

Why is the sky blue?or....the scattering of blue light explains all.

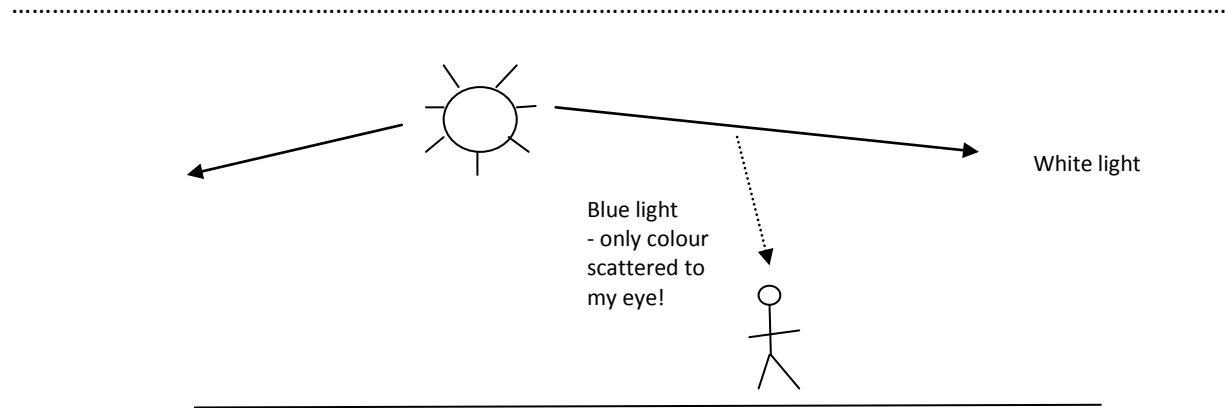
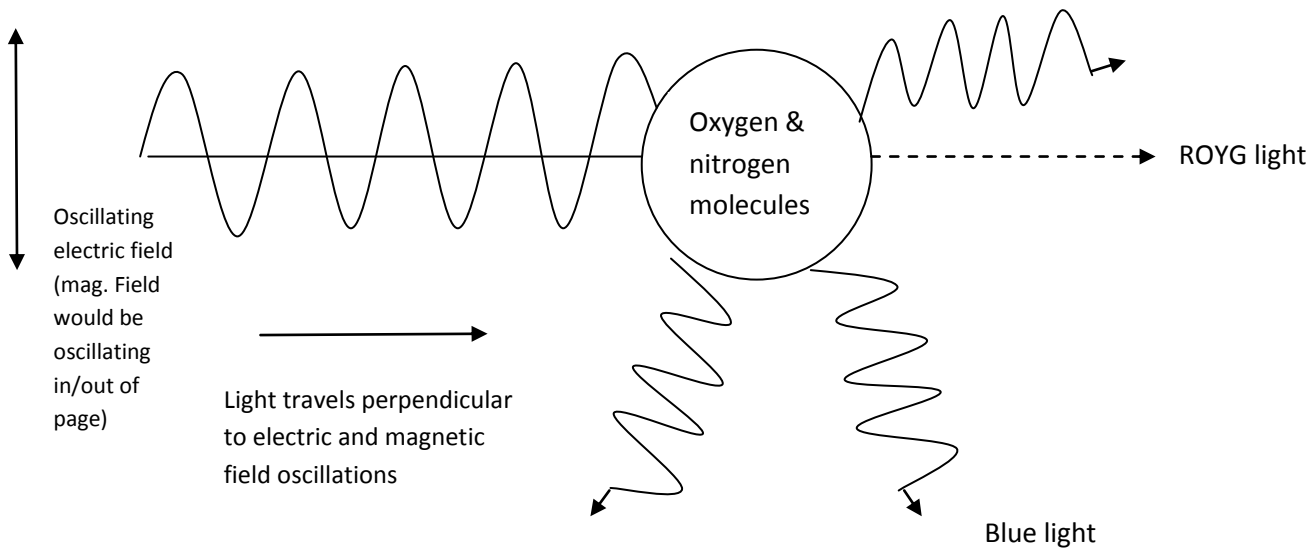
Why are clouds white, the sky blue and sunsets red/orange/yellow? And...about haze.

The sun sends us visible light in all colours (ROYGBIV)

The brightest part of this spectrum is yellow → green and our eyes are most sensitive to this. So why then is the sky BLUE??

Scattering!

When white light comes from the sun and enters our atmosphere. Not much happens EXCEPT that the oxygen and nitrogen molecules in our atmosphere resonate with the frequency of blue/violet light. That is, the electrons in these atoms vibrate up/down orbits at blue/violet's frequency. This effectively makes these molecules the source of blue/violet light! The light then radiates out in all directions from oxygen and nitrogen. Thus..the light coming in straight was partially scattered – blue light is scattered the best in all directions while red, orange, yellow, green keeps going straight through.



Haze = dust!

When there is a lot of dust (smog) in the air, more of the visible spectrum is resonates with these extra particles. So, all the colours of white light is re-emitted and scattered. Thus, smoggy sky is a whiter sky and not so blue, but after a good rainstorm, all these particulate matter is 'washed out' of the sky and we have beautiful blue skies again afterwards. Check is out this summer when a good rain happens on a hot smoggy day.

Clouds

Same logic as haze – clouds have water vapour – this is better at scattering all the colours of the rainbow, thus white light is sent off to my eyeball!

Beautiful sunsets....

As the sun dips low on our horizon, the light rays must travel farther through out atmosphere. In this process, much of the blue light (and green and violet on either side) is scattered off in all directions. So much is scattered off that there isn't much/any left to reach our eyes. However, the ROY part (red, orange, yellow) goes through unaffected (ie: unscattered) and does reach our eyes. Thus...we see red/orange/yellow sunsets!

Why is the sky black on the moon?? _____