

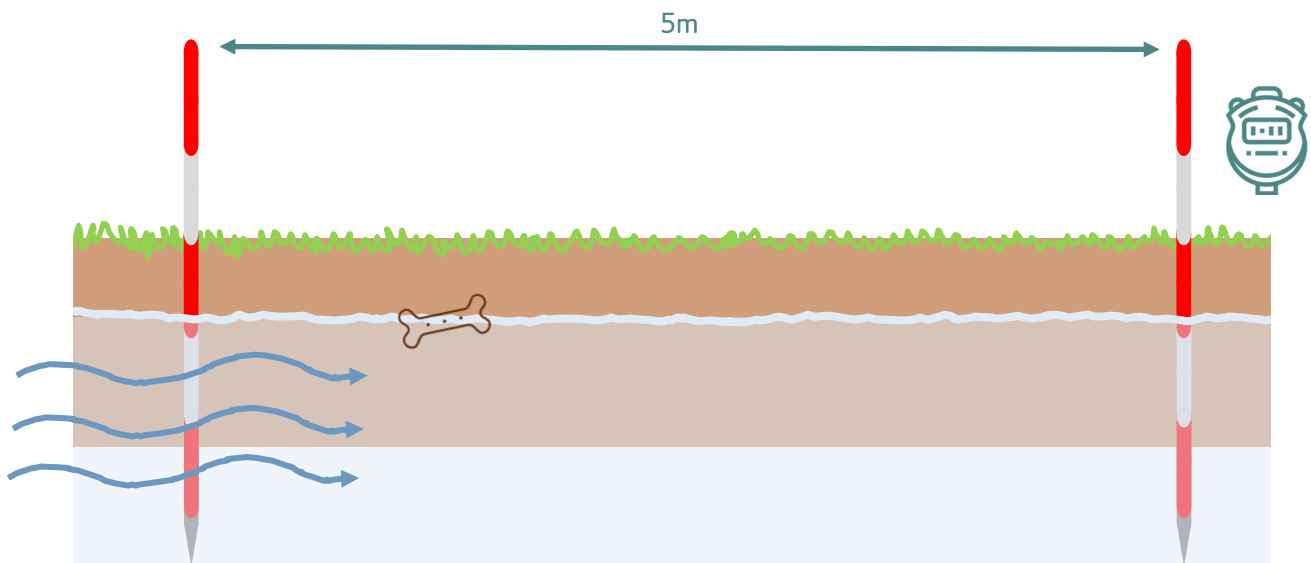
There are three common ways to measure the velocity of the flow of a river or stream:

- use a flow meter (a digital counter attached to a small turbine which is lowered into the river flow).
- measuring how far a float can travel in a set amount of time along the surface of the river.
- measuring how long it takes a float to travel a set distance along the surface of the river.

While one might argue that a flow meter will give the most accurate reading, this guide will focus on the last of the three methods as this tends to be the most common method used. This is in large part because using a set distance (rather than a set time period) is more practical in most river locations.

There are many different types of floats that can be used to measure velocity. However, students should avoid using anything made from plastic or inorganic compounds. This is to avoid the potential damage to the natural environment should the float be lost in the process of measuring. With this in mind, dog biscuits and satsumas are often used to measure velocity.

A stretch of 5 to 10 metres of river is measured out and the start and end points are marked using ranging poles either held against or dug into the riverbed. In choosing this stretch of river it is important to 'read' the river correctly. The distance covered should be relatively free from obstructions, such as vegetation in the stream, and deep enough to ensure the frictionless movement of the float itself. It is often easiest to choose a relatively straight section of river.



The float is gently released at the starting ranging pole (upstream) and a stopwatch is used to time the time it takes to reach the end ranging pole (downstream). It is worth noting that the float will tend to follow the surface thalweg (the point on the river's surface at which flow incurs the least friction). The float should be captured so that multiple measurements can be taken and an average flow time calculated.

Velocity is calculated as follows:

$$\text{Velocity (m/s)} = \frac{\text{distance travelled by the float (m)}}{\text{time taken for the float to cover that distance (s)}}$$