Dear Educator,

This file offers views of some of the worksheets in our "Light and Color" thematic unit. The cover for an eWorkbook is shown followed by the preview pages.

The "Light and Color" unit offers 20 pages.

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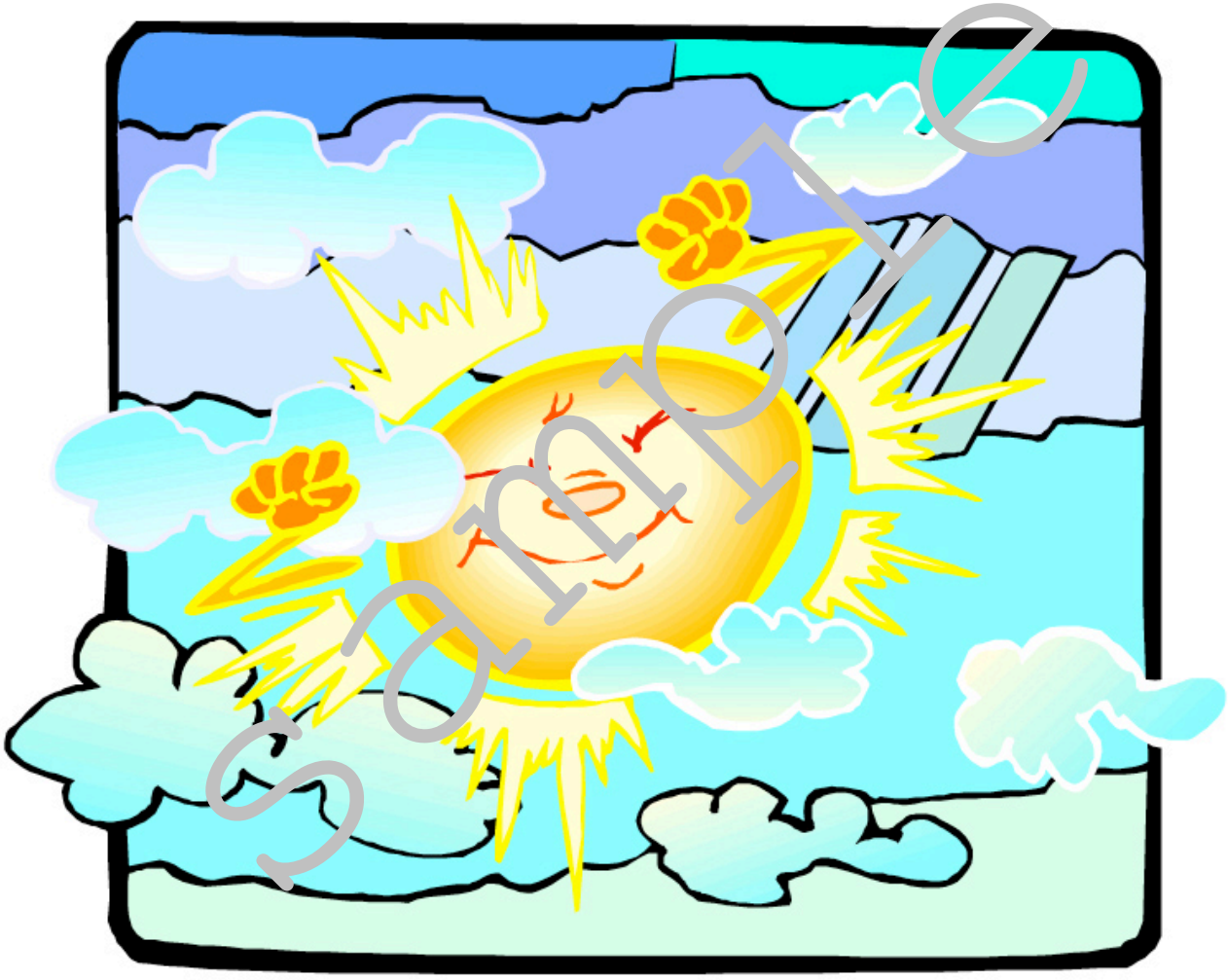
Light and Color



Light and Color

What is Light?

Light is a kind of energy, emitted from a source, and absorbed into materials on Earth. Light is called electromagnetic radiation.

Light is a kind of energy which has both electric and magnetic qualities that "radiate", or move out, from a source.

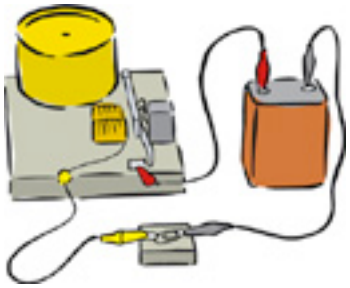
What is the ultimate source of this kind of electromagnetic radiation, called light, for us on Earth? You guessed it—the SUN.

"Electric" means that it has a charge, like a battery.

"Magnetic" means that it creates an area around it that attracts a charge, like a magnet. This area is called a "field".

If you think of power flowing through a wire, and a magnet attracting metal to it, then you can understand that light has both of these qualities.

Light is packaged up in tiny packets called photons. These photons are very small, smaller than you could see if you looked at just one. They are called particles of light.



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Light and Color

What is Light?

Light also has another groovy way of being known. It is a wave. That means it moves like waves on the water. Light is a particle, and a wave, all at the same time! Scientists study light as both particles and waves.

The more scientists learn, the more they conclude, light is emitted in photons, but behaves like a wave.

Light can travel very fast! Its speed in a vacuum is 186,282 miles a second, or 299,792,458 meters a second. It's a good thing that so many particle/waves of light come to us continually from the sun, or we would miss an individual particle coming to us from the sun.

What is wonderful for us about this special range of electromagnetic radiation is that WE CAN SEE IT. That's right, light is a kind of electromagnetic radiation we can see. Light interacts with the tissue in the eyes of animals in such a way, that it sends a signal to the brain. Our brains see something, because of light.

Read each word below. Write the definitions on the lines.

1. vacuum _____

_____

_____

2. radiation _____

_____

_____

sample

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Light and Color

What is Color?

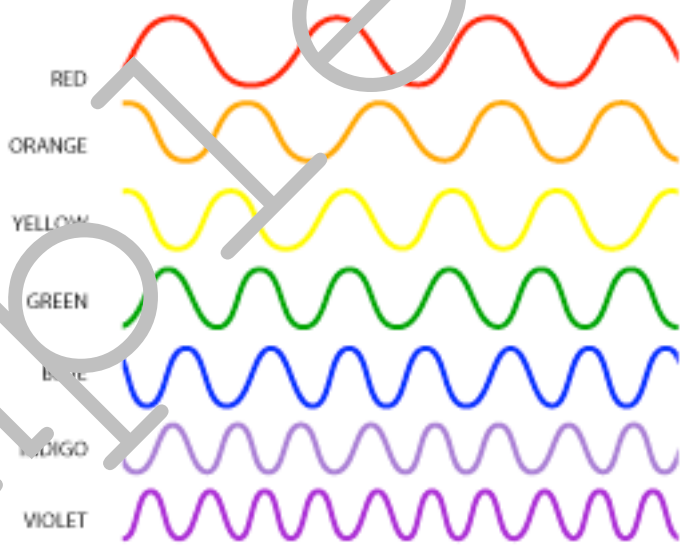
Light is made of many colors in what is called the visible spectrum.

There are many kinds of electromagnetic waves. We can only see the visible light waves. We see these as colors in the rainbow. Red has the longest wavelength and violet has the shortest wavelength. When all the waves are seen together, they make white light.

View the image on this page. You can see that the red wavelength has the crests or tops of the wave further apart than the other colors. You can see that the violet wavelength is the shortest of the colors. The crests or tops of the wave are closer together.

When all these colors are seen together they make the color of white.

So white light can be broken up into the colors of the visible spectrum. They are: Red, Orange, Yellow, Green, Blue, Indigo, and Violet.



Science teachers give this spectrum a fun name by using the first letter of each color in order: ROY G BIV. You can use this fun name to remember the colors of the visible spectrum in order.

Close your eyes now, and say ROY G BIV. Then think of each letter and the color it represents. Now say the colors of the visible spectrum in order from red to violet. Practice this a few times.

Also, you can use a glass or plastic prism to break white light into these colors. When the light passes through the prism it is broken up into the colors in ROY G BIV. This is called dispersion. Try this if you have a prism.

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Light and Color

Criss Cross

Can you fit these words into the criss cross?
Use a pencil so you can erase if you need to.

retina	reflection	refraction	light
lens	microscope	spectacles	color

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