

Change the Colour of Your Fruit

Apparatus

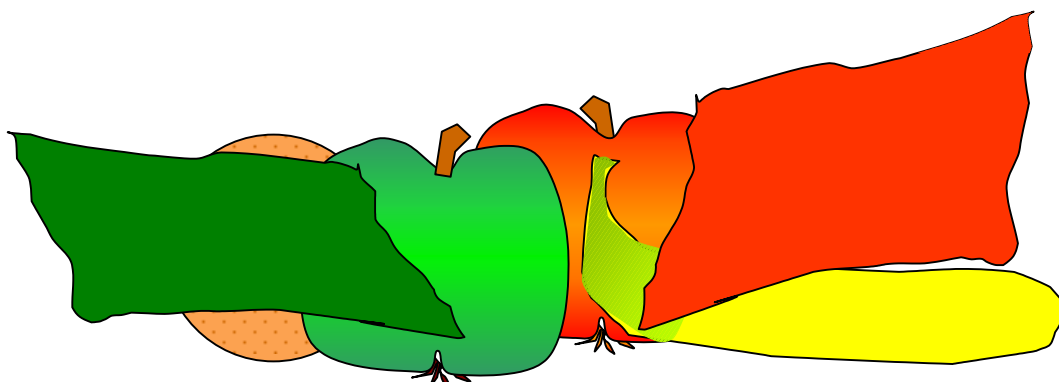
some brightly coloured fruit, eg ripe bananas, oranges, red and green apples, coloured cellophane or glasses with coloured lenses

Action

The students observe the fruit through the different coloured lenses or cellophane. They should try to explain why the fruit look different through different lenses.

The Physics

When we look at a coloured object using reflected light from the sun or room lights, we are seeing the light which is reflected from that object. The sun and most room lighting, eg fluorescent lights, contains light of many wavelengths and hence colours, and is approximately white light. The light we see reflected from an object is this white light, minus the light which is absorbed. Colours due to pigments, such as in paint or fruit skins, are called subtractive colours, because what we see is due to the subtraction of some wavelengths from the incident white light. When you look at a yellow banana through a yellow piece of cellophane or yellow lens it looks the same as when viewed in sunlight, because the yellow light from the banana is transmitted through the lens. When you look at the banana through a blue lens it looks very dark, because it reflects very little blue light, which is the only light that passes through a blue lens. In general, you will see white light, minus what is absorbed by the fruit, minus the wavelengths not transmitted by the lens.



Accompanying sheet

Change the Colour of Your Fruit

Look at the fruit just under normal light.
Why are the fruit different colours? What produces these colours?

Now look at the fruit through the different coloured lenses.

What do you see now?

Explain why you see these colours now.