Lab: Double-Slit Interference, Part Two

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:

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

Questions:

1. You have chosen two factors to explore for a possible relationship to the spacing of the bright spots. How well can you describe these relationships?
2. After observing what other groups in the class have done, can you pool together all the information and build a more accurate model of what things affect the spot spacing?

Data Analysis **Groups of 4** **60 minutes**

They should have some tools with which to describe the relationships. It may be appropriate to encourage them to display their data in a way that it can be compared to other groups' data.

Group Presentations **Whole Class** **25 minutes**

Cut straight to the chase. What two variables did you explore? What would you say the relationships are? How sure are you of your conclusions?

Class Discussion **Groups of 4** **10 minutes**

There are a few things that could be discussed here:

- *Were there some groups that explored the same variable and disagreed on the interpretation of the relationship? Can these two views be reconciled? Can the class decide which interpretation is more trustworthy?*
- *Can you make a list of which factors definitely *don't* affect the spot spacing, and which do?*
- *Can you possibly suggest an equation that describes the spot spacing as a function of the variables you found?*

Writing the Lab Report **Groups of 4** **15 minutes**