

2016 specification  
first exams in 2016

# WJEC GCSE Geography Keyword Activities

*Theme 5: Weather, Climate and Ecosystems*

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6411

POD  
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# Contents

Thank You for Choosing ZigZag Education.....	ii	Topic 5: The Distribution and Processes of Global Ecosystems (Biomes).....	57
Teacher Feedback Opportunity .....	iii	Crossword .....	57
Terms and Conditions of Use.....	iv	Fill in the Keyword .....	59
Teacher’s Introduction.....	1	Match Up.....	61
Topic 1: Evidence and Causes of Climate Change.....	2	Dominoes .....	63
Crossword .....	2	Bingo.....	67
Fill in the Keyword.....	4	Topic 6: Human Uses of Ecosystems.....	73
Match Up.....	6	Crossword .....	73
Dominoes.....	8	Fill in the Keyword .....	75
Bingo .....	11	Match Up.....	76
Topic 2: Global Circulation and Weather Hazards of Low-pressure Systems.....	17	Dominoes .....	77
Crossword .....	17	Bingo.....	80
Fill in the Keyword.....	19	Topic 7 (Part 1): Human Activity and Sustainable Activity within Ecosystems .....	85
Match Up.....	21	Crossword .....	85
Dominoes.....	24	Fill in the Keyword .....	86
Bingo .....	28	Match Up.....	87
Topic 3: Weather Hazards of High-pressure Weather Systems .....	34	Dominoes .....	89
Crossword .....	34	Bingo.....	92
Fill in the Keyword.....	35	Topic 7 (Part 2): Human Activity and Sustainable Activity within Ecosystems .....	98
Match Up.....	36	Crossword .....	98
Dominoes.....	37	Fill in the Keyword .....	100
Bingo .....	40	Match Up.....	102
Topic 4: Variations in UK Weather and Climate.....	45	Dominoes .....	104
Crossword .....	45	Bingo.....	107
Fill in the Keyword.....	46	Answers.....	113
Match Up.....	47	Crosswords .....	113
Dominoes.....	49	Fill in the Keyword / Match Up / Dominoes .....	120
Bingo .....	52	Appendices .....	129
		Personal Revision Glossary.....	129
		Dominoes / Revision Card Template.....	138
		Jumbo Crossword .....	A3 pages

# Teacher's Introduction

This resource has been produced to support the teaching of the **2016 WJEC specification for GCSE Geography: Core Theme 5: Weather, Climate and Ecosystems**.

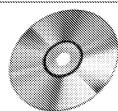
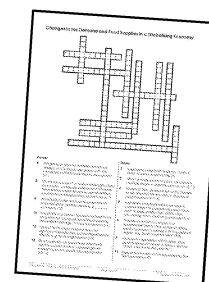
To help with the delivery of the specification all of our keyword activities are organised into topics linked to the key questions presented within each theme. A variety of engaging activities is included to help consolidate your students' understanding of key terminology and concepts. The range of activities enables you to use this resource **before, during** and **after** the teaching of each topic, helping your students to **prepare, recap** and **revise** each module.

The learning content for Weather, Climate and Ecosystems is covered by a total of eight sets of keywords and matching descriptions. For each set, there are five different keyword activities designed to give you a range of different options for classroom, homework and revision. The answers for all the keywords can be found at the back of the resource, along with the crossword solutions.

The activities are as follows:

## ① Crosswords

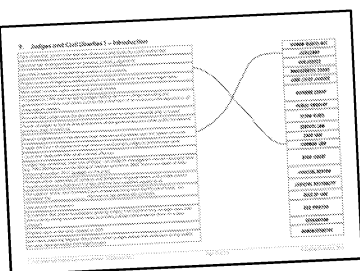
These traditional keyword activities are equally effective as lesson or homework activities – and are also an excellent way to ease students into their revision programme. There is also an A3 'jumbo' crossword with terms from across the whole unit. This could be used as class revision challenge at the end of the unit, perhaps dividing students into teams to see how far they can get.



In addition to the photocopiable worksheets, the crosswords are also provided in interactive format on the accompanying CD-ROM. These are web-based (HTML) and will run straight from your Internet browser.

## ② Fill in the Keyword

Nothing fancy – students simply write the keyword which is being described, without any other help. Because this activity tests the students' own knowledge, they are best used as a homework activity at the end of each topic or during revision. This then acts as a check that they have grasped the key terminology for each topic. Alternatively, they could be given to students at the beginning of the topic, to see what they already know.



## ③ Match Up

Students match descriptions to their keyword by drawing lines between them. Because there are similar descriptions and keywords, students are likely to make the odd mistake while completing the activity, so it is recommended that they use a pencil to start with! By eliminating the keywords that they are familiar with, students can then think about and learn the ones that they are less confident with.

## ④ Dominoes

This is another match up activity, but this one is designed to be used in a more active way to engage students. It is recommended that students work in pairs or small groups. Half of each card contains a keyword, and the other contains a description. To complete the activity, students must align all the cards in the correct order. There is a 'Start' and a 'Finish', meaning that if any cards are left outside of the chain, then students have gone wrong somewhere. The CD contains an editable Word version of the blank dominoes template, so you can make your own.

## ⑤ Bingo

Each student is given a different bingo card containing a selection of words from the set. The teacher reads the definitions and the student must match the definition to the words on their card to complete rows, columns, and the full bingo card.

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*A Roberts, April 2016*

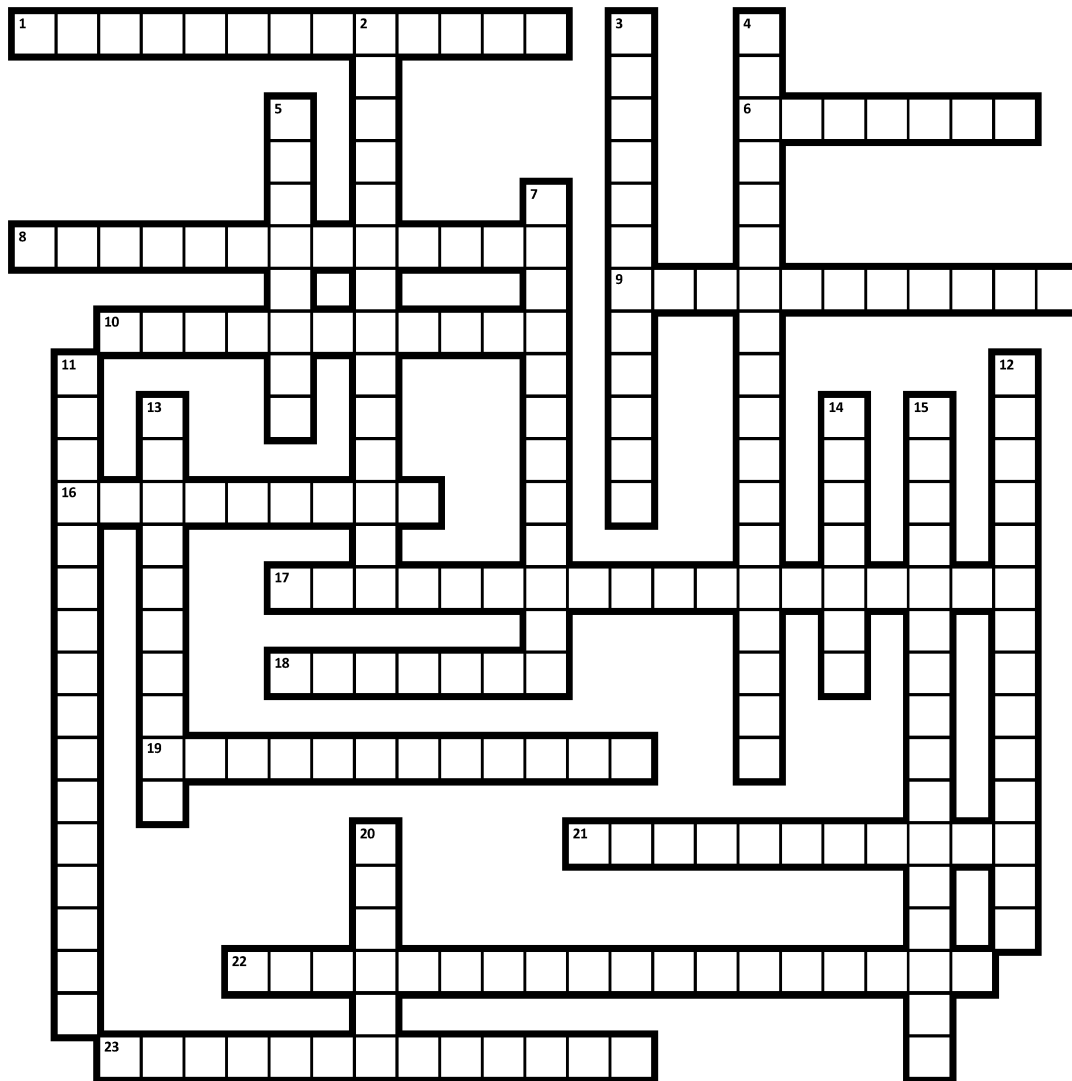
## **Selected Activities and Completed Glossary Page**

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This sample shows one example of several activities.  
The whole resource contains approximately 60 activities –  
6 or 7 activities for each of the 8 topics.

The resource covers 155 key terms.

# Topic 1: Evidence and Causes of Climate Change: Crossword



## Across

- 1 CO<sub>2</sub> (6,7)
- 6 CH<sub>4</sub> (7)
- 8 Chopping down trees, which releases temporarily sequestered (stored) carbon back into the atmosphere (13)
- 9 The amount of energy provided to the Earth and its atmosphere by the Sun (5,6)
- 10 A system which includes the flows and stores of carbon (6,5)
- 16 Dendrochronology is the study of \_\_\_\_\_ (4,5)
- 17 Written records, paintings and diaries from the past, which give us an understanding of past climate (10,8)
- 18 The Pleistocene, for example (7)
- 19 An increase in the height of the ocean (3-5,4)
- 21 Coal, oil and natural gas, for example (6,5)
- 22 Climatic variation due to changes in the Earth's orbit and tilt on its axis (12,6)
- 23 The natural trend and variation in the Earth's temperature and weather patterns over

## Down

- 2 Variation within the rotation of the Earth's orbit around the Sun, which causes climate fluctuations (7,7)
- 3 N<sub>2</sub>O (7,5)
- 4 Past, current and future data on global warmth which is retained for future use (11,7)
- 5 Cooler areas of the Sun's surface, which have a cooling effect on Earth's climate (8)
- 7 Periods between ice ages (12)
- 11 The last two million years (10,6)
- 12 Chlorophyll-using process (14)
- 13 Gases which cause atmospheric warming are called \_\_\_\_\_ gases (10)
- 14 Drilled section through ice to analyse gases (3,4)
- 15 The process of atmospheric warming caused by certain gases in the atmosphere that trap heat (10,6)
- 20 A period of sustained reduced temperatures during which glaciers and ice sheets cover large regions of Earth's surface (3,3)

## Topic 1: Evidence and Causes of Climate Change: Fill in the Keyword

The natural trend and variation in the Earth's climate over time	
Sustained period of reduced global temperatures during which ice masses develop and advance into lower altitudes, e.g. the Pleistocene	
Sustained period of warmer global temperatures during which ice still covers part of the Earth but has retreated to the polar regions, e.g. the Holocene	
Section drilled through ice (often in Antarctica) to determine past climate through the analysis of trapped air within bubbles	
Woody plants deposit a layer of material each year on the edge of their trunks and branches. The width and pattern of these layers indicates the climatic conditions – wide layers generally show a warmer climate as the tree produced more biomass.	
Written records, paintings and diaries from the past, which give us an understanding of past climate	
Past, current and future data on global warmth which is retained for future use	
A system which includes the flows and stores of carbon	
Process involving chlorophyll, whereby green plants produce glucose from carbon dioxide and water	
Natural process by which the Earth's atmosphere absorbs and traps long-wave radiation from the Sun, causing elevated surface temperatures. Human activity, such as the burning of fossil fuels, has intensified this process, leading to global warming.	
Variation within the rotation of the Earth's orbit around the Sun, which causes climate fluctuations	
The amount of energy provided to the Earth and its atmosphere by the Sun	
The most recent period in geological time, spanning the last two million years until present. This is divided into the Pleistocene (last glacial period) and the Holocene (most recent interglacial period).	
Non-renewable energy sources which were created in the past, which include coal, oil and natural gas	
A period of sustained reduced temperatures during which glaciers and ice sheets cover large regions of Earth's surface	
Cooler areas of the Sun's surface, which have a cooling effect on Earth's climate	
Climatic variation due to changes in the Earth's orbit and tilt on its axis	
Collective term for gaseous products which trap heat within the atmosphere by stopping outgoing infrared radiation from escaping into space	
Chopping down trees, which releases temporarily sequestered (stored) carbon back into the atmosphere	
An increase in the height of the ocean	
Greenhouse gas, CO <sub>2</sub> , consisting of a carbon atom and two oxygen atoms, formed from the combustion of fossil fuels, from respiration, and the setting of concrete, along with other processes	
Greenhouse gas, CH <sub>4</sub> , formed by the anaerobic digestion of organic matter in swamps and landfill sites, is excreted by animals, and forms underground in gas fields. A more dangerous gas than CO <sub>2</sub> because it is more potent at causing global warming.	
A very potent and long-living greenhouse gas, which is made of nitrogen and oxygen. It is produced when fossil fuels are burned, from sewage treatment, and from fertilisers.	

## Topic 1: Evidence and Causes of Climate Change: Match Up

A system which includes the flows and stores of carbon
Natural process by which the Earth's atmosphere absorbs and traps long-wave radiation from the Sun, causing elevated surface temperatures. Human activity, such as the burning of fossil fuels, has intensified this process, leading to global warming.
Past, current and future data on global warmth which is retained for future use
Process involving chlorophyll, whereby green plants produce glucose from carbon dioxide and water
Section drilled through ice (often in Antarctica) to determine past climate through the analysis of trapped air within bubbles
Sustained period of reduced global temperatures during which ice masses develop and advance into lower altitudes, e.g. the Pleistocene
Sustained period of warmer global temperatures during which ice still covers part of the Earth but has retreated to the polar regions, e.g. the Holocene
The amount of energy provided to the Earth and its atmosphere by the Sun
The most recent period in geological time, spanning the last two million years until present. This is divided into the Pleistocene (last glacial period) and the Holocene (most recent interglacial period).
The natural trend and variation in the Earth's climate over time
Variation within the rotation of the Earth's orbit around the Sun, which causes climate fluctuations
Woody plants deposit a layer of material each year on the edge of their trunks and branches. The width and pattern of these layers indicates the climatic conditions – wide layers generally show a warmer climate as the tree produced more biomass
Written records, paintings and diaries from the past, which give us an understanding of past climate

**CARBON CYCLE**

**CLIMATE CHANGE**

**GLACIAL**

**GREENHOUSE EFFECT**

**HISTORICAL ACCOUNTS**

**ICE CORE**

**INTERGLACIAL**

**ORBITAL CHANGES**

**PHOTOSYNTHESIS**

**QUATERNARY PERIOD**

**SOLAR OUTPUT**

**TEMPERATURE RECORDS**

**TREE RINGS**

## Topic 1: Evidence and Causes of Climate Change: Dominoes

**START**

The natural trend and variation in the Earth's climate over time

**Climate Change**

Sustained period of reduced global temperatures during which ice masses develop and advance into lower altitudes, e.g. the Pleistocene

**Glacial**

Sustained period of warmer global temperatures during which ice still covers part of the Earth but has retreated to the polar regions, e.g. the Holocene

**Interglacial**

Section drilled through ice (often in Antarctica) to determine past climate through the analysis of trapped air within bubbles

**Ice Core**

Woody plants deposit a layer of material each year on the edge of their trunks and branches. The width and pattern of these layers indicates the climatic conditions – wide layers generally show a warmer climate as the tree produced more biomass

**Tree Rings**

Written records, paintings and diaries from the past, which give us an understanding of past climate

**Historical Accounts**

Past, current and future data on global warmth which is retained for future use

**Temperature Records**

A system which includes the flows and stores of carbon



# Topic 1: Evidence and Causes of Climate Change: Bingo

Bingo				
Climate Change	Glacial	Interglacial	Ice Core	<i>Other Keywords</i> 1. .... 2. .... 3. .... 4. .... 5. .... 6. .... 7. ....
Tree Rings	Historical Accounts	Temperature Records	Carbon Cycle	
Photosynthesis	Greenhouse Effect	Orbital Changes	Solar Output	
Quaternary Period	Fossil Fuels	Ice Age	Sunspots	

Bingo				
Carbon Cycle	Photosynthesis	Greenhouse Effect	Orbital Changes	<i>Other Keywords</i> 1. .... 2. .... 3. .... 4. .... 5. .... 6. .... 7. ....
Solar Output	Quaternary Period	Fossil Fuels	Ice Age	
Sunspots	Milankovitch Cycles	Greenhouse Gases	Deforestation	
Sea-level Rise	Carbon Dioxide	Methane	Nitrous Oxide	

## Fill in the Keyword / Match Up / Dominoes

<b>TOPIC 1: EVIDENCE AND CAUSES OF CLIMATE CHANGE</b>	
The natural trend and variation in the Earth's climate over time	<b>CLIMATE CHANGE</b>
Sustained period of reduced global temperatures during which ice masses develop and advance into lower altitudes, e.g. the Pleistocene	<b>GLACIAL</b>
Sustained period of warmer global temperatures during which ice still covers part of the Earth but has retreated to the polar regions, e.g. the Holocene	<b>INTERGLACIAL</b>
Section drilled through ice (often in Antarctica) to determine past climate through the analysis of trapped air within bubbles	<b>ICE CORE</b>
Woody plants deposit a layer of material each year on the edge of their trunks and branches. The width and pattern of these layers indicates the climatic conditions – wide layers generally show a warmer climate as the tree produced more biomass.	<b>TREE RINGS</b>
Written records, paintings and diaries from the past, which give us an understanding of past climate	<b>HISTORICAL ACCOUNTS</b>
Past, current and future data on global warmth which is retained for future use	<b>TEMPERATURE RECORDS</b>
A system which includes the flows and stores of carbon	<b>CARBON CYCLE</b>
Process involving chlorophyll, whereby green plants produce glucose from carbon dioxide and water	<b>PHOTOSYNTHESIS</b>
Natural process by which the Earth's atmosphere absorbs and traps long-wave radiation from the Sun, causing elevated surface temperatures. Human activity, such as the burning of fossil fuels, has intensified this process, leading to global warming.	<b>GREENHOUSE EFFECT</b>
Variation within the rotation of the Earth's orbit around the Sun, which causes climate fluctuations	<b>ORBITAL CHANGES</b>
The amount of energy provided to the Earth and its atmosphere by the Sun	<b>SOLAR OUTPUT</b>
The most recent period in geological time, spanning the last two million years until present. This is divided into the Pleistocene (last glacial period) and the Holocene (most recent interglacial period).	<b>QUATERNARY PERIOD</b>
Non-renewable energy sources which were created in the past, which include coal, oil and natural gas	<b>FOSSIL FUELS</b>
A period of sustained reduced temperatures during which glaciers and ice sheets cover large regions of Earth's surface	<b>ICE AGE</b>
Cooler areas of the Sun's surface, which have a cooling effect on Earth's climate	<b>SUNSPOTS</b>
Climatic variation due to changes in the Earth's orbit and tilt on its axis	<b>MILANKOVITCH CYCLES</b>
Collective term for gaseous products which trap heat within the atmosphere by stopping outgoing infrared radiation from escaping into space	<b>GREENHOUSE GASES</b>
Chopping down trees, which releases temporarily sequestered (stored) carbon back into the atmosphere	<b>DEFORESTATION</b>
An increase in the height of the ocean	<b>SEA-LEVEL RISE</b>
Greenhouse gas, CO <sub>2</sub> , consisting of a carbon atom and two oxygen atoms, formed from the combustion of fossil fuels, from respiration, and the setting of concrete, along with other processes	<b>CARBON DIOXIDE</b>
Greenhouse gas, CH <sub>4</sub> , formed by the anaerobic digestion of organic matter in swamps and landfill sites, is excreted by animals, and forms underground in gas fields. A more dangerous gas than CO <sub>2</sub> because it is more potent at causing global warming.	<b>METHANE</b>