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# Physics

**Reading Guide Section 21.1**

1. Describe the relationship between frequency and pitch.

2. What is the range of frequencies the human ear can hear?

3. Explain the concept of complex sound.

4. What unit is used to measure the loudness of a sound?

5. How loud are the following sounds:

quiet whisper ordinary conversation

jackhammer rock concert

6. What frequencies is the human ear most sensitive to?

7. Define “acoustics”:

8. How fast is the speed of sound in air (in both m/s and mph)?

9. Explain the difference between subsonic and supersonic.

10. How does a sonic boom form?

11. Based on figure 21.5, does sound travel faster in air or in helium?

12. Describe the Doppler Effect.

13. What is one practical application of the Doppler Effect?

14. A microphone transforms a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ into an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

15. On a CD, how many “data points” are there in each second of sound?