

➤ Main Ideas, Key Points, Questions:

After watching the video segment, write down key points, main ideas, and big questions.

➤ Objective(s):

- *Understand that the relative motion between the source of a wave and the observer of a wave causes a difference between the emitted and observed frequencies of the wave.*
- *Recognize that when the source of a wave and the observer of a wave move toward each other that the frequency observed is greater than the frequency emitted.*

➤ Notes:

During the video segment, use words, phrases, or drawings to take notes.

➤ Summary:

After watching the video segment, write at least three sentences explaining what you learned. You may ask yourself: "If I was going to explain this to someone else, what would I say?"

Answer the following.

1. When a siren is approaching you, how does the observed pitch of the siren compare to what you hear after it moves past you?

2. Define the Doppler Effect in your own words.

3. When a siren is approaching you, how does the wavelength of the waves reaching you compare to the wavelength that the siren emits?

4. What kinds of waves experience the Doppler Effect?

5. Why are you able to observe the Doppler Effect with sound waves on Earth but not light waves?

6. When stars are moving away from a telescope, what shade do they appear to be compared to the normal light they emit?

Answer the following.

7. What is it called when a galaxy is moving toward us at a very high speed?

8. What are two everyday applications of the Doppler Effect?

9. What variables must you know in order to determine the frequency of the wave that will be observed?

10. If the observer is moving toward the source, would the observed frequency be greater than or less than the emitted frequency? Would the numerator of the Doppler effect equation need to be greater or smaller for this to happen?

11. If the source is moving toward the observer, would the observed frequency be greater than or less than the emitted frequency? Would the denominator of the Doppler Effect equation be greater or smaller for this to happen?

12. What is created when an object travels faster than the speed of sound?
