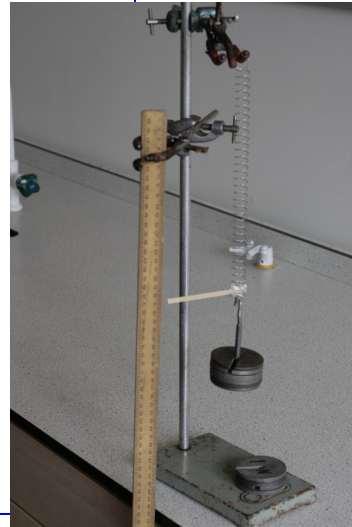


### Organise the method used to measure force and extension of spring:

- Adjust the ruler so that it is vertical. The zero on the scale needs to be at the same height as the top of the spring.
- Attach the ruler to the bottom clamp with the zero on the scale at the top of the ruler.
- Take a reading on the ruler – this is the length of the un-stretched spring.
- Add further weights. Measure the length of the spring each time.
- Hang the spring from the top clamp.
- Attach the splint securely to the bottom of the spring. Make sure that the splint is horizontal and that it rests against the scale of the ruler.
- Carefully hook the base of the weight stack onto the bottom of the spring. This weighs 1.0 newton (1.0 N).



### Risk Assessment:

Suggest what the risks are in this experiment. Describe what you should do to minimise the risks.

1.

2.

3.

### What can you do to minimise errors in this experiment. For each part of the experiment suggest how it has been minimised:

- Adjust the ruler so that it is vertical.
- Attach the ruler to the bottom clamp with the zero on the scale
- Hang the spring from the top clamp
- Make sure that the splint is horizontal

What are the variables in this experiment:

Independent:

Dependent:

Control (describe how you might keep these from affecting your experiment):

**Plan**

Without turning over (!) write a step by step plan for measuring the extension of a spring when weights are put on.

**Measuring the Extension against force**

Force on Spring (N)	Extension (cm)
1N	8 cm
2N	12 cm
3N	16 cm
4N	17 cm
5N	17 cm

As the force increases, the extension .....

Until it reaches it's ..... of proportionality at .....cm

**Complete the sketch graph**