

# LIGHT = ENERGY

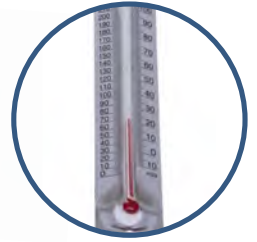
## MATERIALS NEEDED:



4 CLEAR GLASSES FILLED WITH WATER



YELLOW, RED & BLUE FOOD COLORING



IMMERSION THERMOMETER

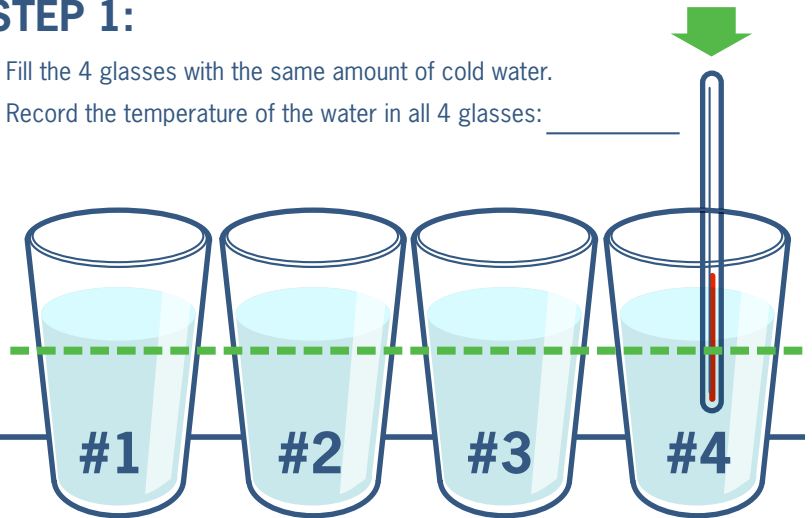
## EXPERIMENT 3:

### Absorption of radiant energy (sunlight) by different colors.

Light energy can turn into heat when it hits an object. In this experiment, you will determine how the color of an object affects the amount of sunlight that is absorbed.

### STEP 1:

- Fill the 4 glasses with the same amount of cold water.
- Record the temperature of the water in all 4 glasses: \_\_\_\_\_

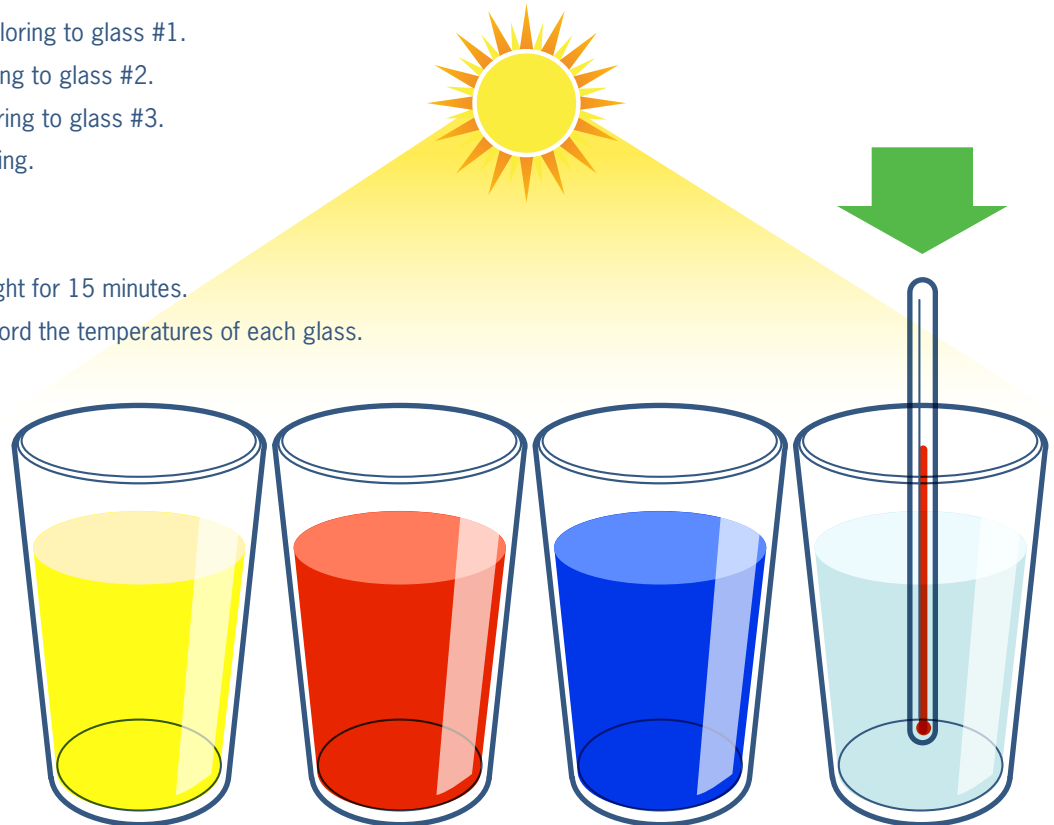


### STEP 2:

- Add **20 drops of yellow** food coloring to glass #1.
- Add **20 drops of red** food coloring to glass #2.
- Add **20 drops of blue** food coloring to glass #3.
- Glass #4 will have **NO** food coloring.

### STEP 3:

- Place all 4 glasses in direct sunlight for 15 minutes.
- Then use the thermometer to record the temperatures of each glass.
- Record your findings below.



#1: \_\_\_\_\_

#2: \_\_\_\_\_

#3: \_\_\_\_\_

#4: \_\_\_\_\_

**Why are the temperatures different?** The absorption of light involves an interaction between photons (sunlight) and electrons (the electrons are in the water). When a photon is absorbed by an electron, the electron jumps to a higher energy level and produces energy (heat). Different colors absorb different amounts of photons.