## REFLECTION OF STRINGS (PHET SIMULATION)

This section requires the use of the simulation "Wave on a string" available from the PhET website.

Select *Pulse*, Set *Damping* to zero, *Tension* to high, *Pulse width to 0.20 s* and select *Fixed End*.

1. Below is a sketch of the wave pulse just before it reaches the fixed end. Sketch what the wave looks like just after it reflects off the fixed end.
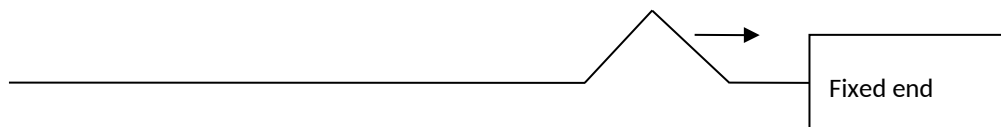
Fixed end

2. Change the fixed end to a *Loose End*. Below is a sketch of the wave pulse just before it reaches the loose end. Sketch what the wave looks like just after it reflects off the loose end.

Loose end
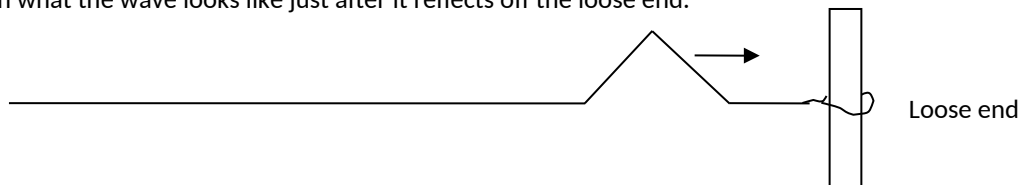
3. Describe how each of the following wave properties are affected when a wave on a string reflects. You may like to try different types of waves to confirm your initial thoughts.

Wave Property	Behaviour reflecting off a fixed end	Behaviour reflecting off a loose end
Amplitude		
Velocity		
Wavelength		
Phase		

Select *loose end* again and restart the simulation. Send down multiple pulses and observe what happens.

4.   Sketch what the resultant wave looks like when two pulses intersect on the same side of the string (both up or both down).

Select *fixed end* again and restart the simulation. Send down multiple pulses and observe what happens.

5.   Sketch what the resultant wave looks like when two pulses intersect on opposite sides of the string. (One up and one down).

6.   The behavior seen in (4) is known as 'constructive interference.' Describe what this means

7.   The behavior seen in (5) is known as 'destructive interference.' Describe what this means.