

Seeing Light : Science : Year 6

| | Learning Objective | Overview | Assessment Questions | Resources |
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| Lesson 1 | To recall facts about how shadows are formed. | Children revisit their knowledge about how shadows are formed and the objects which create them. They focus specifically on the shapes of the shadows and why shadows are the shape of the object which creates them. | <ul style="list-style-type: none"> • Are children able to identify light sources and describe how light travels? • Can children use their knowledge of how light travels to explain how a shadow is created? • Can children explain why a shadow takes the shape of the object casting it? | <ul style="list-style-type: none"> • Slides • Worksheet 1A/1B/1C • Word Bank 1A • Shadow Puppet Sheet 1A (FSD? activity only) • Light sources e.g. torches and plain paper (FSD? activity only) |
| Lesson 2 | To investigate how we can change shadows. | Children conduct an investigation into how we can change and manipulate shadows 'shape, length, intensity and in particular, size. They conduct an experiment, identifying the key variables, and observe the results. They then draw conclusions from their results. | <ul style="list-style-type: none"> • Can children give a clear, scientific description of translucent, transparent and opaque and how this property affects an object's shadow? • Are children able to describe and explain how an object's shadow can be manipulated? • Can children make informed conclusions from their investigations? | <ul style="list-style-type: none"> • Slides • Challenge Cards 2A/2B/2C • Worksheet 2A/2B/2C/2D • Light sources e.g. torches, lamps etc. • Investigation Cards 2A (FSD? activity only) |
| Lesson 3 | To understand how our eyes allow us to see. | In this lesson the class will take a closer look at the anatomy of our eyes and how the different parts allow us to see. The children will complete diagrams to explain and identify the different parts of the eye. | <ul style="list-style-type: none"> • Can children name the parts of the eye? • Can children describe what the main parts of the eye do to help us see? • Do children understand that without light, we cannot see? | <ul style="list-style-type: none"> • Slides • Worksheet 3A/3B/3C • Eye Diagram 3A • Word Bank 3A • Answer Cards 3A (FSD? activity only) • Question Strips 3A (FSD? activity only) |
| Lesson 4 | To understand how we see objects. | This lesson will teach the children that all objects reflect and absorb different amounts of light. They will discover that it is these reflections that allow us to see objects. They will complete diagrams of how we can see different objects and write explanations of the process. | <ul style="list-style-type: none"> • Can children name the parts of the eye and briefly describe what the main parts do? • Can children complete a diagram to show how light allows us to see an object? • Do children understand that all objects reflect an amount of light? | <ul style="list-style-type: none"> • Slides • Worksheet 4A/4B/4C • Mirrors (optional) • Diagram Cards 3A (FSD? activity only) |
| Lesson 5 | To investigate reflection. | Children will learn about the law of reflection and use their knowledge and understanding of identifying and measuring angles to predict reflected light rays. They will identify the angle of incidence and reflection and use these to complete a light maze. | <ul style="list-style-type: none"> • Can children give a scientific definition of the word 'reflect'? • Do children understand that the angle of incidence is equal to the angle of reflection? • Can children think of examples of how angled mirrors can be used in different ways? | <ul style="list-style-type: none"> • Slides • Light Maze • Light Angles Poster 5A • Mirrors, protractors, torches • Teacher Notes • Instructions Sheet 5A & Template 5A (FSD? activity only) • Worksheet 5A (FSD? activity only) |
| Lesson 6 | To learn about refraction | Children will learn about how refraction can bend and change the direction of light rays. They will then need to differentiate between whether or not an object will reflect or refract light. | <ul style="list-style-type: none"> • Can children give a brief description of what happens to light when it's refracted? • Are children able to differentiate between if an object will reflect or refract light? • Can children give some examples of objects which use refraction in a useful way? | <ul style="list-style-type: none"> • Slides • Sorting Cards 6A/6B • Worksheet 6A/6B • What if? Cards 6A (FSD? activity only) • Any text e.g. a newspaper, clear plastic, water (FSD? activity only) |
| Lesson 7 | To investigate the colours in white light. | Children will investigate how white light can be split into the seven colours of the rainbow. They will find out about Isaac Newton's experiments with prisms and discuss how we see colours. | <ul style="list-style-type: none"> • Do children understand that white light can be split into a spectrum of seven colours? • Are children able to name the seven colours that light can be split into? • Can children explain how the light is refracted based on the colours' wavelengths? | <ul style="list-style-type: none"> • Slides • Worksheet 7A/7B/7C • Prisms, light sources and coloured pencils/pens • Newton Colour Wheel Video (FSD? activity only) • Instruction Sheet 7A (FSD? activity only) • String and thick cardboard/polystyrene circles (FSD? activity only) |