

Unravelling Rivers

Teacher Guidance Notes

Overview of the pack

This pack provides an introduction to how rivers are formed and flow from source to mouth. It is aimed primarily at learners in Years 5 & 6 but can be adapted for younger pupils. The pack consists of 23 slides which can be used as activity sheets, for individual and group work, and whiteboard pictures for class discussion.

Key Stage 2 National Curriculum links

- This pack specifically relates to the Geography Aim that all pupils “understand the processes that give rise to key physical and human geographical features of the world” and “how these are interdependent”. Learners will be able to “describe and understand key aspects of physical geography including Rivers and The Water Cycle and human geography including Types of Settlement and Land Use”.
- “They will be able to use fieldwork to observe, measure 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”.
- Links with English, Maths and Science will be indicated where they occur.

Equipment

- Prints of chosen photographs or diagrams for learners
- Posters of vocabulary (taken from slides 1 & 2)

Other resources

- [All About Rivers](#)

Learning objectives

- to help learners understand the important role that rivers play in our lives
- to review prior learning on The Water Cycle
- to develop learner’s sense of responsibility towards the environment
- to understand how rivers change from source to mouth
- to understand the relationship between rivers and human settlement
- to understand how rivers can be used for navigation



Success criteria

- All learners will know key vocabulary, will understand the importance of rivers (historically and for the present day) and will review prior learning.
- Most learners will understand how a river changes from source to mouth, understand why settlements occur along rivers and will have worked cooperatively.
- Some learners will be able to give a detailed explanation of a river's journey and show understanding of how rivers can be used for navigation.



Prior learning

- Understanding of the Water Cycle.
- Look at maps to find local canals and rivers.

Follow up

- A careful study of local maps showing where towns and villages are located in relation to rivers.
- A field trip to see and record the local area studied.

Slide discussion points

Additional teacher information and discussion points on each slide to help you:

Slide 1: Key words

Teacher information:

- The key words are available to print out for wall display as a reminder to learners while they work.
- Spellings can be learned. Other useful, related words on the curriculum list include:
 - Year 1 & 2 – rain, same, sea, tree, leaf, bird, cool, air, cloud.
 - Year 3 & 4 – breathe, continue, discover, enquire, experience, explore, experiment, interest, interest, beginning.
 - Year 5 & 6 – analyse, atmosphere, demonstrate, develop, especially, gradual, identify, illustrate, inhabitant, investigate, manufacture, moisture, observe, organise, rapid, volume.

Slide 2: Sensory words

Teacher information:

- These words are to support descriptive writing. Useful for the writing about the journey down the river (Slide 20 & 21). Learners could discuss and write their own list – often much more creative. They would need to think about smell, sight, sound, touch, and taste.

Slide 3: Where can we find water?

Teacher information:

- A reminder of prior learning. This is not about how we use water but should provoke answers like sea, rivers, canals, taps, as rain etc.

Learner activity:

- A basic introductory activity. This slide can be printed out and the outer circles filled in (and added to) or thoughts can be captured in a discussion. If the learners are used to producing “spidergrams” they could create their own.

Slide 4: The Water Cycle

Teacher information:

- A reminder activity only for Years 5 & 6.

Learner activity:

- In pairs learners to be given a Water Cycle sheet. Each should have a sheet and highlight the most important words. They have two minutes to complete this. They then have to explain to their partner why they highlighted those particular words.
- For younger learners a simpler explanation can be introduced.

Slide 5: The Water Cycle

Teacher information:

- To consolidate memory only.

Learner activity:

- Learners to choose the right order for the Water Cycle and then to make up their own mnemonic as an aide memoire.



Slide 6: What is the difference between a canal and a river?

Teacher information:

- If you would like your learners to undertake a more detailed analysis please use the [Canal & River Trust Explorers site](https://www.canalrivertrust.org.uk/explorers) for more information.
- Differentiation determined by answers.
 - Rivers are natural. People dug out canals.
 - Both can be navigable although a river might not be.
 - The water in rivers flows downhill. In canals the water almost stays still as they are dug to be level. Introduce the idea of contours for some learners.
 - Rivers are a healthy environment for wild life. Canals are also a valuable habitat which can be improved by their management regimes, for example the stabilisation of slopes with coir rolls.
 - Rivers were here before people. The first canals in Britain were built in the 1700s. Link with chronology for some learners. The Romans and Chinese built canals 2000 years earlier.
 - Rivers sometimes have natural waterfalls and rapids on them. Canals have locks and weirs to control water that needs to change its level.
 - Canals were built to join up important places of industry with large towns and ports. Industries make things such as cloth, or dig things out of the ground like coal.

Learner activity:

- Learners, in pairs, should identify which letter picture is a canal and give three reasons why a canal is different from a river.

Slide 7: What are the differences between rivers and canals?

Teacher information:

- These words are to support descriptive writing. Useful for the writing about the journey down the river (Slide 20 & 21). Learners could discuss and write their own list – often much more creative. They would need to think about smell, sight, sound, touch, and taste.



Slide 8: What are the differences between rivers and canals?

Teacher information:

- This chart is an example of the kind of answers that learners could produce after researching the differences between rivers and canals. See slide 6.

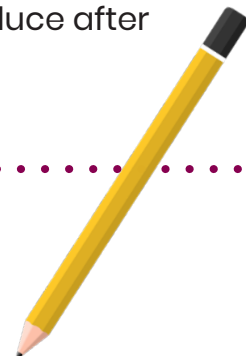
Slide 9: River words

Teacher information:

- This activity is an introductory activity to identify prior knowledge.

Learner activity:

- Print out this slide and ask learners to identify and write the answers on the activity sheet. The correct answers are 1A, 2C, 3B, 4E, 5D.
- For younger learners this can be done as a group or oral activity. To stretch some learners use other words from the list asking them to write their own definitions.
- If the topic has not yet been shared with the learners ask them to identify what they will be studying and/or to think about questions they want to find the answers to on the topic of RIVERS.



Slide 10: Where does a river begin?



Teacher information:

- When rain falls on land some water seeps into the ground and some runs downhill. All water flows downhill to try to get to the lowest place. (The term gravity can be used if appropriate). A river is a natural gush of fresh water that starts in the hills and eventually flows down to the sea. The land is usually steeper where a river starts and the water travels downhill quickly. There may be many tributaries joining the main river and sometimes waterfalls.

Learner activity:

- Any of these photographs can be reproduced and labelled with sensory words or annotated with questions learners would like to ask about them.
- This photograph can be used to stimulate discussion. Sensory words can be used to describe the picture. Introduce the word “source”.

Slide 11: The source of a river

Teacher information:

- Answers could include:
 - fast flowing water
 - rivers start in the hills
 - many rocks in the water
 - smooth / jagged rocks
 - small rocks falling into the river
 - steep hills
 - snow on hills (precipitation)
 - This could also be done as a class activity using the whiteboard.



Learner activity:

- To link with slide 10. This photograph can be printed off and annotated by the learners possibly using words from the word banks provided.
- In pairs label the arrows, with a word or sentence that describes each feature.

Slide 12: The upper course of a river

Teacher information:

- There are three sections to a river as it flows along. The upper, middle and lower courses. The upper course of a river is usually fast flowing. The water travels quickly.

Discussion points:

- There are a number of thought provoking questions that can be asked at this point. How safe would it be to swim in this water? What happens to this water when heavy rain falls? Do you think there would be many settlements on the upper course of a river? Why/why not? Would the area be suitable for farming? Once again the photograph could be annotated. To stretch learners ask why the river might have so many bends in it. Introduce the idea of interlocking spurs.

Learner activity:

- Learners to imagine that they are standing outside looking at this view for themselves and draw a "field sketch". The "field sketches" should be annotated in the same way as the previous photograph.

Slide 13: The middle course of a river

Teacher information and discussion points:

- Discuss the photograph with learners then do the activity on the next slide.
- In the middle course of a river the water becomes slower and often has many curves in it. (Meanders). Why doesn't the water flow as fast in this picture? The land is flatter and the water struggles to find its way downhill and therefore there are many bends as it looks for a route. Why is there a large town on this part of the river?



Slide 14: Settlements

Teacher information and discussion points:

- Some learners could rank order their answers and explain them.
 - Boats can sail up to this part of the river from the sea.
 - People can build bridges safely over the water. Nearer the sea the bridges would need to be much bigger.
 - People need water to carry heavy cargo from place to place.
 - People can wash and drink the water, once it is cleaned.
 - Things from all over the world can be transported/brought here.
 - This is a picture of Nottingham on the River Trent but could be replaced with a local example.

Learner activity:

- Younger pupils should work in pairs to choose the most important statement and be able to explain why they chose what they did – either to another pair, a classroom assistant or the teacher.

Slide 15: The lower course of a river

Discussion points:

- What describing words can be used for this photograph? Sluggish, muddy, slow. How wide is the river? What colour is the water? Why would this be the case? Try to help learners to think about potential flooding; make a link with local flooding events.

Learner activity:

- Learners should write a sentence (or short paragraph) about what they see in this photograph including the words sluggish, wide and floods.

Slide 16: The mouth of a river

Teacher information:

- The mouth of a river, or estuary, is where it reaches the sea.
- Estuaries are subject to both marine influences and riverine influences. Waves, tides and the influx of saline water are marine influences. Sediment and flows of fresh water are riverine influences.
- Estuaries are among the most productive natural habitats in the world. High levels of nutrients are provided by both the sea water and fresh water inflows.
- This slide can be used as a stimulus for an English writing activity. Either factual, persuasive writing getting people to visit a seaside resort. Or as a creative piece of work writing about a holiday at the seaside with a friend. Younger learners should write a postcard to tell a friend what they are doing at the seaside on holiday. A postcard can be drawn or the photograph on the teachers' section could be printed, cut out and written on the back of.

Discussion points:

- As with all parts of a river learners can draw on their own experiences of places they have visited. Can pupils name any places/seaside towns they have visited? Why might people have to be careful when swimming in a river estuary? Encourage the learners to mention tides.
- What activities can take place on different parts of a river? Sailing, fishing, swimming, paddling, kite surfing, canoeing. What is the difference between the sea water and the river water?

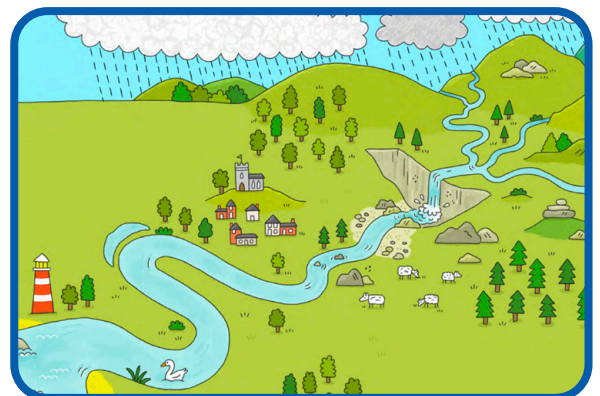
Slide 17/18: The three courses of a river

Teacher information:

- This is an activity to test learning about the stages of a river.

Learner activity:

- Learners should complete either slide 17 or 18 or either can be completed as a whole class activity on the interactive whiteboard. Some learners will need the full words or clues.
- List of words; **source, upper course, middle course, lower course, highland, lowland, mouth.**
- You could also offer the learners scrambled clues such as hglnihad = highland.
- NB See page three of "[All About Rivers](#)" on the Canal & River Trust Explorers website.



Slide 19: What if rivers did not exist on earth?

Teacher information:

- A whole class plenary activity. This type of questions tests the higher order of learning. Learners could think about what the world would look like, where drinking water would come from, would it mean there was no rain, what would happen to fish and other animals, where would towns be situated and so on.

Learner activity:

- In small groups learners should write on a large sheet of paper three things about what difference it would make to the world if there were no rivers. Groups, in turn, should explain their answers to the rest of the class.

Slide 20: On a journey along the river

Teacher information:

- Plenary activity to test detailed knowledge and understanding about rivers.

Discussion points:

- Learners could discuss which words they would need to include in the writing for each of the days. See slide 21 for suggestions.

Learner activity:

- Learners are to imagine they are travelling from the start of a river, its source, to its mouth where it reaches the sea. The journey takes four days. They should write a diary describing what they see and hear and what they are thinking. For younger learners one or two key words can be added to each square. This is to test a higher level of learning than the previous activity.

Slide 21: On a journey along the river

Teacher information:

- Plenary activity to test detailed knowledge and understanding about rivers with key words which should be included for younger learners.
- Learners are to imagine they are travelling from the start of a river, its source, to its mouth where it reaches the sea. The journey takes four days. They should write a diary describing what they see and hear and what they are thinking. For younger learners one or two key words can be added to each square.
- This is to test a higher level of learning than the previous activity.

Slide 22: Why do towns and villages grow up on rivers?

Teacher information:

- Extension work – Settlements could be the next topic, possibly linked with a field trip.
- Where people live has already been mentioned. The short (two minutes) BBC clip (link to website) focuses on how Shrewsbury grew up in the middle ages – a nice link with chronology.
- People need to have a water supply as they need water to drink and for industry.
- The river was used for transport and communication, especially when roads were poor and before canals and railways were built.
- People would want to live where there was a bridge so that they could cross the river.
- People lived near rivers for economic reasons, for example travellers were often charged to use a bridge.
- Towns grew up around castles which were built by rivers for defensive reasons. There are castles in Newark and Nottingham.

Learner activity:

- Learners could complete an investigation about how the town or village they live in began.