

# Making Waves

## Summary

Students will make waves with a rope and compare the wavelengths of low energy waves with higher energy waves.

## Time Frame

1 class periods of 60 minutes each

## Group Size

Pairs

## Materials

- 1 two meter length of heavy string or lightweight rope
- 1-2 meters of butcher paper
- meterstick
- 3 colors of markers
- [student sheets](#)  
(attached)

## Background for Teachers

The Utah State core asks students to investigate the transfer of energy through various materials and relate the energy of a wave to wavelength. Oddly, wavelength is not one of the student's vocabulary words but amplitude is. So it is confusing. You might prepare students for the activity by drawing and labeling a wave so that they are familiar with the terms: wavelength, amplitude, crest and trough.

## Instructional Procedures

Prepare lengths of string and butcher paper. The string or rope should be flexible and fairly heavy. Decide where students will do the work. If their tables are long and wide enough they may be able to use them. Otherwise, they may need to work on a linoleum floor in your room or the hall.

Read the student sheet introduction with students. Show them where the materials are located and describe where you wish them to work.

Allow time for students to work. Check off completed diagrams when students are finished.

Display a good example from the class. In a class discussion make sure that students all understand how adding energy to the wave decreases its wavelength. Shorter wavelengths are more energetic.

Allow students time to complete the analysis questions and write their conclusion.

## Assessment Plan

### Scoring Guide

:

Students complete wave diagram and have teacher check off...4

Student complete data and label drawing.....4

Students correctly answer analysis questions.....4

Answers:

The more energy the shorter the wavelength.

The wavelength will get longer.

the rope  
4 and 5-Answers will vary.  
Conclusion is thoughtfully written.....4

#### Bibliography

Lesson Design by Jordan School District Teachers and Staff.

#### Authors

[Utah LessonPlans](#)