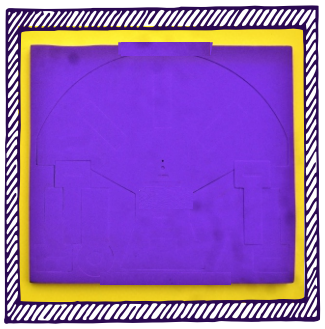
pielabz™

Practicality In Education

RGB COLOR MODEL

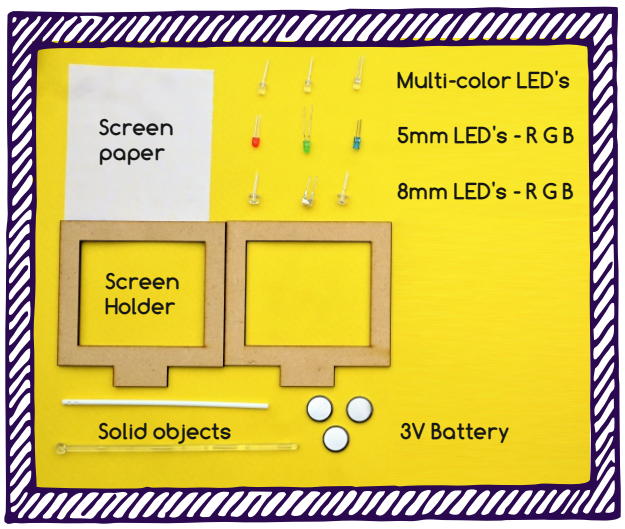
Light

Time	Difficulty	Warning
40 minutes	Medium	10+ Years Store LED's and battery separately.

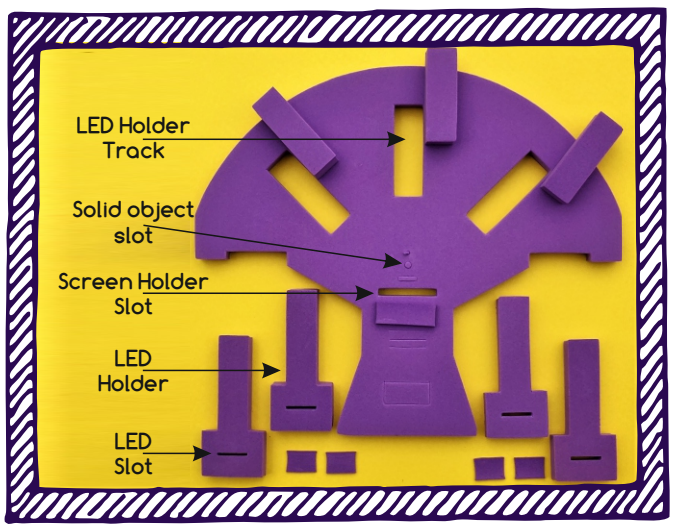


RGB

Materials



Base Board



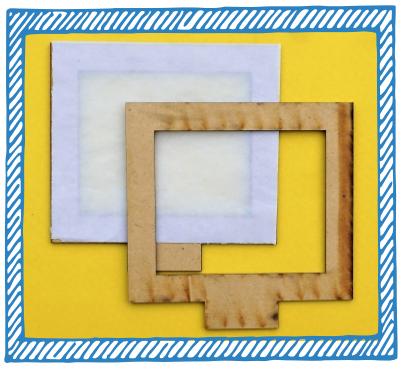
WHAT IS THE RGB COLOR MODEL

The RGB color model is a color model in which colors are created by adding red ® green (G), and blue (B) light together in different proportions, allowing for the reproduction of a vast range of colors.
The model is an additive color model, meaning that colors are created by adding light together

The RGB color model is used in many applications, including digital imaging, computer graphics, and video displays.

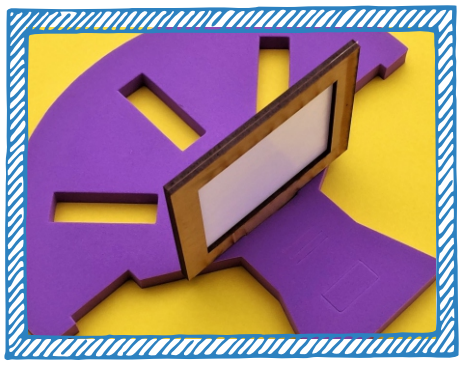
Lets build

Step 1



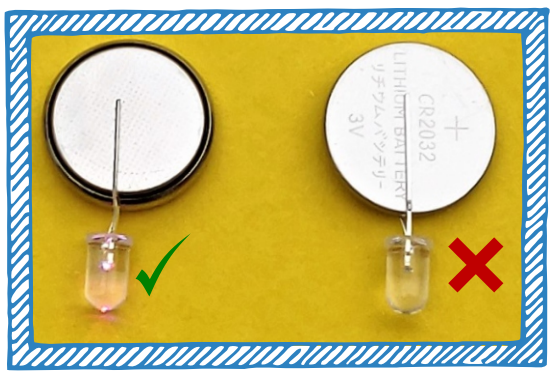
Insert the screen paper between the two wooden screen holders, ensuring proper alignment.

Slide the Screen holder into the Screen holder slot, making sure that the Screen paper is in place inside the holder.

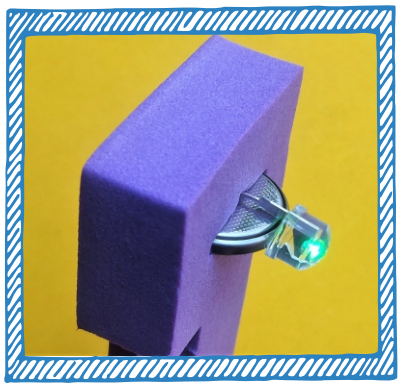


Step 2

Take the 8mm LED and position it over the battery, ensuring that the shorter lead of the LED is in contact with the negative side of the battery.



Step 3



With the LED glowing, gently push the assembly of LED and Battery into the LED slot provided.

Make sure all the LED's are glowing

Now Place the LED holder on the LED holder track of the base board.

Place the solid object in the slot provided

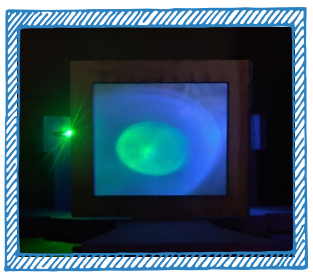
Step 4

Place the setup inside the box provided or in a dark room.
Note the R,G,B LED light falling on the screen.
Notice the Magenta, Cyan and Yellow shades forming on the screen.

You may change the position of the LED holder in its track to see changing shades of color.
To learn more, Watch 'Color Theory' Video by scanning the QR code printed on the activity box

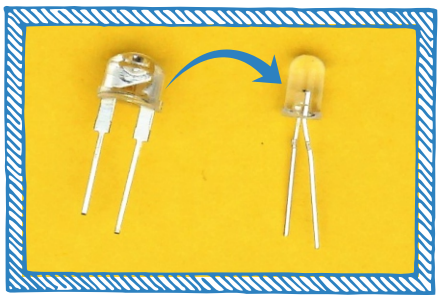
Step 5

Observe Additive color mixing created by 2 color combinations.

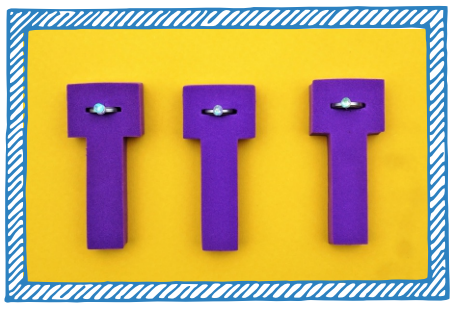


Remove Green LED holder to observe result of Red and Blue color mixing.
Repeat for other combinations.

Step 6



Replace the 8 mm LED's with 3 Multicolor LED's in the LED holders.



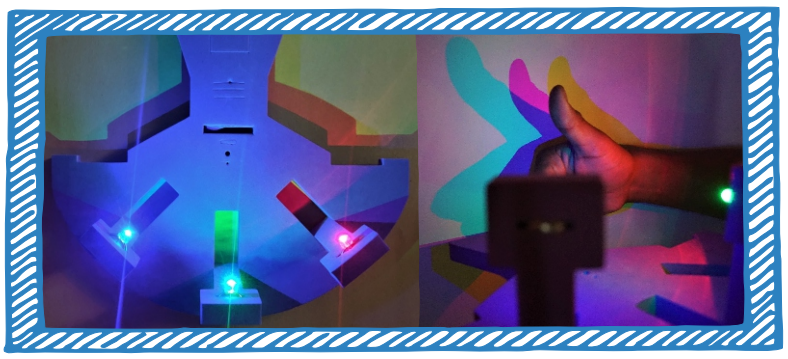
See how color mixing happens on the screen.

To learn more about how digital screens generate colorful images, watch the 'LED TV' video by scanning the QR code printed on the activity box

Step 7

Iterations and Observations -

Use the RGB color model and multiple objects to see how additive color mixing of Light gives us multiple shades of colors.



To observe additional color combinations, position your hand between the wall and the LED lights while in a dark room.
(remove the LED holders, try with different colored walls or surfaces)

Enjoy your RGB color model

Tinkering instructions

1. Experiment with all possible combinations of LEDs, varying their sizes, colors, and distances from the screen. Observe and record how the results change with each iteration.

2. Replace the white screen with colored sheets and observe the changes in the resulting colors and hues

Troubleshoot

1. In case the LED is not glowing, ensure that the leads of the LED are making proper contact with the battery on both sides. If necessary, tightly twist the leads of the LED to improve the contact.

2. Adjust the LED light to focus on the center of the screen holder.

Real world connect

RGB color model experiment illustrates how the colors of light can be mixed together to produce a wide range of shades and hues.

This concept has practical applications in a variety of fields -

- In photography and videography, the RGB color model is used to capture and display images on screens or monitors.

- In graphic design, the RGB color model is used to create digital artwork and designs.
- In computer science, the RGB color model is used to represent and manipulate colors in digital images, videos, and graphics.

Resource

To get more information, making video, FAQ's

scan here