

# Light sources and straight-line rays

Grade 6 science (Year 7 · Class 6) · Test answers (mark scheme)

Award marks as indicated. Accept equivalent wording for explanations if the scientific idea is correct, and accept answers in standard form or ordinary form for the calculations.

**Level:** Grade 6 science (Year 7 · Class 6) · **Curriculum:** MS-PS4-2

## Question 1 Sources of light (2 marks)

(a) **Luminous.** (b) **Non-luminous.** (c) **Luminous.** (d) **Non-luminous.**

Marking: 0.5 mark each.

## Question 2 Lamp, tree and eye (3 marks)

- a. **P.**
- b. Some of the light is **reflected** by the tree.
- c. Reflected light (arrow Q) enters the eye.

Marking: 1 mark each.

## Question 3 Types of material (3 marks)

(a) **Transparent:** light passes and you see clearly. (b) **Translucent:** some light passes but is scattered. (c) **Opaque:** no light passes.

Marking: 1 mark each for the type with a reason.

## Question 4 Light across a pitch (3 marks)

- a.  $t = d \div v$ .
- b.  $105 \div 3.0 \times 10^8 = 3.5 \times 10^{-7} \text{ s}$ .
- c. **0.35  $\mu\text{s}$ .**

Marking: 1 mark each.

## Question 5 Evidence for straight lines (3 marks)

Place three cards with holes between a torch and the eye. The torch is visible only if the **three holes lie in a straight line**; moving the middle card hides it.

Marking: 1 mark for the set-up, 1 mark for the observation, 1 mark for the conclusion.

**Question 6 Dark room** (2 marks)

The chair is not a source of light. With no light to reflect, **no light reaches the eye.**

*Marking: 1 mark for the chair not being a source, 1 mark for no reflected light entering the eye.*

**Question 7 Lampshade** (2 marks)

Translucent paper lets light through so the room is lit, and it **scatters the light**, so the bulb is not dazzling. Opaque card would block the light and clear glass would show the bright bulb.

*Marking: 1 mark for light passing, 1 mark for scattering.*

**Question 8 Speed units** (2 marks)

a.  $3.0 \times 10^8 \div 1000 = \mathbf{3.0 \times 10^5 \text{ km/s.}}$

b.  $3.0 \times 10^5 \times 3600 = \mathbf{1.08 \times 10^9 \text{ km/h.}}$

*Marking: 1 mark each.*