

Chapter 18

Interference and Diffraction

Read Pages 637-660

Coherent light

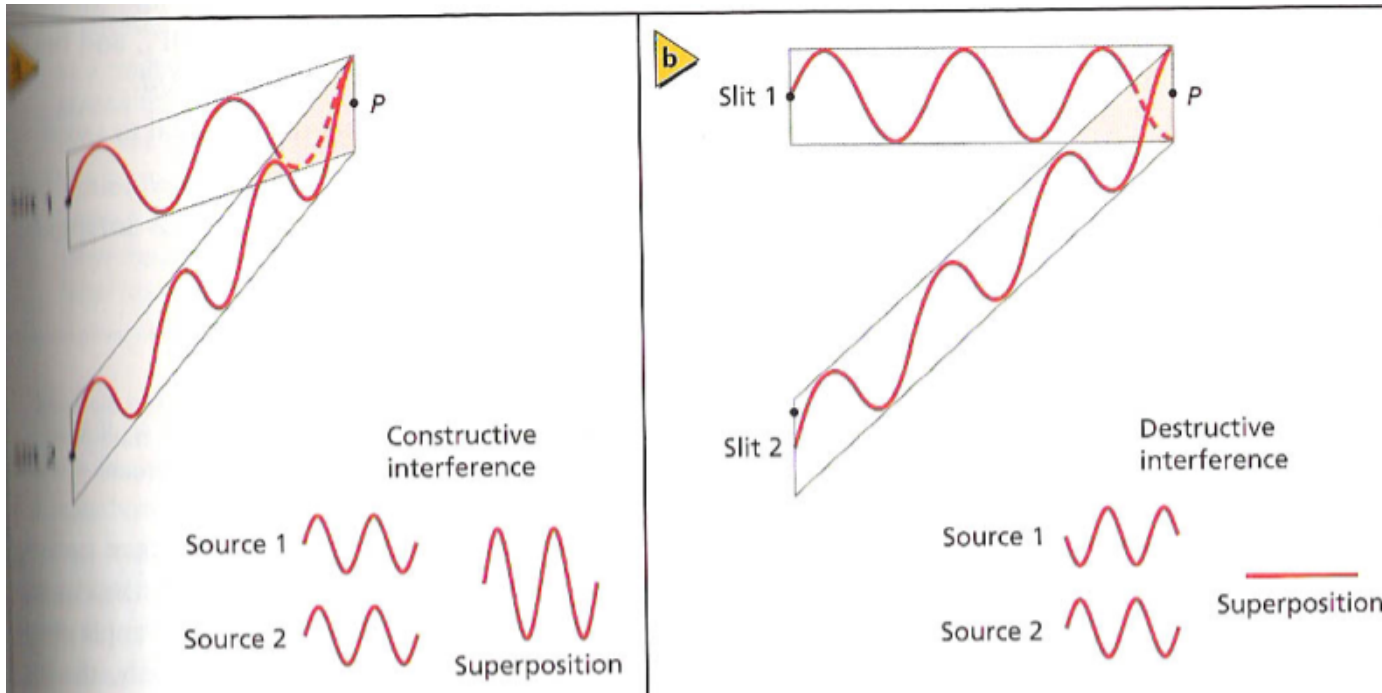
Incoherent light

Monochromatic light


Constructive Interference

Destructive Interference


Interference (reminder)



Diffraction Demonstration

 <https://www.youtube.com/watch?v=1bHipDSHVG4>

Diffraction and Interference

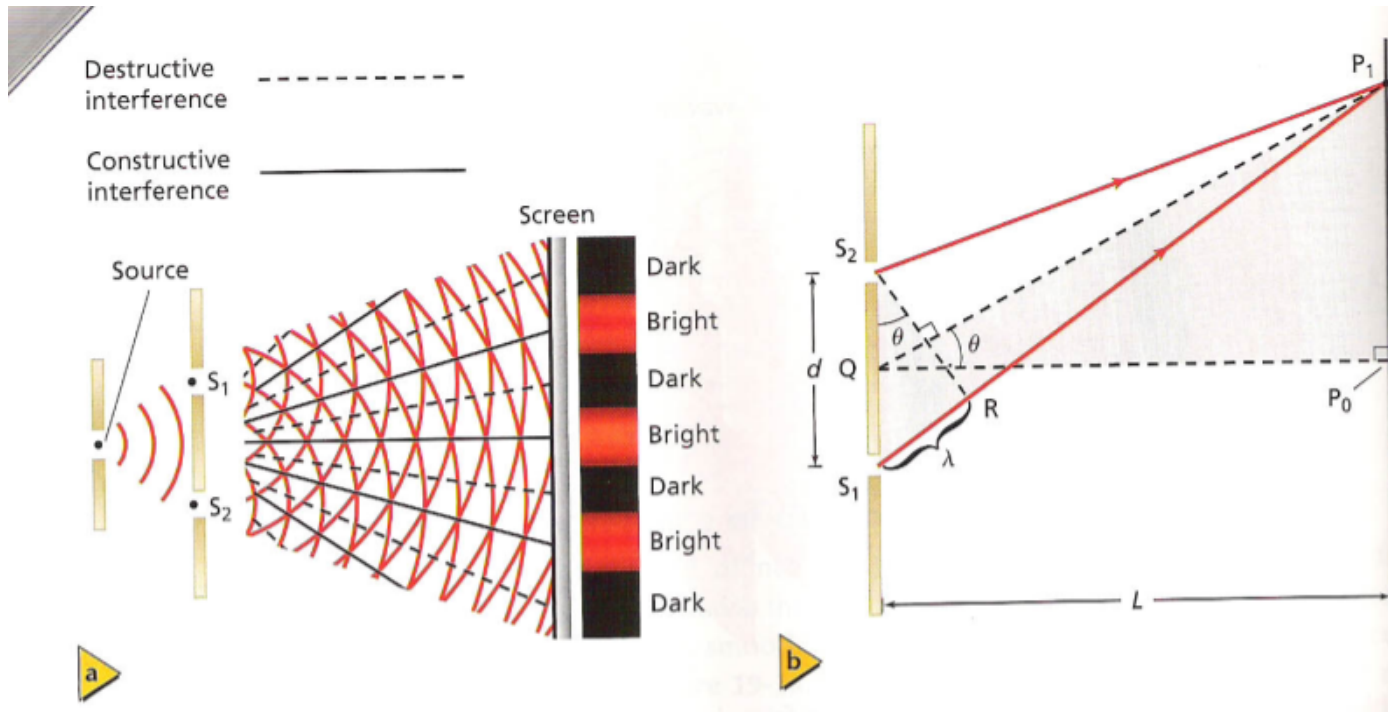
 <https://www.youtube.com/watch?v=oYFEWoxuB1I>

Double Slit Interference Demo

<https://www.khanacademy.org/science/physics/light-waves/interference-of-light-waves/v/youngs-double-split-part-1>

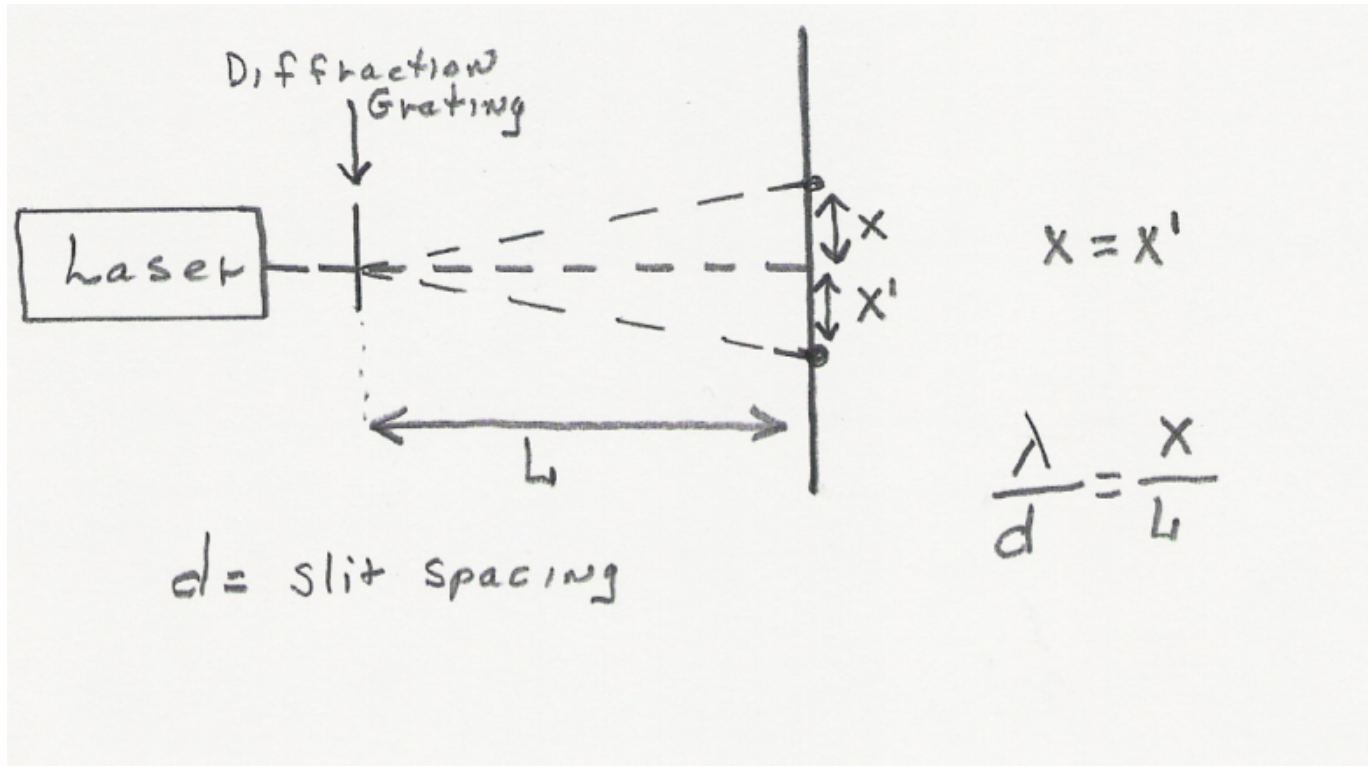


Young's double slit interference:



For constructive interference, path difference
 $= \lambda, 2\lambda, 3\lambda, \dots$

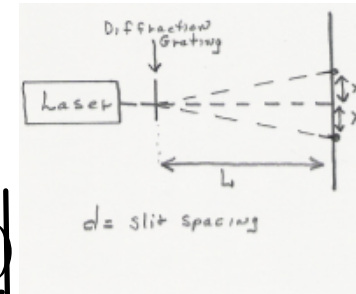
Experimental Setup:



Data Table:

$d=1.75 \times 10^{-6} \text{ m}$

d(m)	x(m)	L(m)	λ (m)



$$\lambda = \frac{d x}{L}$$

Repeat for at least 4 different values of L.
Calculate the average of the wavelengths.
That is your conclusion for the wavelength
of the laser.