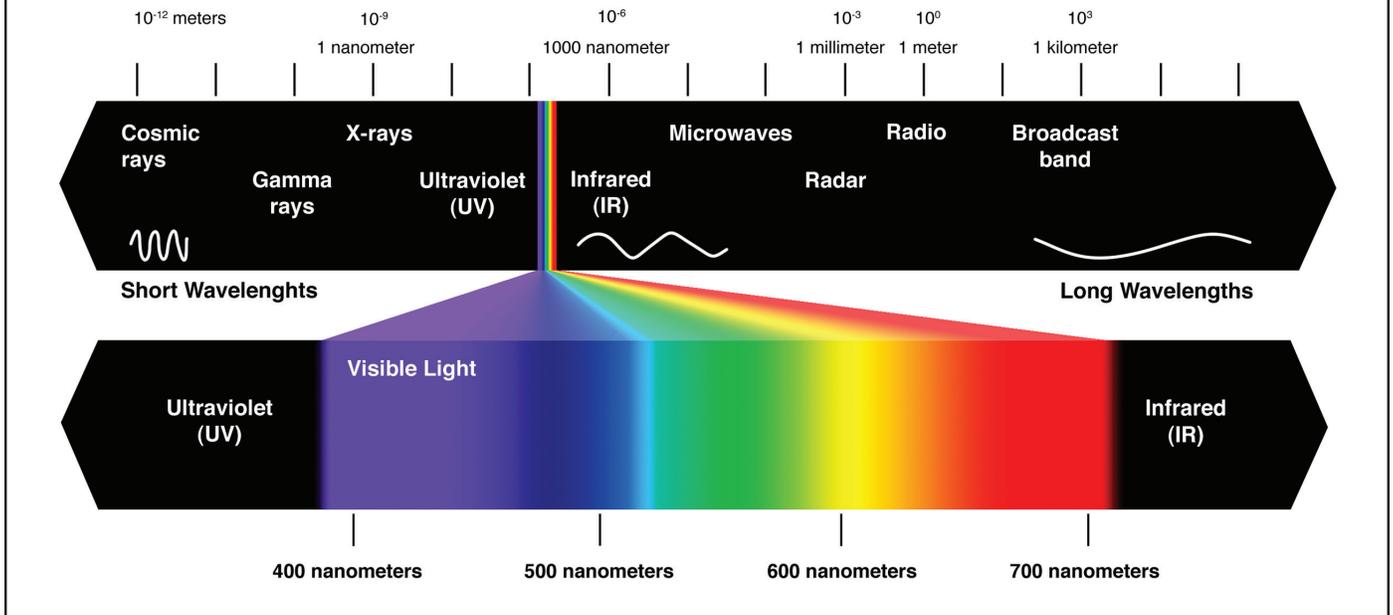


# The Electro Magnetic Spectrum



## Understanding Infrared Light Energy

**Infrared light** lies between the visible and microwave portions of the electromagnetic spectrum. Infrared light has a range of wavelengths, just like visible light has wavelengths that range from red light to violet. “Near infrared” light is closest in wavelength to visible light and “far infrared” is closer to the microwave region of the electromagnetic spectrum. The longer, far infrared wavelengths are about the size of a pin head and the shorter, near infrared ones are the size of cells, or are microscopic.

Our eyes are sensitive to light which lies in a very small region of the electromagnetic spectrum labeled “visible

light”. The human eye is not capable of “seeing” radiation with wavelengths outside the visible spectrum. The visible colors from shortest to longest wavelength are: violet, blue, green, yellow, orange, and red. Ultraviolet radiation has a shorter wavelength than the visible violet light. Infrared radiation has a longer wavelength than visible red light. The white light is a mixture of all of the colors of the visible spectrum. Black is a total absence of light.

Earth’s most important energy source is the Sun. Sunlight consists of the entire electromagnetic spectrum.



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# Colors We Can't See

## Energy with wavelengths too short for humans to see

Energy with wavelengths too short to see is “bluer than blue”. Light with such short wavelengths is called “Ultraviolet” light.

We know this light exists as too much ultraviolet light causes sunburns. Our skin is sensitive to this kind of light. If we stay out in this light without sunblock protection, our skin absorbs this energy. After the energy is absorbed, it can make our skin change color (“tan”) or it can break down the cells and cause other damage.

## Energy with wavelengths too long for humans to see

Energy whose wavelength is too long to see is “redder than red”. Light with such long wavelengths is called “Infrared” light. The term “Infra-” means “lower than”.

We know this type of energy exists as we can feel energy in this wavelength when we feel the warmth of a campfire or get too close to a burner on our stove.

Far infrared waves are thermal. We experience this type of infrared radiation every day in the form of heat! This is the heat that we feel from sunlight, a fire, a radiator or a warm sidewalk – all of these are infrared heat sources.

Shorter, near infrared waves are not hot at all – in fact you cannot even feel them. These shorter wavelengths are the ones used by your TV’s remote control.

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