Young's Double Slit

The experiment that established the wave nature of light.

Physics

Fringe separation equals wavelength times slit-to-screen distance divided by slit separation.

$$w = \lambda D/s$$

Wider slit separation Inversely proportional.	**Narrower fringes**
Screen further away	**Wider fringes**
Blue rather than red light Shorter wavelength.	**Narrower fringes**

THE COMMON MISTAKE

× **Measuring one fringe width**

✓ **Measuring across many and dividing**

Fringes are small and the uncertainty in one is large. Measuring ten and dividing reduces the percentage uncertainty tenfold.

The same experiment with single particles produces the same pattern, which is the central puzzle of quantum mechanics.