



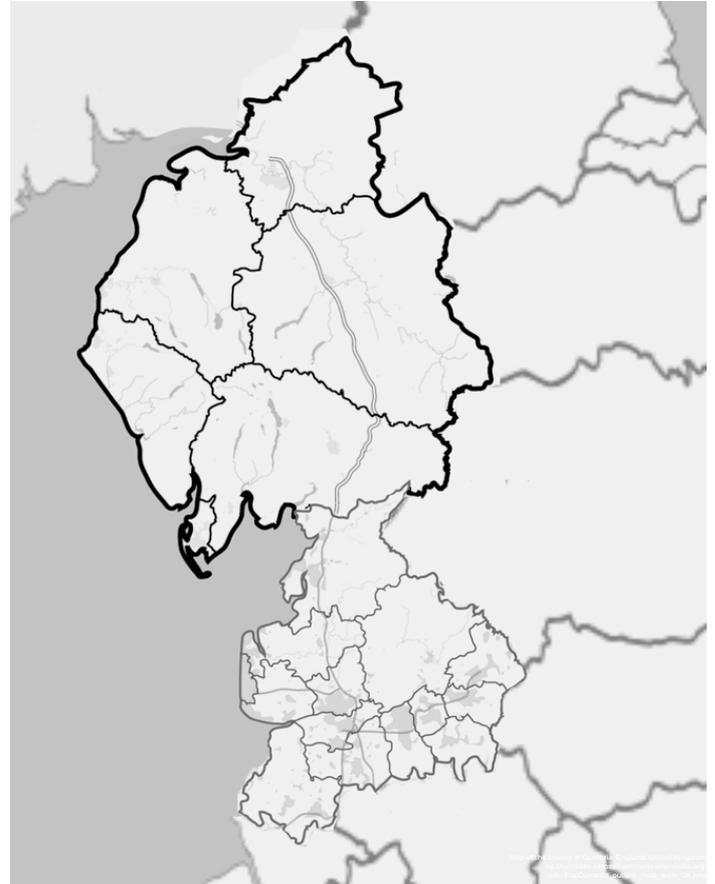
Case Study: Storm Desmond 2015

Using your atlas, **locate Cumbria and Lancashire** on this map of England and Wales. Colour it in on your worksheet to identify it.



Using your atlas, mark the worst affected towns and villages onto the map.

Towns and Villages Worst Hit:
Keswick, Kendal, Cockermouth, Carlisle, Appleby, Lancaster, St Michael's, Churchtown



Causes: *Lune, Winds, Storm Desmond, Highest Cumbria, Atlantic, Rainfall, December, Lancashire, Flooding, 300*

Fill in the blanks:

_____ affected the UK from the 4th to the 6th of _____ 2015, bringing heavy _____ and strong _____ due to an area of low pressure from the _____. This led to severe _____, particularly in _____ and _____. Cumbria experienced record-breaking rainfall, with some areas receiving over _____ mm of rain in just 24 hours. The River _____ in Lancashire recorded flows of around 1,750 m³ per second at Caton (just upstream of Lancaster), the _____ flow ever recorded on an English river, contributing to widespread flooding.

Match the cause to the description and its impact on flooding:

Heavy Rainfall

Ground already soaked with water

Causes rivers to overflow

Soil Saturation

Major rivers and tributaries

Rapid runoff leading to quick river rises

Topography

Rainfall exceeding normal levels

Overflow of rivers during heavy rainfall

River Systems

Hilly or mountainous terrain

Reduced absorption, increased runoff



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Cut out the impacts of Storm Desmond on Cumbria and Lancashire and categorise them by sticking them under the headings Social, Economic and Environmental impacts.

<p>45 schools were affected in Cumbria, resulting in 3,034 children not attending school at the end of the autumn term.</p>	<p>Around 600 farming businesses experienced impacts from flooding and water run-off, affecting livestock health and welfare. Around 702 cattle and sheep are known to have drowned</p>	<p>127 incidents over December 2015 and January 2016 caused total delays on the Network Rail network of 100,364 minutes (1,673.7 hours or about 69.7 days).</p>
<p>1,029 businesses were reported as flooded In Cumbria, with an average expected impact cost of £54,600 per affected business.</p>	<p>Over 5200 homes across Cumbria and Lancashire were flooded internally.</p>	<p>Water Pollution increased due to sewage overflow and debris, leading to contamination of water sources.</p>
<p>1,051 operations, clinics, treatments, and diagnostics were cancelled or rescheduled, affecting healthcare services.</p>	<p>It was estimated that 354.8 km of carriageway had been damaged, causing road closures in 107 different locations across the county.</p>	<p>Around 43,000 homes lost power during the flooding, with the Caton Road substation in Lancaster being flooded, causing widespread outages, including at Royal Lancaster Infirmary.</p>
<p>Landscapes were altered by landslips, particularly around mine treatment works above Braithwaite, raising contamination concerns.</p>	<p>The Lake District, renowned as a favourite tourist destination, suffered a decrease in visitors, significantly affecting the local economy.</p>	<p>The disposal of flood waste in landfills posed challenges for waste management practices and recycling efforts.</p>
<p>There was 2 reported deaths and several injuries.</p>	<p>Trees, shrubs, and other plants were washed away or damaged by the floodwaters. Debris was also washed onto meadows, posing a threat to fragile habitats.</p>	<p>Six months after the storms, a quarter of households were unable to return to their homes.</p>



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Cumbria 2015 Floods Responses:

Key:

Immediate Responses Long-Term Responses

<p>Flood Defences: Improved flood defences were initiated, reinforcing riverbanks and constructing new barriers. The council invested £2.6 billion in flood defence schemes, currently implementing projects in Carlisle, Appleby, and Kendal.</p>	<p>Power Restoration: Efforts were made to quickly restore electricity to the customers without power. The activation of backup generators at Royal Lancaster Infirmary ensured that critical healthcare services continued to operate, preventing further disruption to patient care during the flooding.</p>
<p>Rescue Operations: Emergency services and the military conducted numerous rescue operations, evacuating residents from flooded areas and providing immediate medical assistance.</p>	<p>Government Aid: The UK government provided financial aid, including a £50 million recovery fund for affected communities. Additional grants and loans were made available to help with property repairs and resilience improvements.</p>
<p>Public Awareness and Preparedness: Increased efforts to educate the public about flood risks and preparedness measures, aiming to improve community resilience for future events.</p>	<p>Temporary Shelters: Local authorities set up temporary shelters for displaced residents, ensuring they had a safe place to stay</p>
<p>Emergency Aid: Distribution of emergency supplies, including food, water, and blankets, to affected individuals and families.</p>	<p>Infrastructure Repair: Extensive repairs to damaged roads, bridges, and public transportation networks.</p>
<p>Formation of Community Food Groups: St Michael's Flood Action Group formed after Storm Desmond, advocating for better flood defences and flood risk management in the area, working with local authorities to protect the community from future floods.</p>	<p>Flood Defences: The Lancaster Flood Defence Scheme includes £12.1 million spent on defences along Caton Road and Aldrens Lane, a £10.8 million flood wall along the River Lune protecting over 2,000 jobs, and a £5.7 million upgrade to the Caton Road substation to prevent power cuts.</p>