**CASTME ACTIVITY SHEET**

**This educational resource directly addresses 4 of the 17 Sustainable Development Global Goals declared in 2015 by the United Nations and promoted by the United Nations Educational Scientific and Cultural Organisation. The resource integrates education for sustainable development into teaching and learning by considering**

**Goal 6: CLEAN WATER**

**Goal 13: CLIMATE ACTION**

**Goal 14: LIFE UNDERWATER
Goal 15: LIFE ON LAND**

 **‘DOWN TO THE WYRE’**

This activity sheet and accompanying PowerPoint presentation considers the issues and possible solutions of flooding in river catchments. Flooding is an increasingly common event in many countries of the world due to climate change and man-made alterations to the environment.

Prior to engaging in this activity, educators may wish to consider:

1. The Water Cycle (Key Words: Condensation, Precipitation, Water Table, Ground Water, Drainage, Evaporation, Transpiration).
2. The Properties of Water. (Key Words: Chemical Formula, as a gas: steam, water vapour; as a liquid: finds its own level, transparent, surface tension, solvent; as a solid: snow , ice, less dense).

 **Understanding the Benefits of Natural Flood Management**

**Slide 1**

**In the wake of climate change our villages, towns and cities are increasingly under threat from flooding. ‘Down to the Wyre’ presentation and the accompanying suggested activities addresses some of the reasons why this is occurring and the ways in which we can work with natural processes in sustaining our homes and businesses. Although developed and practised with children aged 7-11, the ideas and information can be transferred and developed to include older children.**

**The Presentation was produced by The Wyre Rivers Trust, the Trust has been working since 1988 to improve water and habitat quality, connectivity, river restoration and has engaged with the Wyre Waters Catchment Partnership in a number of projects including restoration of wetlands. River trusts throughout the United Kingdom are working tirelessly to address the world-wide problems of flooding and pollution.**

**BACKGROUND**

**Slide 2**

The River Wyre flows entirely through the County of Lancashire in the North West of England. The source of the River Wyre is to be found in the Bowland Fells near the village of Abbeystead. The river is approximately 28 miles long and flows into the south of Morecambe Bay (Irish Sea) at Fleetwood. The tributaries of the River Wyre include the rivers Tarnbrook, Calder and Brock. The River Wyre is tidal as far as St. Michael’s on Wyre, where grey seals and porpoises have been observed.

**Slides 3**

Points for discussion:

Water

Rainfall

River catchment

Drainage

Life stages of a river: Young (Steep incline, Narrow, fast-flowing, energetic), Middle-Age (Reduced incline, slower flow, starts to meander, increase in width), Old Age ( Little or no incline, slow, meandering, reduced energy.

USES: Leisure activities, Habitats, Potable water, Sanitation, Farming

**Slide 4**

Address the questions.

**Slide 5**

Points for discussion.

Settlements near rivers (Human population and farming demands)

Factories near rivers (Pollution including thermal, channelisation increases rate of flow)

Bald hills: deforestation, over-grazing (sheep farming, deer management)

**Slide 6**

Address the questions.

**Slide 7**

**Points for discussion:**

Trees (Producers)

Transpiration (Water uptake, movement through the plant, Root, Trunk/Stem, Branch, Leaves).

Soil types: Sand, Clay, Loam

Organic matter, Nutrients

Death and decay

Decomposition

**Slide 8**

**Read the information**

**Address the question**

**Slide 9**

**Points for discussion**

Soil compaction, air spaces, particle size

Infiltration

Erosion

Farming practice, machinery and farm animals.

**Slide 10**

**Address the task and draw the plants**

**Slide 11**

**Points for discussion**

Channelisation

Embankments

Dredging

Overflow

Floodplain

**Slide12**

**Read about man-made changes to the river**

**Slide 13**

**Points for discussion**

Climate change

Weather

Flooding

**Slide 14**

Answer the questions and describe any memories or stories of flooding.

**Slides 15 & 16**

**Natural Flood Management and the work of the Wyre Rivers Trust and Catchment Partnership,**

**Slide 17**

**Why should we plant trees?**

**Slide 18**

Discuss the advantages of tree planting

**Slide 19**

Photograph: Tree planting

**Slide 20**

**Farming Practices**

**Discuss:**

Pollution, poaching river banks, fencing, soil compaction, erosion.

**Slides 21 and 22**

Images of farming close to rivers showing good and poor practice

**Slide 23 Land Management**

Discuss: Leaky dams, gully blocks, sediment, bog, wetland, pollution, carbon dioxide, greenhouse gases, global warming, climate change.

**Slides 24 and 25(photograph)**

Images showing river catchment, gully blocks, leaky dams, wetlands, bogs.

**Slide 26 Monitoring**

Discuss: Why it is important to monitor water quality and species that inhabit the river and its surrounds. Monitoring can include: depth of water, oxygen levels, pollutants and invertebrates the live in the water.

**Slides 27 and 28**

Images showing kick sampling, electronic sampling, wildlife cameras.

**Slide 29**

**GLOSSARY**

**Slide 30**

How you can help to reduce flood risk.

**Slides 31 and 32**

**Examples of dioramas made by children aged 7-11**