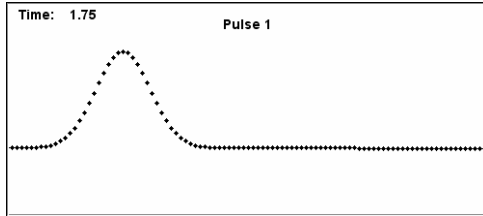# *Worksheet for Exploration 17.3: Traveling Pulses and Barriers*

A string can be approximated by many connected particles as shown in the animations (**position is given in meters and time is given in seconds**). Restart. This Exploration considers a pulse on a string and looks at the motion of the individual particles that make up such a string. Pulse 1 shows a Gaussian pulse incident from the left, while Pulse 2 shows a Gaussian pulse incident from the right. Notice how the particles never really move in the x direction, yet the information in the pulse does travel across the screen.

In the other two animations the pulse is incident from the left and hits either a Hard or a Soft barrier. The hard barrier example is depicted by the hand that represents a string whose end is tied down; the soft barrier example represents a string with one end free.

a. During the hard barrier example, what is the direction of the force that is exerted on the hand?

Explain:

b. During the hard barrier example, what is the direction of the force that is exerted on the string?

Explain:

c. Describe the differences between the waves reflected at the two barriers (Hard or a Soft). Explain those differences.