

8TH GRADE PHYSICAL SCIENCE

ECHOLS MIDDLE SCHOOL

APRIL 2020

ISSUE 3

WEEK 2 ANSWERS

STEMscopedia:

Crest, Amplitude, Trough, Wavelength

Reading Science:

1. C, 2. D, 3. A, 4. B, 5. B,

Math Connections:

1. $F = 1/T$

2. $T = 0.0067 \text{ s}$

3. $F = 0.22 \text{ Hz}$

4. Period is 6s, frequency is 0.17 Hz

5. a. 1.5 vibrations per second, b. frequency is 1.5 Hz, c. period is 0.67s

6. Wave B because it has the largest amplitude.

7. Graph A because it is linear.

8. Graph B because it isn't a straight line.

9. Graph A because it passes through the origin.

Guided Practice:

Paragraph

Waves, Vibration, two, longitudinal, same, light, seismic, transverse, opposite, sound

Questions

1. Longitudinal and transverse.
2. Waves are created through a vibration and travel in the opposite direction of the medium.
3. They transmit energy, they are caused by a force, and they cause a vibration.



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Answer Key for Week 2

Vocabulary with definitions

Wave Diagrams

Example calculations for Math
Connections for Week 3

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VOCABULARY & DIAGRAMS

TRANSVERSE WAVES

FROM WEEK 2:

- Amplitude
- Wavelength
- Frequency
- Wave Speed
- Period
- Crest
- Trough

NEW FOR WEEK 3:

- Medium- any substance that carries a wave or through which the wave travels
- Transmitted- movement of a wave through a material
- Absorb- occurs when a wave comes in contact with a medium, making the molecules of the medium vibrate and move

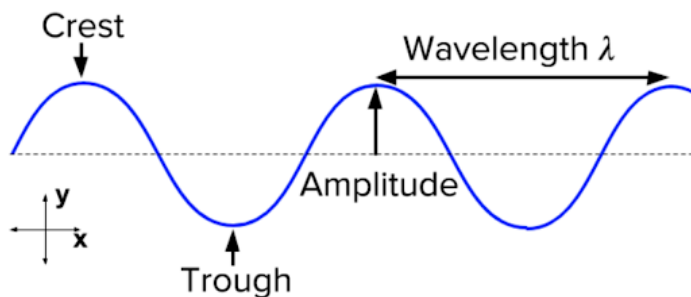
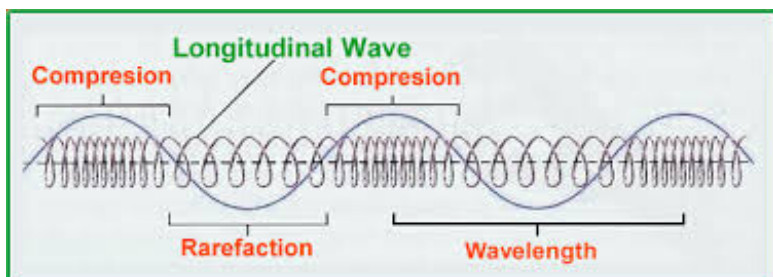


Figure 1: Parts of a transverse wave.

COMPRESSION/LONGITUDINAL WAVES

FROM WEEK 2:

- Compression
- Rarefaction
- Wavelength

NEW FOR WEEK 3:

- Medium- any substance that carries a wave or through which the wave travels
- Transmitted- movement of a wave through a material
- Absorb- occurs when a wave comes in contact with a medium, making the molecules of the medium vibrate and move

CALCULATIONS HELP

C. Calculations for finding period (T) + frequency (F)

T- period: how long it takes the wave to complete 1 cycle unit (s)

F- frequency: # of waves that pass in 1 second unit (Hz)

Equations: $T = \frac{1}{F}$ $F = \frac{1}{T}$

calculating wave speed

V = wave speed (units: m/s)
 f = wave frequency (units: Hz)
 λ = wavelength (units: m)

$V = f \times \lambda$ speed = frequency x wavelength

EQUATIONS

$f = \frac{V}{\lambda}$ frequency = $\frac{\text{speed}}{\text{wavelength}}$

$\lambda = \frac{V}{f}$ wavelength = $\frac{\text{speed}}{\text{frequency}}$

$V = 4 \text{ m/s}$ $\lambda = \frac{V}{f}$ $\lambda = \frac{4}{2}$ $\lambda = 2 \text{ m}$
 $f = 2 \text{ Hz}$
 $\lambda = ?$

$V = 7 \text{ m/s}$ $f = \frac{V}{\lambda}$ $f = \frac{7}{14}$ $f = .5 \text{ Hz}$
 $f = ?$
 $\lambda = 14 \text{ m}$

$V = 20 \text{ m/s}$ $\lambda = \frac{V}{f}$ $\lambda = \frac{20}{4}$ $\lambda = 5 \text{ m}$
 $f = 4 \text{ Hz}$
 $\lambda = ?$

$V = ?$ $V = 16 \times 4$ $V = 64 \text{ m/s}$
 $f = 16 \text{ Hz}$ $V = (f \times \lambda)$
 $\lambda = 4 \text{ m}$