Lab: Double-Slit Interference, Part One

When a beam of light passes through two thin slits, something funny happens. The light creates a pattern on the other side that looks like this:

![Interference pattern](image)

This is what we call an “interference pattern”. This week you will be investigating this phenomenon.

Questions:

1. What things might affect the spacing between the bright spots? After you’ve brainstormed some ideas, call your TA over to help you narrow it down to two factors for you to investigate experimentally.
2. What is the relationship between the spacing of the bright spots and the two factors? Design an experiment that will explore these relationships.

### Brainstorming

Groups of 4 15 minutes
Don’t let them turn on the laser until they have decided on a pair of variables to explore. Help them narrow down their brainstorming to two, and if you can, make sure your class has a good variety of different things. Encourage less likely factors, since proving what doesn’t affect the pattern can be as important as showing what does.

### Taking Data

Groups of 4 30 minutes

### Class Discussion

Whole Class 10 minutes
One issue you may want to push is, is each group keeping all the other factors constant while varying just the one they’re interested in?

### Taking More Data,
Writing the Lab Report

Groups of 4 55 minutes