

Physics

Unit 3 Investigative and Practical Skills in AS Physics

ISA (Q) The speed of waves in water

Task Sheet

This task is worth 10 marks

You are advised to read through these instructions before beginning your work.

You are going to carry out an experiment to determine the speed of a wave as it crosses a shallow tray of water.

- *Fill the tray with water to a depth of about 1 cm.*
- *Measure the depth of water in a number of places and also the length of the tray. Record your readings.*
- *You are going to time the wave travelling backwards and forwards across the surface of the water.*
- *Draw a table to include columns for distance travelled and time taken, and include columns for repeat readings.*
- *Raise one end of the tray by about 1 cm and allow it to drop so that a ripple is sent across the surface of the water and is reflected backward and forward by the ends of the tray.*
- *Time how long the wave takes to cross the tray once.*
- *Time how long the wave takes to cross the tray twice (ie, there and back).*
- *Take further times for 3, 4, 5, 6 etc more crossings until the wave is too faint to see, up to a maximum of eight crossings.*
- *Take repeat time readings for each distance.*
- *Plot a graph of distance travelled (by the wave) on the y-axis against time on the x-axis. Use it to determine the average speed of the wave.*

After the Investigation

At the end of the investigation, hand in all your written work, including the graph, to the supervisor.

This documentation will be required for Stage 2 of the ISA. Please ensure that you have entered your centre details, candidate number and name on all the sheets you have completed.