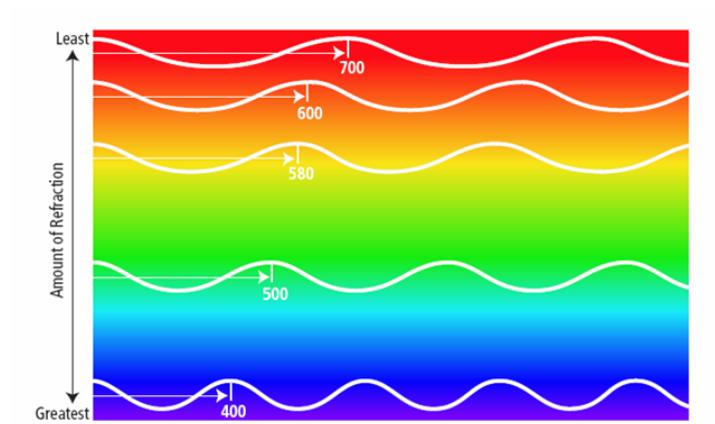




The Visible Light Spectrum
Pages 150-153

- When light hits water in the atmosphere, a rainbow forms.
- Water refracts or bends, light and creates colours that our eyes can see.
- The range of colours of visible light is known as the visible light spectrum.
- You know this as ROY G BIV: Red, orange, yellow, green, blue, indigo, and violet.
- The colours are placed in order of their level of refraction.
- Different colours refract to different degrees.
- How much a colour bends depends on its wavelength.

Diagram page 150.



Rainbow activity

On a blank sheet of paper you will draw and colour a rainbow. Make sure the colours are in order of refraction and label the colours.

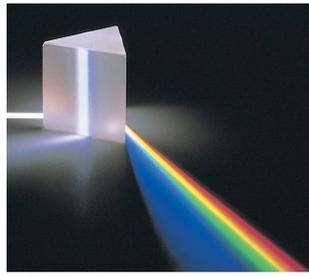
On the back of the sheet answer the following questions:

- 1) Which colour has the most refraction? least refraction
- 2) Which colour has the longest wavelength? Shortest wavelength?
- 3) Which colour has the lowest frequency? highest frequency (hint think wavelength)
- 4) What is the relationship between refraction and wavelength?

Prisms and the Visible Light Spectrum

- People didn't always understand how colour was produced.
- For example when people saw a green leaf they thought that the leaf was adding the colour green to the light.
- Sir Isaac Newton was the first person to investigate this by placing a prism in front of a beam of white light.
- As the white light left the prism he saw that different bands of colours emerged and the colours were refracted or bent at different angles. (Recall the refraction is related to the different wavelengths.)
- He concluded that the prism wasn't the source of the colors but the colours must have been there in the first place.
- To further prove this he put another prism in front of the first one and the light recombined into white light.
- His final conclusion was that white light (like sunlight) is the result of the mixing together of all the different colours.

Prism Demonstration



- So what you see when you see a green leaf or a red shirt is the result of reflection.
- When light strikes something like a shirt, some colors are absorbed and some are reflected. Only the reflected colours will be seen.
- If you see a red shirt, what this means is that all the other colours are absorbed but red is reflected.
- When it is dark the red shirt will no longer appears red as it is no longer reflecting light as there is no light.



What colour is this scarf reflecting?



What colour is this bird reflecting?