

Name \_\_\_\_\_ Date \_\_\_\_\_ Period \_\_\_\_\_

**THE ENTERTAINER****Prompt**

Entertainers depend on the properties and behaviors of waves to create their memorable theatrical performances. Imagine yourself to be a popular musician. Use your scientific knowledge to explain how waves influence our perception of the environment.

The instrument you play is the ruler. Perform the following actions using a ruler while you complete the data table.

**Lab Activity**

1. Place a plastic ruler on a table so that the end of the ruler extends 5 cm past the edge of the table.
2. Hold the ruler firmly onto the table with one of your hands.
3. With the other hand, gently pull up on the end of the ruler that is sticking out past the edge of the table and release it.
4. Listen to the sound that was created and watch the action of the ruler.
5. Record your observations.
6. Move the ruler so 10 cm of the ruler extends over the edge of the table.
7. Repeat steps 2-5 at 10 cm.
8. Move the ruler so 15 cm of the ruler extends over the edge of the table.
9. Repeat steps 2-5 at 15 cm.
10. Move the ruler so 20 cm of the ruler extends over the edge of the table.
11. Repeat steps 2-5 at 20 cm.

Analyze your results by completing the questions provided.

Musical Instrument: The Ruler

Length of Ruler Over the Table Edge (cm)	Speed of Movement (very slow, slow, medium, fast or very fast)	Highness or Lowness of Sound (very low, low, medium, high or very high)
5		
10		
15		
20		

1. Use your own words to describe a wave. Include what waves are made of and how they are created.

[illegible]

2. Using your observations from the ruler activity and your background knowledge of waves, discuss the following wave properties: frequency, wavelength, amplitude, and velocity. In your answer:

- Define frequency, wavelength, amplitude, and velocity.
- State the relationships between frequency, wavelength, and amplitude.
- Describe the factors that influence pitch and volume.

[illegible]