Reading Informational Text

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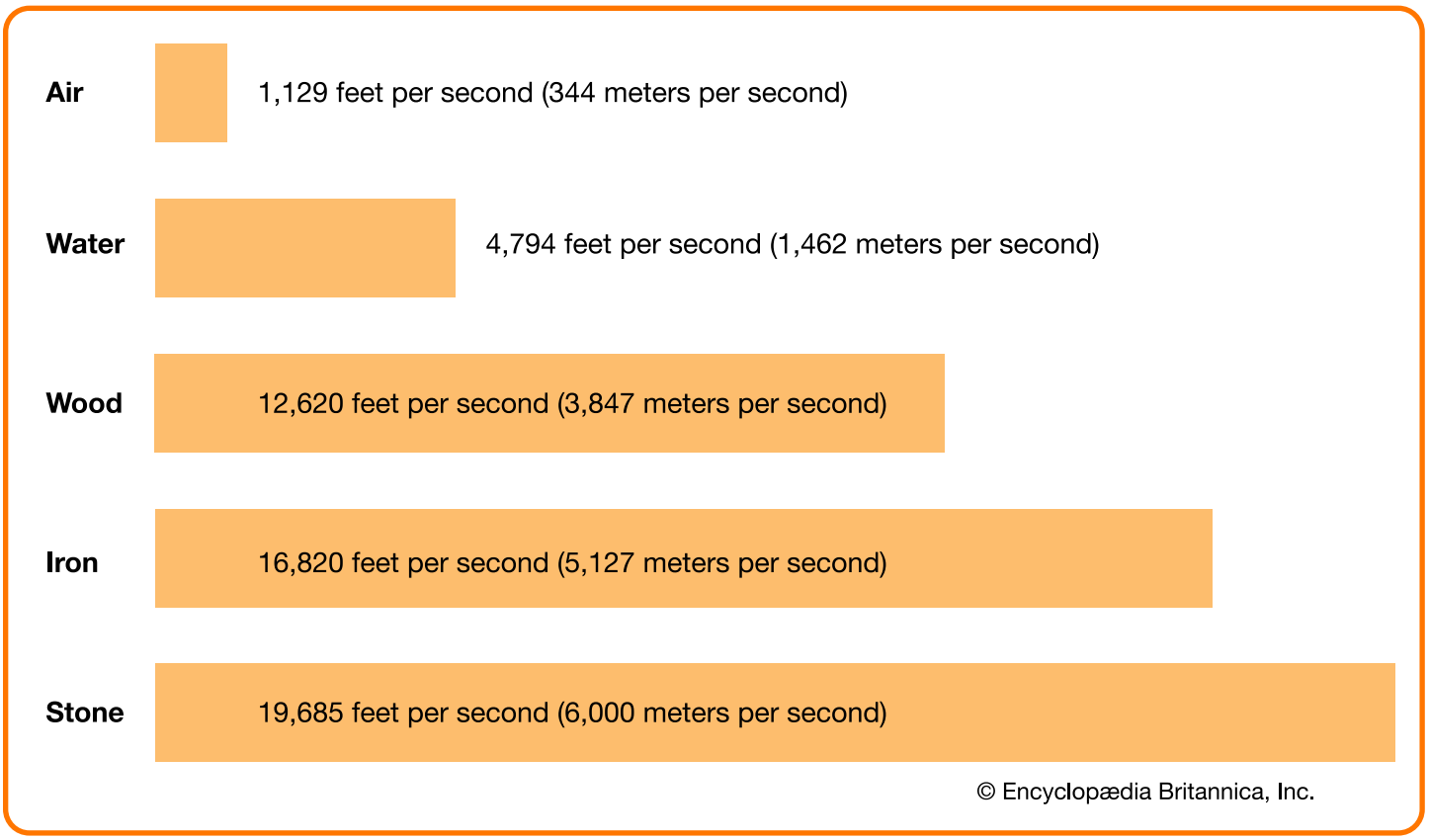
Name: **Date:**

Speed of Sound Waves in Different Materials

Instructions: Read the article and examine the graph to answer the questions below.

Every kind of sound is produced by vibration. The sound source could be a violin, a car horn, or a barking dog. Vibrations from the source disturb the air in such a way that sound waves are produced. These waves travel in all directions, expanding outward from the source.

The material that a sound wave travels through affects the speed at which the sound travels. The ability of a material to allow sound waves to pass through it is a property of matter called conductivity. Many substances are better conductors of sound than air. Like all gases, air is a poor conductor of sound waves. Liquids, such as water, are better; and rigid, solid substances, such as iron and stone, are best of all. In a good conductor, sound not only travels faster, it also travels farther before it dies away.



Speed of Sound in Different Materials

A few solids are much poorer conductors of sound than air. Rubber, cork, cotton, and felt, for example, tend to absorb sound waves rather than transmit them. For that reason, these substances are often used for soundproofing to deaden unwanted noises. Understanding how sound travels in different materials allows scientists and engineers to select materials for specific uses based on their properties.

1. What is the meaning of the word *disturb* as it is used in this sentence from the article? Vibrations from the source *disturb* the air in such a way that sound waves are produced.
   - **a.** distract
   - **b.** interfere with
   - **c.** cause worry or discomfort to
   - **d.** alter the position or arrangement of

2. What was the author's purpose for including the graph?
   - **a.** To introduce a new topic
   - **b.** To help the reader understand data
   - **c.** To expand on information found in the text
   - **d.** To share a different viewpoint about the topic

3. What is the central idea of the article?
   - **a.** Sound is produced by vibrating objects.
   - **b.** Most solids are good conductors of sound.
   - **c.** Many substances are good conductors of sound.
   - **d.** The sound conductivity of different materials varies.

4. Based on the information in the article and the structure of the graph, how should the graph be changed to show the speed of sound in cotton?
   - **a.** Add a short bar above the bar for air
   - **b.** Add a long bar under the bar for stone
   - **c.** Add a bar right above the bar for wood
   - **d.** Add a bar between the bars for air and water

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Speed of Sound Waves in Different Materials Answer Key

1. **d.** *alter the position or arrangement of*

2. **c.** *To expand on information found in the text*

3. **d.** *The sound conductivity of different materials varies.*

4. **a.** *Add a short bar above the bar for air*