# Shadow detectives | separate teacher key

Teacher-only key | original questions, not copied NCERT exercise text. Score each question out of 2; full worksheet maximum 12. Accept equivalent correct language and sketches.

## Q1 | expected answer and rubric

Light source, opaque object and screen/surface. 2 marks: all three roles; 1: any two; 0: fewer than two. Accept torch/card/wall. Do not insist on the word opaque if a blocking card is clearly named.

Source: pp. 158-159.

## Q2 | expected answer and rubric

The opaque card blocks light travelling towards that region of the screen. 1 mark for blocking light; 1 for linking the unlit/darker screen region to the shadow.

Source: p. 157; pp. 158-159.

## Q3 | expected answer and rubric

It stays dark, not blue. 1 mark for unchanged/dark shadow; 1 for explaining that both opaque cards block the light under these fixed conditions.

Source: p. 159.

## Review gate

Review ambiguous wording with the pupil before final marks. Synthetic assessment files demonstrate only Q1 / 2 marks, not a whole-paper total. Held responses stay blank, not zero.

# Shadow detectives | separate teacher key | continued

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## Q4 | expected answer and rubric

B. 1 mark for B; 1 for explaining that rays spread from the small source, so the same card nearer that source blocks a wider region at the fixed screen. This is an ideal model, not numeric evidence from the picture.

Source: p. 158 Table 11.2; p. 159; p. 166 Q5-6.

## Q5 | expected answer and rubric

No. Some transparent objects can create faint shadows. 1 mark for rejecting never; 1 for the faint-shadow qualification. Do not award the explanation mark for saying all transparent objects make dark shadows.

Source: p. 158.

## Q6 | expected answer and rubric

Swap only identical opaque card colour. Fix torch, screen, card position, size and angle; compare shadow colour. 1 mark for changing only colour with suitable controls (at least position and size); 1 for observing/comparing shadow colour under white light.

Source: p. 158 Table 11.2; p. 159; original test design.

## Review gate

Review ambiguous wording with the pupil before final marks. Synthetic assessment files demonstrate only Q1 / 2 marks, not a whole-paper total. Held responses stay blank, not zero.