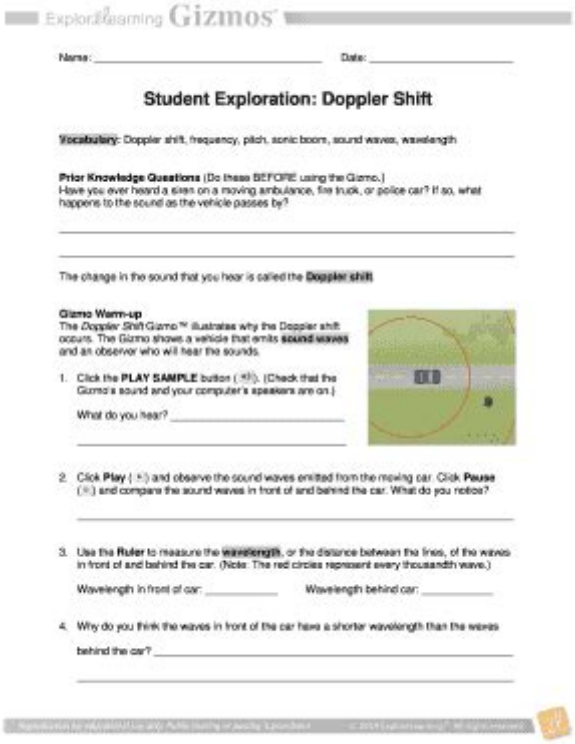

Explore Learning Gizmos

Name: _____ Date: _____

Student Exploration: Doppler Shift

Vocabulary: Doppler shift, frequency, pitch, sonic boom, sound waves, wavelength

Prior Knowledge Questions (Do these BEFORE using the Gizmo.)
Have you ever heard a siren on a moving ambulance, fire truck, or police car? If so, what happens to the sound as the vehicle passes by?

_____

_____

The change in the sound that you hear is called the **Doppler shift**.

Gizmo Warm-up
The *Doppler Shift* Gizmo™ illustrates why the Doppler shift occurs. The Gizmo shows a vehicle that emits **sound waves** and an observer who will hear the sounds.

1. Click the **PLAY SAMPLE** button ( ). (Check that the Gizmo's sound and your computer's speakers are on.)

   What do you hear? _____

   _____

2. Click **Play** ( ) and observe the sound waves emitted from the moving car. Click **Pause** ( ) and compare the sound waves in front of and behind the car. What do you notice?

   _____

3. Use the **Ruler** to measure the **wavelength**, or the distance between the lines, of the waves in front of and behind the car. (Note: The red circles represent every thousandth wave.)

   Wavelength in front of car: _____ Wavelength behind car: _____

4. Why do you think the waves in front of the car have a shorter wavelength than the waves behind the car? _____

   _____

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Doppler Shift Advanced Gizmo Answer

Doppler Shift Advanced Gizmo Answer

Doppler Shift Advanced Gizmo Answer
Doppler Shift Advanced Gizmo Answer With the Doppler Shift Advanced Gizmo, you will investigate how the speed of the moving object is related to the magnitude of the Doppler shift. On the Gizmo, check that vobserver is 0 m/s, fsourceis. 500 Hz, vsource is 100 m/s, and vsound is 340 m/s, close to the velocity of sound in air. Click Play ...

Doppler Shift Advanced Gizmo Answer Key
In the Doppler Shift Advanced Gizmo, each red ring represents 1,000 sound waves. Question: How can you use the Doppler shift to measure the velocity of an object moving towards an observer? Measure : Place the observer in the middle of the road so he is directly in front of the car.

Student Exploration: Doppler Shift Advanced (ANSWER KEY)
Derive an equation to calculate the frequency of an oncoming sound source and a receding sound source. Also, calculate the Doppler shift that results from a moving observer and a stationary sound source. The source velocity, sound velocity, observer velocity, and sound frequency can all be manipulated.

Doppler Shift Advanced Gizmo : ExploreLearning
Launch Gizmo. Doppler Shift Advanced. Derive an equation to calculate the frequency of an oncoming sound source and a receding sound source. Also, calculate the Doppler shift that results from a moving observer and a stationary sound source. The source velocity, sound velocity, observer velocity, and sound frequency can all be manipulated. 5 Minute Preview. Use for 5 minutes a day. Assessment ...

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Student Exploration Ph Analysis Gizmo Answer Key
The change in the sound that you hear is called the Doppler shift. Gizmo Warm-up The Doppler Shift Gizmo™ illustrates why the Doppler shift occurs. The Gizmo shows a vehicle that emits sound waves and an observer who will hear the sounds. 1. Click the PLAY SAMPLE button (). (Check that the Gizmo’s sound and your computer ‘s speakers are on.) What do you hear?

DopplerShiftSE_Key.pdf - Doppler Shift Answer Key ...
Doppler Shift. Observe sound waves emitted from a moving vehicle. Measure the frequency of sound waves in front of and behind the vehicle as it moves, illustrating the Doppler effect. The frequency of sound waves, speed of the source, and the speed of sound can all be manipulated. Motion of the vehicle can be linear, oscillating, or circular.

Doppler Shift Gizmo : Lesson Info : ExploreLearning
Doppler Shift. Lesson Info . Create New Preset How do Presets Work? Cancel. Save. DESCRIPTION. Observe sound waves emitted from a moving vehicle. Measure the frequency of sound waves in front of and behind the vehicle as it moves, illustrating the Doppler effect. The frequency of sound waves, speed of the source, and the speed of sound can all be manipulated. Motion of the vehicle can be ...

Doppler Shift Gizmo : ExploreLearning
Student Exploration: Doppler Shift Advanced Prior Knowledge Questions (Do these BEFORE using the Gizmo.) The image at right shows two observers watching a car pass by. The red circles represent sound waves. 1. Which observer hears the highest pitch (tone)? B Which observer hears the lowest pitch? A 2. How can you tell?

Copy of Student Exploration_ Doppler Shift Advanced.pdf ...
The Doppler shift. Get the Gizmo ready: Click Reset (). Check that f is set to 500 Hz and v is set to 340 m/s, close to the actual speed of sound. Set v to 0 m/s. source. sound. source

Student Exploration- Doppler Shift (ANSWER KEY) by dedfsf ...
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Doppler Shift Answer Key - Company
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