**The 6 Principles of Light**

* 1. Light is a form of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* 2. Light travels in a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* 3. Light travels in a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ at 300,000 km/sec (and in some types of media at slower speeds.)
* 4**. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** – light reflects off objects (which makes them visible).
	+ The angle of incidence is always equal to the angle of reflection
	+ The incident ray, normal and reflected ray all lie in the same plane
* 5. **­­­­­­­­­­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** is the bending of a wave when it enters a medium where its speed is different.
	+ The Law of Refraction: As light travels at an angle from a less dense medium to a denser medium it refracts or bends the light \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
	+ If light is traveling at an angle from a denser medium to a less dense medium it bends/refracts \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
	+ If a light is traveling straight into a medium, it \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ bend or refract.
* 6. **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** – each of the colours that make up \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ refract differently and so spread apart and become visible when passing through a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



* Sir Isaac Newton discovered that dispersion happens when white light refracts through a prism. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Lenses and Mirrors Technology

Microscopes: Cameras: Binoculars:



Teloscopes:

* 1. Refracting Telescopes – the first telescopes
	+ Galileo and Kepler
	+ The lenses used in these telescopes were difficult to make at the time.
	+ Problems with refracting: Image is falsely coloured and blurry

Reflecting Teloscopes

* Reflecting Teloscopes: Mirrors were much easier to make than lenses…and they didn’t refract the light and distort the colours.
* Isaac Newton invented this kind of telescope.
* Another benefit of using mirrors instead of lenses is that big mirrors are easier and cheaper to make than big lenses.
* Reflecting telescopes can be much much larger than refracting telescopes and therefore look deeper into space.

The Hubble Teloscope:

