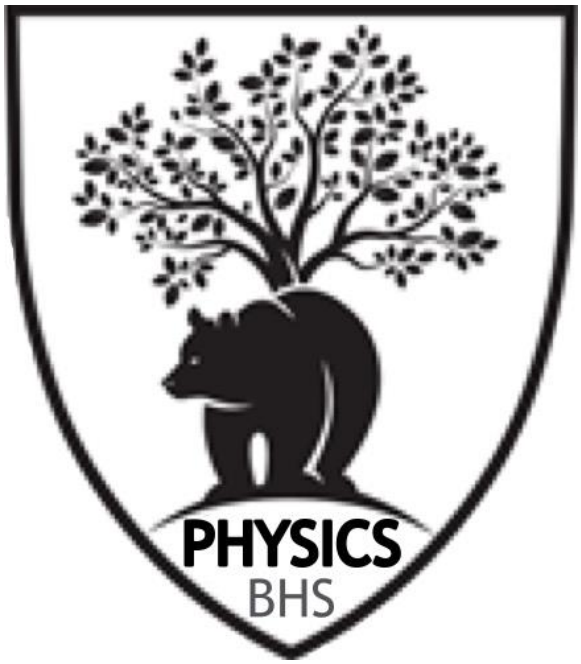
S1 Waves Revision Pack (2025)



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S1 WAVES PRACTICE TEST 1 (2025 Edition)

Total Marks: 20 ***Time: 30 minutes***

Section 1 – Multiple Choice (1 mark each)

1. *Which of the following is an example of a **transverse wave**?*
   A. Sound B. Light C. Vibration in air D. Ripples on water

2. *The highest point on a wave is called the:*
   A. Crest B. Trough C. Amplitude D. Wavelength

3. *The distance between two crests on a wave is known as the:*
   A. Frequency B. Amplitude C. Wavelength D. Speed

4. *When light hits a smooth mirror, the angle of reflection is:*
   A. Greater than the angle of incidence B. Smaller than the angle of incidence C. Equal to the angle of incidence D. 90°

5. *Which colour of light is bent the most when passing through a prism?*
   A. Red B. Green C. Blue D. Yellow

6. *Sound travels faster through:*
   A. Air B. Water C. Steel D. A vacuum

7. *Which statement about sound is correct?*
   A. Sound can travel through a vacuum B. Sound needs particles to travel C. Sound is faster than light D. Sound is transverse

8. *Which part of a wave measures its energy?*
   A. Amplitude B. Wavelength C. Frequency D. Crest

9. *When light passes through a prism, this effect is called:*
   A. Reflection B. Refraction C. Dispersion D. Diffraction

10. *What do all waves transfer?*
    A. Energy B. Matter C. Air D. Colour

Section 2 – Structured Questions (10 marks)

11. *What is meant by the term **amplitude** of a wave?*
    (1 mark)

12. *Draw a simple wave and label one **crest** and one **trough**.*
    (1 mark)

13. *When light travels from air into glass, describe what happens to its **direction**.*
    (1 mark)

14. *State the **law of reflection**.*
    (1 mark)

15. *Describe what happens when white light passes through a **prism**.*
    (1 mark)

16. *State one difference between **sound waves** and **light waves**.*
    (1 mark)

17. *Describe what happens to the **speed** of light as it enters glass from air.*
    (1 mark)

18. *Explain why we see the colour red from a red object.*
    (1 mark)

19. *State one use of **light** in everyday life.*
    (1 mark)

20. *State one use of **sound** in everyday life.*
    (1 mark)

Marking Instructions – Practice Test 1

Section 1 Answers:
1 B 2 A 3 C 4 C 5 C 6 C 7 B 8 A 9 C 10 A

Section 2 Mark Scheme (Concise):
11. Distance from rest to crest ✓
12. Correctly labelled crest and trough ✓
13. Light bends towards the normal ✓
14. Angle of incidence = angle of reflection ✓
15. White light splits into different colours (spectrum) ✓
16. Light = transverse / Sound = longitudinal ✓
17. Slows down ✓
18. It reflects red light ✓
19. Vision / photography / communication ✓
20. Music / talking / sonar ✓

Skill Distribution: *KU 12 PS 5 AN 3 EV 0*

S1 WAVES PRACTICE TEST 2 (2025 Edition)

Total Marks: 20 **Time: 30 minutes**

Section 1 – Multiple Choice (1 mark each)

1. Sound is caused by:
   A. Vibrations B. Heat C. Reflection D. Electricity

2. Sound travels fastest through:
   A. Air B. Water C. Steel D. Vacuum

3. The line drawn at right angles to a mirror surface is called the:
   A. Normal B. Line C. Beam D. Ray

4. When white light hits a red object, the object appears red because:
   A. It absorbs red light B. It reflects red light C. It produces red light D. It refracts red light

5. Which of these waves needs a medium to travel through?
   A. Light B. Radio C. Sound D. Microwaves

6. What type of surface gives a clear reflection?
   A. Smooth B. Rough C. Dark D. Curved

7. Which wave is used in TVs and mobile phones?
   A. Sound B. Light C. Radio D. Water

8. Which wave can travel through space?
   A. Light B. Sound C. Water D. None

9. Which part of a wave shows its height?
   A. Crest B. Wavelength C. Amplitude D. Frequency

10. What is meant by the **frequency** of a wave?
    A. Number of waves per second B. Distance between waves C. Wave height D. Wave colour

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Section 2 – Structured Questions (10 marks)

11. Describe how an **echo** is formed.
    (1 mark)

12. Explain why sound cannot travel through **space**.
    (1 mark)

13. Describe what happens when light is **reflected** by a mirror.
    (1 mark)

14. Draw a simple **ray diagram** showing a ray of light reflecting from a flat mirror. Label the **incident ray**, **reflected ray**, and **normal**.
    (1 mark)

15. White light passes through a prism and spreads into colours. Name this effect.
    (1 mark)

16. *State the first colour and last colour seen in the spectrum.*
    (1 mark)

17. *State one property that all waves have in common.*
    (1 mark)

18. *State one everyday use of **mirrors**.*
    (1 mark)

19. *Describe one way we use **sound** to measure distance.*
    (1 mark)

20. *State one use of **light** in communication or technology.*
    (1 mark)

Marking Instructions – Practice Test 2

Section 1 Answers:
1 A 2 C 3 A 4 B 5 C 6 A 7 C 8 A 9 C 10 A

Section 2 Mark Scheme (Concise):
11. Sound reflects from a surface ✓
12. No air or particles to carry vibrations ✓
13. Angle of incidence = angle of reflection ✓
14. Correct diagram with labelled rays and normal ✓
15. Dispersion ✓
16. Red first, violet last ✓
17. They all transfer energy ✓
18. Mirrors for seeing reflections ✓
19. Echo or sonar ✓
20. Fibre optics / photography / screens ✓

***Skill Distribution**: KU 11 PS 6 AN 3 EV 0*

S1 WAVES CHALLENGE TEST 1 (2025 Edition)

Total Marks: 20 ***Time: 30 minutes***

Section 1 – Multiple Choice (1 mark each)

11. *Which type of wave requires a medium to travel through?*
    A. Light B. Sound C. Radio D. X-rays

12. *A student claps near a wall and hears an echo after 2 seconds. If sound travels at 340 m/s, how far away is the wall?*
    A. 85 m B. 170 m C. 340 m D. 680 m

13. *Which statement best describes **refraction**?*
    A. Bending of light as it enters a new material B. Light bouncing off a surface C. Splitting white light D. Absorbing light energy

14. *Which colour of light has the **highest energy**?*
    A. Red B. Yellow C. Green D. Violet

15. *Which of the following is an example of **longitudinal waves**?*
    A. Light B. Water C. Sound D. Radio

Section 2 – Structured Questions (15 marks)

6. *A ripple in water travels 6 metres in 3 seconds. Calculate the **speed** of the wave.*
   (2 marks)

7. *Light passes from air into glass. Draw and label a **ray diagram** to show the light bending. Label the **incident ray**, **refracted ray**, and **normal**.*
   (2 marks)

8. *Explain why sound cannot travel through a vacuum.*
   (1 mark)

9. *A red car appears black when seen under green light. Explain why.*
   (2 marks)

10. *A student shouts and hears the echo 0.8 s later. Calculate the **distance to the wall** if the speed of sound is 340 m/s.*
    (2 marks)

11. *Describe how a **mirror** and a **rough surface** reflect light differently.*
    (2 marks)

12. *An experiment is carried out to find the speed of sound using echoes. State one **source of error** and describe how it could be reduced.*
    (2 marks – EV)

13. *A student claims: "Light travels faster in water than in air."*
    *State whether this is correct and **justify** your answer.*
    (2 marks – EV)

Marking Instructions – Challenge Test 1

Section 1 Answers:
1 B 2 C 3 A 4 D 5 C

Section 2 Mark Scheme (Concise): (Concise):
6. 6 ÷ 3 = 2 m/s ✓✓
7. Correct diagram with normal and labelled rays ✓✓
8. No particles / no vibrations possible ✓
9. Red car reflects red light only; green light has no red ✓✓
10. (340 × 0.8) ÷ 2 = 136 m ✓✓
11. Mirror gives clear reflection; rough scatters light ✓✓
12. Timing / echo delay / wind – repeat and average ✓✓
13. Incorrect – light slows down in water (denser medium) ✓✓

***Skill Distribution**: KU 7 PS 8 AN 2 EV 3*

S1 WAVES CHALLENGE TEST 2 (2025 Edition)

Total Marks: 20 ***Time: 30 minutes***

Section 1 – Multiple Choice (1 mark each)

16. *A student measures 10 waves passing a point in 5 seconds. Which statement is true?*
    A. The waves are slowing down B. The frequency is 2 waves per second C. The speed is 2 m/s D. The wavelength is 5 m

17. *Sound travels fastest through:*
    A. Air B. Water C. Steel D. Vacuum

18. *The bending of light as it enters water is called:*
    A. Reflection B. Dispersion C. Refraction D. Diffraction

19. *Which colour of light is refracted the least by a prism?*
    A. Red B. Green C. Blue D. Violet

20. *Which type of wave travels through space without needing particles?*
    A. Sound B. Light C. Water D. Ultrasound

Section 2 – Structured Questions (15 marks)

6. *A sound wave travels 680 m in 2 seconds. Calculate the **speed** of sound.*
   (2 marks)

7. *Describe the relationship between **frequency** and **pitch** in sound.*
   (1 mark)

8. *Explain why a pencil in a glass of water looks bent.*
   (2 marks)

9. *A rainbow forms after rain. Explain how sunlight creates the colours seen.*
   (2 marks)

10. *A student measures the time for a sound to travel 170 m and back. The echo returns in 1 second. Calculate the **speed** of sound.*
    (2 marks)

11. *A student records inconsistent results when timing echoes. Suggest one reason and how to improve reliability.*
    (2 marks – EV)

12. *Two students debate: "Sound travels faster in warm air."*
    State who is correct and explain why.
    (2 marks – AN + EV)

13. *A beach wave travels 12 m in 4 seconds. Calculate its **speed**.*
    (2 marks)

Marking Instructions – Challenge Test 2

Section 1 Answers:
1 B 2 C 3 C 4 A 5 B

Section 2 Mark Scheme (Concise):
6. 680 ÷ 2 = 340 m/s ✓✓
7. Higher frequency = higher pitch ✓
8. Light bends as it slows entering water ✓✓
9. Dispersion – colours separate by wavelength ✓✓
10. (170 × 2) ÷ 1 = 340 m/s ✓✓
11. Timing reaction error – repeat and average ✓✓
12. Correct – warm air = faster sound (particles move quicker) ✓✓
13. 12 ÷ 4 = 3 m/s ✓✓

Skill Distribution: *KU 6 PS 8 AN 3 EV 3*
