

Section 3

Understanding Matter and Energy

EXPLORATION 1

Why are tomatoes red?

Discover that the colour of an object is the colour of the light reflected from it.

Light is the reason we can see things around us. It usually looks white, but it is made up of different colours, the ones we see in the rainbow. Similarly, things we see every day are in various colours too. Thanks to light, we are able to see tomatoes as red and bananas as yellow. But how does this work? Why do we see tomatoes as red, and not, say, grey?

Mr. Harvest, look! The tomatoes look so red and juicy. But why are tomatoes red?



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EXPLORATION
1

Why are tomatoes red?

In this experiment, you will explore why tomatoes are red.

Level of Difficulty:

easy

Time Needed:

10 minutes

Hypothesis:

Circle the correct word to show your hypothesis.

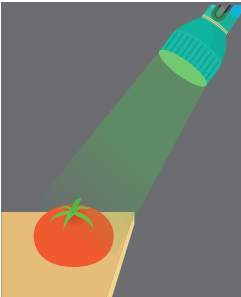
The colour of light **can / cannot** change the colour of the object we see.

Materials:

- a flashlight
- an elastic band
- a red tomato
- Cellophane in green, yellow, and red

Steps:

1.  Cover the flashlight with the green Cellophane.

2.  Place the tomato in a dark room. Point the flashlight at the tomato and turn it on. What is the colour of the tomato?

3. Turn off the flashlight and repeat Step 2 with the yellow and red Cellophane.

Note the colour of the tomato you see each time.





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Record your observations in the chart.

 Colour of Light	green	yellow	red
 Colour of Tomato (Circle.)	red not red	red not red	red not red

Conclusion:

Circle the correct words after conducting the experiment.

The tomato appears to be red under the red light and in **the same / different** colour(s) under the green and yellow light.

My hypothesis was **correct / incorrect** .

Explanation:

When green light hits the tomato, the tomato absorbed the green light and reflected no light, so the tomato looked grey. The same situation happened with the yellow light. However, under the red light, the tomato reflected it, so you saw the tomato as red. Since white light is a combination of different colours, the tomato absorbs the light in all colours but reflects the red light, and therefore, the tomato is red under white light too.

