

# Hooke's Law - Background

- Springs are characterized by their stiffness,  $k$
- Hooke's law for springs:

$$F = k * \Delta x$$

- Knowing this equation, how can we determine the stiffness of a spring?
- Today we are going to calculate the stiffness of springs by collecting force and displacement data.

# Hooke's Law – Activity Prep

- Form your groups and collect the following materials:
  - spring set
  - spring scale
  - ring stand with attachment
  - ruler
- Describe in your lab notebook any similarities and differences between the springs. Are they physically different? Do they feel different? Do you think they will have the same stiffness? If not, list the springs in order from stiffest to most compliant.

# Hooke's Law Activity Steps

1. Connect a spring to the ring stand attachment and hang the spring scale on the other end of the spring. Measure the length of the spring.
2. Pull on the spring scale until it reads 1 N and measure the length of the spring. Record the force and length of the spring.
3. Repeat step 2 for a total of 10 different forces. Record all data in a table.
4. Repeat steps 2 and 3 for all springs.

# Hooke's Law - Conclusion

- When you are finished, please put all materials away.
- Revisit your predictions of whether you thought the springs have the same stiffness or not. Do you still think your predictions are correct? If not, discuss your new predictions and list the springs in order from stiffest to most compliant.