

#### **Activity R4: Investigating a river at two different places along its path**

As with all field-based activities, safety considerations are of prime importance. *Group Safety at Water Margins* published by the Department for Children, Schools and Families is a comprehensive guide to all aspects of safety in this type of activity and is available at: <http://national-library.info/download.asp?fileid=423>

Working by deep, fast flowing rivers has many hazards and is not recommended. It is far safer and easier to find a suitable stream of a depth that allows pupils to wade safely in wellington boots to carry out this activity. The aim of the activity is to allow pupils to observe river processes in two locations, to measure stream width and water depth at each locality and then compare and contrast their findings.

##### **Equipment:**

Stopwatch

Tape measure long enough to measure width of stream

Float (a brightly coloured float is best, but a twig will do)

A length of rope at least 10m long with a knot tied every metre - to measure a fixed distance along the stream bank even if it is not straight (or a 30m tape)

A graduated metre stick - to measure water depth.

Graph paper

Notebooks

Pencils

Wellington boots

##### **Method:**

###### **1) Measuring stream width**

Measure the width from the water's edge on one side to the water's edge on the opposite bank. Mark the places where you measured the width.

###### **2) Measuring stream depth**

At the places where you measured the width of the stream, move across the bed of the stream measuring the depth at regular intervals by placing the zero end of the metre stick on the stream bed and reading the height at water level.

3) From the measurements of width and depth draw a cross section of the river bed on a sheet of graph paper.

4) Repeat steps 1 to 3 at a number of places along the stream channel.

###### **5) Measuring the surface velocity of the stream**

Measure and mark the ends of a 10 metre length along the bank using the rope. At the upstream end of the rope, release the float from a known point across the measured width where the distance from the bank and depth of water are known. Start the stopwatch and stop it when the float reaches the end marker. Divide the distance by the time to find the surface velocity.

6) Repeat step 5 at various points across the stream.

7) Compare the velocities measured at different water depths across the stream.