

## NEW TOPIC - Weather and Climate

**Activity 1– What are the difference between weather and climate? Give a definition for each of these key words.**

### Global circulation patterns

<https://www.metoffice.gov.uk/weather/learn-about/weather/atmosphere/global-circulation-patterns>

**Activity 2. Watch the three videos (each are on the web pages attached above) and answer the questions relating to each video.**

**You will need to watch each video several times and I recommend that you pause regularly too. You must answer the questions in full sentences.**

**Please do not try and watch all of these videos in one go. This is high level geographic work and will need your full concentration. I suggest a break between each video in order for you to fully process what you have watched and the questions you have answered.**

**You could do some mindful colouring in this time I have attached a link where you can download this from.**

<https://www.nationalgeographic.org/coloring-page/>

***Important facts you must know.***

***Hot/warm air rises... this is called low pressure and causes rain.***

***Cool/cold air sinks ... this is called high pressure and leads to dry weather.***

### **What is global circulation? Differential heating – Part 1**

1. What does it mean by differential heating of the earth?
2. Where does heat come from to reach Earth?
3. How does heat to travel Earth?
4. Why are higher latitudes (the poles) cooler?
5. Where becomes warmest due to the sun's radiation?
6. True or false the Earth's poles receive no sunlight during their winters due to the tilt of the earth.
7. What happens when sunlight hits snow and ice? Also known as the albedo effect.
8. What does the global circulation system do?

### **What is global circulation? The three cells – Part 2**

1. How many cells are found in both the northern and southern hemisphere?
2. What are the largest cells?
3. What happens to air at the equator?
4. What is the tropopause?
5. Where does the warm air go once it has risen?

6. What happens to this air as it cools – does it sink or rise?
7. Describe the movement of air in the polar cells.
8. Which cells are found between the Hadley and Polar cells?
9. In which direction do the ferrel cells move?
10. True or false ferrel cells lead to semi-permanent areas of high and low pressure.
11. What type of pressure do we find where air is rising?
12. What type of weather is found in these areas?
13. What ecosystem is found in areas of low pressure near the equator?
14. What type of pressure do we find when air is descending/falling?
15. What type of weather is found in these areas?
16. What ecosystem/region is found in areas of high pressure?
17. True or false – all deserts are hot.
18. Why is Antarctica classed as a desert?

### **What is global circulation? The Coriolis effect, winds and UK weather – Part 3**

1. What is the Coriolis effect?
2. Where does the Earth rotate fastest and why?
3. When wind moves away from the equator does it travel in a straight line or a curved direction?
4. Why does the air travel in this way?
5. In the northern hemisphere which direction do winds in low pressure systems move?
6. In the northern hemisphere which direction do winds in high pressure systems move?
7. Where is the subtropical jet stream?
8. How strong are the winds in the subtropical jet stream?
9. Does the subtropical jet stream bring dry or wet weather?
10. Where is the polar jet found?
11. In what direction do the trade winds blow in the northern hemisphere?
12. In what direction does the prevailing wind travel to the UK?
13. Why does it travel in this direction?

### **Activity 3 - Present your newfound knowledge on global circulation in a poster or PowerPoint**

This MUST be completed in your own words and use the information you have just collected. You must not copy and paste from the internet. This activity is to help you remember the information you have just collected.

#### **Areas your poster must include:**

What is global circulation?

What happens in each of the three cells?

How do the cells lead to different ecosystems being found in different places around the world?

What is the Coriolis effect?

What is the jet stream?

Where does the UK's prevailing wind come from and why?

### **Activity 4 - Watch the video (find the link below) and answer the questions relating to the video.**

**You will need to watch each video several times and I recommend that you pause regularly too. You must answer the questions in full sentences.**

<https://www.youtube.com/watch?v=UuGrBhK2c7U>

1. Where does heat move due to ocean currents?
2. What is the ocean conveyor belt?
3. What does thermohaline circulation mean?
4. What is the main reason that water moves?
5. Does warm water have a high or low density - does it rise or sink?
6. Does cold water have a high or low density - does it rise or sink?
7. How salty is water at the equator and why?
8. What is the Gulf Stream?
9. How long is the Gulf Stream?
10. How fast is the Gulf Stream and how much water is it carrying?
11. Where do trade winds blow water to?
12. When the water reaches this area how warm does it become?
13. Where does the water flow to?
14. How is this water split up – where does it flow to?
15. What does the North Atlantic current do?
16. What happens to the water as it travels further north to between Greenland and Iceland?
17. What are the chimneys?
18. Why is the Gulf Stream important for wildlife?
19. Why is the Gulf Stream known as a heat pump?
20. What would happen to northern Europe if there was no Gulf Stream?
21. How could climate change impact/stop the Gulf Stream?

**Activity 5 - Present your newfound knowledge on the Gulf Stream in a poster or PowerPoint**

This MUST be completed in your own words and use the information you have just collected. You must not copy and paste from the internet. This activity is to help you remember the information you have just collected.

**Areas your poster must include:**

1. How does heat move in the oceans?
2. What is the Gulf Stream?
3. Direction of travel of the Gulf Stream
4. How the Gulf Stream impacts Europe
5. How the Gulf Stream could be impacted by climate change.

**Activity 6 – Watch your assigned PODs and answer the questions that go with them. If you have forgotten your GCSE POD password, please contact your teacher and they will reset it for you.**

**Activity 7 – Email your teacher either a photograph of your posters or the PowerPoint you have made so they can give you feedback.**