

Name \_\_\_\_\_  
AP Physics  
Period \_\_\_\_\_

Date \_\_\_\_\_  
Lab Activity #20 (30 pts)  
Mrs. Nadworny

Partners: \_\_\_\_\_

Due Date \_\_\_\_\_

## Inteferece Patterns

### Purpose

To observe and compare different light interference patterns.

### Materials

- slit film
- various light sources

### Procedure

Observe each of the interference patterns listed below and sketch what you see in the spaces provided. Then, answer the associated questions.

1. Compare the fringe patterns for:

(3 pts)

Single slit	Double slit	Multiple slit

- a) What does each bright fringe represent?

(2 pts)

- b) What do the dark/unlit areas between the bright fringes represent?

(2 pts)

- c) How is a single slit pattern different from a double or multiple slit pattern?

(2 pts)

- d) How does the double slit pattern show evidence of a single slit pattern?

(2 pts)

**NO Lab Write-Up Required**  
*must be neatly written in pencil*

2. Determine the effect of wavelength of the fringe spacing for a double slit. (3 pts)

Red	Blue	White

a) What is the relationship between wavelength and fringe spacing? (2 pts)

b) How do you explain the pattern formed from the white light? (2 pts)

3. Determine the effect of the distance between the slits on the fringe spacing for a double slit (or multiple slit). (3 pts)

Close together	Medium	Far apart

a) What is the relationship between the distance between the slits and the fringe spacing? (2 pts)

4. Determine the effect of the slit width on the fringe spacing for a single slit. (3 pts)

Narrow	Medium	Wide

a) What is the relationship between the slit width and the fringe spacing? (2 pts)

(2 pts)  
neatness