

Ark Pioneer learning at Home

Core Curriculum

Geography

Work to be completed

- Work 1 – Complete activity 1 + 2
- Work 2 – Complete activity 3
- Work 3 – Complete activity 4
- Work 4 – Complete stretch + Red pen check your work from this week
- Work 5 – Copy, cover and check the 4 key words in the glossary on page 2. Once finished, **complete Online Quiz before next Tuesday**

Resources / links to help with work:

- NEW!** You could practise some of the skills you have learned this year by going onto Oak National Academy's Digital Lessons. There are different topics. If you want to practise:
- Knowledge of the world's countries and continents, as well as your map skills, right click [here](#).
- Tectonic plate theory, and earthquakes and volcanoes - right click [here](#).

How will this work be checked?

Each week you will be given 'red pen work' to carry out corrections on the learning that you are doing at home. Please make sure this work is done and that you correct all work in your exercise book. You can red-pen check your Geography work using the answers at the bottom of the booklets, after you have finished having a go yourself.

You must also complete the weekly quiz for your core curriculum subjects online and the link to those is on our school website in the 'quizzes' drop-down option from 'Home Learning'.

How much time should I be studying and what happens if I don't finish all my work?

For core curriculum subjects you are expected to do 30min each day as a minimum. Those subjects are English language, English literature, Maths, Science, History and Geography. These subjects all have a weekly quiz and will be checked in on by your form teacher when they call each week.

All other subjects are 'Extended Curriculum' and they should be done after you have finished the Core Curriculum tasks for the day. You should plan to do work in different subjects each day. We recommend that pupils do one hour per week in each of the 'extended curriculum' subjects.

We recognise that it is not possible for all pupils to complete all work given the exceptional circumstance. Please speak with your form tutor about the work if it is becoming unmanageable.



Aim high



Have integrity



Be kind



Model determination

Lesson 09: What caused Storm Dennis?

Glossary:

Lesson 9 – What caused Storm Dennis?			
Jet stream - a band of strong winds high up in the atmosphere.		Flooding – the covering of land which is normally dry in water. Often caused by rivers overflowing.	
Intense rainfall – heavy rainfall often caused by storms. It can be up to a month's worth of rain in a day!		Flood alerts and warnings - These are official notifications about expected flooding. A warning is more severe than an alert.	

Activity 1 - Do Now:



The village of Crickhowell, Wales near the River Usk

1. What are the two main characteristics of a storm?
2. Using your photo analysis skills, describe the picture below:
3. Suggest how a storm will have caused this damage?

Stretch: What other impacts might this extreme weather event have caused?



Activity 2 - The jet stream:

Read the information in the boxes below and answer the questions below them:

In order to understand the causes of a storm in the UK, knowing about the **jet stream** is crucial. It is not something that you will have seen or felt on the ground as a 'breeze', but you might have travelled through it in an aeroplane!

The jet stream is a band of strong winds high up in the atmosphere.

It flows at the meeting point of the **cold** and **warm air masses, in the mid-latitudes** (the line of latitude where the UK is). The warm tropical air masses come from the **south** and the **cold** polar air masses come from the north. The winds are so high up (9-16km) and so fast (200 mph) that aeroplanes use it to reach their destination faster.

In the winter the **jet stream** can cause storm events with **strong winds** and intense **frontal rainfall**. As the warm air in the warm air mass rises, the jet stream quickly removes any warm air at the top much faster than it is replaced, causing a strong wind. It causes rainfall as it is at the meeting point of cold and warm air masses which causes frontal rainfall. These winds blow over the Atlantic Ocean towards the UK.

Friday evening forecast 14/02/20

1. In the **winter** the jet stream can be strong.

2. The jet stream flows eastwards across the **Atlantic Ocean**

3. The jet stream removes the rising air faster that it is replaced causing a **strong winds**

4. The cold and warm air masses meet causing **intense rainfall** (frontal rain)

1. **How is the jet stream different from a regular wind or breeze?** (bold sentence and second paragraph)
The jet stream is different from a regular wind or breeze because...
2. **Why does the jet stream impact the UK?** (second and third paragraph)
The jet stream impacts the UK because...
3. **How does the jet stream cause rain?** (third paragraph)
The jet stream causes rain because...

Activity 3 - Storm Dennis vs. Storm Ciara:

There have been two major storms affecting the UK in 2020, called **Storm Dennis** and **Storm Ciara**. Storm Dennis was a European storm which affected the UK a week after Storm Ciara, exacerbating the impacts from the previous storm.

Storm Ciara reached the UK a week before **Storm Dennis**. It brought very strong winds that caused damage. It also brought **intense rainfall**. This meant that by the time Storm Dennis arrived much, the ground was already **saturated** (soggy with water) which made the flooding worse. It's rare for the UK to have strong storms, and even rarer to have two **large storms** one after the other. That's why the **flooding** was so **severe**.



Task: Explain how the jet stream caused Storm Dennis. Use these key words in your answer.

- Winter
- Warm air mass
- Cold air mass
- Atlantic Ocean
- Mid-latitudes
- Intense rainfall
- Strong winds

Activity 4 - Storm Dennis Impacts:

There were **500 flood alerts** and warnings nationwide. Flights were cancelled, and railways disrupted. During the storm **480 homes** were flooded. Flooding means that properties are full of **contaminated** (dirty) water ruining **possessions**. The motion of the waters inside can rock the contents of the home, so it looks a bit like an earthquake has hit.

Rhondda Cynon Taff, in **south Wales** was one of the regions worst affected. One thousand **properties** were in some way **damaged** by the storms, and three **bridges** needed repair. The **high street** in the village of Pontypridd was completely flooded, leaving **cars** stranded and disrupting **business** and **travel**.



Task: Describe the impacts of storm Dennis on people and property.

Include:

- The name of the storm, the month/year and location
- Briefly explain the link between storms and flooding
- Describe any danger to life, impacts on homes and businesses and any other disruption such as transport

Sentence starter: *Storm Dennis had many impacts on people and property. Firstly, the storm impacted on people by... It also impacted on property by...*



FLOOD ALERT



FLOOD WARNING



SEVERE FLOOD WARNING

Stretch: What is being done to protect areas at risk? Read the text below and justify which method you think will best protect residents of Pontypridd in Wales from future storm and flooding events.

*When you answering a question which has asked you to JUSTIFY, you need to explain reasons, using evidence (facts and key words). *

Areas can be protected from flooding, by 1) building structures, 2) working with nature and 3) weather forecasting.

- Many areas at risk have **flood barriers**. These are walls that keep flood waters away from **high value locations** such as high streets. They can last long time but are expensive to construct. Many areas do not have flood barriers especially those with less valuable properties.
- **Natural methods** work with nature to provide flood protection. One example is **planting trees**. The tree roots absorb water, **slowing the rate** at which the water reaches the rivers. This is a great method to prevent small floods.
- Another important approach is accurate **forecasting**. Presently we can accurately forecast when storms will occur, but do not have the technology to predict **precisely** which **areas** will be affected. New super computers are being designed, which could give more accurate **location-based predictions**. They are worth £1.2bn!

Lesson 09: What caused Storm Dennis? - **ANSWERS**

Activity 1 - Do Now:

Do Now

Exemplar answers

1. The main two characteristics of storms are strong winds and intense rainfall.

2. This picture shows flooding at the edge of the village of Crickhowell in Wales. Large areas of farmland have been flooded, as well as properties and cars.

3. The intense storm rainfall will have caused the river levels in the River Usk to rise and overflow.

Stretch – This storm may have caused businesses to close and caused travel disruption. It might also have caused risk to life.

Activity 2- Jet Stream:

1. It is high up in the atmosphere, well above where it directly impacts the ground.
2. It is located in the mid-latitudes, similar to the UK, and travels eastwards across the Atlantic Ocean.
3. As it is located at the meeting point of the cold and warm air masses and the temperature difference forces the warm air to rise above the cold air.

Activity 3:

Apply 1: The jet stream is a **band of strong winds** high up in the **atmosphere**. It is located at the meeting point of the **cold** and **warm air masses** in the **mid-latitudes**. During the winter the warm air mass travels north, at the same time that the air mass from the poles is very cold. This **temperature difference** strengthens the **jet stream** and it pulls more warm air from the atmosphere, faster than it is replaced, which causes strong winds. The meeting of the air masses also causes intense **frontal rainfall** to occur. The jet stream moves in an eastwards direction across the **Atlantic Ocean** and can drive storm weather to the UK.

Activity 4:

Apply 2: Storm Dennis occurred in the UK in **February 2020**. It caused damage throughout the UK. One particular location that was hit was **Rhondda Cynon Taff** in **south Wales**. There was much flooding throughout the streets and people needed to be **evacuated** to remain safe. One thousand homes were damaged. The damage included filthy water **flooding homes**, which caused damage and destruction to people's **possessions**. **Businesses** were also impacted such as a café and a jewellers. Many items would need to be replaced. In South Wales **trainlines** were blocked and **roads** were closed.