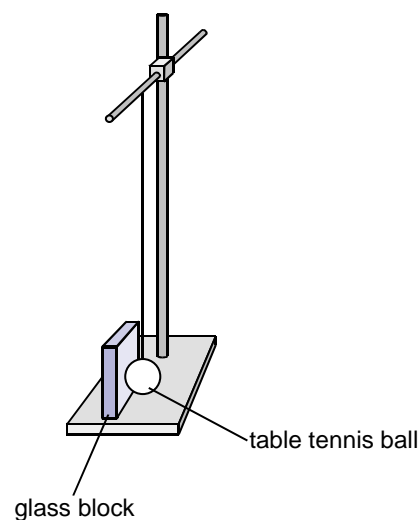


## TAP 301- 3: Oscillating ball

The simple pendulum is a very well known oscillator. In this case you are looking at what appears to be a simple pendulum with half its swing removed.

### You will need

- ✓ table-tennis ball mounted on thread
- ✓ retort stand, boss and clamp
- ✓ glass block
- ✓ hand-held stopwatch



1. Check to see whether the table-tennis ball is isochronous when swinging freely.
2. Now place the glass block at the centre of the swing, pull the ball back about 8 cm and release. Is the oscillation isochronous? How do you know?
3. Sketch a displacement–time graph for the oscillation. Include some measurement of time interval so that someone else looking at the graph could tell the time period of the oscillator.

### What you have done

1. You have drawn a displacement–time graph for the motion.
2. You have found that the oscillation is not isochronous.

### Practical advice

This very quick activity is designed to encourage the students to move from what they are familiar with, in this case the simple pendulum, to something with which they are less familiar. They should apply their knowledge of the displacement–time graph of a pendulum to make a

sketch of this interrupted pendulum motion. Encourage your students to include some numerical detail on the sketch graph.

### **Alternative approaches**

Students may suggest other interesting oscillators.

### **External reference**

This activity is taken from Advancing Physics chapter 10, 220P