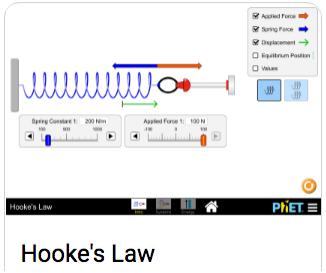
# PhET simulation: Hooke's Law

**Hooke's Law**: The amount of deformation-displacement (extension or compression) of an elastic object (such as spring) is proportional to the forces applied to deform it.

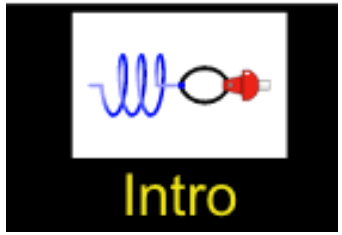
Equation: $\mathbf{F_s = K\,X}$

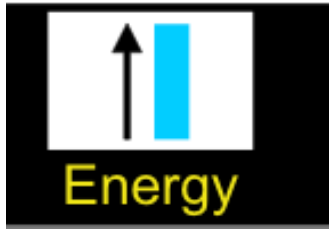
$\mathbf{F_s}$ id the forces exerted on the deformed spring, in newtons.
**X i**s the amount of displacement of the spring, in meters
**K** is the spring constant in newtons per meter.

**Elastic Potential Energy : $U = 1/2\,(K\,X^2)$**



Hooke's Law




**Design an experiment** and use the formulas of Hooke's Law and Elastic Potential Energy;

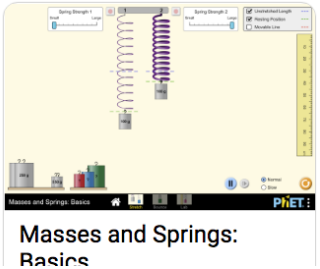
**Idea:** Calculate the values and prove that the calculated values are those given experimentally by PhET simulation. Use both Hooke's law and the Elastic Potential Energy Formulas.

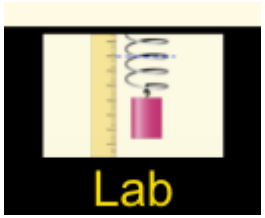
# PhET simulation: Masses and Springs: Basics

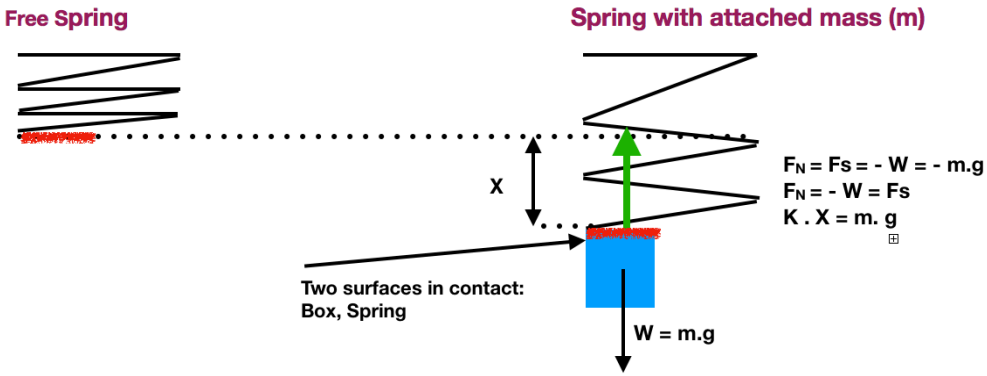
**Hooke's Law**: The amount of deformation-displacement (extension or compression) of an elastic object (such as spring) is proportional to the forces applied to deform it.

Equation: $\mathbf{F_s = K\,X}$

$\mathbf{F_s}$ id the forces exerted on the deformed spring, in newtons.
**X i**s the amount of displacement of the spring, in meters
**K** is the spring constant in newtons per meter.




**Design an experiment** and use the formulas of Hooke's Law and calculate the mass of one unknown.

**Idea:** Calculate the values and prove that the calculated values are those given experimentally by PhET simulation. Use both Hooke's law.

**Change the Gravity**: Use different planets. Write a conclusion