

PhysicsLab 005	Hooke's Law	Class	No.	Name
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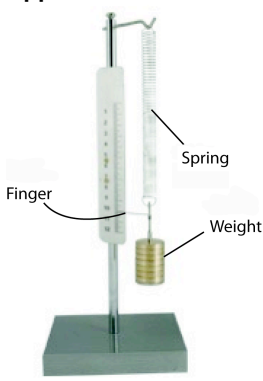
Date


Elasticity is a property of an object where it tends to return to its original size and shape after a deformation and when the deforming forces have been removed.

1	Objectives	Investigate the relation between the elastic force and elongation in spring to understand Hooke's Law. <b>Determine the spring constant, <math>k</math>, and initial tensional force, <math>b</math>.</b>
2	Hypothesis	The magnitude of the elastic force is proportional to the elongation of a spring.
3	Theory	$F = k \cdot x \rightarrow F = k \cdot x + b$ $F$ [N], $k$ [N/m], $x$ [m], $b$ [N]
4	Safety & Note	<b>Don't stretch a spring too much.</b> Once a spring has gone past its elastic limit, its elasticity is lost and becomes inelastic.


### 5. Apparatus

**1) Hooke's Law Apparatus**

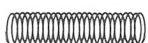




**2) Weights**

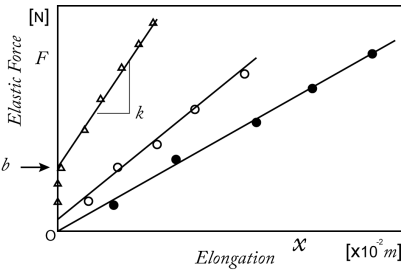


**3) Spring**



A	Smaller $k$
D	Medium $k$
C	Larger $k$

**$F - x$  Graph**



### 6. Experiments Perform experiment about at least one spring → **Submit this sheet and graph within today.**

Weight ( $\times 10^{-3}$ kg)	Elastic Force (N)	Elongation		
		Spring-A	Spring-D	Spring-C
50				
100				
150				
200				
250				
300				
350				
400				
Observed values		$k$ $b$	$k$ $b$	$k$ $b$