Year 8 Physics: Light and Reflection Worksheet - Mark Scheme

Lower Secondary · Year 8 · Light, reflection, refraction and colour

Section A: How light travels [11 marks]

1(a)	straight lines; 300 000 km/s	**2**
1(b)	luminous; reflect	**2**
1(c)	transparent; translucent; opaque	**3**
2	Light travels in straight lines (1) and is blocked by an opaque object so the area behind receives no light (1).	**2**
3	The shadow gets bigger (1) because the card blocks more of the light rays that spread out from the torch (1).	**2**

Section B: Reflection [13 marks]

4	normal; incidence; equal. Guidance: 1 mark each.	**3**
5	Angle of reflection = 35° (1). Angle to the mirror = 55° (1).	**2**
6	Same size as the object (1), same distance behind the mirror as the object is in front (1), virtual and laterally inverted (1).	**3**
7	Smooth surface: parallel rays reflect in one direction (specular reflection) (1) giving a clear image (1). Rough surface: rays scatter in many directions (diffuse reflection) (1).	**3**
8	Its surface is rough (1) so light is scattered in many directions and no clear image forms (1).	**2**

Section C: Refraction and colour [12 marks]

9	It slows down (1), bends towards the normal (1), because the speed of light changes in the glass (1).	**3**
10	Light from the pencil is refracted as it passes from water into air (1) so the pencil appears at a different position (1).	**2**
11	White light splits into a spectrum (dispersion) (1). Red, orange, yellow, green, blue, indigo, violet (3 marks for all in order; 2 marks for 4-6 correct; 1 mark for 2-3). Guidance: Red is refracted least; violet is refracted most.	**4**
12	The shirt reflects red light and absorbs other colours (1). In white light, red is reflected so it looks red (1). In green light there is no red to reflect, so everything is absorbed and it looks black (1).	**3**

Section D: Seeing and applications [5 marks]

13	Light from a source hits the book (1). Light is reflected by the book (1). The reflected light enters the eye (1).	**3**
14	Any two: periscope, car mirrors, dentist mirror, telescope, safety mirrors in shops.	**2**

Total: 41 marks. Accept any scientifically correct alternative wording.