Name: _____ Group: _____ Date: _____

LAB 30
EXPERIMENT

MODIFYING WAVE AMPLITUDE

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Goal

Determine the relationship between the force applied to displace a spring and the amplitude of the wave created.

1. What is the independent variable in this lab?

_____

2. What is the dependent variable in this lab?

_____

Hypothesis

I think that _____

Because _____

Materials

- 10-m spring *or* rope
- masking tape *or* chalk
- 1-m ruler *or* tape measure

Procedure

1. Assign tasks to each team member.
  - Experimenter A: Hold one end of spring.
  - Experimenter B: Hold other end of spring.
  - Experimenter C: Observe and record results.

2. Lay out the spring on the ground.

3. Stretch the spring to a length of 5 m.

4. Mark the position of the spring on the ground using masking tape or chalk.

5. Create a wave by displacing the spring sharply to the right.

6. Mark the greatest transverse displacement of the wave.

7. Measure and record the amplitude of the wave.

8. Repeat steps 5 to 7 at least twice by modifying the force of displacement used to create a wave.

9. Put away materials.

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Results

Record your results in the table below. Give the table a title.

Title:

Force of displacement (qualitative evaluation)	Amplitude of wave (cm)

Analysis of the results

1. What conditions result in a wave of the greatest amplitude?

_____

_____

2. According to your measurements and observations, what is the relationship between the amplitude of a wave and the energy it transports?

_____

_____

3. What type of waves are created in this lab? Explain your answer.

_____

_____

4. What are the possible sources of error in this lab?

_____

_____

5. How could you improve the protocol for this lab?

_____

_____

Name: _____ Group: _____ Date: _____

Conclusion

1. Complete the following sentence:

To increase the amplitude of a wave, _____ of energy must be transmitted to it.

2. Was your hypothesis confirmed or not? Explain your answer.

_____

_____

Application

Manifestations of energy transported by waves can be observed. Identify a technological application that makes use of this energy or a natural phenomenon that demonstrates the effects.

_____

_____