**Vocabulary: Determining a Spring Constant**



**Vocabulary**

* Displacement – overall change in position.
	+ For example, if the bottom of a *spring* begins at 5.0 cm and stretches to 6.4 cm, its displacement is 6.4 cm – 5.0 cm = 1.4 cm.
* Equilibrium – a state of balance in which there is little or no total change.
	+ A stretched spring reaches equilibrium when the force pulling it is equal to the *restoring force* that pulls the spring back.
* Hooke’s law – a law stating that, for an ideal spring, the displacement of the spring is directly proportional to the force on the spring.
	+ Hooke’s law is summarized by the equation *FR* = -*kx*. In this equation, *FR* is the restoring force, *k* is the *spring constant*, and *x* is the displacement.
* Restoring force – a force that pulls a system back toward equilibrium.
	+ When a spring is stretched beyond its equilibrium length, the restoring force pulls it back.
	+ When a spring is compressed to a shorter length than its equilibrium length, the restoring force causes it to stretch out.
* Slope – a measure of the steepness of a line.
	+ You can calculate the slope between two points by dividing the vertical rise by the horizontal run.
* Spring – a coiled device that returns to its original shape after it is stretched or compressed.
	+ Springs usually are made of metal or plastic.
* Spring constant – a measure of how much force is needed to stretch or compress a spring.
	+ The symbol for the spring constant is *k*.
	+ The greater the spring constant, the stiffer the spring.
* Weight – a measure of the gravitational force exerted on a mass.
	+ Weight is represented by the symbol *w*.
	+ The formula for weight is *w* = *mg*, where *g* is gravitational acceleration.
		- On Earth’s surface, *g* = 9.81 m/s2.