

# Day 1

LIGHT IS DESIGNED FOR LIFE

## Light is a unique form of energy

Energy is generally transmitted through matter like water or air by waves...but there is no matter in space, so how do we get light?

Light is electromagnetic waves. These unique waves can move through space to provide us with the energy we need for life!



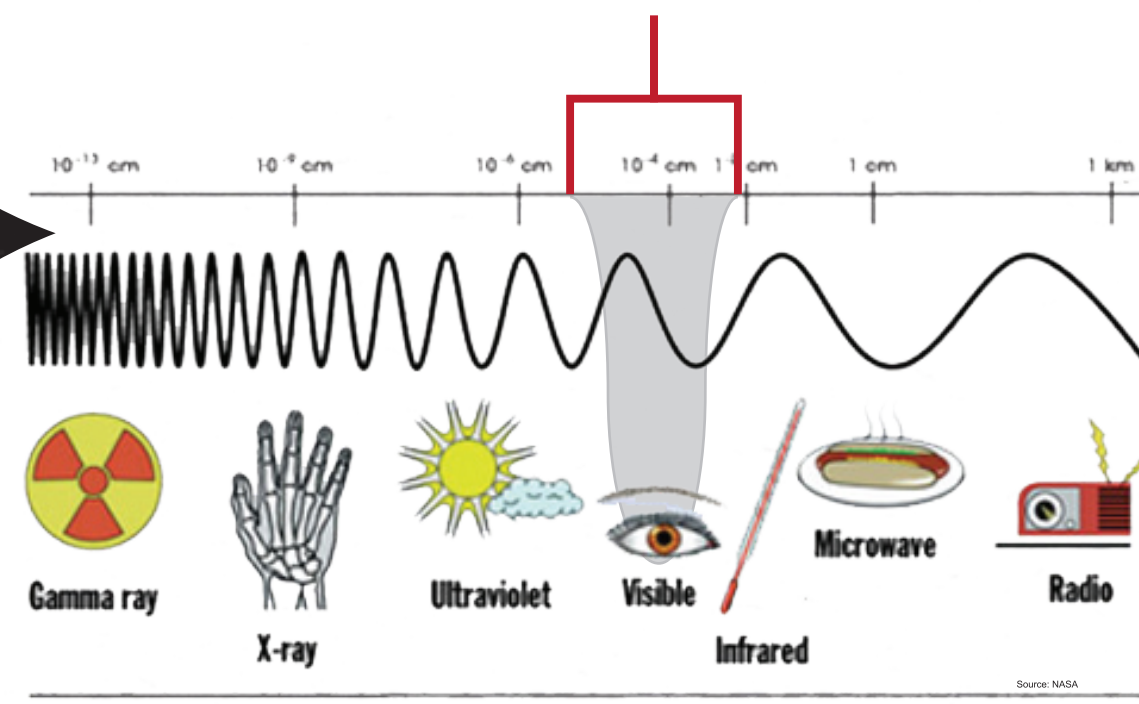
And God said, "Let there be light," and there was light. God saw that the light was good and he separated the light from the darkness. God called the light "day," and the darkness he called "night." And there was evening, and there was morning - the first day.

-Genesis 1:3-5 (NIV)

## Most of the light that reaches Earth is in wavelengths useful for life

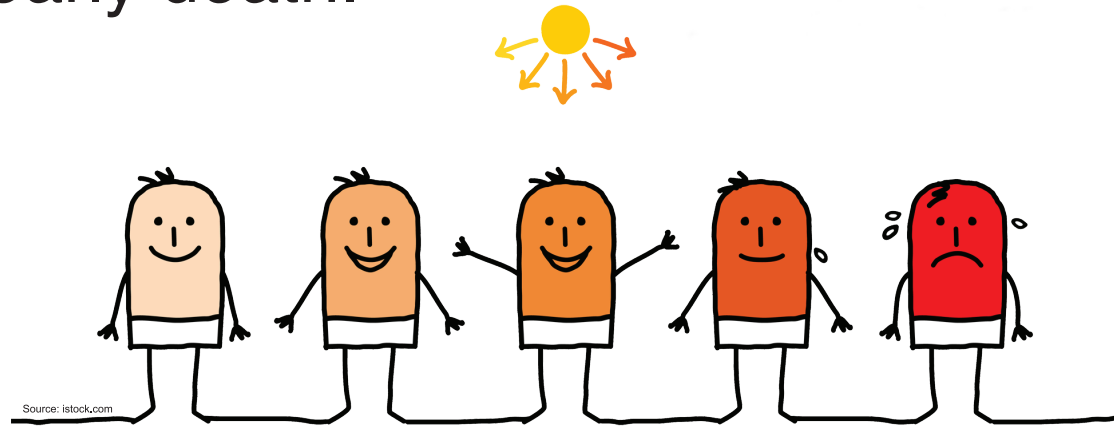
Wavelengths on this side cause cellular damage!

Cellular damage could be in the form of burns or mutations in cells. Mutations could lead to tumors, cancer and early death.



Wavelengths on this side have insufficient energy for photosynthesis!

If light is not the right frequency it can't excite the photosystems within plants. Without those systems oxygen would not be produced in the quantities necessary to support animal life.



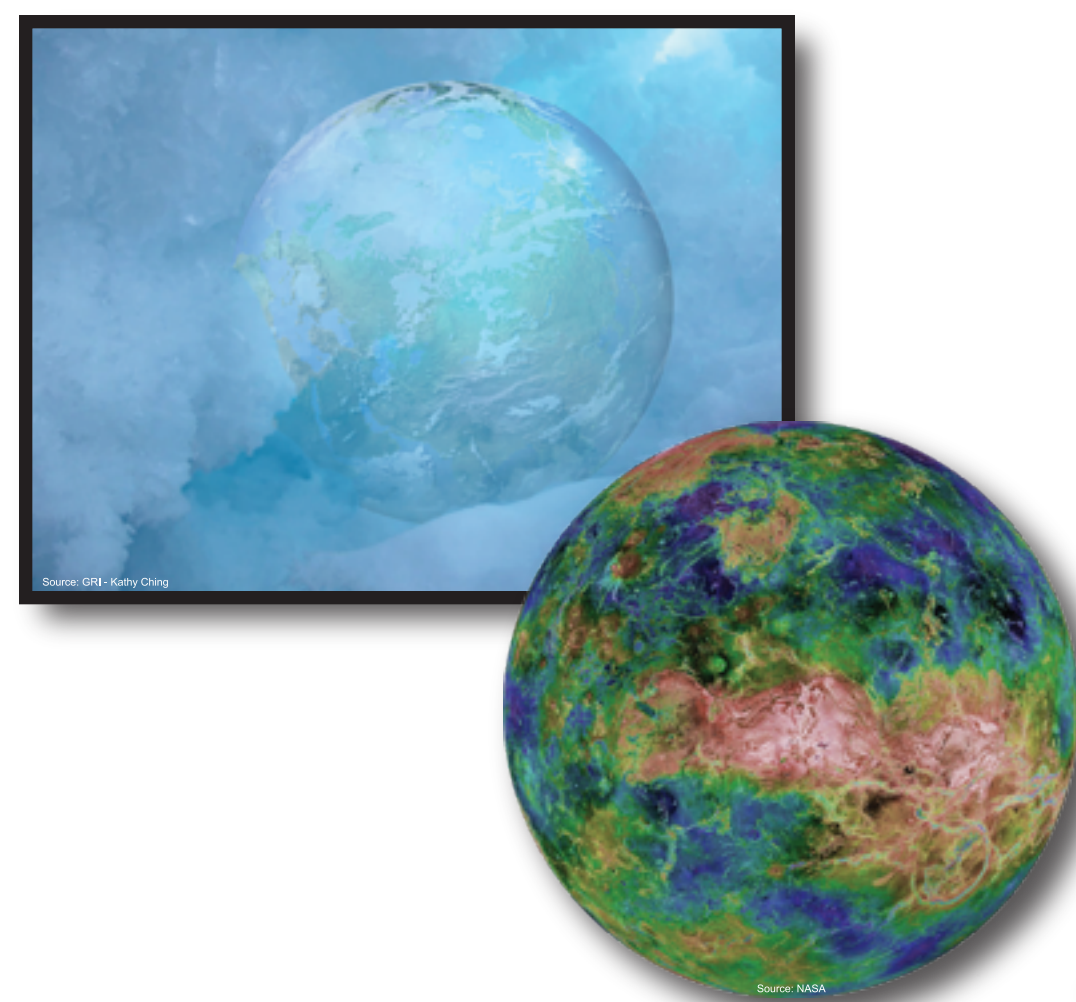
The visible light spectrum that we depend on is less than one trillionth of one trillionth of the universe's range of natural electromagnetic emissions!

That's a VERY SMALL number to happen just by chance!



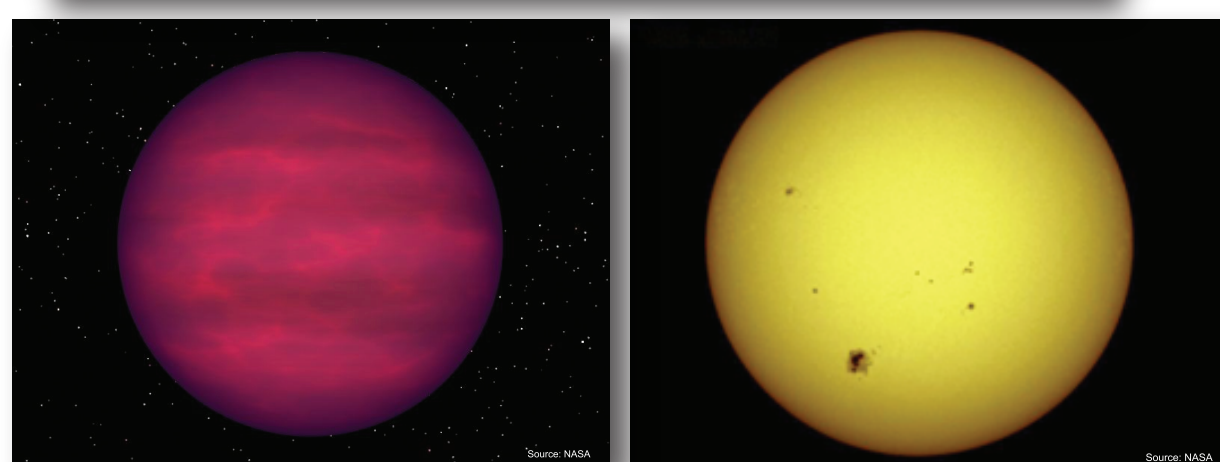
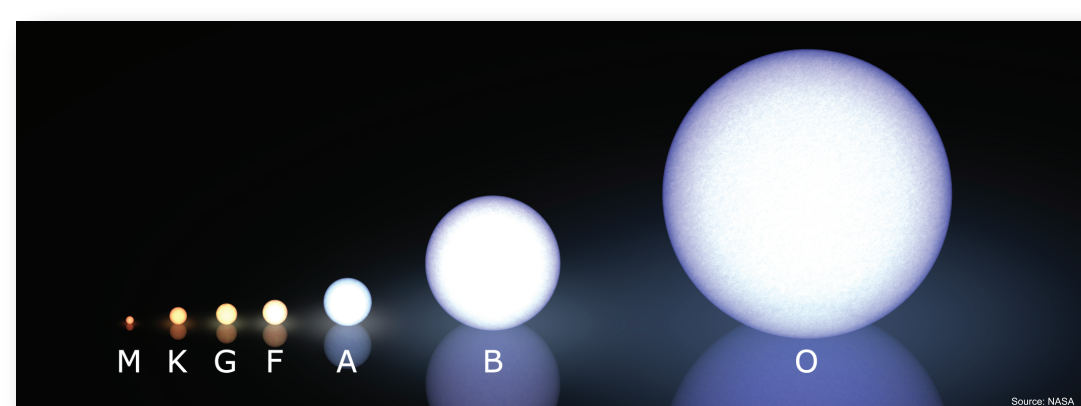
## Sunlight contributes to Earth's life-friendly temperature

What would happen to our planet if we didn't get enough heat? We would have a snowball Earth! With temperatures dropping, the water cycle would stop. There would be no running water, and plant life would disappear. With the loss of plant life the carbon/oxygen cycle would come to a standstill and life would be unable to survive.



And if we had too much heat? We would be like Venus! Venus is surrounded by gas clouds that are so thick that it is impossible to see the surface of the planet from space. These clouds contribute to a greenhouse effect that causes temperatures on the surface to reach an incredible 460° C!

## Our sun is one of few stars in the Universe that supports life



Stars are classified by the amount of light they produce and their temperature. Most stars are not capable of supporting life. The most common stars found within our galaxy are class M stars (bottom left). These stars are much cooler than our sun. Life on our planet would not be able to survive in the cooler temperatures and the associated light that would be present.

Our sun is a class G star (bottom right), which is a small class of stars, and one of only two types that seem suitable for supporting life. Our sun seems to have special properties that sustain life.