

Pembrokeshire Outdoor Schools

DIGITAL COMPETENCY OUTDOORS

Location: Carew Cheriton Learning Objective: To measure river flow	NC Year Group: 5 Lesson Number: 1
Strand: Data and Computational Thinking	
Element: explore and analyse data sets, highlighting relationships within them. Yr 6: construct and interrogate data sets or support an investigation	
Child Friendly Heading: Pooh Sticks!	
Success Criteria: to measure the average flow of the river	
<p>What to do: In groups of 6. Get the children to think about averages. Ask them the average blade of grass within an area. Measuring and dividing to find the average. Find a shallow stretch of water/stream/river to launch your tennis balls (Carew Cheriton) Now find a good place to end your race. Ask the children for a sensible distance (5m) Measure using a trundle wheel or tape measure. Mark the spot. Stand at a start point (in the river) When everyone is ready you can launch away! Talk about fair testing - all tennis balls to be put in the river at the same time, NO throwing. What happened? Time the speed using a stopwatch on the ipad. Record the results in numbers (speed) Whose tennis ball was the fastest?/slowest? - did anybody's get stuck? Why do you think this happened? Did it matter where in the river you launched from? The children are to record the speed on numbers and in another cell put the distance.</p> <p>Why not try and work out the flow rate of the river using the following</p>	

formulae:

Distance travelled in metres (D) / Average speed in seconds (S) x 0.85 = Flow rate (m/sec) e.g. $5/17 \times 0.85 = 0.249$. The flow rate is 0.25 metres per second.

To get an average time: add up your times, and divide by the number of balls launched. Then, use the formula above to work out the flow rate. Use 'number' on the ipad to create a spreadsheet and work out the flow rate.

You could also do this with Poohsticks.

Have another go, this time try to use sticks of the same length, thickness and weight and see whether this changes the results.

Follow up work

- **Using Excel input data and create graphs to show results**
- **Produce a powerpoint presentation on their findings, including text, images, audio and video (producing/creating)**
- **Calculate the stream discharge.**
- **Measure the velocity.**

Resources:

Some tennis balls (ideally different colours)

A timing device – stopwatch, ipad etc

A tape measure, trundle wheel or pre-measured 5m length of brightly coloured string

A recording chart

An ipad with Numbers