

Oscillations Module – Equipment List and Setup

What	Qty	Activities
Spring-mass system mounted on a ring stand. The mass should be about 200 grams.	1	5
Motion Sensor II, Pasco CI-6742A	1	5, 12
Rotary Motion Sensor (RMS), Pasco CI-6538	1	10
Rod and Mass for the RMS	1	10
U of T Data Acquisition Device	1	10
Spring-mass system	1	12
Mechanical Oscillator/Driver, Pasco ME-8750, and power supply	1	12

Setup Notes

Note for activity 5: The hanging masses are hollow and sometimes the annular-shaped bottom surface is not a reliable reflector of the ultrasound from the Motion Sensor. It might help to tape a note-card or other small reflector to the bottom surface. Even a piece of masking tape might help.

The spring-mass system for Activity 5 should have a period of oscillation of about 0.7 seconds. The mount needs to be high enough that when it is vertically oscillating with a maximum amplitude of about 3 cm, at the bottom of the oscillation the mass can be at least 15 cm above the Motion Sensor.

NOTE: if combinations of masses are used in order to more accurately measure the spring constant via Hooke's Law, be sure to move the sensor out of the way in case masses fall!

The RMS should be mounted on a ring stand, with the rod and mass attached.

For Activity 12, we have not yet determined the correct spring-mass system to use. I suspect it will not be the one used in Activity 5. We also will need a vi or SignalExpress application to read the Motion Sensor that is not the standard one. We will drive the support point of the spring-mass with the Mechanical Oscillator/Driver.

David Harrison, November 2008.

Last update March. 2, 2010 by Jason Harlow based on suggestions from Lilian Leung