

# Physics outreach Waves

Divide the class into to three groups. Give each group about 20 minutes at each station.

## **Slinky—**

- Lay the slinky on the ground and have a student hold both ends. Try different ways of sending a pulse down the slinky. Pull the slinky to one side and let go. Try a bigger pulse or a smaller pulse. Try compressing the slinky and let go.
- Pull tighter and try again—does anything change
- Have both students send a pulse from their end. What happens?
- Tie a piece of yarn on the end. What does the yarn do?
- Wiggle the slinky in a continuous up and down motion.
- 1. Can you get a standing wave?
- Hold one end of the slinky up and pull the other end down and let go.
- 1. Put a weight (ball of playdough) on the end and try it again.
- 1. What changes?

## **Rope----**

- Lay the rope on the ground and have a student hold both ends. Pull the end of the rope to one side and send a pulse down the rope.
- Try a bigger pulse or a smaller pulse.
- Pull tighter and try again—does anything change?
- Have both students send a pulse from their end. What happens?
- Try sending more than one pulse.
- Wiggle the rope in a continuous up and down motion. Can you get a standing wave?
- Stand up and try it again in the air.

## **Water---** Fill a container with water

- Poke the water quickly with your finger. What do you see?
- 1. What happens when the wave hits the edge?
- Put a ruler in the water somewhere. Poke the water.
- 1. What happens when the wave hits the ruler?
- Poke the water twice in a row.
- Poke the water at the same time in two different places.
- 1. What happens when the waves hit each other?