

Enquiry 4: Stream course comparison

Hypothesis: That the three courses of a stream exhibit different characteristics.

Research questions for each stream course

1. How wide are the stream and its valley?
2. What is the gradient of the stream channel?
3. What are the size characteristics of the stream's bedload?
4. What landform features are evident in the valley?

Geographical context

Most rivers and streams flow through three contrasting stages, called courses. The upper course has a narrow channel over land with a steep gradient and is likely to include interlocking spurs, waterfalls and gorges. The middle course stage often meanders within a wider valley and has a tendency to flood surrounding land. The lower course is wider still on its approach to the sea or its confluence with a larger river. Its meanders are broader still and there may be ox-bow lakes.

Location identification techniques

- Map(s) showing the whole length of the chosen stream – including Ordnance Survey maps, which are very useful because they display information about the relief of the land on either side.

Main health and safety issues

- Be aware of faster-flowing water, hidden deeper pools, slippery stones and marshy river banks.
- Make sure that there is a confident swimmer in each group.
- Always obtain data by working in pairs or groups – never alone.
- Know where your teachers and their transport are located.
- Always carry a reliable mobile phone in case of emergencies.

Data collection activities

- Measuring the average width of the stream and its valley.
- Measuring the gradient along the stream's channel.
- Measuring the size of the stream's bedload.
- Photographing/sketching landscape features at each survey point.
- Obtaining oblique-aerial images of each stage of the stream.

Data collection resources required

- Tape measure, clinometer.
- Pebble-measuring callipers.
- Camera, clipboard and sketch pad.
- Wet-weather protection for clipboard.

Suggested sources of secondary data

- Internet sites providing detailed information and oblique-aerial images of the stream.

Recommended data presentation and analysis

- Sketch map of the whole length of the stream, locating the survey points along it.
- Cross-section drawings of the valley.
- Annotated sketches/photographs of landscape features.
- Graphs displaying contrasting measurement data.