

Prior Knowledge

Do you think light travels in curved lines or straight lines?

What do you think is the difference between the words transparent, translucent, and opaque?

What do you think is the difference between the words luminous and non-luminous.

Light travels in straight lines. It cannot bend around objects.

If you're using a flashlight, and you cover the part where the light comes out, is the light able to bend around your hand?

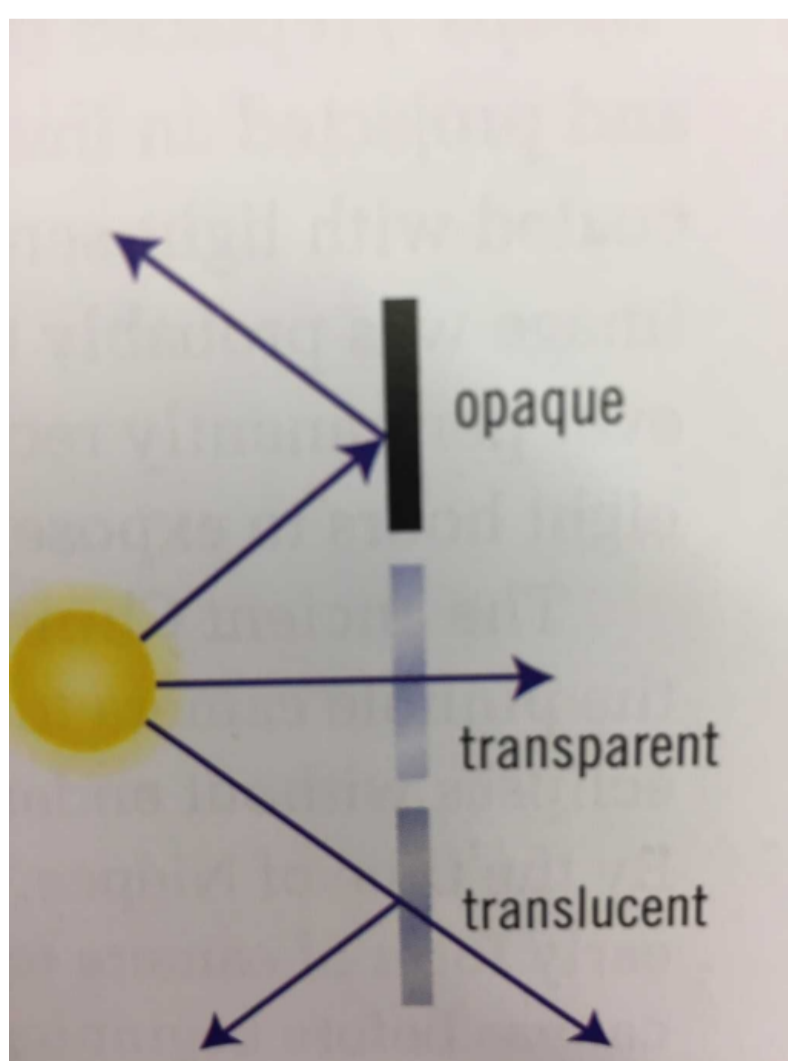
Vocabulary:



Lumos!

Term	Definition	Examples
luminous	object that produces light	sun, light bulb, fire
non-luminous	objects that do not produce light, but may reflect it	Moon, most objects on earth
transparent	materials that allow light to pass through	glass, air,
opaque	materials that do not allow light to pass through	wood, metal, thick plastic
translucent	materials that allow some light to pass through	some types of cloth, stained glass, tissue paper

A ray diagram illustrates the direction of the path of light as it hits different types of materials. Arrows going through the object represent light going through. Arrows going backward represent light reflecting.



When light hits **opaque** objects, some is reflected but some is absorbed. No light passes through.

When light hits **translucent** objects, some is reflected but some passes through.

Illuminance: The amount of light arriving at one place per unit area.

Luminance intensity (also known as brightness): light that is emitted from the surface of an object.

If you are sitting far away from a light source, you will notice the luminance intensity is lower (the light is dimmer). This is because there is less illuminance (less light arriving to where you're sitting.)

What do you think light pollution is?

What do you think light pollution is?

Light rays from street lamps and buildings travel up into the sky. There, they bounce off clouds and dust particles to form a glow.

Astronomers need a very dark sky to observe distant stars and galaxies so this light pollution gets in the way. Astronomers would have lamp shades put over city lights if they could!

Questions:

Please answer the following questions in **complete sentences**. You do not have to hand them in, as we will go over them together!

1. Is the distance the light travels from a flashlight during the day different than the distance the light from a flashlight travels during the night? Why or why not?

2. a) Describe, in words, what happens to light when it hits an opaque object.

b) Using a ray diagram, show what happens to light when it hits an opaque object.

3. What happens to illuminance as you move farther from a light source. Why?

4. Is the Earth a luminous or non-luminous object? (You may need to look at your vocabulary chart to refresh your memory!)