

Wave and Particle Nature of Light I: Interference Pattern

Apparatus

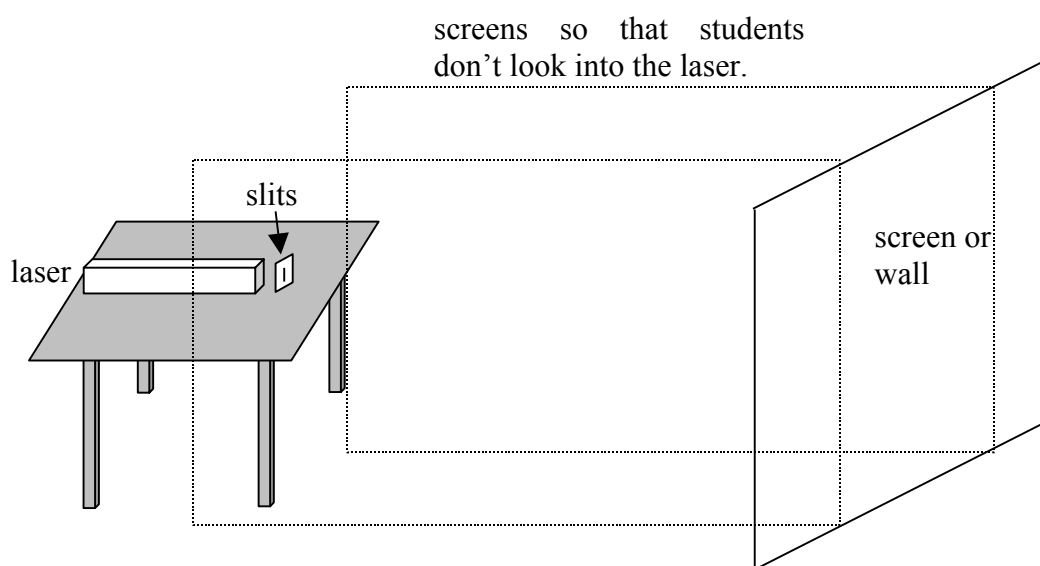
a laser, slides with single and double slits

Action

The students use the laser to observe interference patterns. The students are encouraged to draw diagrams showing why the interference pattern occurs, and they should explain why this shows that light has wave properties.

The Physics

Waves passing through the two slits interfere to give a pattern of fringes, with spacing depending on wavelength and slit separation. This shows the wave nature of light. Note that there are also diffraction patterns visible.



Note: This is used with both the waves workshops and the quantum workshops.

Accompanying sheet:

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Observe the pattern produced by the laser light passing through the slits.

What causes this pattern?

What does this experiment tell you about the nature of light?