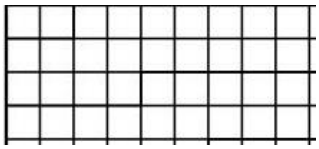
Phet Simulations – WAVE Related

http://phet.colorado.edu/sims/html/wave-on-a-string/latest/wave-on-a-string_en.html

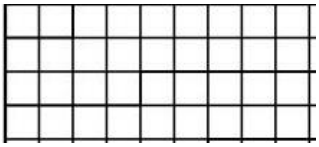
Set up the simulation in the following way, then press play and answer the questions.

- ✓ **Oscillate**
- ✓ **No End**
- ✓ **No damping**
- ✓ **High tension**
- ✓ **Slow Motion**

1. **Draw this wave in the box:**
   - ✓ Amplitude = 0.5 cm
   - ✓ Frequency = 3.0 Hz



2. **Draw this wave in the box:**
   - ✓ Amplitude = 1.25 cm
   - ✓ Frequency = 1.0 Hz



3. What happens to the wave when the amplitude is increased?

4. What happens to the wave when the frequency is increased?

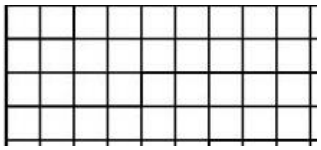
5. Describe two other things you learn about waves from this simulation.

http://phet.colorado.edu/en/simulation/legacy/wave-interference

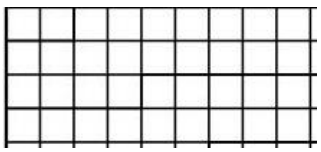
Set up the simulation in the following way, then press play and answer the questions.

- ✓ **SOUND TAB**
- ✓ **Show the graph**
- ✓ **Grayscale**

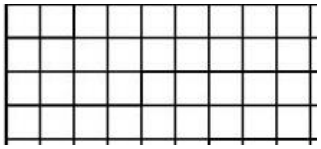
6. Draw the **Compression/Longitudinal** wave with low frequency and low amplitude



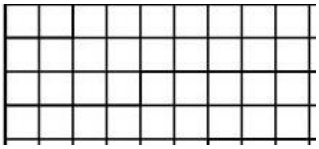
7. Draw the **Compression/Longitudinal** wave with high frequency and high amplitude



8. Draw the **Transverse Wave** with low frequency and low amplitude

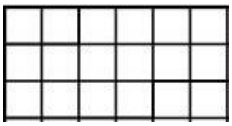


9. Draw the **Transverse** wave with high frequency and high amplitude



10. If in class, use earbuds and turn the **sound on**. Describe what happens to the sound when you:

Increase the **frequency**-
Decrease the **frequency**-
Increase the **amplitude**-
Decrease the **amplitude**-

11. Click on the **Particle Button** which shows atoms marked with a **red X.** Describe how the individual atoms in a sound wave behave and describe whether they move with the energy.

12. Set the **frequency** on about 0.25 and the **amplitude** on 1.0 with the **particle button on**. Press play and then pause it. Draw the sound wave below and label the **compressions** and **rarefactions**.