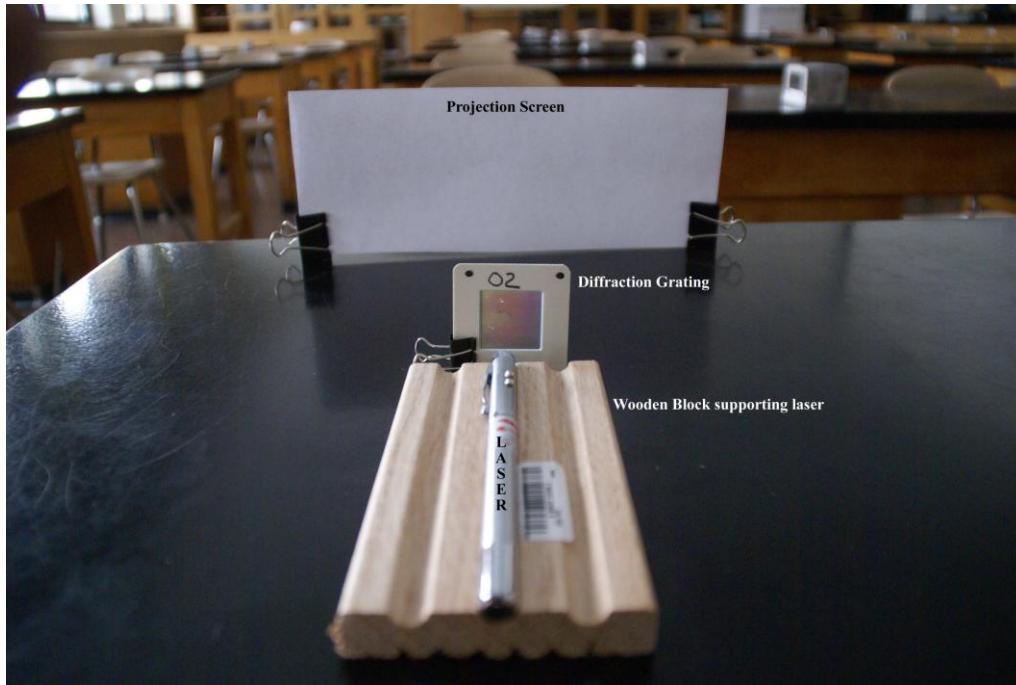## To Measure the Distance Between the Lines of a Diffraction Grating

1. Make a projection screen by taking a piece of standard letter paper, folding it in half the long way and using two large spring clips to make it stand on the table as indicated.

2. Use a small spring clip to stand the diffraction grating on the table.

3. Place the laser on the wooden block as indicated. The laser beam should be perpendicular to the diffraction grating and also to the projection screen. You will know the line is perpendicular when the distance from the central maximum (red dot) to the first maximum on the right is the same as the distance from the central maximum to the first maximum on the left. When that is the case, carefully measure and record the distance from the central maximum to the first maximum. X = _____

4. Measure and record the distance from the grating to the projection screen as accurately as you can. L = _____

5. Record the wavelength: Using laser # _____ the λ = _____

6. Now calculate the slit spacing (D) using the relationship $\lambda/d = X/L$

7. Conclusion: The slit spacing for grating # _____ is _____ [Be careful of significant figures!]