Sound and light

VOCABULARY PRACTICE

UPPER-INTERMEDIATE | B2

Name: _____ **Date:** _____

1 Match each wave concept with its meaning.

1 frequency	____	a range of frequencies or wavelengths present
2 wavelength	____	b material through which a wave travels
3 amplitude	____	c maximum displacement from a wave's rest position
4 resonance	____	d number of cycles passing a point each second
5 interference	____	e spreading of a wave around an edge or through an opening
6 diffraction	____	f transfer of wave energy into a material
7 absorption	____	g strengthening of oscillation near a natural frequency
8 spectrum	____	h distance between corresponding points on successive waves
9 intensity	____	i energy transferred per unit area
10 medium	____	j combination of overlapping waves

2 Complete the wave-physics collocations.

absorption | **amplitude** | **frequency** | **intensity** | **medium** | **resonance** | **spectrum** | **wavelength**

1 high _____

2 short _____

3 large _____

4 sound _____

5 transmission _____

6 the visible _____

7 energy _____

8 a natural _____ frequency

3 Choose the most precise term for the context.

1 Cycles per second determine *frequency / amplitude*.

2 The distance between wave peaks is *wavelength / intensity*.

3 A wave bends around an opening through *diffraction / absorption*.

4 Overlapping waves combine through *interference / resonance*.

5 An object vibrates strongly at its natural frequency: *resonance / spectrum*.

6 Sound requires a material *medium / wavelength*.

7 Wave energy becomes heat through *absorption / diffraction*.

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4 Complete the wave review with terms from the box.

absorption | amplitude | diffraction | frequency | intensity | interference | medium | resonance | spectrum | wavelength

A wave is described by its **1** _____, the number of cycles per second, and its **2** _____, the distance between repeated points. Greater **3** _____ usually means a larger oscillation. Sound needs a **4** _____, while light can travel through a vacuum. Waves overlap through **5** _____ and spread around obstacles through **6** _____. Materials reduce energy through **7** _____. Strong response near a natural frequency is **8** _____. A range of components forms a **9** _____, and energy flow per area is **10** _____.

5 Read the text and answer the questions briefly.

Why rooms sound different

Hard surfaces reflect sound, producing reverberation, while soft materials absorb part of the wave energy. A room with bare walls may make speech less clear because reflected sounds arrive after the direct sound. Curtains, carpets and acoustic panels reduce these later reflections. Designers balance absorption and reflection so that speech remains intelligible without making music sound unnaturally dry.

1 What do hard surfaces do to sound? _____

2 What do soft materials do? _____

3 Why can bare walls reduce speech clarity? _____

4 Which materials reduce later reflections? _____

5 What do designers balance? _____

6 What two outcomes are they trying to preserve? _____

6 Rewrite using the expression in capitals.

1 The opening caused the wave to spread. **DIFFRACTION** __

2 The two waves combined. **INTERFERENCE** _____

3 The material took in some wave energy. **ABSORBED** _____

4 The object responded strongly at one frequency. **RESONANCE** _

OVER TO YOU

Write a **120-150 word** explanation of how a room, instrument or optical device controls waves.

[ ] Use at least ten target terms. [ ] Explain wave behaviour accurately. [ ] Link design to outcome.

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ANSWER KEY

1 Wave concepts

1 **d** 2 **h** 3 **c** 4 **g** 5 **j** 6 **e** 7 **f** 8 **a** 9 **i** 10 **b**

2 Wave-physics collocations

1 **frequency** 2 **wavelength** 3 **amplitude** 4 **intensity** 5 **medium** 6 **spectrum** 7 **absorption** 8 **resonance**

3 Precise terms

1 **frequency** 2 **wavelength** 3 **diffraction** 4 **interference**
5 **resonance** 6 **medium** 7 **absorption**

4 Wave review

1 **frequency** 2 **wavelength** 3 **amplitude** 4 **medium** 5 **interference**
6 **diffraction** 7 **absorption** 8 **resonance** 9 **spectrum** 10 **intensity**

5 Reading - suggested answers

1 They reflect it. 2 They absorb some energy. 3 Reflections arrive after direct sound.
4 Curtains, carpets and acoustic panels. 5 Absorption and reflection. 6 Clear speech and natural music.

6 Rewriting - possible answers

1 This was **diffraction**. 2 They produced **interference**. 3 The material **absorbed** energy. 4 The object showed **resonance**.

Over to you: Answers will vary. Check wave mechanisms, technical precision and design effects.