

## **Additional Information and Resources for *Exploring Light***

### Definitions

**Light waves** – all light travels in waves. The light we can see is called visible light and is only a part of the complete spectrum of light.

**Refraction** is the bending of light rays when passing through a surface between one transparent material and another.

**Reflection** is the change in direction of a wavefront at an interface between two different media so that the wavefront returns into the medium from which it originated – the light gets bounced back just like in a mirror.

**Dispersion** leads to the change in the angle of refraction of different wavelengths or colours of light, which results in spectrum – the light gets split into its constituent colours.

A **spectrum** is a band of colours without gaps, such as in a rainbow, produced by separation of the components of light. The plural of spectrum is **spectra**.

### Spectroscopy

#### What is it?

Spectroscopy is the measurement and interpretation of the electromagnetic spectra, or light. It is the study of colour as part of the spectrum of visible light and other types of light.

#### Real World Applications

Spectroscopy is used in medicine, physics, chemistry and astronomy to identify the composition of substances and composition of celestial objects such as stars. This is done by looking at the light emitted by a substance or

object and analysing it using a spectroscope. The spectroscope breaks the emitted light up into its component colours and from this we can determine which elements are in the sample. This is because each element has a unique emission spectrum meaning it gives off specific colours (or wavelengths of light) so by examining these we can figure out what we are looking at.