

How to use this book- Teacher Notes

These notes help to explain the background to the natural flood management storybook and how it can be used to link in with the National curriculum. If you need any further help or information please contact lucy@wyreriverstrust.org.

Lesson 1: The Journey of a River

Example Learning Objectives

To understand how rivers are formed.

To use maps to understand and explore the local area

Subjects: Geography

Example Lesson plan: [https://www.rgs.org/schools/teaching-resources/rivers-\(1\)/journey-of-a-river/](https://www.rgs.org/schools/teaching-resources/rivers-(1)/journey-of-a-river/)

Incorporating the NFM book: Ask if they can name any places in their local area on the upper, mid and lower course of the River Wyre. They could use the map on the first pages for help. Ask them to describe what the river is like in each of these places. You could cut out some pictures of the River Wyre and ask them to place them where they think they belong along the map.

You could also ask them to research what some of the designations mean- Morecambe Bay a Special Area of Conservation

Lesson 2: The Water Cycle

Knowledge of the water cycle will help the children understand where water comes from and will be helpful in explaining how changes in land use can influence the river.

Example Learning Objectives

To understand and explain the water cycle.

Subjects: Science, geography

Activities and things to think about: Children can learn about the Water Cycle and use maps and atlases to describe how the water makes its way to the sea. Look at contour lines (which show land height) in the atlas to help pupils explain how and why the water travels in these directions. Children could draw and label a diagram or 3D model of a river. The lesson plan below contains key words and activities to help with this.

Lesson plan: <https://www.wateraid.org/uk/get-involved/teaching/ks2-resources>

Incorporating the NFM Book: Introduce the idea of how land use might have an impact on the water cycle. Can they explain how trees might play a role (pages 8-9, 18-19)? They intercept water so that it reaches rivers more slowly. What impact would soil compaction and concrete surfaces have on the water cycle (pages 10-11)? Water rushes off the land quicker and is unable to percolate into the soil. What happens when rivers are full?

Lesson 3: Human impact on rivers

Example Learning Objectives:

To understand the importance of rivers for humans and the environment

To be able to describe different types of land use and how these impact on the environment

To understand the damaging effect of human processes and lifestyles on rivers.

Example lesson plan: <https://www.nationalgeographic.org/activity/river-puzzle/>

Incorporating the NFM Book:

Activity: Using pages 4-5, the teacher could group the pupils, assign the numbers 1-5 to a group and have the children research that number and present their findings to the rest of the class. This will help children understand the different ways which we rely on rivers and the services that they provide.

Experiment: Pages 8-9 on deforestation could be demonstrated using a soil science experiment on page 9 of this booklet from the Food and Agriculture Organisation of the United Nations: <http://www.fao.org/3/a-i7957e.pdf>. Soils from areas with lots of trees and other vegetation will hold more water than soils from agricultural land because of the organic matter contained within them. Leaves intercept water. Roots absorb water from the soil, making the soil drier and able to store more water as well as holding the soil in place.

Pages 10-11 The experiment on page seven of the FAO booklet could be used to explain erosion. Look at the soil in the beakers and talk about what effect this might have on the river- sediment in rivers can reduce the amount of oxygen available to animals such as fish. What effect might it have on the land? Erosion can wash away nutrients needed for plant growth.

<https://www.facebook.com/kapawmedia/videos/366662053943366/> this is a video which demonstrates these experiments.



Discuss: The picture to the left demonstrates cattle poaching on the River Wyre near Scorton and can be used to explain how this can lead to compaction and erosion. You can see areas where there is no vegetation from trampling, making it susceptible to erosion by the river. The ground has been compacted by the cows' hooves. There are also tyre marks where a tractor has compacted the ground. How does this affect water going into the river? Water can't soak into the ground so there is more

water going into the river. On bare areas water is more likely to rush straight into the river.

Children could hot-seat as a farmer saying why she/he wants their cattle to access the river. Others could hot-seat as the fish or river saying why this is an issue.

Discuss and experiment: Page 11 –These ideas could be explained using a marble run. Bumpy courses with lots of curves and obstacles will slow the marble down, whereas on a straight course with no obstacles the marble will reach the bottom faster. This is the same in the river- meanders and obstacles such as vegetation and woody debris (twigs and branches) from trees slow down the flow. Ask the pupils what will happen if there is lots of water travelling fast. Water will overflow onto the surrounding land. Now discuss what will happen if water is stopped from overflowing by embankments and flood walls. The water will continue to flow faster downstream until it overflows at the next point it can. Pupils could debate the pros and cons of traditional flood defences. A useful video to help understand these ideas is <https://catchmentbasedapproach.org/learn/what-is-natural-flood-management/>.

Lesson 4: Flooding

Subjects: Geography, English

Learning objectives: To understand the impact of flooding on communities and businesses and how to prepare for a flood.

To understand the role climate change is having on the weather.

Resources: Show video clips of flooding eg.

<https://www.youtube.com/watch?v=NUqLWqcNBkM>. The pictures below show pictures of the river Wyre in flood.

Lesson plan example: <https://www.floodtoolkit.com/wp-content/uploads/2015/02/flood-aware-teacher-scheme-of-work.pdf>

Incorporating the NFM Book:

Page 12 – Pupils could discuss the impact on themselves or people they know. They could role play as business and home owners and describe their worries for the future or write a diary entry of how they imagine someone who has been flooded might feel. They could speak to or research a local area which has experienced flooding and measures they are taking to prevent this happening in the future.



Lesson 5: Natural Flood Management

Visit wyreriverstrust.org for a lesson plan and activities to help explain natural flood management.