

## Physics

## PHY3T/P11/task

### Unit 3 Investigative and Practical Skills in AS Physics ISA (P) Bouncing Ball Investigation

#### Stage 1: Task Sheet

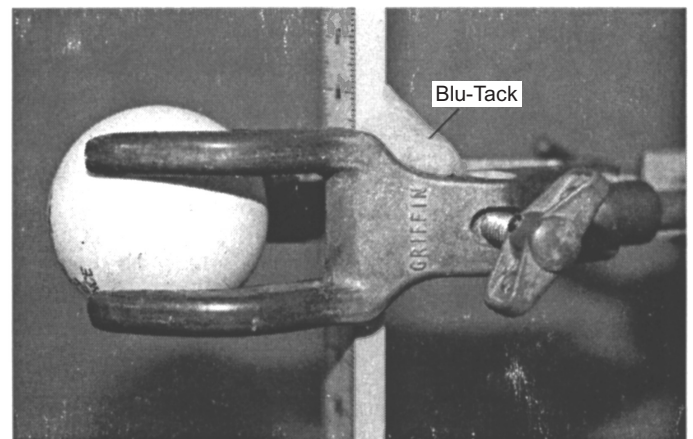
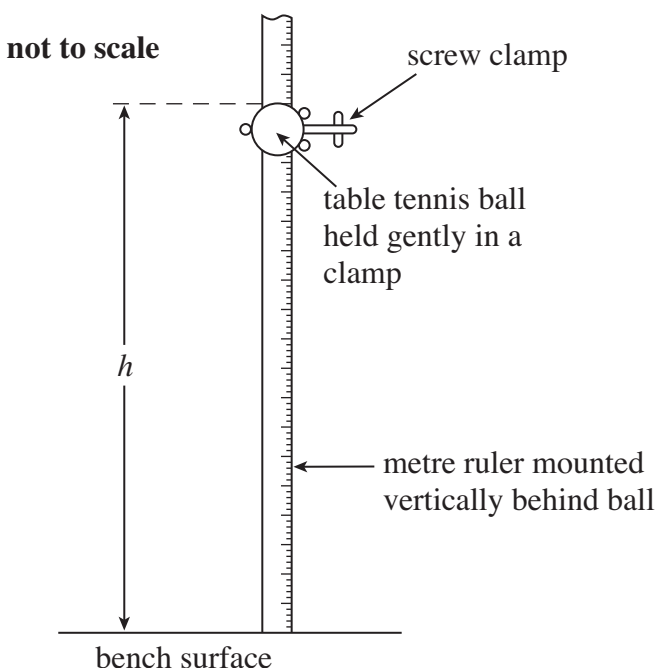
This task is worth 11 marks

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

**You are going to investigate how the height from which a table tennis ball is dropped affects how high it bounces.**

- Use the ruler to measure the diameter,  $d$ , of the table tennis ball and record this result.
- Give an estimate of the uncertainty in this measurement.
- Set up the apparatus as shown in **Figure 1**. The metre ruler should be held vertically in place at the back of the open clamp by a piece of Blu-Tack with another piece of Blu-Tack securing it to the bench. The table tennis ball should be gently clamped into position in front of the ruler.
- Open the clamp and observe the motion of the ball as it bounces on the bench.
- Decide on a range of heights,  $h$ , measured to the top of the ball, from which you will release the ball so that you can measure the height,  $s$ , of its first bounce, also measured to the top of the ball.
- Prepare a single table for recording all of your measurements, including repeat readings for  $s$ .
- Carry out your experiment and complete your table.
- Draw a graph to show how  $s$  (plotted on the vertical axis) varies with  $h$ .

**Figure 1**



**After the Investigation**

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

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