Speed of Waves Quiz PDF

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What is the unit of measurement for wave speed?

- ◯ Hertz (Hz)
- ◯ Meters per second (m/s)
- ◯ Joules (J)
- ◯ Newtons (N)

Which of the following waves does not require a medium to travel?

- ◯ Sound waves
- ◯ Water waves
- ◯ Light waves
- ◯ Seismic waves

What are the effects of increasing the temperature on the speed of sound in air? (Select all that apply)

- ☐ Increases speed
- ☐ Decreases speed
- ☐ No effect
- ☐ Changes frequency

How does the elasticity of a medium affect the speed of mechanical waves?

Why do electromagnetic waves not require a medium to travel?

Discuss the impact of medium density on the speed of waves, providing examples.

How does Snell's Law relate to the change in wave speed across different mediums?

Explain how the speed of sound changes when it travels from air into water.

What is the speed of sound in air at 20°C?

- ◯ 150 m/s
- ◯ 299 m/s
- ◯ 343 m/s
- ◯ 400 m/s

Which of the following factors affect the speed of mechanical waves? (Select all that apply)

- ☐ Medium density
- ☐ Medium elasticity
- ☐ Frequency
- ☐ Temperature

Which types of waves are considered mechanical waves? (Select all that apply)

- ☐ Sound waves
- ☐ Light waves
- ☐ Water waves
- ☐ Radio waves

Which of the following are true about electromagnetic waves? (Select all that apply)

- ☐ They require a medium to travel
- ☐ They travel at the speed of light in a vacuum
- ☐ They include radio waves
- ☐ They are affected by medium density

Describe the relationship between wave speed, frequency, and wavelength using the wave equation.

In which medium do sound waves travel the fastest?

- ◯ Air
- ◯ Water
- ◯ Steel
- ◯ Vacuum

What is the approximate speed of light in a vacuum?

- ◯ 150,000,000 m/s
- ◯ 299,792,458 m/s
- ◯ 343 m/s
- ◯ 1,000,000 m/s

What happens to the speed of sound in air as the temperature increases?

- ◯ It decreases
- ◯ It remains constant
- ◯ It increases
- ◯ It fluctuates randomly

Which property of a medium generally causes waves to travel slower?

- ◯ High elasticity
- ◯ Low density
- ◯ High density
- ◯ Low temperature

Which equation represents the relationship between wave speed, frequency, and wavelength?

- ◯ $v = f + \lambda$
- ◯ $v = f \times \lambda$
- ◯ $v = f / \lambda$
- ◯ $v = \lambda / f$

What changes when a wave enters a different medium? (Select all that apply)

- ☐ Speed
- ☐ Frequency
- ☐ Wavelength
- ☐ Amplitude

Which of the following statements about wave speed are correct? (Select all that apply)

- [ ] It is constant for a given medium
- [ ] It changes with frequency
- [ ] It is the product of frequency and wavelength
- [ ] It can be affected by medium properties