

Name: Class:

Year 8 Unit 3:



Why does the weather change so much in the UK?

ENQUIRY: Why does the weather change so much in the UK?

| Unit intention: | | |
|--|---|---|
| Success criteria | ✓ | X |
| <ul style="list-style-type: none"> I can describe the changes in the UK weather I can annotate a synoptic map I can explain why it rains I can describe conditions in an anticyclone I can explain why climatic conditions, vary within the UK. I can explain the impacts of the Beast from the East | | |
| Unit summative and formative assessment details: Several EQs End of unit assessment | | |
| Home Learning (What and how often): Variety of consolidation sheets | | |
| Topic Sequence <ul style="list-style-type: none"> Weather vs climate Measuring weather Presenting weather data Clouds and rain Air pressure and anticyclones Depressions UK climate Climate zones Beast from the East | Recommended reading/ watching What does Rain smell like Wild weather series – you tube | |

PRE-ASSESSMENT EVALUATION

Success criteria – Have you met them? Show your evidence in preparation for your assessment.

1.

2.

3.

4.

5.

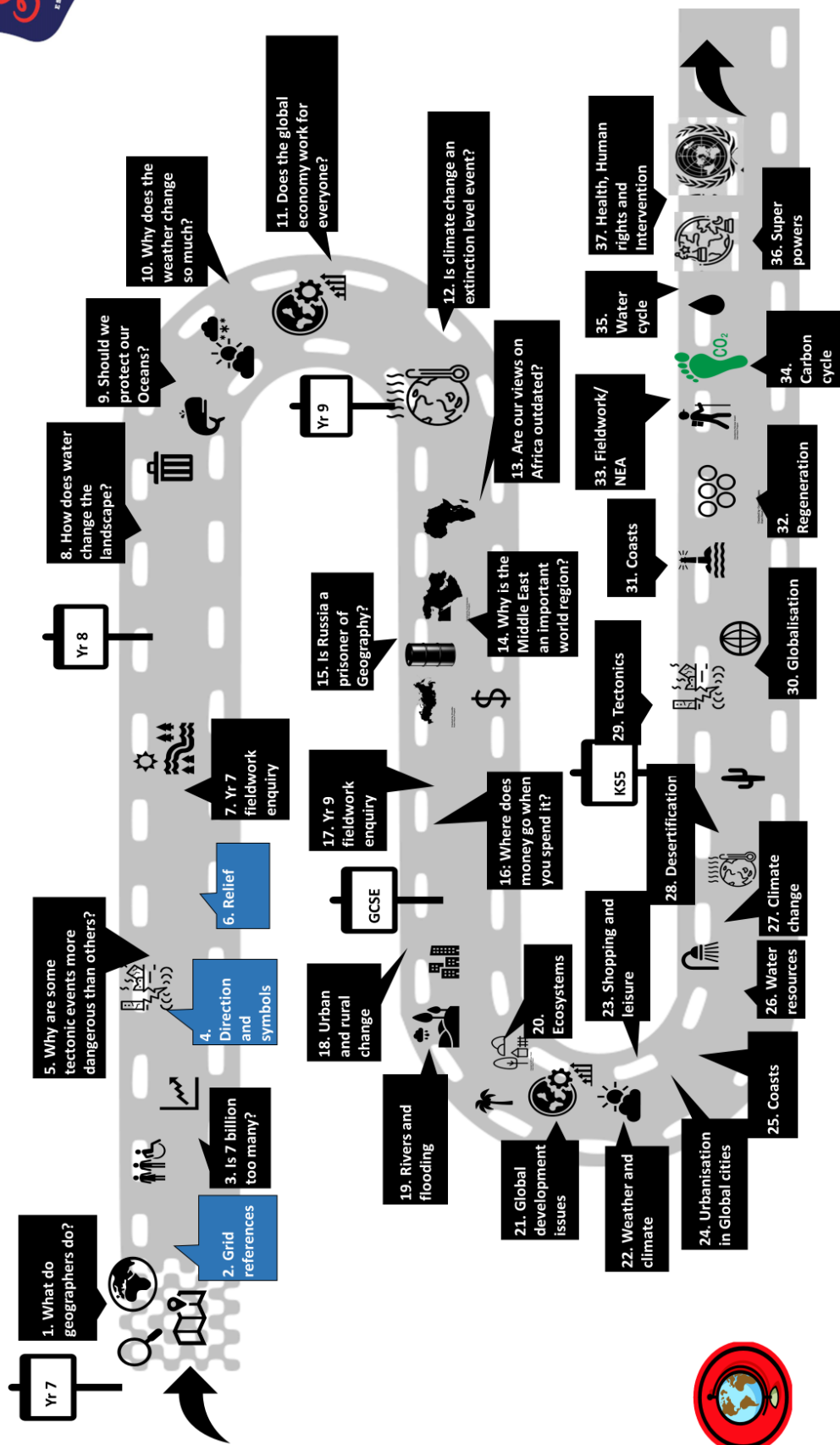
6.

How will you improve your work?

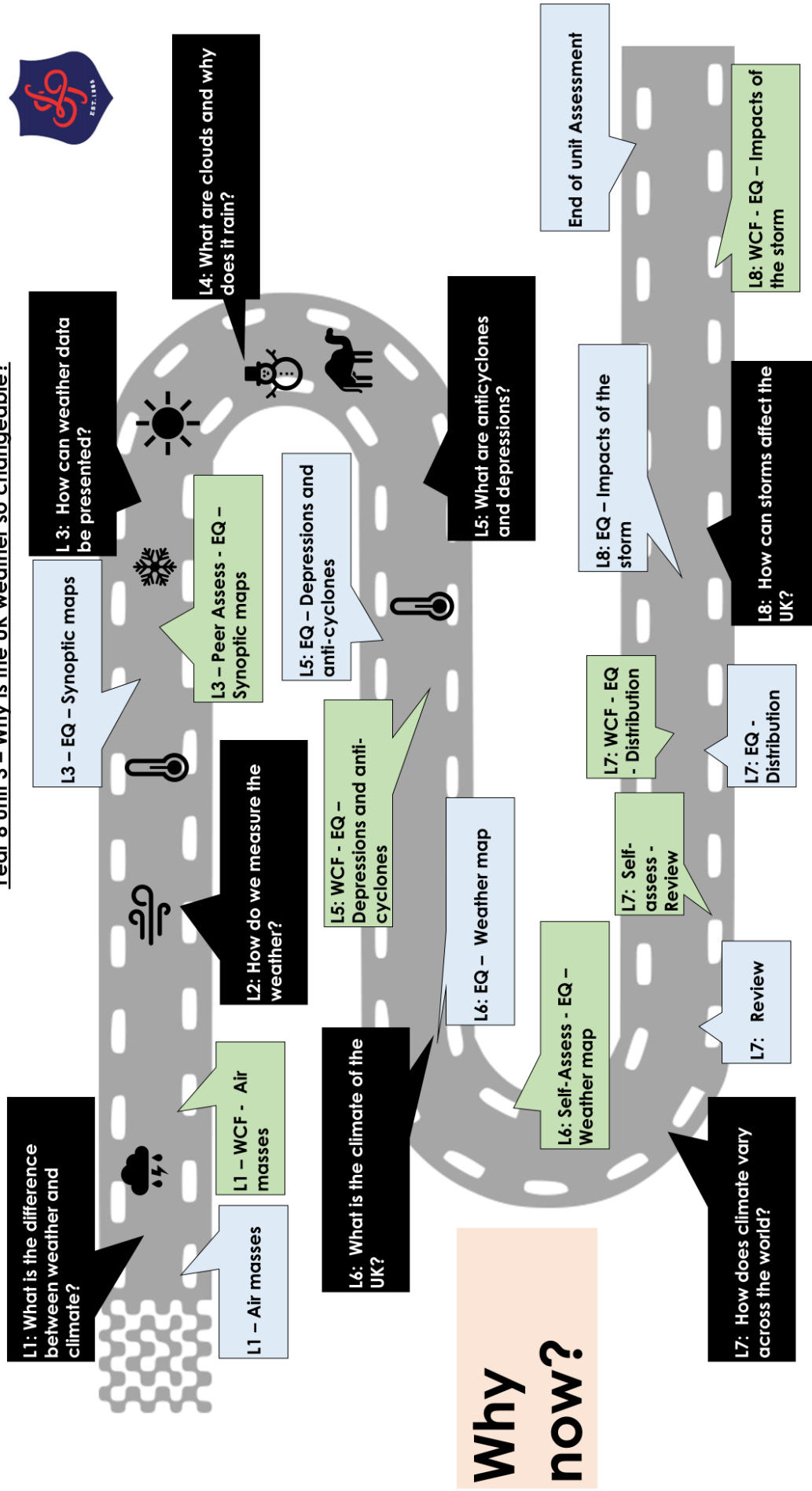
Student Assessment sheet

| Year 8 Unit 3 | | | | | |
|---|--|---|---|------------------------|------------------------|
| LI | Extending | Mastering | Learning | Assessment | HW Check |
| To understand the difference between weather and climate. | I can describe the changes in the UK weather | I can describe the differences between weather and climate | I can define weather and climate | On test | Glossary sheet |
| To understand how we measure the weather | I can explain how the instruments work | I can explain how we measure the weather | I can describe the instruments used to measure the weather | Checked during lessons | Weather extremes sheet |
| To understand weather forecasts | I can annotate a synoptic map | I can use weather symbols | I can draw a climate graph | On test | Literacy Challenge |
| To explain what clouds are, and what they can tell us about the weather. | I can explain the types of rain | I can explain why it rains | I can identify types of cloud | On test | Cloud poster |
| To understand how changes in air pressure affect weather | I can explain how fronts affect weather | I can describe conditions in an anticyclone | I can describe how air pressure changes | | Seneca review |
| To understand the UK's climate. | I can explain why climatic conditions, vary within the UK. | I can describe the changes in climate across different regions in the UK. | I can identify the differences in climate across the UK. | On test | |
| To explain what factors can affect the climate of a particular location | I can explain why climates vary | I can describe the factors that affect global climates | I can identify where the 6 climate zones are | On test | Forms quiz |
| To explain what the 'Beast from the East' was and to understand the impacts of it. | I can explain the impacts of the Beast from the East | I can explain the causes of the Beast from the East. | I can describe what happened during the Beast from the East | Impacts of the storm | Revise |

Geography at Langdon Park School – From 2022 – From yr 8



Year 8 unit 3 – Why is the UK weather so changeable?



Lesson 1: What is the difference between weather and climate?

Big Picture

| | | I think I can.. | My teacher thinks I can ... |
|-----------|--|-----------------|-----------------------------|
| Learning | I can define weather and climate | | |
| Mastering | I can describe the differences between weather and climate | | |
| Extending | I can describe the changes in the UK weather | | |

Do Now: Create an A-Z using words related to weather and climate

My Weather Log. Location: _____

Write in the days as you may start on a Wednesday for example.



| Day | Temperature | Cloud cover (cloudy/clear sky) | Precipitation (rain) | Other comments |
|-----|-------------|-----------------------------------|-------------------------|-------------------|
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Starter: Weather words – how many can you get?

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Unscramble the definitions:

Weather conditions day-to-day the describes.

Climate average is the weather conditions over years 30.

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How does our weather change throughout the year?

| | |
|--------|--------|
| Spring | Summer |
| Autumn | Winter |

Air masses that affect the UK's climate



1. Draw arrows onto the map and label them to show which directions the air masses come from.
2. Colour maritime air masses in blue and continental ones in red.

Polar Maritime:

This air mass travels across the ocean from Greenland. It brings with it wet and cold air. The weather will be cold and showery. This is very common in the UK. There can be heavy showers in hilly areas. There are often strong winds and gales.

Returning Polar Maritime:

This air mass comes from Greenland but travels down the Atlantic Ocean picking up more moisture. It brings unstable changeable weather where there is a lot of cloud and rain showers.

Polar Continental:

This air mass travels across Siberia and Russia bringing cold air to the UK. It brings dry summers and snowy winters. It can bring very cold temperatures. There is a high wind chill factor. When snow falls, it can last for several days.

Tropical Continental:

This air mass travels up from Africa bringing with it hot dry air to the UK. It brings with it hot weather and stable conditions. There are usually storms after this air mass has moved over the UK.

Tropical Maritime.

This air mass travels across the warmer parts of the Atlantic Ocean. It brings cloud and rain, but the weather will be warmer. This is very common. It brings thick clouds cover. There is often fog at the coasts.

Arctic Maritime. This air mass travels down from the Arctic. It brings with it freezing weather conditions. In the winter, it brings wet weather and snow. This air mass is rare in summer. There is often snow in Scotland with this air mass and heavy showers. Hail is common. It is very windy.

| <p>Use your air mass map to help you:</p> <p>Describe what your map shows.</p> <p>Explain the difference between maritime and continental air masses.</p> <p>Describe the weather you would expect in the north of Scotland – explain why.</p> <p>Describe the weather you would expect on the south coast of the UK – explain why.</p> | <p>Use your air mass map to help you:</p> <p>Describe what your map shows.</p> <p>Explain the difference between maritime and continental air masses.</p> <p>Explain how the air masses could lead to different types of weather affecting different parts of the UK.</p> | <p>Use your air mass map to help you:</p> <p>Describe what your map shows.</p> <p>Explain the difference between maritime and continental air masses. Why do they bring different types of weather?</p> <p>Explain how we can use our knowledge of air masses to help us predict the weather for different times of the year.</p> |
|---|---|---|

Time to reflect: Odd one out

England in Summer



England in Spring



England in Autumn



England in Winter



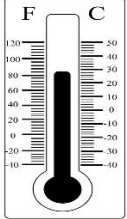
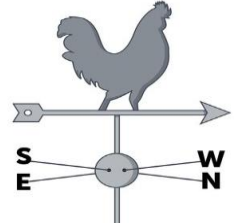



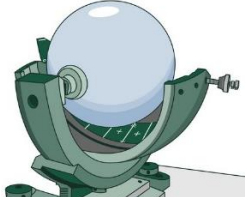

Big Picture

| | | I think I can ... | My teacher thinks I can ... |
|-----------|---|-------------------------|--------------------------------------|
| Learning | To identify different instruments used to measure weather. | | |
| Mastering | To describe what each instrument does to measure weather conditions. | | |
| Extending | To explain how weather is presented on maps and charts using symbols. | | |

Do it now: Label the UK map with countries and capitals.






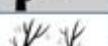









Match the equipment with the descriptions, then use this to complete the table.

| | | |
|---|--|---|
|  | | <p><u>Rain Gauge</u> Precipitation is water falling from the sky.</p> <p>Measures the amount of rainfall in mm. Not only does a rain gauge measure rainfall, but also all other forms of precipitation</p> |
|  | | <p><u>Thermometer</u> Temperature means how hot or cold it is.</p> <p>It is usually measured with a thermometer in degrees centigrade(°C)</p> |
|  | | <p><u>Campbell stokes recorder</u> Sunshine is light and warmth from the sun. A Campbell Stokes Recorder measures sunshine.</p> <p>This type of recorder is made up of a glass ball which concentrates sunshine on to a thick piece of card. The sunshine then burns a mark on the card which shows the number of hours of sunshine in the day.</p> |
|  | | <p><u>Weathervane</u> Wind direction is where the wind is blowing from.</p> <p>Measures wind direction by pointing towards North, East, South or West.</p> |
|  | | <p><u>Barometer</u> Pressure is a measure of the force exerted by air.</p> <p>Pressure is measured with a barometer in millibars (mb)</p> |
|  | | <p><u>Anemometer</u> Wind speed is how fast the wind is blowing. An anemometer measures wind speed in mph.</p> <p>The most common type looks like a toy windmill. The faster the wind blows the faster the cups spin around. The wind speed is shown on a dial, just like a car's speedometer</p> |
|  | | <p><u>Hygrometer</u> A hygrometer measures temperature and humidity. It measures humidity as a percentage. It measures the relative humidity of the air through evaporation. It has 2 thermometers, and it measures the amount of evaporation. Humidity is the amount of water vapour in the air.</p> |

| Weather term | Definition | Usually given in | Measured by. |
|----------------|------------------------|--------------------|--------------|
| Temperature | How hot or cold it is. | Degrees centigrade | Thermometer |
| Precipitation | | | |
| Humidity | | | |
| Wind Speed | | | |
| Wind direction | | | |
| Sunshine | | | |
| Air Pressure | | | |

Beaufort Scale

| Beaufort number | Wind Speed (mph) | Seaman's term | | Effects on Land |
|-----------------|------------------|-----------------|---|---|
| 0 | Under 1 | Calm |  | Calm; smoke rises vertically. |
| 1 | 1-3 | Light Air |  | Smoke drift indicates wind direction; vanes do not move. |
| 2 | 4-7 | Light Breeze |  | Wind felt on face; leaves rustle; vanes begin to move. |
| 3 | 8-12 | Gentle Breeze |  | Leaves, small twigs in constant motion; light flags extended. |
| 4 | 13-18 | Moderate Breeze |  | Dust, leaves and loose paper raised up; small branches move. |
| 5 | 19-24 | Fresh Breeze |  | Small trees begin to sway. |
| 6 | 25-31 | Strong Breeze |  | Large branches of trees in motion; whistling heard in wires. |
| 7 | 32-38 | Moderate Gale |  | Whole trees in motion; resistance felt in walking against the wind. |
| 8 | 39-46 | Fresh Gale |  | Twigs and small branches broken off trees. |
| 9 | 47-54 | Strong Gale |  | Slight structural damage occurs; slate blown from roofs. |
| 10 | 55-63 | Whole Gale |  | Seldom experienced on land; trees broken; structural damage occurs. |
| 11 | 64-72 | Storm |  | Very rarely experienced on land; usually with widespread damage. |
| 12 | 73 or higher | Hurricane Force |  | Violence and destruction. |

What would be the Beaufort number for today's wind? Justify your choice

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| | Symbol | | Symbol |
|-----------------------------------|--------|---------------------------|--------|
| Clear sky | ○ | 5/8 covered | ⦿ |
| covered 1/8 or less, but not zero | ① | 6/8 covered | ⦿ |
| 2/8 covered | ⦿ | 7/8 covered | ⦿ |
| 3/8 covered | ⦿ | sky completely covered | ● |
| 4/8 covered | ⦿ | sky obscured, e.g. by fog | ⊗ |

What would be the Oktas coverage for today's cloud cover? Justify your choice.

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|---|--|
| How many balloons are launched every day? | |
| How big are the balloons? | |
| How are the weather instruments safely returned to Earth? | |
| How much do the balloons expand by? | |
| How long do they fly for? | |
| How high can they reach? | |
| What do the instruments measure? | |
| Where is the information fed back to? | |

How do we measure how far thunder and lightning are?

Lightning comes from _____, these are large storms with lots of _____, strong winds, sometimes hail and other hazardous types of weather as well as lightning. Lightning can be _____ depending on where it strikes and cause power cuts and other problems such as _____.

You can work out where lightning is coming from. Thunder is the _____ that lightning makes as it _____ through the _____, but because sound travels _____ than light you always see lightning _____. If you count the number of _____ between the lightning and the thunder and divide that number by _____ it will tell you how many _____ away the lightning is.

Time to reflect: True or false

| | |
|---|--|
| We use a hygrometer to measure air pressure | |
| Rainfall is measured in cm | |
| Humidity is measured as a percentage | |
| Thunder is the sound lightning makes | |
| Cloud cover is measured in octopuses | |
| The Beaufort scale goes up to 11 | |
| We measure wind speed in mph | |

Lesson 3: How can weather be presented?




Big Picture

| L/M/E | | I think I can ... | My teacher thinks I can ... |
|-----------|-------------------------------|-------------------|-----------------------------|
| Learning | I can draw a climate graph | | |
| Mastering | I can use weather symbols | | |
| Extending | I can annotate a synoptic map | | |

Do now: Thinking quilt. Colour code the related statements. - An example has been done for you.

| | | |
|-------------------|---------------|--------------------------|
| Barometer | Humidity | Celsius |
| Millimetres | Anemometer | Temperature |
| Compass direction | Millibars | Hygrometer |
| Thermometer | Rain Gauge | Precipitation |
| Wind direction | Hours per day | Campbell Stokes Recorder |
| Wind speed | Weathervane | Miles per hour |
| Percentage | Air pressure | Sunshine |

Starter – True or false

| | |
|---|--|
| It is hottest on the equator | |
| Antarctica is the windiest continent | |
| It is wettest on the equator | |
|  is the symbol for snow | |
| Wind speed is measured in cm per hour | |
| We use a barometer to measure wind speed | |
| It rains more on hills than on flat land | |
| A geologist studies the weather | |
|  is used to measure air pressure | |
|  is used to measure air pressure | |

Why do we need weather forecasts?

1. What does a weather forecast tell us?

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2. How would it help people prepare for the day?

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3. Why can weather forecasts sometimes be inaccurate?

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4. What does the forecast tell us about London's weather?

















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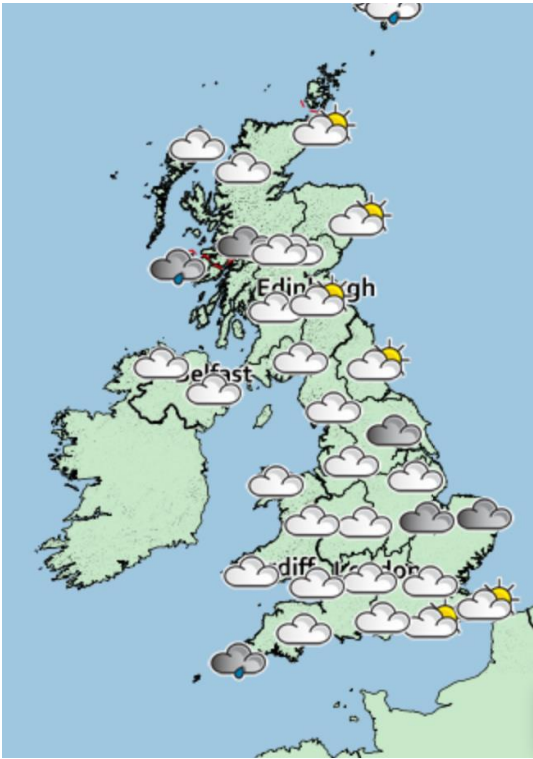
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Match the weather symbol to its description

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|-------------|-------------------|------------|-------------------|
| Clear night | Isobars | Cloudy | Cold Front |
| Sunny day | Warm Front | Light Snow | Hail |
| Sleet | Heavy Rain Shower | Thunder | Light Rain Shower |
| Heavy Rain | Sunny Intervals | Mist | Heavy Snow |



This Met Office map shows the weather for the UK on Sunday 6th December.

Task: Describe the weather for the UK on this date.

Remember to use compass directions in your answer.

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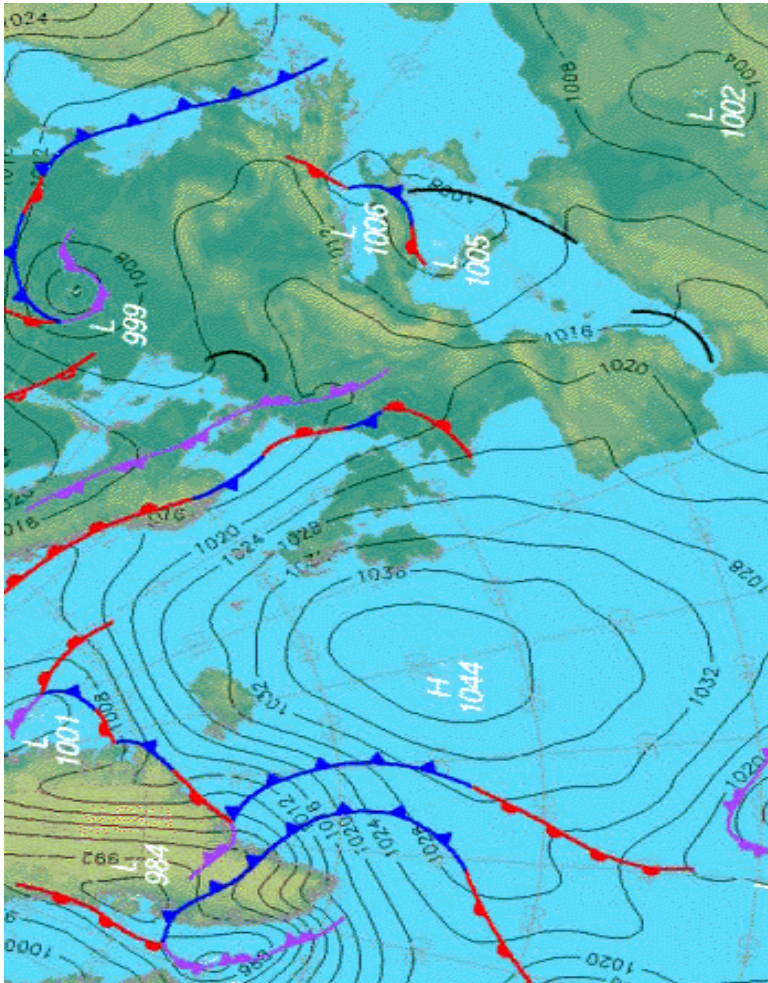
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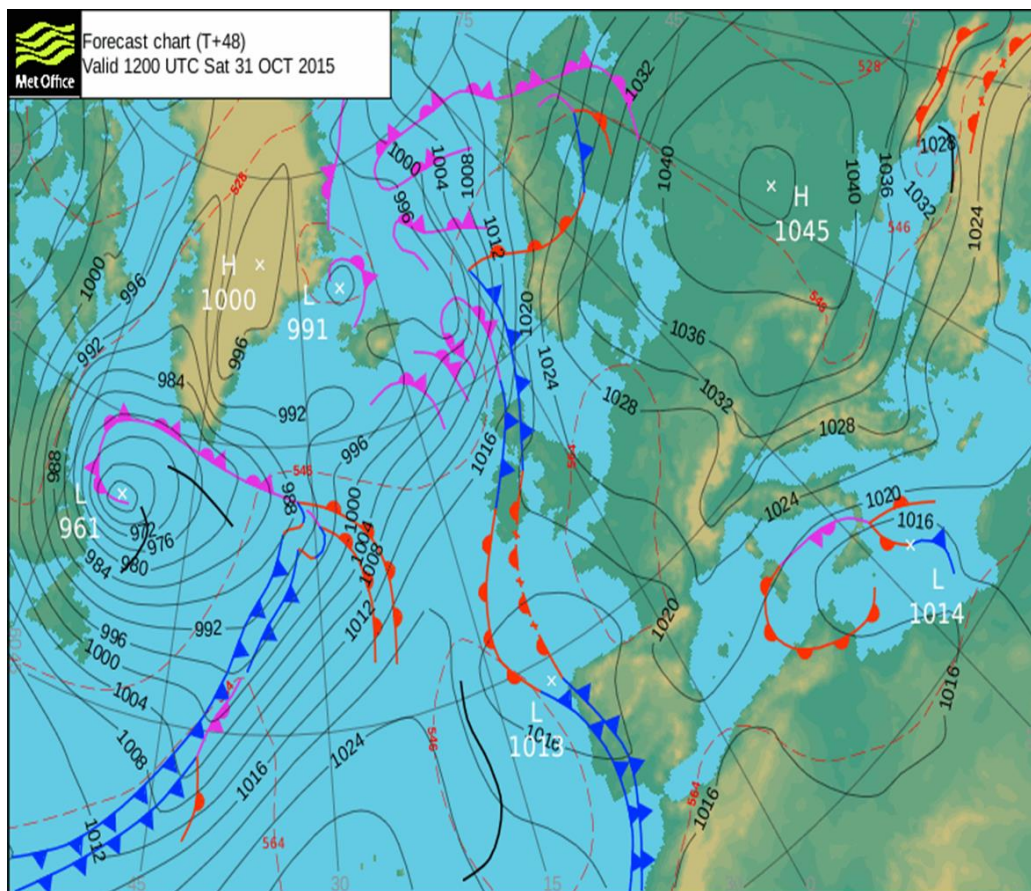
Synoptic Charts

Weather key phrases

- Area of high pressure
- Area of low pressure
- Fine weather
- Windy conditions
- Clear skies
- Cloudy
- Rainfall likely
- Isobars (places of equal pressure)
- Tightly packed isobars (windy)
- Fronts (2 different masses of air)
- Cold front
- Warm front
- Occluded front



Applying knowledge -What can you see on this synoptic chart?



Climate graphs

What does the bar graph show?

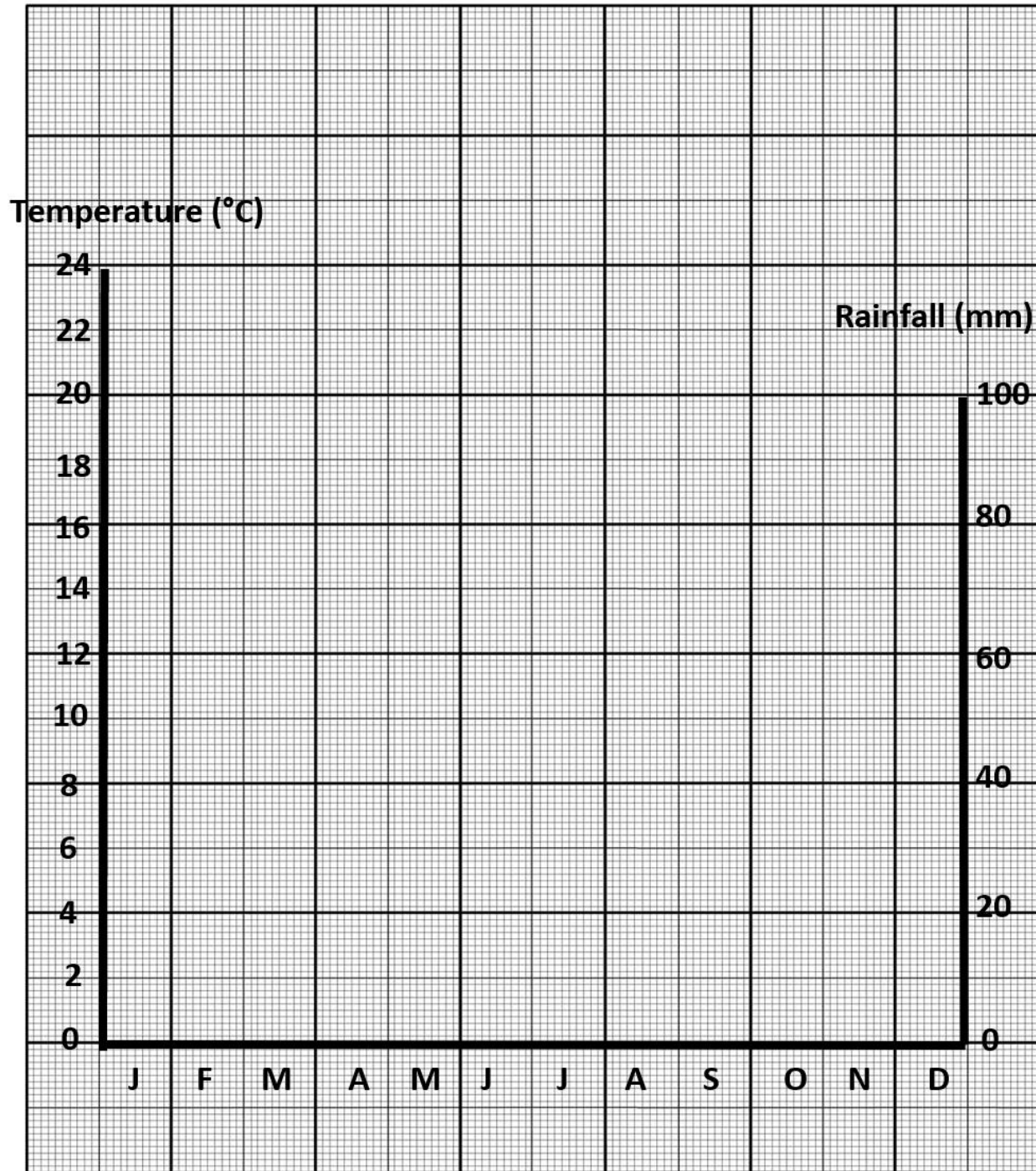
What does the line graph show?

Which month had the highest rainfall?

Which months had the lowest rainfall?

Which months had the highest temperature?

Which month had the lowest temperature?



Now -describe your climate graph

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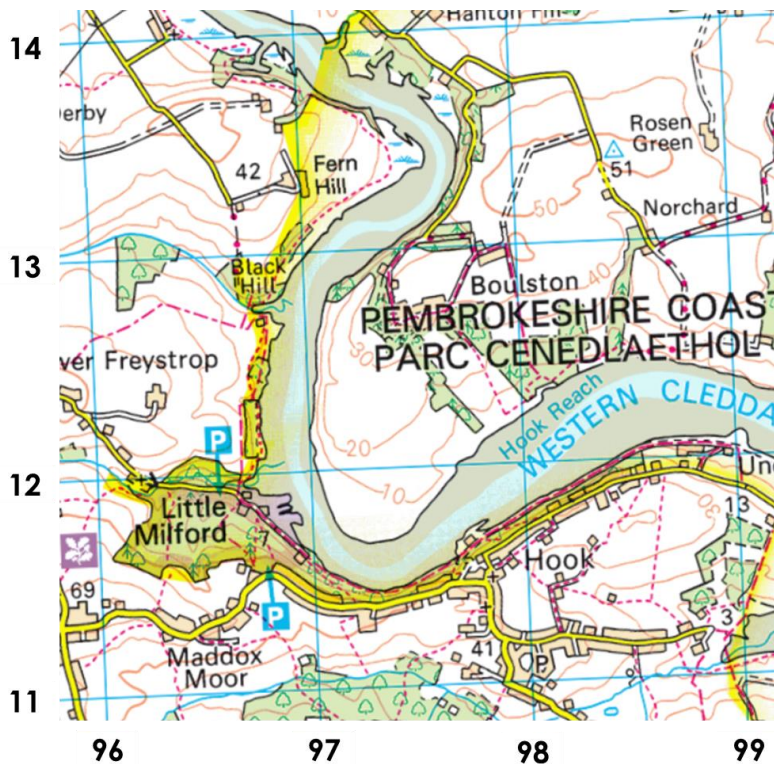
Lesson 4: What are clouds and why does it rain?

Big

Picture

| L/M/E | | I think I can ... | My teacher thinks I can ... |
|-----------|---------------------------------|-------------------|-----------------------------|
| Learning | I can identify types of cloud | | |
| Mastering | I can explain why it rains | | |
| Extending | I can explain the types of rain | | |

Do now: Map skills



What can be found at:

971 134
 984 134
 963 130
 968 116
 975 134

1. Describe the relief of the land around the river.

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2. What do the black numbers mean e.g. the 51 at Rosen Green?

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Starter: Prior knowledge

What can you tell me about clouds?

E.g. Cloud types, how they are formed, weather that they are associated with.

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Key words









| | | |
|---------------------|--|---|
| Evaporation | | Water held in the air as a gas |
| Condensation | | Microscopic particles of dust, smoke, or salt in the atmosphere on which water vapour condenses to form cloud droplets. |
| Water Vapour | | The process when water turns from a liquid to a gas (water vapour). |
| Condensation Nuclei | | Most common wind direction |
| Prevailing Wind | | The process when water vapour turns into a liquid. |

Put the statements in the correct order

| Statement | Order 1-5 |
|--|-----------|
| Cloud droplets are so tiny, they can stay afloat on-air currents. Billions of cloud droplets together form a cloud. | |
| As the warm air rises, it cools. Cool air cannot hold as much water vapour as warm air. | |
| If the cloud droplets join up to make larger, heavier droplets (around 2mm), they can fall as rain! | |
| Water vapour condenses onto tiny dust particles (called condensation nuclei) in the air, forming a cloud droplet. | |
| Warm air starts to rise upwards. The air contains water vapour that has been evaporated from the sea, river, lakes, etc. | |

Match the cloud pictures with the names below:

Stratocumulus
 Cirrus
 Stratus
 Cumulonimbus
 Altostratus
 Cumulus
 Cirrocumulus
 Altocumulus

| | | | |
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Watch the two video clips – how do clouds help us to predict the weather?

What do they tell us about the air pressure?

What does the wind direction tell us?

High pressure means

Low pressure means.....

With your back to the wind:

Wind goes from left to right means.....

Wind goes from right to left means.....

Put the statements in order:

| | |
|--|--|
| Condensation occurs and clouds form | |
| Air rises | |
| Precipitation occurs and usually in the form of rain | |
| Air cools | |

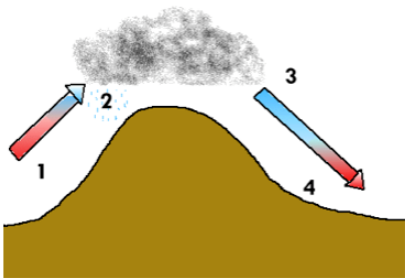
Relief Rainfall

Air descends and begins to warm again

Air is forced to rise over mountains which then cools

Water vapour in the air condenses and forms clouds and rains

Air has less water overall, clouds disappear and the rain stops. This side of the mountain is know as the RAINSHADOW



Match the statements with your diagram

Superstar Challenge: Can you give an example of where this happens?

Convictional Rainfall

Torrential rain and thunderstorms are produced

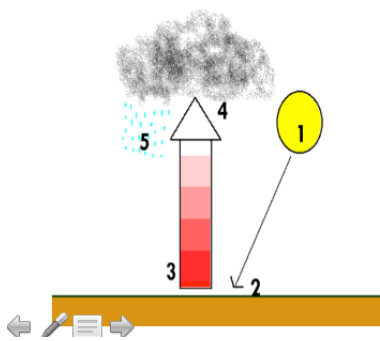
The air rises very quickly through convection

Large clouds develop above the rising air as the air cannot hold as much water

Sun provides the heat source heating up the ground quickly

As the air rises it cools rapidly

Match the statements with your diagram



★ Superstar Challenge: Can you give an example of where this happens?

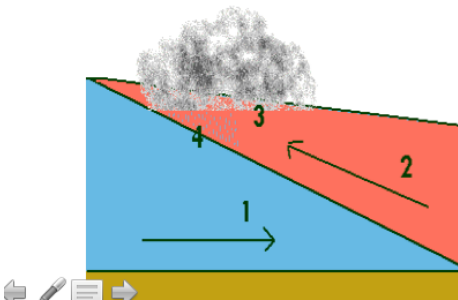
Frontal Rainfall

Further forcing of the air causes precipitation to form

As the warm air rises it cools and condenses producing clouds

Warm air mass is forced to rise above the cold air mass

Colder air mass is denser so carries on pushing along the ground



Match the statements with your diagram



Superstar Challenge: Can you give an example of where this happens?

Time to reflect

Look out of the window.

What types of cloud can you currently see?

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How much cloud cover is there?

Lesson 5: What are anticyclones and depressions?

Big Picture

| L/M/E | | I think I can ... | My teacher thinks I can ... |
|-----------|---|-------------------|-----------------------------|
| Learning | I can describe how air pressure changes | | |
| Mastering | I can describe conditions in an anticyclone | | |
| Extending | I can explain how fronts affect weather | | |

Do now: Previous key words

| | |
|-------------------------|--|
| Internal Migrant | People who have been forced to leave their home country and are often homeless. |
| Emigrant | A person arriving in a country with the intention of settling there. |
| Immigrant | People who have sought protection from a country other than the one they were born in. |
| Refugee | A person moving from one area to another in the same country. |
| Asylum Seeker | A person leaving a country with the intention of settling somewhere else |

Starter: Satellite images

Figure B was taken from a satellite. It shows _____ with very _____ and fine _____. Photos like these are taken every few hours and by looking back over them allows _____ to work out the movement of weather systems so forecasts can be made.

Key definitions:

Depressions -

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Anticyclones -

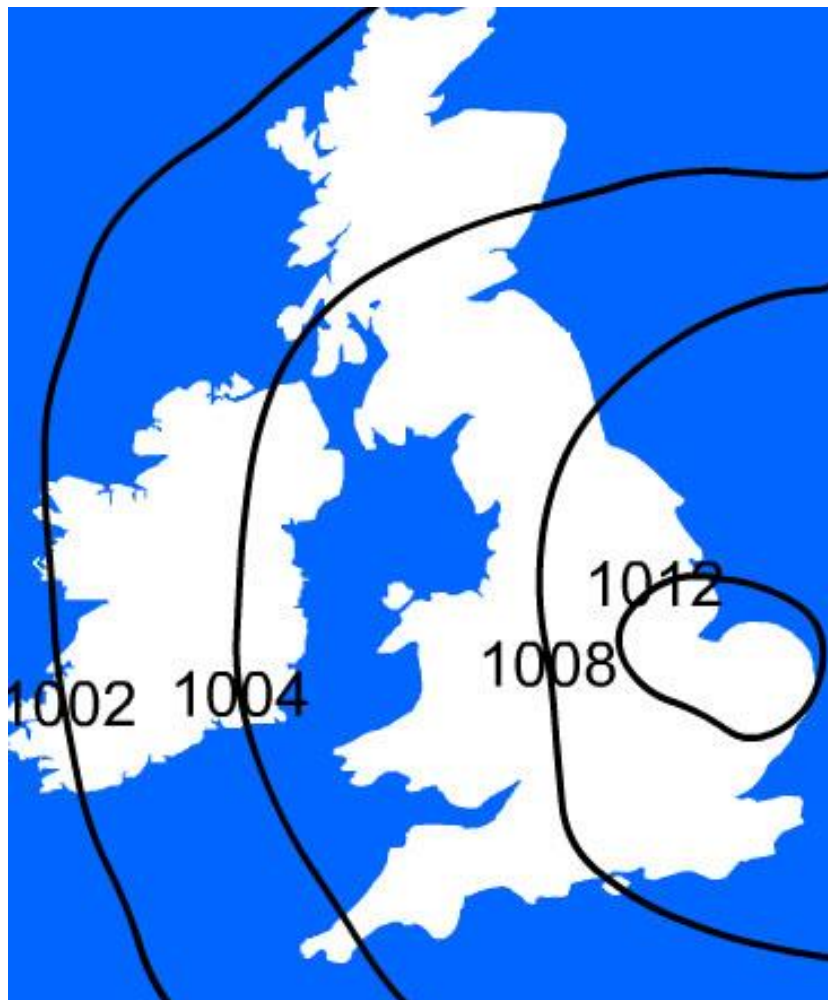
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Annotate the map



Video notes



Anticyclones are caused by a period of _____ pressure when _____ air sinks.

In summer, anticyclones give us clear skies so it is usually hot and _____. There are no _____ so it does not _____.

In winter, anticyclones still give us clear skies, so it is usually _____ but _____.

There are no _____, so it does not _____.

This weather can last for many _____.

Word box

| | | | | |
|-------|-------|------|------|-------|
| rain | cloud | days | cold | cloud |
| sunny | cold | rain | high | sunny |

True or false

| | |
|---|--|
| Anticyclones give unsettled weather | |
| Anticyclones give clear skies | |
| Anticyclones are caused when warm air rises | |
| An anticyclone is caused by high pressure | |
| Anticyclones in winter cause snow | |
| In summer an anticyclone gives us hot weather | |
| There is no rain during an anticyclone | |

Weather fronts

A weather front is

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| Cold front – | |
| Warm front – | |

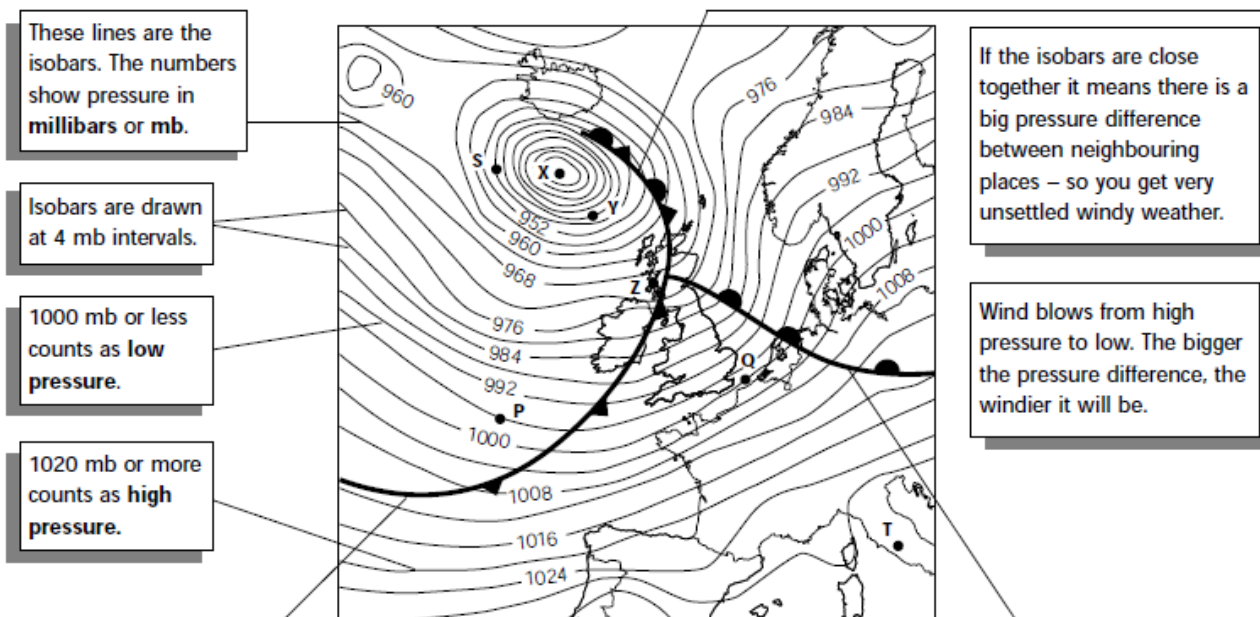
Weather in a depression

| | |
|--|--|
| Next comes the cold front. Temperature decreases and heavy dark towering storm clouds form. Heavy rain occurs and sometimes thunder and lightning. | |
| As the warm front approaches the temperature increases and there is some rainfall. | |
| Before the depression arrives, it is cool and there is some cirrus cloud (wispy clouds) in the sky. There is no rain. | |
| This often takes a few days to pass over the British Isles. | |

Contour lines join places at the same height above sea level.
Isobars join places at the same air pressure!

Below is a weather map for one December day. It shows a **depression**, a weather system where a cold front is chasing a warm one. The isobars show how the pressure varies.

Read the notes around the weather map, then answer the questions.

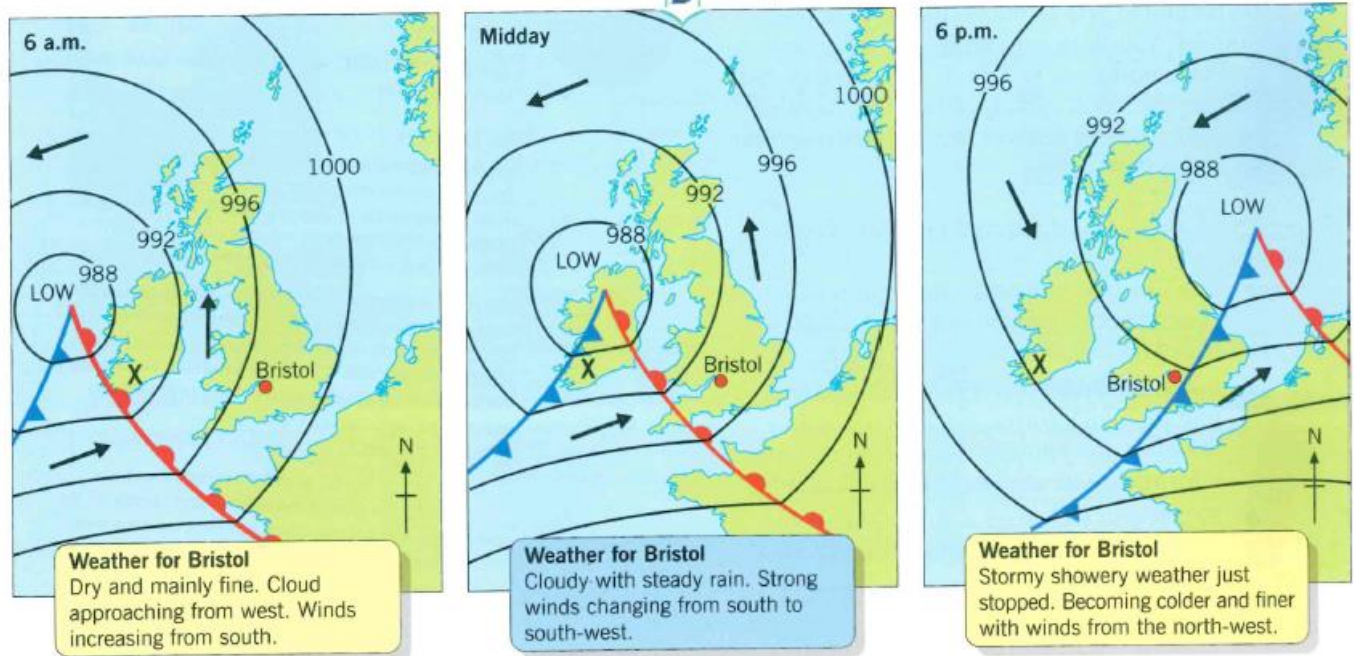


- Fill in these labels on the correct blank lines on the map:
 Warm front cold front cold front has caught up with warm front
- Isobars are lines which
- What is the pressure at P? Millibars
- The pressure is lowest at the place labelled on the map. It is about millibars
- Which letter shows a place at high pressure? Which country is it in?

6. Which place is likely to be warmer, P or Q? Why?
.....
.....
7. Which place is likely to be windier, S or T? Why?
.....
.....
8. In which direction is the wind likely to blow: from P to Z or from Z to P? Why?
.....
.....
9. Which place is more likely to have rain, T or Z? Why?
.....
.....

Time to reflect:

D A depression passing over Britain



Lesson 6: How does the UK's weather vary?

Big Picture

| L/M/E | | I think I can ... | My teacher thinks I can ... |
|-----------|--|-------------------|-----------------------------|
| Learning | To be able to identify climate data. | | |
| Mastering | To describe the differences between two UK climates. | | |
| Extending | To explain the differences in climate within the UK. | | |

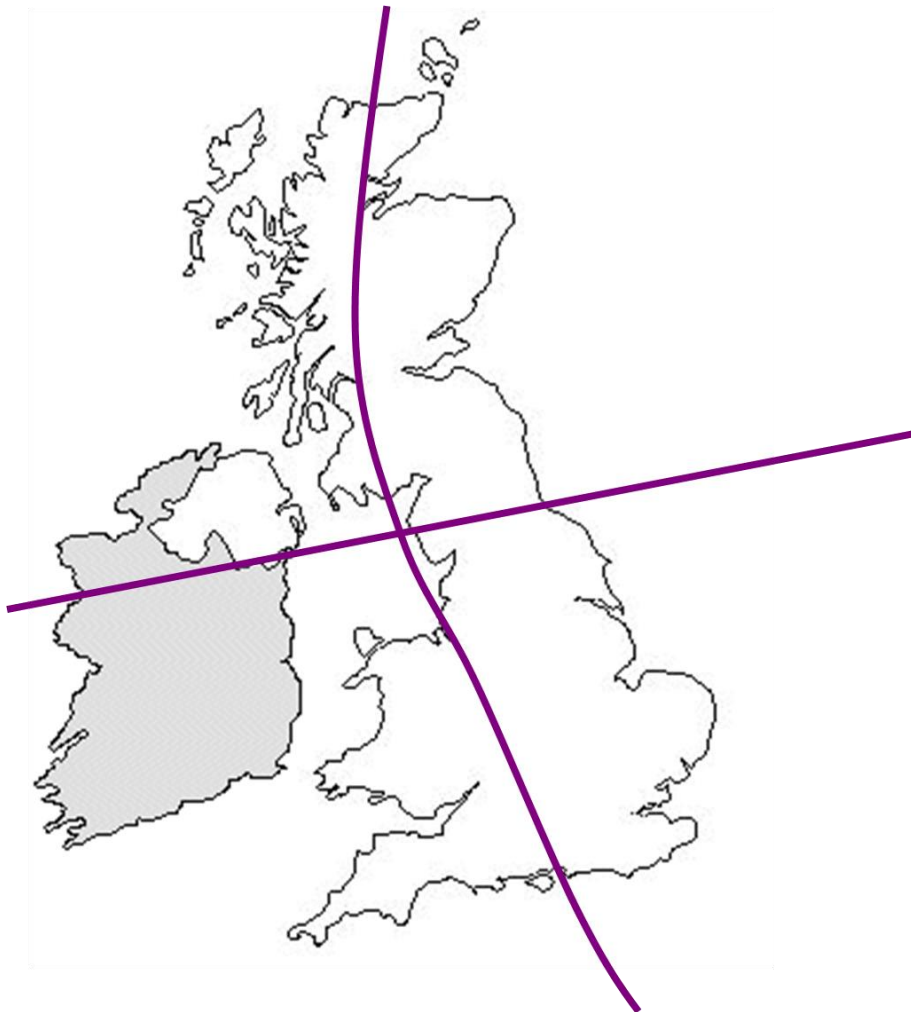
Do now: Last year

| | | |
|---------------|----------------------------|---|
| Geology | Studying the Earth's Shape | Checking the quality of water in a lake that the residents of a city drink |
| Hydrology | Writing it down on Paper | Reporting on how many children live in an area so the right number of schools are built |
| Hydrometry | Measuring the Earth | Designing a map that shows tourists where the rides are in a theme park |
| Cartography | Studying the Earth | Studying the shape of the coastline and explaining why it's like that |
| Demography | Measuring water | Although it started as a type of Geography, it's now the measuring of all shapes, and it a type of Mathematics. |
| Geomorphology | Describing the people | Measuring the volume of water in a river after rainfall |
| Geometry | Studying the water | Studying the type of rocks under the surface to know where to drill for oil |

Starter: Key words

| | |
|---------------|--|
| Weather | Rain, snow, sleet or hail that falls to, or condenses on, the ground. |
| Climate | The state of the atmosphere at a particular place and time as regards heat, cloudiness, dryness, sunshine, wind, rain etc. |
| Precipitation | The weather conditions prevailing in an area in general or over a long period of time. |

Regional variations



Regional variations:

1. Sunshine hours are greatest along the south coast of England (average of 1,750 hours of sunshine per year) and are least in mountainous areas (average less than 1,000 hours).
2. Daylight hours - Scotland has shorter winter days and longer summer days than the rest of the UK because it is further north. In north Scotland there are four more hours of daylight in midsummer than in London.
3. Rainfall
 - o On average it rains one in three days in the UK. However, rainfall varies greatly from region to region. It is generally wetter in the west than the east and wetter in the highlands than the lowlands. The wettest place is Snowdonia in Wales (average annual totals exceeding 3,000 mm of rain a year), followed by the Highlands of Scotland, the Lake District, the Pennines, and the moors of South West England.
 - o Parts of the east, such as East Anglia, receive less than 700 mm a year.
 - o In most places in the UK it will rain twice as much in winter months as in summer months. Although in central and South East England, and parts of South East Scotland, July and August are often the wettest months of the year. In London and Birmingham, it will thunder on average 15 days a year, compared to less than 10 elsewhere in the UK.
4. Average temperatures
 - o Average temperatures in UK are warmer at lower latitudes and colder at higher latitudes. They are also warmer at lower altitudes and colder at higher altitudes. Average yearly temperatures at low altitude vary from 7°C in Shetland, in northern Scotland, to 11°C on the south-west coast of England. The coldest (and highest) place is Ben Nevis - altitude 1,344m - where the average temperature is less than 0°C.
 - o The coldest months are January and February and the warmest are July and August. In summer Scotland will be about 3°C cooler than England. The average daily maximum temperature at Glasgow in July is 19°C compared with 22°C in London.
5. Severe weather
 - o Scotland tends to be worse affected by severe weather than the rest of the UK. Snow is more common in highland regions than in lowland areas, so while snow might fall on South West England less than 10 days a year, it will fall on the peaks of the Cairngorm Mountains over 100 days a year.
 - o Gale-force winds (winds of more than 34 knots or 17.2 m per second) are most commonly caused by depressions travelling across the Atlantic Ocean. These depressions may pass close to or over Scotland, with Orkney and Shetland experiencing the strongest winds. Occasionally they can reach hurricane force, e.g. the storm in October 1987.



Describe the UK climate in 50 words maximum

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Lesson 7: How does climate vary across the world?

Big Picture

| L/M/E | | I think I can ... | My teacher thinks I can ... |
|-----------|---|-------------------|-----------------------------|
| Learning | To identify the 3 types of rainfall and clouds. | | |
| Mastering | To know how clouds are formed. | | |
| Extending | To explain frontal weather conditions. | | |

Do now: Review so far

1. Decide if the followings statements are about weather or climate:

A It rained today at 4pm.

B The south of France tends to be warmer than the UK in the summer.

2. Describe the weather conditions for Lands End using the following symbol:

Temperature:

Wind speed:

Wind direction:

Cloud coverage:

Precipitation:

3. Why is it colder at the poles and hotter near the equator?

.....

.....

4. How do ocean currents influence the climate?

.....

.....

5. How does the Earth's tilt influence the climate?

.....

.....

Starter: Find and fix



Russ the Explorer

Whether can be a scarey thing. Last night it was funder and lightnering. the thunder was so loud it kept me awake? I cood sea the lightning throw my curtains it was so brite.

Like · Comment · 9 minutes ago · 🌐

👍 4 people like this.



Darth Vader I cood here it to! I fought it was going to hit my house. Im glad i wasnt outside in it!

5 minutes ago · Like · 👍 3



Wonder Woman I was out walkin my dog. The rain was so hevly but i couldn't put my umbrella up in case the lightnering struk it.

2 minutes ago · Like · 👍 3



Russ the Explorer The lights cept blinkin to! Im glad the electricity didnt go out, that wood have made it even more scary. im also glad that you didn't put you're umbrella up, i wouldn't want you to get hurt.

1 minutes ago · Like · 👍 8



Write a comment ...

World temperature Map

Use an atlas to help you. Answer in full sentences.

Where is the world the hottest?

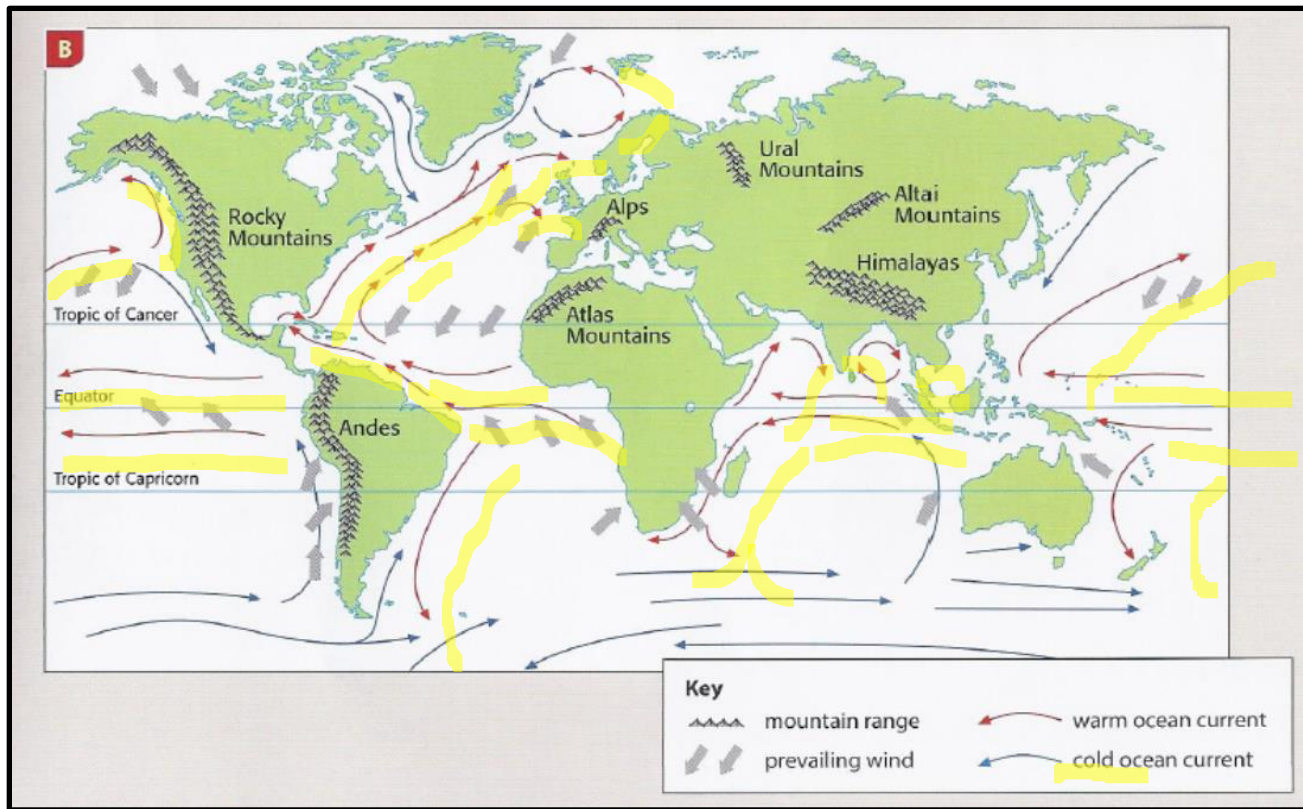
Where is the world the coldest?

What happens to the temperature as you move away from the equator.

.....
.....

Factors that affect climate

| Factor | How it affects the climate | A sketch to represent this factor |
|-----------------------|----------------------------|-----------------------------------|
| Altitude | | |
| Latitude | | |
| Distance from the sea | | |



The sun heats the Earth unevenly. Nature spreads some of the heat around via the winds and ocean currents. The map above shows some wind directions and ocean currents, it also shows mountain ranges.

A. The warm current to the west of the UK is called.....

B. Name a country which may be affected by a cold current (use your Atlas to help)

C. Explain how the current might affect it.

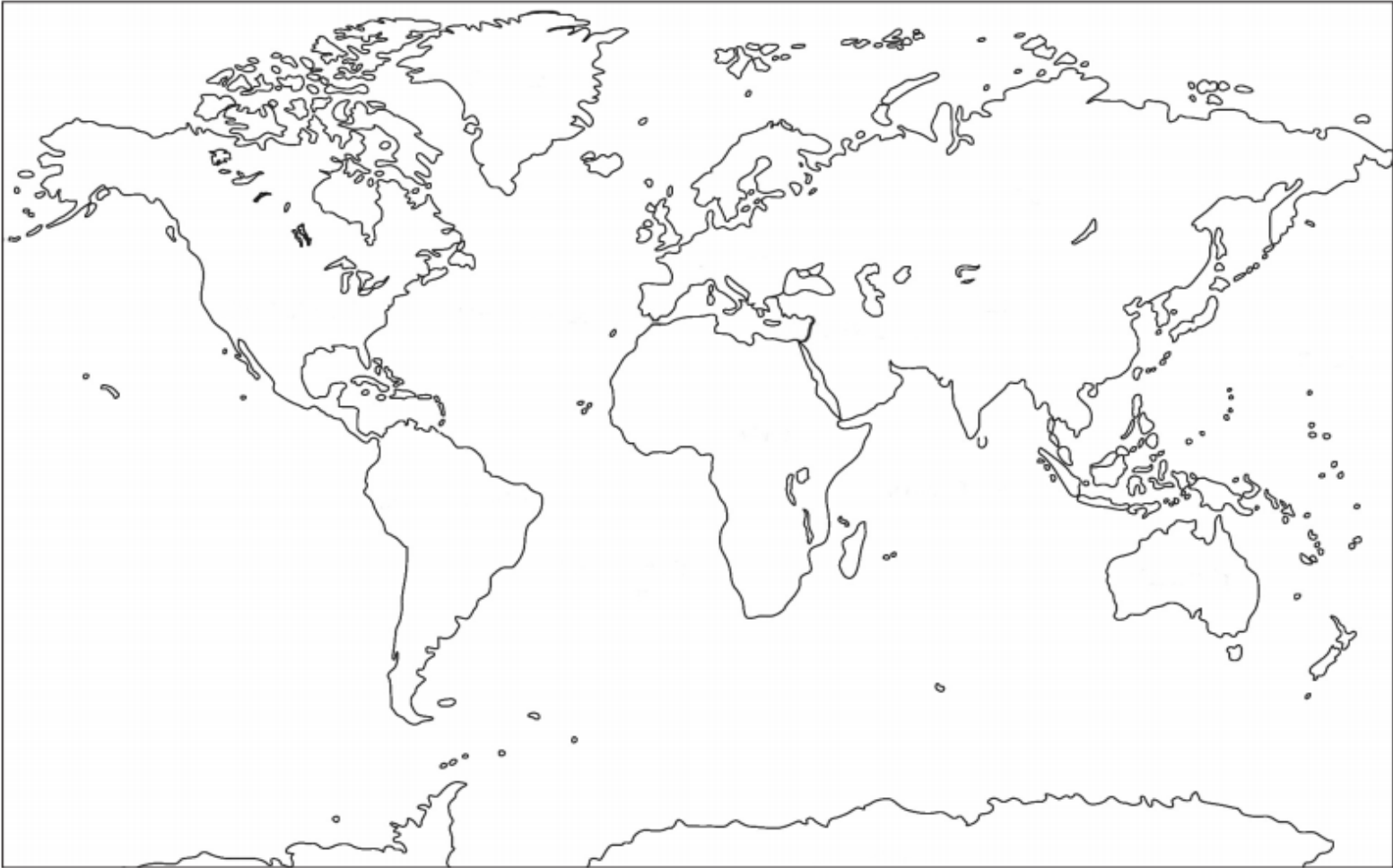
.....

D. Now name a country where the prevailing wind is:

I. From the south east

II. From the north west.....

Global climate zones



Key

| | | | | | |
|----------|--|-----------|--|----------|--|
| Polar | | Temperate | | Arid | |
| Tropical | | Temperate | | Mountain | |

Climate zones

| Climate zone | Description |
|--------------|-------------|
| | |
| | |
| | |
| | |
| | |
| | |

Describe and explain the distribution of polar climates and arid climates.

Time to reflect: Trye or false















| | |
|--|--|
| Latitude means how high you are above sea level | |
| It is colder the higher you go | |
| Coastal areas are warmer in winter | |
| It is colder in France than it is in Alaska | |
| The closer you are to the equator the colder it is | |

Lesson 8: How can storms affect the UK?

Big Picture

| L/M/E | | I think I can ... | My teacher thinks I can ... |
|-----------|---|-------------------|-----------------------------|
| Learning | I can describe what happened during the Beast from the East | | |
| Mastering | I can explain the causes of the Beast from the East | | |
| Extending | I can explain the impacts of the Beast from the East | | |

Do now: What key words do these images represent?

| | | | | | |
|--|---|---|---|---|---|
| 1.  | 2.  | 3.  | 4.  | 5.  | 6.  |
| 7.  | All of these images represent a weather key word. | | | | 8.  |
| 9.  | 10.  | 11.  | 12.  | 13.  | 14.  |

Starter: Here are the answers ... what are the questions?

| | |
|---|--|
| Because the temperature falls by about 1oC every 100 metres. | |
| Because the solar energy that strikes the earth at the equator is more concentrated. | |
| Because the angle of sunlight is smaller and solar energy is weaker here. | |
| Because warm air rises to the top of the mountain and forms rain. This then cools and sinks leaving the land on the other side dry. | |
| Because the sea cools down more slowly than land does. | |

What caused the Beast from the East?

The Beast from the East describes the cold and _____ weather conditions that affected the UK from the 24th _____ to the 4th March 2018.

It was caused by a large _____ air mass which stretched from the far east of _____ to the UK. There were _____ weather conditions, which led to the conditions remaining the same for a prolonged period of time. The anticyclone brought cold _____ winds from _____ which led to heavy _____ and temperatures that were below _____. The 'Beast from the East' combined with Storm _____ which made landfall on the 2nd _____ leading to some of the worse winter conditions that _____ had seen in a number of years.

Missing words:

| | | | | |
|--------------|---------|----------|--------|----------|
| Emma | Russia | Britain | Arctic | zero |
| snowfall | March | easterly | wintry | February |
| anticyclonic | Siberia | | | |

What is an anticyclone?

What is an anticyclone?

What causes high pressure?

Where did the Beast from the East affect?

.....

What was the weather like?

| | |
|---|--|
| Where were the chilled winds from? | |
| When was the last time that Rome saw snow? | |
| What happened to the bike at Lake Constance, Switzerland? | |
| What was the temperature in Munich? | |
| What was happening in Bosnia? | |

Mapping the temperatures

| Location | Temperature |
|----------------------------|-------------|
| Moscow, Russia | -20°C |
| Berlin, Germany | -12°C |
| Brussels, Belgium | -9°C |
| Amsterdam, The Netherlands | -7°C |
| London, UK | -7°C |
| Rome, Italy | -6°C |
| Naples, Italy | -2°C |
| Nice, France | -1°C |
| Barcelona, Spain | 0°C |
| Paris, France | -8°C |
| Istanbul, Turkey | 2°C |



Read the statements in the table.

Decide whether they are a CAUSE, EFFECT or RESPONSE. Use a different colour for each.

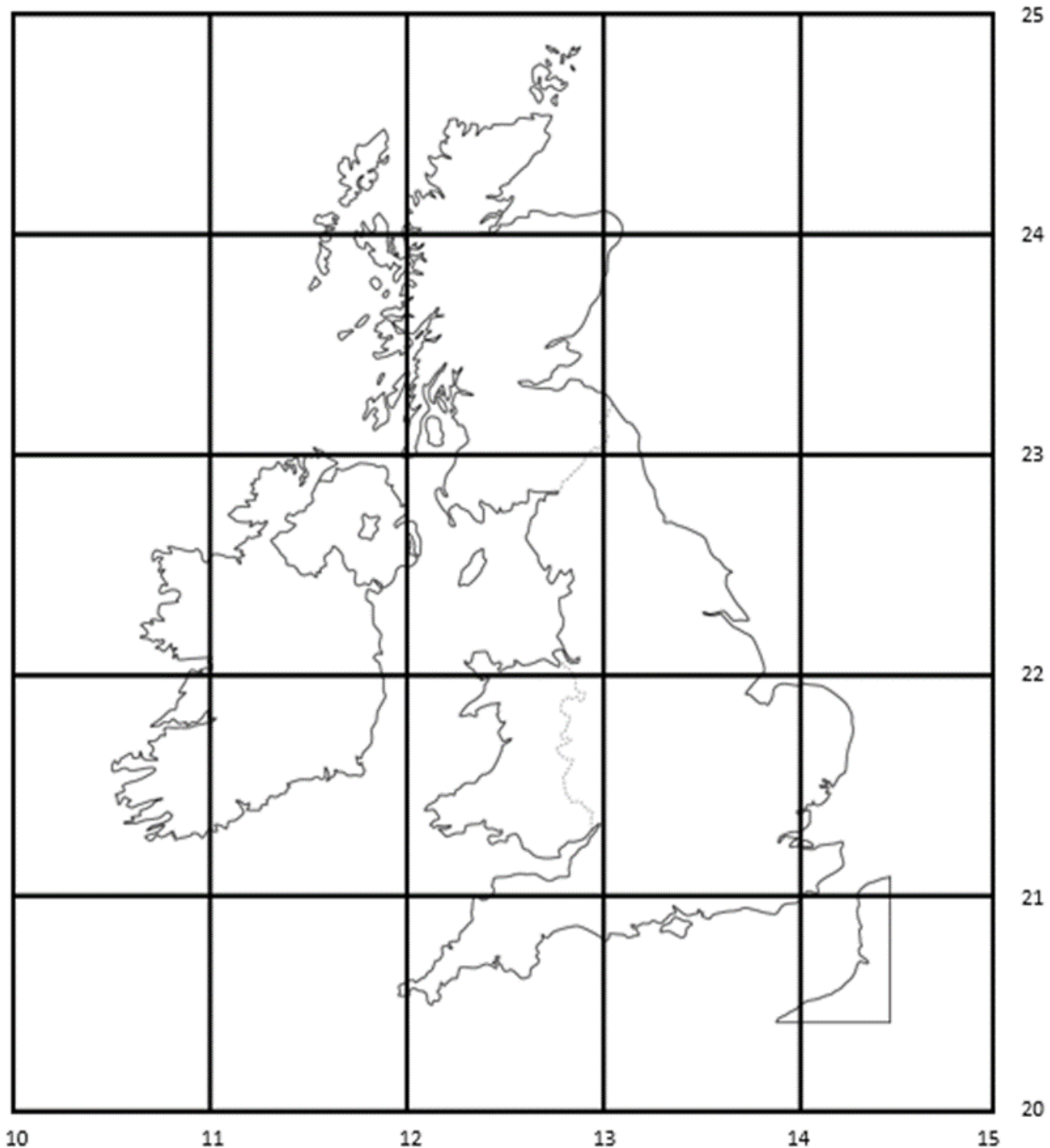
| | | |
|---|--|---|
| Thousands of schools across the country were closed for more than one day. | 10 deaths linked to the cold and snow including a 52-year-old homeless man who was found freezing in his tent. | Cold air was swept across Europe from Siberia. |
| Met office issues a red weather warning to prevent unnecessary travel. | Some rural areas experienced lows of -12°C. | Wind speeds exceeding 70mph, higher wind speeds were mostly in coastal regions. |
| Flights and train services were delayed or cancelled. | The British Red Cross gave out blankets to people at Glasgow Airport who were stranded. | The cold air from Europe picked up moisture from the North Sea, which then fell as snow. |
| Hundreds of people stranded across the UK as roads became impassable. Many chose to leave their cars. | Snow plough, gritters and tractors used to try and clear the roads | Snow drifts in excess of 7m in places |
| Armed forces deployed to rescue stranded drivers and to transport NHS workers. | NHS cancelled non urgent operations. | 10 to 20cm fell in three days. The heaviest snow fell in southern England and the North Midlands. |

| | | | | | |
|-------|--|--------|--|----------|--|
| Cause | | Effect | | Response | |
|-------|--|--------|--|----------|--|

Effects of 'The Beast from the East'

1. Flights were cancelled from Heathrow Airport 135 213
2. Hundreds of motorists were stuck on the M80 near Glasgow, many were stuck for up to 13 hours. 125 234
3. Grimsby hospital cancelled all outpatient appointments. 137 222
4. A baby was born on the A66 near Stockton on Tees after the parents could not make it to hospital. 132 227
5. Flood warnings were issued by the Environment Agency for parts of Cornwall's south coast. 125 207
6. In Edinburgh soldiers were deployed to help transport about 200 NHS staff to and from the hospital. 128 234
7. A man died after falling into a frozen lake in London. 136 213
8. 49cm of snow fell at St. Athan. 127 212

9. There were huge snowdrifts on the railway from Carlisle to Glasgow. Rail services were suspended for at least 4 days. 128 228
10. At the Cairngorm summit there were gusts of winds over 92mph. 127 237
11. Homes across Stafford were without power 130 218
12. All schools in Northampton were closed, some were closed for 3 days due to the heavy snow. 135 217

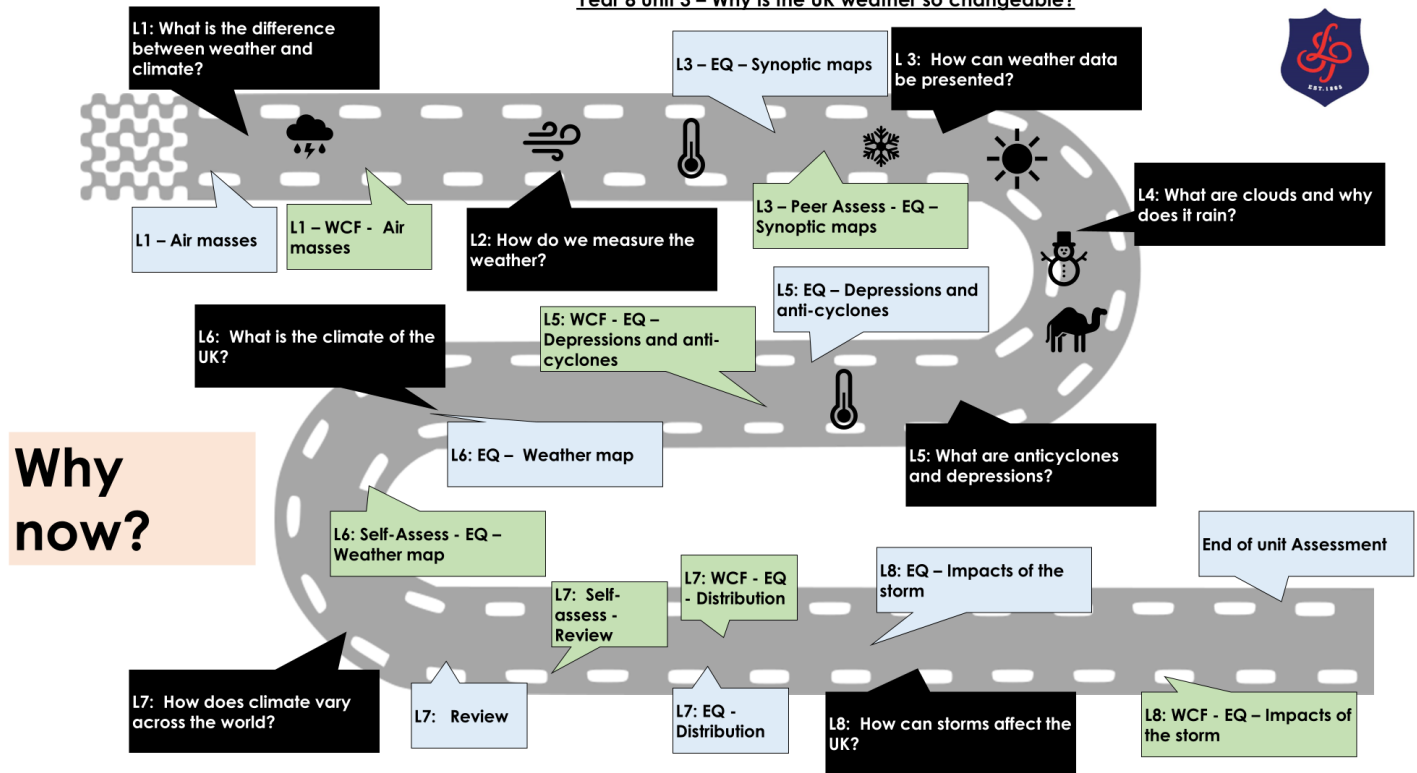


Describe the impacts of a UK weather event that you have studied (6 marks)

Time to reflect: If this is the answer, what is the question?

| | |
|---------------|--|
| -12°C | |
| 10-20cm | |
| Siberia | |
| A66 | |
| 4 days | |
| 24th February | |
| Emma | |
| 10 | |

Year 8 unit 3 – Why is the UK weather so changeable?



| | |
|---|--|
| What have you learned about the weather? Top 3 pieces of information | |
| Why were you studying this topic? Why is it important? | |
| Out of the 8 lessons in the journey above, which lesson did you learn the most from? | |
| What is the 1 key message/ fact that you will remember from this topic? | |
| When we teach this unit again next year, what else do you think we should teach about? What was missing from this unit? | |