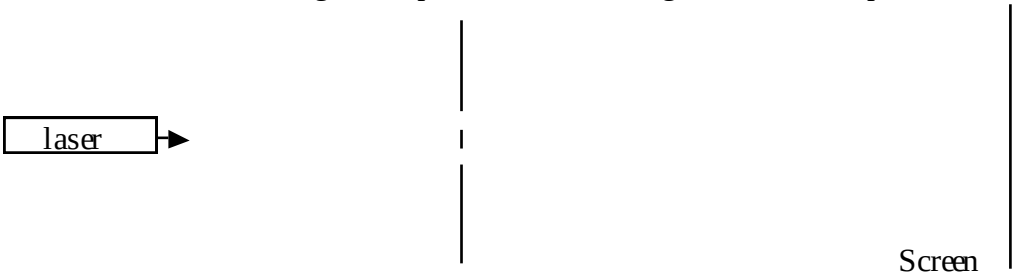
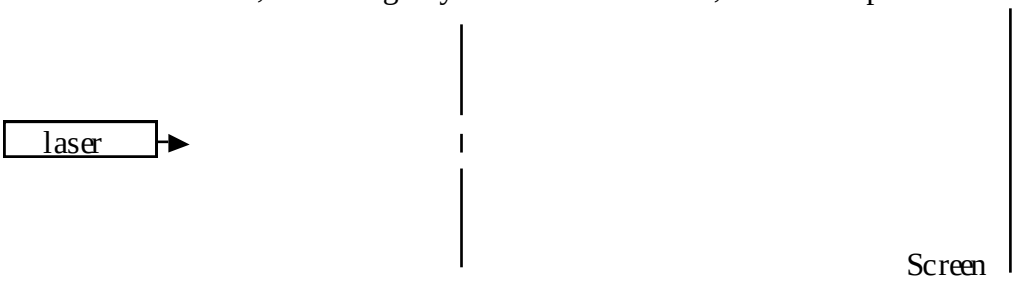
Name Date Pd

Double Slit Post Lab

1. The diagram below shows a top-view of a double-slit arrangement.
   a. According to the particle model of light, draw the expected shadows.



   b. Now, according to your lab observations, sketch the pattern actually observed.



   c. Explain what was happening to the light to produce the dark and light bands. Why does the particle model inadequately explain what is observed?

2. If the slit spacing is increased in the double slit experiment, will the separation of the bright spots in the interference pattern increase, decrease or stay the same? Briefly explain:

3. a. Does red light or blue light have a longer wavelength? How do you know?

   b. Sketch the relative double-slit diffraction patterns for what you would see using red, green, and blue light.

4. When the double slits are oriented vertically, the laser light diffracts into a horizontal row of bright spots. Explain why.

5. Based on your understanding of the wave model of light, predict the pattern you would see from a laser shining through a single, vertical slit. Sketch and explain your prediction.

6. Based on your understanding of the wave model of light, predict the pattern you would see from a laser shining through a round pinhole. Sketch and explain your prediction.