



Waves Lesson 1: *The Solve*

Student Handout

I. Watch/Read the Mosa Mack Mystery

Either on your own, in a small group, or as a class (your teacher will let you know), watch/read Mosa Mack's episode on Waves. Then, fill out the questions below. Include a time code/page number in your answer as evidence of where you found your answer.

Name: _____

Date: _____

Episode Questions

1. What is Thad's special talent at the carnival?
2. What is Assistant Sam's job? How does she help Thad?
3. How does the light from a lightning bolt travel through the air? Draw a labeled picture below of how light from lightning travels through air to our eyes.
4. How does the amplitude of a wave relate to the brightness of the light?
5. Make a list of the different types of waves that Mosa's team explores.
6. Why did Sam say lightning and thunder are related?
7. Why did it take Mosa so long to hear the airplane after she saw it?
8. What did Mosa figure out? How is Thad the Thunder cheating his audience?



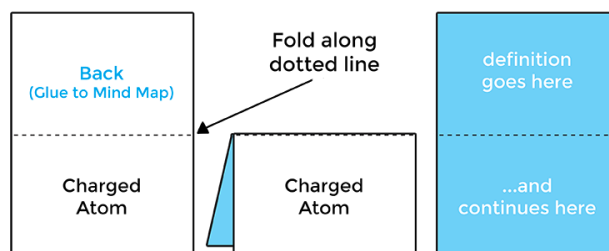
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II. Vocabulary Activity

Note: Your teacher will tell you whether you will complete this activity [online here](#), or offline by following the instructions below.

1. Using the materials at your table, cut out your vocabulary cards along the **solid lines**. Note: Do not cut at the dotted lines.



2. Fold the cards at the dotted lines.
3. Write the definition of the term on the inside of the card using the definitions below.
4. Use the clues from the Mind Map images, definitions, and vocabulary terms to place the cards in the correct location in the Mind Map, explaining your thinking to group members as you go.
5. When you're ready to glue or tape, raise your hand so you can check your Mind Map with your teacher.
6. Use glue or double-sided tape to connect the back of the vocabulary card to the correct place on the Mind Map.
7. Use your completed Mind Map to discuss these questions with your group:
 - a. Have you ever experienced lightning or thunder? What was your experience like? What do you already know about lightning and thunder?
 - b. What is the difference between amplitude and wavelength?
 - c. What are some similarities and differences between light waves and sound waves?

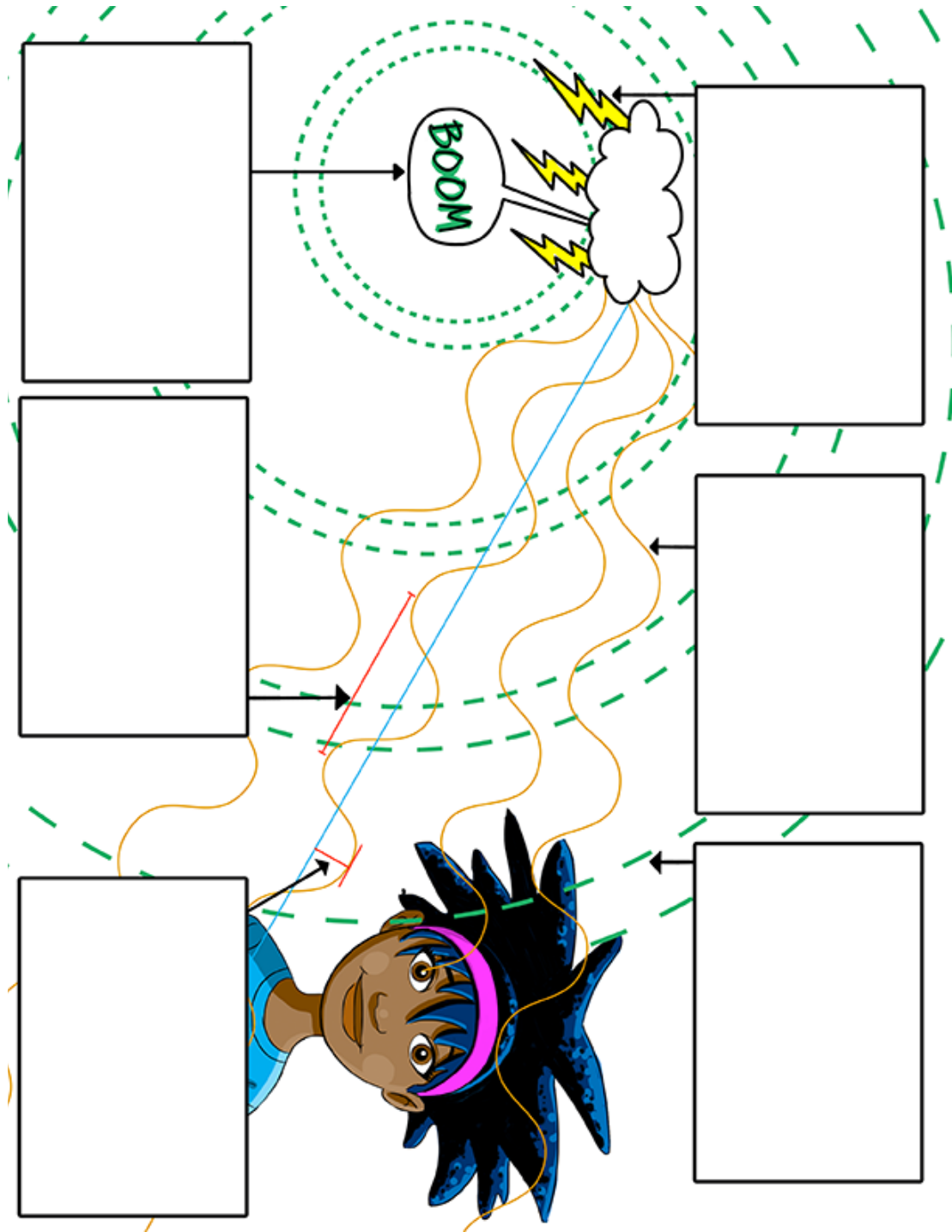




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Mind Map





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Lightning	Light Wave	Sound Wave
Amplitude	Wavelength	Thunder

Vocabulary

- **Amplitude:** a measure of the highest height of the wave from its rest position.
- **Light Wave:** a type of wave that travels from one place to another. When these waves reflect off objects into our eyes, it enables us to see.
- **Lightning:** the occurrence of a natural electrical charge in the sky, resulting in a bright flash of light.
- **Sound Wave:** a type of wave that travels from one place to another. When these waves reach our ears, we hear sound.
- **Thunder:** a loud rumbling or crashing noise resulting from the expansion of rapidly heated air due to electric discharge.
- **Wavelength:** the distance between two waves.



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III. Exit Ticket: Check for Understanding

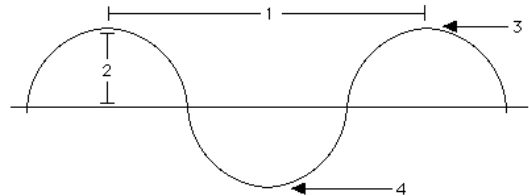
Complete the exit ticket below or you can take the quiz online!

Name: _____

Date: _____

1. In the picture, which number points to the wave's amplitude?

- a. 1
- b. 2
- c. 3
- d. 4



2. Which number points to the wave's wavelength?

- a. 1
- b. 2
- c. 3
- d. 4

3. If a sound is louder or a light is brighter, what does this mean about the amplitude of the wave?

- a. The amplitude is smaller
- b. The amplitude is greater
- c. The amplitude is always the same
- d. The amplitude is louder

4. If a sound is softer or a light is dimmer, what does this mean about the amplitude of the wave?

- a. The amplitude is smaller
- b. The amplitude is greater
- c. The amplitude is always the same
- d. The amplitude is louder

5. Which of the following is a type of wave?

- a. Microwave
- b. Sound wave
- c. Light wave
- d. All of the above are types of waves

6. True or false: Sound waves travel faster than light waves.

- a. True
- b. False

7. Lightning and thunder happen at the same time. Which would you sense first?

- a. Lightning
- b. Thunder