



NATURAL SCIENCES: NATS4

LESSON 11

NOTES AND ACTIVITY

US 7509

THEME: Energy and Change

TOPIC: Light Energy – Part 1

At the end of this unit, you should be able to:

1. Define what a mineral is.
2. Classify minerals as elements or compound.
3. Identify and distinguish between various forms of mining.

WHAT IS LIGHT ENERGY?

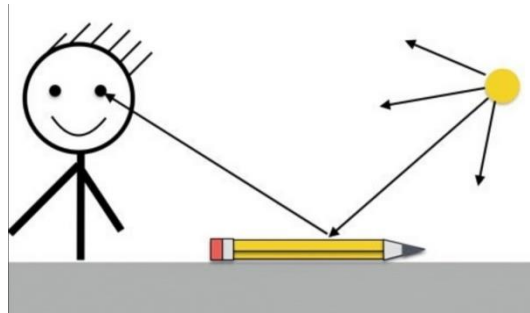
Light energy is a form of energy visible to human eye. It enables us to see things.

SOURCES OF LIGHT ENERGY

- Hot objects, such as the Sun or flames are light sources
- However, light can also come from electricity or from chemical reactions, e.g. in fireworks and in fireflies.

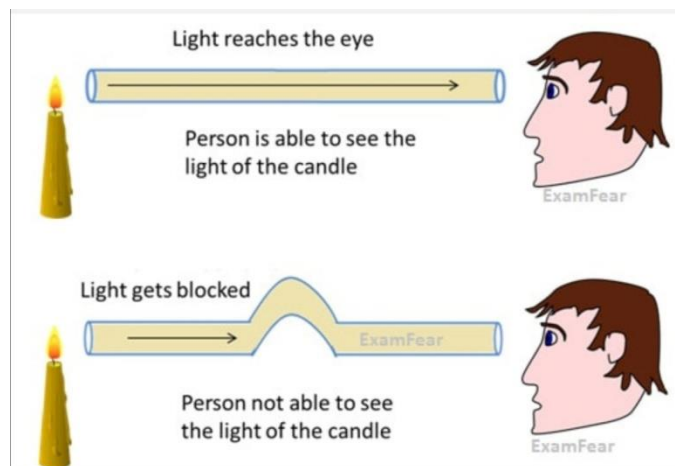
HOW LIGHT TRAVELS?

- We see things because light rays are **reflected** into our eyes. The rays travel from the object we are looking at to our eyes, as in the diagram below.



The arrows indicate the direction of the light.

- Light rays travel in **straight lines only**, from one object to another. Refer to the diagram below.



The boy is looking at light reflected by a candle using two different hollow pipes, one straight and the other, bent.

It is clear that he is able to see the light from the candle through a straight pipe but when looking through the bent pipe, the light from the candle is blocked and the boy cannot see the candle light.

TRANSPARENT, OPAQUE AND TRANSLUCENT MATERIALS

We have already established that light rays travel in straight lines, but when they meet an object in their path they either pass through, bounce off or are absorbed by the object.

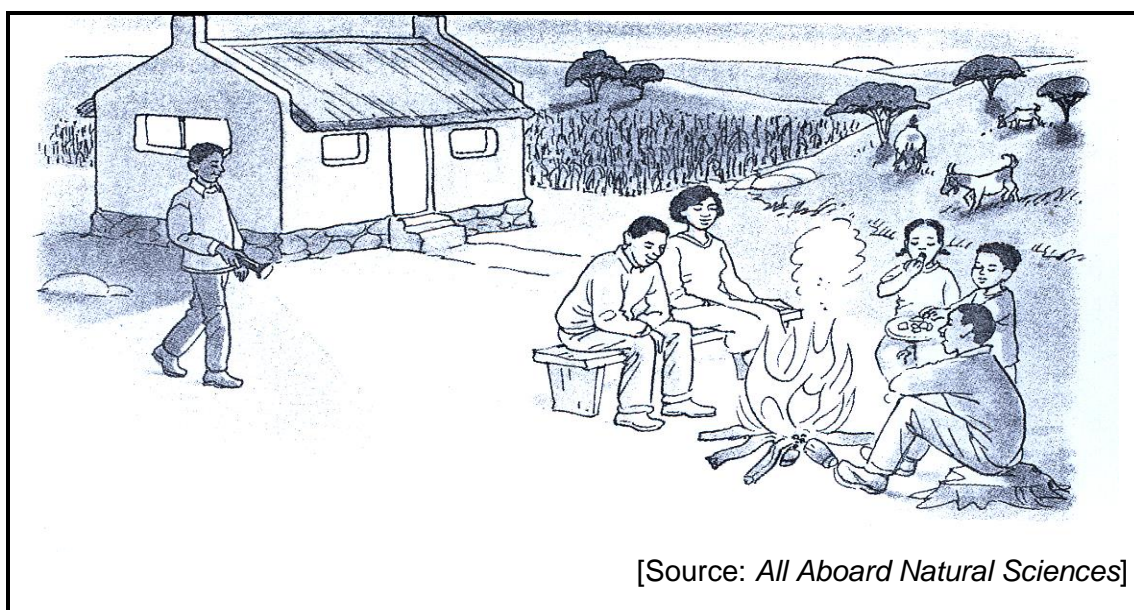
- **Transparent materials** – these are materials that allows all the light shone on the them to pass through, e.g. *air*
- **Opaque materials** – these are materials that do not allow light to pass through them, instead they will cast a shadow, e.g. *a piece of cardboard*
- **Translucent materials** – these are materials that let light pass through but scatter it in different directions, e.g. *frosted glass used in bathroom windows.*

LUMINOUS AND NON-LUMINOUS OBJECTS

- **Luminous objects** – are objects that emit light on their own, e.g. the Sun
- **Non-luminous objects** – these are objects that do not reflect light, e.g. wood.

ACTIVITY

- 1.1 The picture below shows objects that give off light (luminous objects), objects that do not give off light (non luminous objects) and activities involving transformation of energy.



[Source: *All Aboard Natural Sciences*]

- 1.1.1 Name TWO objects that are luminous in the picture. (2)
- 1.1.2 What energy transformation is taking place in the torch? (2)
- 1.1.3 Before electricity was discovered what did people use to light their houses? (6)
(3 × 2)
- 1.1.4 Identify TWO transparent materials in the picture. (2)