

SCI 9 (Burnett) U1A2 - Mass and Springs Simulation

Google search: "Phet masses and springs" or [Click Link](#)

Stay in the "**Intro**" tab for this activity

1. Question for investigation:

How can we use a spring to determine an unknown mass?

2. Prediction (What do you think will happen?):

3. Variables (a variable is anything you use or do in the investigation that can affect the outcome or results of the investigation)

Independent Variable (the variable in this investigation that is being changed by you):

Dependent Variable (the variable that is observed/measured):

4. Materials used: (In the simulation)

- **Spring (Only use one spring and do not change the *Spring Constant*)**
- **Six masses (3 with known mass, 3 with unknown mass)**
- **Ruler**

5. Set up:

Why is the ruler placed where it is?

Why are the objects attached in the same place?

Draw a picture of your setup:

6. Procedure (explain how you are going to do your experiment and write as a series of steps):

7. You may now begin to set up and test your experiment. Remember to work as a team.

Fill in the table below with your collected data:

Three known masses

Object	Mass	Initial length of spring (cm)	Length of spring with object attached (cm)	Displacement of spring = length with object attached – initial length
1	50g			
2	100g			
3	250g			

8. What is the relationship between the stored energy in a spring and the length of the springs stretch when a mass of an object attached?

9. Now we'll estimate the mass of our unknown!

Three unknown masses

Object	Mass	Initial length of spring (cm)	Length of spring with object attached (cm)	Displacement of spring = length with object attached – initial length
Pink				
Blue				
Yellow				

10. Conclusion – What happened? Does your data support your prediction?