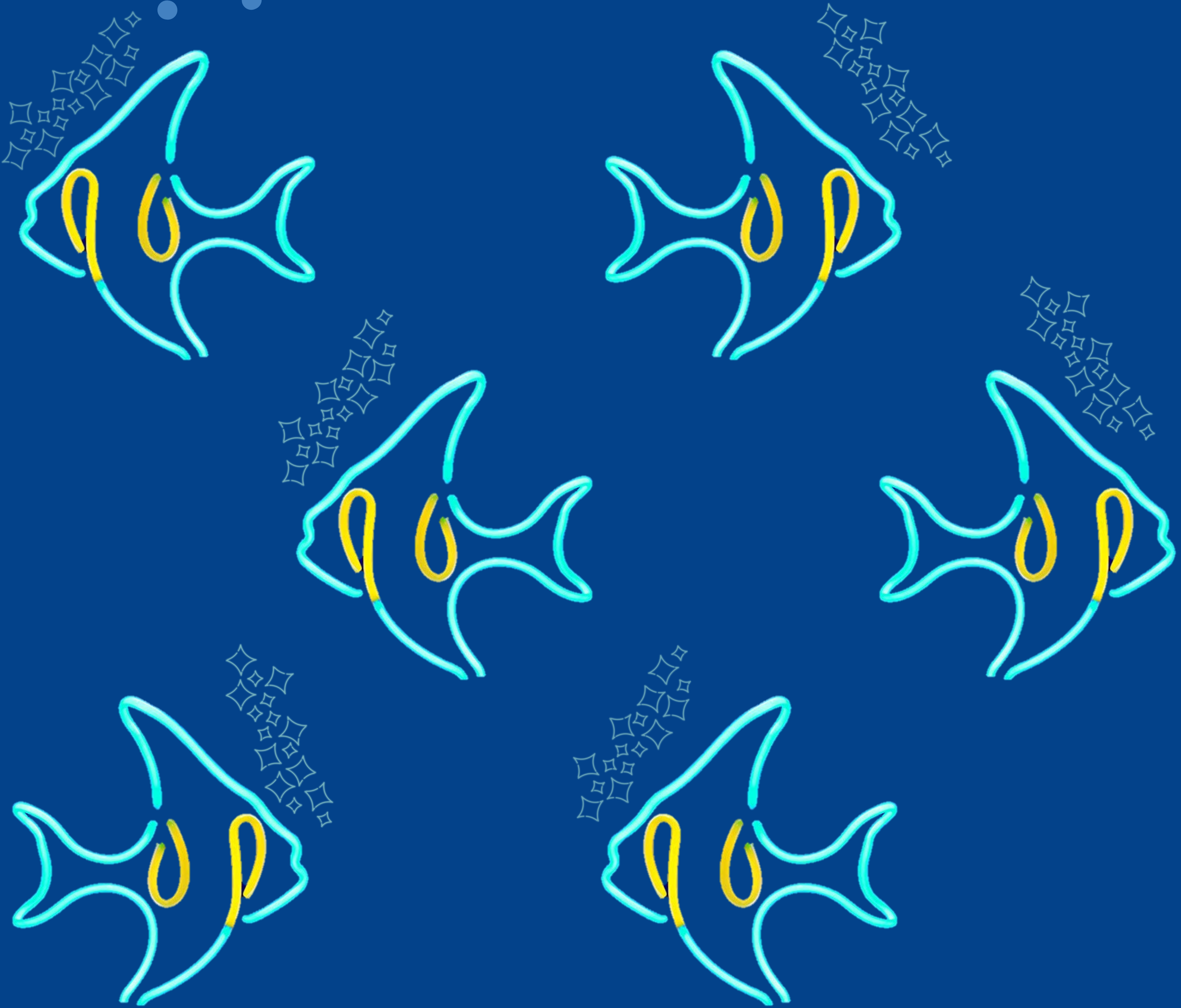


# BIO LUMINESCENCE

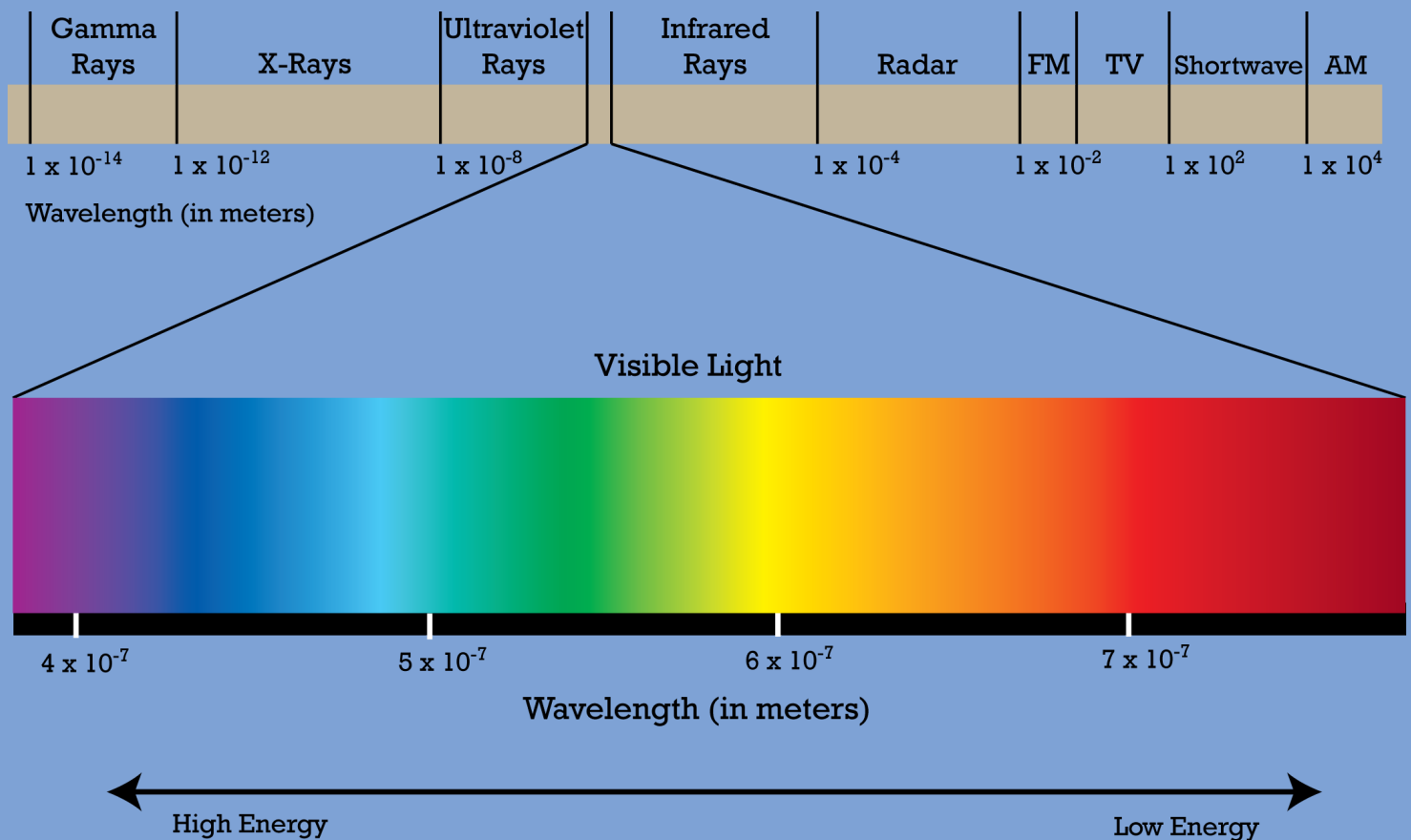
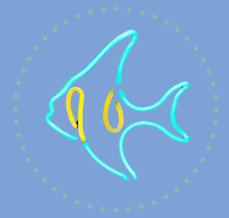
EVOLUTION GETS A GLOW-UP



NCSE.NGO

# BIOLUMINESCENCE

## THE ELECTROMAGNETIC SPECTRUM



## GUIDING QUESTIONS

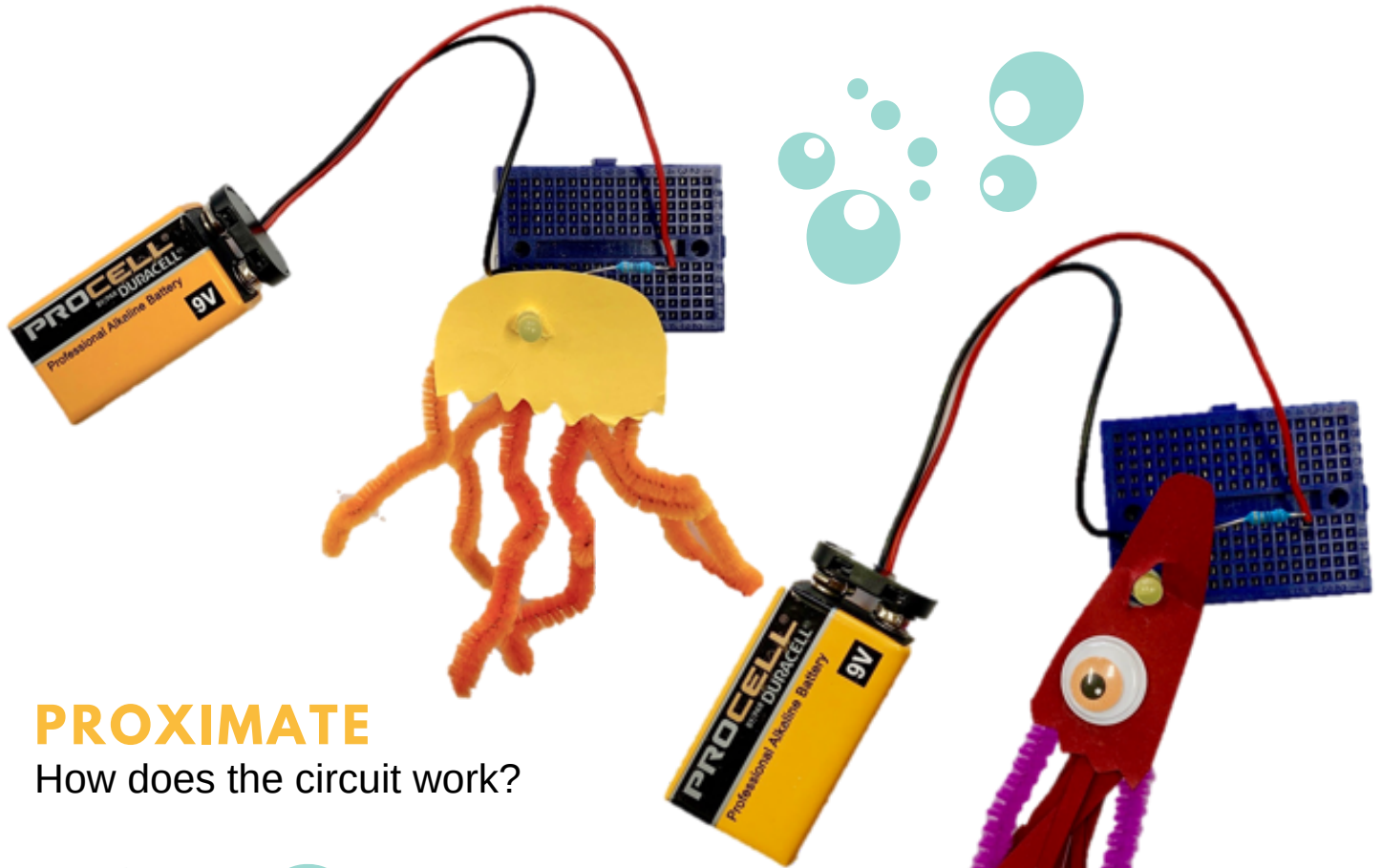
What do you notice about red and blue light?

Which light passes more quickly through the water?

How does this affect bioluminescence?

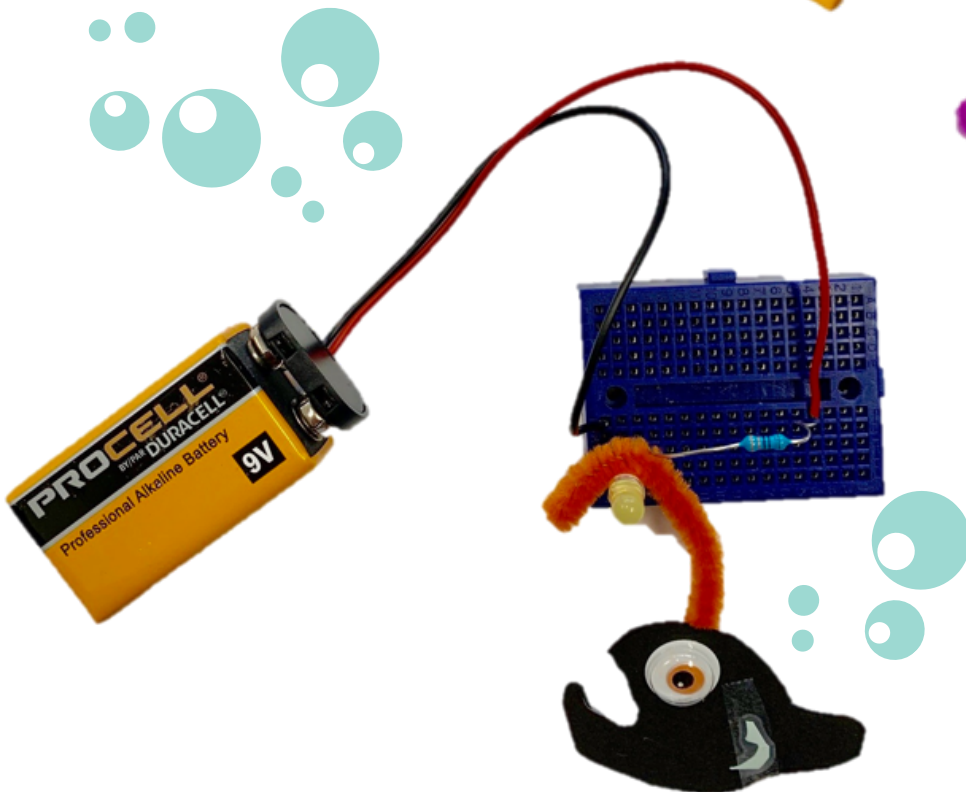


# WHAT ARE THE PROXIMATE AND ULTIMATE CAUSES OF YOUR CREATURE'S BIOLUMINESCENCE?



## PROXIMATE

How does the circuit work?



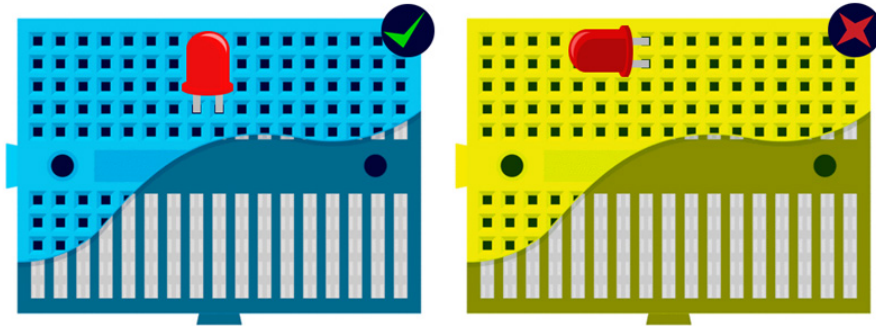
## ULTIMATE

Why does the creature bioluminesce?



# CIRCUIT MATERIALS GUIDE

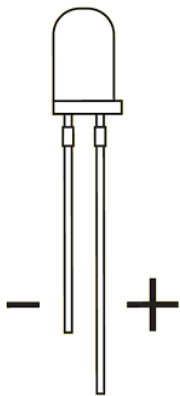
## Breadboards



"The LED on the left is connected correctly, however the one on the right will never work because both of its legs are connected together."

<https://learn.pimoroni.com/tutorial/>

## LED Diode

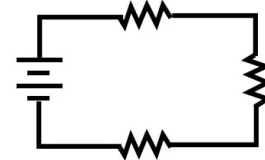


## Resistor

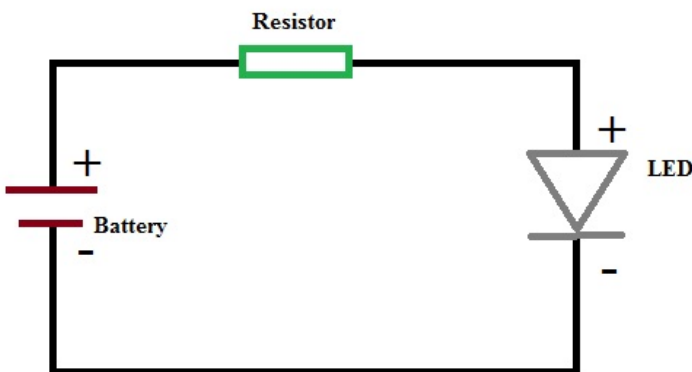
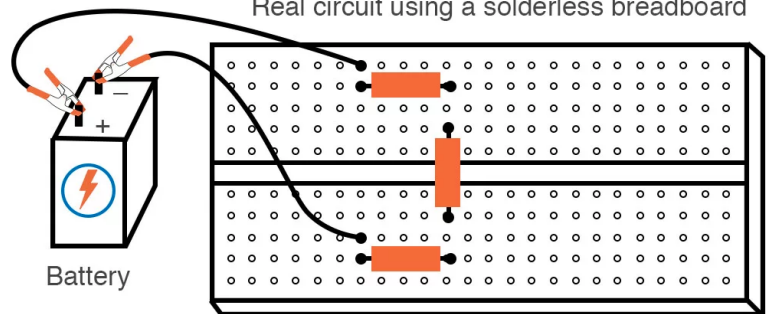


Use to control the flow of the circuit

Schematic diagram



Real circuit using a solderless breadboard

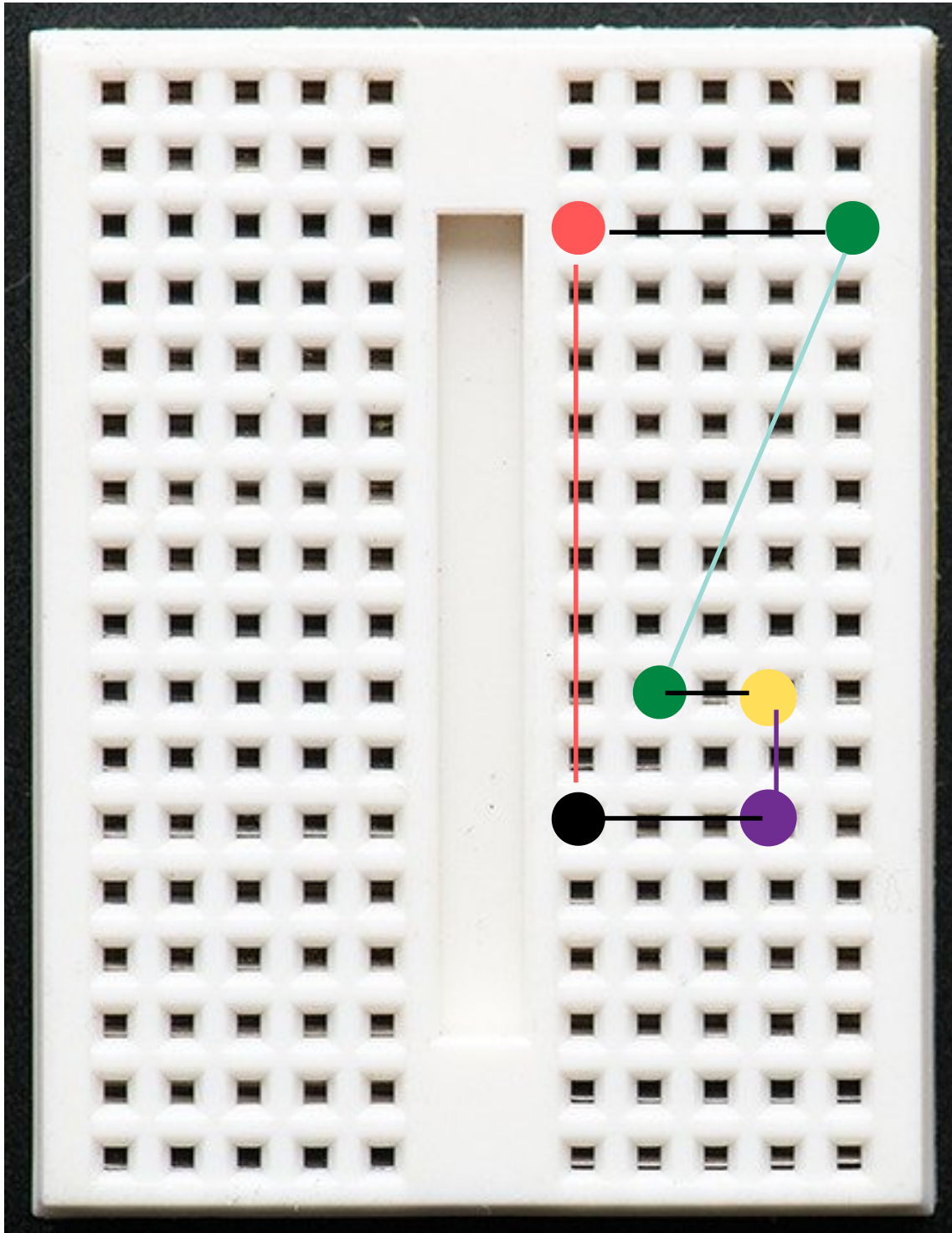


©Elprocus.com



# CIRCUIT BUILDING TIPS

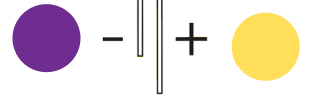
- Stay on the same side of the bread board
- The red wire should be on the same line as the resistor
- Match the short wire of the light with the negative (black) lead
- If it doesn't work the first time, keep testing!



## Resistor



## Led Diode



## Battery

