

Light & Shadows – Investigating Colours

What do people who are colourblind see?

Materials:

- Coloured Filters: acetate or cellophane plastic sheets (yellow, blue, red and green) or sunglasses.
- Coloured markers/crayons
- Magazine Pictures
- Paper



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

- Describe what colours you see in the magazine pictures without using any filters using natural (white) light.
- Predict what colour yellow in the magazine picture would look like under each of the different colour filters.
- Using each of the colour filters look at the yellow in the picture and observe which colour it now appears to be.
- Repeat this for all your colour filters.

What's Happening:

The white light that humans see is made up of many colours. You see these colours when light passes through a prism or rain (as in rainbows). These colours are called a spectrum: red, orange, yellow, green, blue, indigo and violet (makes the name Roy G. Biv). When you look at a picture in white light all the colours are absorbed by the picture except the ones that bounce (reflect) back to your eye. When you look at a picture of a yellow banana all the colours are absorbed except yellow which reflects back to your eye making it appear as a yellow fruit.

A colour filter removes most of the colours except the colour of the filter. If you write a message with a red marker and looked at it through a red colour filter it would almost disappear (it does disappear when the writing and filter are the same shade). Some people (most are males) are colourblind and have difficulty identifying certain colours. Some see no colour at all. Some of their colour/light receiving cells in the eye do not work properly so it has a similar effect as the colour filter.

Extension:

If humans can see white light can other animals see other ‘colours’ that we can’t? Does your pet cat or dog see different colours than you? Generally animals that are active in the daytime see colour but some see beyond what we see almost like they have super powers when it comes to sight.

This activity is based on our Light & Shadows kits. The source for this lab may be found at: <http://www.msm.cam.ac.uk/SeeK/colourmagic.htm>. 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.