

## **KS3 Geography- information for teachers**

2014 National Curriculum links:

### GEOGRAPHY:

‘Understand, through the use of detailed place-based exemplars at a variety of scales, the key processes in:

- Physical geography relating to... rocks, weathering and soils; weather...’
- Human geography relating to... the use of natural resources’.

‘Understand how human and physical processes interact to influence, and change landscapes and environments’.

### SCIENCE:

#### **Chemical reactions:**

‘Representing chemical reactions using formulae and using equations’.

‘The pH scale for measuring acidity/alkalinity; and indicators’.

#### **Earth and atmosphere:**

‘The rock cycle and the formation of igneous, sedimentary and metamorphic rocks’.

#### **Energy:**

‘Fuels and energy resources’.

### Activities

#### **1) Trail:**

\*Students spot key landmarks in the park relating to rivers such as the stream, weir, viaduct and Petrifying Well.

\*The River Nidd and its course explained as well as key terminology such as ‘meander’, ‘tributary’ and ‘confluence’. Students then draw the river’s course.

\*The process of transportation explained and students identify the distance of transport of different rocks.

\*The process of petrification explained and students collect some of the water to test its mineral content. Challenge posed to represent the chemical change in a written formula.

\* The formation of the cave is explained linking to the mineral deposits built up over thousands of years to create an overhang which eventually collapsed to form the cave.

\*Students map the park and the key landmarks for members of the public as they walk through.

\*Finally students write a paragraph explaining what they have learnt using the word bank of key terminology to help them.

## **2) Powerpoint presentation:**

The presentation should be used as a follow-on activity as students:

- ✓ Revisit landmarks spotted and processes learnt
- ✓ Test their water against normal tap water to compare mineral content
- ✓ Learn about differences in rock grains and this affect on whether or not a rock is porous
- ✓ Look at porous and non-porous rocks- experiment with water reduction
- ✓ Watch Bitezise video describing how sedimentary, igneous and metamorphic rocks are formed. Ideas for experiments included.
- ✓ Look at wind, solar and hydro-power (video BBC) linking this to the weir
- ✓ Create their own water wheel using different materials and test
- ✓ Study flooding in more detail and understand how flash floods are caused
- ✓ Watch BBC video describing flooding prevention methods
- ✓ Look at physical and human factors which increase flooding
- ✓ Case study- Bocastle- understand the effects of the flooding and future flooding prevention methods put into place
- ✓ Create their own flooding prevention method to prevent flooding of the Petrifying Well platform and houses along the river Nidd

*\*possible extension activity ideas included*

### Resources needed:

- *Pencils*
- *Rubbers*

- *Water bottles to collect water from the well*
- *Water testing kit*
- *Porous and non-porous rock*
- *Collection of sedimentary, igneous and metamorphic rocks*
- *Measuring jugs*
- *Resources to create water wheels (see powerpoint)*

<http://www.actionrenewables.co.uk/wp-content/uploads/2010/12/KS2-activity-water-energy.pdf> (*Waterwheel task sheet*)

Testing well water- <http://www.wikihow.com/Test-Water-Quality>