

Virtual Lab

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Experiment 1.

Aim:

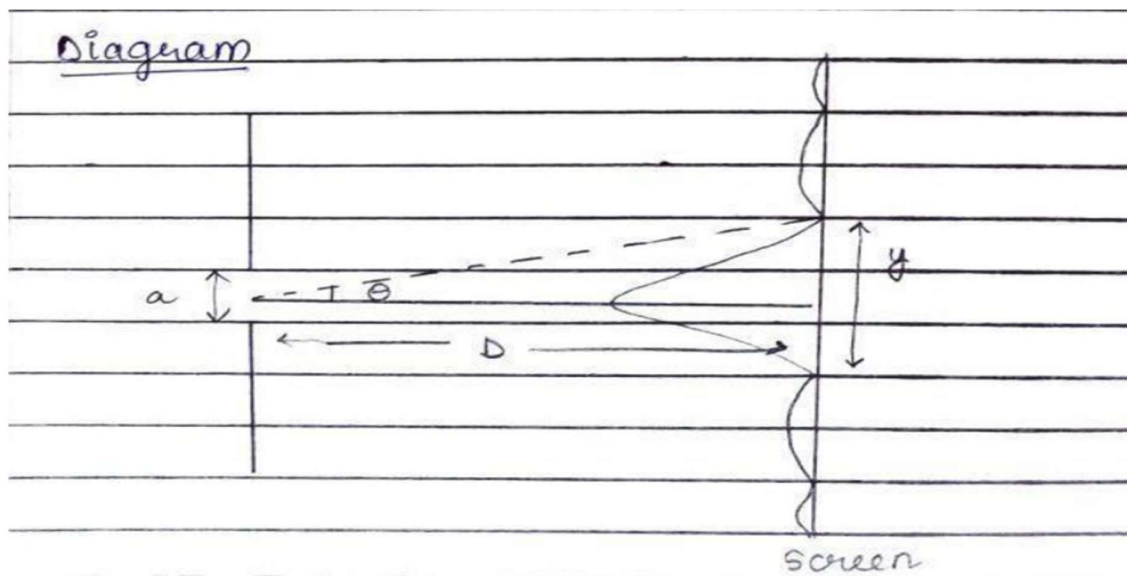
1. To Study the diffraction occurring due to single slit.
2. To determine ΔY the distance between two dark bands surrounding the central bright spot.

Apparatus: Laser, screen & ruler.

Theory:

When a monochromatic beam of light of wavelength λ arrives at a slit of the width 'a' the diffracted light leaving the slits forms a pattern in space. This pattern on the screen is called the diffraction pattern. The number of bands and their distances from the central maximum depends on the width of the slit.

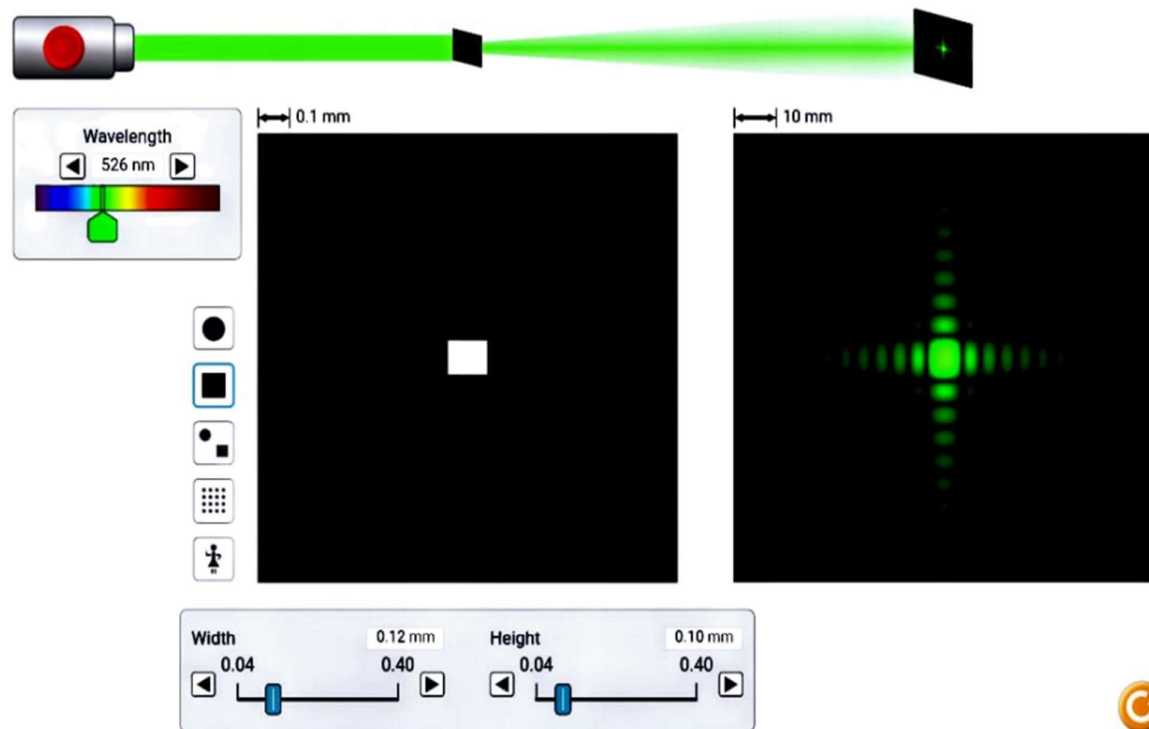
Diagram:

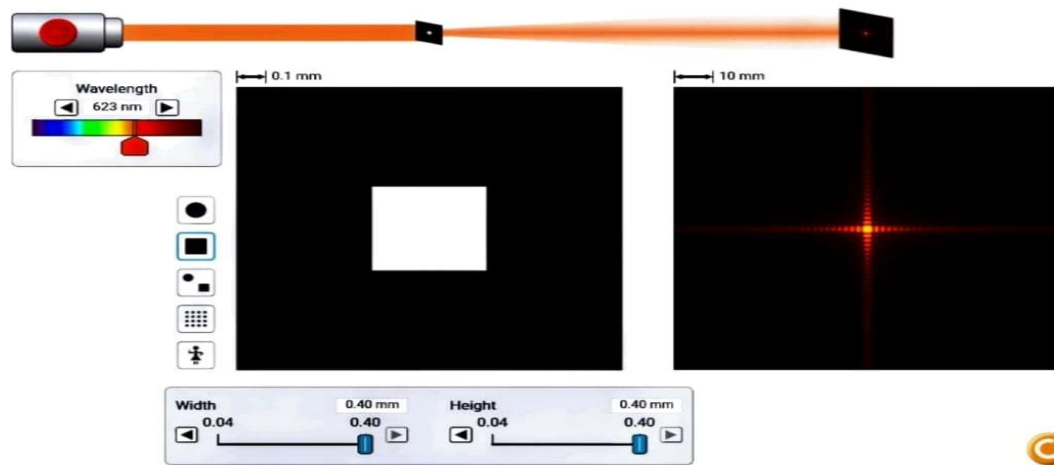
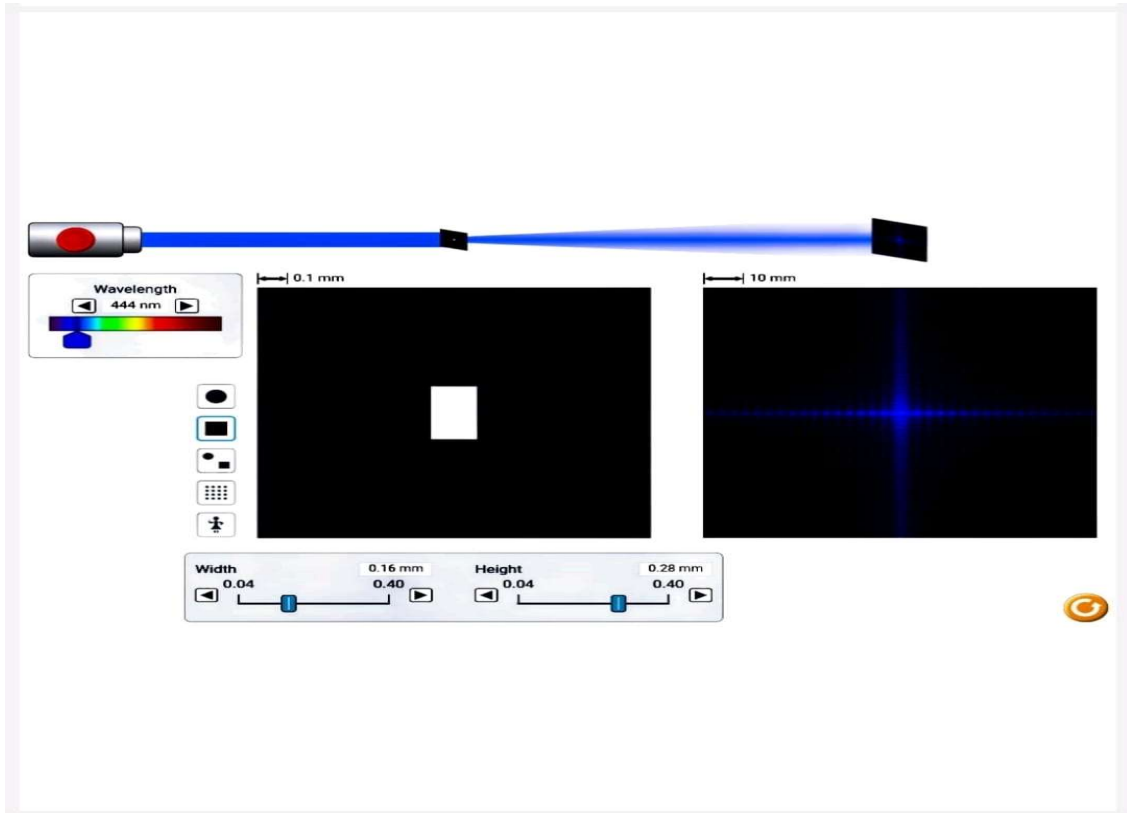


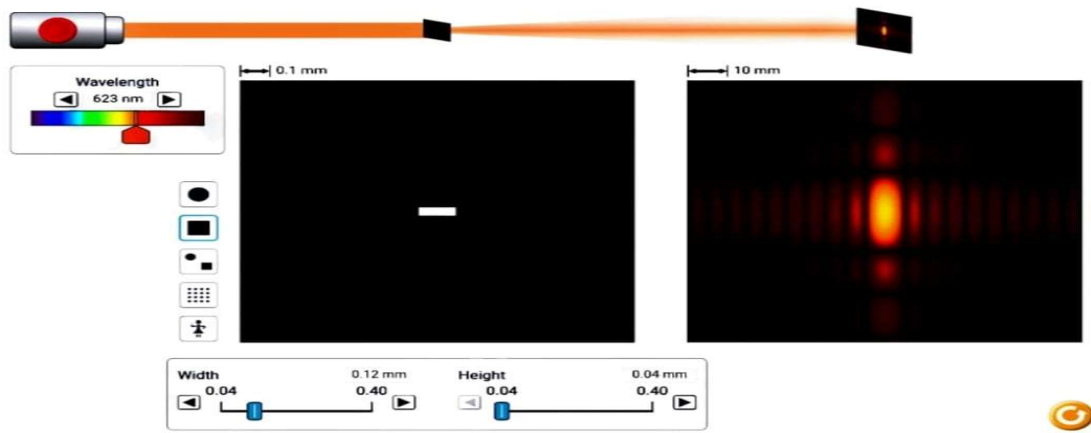
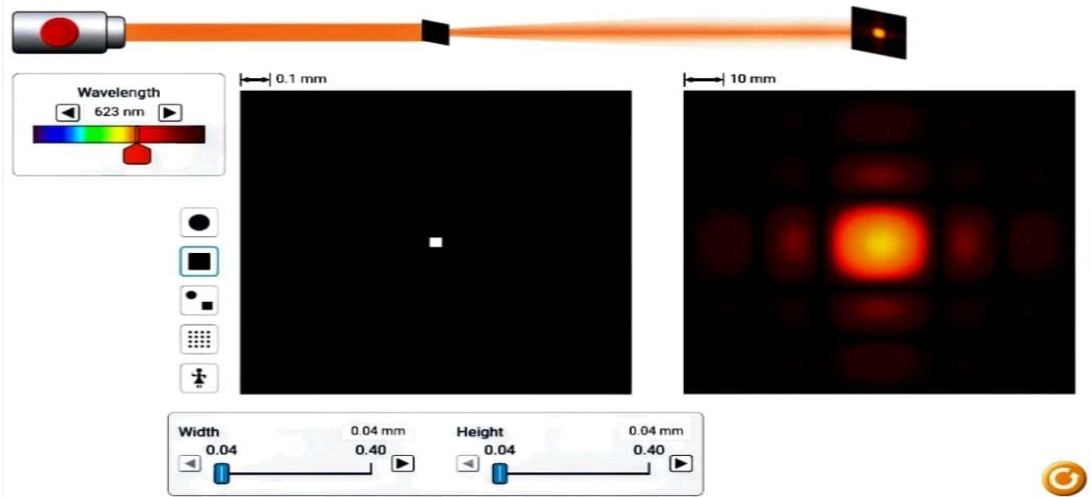
Observation Table:

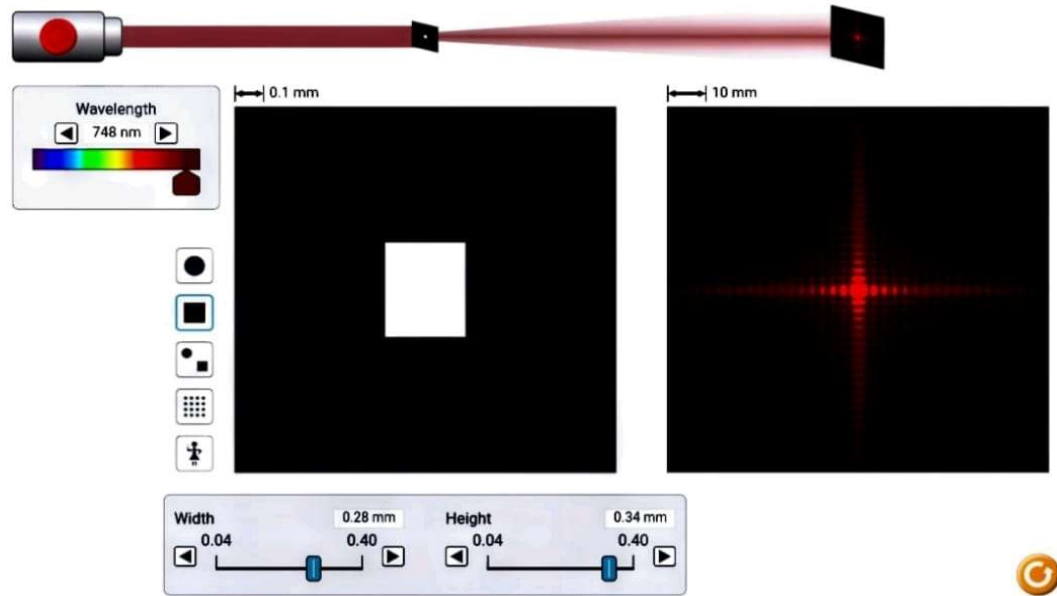
$a(\text{mm})$	$\lambda(\text{nm})$	$\Delta S1(\text{mm})$	$\Delta Y1(\text{mm}) = f * \Delta S1(\text{mm})$
0.04	511	18.5	24.605
0.04	550	20	26.6
0.04	600	22	29.26
0.04	650	23	30.59

Simulations:









Result:

- Thus ΔY (distance between the dark fringes) increases with increase in wavelength of light