Assignment: 6

Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Hour:\_\_\_

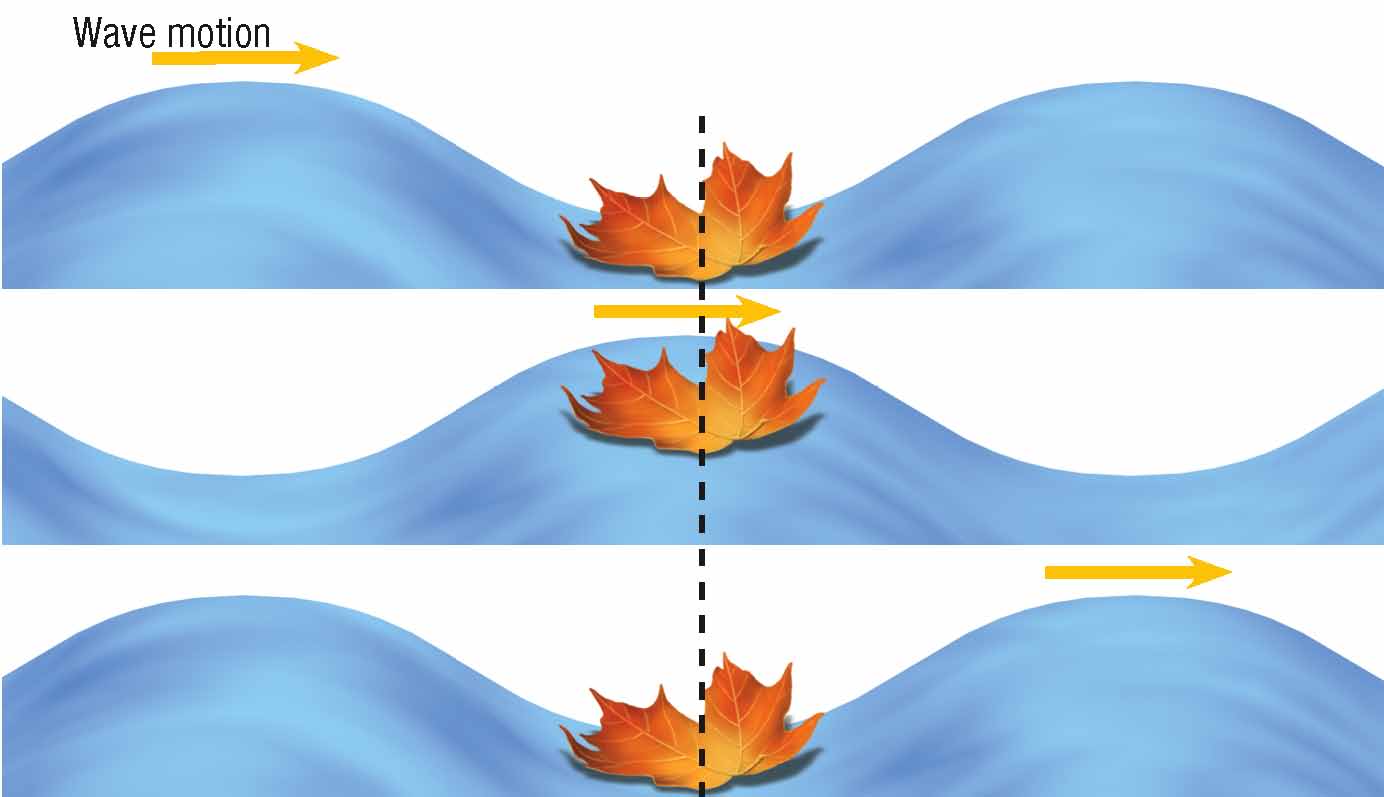
**Unit 4: Waves Test Review Sheet**

**Objective: Mechanical Waves**

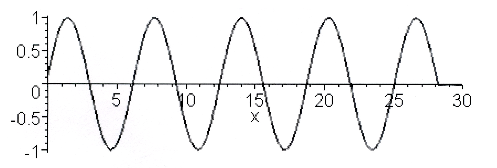
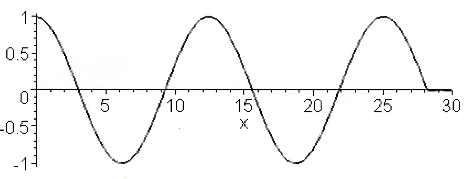
1. Draw below pictures of the following waves AND label the important parts of each wave:

Transverse Longitudinal

1. Describe what is happening in the picture below (be sure to use the terms particle, perpendicular, energy and amplitude).



1. Answer the questions about the following waves:

1. What is the wavelength of the wave? \_\_\_\_\_
2. What is the amplitude of the wave? \_\_\_\_\_\_
3. If this is a snapshot that was taken in one second, what would the frequency be? \_\_\_\_
4. What is the wavelength of the wave? \_\_\_\_\_
5. What is the amplitude of the wave? \_\_\_\_\_\_
6. If this is a snapshot that was taken in one second, what would the frequency be? \_\_\_\_
7. Compare wave A and wave B, which one has a higher frequency? Which one has a lower frequency?

**Objective: Sound Wave and Pitch**

1. What type of wave is sound an example of? What produces sound?
2. What range of sound can humans hear? At what point will you experience pain and hearing loss?
3. What state of matter does sound travel the fastest through and why? What about the slowest and why?
4. What are the three ways you can change the pitch of a sound (think musical instrument)?
5. When you think of a stringed instrument or the pipes on an organ, what is the relationship between the length of the string/pipe and the pitch of the sound it produces?
6. How do dolphins or bats use sound waves to locate prey?

**Objective: Wave Changes**

1. Match the following definitions with the correct vocabulary term
   1. A wave changes direction as it passes through a new medium \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. The clashing of two waves, can be constructive or destructive \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   3. The bouncing back of waves when they hit a barrier \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   4. This is what we use padded panels, curtains and insulation to do in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
      the PAC so there is no echo of sound energy

Absorb Interference Refraction Reflection

**Objective: Doppler Effect**

1. What is the Doppler Effect?
2. Draw and explain an example of the Doppler Effect below.

**Objective: Wave Calculations**

1. What are the units for the following variables?
   1. Wavelength –
   2. Frequency –
   3. Wave speed –
2. If a wave has a frequency of 100 Hz and a wavelength of 20 meters, what is its speed?
3. A sound wave is moving through water and has a wavelength of 0.05 m and a frequency of 200 Hz, what is the speed of the wave?
4. A wave travels the length of a guitar string and has a wavelength of 0.02 m and a frequency of 10 Hz, what is its speed?
5. A sound wave travels in the air at 1000 m/s and has a wavelength of 0.4 m, determine the frequency of the wave.
6. A wave travels through the water at 600 m/s with a frequency of 150 Hz, what is the waves length?