

Colors in Light

Read how visible colors connect to different wavelengths.

5.6.b “the visible spectrum includes light with different wavelengths;”

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline every color named in the passage, and circle each sentence that explains how wavelengths differ, so you can connect color to wavelength.

A Band of Light

- ① Light from the Sun may look white, but it can be separated into a band of colors called the visible spectrum. You can see a similar band when sunlight passes through raindrops. The colors blend smoothly from red through orange, yellow, green, blue, and violet. Your eyes detect these colors because each kind of visible light has its own wavelength.
- ② A wavelength is the distance from one matching point on a light wave to the next matching point. Visible light waves are extremely small, yet their wavelengths are not all alike. Red light has the longest wavelengths that people can see. Violet light has the shortest visible wavelengths. Orange, yellow, green, and blue have wavelengths between those two ends.
- ③ This wavelength difference matters in everyday tools. A television or phone screen mixes tiny amounts of colored light to make many colors. A rainbow appears when water drops bend and separate sunlight by wavelength. Although the spectrum is often named with color words, it is not a set of separate blocks. It is a continuous range of visible light wavelengths.

2 ANSWER WITH EVIDENCE Use the passage

1 What is the visible spectrum?

2 Which visible color has the longest wavelengths, and which has the shortest visible wavelengths?

3 How do the wavelengths of orange, yellow, green, and blue compare with red and violet?

4 Why does the passage say the visible spectrum is not a set of separate blocks?

3 YOUR TURN Your own words

Write a three-sentence caption for an imaginary rainbow display. Explain that it shows the visible spectrum, state which named end has longer wavelengths and which has shorter wavelengths, and name one color between.

PART 1 • READ AND MARK

Underline every color named in the passage, and circle each sentence that explains how wavelengths differ, so you can connect color to wavelength. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	What is the visible spectrum?	A band, or continuous range, of visible light colors.
2	Which visible color has the longest wavelengths, and which has the shortest visible wavelengths?	Red has the longest visible wavelengths, and violet has the shortest.
3	How do the wavelengths of orange, yellow, green, and blue compare with red and violet?	They have wavelengths between red's longer wavelengths and violet's shorter wavelengths.
4	Why does the passage say the visible spectrum is not a set of separate blocks?	The colors blend smoothly in a continuous range of wavelengths.

PART 3 • YOUR TURN (SAMPLE ANSWER)

This rainbow display shows the visible spectrum, a continuous range of light that people can see. Red light is at the longer-wavelength end, while violet light is at the shorter-wavelength end. Green is one color with wavelengths between red and violet.

Accept equivalent descriptions of the visible spectrum as a continuous band or range of colors that people can see. For the open response, check for three sentences that correctly connect red with longer wavelengths, violet with shorter wavelengths, and a named middle color with wavelengths between them.