"Types of Waves and its Parts"

Objectives: To make the students identify the types and parts of wave.
Access: Go to http://phet.colorado.edu., click on "Wave on a String" simulation.

Activity:

Instruction: Identify the following statements below.

1. It is the disturbance or oscillation that travels through space and matter, accompanied by a transfer of energy.

2. It is the distance over which the wave shape repeats.

3. It is the point on a wave with the maximum value or upward displacement within a cycle.

4. It is the minimum or the lowest point in a cycle.

5. It is a disturbance that travels through a medium (substance or material).

6. A waveform with deviation that can be graphically expressed as the sine curve.

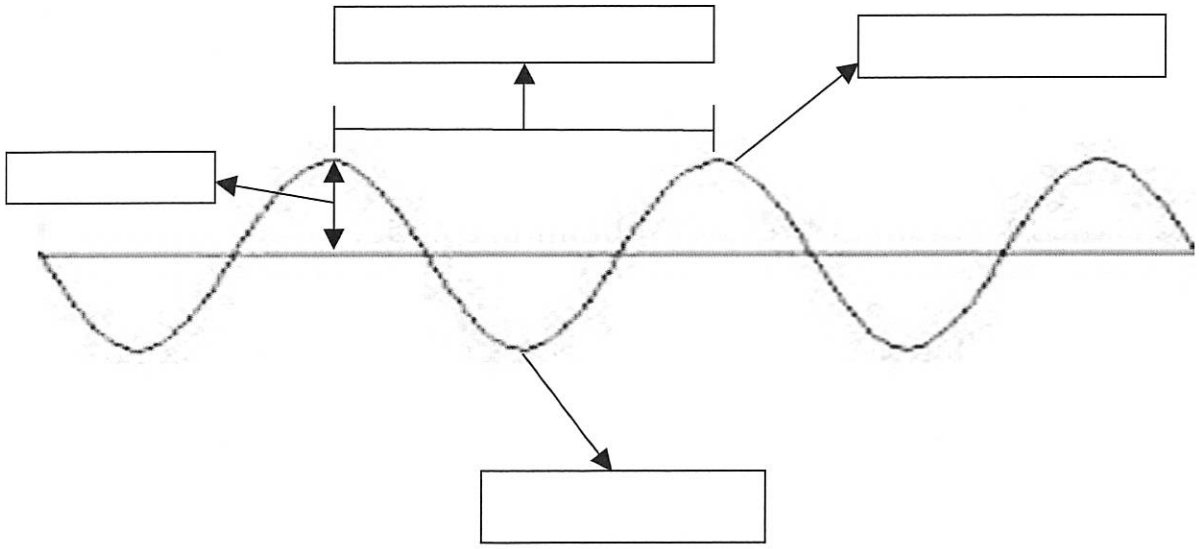
7. Its is a wave travelling along the phase boundary of fluid whose dynamics are dominated by the effects of surface tension.

8. A wave whose displacement has a periodic variation with time or distance or both.

9. It is a moving wave that consist of oscillations occurring perpendicular to the direction of energy transfer.

10. Are waves whose direction of vibration is the same as their direction of travel.

II. Identify the parts of the wave.



Name	
Your Partner's Name	

PreAP Physics – Wave Investigation Lab

Today, you will use the Waves on a String PhET Simulation to investigate the properties of waves.

Part 1 – Beginning Observations

1) Open the Waves on a String PhET simulation. What can you change about the simulation?

2) Draw what you see on the screen.

3) What are the main differences between the manual, oscillate and pulse functions?

Part 2 – Manual

1) What are the two things *specific to the wave* you can change on the manual setting?

2) Change these two items and record your observations below.

Item changed	My observation

Part 3 – Oscillate

1) What are the four things you can control at the bottom of the screen?

2) What are the three types of ends you can have?

3) Now you will investigate how a wave behaves when it has a "fixed" end.

a) Before you begin. Define fixed end in your own words below.

Fixed end - _____

b) What is an object in the classroom that has a fixed end? Explain and draw a picture.

c) Write a short procedure on how you could investigate the four properties that you listed in #1. *Remember a procedure is a series of steps that could be repeated by someone else*

d) Use the table below to record your findings.

Property	What I did with the simulation	My observations

4) Repeat #3 with a loose end.

a) Before you begin define loose end in your own words below.

Loose end - _____

b) What is an object in the classroom that has a loose end? Explain and draw a picture.

c) Write a short procedure on how you could investigate the four properties that you listed in #1. *Remember a procedure is a series of steps that could be repeated by someone else*

d) Use the table below to record your findings.

Property	What I did with the simulation	My observations

5) Briefly investigate the no end setting. Describe what happens to the wave when no end is present.

Name:_____

Waves on a String Exit Quiz

1. A student is sitting on the edge of a swimming pool. The student repeatedly dips his foot in and out of the pool, making waves that move across the water. The student dips his foot slowly at first and then does it faster, each time to the same depth. Which of the following properties of the waves **increases** as the student dips his foot faster?

A. frequency

B. period

C. velocity

D. wavelength

2. Define the following your own words and draw a picture to represent the word.

Word	Definition	Picture
Amplitude		
Frequency		
Tension		
Damping		

3. How do waves behave when they have a fixed end? Explain and draw a picture.

4. How do waves behave when they have a loose end? Explain and draw a picture.

5. Based on your experiences with damping in the simulation, how do you think you could damp a sound wave?