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| **Key Question:** What is refraction?  Why do pencils look bent in water?  **Key Learning:** The bending of light as  it passes from one substance to another  with the bending caused by the difference in  density between two substances.  **FACTOID 2:**  What colours is light made up from?  Light is made up of all the colours of the spectrum / rainbow. The colour of the light you see depends on its wavelength.  **FACTOID 3:**  How does a telescope work?  They have two lenses (one large and one small) which reflect light rather than bending it.  **FACTOID 1:**  Can you find out more?  How does a lens work? They bend rays of light as they pass through so they can change path or direction.  **Key Question:** How are shadows formed and what decides their shape and size?  **Key Learning:**  Shadows have the  same shape as the  objects that cast  them but they can  change size. As  light moves towards  the object, the  shadow becomes  larger.  **Key Question:** What is a spectrum?  **Key Learning:** A band of colours, as seen in rainbows, produced by separation of the components of light by their different degrees of refraction  **Key Question:** How does light travel?  **Key Learning:** **Light travels in straight lines**    ***Natural light sources***: fireflies, the sun, volcanoes, electric eels, lightning  ***Man-made light sources***: torches, televsion screens, phones, lamps  **Key Question**: How can objects be seen by the eye?  **Key Learning:** Objects are seen because they give out or reflect light into the eye  Image result for ks2 light  **Key Question:**  Can you explain the difference between transparent, translucent and opaque materials?  **Key Learning:**  Image result for ks2 light  **Key Vocabulary**   |  |  | | --- | --- | | **translucent** | A material which allows some light to pass through | | **refraction** | The bending of light through a material | | **spectrum** | Bands of colour | | **periscope** | Device that uses mirrors to reflect light in order to see something obstructed from view. | | **prism** | Transparent object that breaks up light into bands of colour. | | **opaque** | Material that does not allow light to pass through it | | **angle of incidence** | The angle made by a light ray as it strikes a mirror. | | **angle of reflection** | The angle made by a light ray as it reflects off a mirror |   **FPS SCIENCE: Unit Light**  **KNOWLEDGE ORGANISER**  **Super Scientist Investigates:**  How does the eye work?  **Year 5/6 LIGHT** |

**Previous Learning**

* Light is needed in order to see.
* A light source is an object (torch/candle) or nature (sun/ firefly) which provides light
* A shadow is formed when the light source is blocked
* Opaque objects block light creating shadows
* Transparent objects allow light to pass through

**Year 5/6 HOW CAN WE SEE THINGS?**

**Lesson Sequence**



**New Learning**

1. Light travels in straight lines
2. Objects are seen because they give out or reflect light into the eye
3. Shadows have the same shape as the objects that cast them but they can change size
4. Translucent objects allow some light to pass through, but some of the light changes direction as it passes through the object; this means that something seen through a translucent object is not clearly defined
5. When light travels from air to water it bends and causes objects in the water to look bent, this is called refraction.