Year 4/5: Raging Rivers

What do you want children to learn?

Substantive knowledge (significant concepts and facts / content matter)

1. Locate the world's countries using maps to focus on Europe.
2. Name and locate counties and cities of the United Kingdom, geographical regions and their identifying human and physical characteristics, key topographical features (including hills, mountains, coasts and rivers), and land-use patterns; and understand how some of these aspects have changed over time
3. Name and locate geographical regions of the UK, their human and physical characteristics, key topographical features – including mountians, coasts and rivers.
4. Identify the position and significance of Equator, Northern Hemisphere, Southern Hemisphere, Arctic and Antarctic Circle, latitude, longitude, Tropic of Cancer and Capricorn
5. Understand geographical similarities and differences through a study of human and physical geography of a region of a European country, and a region of North America.
6. Physical geography, including rivers
7. Physical geography, including the water cycle

Disciplinary Knowledge (action taken to gain knowledge to be a geographer)

8. Use maps, atlases, globes and digital/computer mapping to locate countries and describe features studied
9. Use the four points of a compass to build their knowledge of the United Kingdom and the wider world
10. Use four-figure grid references to build their knowledge of the United Kingdom and the wider world
11. Use symbols and key (including the use of Ordnance Survey maps) to build their knowledge of the United Kingdom and the wider world
12. Use fieldwork to observe, measure, record and present the human and physical features in the local area using a range of methods, including sketch maps, plans and graphs & digital technologies

Key statement: All rivers are the same as our local river.

AIM: Children to improve knowledge and understanding of the similarities and differences between local, national and global rivers.

Key Vocabulary			Cross Curricular Links
Upper, middle and lower course			
Source	spring	stream	English
Mouth	estuary		Art

Meander Tributary Confluence	flood plain erosion transportation deposition	Science	
What is the key question?	What geography content are you going to teach?	What resources are you going to use?	What knowledge, understanding and skills will children take away?
How is a river formed? 6, 12	A river is born Take the chn to an outdoor slope and ask them to imagine that this is a hill or mountainside. Explain that you are going to pour water over the top of the mountain, as if it is raining very hard. Ensure the chn are standing to one side where they can see the effect on the slope without getting wet. Explain that although they may be tempted to try to interrupt the flow of water, they must just be observers as if they were in a helicopter. Pour the water over the slope, refilling the watering can if necessary. *What do you notice?* (The water always flows downwards, it finds the shortest route down, it cuts a channel through the sand/soil, it carries light particles with it, and sometimes the trickles/streams from different parts of the hill join together in the lower regions). Depending on what type of slope you have, chn may notice that some water seeps into the ground. Explain to the chn that what they have seen is just like rain falling on high ground, e.g. a mountain or moorland. The water will begin to flow downwards in trickles that join with others to form larger streams, always finding the fastest route downwards. Rushing water is powerful and it will cut a pathway through sand, soil and even through rock over time. As the slope becomes more gradual, the river widens, always flowing downhill until it eventually reaches the sea.	A hose with spray attachment to simulate rain or a large watering can; A muddy, gravelly or sandy outdoor slope (you could sprinkle sand over a tarmac slope for the same effect);	To understand the nature of a river: that it flows downwards from high ground to the sea and that it has the power to erode and shape the landscape over time. To begin to learn geographical vocabulary associated with rivers and their features.

How does our local river change from source to mouth? 3, 4, 6, 7, 8, 9, 10	A River's Journey Locate the source of the Rother at Empshott spring. Track the journey in pairs to Rogate. Look at printed map of the area and track on tracing paper. Locate features taught – teaching any not yet learnt. Continue to plot its journey to mouth. Describe the journey of a river from the source to mouth learning the changes to the river and some landforms, e.g. meander and flood plain. Identify human and physical features along the River Rother Identify the physical features along the journey of their local river using OS maps. Identify villages, towns (and cities) along the course of their local river. Chn understand how people use the river especially near the mouth and how this contributes to the local economy. Chn understand how the uses have changed over time.	OS maps Google Maps Images YouTube BBC Bitesize Compass directions Four figure grid references. Fieldwork – How does my local river change as it moves downstream? Chn predict what they expect to find at two or three places along the river.	Chn understand the nature of a river and how it changes on its journey from source to sea Chn leanr key features of rivers, the geographical vocabulary and definitions.
			Chn use maps and OS maps to identify features and places along the course of their local river. Chn understand how people use the river and how these uses have changed over time. Chn visit their local river to see it in real life, match features to the OS map and carry out tests to answer the fieldwork question.
What are the processes that cause the river to change shape? Trip to Rother	Chn identify changes to the river from source to mouth (gets wider, higher volume of water) Chn learn erosion, transportation and deposition. Chn carry out fieldwork to find examples of erosion, transportation and deposition around the school site. Chn look at videos and images of rivers to identify erosion, transportation and deposition.	Fieldwork – What examples of erosion, transportation and deposition can we find around school? Predict answer Chn could list examples they identify around school or mark them on a plan perspective of the school. Analyse data and conclude by answering the question.	Chn identify how the river changes from source to mouth. Chn learn key vocabulary and identify it around the school. Chn carry out fieldwork to investigate their school site and the processes that are happening.

			Chn identify where the processes are happening in the river.
Is our local river the same as the River Nile? 4, 5, 6, 7, 9	Chn update their prediction and remove or add to their suggested reasons. Chn identify human and physical features along the journey of the Nile Chn compare their local river to the Nile to identify similarities and differences.	Google Maps Images YouTube Books	Chn gain knowledge and understanding about the river Nile in order to compare it to their local river and evaluate how similar the two rivers are.
Rivers in Europe are the same as our local river. 5,6,8,9,10, 11	Chn locate and discuss position of some Rivers in Europe Chn choose a river to research. **the Danube, the Volga, the Loire, the Rhine and the Elbe**. Include Source, Mouth, Features, Settlements and uses. Chn select their best evidence to evaluate the key statement.	Digimaps Google Maps Photos Internet	Demonstrate knowledge learnt so far when researching.
Why is the Rhine important to Europe? 1, 5, 6, 8,	Chn locate and learn about the features, course and human uses of the Rhine. Chn identify and match the uses to the places and present findings to the question in groups.		Chn can locate and identify features of another river. Chn know how people use the river. Children can identify why it is important.

Children not yet on track	**Children working at Greater Depth**

Additional information

Where in the UK is the River Rother and what is it like?
OS maps can be accessed through physical OS maps, Digimaps and Bing Maps when selecting the Ordnance Survey layer.
YouTube

Erosion – the wearing away of material
Transportation – the moving of material
Deposition – the dropping of material

Can use hard and soft biscuits to show how quickly they erode when they get wet, e.g. digestive or cream cracker and a pink wafer or soft cake.

Fieldwork – Does our school have evidence of erosion, transportation and deposition? On a blank map of the school chn can record, using symbols and a key, where they find evidence of the processes. The map can be labelled to say what it was, e.g. eroded grass, eroded path, eroded paint, water being transported on coats, books deposited in the library.

Where does the water come from and where is it going?
BBC Bitesize - https://www.bbc.com/bitesize/articles/z7w8pg8

How does our local river change from source to mouth?
The tests that can be carried out will depend on the river and how wide, deep and fast it is. The following tests are suggestions that could be used

How fast is the river flowing?

Velocity

Velocity is the measurement of how fast the water in a river is moving. It is measured in metres per second and can be calculated using the equation below:

Velocity (m/s) = Distance (metres) ÷ Time (seconds)

We will calculate the velocity along the river at site A using the stick method:

1. Decide a distance
2. Place stick in the river
3. Time how long it takes the stick to go the decided distance

Record 3 measurements of the distance and time in the table below and then, using the above equation, calculate the velocity of the river for site A.

	Distance (m)	Time (s)	Velocity (m/s)
1			
2			
3			

How does the river change from side to side?

Instructions

1. Using the tape measure, measure the width of the river from bank to bank.

   Ensure the tape measure remains above the water and is pulled tight throughout to maintain accuracy.

2. Following the river width measurement, as a group, agree upon sensible intervals (spaces between) for measurements.

3. Use the metre ruler to measure the depth at your first interval and record the depth measurement in the data table below.

   Ensure the ruler reaches the bottom of the river to accord accurate depth (m) measurements.

4. Repeat step 3 ten times, measuring and recording all width intervals of the river in the **river cross section table**.

5. Use your data table to plot the intervals on the **cross-section grid** (see below).

6. Don't forget to give your graph a title and label the X and Y-axis.

7. Use a ruler and pencil to join up the points in the cross-section grid.

8. Colour the cross-section grid (brown for the riverbed- below the points), (blue for water - above the points).

River Cross Section		
Interval no.	**Distance across river**	**Depth (cm/m)**
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

How does the sediment change from side to side?

Instructions:

1. Stand in the river and pick up a sample of five pebbles at 50cm intervals.
2. Take the five sediment samples to the side of the riverbank.
3. Using your ruler, measure the length and width of each of the five sediment samples.

4. Record your results on the tables below.
5. Using a calculator work out the mean average length and width of the sediment size for each site.

Sample	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
Sediment length (mm or cm)					
Sediment width (mm or cm)					

What is the quality of the environment?

	1	2	3	4	5	
Loud						Quiet
Built up area						Natural area
High amounts of litter						No litter
Poor paths and access						Quality paths and access
High levels of possible danger						Low levels of possible danger
	Total score:					