

Mechanics Module 5 – Equipment List and Setup

What	Qty	Activities
Spring (for spring-mass system)	1	8
200g mass with hook	1	8
Retort Stand	1	8
Bosshead Clamp	1	8
Claw Clamp	1	8
Masking Tape	1 roll/pod	8
Pasco Motion Sensor	1	8
Popper	1	14
Doubled Force Sensors	1 unit	14
Pasco Force Sensor	2	
Coupling Adapter	1	
Coupling Adapter Hook	1	
Coupling Adapter Screws	2	
Meter Stick	1	14
Connector for popper and doubled Force Sensors	1	14
Large Pasco Table Clamp	1	14
12.7mm x 18" steel rod	1	14
Plastic Rod Bolt (for Force Sensors)	1	14
Meter Stick	1	14
Popper Hook	1	14
Plexiglas Plate (with popper hole)	1	14

Setup Notes and Equipment Sources:

Note for activity 8: 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 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.

Masking tape rolls oxidize overtime, making the tape very prone to ripping. This can *sometimes* be remedied by ripping off the top few layers of tape (a tedious task, when the tape rips diagonally, every 1cm or so). If the roll is severely warped, it's best to throw it out (in the interest of time). When the practical is over for the week, store rolls in sealed bags to increase lifespan.

I bought the existing poppers from Educational Innovations:

<http://www.teachersource.com/Energy/EnergyConversion/DropperPopper.aspx>

There it called a “Dropper Popper”, Item # POP-100. They are apparently made in Australia.

DMH – October/08

Edited by Sean al-Baroudi – April/15