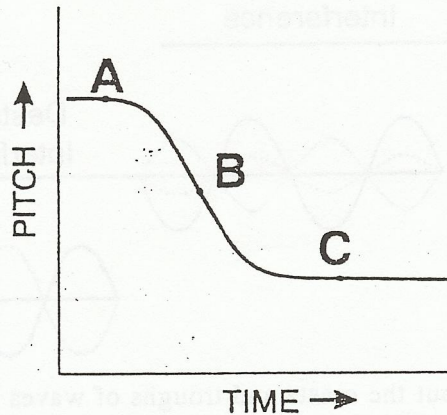


Doppler Effect

Skills: interpreting a graph, analyzing

The Doppler effect describes the change in pitch that occurs when the source of a sound and a listener are moving in relation to each other. The graph below shows how the pitch of a car horn appears to change as heard by a listener. Refer to the graph to answer the questions.



1. What is the source of the sound in this situation? _____
2. Suppose that the source of the sound is moving towards the listener. Which point on the graph describes the pitch the listener hears? _____
3. Suppose that as the listener watches the car drive away, the driver honks the horn to say goodbye. Which point on the graph describes the pitch that the listener hears? _____
4. Which point on the graph shows the actual pitch of the car horn? How can you tell? _____

5. Suppose that the graph describes a situation in which a car is parked on the street. The horn of the car gets stuck and starts to blow. What is the listener doing in relation to the car at point C on the graph? _____
6. Suppose that the owner of the car, who is in a nearby store, runs out to find out what is wrong with the car horn. At which point on the graph would the owner be? What type of pitch would the owner hear? _____
7. Once the owner reaches the car, what pitch would the owner hear? What point on the graph represents the owner's location in relation to the source of the sound? _____

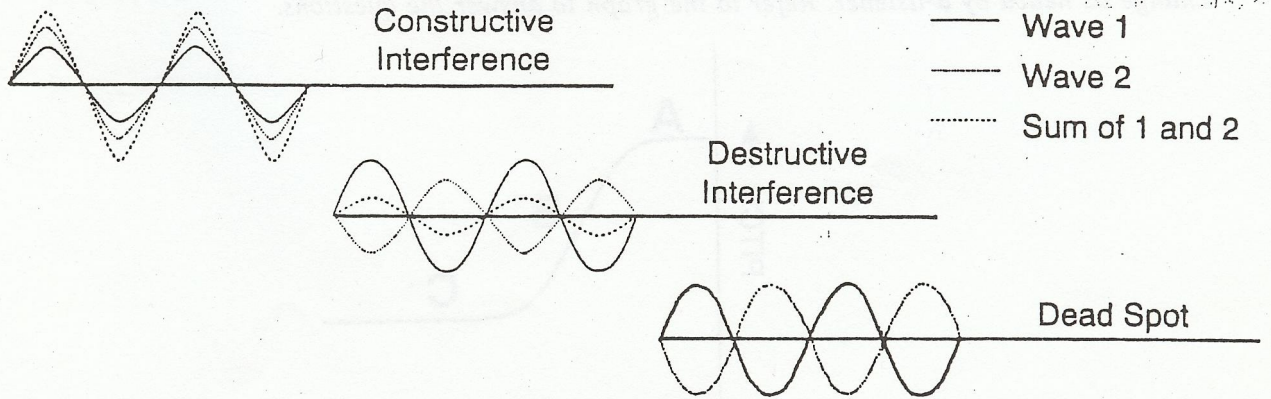
Enrichment Worksheet 33

Use with Lesson 8-5

Interference

Skills: interpreting a graph, drawing conclusions

Sound waves produced from different sources at the same time interfere with each other. This interference can be constructive or destructive. The graphs below show an example of constructive interference and two examples of destructive interference. Study the graphs carefully. Then answer the questions:



1. What do you notice about the crests and troughs of waves 1 and 2 in Graph A? _____

2. In Graph A, how does the amplitude of the sum compare with the amplitudes of waves 1 and 2? _____

3. Look at Graph B. What do you notice about the crests and troughs of waves 1 and 2? _____

4. How does the amplitude of the sum compare with the amplitudes of waves 1 and 2? _____

5. When the crests and troughs of two waves occur at the same time, the waves are said to be "in phase." What kind of interference results when two waves are in phase? _____

6. Describe the kind of interference that results when two waves are not in phase. _____

7. A special case of destructive interference is shown in Graph C. Based on Graph C, what is a "dead spot"? How do you think a dead spot is produced? _____
