8th Grade Assignment Sheet ----- POD B

Date 5-14-13

Science: Shari Hudgeons **Book:** Yes / No

Waves Video
17.2 Guided Reading & Wave Calculations

Math: Katie Johnson **Book:** Yes / No

Test, ch. 7
NO HW

Communications: Sandi Armbruster **Book:** Yes / No

Charles
- Vocab maps
- paragraph
- Read Charles
- Review Questions

Social Studies: Larry Criddle **Book:** Yes / No

- Essays due Wed.

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Chapter 17 Mechanical Waves and Sound

Hudgens

Section 17.2 Properties of Mechanical Waves

(pages 504–507)

This section introduces measurable properties used to describe mechanical waves, including frequency, period, wavelength, speed, and amplitude.

Reading Strategy (page 504)

Build Vocabulary As you read, write a definition in your own words for each term in the table below. For more information on this Reading Strategy, see the **Reading and Study Skills** in the **Skills and Reference Handbook** at the end of your textbook.

Properties of Waves	
Vocabulary Term	**Definition**
Period	
Frequency	
Wavelength	
Amplitude	

Frequency and Period (page 504)

1. Is the following sentence true or false? A periodic motion repeats at regular time intervals. _____
2. The time required for one cycle, a complete motion that returns to its starting point, is called the _____.
3. The number of complete cycles in a given period of time is the _____ of a periodic motion.
4. Circle the letter of each sentence that is true about frequency.
   a. Frequency is measured in cycles per second, or hertz.
   b. A wave's frequency equals the frequency of the vibrating source producing it.
   c. Five cycles per minute is a frequency of five hertz.
   d. Any periodic motion has a frequency.

Wavelength (page 505)

5. The distance between a point on one wave and the same point on the next cycle of the wave is called _____.
6. How is wavelength determined for a longitudinal wave?

_____

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Hudgens

Wave Speed (pages 505–506)

7. Write a formula you can use to determine the speed of a wave.

_____

8. Is the following sentence true or false? The speed of a wave equals its wavelength divided by its period. _____

9. What variables can cause the speed of a wave to change? _____

_____

10. Circle the letter of the sentence that tells how wavelength is related to frequency for a wave traveling at a constant speed.
    a. Wavelength is equal to frequency.
    b. Wavelength is directly proportional to frequency.
    c. Wavelength is inversely proportional to frequency.
    d. A wave with a higher frequency will have a longer wavelength.

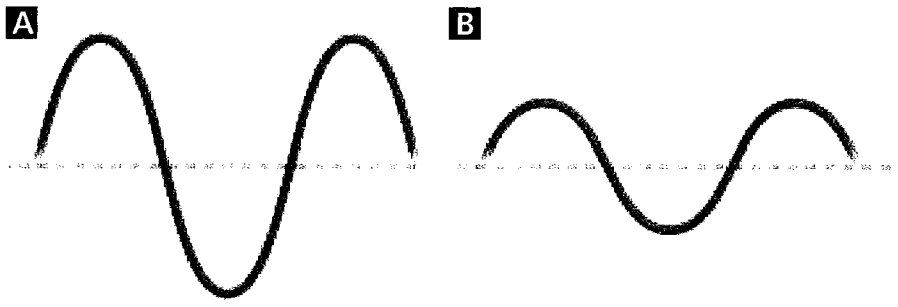
Amplitude (page 507)

11. What is the amplitude of a wave? _____

_____

12. It takes more energy to produce a wave with higher crests and deeper troughs, so the more energy a wave has, the _____ its amplitude.

Questions 13 through 17 refer to the figure below.



13. The type of waves shown are _____.
14. Label the rest position for waves A and B.
15. Add arrows to the figure to indicate the amplitude of each wave. Which wave has the greater amplitude? _____
16. Which wave shown has more energy? _____
17. Add an arrow to indicate one wavelength on wave B.

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Section 17.2 Properties of Mechanical Waves

Solved Examples

Example 1: A wave in a spring has a wavelength of 0.1 meters and a period of 0.2 seconds. What is the speed of the wave?

Given: Wavelength = 0.1 m
Period = 0.2 s

Unknown: Speed

Equation: $\text{Speed} = \frac{\text{Wavelength}}{\text{Period}}$

Solution: $\text{Speed} = \frac{0.1\ \text{m}}{0.2\ \text{s}} = 0.5\ \text{m/s}$

Example 2: What is the speed of an ocean wave that has a wavelength of 4.0 meters and a frequency of 0.5 hertz?

Given: Wavelength = 4.0 m
Frequency = 0.5 Hz

Unknown: Speed

Equation: Speed = Wavelength × Frequency

Solution: Speed = 4.0 m × 0.5 Hz = 2.0 m/s

Example 3: Find the wavelength of a wave in a rope that has a frequency of 2.0 hertz and a speed of 0.4 meters per second.

Given: Frequency = 2.0 Hz
Speed = 0.4 m/s

Unknown: Wavelength

Equation: Speed = Wavelength × Frequency

Solution: Solve the equation for wavelength:

$$\text{Wavelength} = \frac{\text{Speed}}{\text{Frequency}}$$

Substitute the given values:

$$\text{Wavelength} = \frac{0.4\ \text{m/s}}{2.0\ \text{Hz}}$$

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Practice Exercises

Exercise 1: What is the speed of an ocean wave that has a wavelength of 0.30 meters and a frequency of 1.80 hertz?

Exercise 2: Calculate the frequency of a wave in a spring toy. The wave has a speed of 1.1 meters per second and a wavelength of 0.1 meters.

Exercise 3: A wave ripples through a large flag when the wind blows steadily. What is the wavelength of the wave if its frequency is 12.0 hertz and its speed is 1.2 meters per second?

Exercise 4: If a wave in a long rope has a period of 1.0 second and a wavelength of 0.2 meters, what is its speed?

Exercise 5: What is the period of a wave generated by an earthquake, if it has a wavelength of 500 meters and a speed of 5,000 meters per second?

Name _____ Date _____

"Charles" by Shirley Jackson

Build Vocabulary

Using the Root *-cred-*

A. Directions: The word root *-cred-* means "believe." The prefix *in-* makes what follows negative, so the Word Bank word *incredulously* means "with disbelief." Apply what you know about the word root *-cred-* and use context clues to define the underlined words.

1. Laurie gave a credible account of his first day of kindergarten.

   _____

2. The details in Laurie's stories gave credence to what he said about Charles.

   _____

3. Laurie's descriptions of Charles's behavior were almost incredible.

   _____

Using the Word Bank

renounced	insolently	elaborately	simultaneously	incredulously

B. Directions: Match each word in the left column with its definition in the right column. Write the letter of the definition on the line next to the word it defines.

____	1. simultaneously	a. gave up
____	2. elaborately	b. with doubt or disbelief
____	3. renounced	c. boldly disrespectful in speech or behavior
____	4. incredulously	d. at the same time
____	5. insolently	e. painstakingly

Analogies

C. Directions: Each question below consists of a pair of related words in CAPITAL LETTERS followed by four lettered pairs of words. Circle the letter of the pair that best expresses a relationship similar to that expressed in the pair in capital letters.

1. INSOLENTLY : DISRESPECTFULLY ::
   a. shyly : timidly
   b. calmly : energetically
   c. regularly : automatically
   d. courteously : rudely

2. ELABORATELY : PAINSTAKINGLY ::
   a. carefully : quickly
   b. lightly : heavily
   c. carefully : cautiously
   d. quickly : slowly

3. RENOUNCED : THRONE ::
   a. drove : highway
   b. threw : ball
   c. ran : pavement
   d. grew : tall

4. DOUBTFULLY : INCREDULOUSLY ::
   a. enormously : lovingly
   b. seriously : foolishly
   c. routinely : frighteningly
   d. intelligently : wisely

Name _____ Date _____

"**Charles**" by Shirley Jackson

Literary Analysis: Point of View

The **point of view** of a story is the vantage point or perspective from which a story is told. What we learn about the characters and events of a story depends upon the point of view that a writer uses. For example, Shirley Jackson writes "Charles" from the point of view of Laurie's mother. Because Laurie's mother tells the story, we learn the details of her thoughts, feelings, and actions, but we don't learn all of the thoughts and feelings of her husband, the kindergarten teacher, or her son Laurie. If the story were written from another character's point of view, the story might be quite different. In fact, if the story were told from Laurie's teacher's point of view, the most important element of the story, its surprise ending, would be eliminated. We would learn the true identity of the kindergarten troublemaker early in the story.

Directions: Following are characters from "Charles." On the lines provided, describe the role of each character in the story. Then explain how the reader's understanding of Laurie, his mother, his father, and his teacher would be different if the story were written from that character's point of view. Remember to explain what the reader would *not* learn as well as what the reader *would* learn.

1. Laurie

2. Kindergarten Teacher

3. Laurie's Father