

31.1 Light & Sound (Part 1)

Physical
Science

Summarize main points from each video.

Video Title / topic _____

Video Title / topic _____

Video Title / topic _____

Topic Introduction



Summarize your understanding of each paragraph.

Light is electromagnetic radiation within a certain portion of the electromagnetic spectrum. The word usually refers to visible light, which is visible to the human eye and is responsible for the sense of sight.

The main source of light on Earth is the Sun. Sunlight provides the energy that green plants use to create sugars mostly in the form of starches, which release energy into the living things that digest them.

The primary properties of visible light are intensity, propagation direction, frequency or wavelength spectrum, and polarization.

In physics, the term light sometimes refers to electromagnetic radiation of any wavelength, whether visible or not. In this sense, gamma rays, X-rays, microwaves and radio waves are also light.

Read/Summarize Text



1. Read the passage.
2. Underline key expressions in each sentence.
3. Re-write each word (or expression) you underlined.
4. Summarize the passage.

Light

Light is a type of energy. It is a form of electromagnetic radiation of a wavelength which can be detected by the human eye. It is a small part of the electromagnetic spectrum and radiation given off by stars like the sun. Animals can also see light. The study of light, known as optics, is an important research area in modern physics.

Light is electromagnetic radiation that shows properties of both waves and particles. Light exists in tiny energy packets called photons. Each wave has a wavelength or frequency. The human eye sees each wavelength as a different color. Rainbows show the entire spectrum of visible light.

<https://simple.wikipedia.org/wiki/Light>

Re-write words you underlined

Using a complete sentence, summarize or rephrase the passage

Read Text for Comprehension

Read this article for deeper understanding. No summary is required, although you may want to circle, underline, or mark key ideas and words.

About Light

In a vacuum, light moves at the speed of light; which is 299,792,458 meters, or about 186,282 miles per second. This means it takes about 8 minutes for light to reach Earth from the Sun. In glass it travels at about two-thirds as fast.

Light moves in a straight line, creating shadows when the path of light is blocked. More solid things will have a darker shadow, things that are more clear have a lighter shadow, and transparent things will have none or very little shadow. Light can pass through transparent things the most easily. When light is not in a vacuum, it travels more slowly than its maximum speed of light. The slowest light ever recorded moved at 38 mph. Our eyes react to light; when we see something we see the light it reflects, or the light it emits. For example, a lamp gives off light, and everything else in the same room as the lamp reflects its light.

Every color of light has a different wavelength. The shorter the wavelength, the more energy the light has. The speed at which light moves does not depend on its energy. Going through partly clear objects can slow light down by a very small amount.

White light is made up of many different colors of light added together. When white light shines through a prism, it splits up into different colors, becoming a spectrum. The spectrum contains all of the wavelengths of light that we can see. Red light has the longest wavelength, and violet (purple) light has the shortest.

Light with a wavelength shorter than violet is called ultraviolet light. X-rays and Gamma rays are also forms of light with even shorter wavelengths than ultraviolet. Light with a wavelength longer than red is called infrared light. Radio waves are a form of electromagnetic radiation with a wavelength even longer than infrared light. The microwaves that are used to heat food in a microwave oven are also a form of electromagnetic radiation. Our eyes cannot see those kinds of energy, but there are some cameras that can see them. The various forms of light, both visible and invisible are the electromagnetic spectrum.

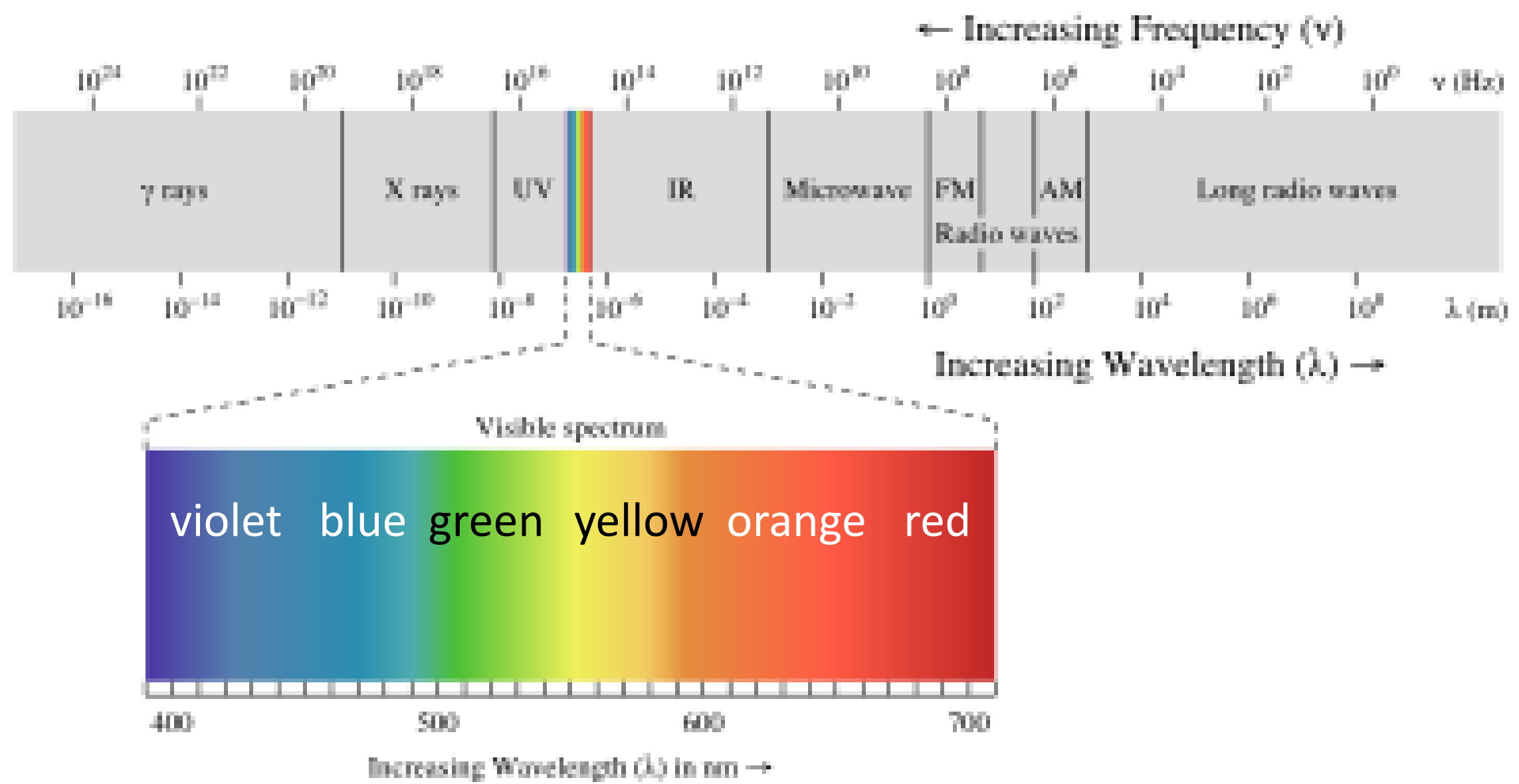
When light is refracted in raindrops, a rainbow is made. The raindrop acts like a prism and refracts the light until we can see the colors of the spectrum.

Draw Illustration



Copy and Label the Illustration in the Space Provided

Illustration



Reference URL.

Draw (Copy) the Illustration Here

Interpret a Graph



Write the title of the graph _____

Circle the type of chart this represents

Bar Chart Line Chart Pie Chart Other

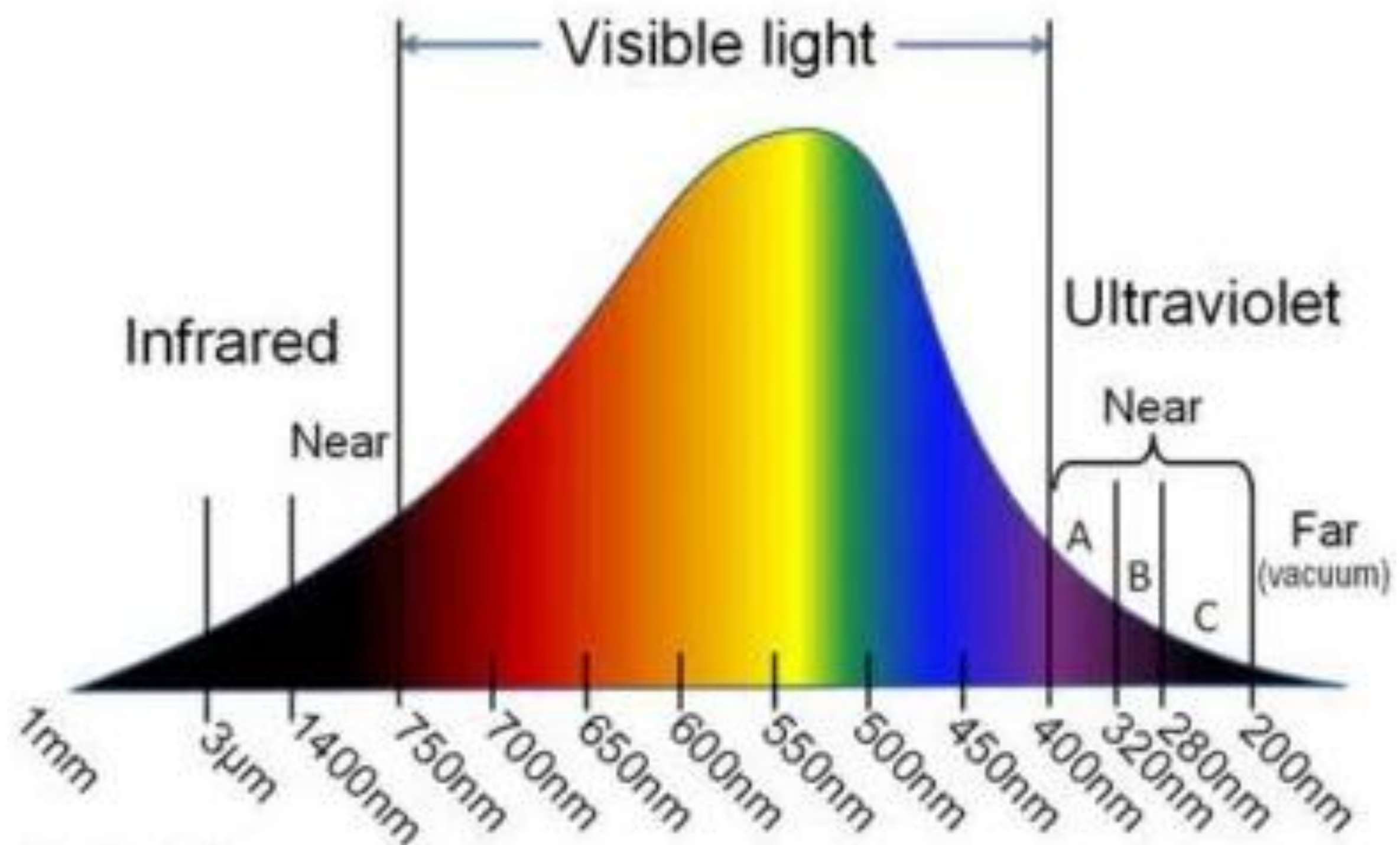
If applicable,

What does the X-axis represent _____

What does the Y-axis imply _____

Summarize what this graph represents or conveys

<http://labinyourpocket.com>



Show-Off Your Smarts!



Instructions

- Complete as an individual or small group.
- Discuss your ideas/answers/responses in a small group.
- Select one person to present your responses to the class.

Q1. How can this information be applied to a young-person's life?

Q2. How does this information apply to (or impact) communities?

Q3. When do scientists need to apply this information? How?

Q4. How would a person from 100 years ago view this information?

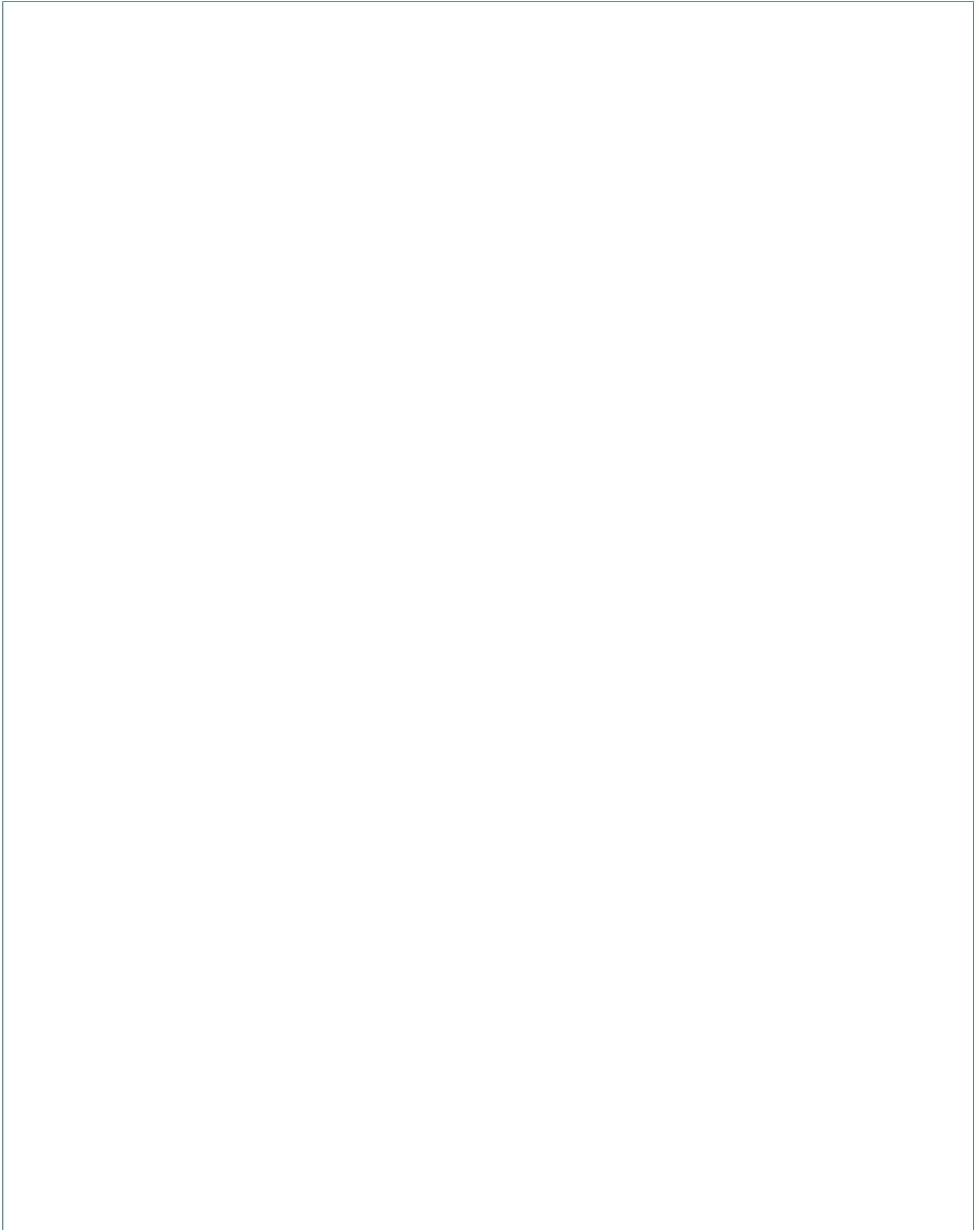
Q5. How does this topic connect to other science topics or math?

Write down at least three words introduced or covered by this topic.

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.

Make a Poster

In the space provided here, create/draw a poster which conveys the concepts you have learned on this topic.

A large, empty rectangular box with a thin blue border, intended for the student to create a poster. The box occupies the majority of the page below the instructions.