

Newton vs Hooke

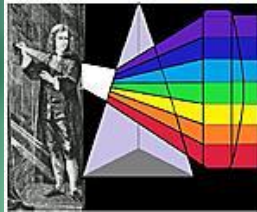
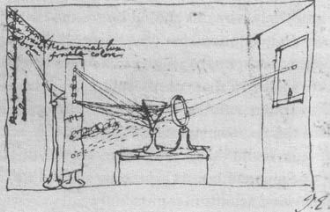
Particles or Waves?

Erasmus IP- Project Light

Enlightened: Morgan, Kiki, Cecilia, Daniela, Margarida, Antonia, Savvas, Alexandra, Eleni, Anastasia

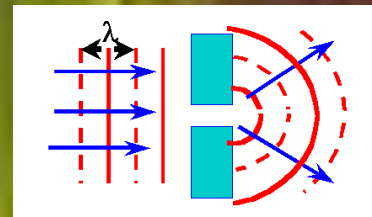
Newton's Theory

- Light is composed of different particles;
- The physics of particles is dominated by *collision laws*;
- When two particles collide, lighter (red) particles are deviated more than heavier (blue) particles;
- When white light passes through a medium, different particles take different trajectories.
- Newton proves this using a color filter;
- Here, one color (green) is isolated from the spectrum after refraction;
- This isolated color (green) never changes after further refractions (stays green);



Hooke's Theory

- Light cannot be split into different particles (colors);
- Light is a wave which can be disturbed in different ways which produces different colors;
- When white light hits a medium, the wave is disturbed;
- These different disturbances appear as different colors.
- The colour that you see depends on the position of the source (medium) and the position of the screen (retina);
- This can be proved, because if the angle of the light ray is changed, the angle of the waves change. This causes a person to see a different colour of light.



James Maxwell's Theory

- In his research he saw that both theories are correct;
- He spun a disc of different colors and it became white proving Newton to be correct;
- With wave theories and the Young experiment it can be proved that light is made up of waves;
- In summary, it can be seen that both scientists were correct.



Enlightened's Theory

- "I think both are right...";
- "I think Maxwell is right...";
- "Hooke presented his theory earlier and Newton said he was wrong...";
- "Newton was wrong here, because he didn't consider Hooke's theory...";
- "Hooke is wrong because he replied to Newton without taking Newton's...";
- "We think Maxwell is right because he considered both opinions...";