The Waves and Tsunamis Project


Plymouth Community Intermediate School; *Plymouth South Middle School; **University of Massachusetts, Boston; ***Plymouth Public Schools; and *****Woods Hole Oceanographic Institution

Introduction & Overview

This project is a part of an in-service professional development project supported by the National Science Education Standards, which were developed by the National Research Council in 1996. The Standards are a call to action for all educators, including those in middle school, to provide science curricula for middle school students based on current ocean science research.

Project History

This project evolved as a collaboration between a marine seismologist at Woods Hole Oceanographic Institution and a marine science teacher in southeastern Massachusetts, Mary Lavin, Derek Strohschneider, and Richard Maichle. The goal was to develop a classroom unit about wave science curricula for middle school students based on current ocean science research.

Five Messages

1) Tsunamis are waves generated by earthquakes. Tsunamis can be generated by earthquakes anywhere on the earth, even in the middle of the ocean. Tsunamis are waves generated by earthquakes. Tsunamis can be generated by earthquakes anywhere on the earth, even in the middle of the ocean. Tsunamis are waves generated by earthquakes. Tsunamis can be generated by earthquakes anywhere on the earth, even in the middle of the ocean. Tsunamis are waves generated by earthquakes. Tsunamis can be generated by earthquakes anywhere on the earth, even in the middle of the ocean.

2) Tsunamis (7.5 Minutes) - Talking with some powerpoint slides and answering questions. We will talk about what a tsunami is, how they form, and what they do to the world. We will also talk about how to be prepared to deal with a tsunami.

3) Tsunamis (10 Minutes) - Talking with some powerpoint slides and answering questions. We will talk about what a tsunami is, how they form, and what they do to the world. We will also talk about how to be prepared to deal with a tsunami.

4) Tsunamis (5 Minutes) - Talking with some powerpoint slides and answering questions. We will talk about what a tsunami is, how they form, and what they do to the world. We will also talk about how to be prepared to deal with a tsunami.

5) Tsunamis (2.5 Minutes) - Talking with some powerpoint slides and answering questions. We will talk about what a tsunami is, how they form, and what they do to the world. We will also talk about how to be prepared to deal with a tsunami.

Student Evaluations

This is a list of questions for the five stations in the "wave class". The stations and questions are given below:

Station Questions for the NE COSEE OSEI Wave Class

The following questions were used by each in an earlier class to distribute:

1) Introduction (10 Minutes) - Talking with some powerpoint slides and answering questions. We will talk about what a tsunami is, how they form, and what they do to the world. We will also talk about how to be prepared to deal with a tsunami.

2) Wavelength, amplitude, period and frequency

3) Density

4) Velocity

5) Summary

In the classroom unit, students rotated through the following stations:

- Station 1: The Wave Laboratory
- Station 2: The Elastic Band Experiment
- Station 3: The Pendulum Experiment
- Station 4: The Pendulum Experiment
- Station 5: The Pendulum Experiment

Each station had a leader and a group of students. The leader was responsible for explaining the experiments and answering questions. The students were responsible for conducting the experiments and recording their observations.

The stations were designed to help students understand the relationships between the different properties of waves. Students were encouraged to ask questions and to make connections between the different experiments.

The following questions were asked:

1) What is the wavelength of the wave? How do you know? (This question is for station 1 only.)

2) What is the amplitude of the wave? How do you know? (This question is for station 2 only.)

3) What is the period of the wave? How do you know? (This question is for station 3 only.)

4) What is the frequency of the wave? How do you know? (This question is for station 4 only.)

5) What is the velocity of the wave? How do you know? (This question is for station 5 only.)

The students were encouraged to use their observations to answer these questions and to explain how they arrived at their answers.

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