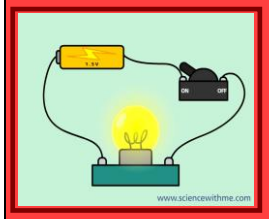
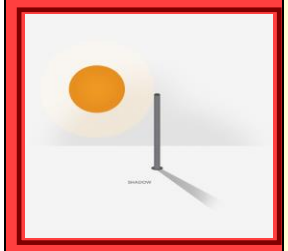
Progression of Science NC Objectives – Physics

	Year 4 Simple circuits	Year 6 Changes to components; Functions in circuits
Electricity 	-explain what electricity is. -identify machines which need electricity to work. - identify situations when electricity can be dangerous. -Investigate the properties of some conductors and insulators. -investigate which materials are conductors and which are insulators. -identify and name the basic parts of an electrical circuit: cells, wires, bulbs, switches and buzzers. -construct a simple series electrical circuit. -draw a simple circuit. -explore how different conductors can be added to a circuit. -predict whether a circuit will work and how it can be fixed. -Draw a simple circuit. -explain how an electrical switch works -explore how to use a switch in a simple circuit. -Explore what happens to a bulb when more cells are added.	-Describe the function of electrical components and match them to their symbols. -Investigate the effect of changing the number and voltage of cells in an electrical circuit. -Investigate the effect of changing the number and voltage of cells in an electrical circuit. -Use recognised symbols when representing a simple circuit in a diagram. -Create an electrical burglar alarm and explain how it works. -Use recognised symbols when representing a simple circuit in a diagram. -Create a set of electrical traffic lights and explain how they function. -Predict whether an electrical circuit will function and suggest ways of improving it.

	Year 3 Magnets: attract and repel	Year 5 Gravity, air/water resistance and friction
Forces 	-Explore different types of forces. -Compare how different objects move on a variety of surfaces. -Describe magnets as having two poles. -Notice that some forces need contact between two objects, but magnetic forces can act at a distance. -Predict whether two magnets will attract or repel each other, depending on which poles are facing. -Observe how magnets attract or repel each other and attract some materials and not others. -Explore the properties of magnetic and non-magnetic materials. -Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials. -Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials. -Explore the strength and behaviours of different types of magnets.	-Learn why objects fall to Earth. -Explain what gravity is and how it affects our everyday life. -Identify and describe the effects of friction that acts between moving surfaces. -Explore how parachutes work. -Identify and explain the effects of air resistance that acts between moving surfaces. -Investigate the effects of air resistance. -Identify and explain when objects are experiencing high or low water resistance. -Describe and explain how water resistance is created. -Explain how a pulley works and what it can be used for. -Recognise that some mechanisms allow force to have a greater effect.

	Year 3 Light, shadows and reflection	Year 6 How the eye sees; how light travels
Light 	-Learn that dark is the absence of light. -Recognise that they need light in order to see things. -Recognise different sources of light. -Notice that light is reflected from surfaces. -Understand the difference between transparent and opaque objects. -Recognise that shadows are formed when the light from a light source is blocked by an opaque object. -Recognise that shadows are formed when the light from the sun is blocked by an opaque object. -Find patterns in the way that the size of shadows change.	-Explain what is already known about light. -Learn about the main parts of the eye. -Recognise that light appears to travel in straight lines. -Explain that we see things because light travels from light sources to our eyes. -explain that we see things as light travels from light sources to objects and then to our eyes. -Explore how light appears to travel in straight lines. -Explore how objects reflect light. -Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye. -Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. -Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.