

What is Light? - 11.1 in text

Properties of light

- travels very fast! 3.0×10^8 m/s ..or.. 300,000 km/s !
- rectilinear propagation – travels in a straight line.
- it is radiation and does not need a medium to travel through
- can reflect off shiny surfaces
- can refract (bend) as it moves from one medium to another

Medium = a physical substance through which something can move.

Vacuum = a space that contains NO matter. (ie: deep space)

1600's – Sir Isaac Newton thought light was a particle

1801 – Thomas Young showed light was a wave

1864 – Maxwell Clark – showed it's part magnetism and part electricity . And it radiates through vacuum.

Predicted it's electromagnetic radiation (EMR)

...and it behaves light a wave and a particle !

1887 – Heinrich Hertz discovered radio waves (EMR)

1895 – William Roentgen discovered x-rays (EMR)

****be familiar with EMR spectrum****

Space pictures

For many years scientists could only use visible light to see into space. Now we have instruments that detect all the various types of EMR.

We can take 'radio wave' pictures of space and 'x-ray' pictures of space. Different parts of the universe emit different kinds of energy – different electromagnetic radiation.

These different pictures give us different information.
Think: infrared heat pictures of people!

Demonstrations → laser light

– can I see the path it takes?

- can it reflect?

- can it refract?

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