

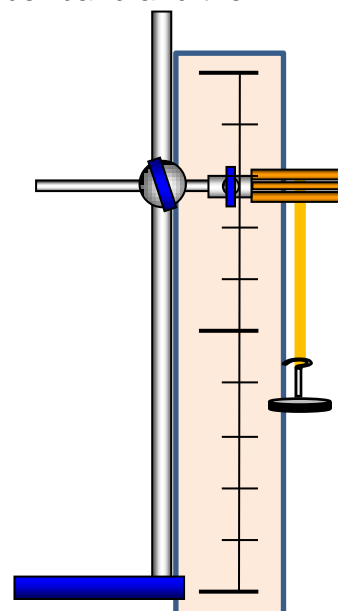
Investigating how weight affects the extension of a rubber band

Aim:

To see if there is a relationship between the weight hung from a rubber band and the extension of the rubber band.

Equipment:

Rubber band
Half metre rule
Laboratory stand, boss and clamp
G-clamp
Slotted weights and hanger



Method:

1. Use the G-clamp to secure the laboratory stand to the bench.
2. Hang the rubber band from the stand and measure its length.
3. Add the weight hanger and measure the new length of the rubber band.
4. Add further weights according to the results table, each time measuring the new length of the rubber band.
5. Work out the change in length of the rubber band



Risk assessment:

There is a danger that the rubber band will snap when it reaches a certain limit. To ensure that the band doesn't snap and flick into somebody's eyes eye protection should be worn.

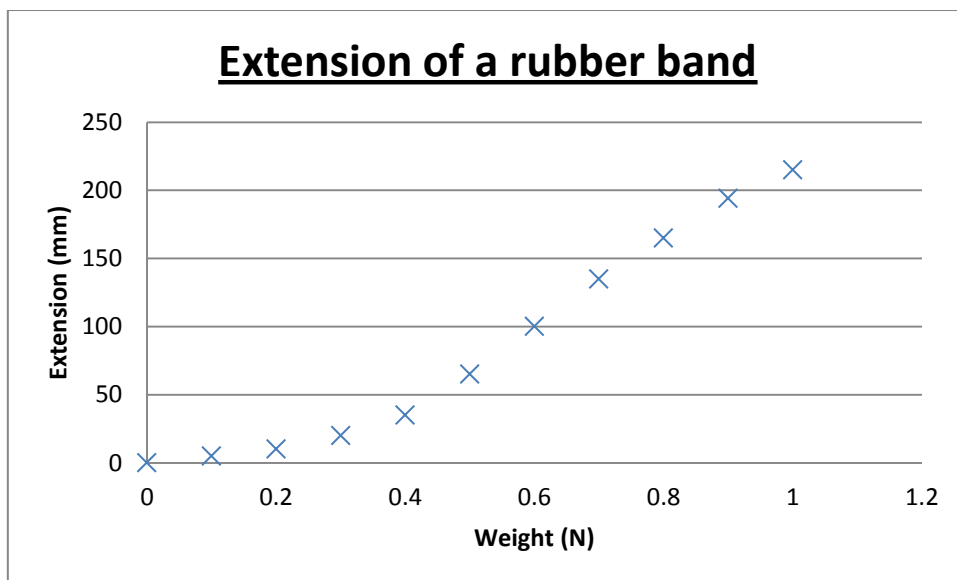
Variables:

Independent variable	Weight
Dependent variable	Extension (the length minus the length when no weight is added)
Control variables	The rubber band Temperature of the rubber band

Typical Results:

Weight (N)	Length (mm)	Extension (mm)
0	80	0
0.1	85	5
0.2	90	10
0.3	100	20
0.4	115	35
0.5	145	65
0.6	180	100
0.7	215	135
0.8	245	165
0.9	274	194
1	295	215

Analysis:



Conclusion:

As the weight increases, the extension increases. There is a positive correlation but they are not directly proportional. This can be seen because the line of best fit would be a curve rather than a straight line going through zero. So Hooke's Law does not apply.