

## Wave stations in place

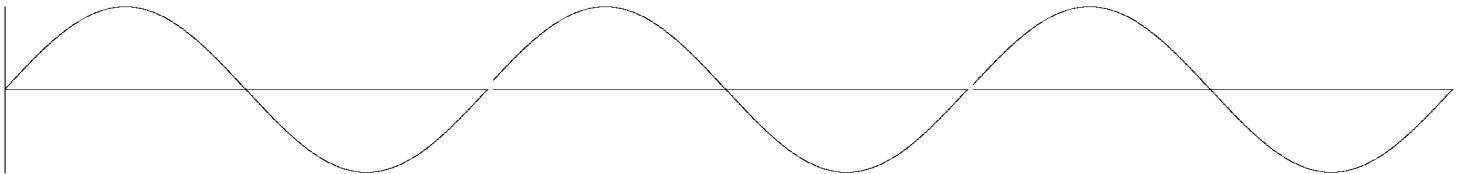
name \_\_\_\_\_ hr /24

### MEDIUM

1. We like to say that medium means “in the middle.” When we talk about waves, the substance that a wave travels through is called the medium. When a hand snaps energy through a slinky to someone else’s hand, what is in the middle? What is the medium?
2. When a horn makes a sound that goes to your ear, what is the medium?
3. When the motion of a stone makes a disturbance in a pond and that motion makes its way to the beach, what is the medium?
4. When a person puts a tuning fork on one end of the table and their ear on the other, what is the medium?
5. Define a medium

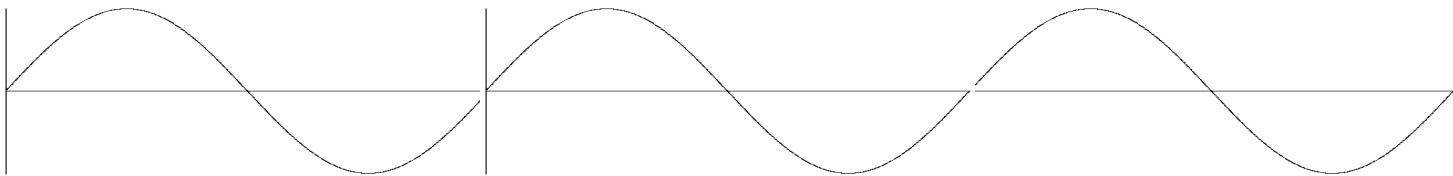
### NODES

6. A node is a location on a standing wave that has no amplitude. (It doesn’t go up and down.) Wiggle your slinky with your partner until you get at least one node. Have your partner point to it and call me over to sign here \_\_\_\_\_.
7. Put dots on the wave below to show where the nodes are. There are 7.



### ANTINODES

8. An antinode is a location on a standing wave that is at maximum amplitude (both up and down) Wiggle your slinky with your partner until you get at least two antinodes. Have your partner point to them and call me over to sign here \_\_\_\_\_.
9. Put dots on the wave below to show where the antinodes are. There are 6.



10. Which particles in a medium are more energized nodes or antinodes?

11. When you held the chime bar in the instrument lab (and found a “sweet spot” letting it ring out), do you think your fingers were pinching a node or an antinode? Hint: Where would your fingers be interfering the least with the moving medium?

### ELECTROMAGNETIC SPECTRUM CARDS

12. Using the electromagnetic spectrum cards, sort the wave sources from lowest energy to the highest energy. When you have it correct, call me over for an initial here \_\_\_\_\_

### REFLECTION OF WAVES

<https://phet.colorado.edu/en/simulation/bending-light>

Manipulate the animation on the whiteboard by changing the angle. Observe what happens.

**Incidence=incoming beam  
Reflection=outgoing beam  
Law of reflection is that the angles  
of these 2 equal**

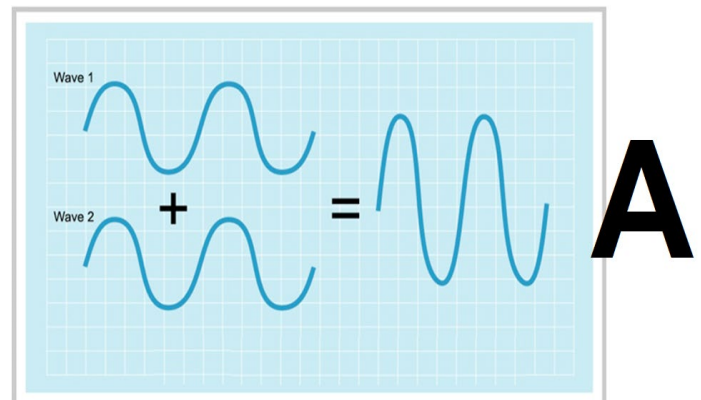
13. What does angle of reflection mean?  
14. What does the angle of incidence mean?  
15. What is the law of reflection?

### WAVE INTERFERENCE

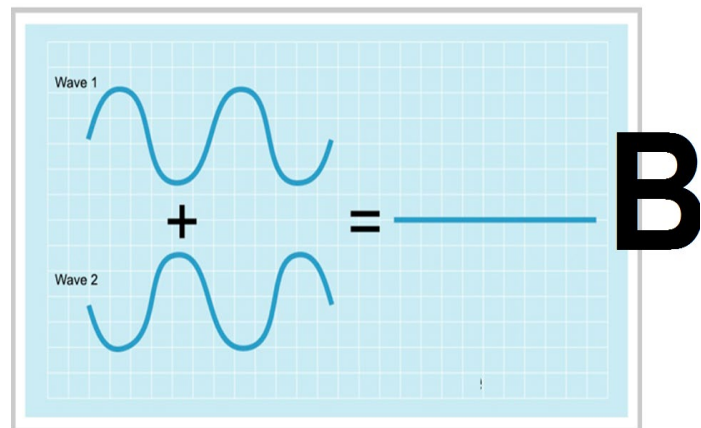
Watch the youtube videos

[https://www.youtube.com/watch?v=uh1nEMex\\_v4](https://www.youtube.com/watch?v=uh1nEMex_v4)  
<https://www.youtube.com/watch?v=kS3VPIR6lfg>

16. What does interfere mean?  
17. What would happen if 2 tidal waves from each side of the ocean met in the middle?



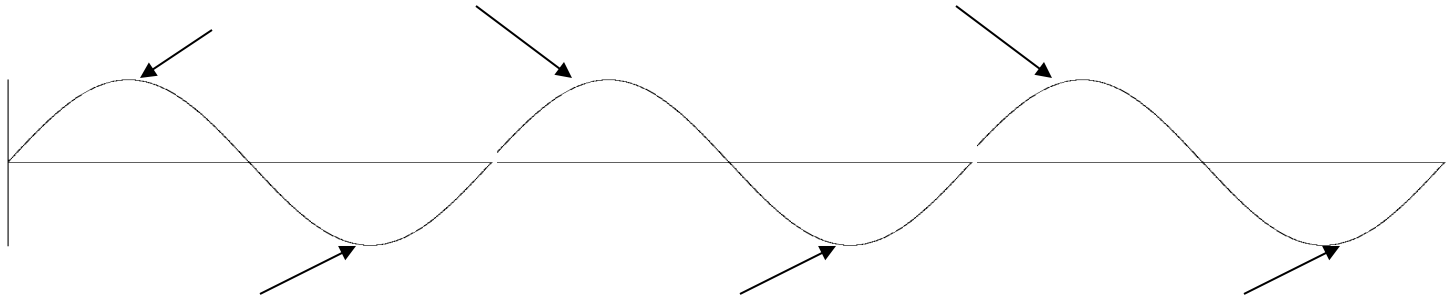
18. Study the picture below. Which picture should be labeled constructive interference? A or B?  
19. Which picture should be labeled destructive interference? A or B?  
20. Would the 2 tidal waves coming together be constructive interference or destructive interference?



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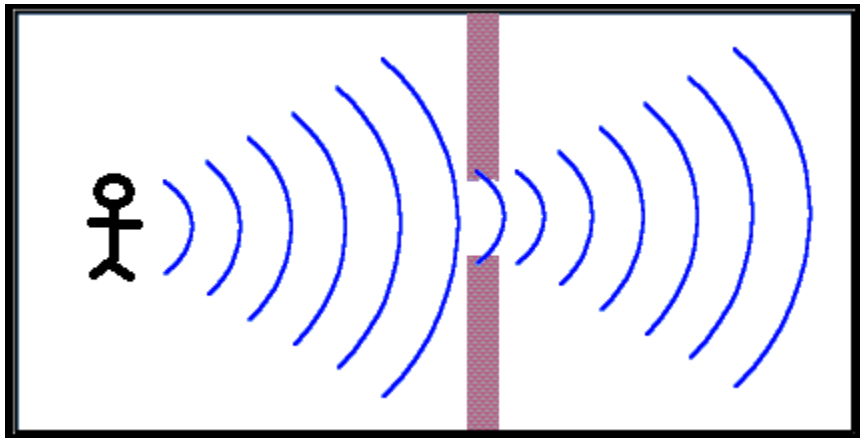
### CRESTS AND TROUGHS

21. An animal trough is something we put food in to feed farm animals. A wave crest is the thing a surfer's board rides on. Label these antinodes as either crests or troughs.



### DIFFRACTION

Below is a picture of diffraction. The wave started at the left and is travelling right.



22. Describe what happened once it reached the opening.
23. What do you think will happen to the waves that can't go through the opening?
24. Imagine the waves on the left are your mom's sound waves calling to you in your room. Draw yourself where it would be hardest to hear her.