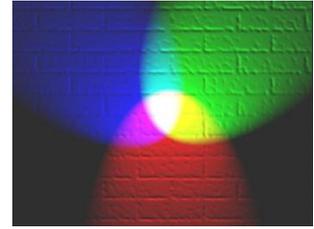


Light & Shadows – Colour My World

Where did all the colours in a rainbow come from? All white light is made out of these different colours. But when you mixed colours of paint or markers you don't get white. Let's build light spinners to explore colour.



Materials:

- White cardstock
- Pencil
- Markers or crayons or pencil
- Crayons (red, green and blue)
- String (40 – 50 cm optional)
- Ruler
- Scissors

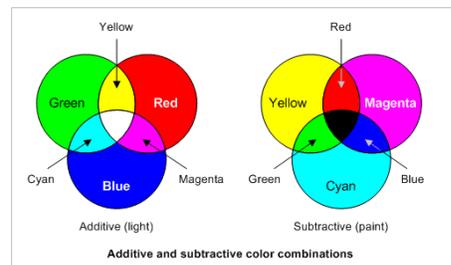
Procedure: (Remember to have your parent's permission and have them watch and help you.)

- Place a glass upside down on the cardstock and using your pencil draw a circle using your glass as your guide.
- Use the ruler to draw a straight line from one side of the circle to the centre dividing the circle into 3 sections (like 3 pieces of pie).
- Use the ruler to divide each segment into two sections – making 6 segments and then divide each again making 12 sections (pieces of 'circle pie').
- Colour one of the sections red, the next one blue, next one green. Continue in this pattern to finish in the spinner.
- Cut out the circle and make a hole in the centre by gently pushing the point of the pencil through it.
- You can then remove the pencil and run the string through it or push the pencil further into the spinner stopping after 2 cm have gone through the card.
- Predict what colour you would see if you spin your "light spinner".
- Spin your light spinner and note the colour.
- If your result is quite a "muddy" colour then rebuilt your spinner only this time try to use purer shades of red, blue and green. See how close you can get to white.

What's Happening:

Almost all visible colours can be obtained by the additive colour mixing of the three colours that are in the widely spaced regions of the visible spectrum (rainbow). If the three colours of light can be mixed to produce white, they are called primary colours and the standard Additive Primary Colours are red, green and blue.

Two colours that produce white when added together are called complementary colours. The colour complementary to a Primary colour is called a secondary colour. The complementary or secondary colours for red, green and blue are cyan, magenta and yellow respectively. Sound familiar? If you have a colour printer at home these Subtractive Primary Colours are the colours of ink used to print out your pictures. When combined in their purest form they produce black. (<http://hyperphysics.phy-astr.gsu.edu/hbase/vision/pricol2.html>)



Extension:

The Additive Primary Colours are used in digital signs and in your TV, smart phone or computer screen. Use magnifying glass to have a close look at these screens.

This activity is based on our Light & Shadows kit. The source for this lab is http://www.cambridge.org/servlet/file/store7/item5964357/version1/CYRFactbooks_L5_TN_WhyDoShadowsChange.pdf. Our teaching kits (described on our website) are loaned out FREE to provide classroom teachers and parents of home schooled children an opportunity to explore Science in interesting ways. Please consider volunteering as a classroom guest speaker or offer your business as a field trip location.

Lorne Cooper, Regional Executive Director

PRAXIS, "Making Science Fun". Contact Praxis at praxis@praxismh.ca, www.praxismh.ca, Tweet or follow us

@PraxisMedHat, or friend us on Facebook. Address: c/o 200 7th Street S.W., Medicine Hat, AB, T1A 4K1 Phone: 403-527-5365, Fax: 403-527-6570.