, their sources and global warming potential
- Show the contributions of different greenhouse gases to the enhanced greenhouse effect on a pie chart

### Skills practised

**Graphical skills:** construct and evaluate pie charts
**Numeracy and statistical skills:** understand numbers and percentages
**Skills for formulating enquiry and argument:** interpret and analyse photos and diagrams; suggest reasons for using pie charts

### Specification coverage

- Is climate change a natural process?
- Investigate the natural greenhouse effect and the impacts that humans have on the atmosphere, including the enhanced greenhouse effect.

### Exam link

**Paper 1**
Our Natural World

**Section B**
Changing Climate

### What's on Kerboodle?

**Digital books**
Student Book: Pages 56-57
Teacher Handbook: Pages 62-63

**Resources**
2 Glossary
2 Glossary worksheet

**Assessment**
2 Test yourself
2 On your marks
2.5 Practice question – presentation
2.5 Practice question – mark scheme

**Practice question**
*Name two greenhouse gases that contribute to the enhanced greenhouse effect.* [2 marks]

## 2.6 Human causes of climate change – 2

### Summary of content

On this spread students will consider whether their own lifestyle contributes to climate change.

### Geographical vocabulary

- carbon footprint

### Learning outcomes

By the end of this spread, most students should be able to:

- Describe the relationship between carbon dioxide emissions and Earth's temperature, using data
- Understand that countries emit different amounts of carbon dioxide depending on their lifestyle and stage of development
- Evaluate different methods of measuring carbon dioxide emissions
- Discuss who is to blame for the enhanced greenhouse effect
- Speculate on the effects on Earth's temperature of EDCs and LIDCs emulating the lifestyle of ACs

### Skills practised

**Cartographic skills:** interpret choropleth maps
**Graphical skills:** analyse line graphs; interpret pie charts
**Numeracy and statistical skills:** understand numbers, quantitative relationships between units and percentages; describe relationships of bivariate data
**Enquiry and argument skills:** analyse cartoons; suggest issues with using statistical techniques

### Specification coverage

- Is climate change a natural process?
- Investigate the natural greenhouse effect and the impacts that humans have on the atmosphere, including the enhanced greenhouse effect.

### Exam link

**Paper 1**
Our Natural World

**Section B**
Changing Climate

### What's on Kerboodle?

**Digital books**
Student Book: Pages 58-59
Teacher Handbook: Pages 64-65

**Resources**
2 Glossary
2 Glossary worksheet

**Assessment**
2 Test yourself
2 On your marks
2.6 Practice question – presentation
2.6 Practice question – mark scheme

**Practice question**
*Explain why the lifestyle of people in ACs might be causing climate change.*
[6 marks]

# 2 Changing Climate

Scheme of work

## 2.7 Global impacts of climate change – 1

### Summary of content

On this spread students learn about climate change refugees and the impacts of rising sea levels and extreme weather.

### Geographical vocabulary

- climate change refugee

### Learning outcomes

By the end of this spread, most students should be able to:

- Define the term 'climate change refugee'
- Explain why climate change is causing sea levels to rise and more extreme weather
- Identify the threats caused by climate change affecting different regions of the world

### Skills practised

**Cartographic skills:** interpret and analyse thematic maps

**Numeracy and statistical skills:** understand numbers

**Enquiry and argument skills:** interpret photos

### Specification coverage

- Why is climate change a global issue?
- Explore a range of social, economic and environmental impacts of climate change worldwide such as those resulting from sea level rise and extreme weather events. The impacts studied should relate to the 21st century.

### Exam link

**Paper 1**
Our Natural World

**Section B**
Changing Climate

### What's on Kerboodle?

**Digital books**
Student Book: Pages 60-61
Teacher Handbook: Pages 66-67

**Resources**
2 Glossary
2 Glossary worksheet

**Assessment**
2 Test yourself
2 On your marks
2.7 Practice question – presentation
2.7 Practice question – mark scheme

**Practice question**
*The rise in sea levels is an environmental impact of climate change. Describe a social impact and an economic impact that result from rising sea levels.* [4 marks]

# 2 Changing Climate

Scheme of work

## 2.8 Global impacts of climate change – 2

### Summary of content

On this spread students learn how climate change is affecting the world's food and water supplies.

### Geographical vocabulary

- yield

### Learning outcomes

By the end of this spread, most students should be able to:

- Describe the relationship between climate change and the world's food and water supplies
- Identify regions that are most likely to suffer from increases in temperature and decreases in rainfall
- Explain the likely impacts of warmer temperatures and less rain on people and their livelihoods
- Distinguish between more social, economic and environmental impacts of climate change

### Skills practised

**Cartographic skills:** interpret and analyse choropleth maps

**Numeracy and statistical skills:** understand percentages

**Enquiry and argument skills:** analyse photos

### Specification coverage

- Why is climate change a global issue?
- Explore a range of social, economic and environmental impacts of climate change worldwide such as those resulting from sea level rise and extreme weather events. The impacts studied should relate to the 21st century.

### Exam link

**Paper 1**
Our Natural World

**Section B**
Changing Climate

### What's on Kerboodle?

**Digital books**
Student Book: Pages 62-63
Teacher Handbook: Pages 68-69

**Resources**
2 Glossary
2 Glossary worksheet

**Assessment**
2 Test yourself
2 On your marks
2.8 Practice question – presentation
2.8 Practice question – mark scheme

**Practice question**
*Explain two ways in which people are affected by climate change.* [4 marks]

## 2.9 Global impacts of climate change – 3

### Summary of content

On this spread students investigate threats to plants and animals, and summarise the global impacts of climate change.

### Geographical vocabulary

- species refugee

### Learning outcomes

By the end of this spread, most students should be able to:

- Identify the threats of climate change to plants, animals and humans
- Describe what is meant by the term 'species refugee'
- Explain why melting ice is a threat to Arctic ecosystems
- Explain why climate change causes the spread of infectious diseases affecting humans, animals and plants
- Describe and explain the distribution of countries most and least at risk from climate change
- Identify on a world map all the social, economic and environmental impacts of climate change learned about

### Skills practised

**Cartographic skills:** construct thematic maps; interpret and analyse choropleth maps

**Enquiry and argument skills:** interpret photos

### Specification coverage

- Why is climate change a global issue?
- Explore a range of social, economic and environmental impacts of climate change worldwide such as those resulting from sea level rise and extreme weather events. The impacts studied should relate to the 21st century.

### Exam link

**Paper 1**
Our Natural World

**Section B**
Changing Climate

### What's on Kerboodle?

**Digital books**
Student Book: Pages 64-65
Teacher Handbook: Pages 70-71

**Resources**
2 Glossary
2 Glossary worksheet

**Assessment**
2 Test yourself
2 On your marks
2.9 Practice question – presentation
2.9 Practice question – mark scheme

**Practice question**
*Using examples, assess whether the social and economic impacts of climate change are worse than the environmental impacts.* [8 marks]

# 2.10 Impacts of climate change for the UK – 1

## Summary of content

On this spread students learn how rising sea levels, flooding and extreme weather will affect the UK.

## Geographical vocabulary

- flash flood

## Learning outcomes

By the end of this spread, most students should be able to:

- outline how climate change will affect the UK
- explain how rising sea levels and extreme rainfall will affect the UK
- identify areas, towns and cities that are at risk of flooding
- analyse how severe flooding in 2007 impact on Tewkesbury
- classify the impacts of climate change and flooding into social, economic and environmental impacts

## Skills practised

**Cartographic skills:** interpret and analyse choropleth and thematic maps; study atlas maps

**Skills for formulating enquiry and argument:** interpret and analyse photos

## Specification coverage

- Why is climate change a global issue?
- Explore a range of social, economic and environmental impacts of climate change within the UK such as the impact on weather patterns, seasonal changes and changes in industry. The impacts studied should relate to the 21st century.

## Exam link

**Paper 1**
Our Natural World

**Section B**
Changing Climate

## What's on Kerboodle?

**Digital books**
Student Book: Pages 66-67
Teacher Handbook: Pages 72-73

**Resources**
2 Glossary
2 Glossary worksheet

**Assessment**
2 Test yourself
2 On your marks
2.10 Practice question – presentation
2.10 Practice question – mark scheme

**Practice question**
*Using examples, explain why climate change has social impacts in the UK.*
[6 marks]

# 2 Changing Climate

Scheme of work

## 2.11 Impacts of climate change for the UK – 2

| Summary of content | Geographical vocabulary |
|---|---|
| On this spread students evaluate the positive and negative impacts that warmer temperatures will have on the UK. | There is no key vocabulary on this spread. |

| Learning outcomes | Skills practised |
|---|---|
| By the end of this spread, most students should be able to:<br>• describe and explain the negative impacts of extreme heat on the UK<br>• describe and explain the positive impacts of warmer temperatures on the UK<br>• weigh up the positive and negative impacts against each other<br>• identify all the impacts of climate change across the UK on a map | **Cartographic skills:** construct and annotate maps; interpret and analyse choropleth maps<br><br>**Numeracy and statistical skills:** understand percentages |

### What's on Kerboodle?

**Digital books**
Student Book: Pages 68-69
Teacher Handbook: Pages 74-75

**Resources**
2 Glossary
2 Glossary worksheet

**Assessment**
2 Test yourself
2 On your marks

| Specification coverage | Exam link |
|---|---|
| • Why is climate change a global issue?<br>• Explore a range of social, economic and environmental impacts of climate change within the UK such as the impact on weather patterns, seasonal changes and changes in industry. The impacts studied should relate to the 21st century. | **Paper 1**<br>Our Natural World<br>**Section B**<br>Changing Climate |

# 2 Changing Climate

Scheme of work

GCSE geography OCR B

## 2.12 Climate change fieldwork

### Summary of content

On this spread students investigate the potential impact of flooding in their local area.

### Geographical vocabulary

There is no key vocabulary on this spread.

### Learning outcomes

By the end of this spread, most students should be able to:

- understand how they might investigate the potential impacts of flooding in their local area
- demonstrate how an interactive map works
- identify different types of secondary data and how each might be used to investigate an enquiry question or hypothesis
- suggest a range of fieldwork activities that might be used to investigate an enquiry question or hypothesis
- conduct a survey of local streets in order to estimate the potential cost of flood damage
- display the results of a survey on a graph or chart
- annotate a photo to show the potential effects of flooding

### Skills practised

**Cartographic skills:** interpret interactive maps
**Graphical skills:** construct graphs or charts
**Numeracy and statistical skills:** understand numbers; design fieldwork data collection sheets; collect and interpret tables of data
**Skills for formulating enquiry and argument:** deconstruct photos with labels in order to produce a similar one
**Fieldwork skills:** identify appropriate fieldwork questions; understand enquiry processes, techniques and methods; process, present, analyse and explain fieldwork data; draw conclusions from fieldwork; reflect critically on fieldwork methods

### Specification coverage

- Why is climate change a global issue?
- Explore a range of social, economic and environmental impacts of climate change within the UK such as the impact on weather patterns, seasonal changes and changes in industry. The impacts studied should relate to the 21st century.

### Exam link

**Paper 1**
Our Natural World

**Section B**
Changing Climate

### What's on Kerboodle?

**Digital books**
Student Book: Pages 70-71
Teacher Handbook: Pages 76-77

**Resources**
2 Glossary
2 Glossary worksheet

**Assessment**
2 Test yourself
2 On your marks
2.12 Practice question – presentation
2.12 Practice question – mark scheme

**Practice question**

**a** *Suggest an enquiry question or a hypothesis you could use to investigate climate change.* [1 mark]

**b** *Suggest two fieldwork activities that would help with your investigation.* [2 marks]