

Investigating Rivers

	Learning Objective	Main Teaching	Activity Higher Middle Lower	Key Vocabulary	Resources	Cross-curricula links	Assessment
L1	To understand the key processes of the water cycle.	<p>Main teaching: Introduce the lesson's key vocabulary and ask children to match each word to an image.</p> <p>Can children work out what the hidden image is? Why is Earth nicknamed the 'Blue Planet'? Explain that 71% of Earth's surface is covered in water.</p> <p>Where do we find water? Ask children to write down their ideas with a partner. Feedback ideas.</p> <p>Watch the BBC water cycle video. Can children work out the missing labels on the diagram?</p> <p>Plenary: Challenge the children to do the Scholastic water cycle quiz. Make it competitive by putting them in quiz teams.</p>	<p>Children label a diagram of the water cycle.</p> <p>LA – Word bank with all vocabulary MA – Word bank with five vocabulary words UA – No vocabulary</p> <p>Extension: Children complete cloze-procedure passage about the water cycle.</p>	<ul style="list-style-type: none"> • evaporation • precipitation • condensation • sun • lake • groundwater • wind • sea • river • runoff 	<p>Lesson presentation</p> <p>Water cycle worksheets</p> <p>Extension cloze-procedure</p> <p>BBC Bitesize water cycle video</p> <p>Water cycle quiz</p>	<p>Science: This topic links to states of matter in Science. The water cycle is an example of a natural process where a material changes state (e.g. evaporation of water – i.e. liquid to gas).</p>	
L2	LI: To identify rivers using an atlas.	<p>This lesson aims to increase children's familiarity with atlases and develop their map-reading skills. Prior to the lesson ensure the atlases are age-appropriate <i>and include all of the rivers on the worksheets</i> (e.g. <i>Collins Junior Atlas</i> or <i>Philip's Junior School Atlas</i>).</p> <p>Main teaching: Ask children to find the contents page of the atlas. Where can we find a map of the United Kingdom? When the children have located the appropriate page ask:</p> <ul style="list-style-type: none"> - What is the difference between a 'physical' map and a 'political' map? - Which type of map shows rivers? - How can we identify a river on the map? What does it look like? - Which towns and cities does the River Severn flow through? (Newtown, Shrewsbury, 	<p>In pairs, children use atlases to identify the longest rivers of the British Isles.</p> <p>LA: Children ideally work with the teacher to focus on map-reading skills.</p> <p>MA/UA: Children work in mixed ability pairs. Encourage children to take turns to find each river.</p> <p>Extension: Challenge children to identify the longest rivers of the world. For</p>	<ul style="list-style-type: none"> • atlas • physical map • political map 	<p>Atlases (one between two children)</p> <p>British Isles & world rivers 3D Geography worksheets</p>	<p>ICT: This activity could also be completed using Google Maps.</p>	

		<p>Worcester).</p> <p>Now look at the 3D Geography worksheet 'Longest rivers – British Isles'. Can the children the river, which flows through Glasgow?</p> <p>Plenary: Were the children able to identify the longest rivers of the UK? Were there any that were not in the atlas? If so, use Google Maps to identify the remaining rivers.</p>	<p>this they will have to find and use physical maps of the world and each continent.</p>				
L3	<p>LI: To identify the features of a river system.</p>	<p>Main teaching: Recap the key processes of the water cycle taught in the last lesson. How do streams and rivers form? Watch the first 30 seconds of the BBC Bitesize video.</p> <p>Explain to the children that rivers begin as springs/streams in upland areas. This is called the river <i>source</i>. They eventually flow into the sea at the <i>river mouth</i>.</p> <p>As rivers flow across the landscape, they create many landforms. Can the children identify the <i>waterfall</i> and the <i>lake</i>?</p> <p>Plenary: Challenge children to answer the questions about the rest of the BBC Bitesize video.</p>	<p>Group activity: Ask children to match the names of river features to the photos, maps and satellite photos. It is possible to differentiate this activity by giving lower ability groups fewer cards.</p> <p>Individual activity: Children label river features on the worksheet.</p> <p>LA – Cloze-procedure sentences MA/UA – Children write their own definitions of river features.</p>	<ul style="list-style-type: none"> • source • waterfall • river mouth • meander • lake • delta • confluence • reservoir 	<p>Lesson presentation</p> <p>Cards for group activity</p> <p>Activity worksheets</p> <p>BBC Bitesize water cycle video</p>	<p>Field trip: If possible, the best way to investigate river features is a field trip to your nearest river.</p> <p>Most water companies also have education centres which offer free school visits.</p>	
L4	<p>To identify the characteristics of the three stages of a river.</p>	<p>Main teaching: Ask children to match the lesson's key vocabulary to the dictionary definitions. Then ask them to match each word to a photo.</p> <p>In the last lesson we learned that rivers create many landforms. Can the children remember any names of river features? Show them the examples of waterfalls, valleys and gorges. All of these are created by a process called <i>erosion</i>. If there is time, watch the Billy Blue Hair video about erosion.</p> <p>Now explain that a river's journey can be split into three different stages – upper course,</p>	<p>Children put the description labels in the correct column for upper, middle and lower course. This can be done individually or in pairs.</p> <p>LA: Children have coloured labels MA/UA: Children have white labels.</p> <p>Extension: Ask children to check</p>	<ul style="list-style-type: none"> • channel • sediment • altitude • floodplain • upper course • middle course • lower course 	<p>Lesson presentation</p> <p>Description labels (ask children to cut these out before the lesson)</p> <p>Worksheet</p>		

		<p>middle course and lower course. Each of these stages has different <i>characteristics</i>.</p> <p>Explain the meaning of characteristics if necessary (e.g. What are the characteristics of a good learner/footballer?).</p> <p>With rivers, the characteristics which vary are:</p> <ul style="list-style-type: none"> - altitude - channel width - water speed - amount of erosion <p>Now look at the examples of rivers at different stages. Ask the children to discuss the characteristics for each stage.</p> <p>Plenary: Play the Three Stages Game.</p>	<p>the work of their partner (or another child who has finished). Have they put any labels in different columns? Ask them to discuss any differences.</p>				
L5	<p>To investigate features of the River Thames on maps and satellite photos.</p>	<p>Main teaching: Ask children if they have heard of the River Thames. What do they know about it? Show them the map. Can they find the source and the mouth?</p> <p>Show the photo of Thames Head and then look at a map/satellite photo of the area. Can they locate Thames Head on the map? What other river features can they identify?</p> <p>Introduce children to the activity. Ask them to stick their first map/satellite photo in and then show them the example labels and paragraph. Remove these and ask children to write their own.</p> <p>Repeat this process for the other three locations along the Thames:</p> <ul style="list-style-type: none"> - Windsor - Isle of Dogs - Thames Estuary <p>Encourage children to concentrate primarily on river features (e.g. meanders, tributaries, locks). If they have time, they can also write about notable human features (e.g. Windsor</p>	<p>Children examine both maps and satellite images of sites along the Thames River from Thames Head (source) to the Thames Estuary (mouth). For each location, they label a map/satellite image and write a paragraph describing the river features they have found.</p> <p>LA: Cloze procedure paragraphs MA/UA: Use River Thames word banks</p> <p>Extension: Encourage children to also write about notable human features they can find on the maps/satellite image.</p> <p>e.g. Thames Head</p>	<p>River vocabulary:</p> <ul style="list-style-type: none"> • source • spring • stream • confluence • tributary • meander • lock • lower/middle/upper course • estuary • mouth • sediment/silt <p>Locational vocabulary:</p> <ul style="list-style-type: none"> • Thames Head • Kemble • Cotswold Hills • Windsor Castle • Jubilee River • East London • Docklands • Isle of Dogs 	<p>Lesson presentation</p> <p>Map/satellite images x 4 per child</p> <p>Wordbanks</p> <p>Cloze procedure paragraphs for LA</p>	<p>Literacy: This writing-based lesson could easily be done within a Literacy lesson if there is pressure on Humanities curriculum time.</p>	

		<p>Castle, Canary Wharf).</p> <p>Plenary: Watch the ZSL (London Zoo) video about seals in the Thames Estuary.</p>	<p>map/satellite image: <i>'Human features in this area include the A433 and A429 roads, the Thames Head Inn, Smerrill Farm and the Kemble Farm Biogas Plant.'</i></p>	<ul style="list-style-type: none"> • Lea River • Blackwall Tunnel • North Sea • Thames Estuary • Southend-on-Sea 			
L6	<p>To think about the different ways we use water.</p> <p>To identify <i>necessary</i> and <i>luxury</i> types of water use.</p>	<p>Main teaching: Introduce the lesson's key vocabulary. Can children match each word to a photo?</p> <p>Ask children to write down all the ways they use water with a partner. Discuss which of these are necessary for survival (needs) versus luxury uses (wants). Can the children explain the reasoning for their views?</p> <p>Explain that water is used by humans in a vast number of ways. Can they think of any commercial/industrial, recreational, agricultural and community uses?</p> <p>Remind the children that we also share water supplies with the Earth's wildlife. Can they identify any of the species?</p> <p>Plenary: Remind children that we are fortunate as many people around the world lack access to clean tap water. Watch and discuss 'Water – The World Water Crisis' video.</p>	<p>Children sort the images of types of water use into different categories:</p> <ul style="list-style-type: none"> - Household - Commercial/industrial - Recreational - Agricultural - Community - Wildlife <p>(N.B. The images can be stuck on to the worksheet or alternatively children can draw and label their own pictures.)</p> <p>Extension: Children classify each type of water use as necessary (needs) or a luxury (a want). They then explain their reasoning.</p>	<ul style="list-style-type: none"> • industry • commerce • recreation • agriculture • household • community • necessary • needs • luxury • wants 	<p>Lesson presentation</p> <p>Activity worksheet (blown up to A3 size)</p> <p>Water use images printed on stickers or cut out.</p>	<p>Art: Water is a theme in many artist's work (e.g. Monet, Hockney).</p> <p>You can find a great free art lesson plan based on Monet here.</p> <p>PSHE: This lesson links to needs and wants in PSHE. It also links to UNICEF Rights of the Child (e.g. Article 27).</p>	
L7	<p>To understand the impact of floods and droughts.</p>	<p>Main teaching: Introduce the lesson's key vocabulary. Can children match each word to an image?</p> <p>Look at the map of average rainfall in the UK from 1981-2010 on the Met Office website. Can children answer the questions about the map? What is the overall pattern of rainfall in the UK? Can they explain this pattern? (Weather fronts come from the North Atlantic and travel westwards over the UK, meaning</p>	<p>Children read 'Rivers and Floods' and answer the comprehension questions.</p> <p><i>(N.B. It is recommended that LA children read this text prior to the lesson, perhaps in guided reading.)</i></p>	<ul style="list-style-type: none"> • precipitation • hosepipe • downpour • waterlogged • tidal flooding • coast 	<p>Presentation</p> <p>Rivers and floods text</p> <p>Comprehension activities</p> <p>Map of average rainfall in the</p>	<p>Maths: Data handling – create a line graph of rainfall in 1976 compared to the 1981-2010 average.</p>	

		<p>rain normally hits western areas first).</p> <p>Ask the children what would happen if an area received high rainfall for a prolonged period of time? Flooding can occur. Watch the BBC video to see the impacts of flooding in 2012.</p> <p>Look at the other cause of flooding – tidal floods (or storm surges).</p> <p>Now ask the children what would happen if an area received little or no rain for a prolonged period of time. Why might 'hosepipe bans' be necessary? If there's time, watch the Al Jazeera video about the effects of drought in 2018.</p> <p>Look at the satellite photos showing north-west Europe in June and July 2018. What difference do the children notice? Can they explain this?</p> <p>Plenary: Explain to children that floods have also helped shape the world around us. Look at the example of the Grand Canyon</p>	<p>LA: Easier questions with extension. MA/UA: Standard questions with extension.</p> <p>Extension: Children are challenged to work out the total amount of rainfall during the famous drought year of 1976. Can they work out how much less this is than an average year?</p> <p>As an extra challenge, ask children to work out the percentage drop in rainfall in 1976 compared to the 1981-2010 annual average. (There was a 17% drop in annual rainfall in 1976.)</p>		<p>UK from 1981-2010 (Click on 'Average maps', change 'Climate variable' to 'Rainfall' and click 'Annual')</p> <p>BBC News video about 2012 floods</p> <p>Al Jazeera video about droughts in 2018</p> <p>BBC - How the Grand Canyon was formed.</p>		
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