

## 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.*