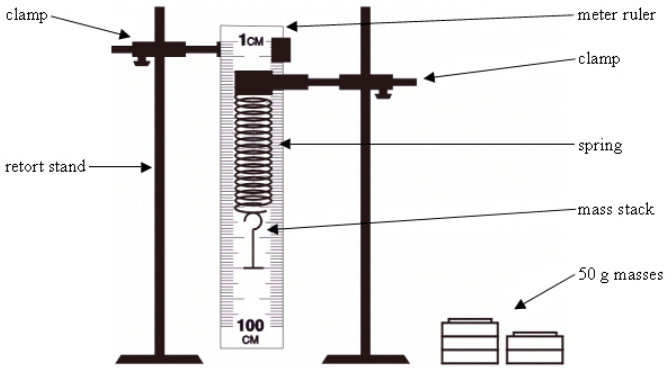
Springs II

1. Carrying Out and Recording

Springs will stretch if a force pulls on them. The amount of stretch depends upon the size of the force.

Your task is to find how a spring stretches as masses are added to it.

Carrying Out - set up the experiment. An example of a possible set up is shown in the diagram below:



a) What is the reading for the spring length on the meter ruler before the mass stack is attached?

Spring length = _____

b) i) Add the mass stack, how long is the spring now? _____

ii) By how much longer is the spring (stretch)? _____

c) Add a 50 g mass. Record the reading on the meter ruler and the stretch of the spring.

mass _____ spring length _____ stretch _____

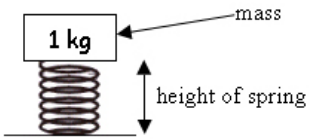
d) Repeat for 4 other masses. Record your experimental data in the box below.

e) ***Recording*** - Record your experimental data in the table below.

Force and Stretch of a Spring	
Mass (g)	**Stretch (cm)**
0	0

2. Processing and Interpreting

Processing - A Year 10 class carried out an investigation to find out if the compression of a spring was linked to the size of the mass put on it.

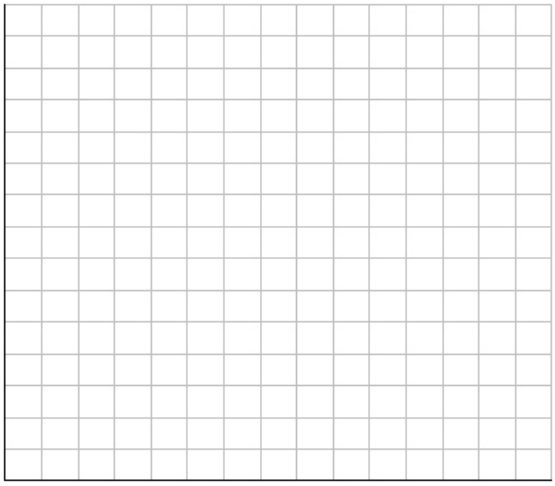


Their results are shown in the table below.

Mass added (kg)	Height of spring (cm)
0	15.0
2	13.2
4	11.4
6	9.6
8	7.8
10	6.0

On the axes below, draw a graph for these results. Remember to think about:

- a title for the graph;
- labeled axis with scales;
- which quantity must go on the x axis; and
- is the graph to be a line or bar graph?



Interpreting - Use your graph to answer the following questions.

a) What is the height of the spring if a 5 kg mass is added? _____ cm

b) What mass would be needed to make a spring have a height of 12.3 cm? _____ kg

c) Complete this sentence: Each time a mass of 1 kg is added, the height of the spring reduces by

_____ cm.

3. Planning

A group of students decided to find out if the amount of stretch of a spring was effected by the thickness of the spring. Plan an experiment to test their idea. Remember to think about:

- the variables you will need to control;
- the variable that you will change;
- what you will measure; and
- how you will make sure your results will be accurate.