

Astronomy:



Doppler Effect

Primary Audience: 6th-10th

Description: Show how the Doppler Effect works using a tuning fork

Keywords: Doppler, Sound, Waves

Concepts:

- How moving relative to sound waves changes the frequency to the observers ears, causing the sound to change

Materials:

- tuning fork
- string

Instructions:

Tie the piece of string to the tuning fork and then hit the fork to get a loud note, then take the string and swing it over your head and observe how the sound changes as it spins around.

Possible Interactive Questions:

- What does it sound like when it is close/ far away from you?
- What is happening that is making the sound change to you?
- How can this be useful in astronomy?

What's Going On?

As the observer or in this case, the sound, moves relative to the other, the frequency of the waves that hits the observers ears change, causing the tone to differ.

Further Exploration:

1. We can use this in astronomy on an electromagnetic spectrum in order to get colors that we know how to interpret, so we can see red and blue shifts in the spectrum and that can tell us if a star is moving away or closer to us and by how fast.

Relevant Ohio Science Content Standards: