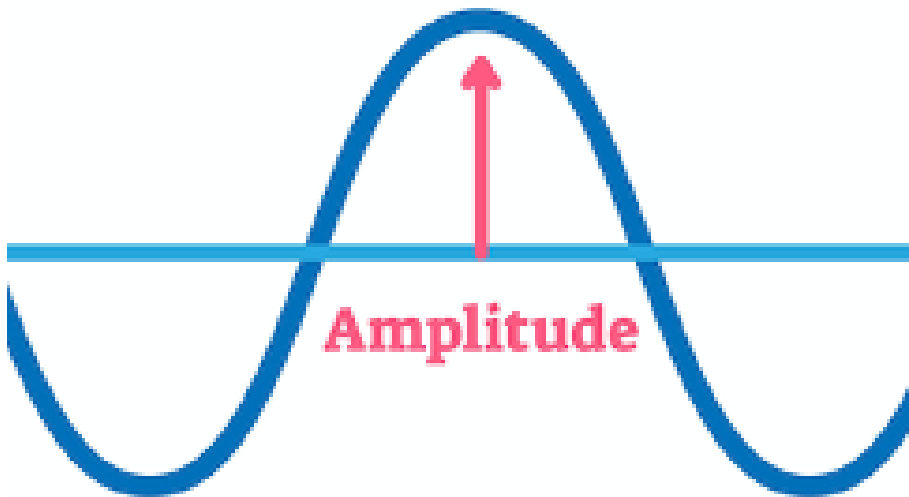


NGSS MS-PS4-1

Curriculum Bundle

Waves Introduction: Energy, Amplitude, and Modeling

- ✓ 1 Lesson, 4 Activities
- ✓ Everything You Need to Teach NGSS MS-PS4-1



Resources Included

✓ 1 Lesson

✓ 4 Activities

- Waves An Introduction – Lesson
- Experimenting with Waves – Activity
- Crash Course Traveling Waves - Video Worksheet
- Crash Course Sound - Video Worksheet
- Earthquake - Reading

Waves Introduction

- What Waves Are
- Types of Waves
- Transverse vs. Longitudinal Waves
- Frequency, Hertz, Period
- Amplitude
- Crests, Troughs, and Wavelength
- Universal Wave Equation

$f = \frac{1}{T}$ $T = \frac{1}{f}$ $v = f\lambda$

TWF

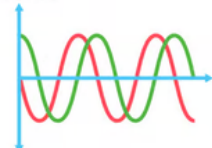
This digital presentation includes both Google and Office resources and is Google Classroom Ready

Crash Course Physics #17 Traveling Waves

- ✓ Classroom Ready - Just Print and Go!
- ✓ Active Engagement - Keep Students' Attention
- ✓ Direct Video Link Included

[WATCH VIDEO](#)





Includes Student Copy and Answer Keys

Reading Comprehension Passage & Questions

Earthquakes

6th, 7th, and 8th Grade Science

- ✓ No Prep, Ready-to-Use Resource in Google and Office Format
- ✓ Includes Comprehension and Extension Questions

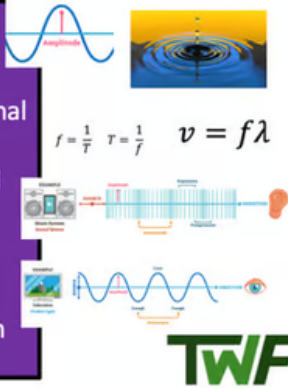
  

Everything You Need to Teach

NGSS MS-PS4-1

Waves Introduction

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Crash Course Physics #18 Sound

- ✓ Classroom Ready - Just Print and Go!
- ✓ Active Engagement - Keep Students' Attention
- ✓ Direct Video Link Included

WATCH VIDEO

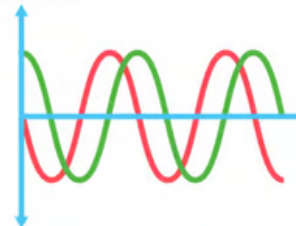


Includes Student Copy and Answer Keys

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Experimenting with Waves

You will be submitting this package so make sure you are being neat.

Purpose: You will be using springs to conduct 2 different experiments. Follow the procedures provided, making sure to record all collected data.

Materials:
- long spring - stopwatch - meter stick

Part A - Relationship Between Speed and Amplitude

Procedure:

1. Stretch the spring out on the floor so that it is straight, with one person holding on to each end. It is important that each person stay in the same position throughout the experiment to keep the length of the spring constant.
2. Give the spring one pulse along the floor, the size of one tile (move spring continuously from one end of a tile to the other and back). Record a) the amplitude of the pulse; b) the time it takes the pulse to reach the other end of the spring, and c) the length that the pulse traveled.
3. Repeat step 2 again, first using a pulse that is 2 tiles, and then using a pulse that is 3 tiles.

Pulse	Amplitude (m)	Time (s)	Distance Pulse traveled (m)
1 tile			
2 tiles			
3 tiles			

Analysis: Calculate the speed for each pulse, and compare your three values.

1 Tile: 2 Tiles: 3 Tiles:

Comparison:

Slow	Medium	Fast

Analysis: Calculate the a) frequency; b) wavelength; and c) speed for each trial (using wave equation), and compare to each other and the speed of the wave from part A).

Slow Oscillation	Medium Oscillation	Fast Oscillation
f =	f =	f =
λ =	λ =	λ =
v =	v =	v =

Comparison:

The Standard is Explained and the Resources it Incorporates are Outlined

California Preferred Integrated NGSS Course Model – Grade 8 MS PS4 Waves and their Applications in Technologies for Information Transfer

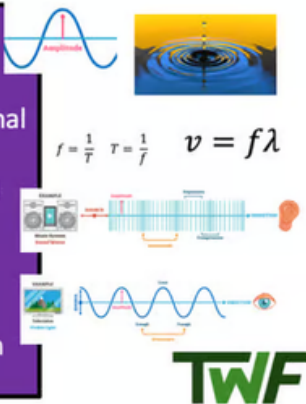
MS PS4-1: Use mathematical representations to describe a simple model for waves that includes how the amplitude of a wave is related to the energy in a wave.

Emphasis is on describing waves with both qualitative and quantitative thinking.
Assessment Boundary: Assessment does not include electromagnetic waves and is limited to standard repeating waves.

- Waves An Introduction – Lesson
- Experimenting with Waves – Activity
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Reading Comprehension Passage & Questions

Earthquakes

6th, 7th, and 8th Grade Science

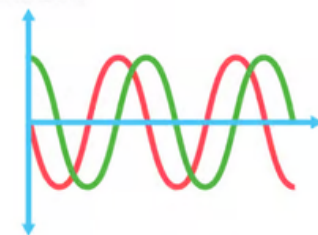
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Includes Student Copy and Answer Keys



Who is this Bundle for?

- **Teachers who teach middle school science and use the NGSS**
- **Teachers who want multiple resources at their fingertips including lessons and a variety of activities, in order to meet the standard**
- **Teachers who don't have time to develop their own resources or organize what to teach and when**