Reflections ~ STEAM Education from Queensland

Let's join the session!

The following questions are based on the contents of the session. Watch the session and answer each question.

[1] Explain what light is.

- Light is energy.
- Light travels as waves at 300,000 km per second.
- Light travels seven and a half times around the earth every second.
- There are many types of light, such as radio waves, microwaves, infrared radiation, visible light, ultraviolet, x-rays and gamma rays.

[2] Explain where light comes from.

- Light comes from atoms. When atoms are excited and give off energy, they produce light.
- When electrons going around the atomic nucleus give off energy, they begin to produce light.

[3] Explain how light behaves.

- When light hits a mirror, it reflects at the same angle and changes direction.
- When a light strikes a mirror, it comes off the mirror as a reflected wave.

[4] Explain how light is used to make a telephone call from Japan to Australia.

- The microwave light produced by a phone travels as a wave to a telephone tower and is reflected underground to a cable. The light can move through cables without being absorbed into the surface of the cables. The light from a phone goes through cables under the ocean, to a telephone tower in Australia. From there, it is reflected to the receiving phone. Light travels 300,000 km per second, so we can talk with each other on the phone in real time.

[5] Explain how we can see the surface of the sea with a periscope.

- Light reflects when it hits a mirror. This characteristic of light is used in periscopes. Placing two mirrors at the surface point and the undersea point enables us to see the surface of the sea from the undersea place. Light reflects at the two mirrors at the same angle and changes direction toward the person looking into the periscope. Therefore, the person can see the surface of the sea with the periscope.

Wrap up the session!

[1] The following is a summary of the session. Write down the appropriate words in the blanks in the passage. You may use the same words for several blanks.

Light is energy that travels (as) (a) (wave) at 300,000 km (per) (second). This means it travels seven and a half times around the earth every second. Light comes from (atoms) that (are) (excited). When an atom is excited and (electrons) going around the atomic nucleus give off energy, light is produced. Light (reflects) (against) a (mirror) and (changes) (direction), and can go through a cable (reflecting) (off) the surface of the cable. (Microwave) (light), a kind of light, is used in telephone calls that utilize the nature of light. (Microwave) (light) made by a phone reflects at a telephone tower to an (underground) cable and travels through the cable underseas, (reflecting) (off) the surface of the cable. Light travels very fast, so we can (talk) (with) each other on the phone in real time. The reflection of light is also used in periscopes.