

C5. Light Spectrum

Light Spectrum

Have you ever seen a rainbow in the sky after a rain shower? Rainbows are a beautiful example of the different colors that light can create. Light is not just white; it is made up of many colors that together form what we call the light spectrum.

What is Light?

Light is a form of energy that allows us to see the world around us. It travels in waves and moves incredibly fast. When light enters our eyes, it helps our brain understand what we are looking at, allowing us to see colors, shapes, and objects.

The Visible Light Spectrum

The visible light spectrum is the range of colors that our eyes can see. It includes the following colors:

1. Red

Red is the color with the longest wavelength in the visible light spectrum. It is often associated with warmth and energy.

2. Orange

Orange has a slightly shorter wavelength than red and is known for its vibrant and energetic appearance.

3. Yellow

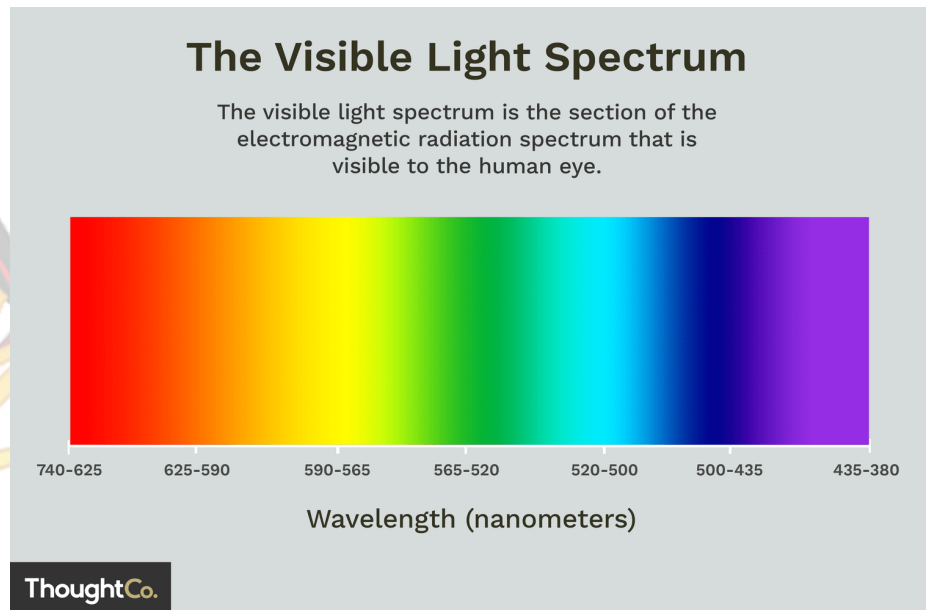
Yellow comes next in the spectrum and is often associated with happiness and brightness.

4. Green

Green is a very common color in nature and is known for its calming and refreshing quality.

5. Blue

Blue is the color of the sky and the ocean. It is often associated with tranquility and peace.



6. Indigo

Indigo is a deeper shade of blue and is less commonly seen in everyday life.

7. Violet

Violet has the shortest wavelength in the visible light spectrum and is known for its regal and mysterious appearance.

Rainbows: A Colorful Phenomenon

Rainbows are created when light is refracted, or bent, as it passes through raindrops in the air. The different colors of light are separated and spread out, creating the beautiful arc of colors that we see in the sky.

Other Examples of the Light Spectrum

Rainbows are not the only way to see the colors of the light spectrum. When light passes through a prism, it also gets refracted, just like in raindrops. This separates the colors of light and creates a rainbow-like band of colors called a spectrum.

Colors in Our World

The colors of the light spectrum are all around us, and they play a significant role in our lives. They can affect our moods, feelings, and even our behavior.

1. What is light?
 - A) A form of energy
 - B) A form of sound
 - C) A type of food
 - D) A form of liquid
2. What is the visible light spectrum?
 - A) The range of colors that our eyes can see
 - B) The colors of the rainbow
 - C) The colors of the ocean
 - D) The range of sounds that our ears can hear
3. Which color has the longest wavelength in the visible light spectrum?
 - A) Red
 - B) Blue
 - C) Green
 - D) Violet
4. Which color has the shortest wavelength in the visible light spectrum?
 - A) Red
 - B) Blue
 - C) Violet
 - D) Yellow

5. What is the phenomenon that creates rainbows?
- A) Reflection
 - B) Absorption
 - C) Refraction
 - D) Transmission
6. What causes the different colors of a rainbow?
- A) The different shapes of raindrops
 - B) The different speeds of light
 - C) The bending of light as it passes through raindrops
 - D) The different temperatures of the air
7. How is a spectrum created using a prism?
- A) By refracting light through raindrops
 - B) By reflecting light off a shiny surface
 - C) By refracting light through a triangular-shaped glass
 - D) By absorbing light into a dark surface
8. What color is associated with warmth and energy?
- A) Blue
 - B) Green
 - C) Red
 - D) Yellow
9. Which color is associated with tranquility and peace?
- A) Blue
 - B) Green
 - C) Red
 - D) Yellow

ANSWERS & EXPLANATIONS

1. A - A form of energy.
 - a. Light is a form of energy that allows us to see the world around us.
2. A - The range of colors that our eyes can see.
 - a. The visible light spectrum is the range of colors that our eyes can see, including red, orange, yellow, green, blue, indigo, and violet.
3. A - Red.
 - a. Red has the longest wavelength in the visible light spectrum.
4. C - Violet.
 - a. Violet has the shortest wavelength in the visible light spectrum.
5. C - Refraction.
 - a. Rainbows are created by the refraction of light as it passes through raindrops in the air.
6. C - The bending of light as it passes through raindrops.
 - a. The different colors of a rainbow are created by the bending of light as it passes through raindrops, separating the colors and forming the arc.
7. C - By refracting light through a triangular-shaped glass.
 - a. A spectrum is created using a prism by refracting light through a triangular-shaped glass, which separates the colors of light.
8. C - Red.
 - a. Red is associated with warmth and energy.
9. A - Blue.
 - a. Blue is associated with tranquility and peace.