

# Wave on a String Lab

Name: \_\_\_\_\_ Period: \_\_\_\_\_

## Set up the Simulation

1. Open the **Waves on a String Simulation**
2. Set the simulation to **Oscillate** (top left)
3. Set the simulation to **No End** (top right)
4. Set damping slider to **None** and tension slider to **High** (bottom middle)
5. Check the box for **Rulers** (bottom right)

$$v = f\lambda$$

## Describe

Click the "Oscillate" button. Describe what is happening

Description	
Drawing	

## Data

Measure wavelength and calculate speed in the table below. Move the Frequency and Amplitude sliders to the numbers listed in each row. Let the wave run for a few seconds and then pause the waves and use the ruler to measure the wavelength. Record your wavelength and use that value along with the frequency to calculate speed (leave in cm for this)

Amplitude	Frequency	Wavelength (cm)	Speed (cm/s)
0.75 cm	1.50 Hz		
1.25 cm	1.50 Hz		
0.75 cm	2.10 Hz		
1.25 cm	2.10 Hz		
0.75 cm	3.00 Hz		
1.25 cm	3.00 Hz		

## Analysis Questions

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1. How does changing the **Frequency** affect the wavelength? (may use illustrations to help explain)
  
2. How does changing the **Amplitude** affect the wavelength?
  
3. How does changing the **Frequency** affect the wave speed?
  
4. How does changing the **Amplitude** affect the wave speed?

## The Bounce

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1. Set the simulation to **Pulse** (top left)
2. Set the simulation to **Fixed End** (top right)
3. Keep damping slider set to **None** and tension slider set to **High** (bottom middle)

Describe with words or drawings what happens when the wave makes it to the other end of the string:

## Standing Waves

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1. Keep the simulation set to **Oscillate** (top left)
2. Keep the simulation set to **Fixed End** (top right)
3. Keep damping slider set to **None** and tension slider set to **High** (bottom middle)
4. Set Amplitude to 0.10 cm
5. Set Frequency to 1.30 Hz

# of Standing Waves:		Draw a picture of the standing waves formed:
# of Wavelengths:		