



Sound

Gold

These Gold questions require explaining sound phenomena with reasoning about vibration and sound waves.

Name: _____ Date: _____

Section A: Vibration Reasoning

1. Explain, using the idea of vibration, how a guitar string produces sound.

2. Why does a guitar string produce a lower note when it is loosened?

3. Explain why covering your ears reduces the volume of sound you hear.

4. Design an experiment to find out which material best blocks sound: cardboard, foam, or wood.

5. Explain why a tuning fork continues to vibrate and produce sound for several seconds after being struck.

Section B: Real-World Applications

1. Explain why concert halls are often designed with curved walls and soft materials.

2. A submarine uses sound (sonar) to detect objects underwater. Explain why sound is useful for this, rather than light.

3. Explain why you hear an ambulance siren change pitch as it passes you (this is a real effect called the Doppler effect).

4. Why might noise-cancelling headphones be useful on a noisy aeroplane?

5. Explain the journey of a sound from a ringing phone to your brain, step by step.
