# **Investigation 15A: Waves**

**Essential question: What is a wave and what are the properties of waves?**

Transverse and longitudinal waves

1. Hold one end of a Slinky® spring (or other long spring) and have your partner hold the other end. Stretch the spring a little bit so that it is not slack.
2. Create *transverse* waves by moving your hand side-to-side.
3. Create *longitudinal* waves by moving your hand sharply towards your partner.
4. Repeat the above steps, but this time using a wave motion rope or other heavy string.

Questions

1. What are the differences between these two types of waves? Describe the characteristics of each in words.
2. Can you make both types of waves on both pieces of equipment? Why or why not?
3. Can you create waves of different velocities on both pieces of equipment? If so, how?
4. Estimate the wavelength of the wave in the diagram below and graph its oscillations. Is this a transverse or a longitudinal wave?

SlinkyWavelengthLongit.tif

