Year	4	Topic	Rivers

This topic provides cross-curricular links with science where children will learn about and be able to explain the water cycle clearly, as well as offering many opportunities for fieldwork and getting out into the local area. Children will learn about the key features of a river, how rivers are formed and how we can make sure we are prepared to tackle flooding in Derby. Children will use technology, such as Google Earth, and maps to locate the longest rivers in the UK and the world, as well as follow the journey of a river from source to mouth, drawing upon their previous knowledge of compass points to be able to explain the direction in which a river flows.

Prior Learning

Locational and Place Knowledge:

- Know the names of 4 countries from the Southern Hemisphere and 4 from the Northern Hemisphere (Y3)
- Know the names of and locate the seven continents of the world (Y2)
- Know the names of and locate at least eight European countries (Y3)
- Know the names of a number of European capitals (Y3)

Human and Physical Geography:

- N/A

Skills and Fieldwork:

- Know and name the eight points of a compass (Y3)
- Use maps to locate European countries and capitals (Y3)

Future Learning

Locational and Place Knowledge:

- Know the names of and locate a number of South or North American countries
- Know where the Equator, Tropic of Cancer, Tropic of Capricorn and the Greenwich Meridian are on a world map

Human and Physical Geography:

- N/A

Skills and Fieldwork:

- Use maps and globes to locate the Equator, Tropics of Cancer and Capricorn and the Greenwich Meridian

National Curriculum Links

Locational Knowledge:

- Know, name and locate the main rivers in the UK.

Place Knowledge:

- N/A

Human and Physical Geography:

- Know and label the main features of a river.
- Know the name of and locate a number of the world's longest rivers.
- Explain the features of the water cycle.
- Know why most cities are located by a river.

Skills and Fieldwork:

- N/A

Key Vocabulary

Rivers, the water cycle, evaporation, condensation, precipitation, upper course, middle course, lower course, source, groundwater, springs, floodplain, tributary, confluence, meanders, oxbow lake, mouth, delta, pluvial flooding, fluvial flooding, coastal flooding, plumbing

Recommended Texts & Web Links

- The Wind in the Willows by Kenneth Grahame
- Why Water's Worth It by Lori Harrison
- Water Cycles by DK
- A River by Marc Martin
- The Rhythm of the Rain by Grahame Baker-Smith
- Amazing Rivers by Julie Vosburgh Agnone & Kerry Hyndman
- Amazon River by Sangma Francis & Romolo D'Hipolito
- Flood by Alvaro F. Villa
- https://www.dkfindout.com/uk/earth/rivers/from-source-to-mouth/

What pupils need to know or do to be secure

Lesson 1 – What is the water cycle?

Focus: Understanding the stages of the water cycle and using correct geographical vocabulary to describe them.

Key Knowledge (Declarative Knowledge)	Activities (Disciplinary Knowledge)	Assessment / Skills
• The water cycle describes how water moves continuously between the Earth's surface and the atmosphere. • The three main stages are: evaporation (water rises as vapour), condensation (water vapour	Water cycle diagram: Pupils label a pre-drawn water cycle diagram with the correct stages (evaporation, condensation, precipitation, collection) and add a sentence explaining each stage in their own words. Completed diagrams are photographed with the iPad camera and uploaded to Showbie. This activity could also be delivered using Keynote.	*Describe key aspects of physical geography, including: rivers, mountains, volcanoes and earthquakes and the water cycle. (End of Year 4)*

forms clouds) and precipitation (water falls as rain, snow or hail). • The water cycle links to rivers: precipitation falls onto land, runs into rivers and eventually returns to the sea. • This lesson links to the Year 4 science topic 'States of Matter'.	Water cycle in a bag experiment: Pupils create a simple water cycle model using a sandwich bag with a small amount of coloured water sealed inside and taped to a sunny window. They predict, observe and record what happens, photographing the changes over time. **Children will set-up the experiment, take a start-point photo, then take a further photo each week – recording their findings on a Keynote slide at the end of the topic.**	*Use fieldwork to observe and record the human and physical features in the local area using a range of methods including sketch maps, plans and graphs and digital technologies. (End of Year 4)*
	Discussion: Teacher poses the question: 'Where does the water in our taps come from?' Pupils discuss in pairs using their knowledge of the water cycle and share ideas with the class. Pupils then record their answer in one or two sentences, using at least three key vocabulary words correctly (evaporation, condensation, precipitation).	*Ask and answer geographical questions about the physical and human characteristics of a location. (End of Year 4)*

Lesson 2 – Where are the main rivers in the UK?

Focus: Locating and naming the main rivers in the UK and describing their direction of flow using compass points.

Key Knowledge (Declarative Knowledge)	Activities (Disciplinary Knowledge)	Assessment / Skills
• The main rivers in the UK include the Thames, Severn, Trent, Wye, Great Ouse and Derwent. • Rivers flow from high ground (their source) to lower ground, eventually reaching the sea. • The eight points of a compass can be used to describe the direction in which a river flows. • The River Derwent flows through Derby, making it significant to our local area.	Google Earth river investigation: Using Google Earth on iPads, pupils locate three UK rivers from the knowledge list and follow each from its source to where it meets the sea. For each river they record: the country it flows through, the sea or ocean it joins and the general compass direction of its flow. Findings are recorded and uploaded to Showbie.	*Use maps, atlases, globes and digital/computer mapping to locate countries and describe features. (End of Year 4)*
	Blank map labelling: Pupils label the six key UK rivers on a printed blank map of the UK, adding an arrow showing the direction of flow for each one and a compass rose. They use their Google Earth investigation to check accuracy. Completed maps are photographed and uploaded to Showbie.	*Name and locate counties and cities of the United Kingdom, geographical regions and their identifying human and physical characteristics, including hills, mountains, cities, rivers, key topographical features and land-use patterns; and understand how some of these aspects have changed over time. (End of Year 4)*

	Discussion: Using the completed maps, the class discusses: which river is longest? Which flows furthest north? Which one is closest to our school? Pupils use the eight points of a compass to describe the River Derwent's direction of flow and explain where it starts and ends, using correct geographical vocabulary.	*Use the eight points of a compass to communicate knowledge of the United Kingdom and the wider world. (End of Year 4)*

Lesson 3 – What are the features of a river?

Focus: Identifying and describing the key features found along a river's course, with a fieldwork opportunity on the River Derwent.

Key Knowledge (Declarative Knowledge)	Activities (Disciplinary Knowledge)	Assessment / Skills
• A river can be divided into its upper course (fast, narrow, steep), middle course (wider, slower, meanders begin) and lower course (wide, slow, flat). • Key features include: source, tributary, confluence, meander, oxbow lake, floodplain, mouth and delta. • Springs and groundwater feed rivers at their source. • Fieldwork on the River Derwent allows us to observe river features in our local area. *DISCO (Imagine): Imagine you are building a factory during the Victorian period. What would be some advantages of building it next to a river? Support your answer using details and facts.*	River features diagram: Pupils label a pre-drawn river diagram from source to mouth, identifying the upper, middle and lower course and at least six key features (source, tributary, confluence, meander, floodplain, mouth). Labels should include a one-word description of what each feature looks like or does. Completed diagrams are uploaded to Showbie.	*Describe key aspects of physical geography, including: rivers, mountains, volcanoes and earthquakes and the water cycle. (End of Year 4)*
	Fieldwork on the River Derwent: Pupils walk along the River Derwent from Darley Abbey into Derby town, using the camera app on iPads to photograph evidence of river features they have studied (meanders, banks, flow speed, confluences). Back in class, pupils select their best photograph and annotate it in Pages with the name of the feature shown and one sentence describing it.	*Use fieldwork to observe and record the human and physical features in the local area using a range of methods including sketch maps, plans and graphs and digital technologies. (End of Year 4)*
	Discussion: After returning from fieldwork, pupils share their annotated photographs. The class discusses: which features did we spot? Were there any we couldn't find? How did the river look different in different places? Pupils record one observation they found surprising and explain why using geographical vocabulary.	*Ask and answer geographical questions about the physical and human characteristics of a location. (End of Year 4)*

Lesson 4 – Why are cities built near rivers?

Focus: Understanding why rivers have historically attracted human settlement and locating the world's longest rivers.

Key Knowledge (Declarative Knowledge)	Activities (Disciplinary Knowledge)	Assessment / Skills
• Cities have been built near rivers because rivers provide: drinking water, water for farming, transport routes and food through fishing. • Many of the world's major cities are located on rivers: London (Thames), Paris (Seine), Cairo (Nile), New York (Hudson). • Some of the world's longest rivers include: the Nile (Africa), the Amazon (South America), the Yangtze (Asia) and the Mississippi (North America). • Rivers have shaped where people live and how settlements have grown over time.	World rivers map: Using atlases and Google Earth, pupils locate four of the world's longest rivers on a printed world map, labelling each with its name, the country or continent it is in and one city located on or near it. They use the eight compass points to describe the general direction of flow for two of their chosen rivers. Completed maps are photographed and uploaded to Showbie.	*Use maps, atlases, globes and digital/computer mapping to locate countries and describe features. (End of Year 4)*
	Settlement reasons sort: Pupils are given a set of cards each showing a reason why cities are built near rivers (e.g. 'fresh drinking water', 'transport boats and goods', 'fish to eat', 'water for crops'). They sort the cards into order of importance, discuss their choices with a partner and record their top two reasons with a written explanation.	*Describe key aspects of human geography, including: settlements and land use. (End of Year 4)*
	Discussion: The class considers Derby as a case study – why was Derby built on the River Derwent? Pupils use a simple map of Derby displayed on screen alongside a Google Earth view to identify the river's position in the city. They discuss how the river has shaped where the city centre, industry and parks are located, then share one observation. Make a link to the Derwent Valley Mills and the necessity for early mills to be built next to rivers to provide power and a source of water.	*Describe how the locality of the school has changed over time. (End of Year 4)*

Lesson 5 – What is the journey of a river from source to sea?

Focus: Following a river's full journey and describing how it changes from source to mouth.

Key Knowledge (Declarative Knowledge)	Activities (Disciplinary Knowledge)	Assessment / Skills
• Rivers begin at their source (high ground) and end at their mouth (the sea or a lake). • In the upper course, rivers are fast, narrow and powerful – cutting V-shaped valleys and steep gorges. • In the lower course, rivers are wide, slow and deep, suitable for boats – often splitting into a delta near the sea. • The River Severn is the longest river in the UK; following its journey shows all three courses clearly.	Google Earth river journey: Using Google Earth on iPads, pupils follow the River Severn from its source on Plynlimon in Wales to its mouth at the Bristol Channel. At three points along the journey (upper, middle, lower course) they screenshot what the river looks like and note one feature visible at each stage. Annotated screenshots are saved in Pages and uploaded to Showbie.	*Use maps, atlases, globes and digital/computer mapping to locate countries and describe features. (End of Year 4)*
	River journey description: Using their Google Earth screenshots as a guide, pupils write a short description (three to four sentences) explaining how the river changes from source to mouth. They must use at least four key vocabulary words correctly (upper course, lower course, meander, delta or mouth). Work is completed in Pages and uploaded to Showbie.	*Describe key aspects of physical geography, including: rivers, mountains, volcanoes and earthquakes and the water cycle. (End of Year 4)*
	Discussion: Pupils consider the question: 'Why is the lower course of a river better for cities than the upper course?' The teacher leads a brief class discussion using images of the upper and lower Severn displayed on screen. Pupils explain their views using geographical reasons (e.g. width, depth, speed, flood risk, transport). Each pupil shares one reason with the class.	*Explain own views about locations, giving reasons. (End of Year 4)*

Lesson 6 – How can we make sure we are flood-ready?

Focus: Understanding the causes and impacts of flooding and evaluating flood defences.

Key Knowledge (Declarative Knowledge)	Activities (Disciplinary Knowledge)	Assessment / Skills
• Flooding happens when a river bursts its banks or when heavy rain cannot drain away fast enough. • There are different types of flooding: pluvial flooding (caused by heavy rain), fluvial flooding (rivers bursting their banks) and coastal flooding (caused by high tides). • Floods affect people, animals and buildings – some communities have flood barriers and defences to reduce the impact. • The Boscastle flood (2004) is a UK case study showing the devastating impact of flash flooding on a small community. *DISCO (Oppose): People should not build houses in areas that are prone to flooding. Use your knowledge of this topic to present an argument 'against' this view.*	Flooding types sort and discussion: Pupils are shown four photographs of different flood events. They identify the type of flooding shown in each (pluvial, fluvial or coastal), record the correct term next to each image and write one sentence explaining how that type of flooding is caused. Quick class share-back to check answers. Reference the previous flooding of Darley Fields next to the Derwent in Chester Green.	*Ask and answer geographical questions about the physical and human characteristics of a location. (End of Year 4)*
	Boscastle case study: Pupils use a short information sheet and images about the Boscastle flood (2004) to answer three structured questions: What caused the flood? What was the impact on the community? What flood defences were put in place afterwards? Pupils record their answers. This could be achieved using Padlet.	*Use a range of resources to identify the key physical and human features of a location. (End of Year 4)*
	Flood defence design: Pupils sketch and label a simple flood defence design for a stretch of river near a town (teacher-provided outline map). They must include at least two different types of defence (e.g. flood wall, embankment, floodplain restoration) and write a sentence explaining why each one would help. Designs are photographed and uploaded to Showbie. The class votes on the most effective design and discusses their choices.	*Describe geographical similarities and differences between countries. (End of Year 4)*

Enrichment

- Fieldwork: walk along the River Derwent from Darley Abbey into Derby town centre
- Opportunity to liaise with Derby Rowing Club – canoeing session on the Derwent
- Science crossover: water cycle in a bag experiment linked to Y4 States of Matter topic
- Flood defence STEM challenge: test which materials make the best flood barrier

- Google Earth virtual river journey – following the Amazon or Nile from source to mouth
- Visit to Derby Museum to explore the history of the River Derwent and its impact on the city
- River art project – mixed media artwork of a chosen river using observational sketches from fieldwork
- Boscastle flood video case study and community impact discussion