

Pre-Visit/Post-Visit Guide

Lesson Name: The New Wave!

Summary of Lesson:

Students will dive into waves that surround us everywhere while exploring wave behaviors and interactions with matter. Exciting demonstrations using light, sound, and electricity will help students understand the reality of the waves that impact every aspect of the world they know. Catch the wave and change students' perspective on energy.

South Carolina Science Standards: 8.P.3A.1; 8.P.3A.3.

Pre-Visit Resources

- **Teacher/Chaperone Expectations:** Please help us by letting us know of any special accommodations for your children prior to the lesson. This 60 minute stage show has periodic loud noises, some fire demonstrations, and darkness. Your assistance with auditorium management is greatly appreciated.
- **Instructions for Teachers:** Students will enter from the back of the Symmes Hall of Science forming a single file line into the auditorium. The instructor will direct students beginning with the second row of the auditorium filling every seat. No food or drinks are allowed in the auditorium. Please have students spit our gum before entering. During demonstrations where the house lights have been lowered all visitors must remain seated until the lights have been brought back up. The tesla coil does create a high energy field, therefore guests that use bio-medical equipment have the option to step out prior to this demonstration.
- **Key Vocabulary:** wave, mechanical wave, electromagnetic wave, compressional, transverse, energy
- **Key Questions Addressed in Lesson:** What is a wave? How do waves travel? What are the types of waves? How do waves behave?
- **Content Preview Video:** This is a video explaining seen and unseen waves.
<https://www.youtube.com/watch?v=O0PawPSdk28&t=27s>

Post-Visit Resources

- **Writing Prompt:** As the world is increasing in population density, the sound from traffic a significant issue. The U.S. Department of Transportation recognizes that noise from highways is a large issue, particularly for those who live close to the highway. Engineers have come up with several solutions to the problem. One solution is noise barriers which can be dirt mounds between a highway and homes or high vertical walls. A second solution is planting vegetation such as trees. A third solution is having a large buffer zone or open space between the highway and homes. Explain how vegetation, noise barriers and buffer zones reduce the noise from a highway that is heard at a nearby home.
- **Possible Lesson Link:** This site offers sample lesson for use in the classroom.

https://www.teachengineering.org/lessons/view/clem_waves_lesson02

- **Video Link:** This is a quick video explaining and showing examples of waves.
<https://www.youtube.com/watch?v=sB8w2FvPsBA&t=9s>