Six facts for shadow detectives

Focus: Shadow formation, section 11.4; Activity 11.4 and Table 11.2, printed pp. 158-159. This is one focused lesson, not coverage of the entire chapter.

1 | Straight paths

In this classroom model, light follows straight paths. An opaque card blocks paths to part of the screen. Source: pp. 155, 157.

2 | A visible shadow

Use a light source, a blocking object and a surface on which to see the dark region. A wall can be that surface. Source: pp. 158-159.

3 | Materials matter

Opaque objects usually give dark shadows; translucent objects give lighter ones. Some transparent objects can also give faint shadows. Source: p. 158.

4 | Colour is not revealed

For identical opaque cards under white light, changing the card colour does not make a matching coloured shadow. Source: p. 159.

5 | Position matters

Object position can change shadow size, shape and sharpness. With a small light source and fixed screen, a card nearer the source makes a larger shadow. Source: pp. 158-159; application supported by p. 166, Q5-6.

6 | A fair comparison

Keep the torch, screen, card size and card angle fixed when testing card colour. Change only the feature being investigated. Source: Activity 11.4 / Table 11.2, p. 158; teacher-designed control rule.

Official chapter: https://ncert.nic.in/textbook/pdf/gecu111.pdf

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