⦿⦿⦿⦿⦿⦿● Space Gravity   STEM Sims

Lesson 6: Elastic Potential Energy
One form of stored energy is called elastic potential energy (EPE). Elastic potential energy depends on two factors: the stiffness of a material called the spring constant (k) and the stretch or compression distance (x). Can you find the elastic potential energy of a stretched spring?

Doing the Science
1. You must have completed Lesson 2: Bounce Back and have those data available to complete this activity.
2. Record your data from Lesson 2 in the appropriate places in Table 1 below.
3. Use the following formula to calculate the EPE of the spring for each of the two hanging masses and record your calculation in Table 1.

$$\text{EPE} = \frac{1}{2} \times (\text{spring constant}) \times (\text{change in spring length})^2$$

Table 1.

Hanging Mass (kg)	Spring Constant (k) (in N/m)	Original Spring Length (m)	Final Spring Length (m)	Change in Spring Length (x) (in m)	EPE (joules)
1-kg					
2-kg					

Do You Understand?
1. Which hanging mass that you investigated produced the spring's largest EPE?

2. Based on your results, what do you think is the relationship between the force on the spring and the hanging mass?

3. If the hanging mass fell from the spring when fully stretched, what would happen to the spring EPE? Please explain your response.

4. If the spring with the hanging 1-kg mass and hanger equipment were moved to another planet with a smaller "g" value, what do you think would happen to the spring's EPE?