Introduction to Waves Problems

These questions relate to the activities and demonstrations about basic wave properties.

Knowledge & Understanding:

- 1. What is a wave?
- 2. Describe the two types of mechanical waves (include a basic diagram and state the direction of motion of the particles in the wave in relation to the direction of motion of the wave.

- 3. Describe how changing the tension in a medium (e.g. spring, rope, etc.) affects the speed at which a wave will travel through it.
- 4. What is meant by the amplitude of a wave (include a diagram)?
- 5. What affect does the amplitude of a wave have on the speed of a wave?

- 6. What happens to the energy of a wave when it is incident at a boundary between two different mediums?
- 7. When a large amplitude wave is travelling in a thick heavy medium into a lighter, less dense medium describe what happens (you must discuss in terms of wave amplitude, energy, and wave speed).

Making Connections:

8. You are in the ocean and observe an oil tanker catastrophe. Oil spills onto the ocean making it thick and heavy. You observe a large wave (in the fresh ocean water) moving towards the oil slick (boundary between sea water and thick oil spill). Describe what you would notice as the wave energy "hits" this boundary.