

LEARNING HOW LIGHT WORKS

Diffraction

DIFFRACTION

NAME _____

TEACHER'S NAME _____

SCHOOL _____



Learning How Light Works: Diffraction

Each activity will be followed by a group discussion.

Activity 1: Shadow of a ball

What do you expect to see on the screen?

Describe what you saw on the screen

How did what you see differ from the shadow of a ball on the sidewalk?

Activity 2: Shadow of a thin slit?

What do you expect to see on the screen?

Describe what you saw on the screen.

How did what you saw differ from a shadow?



Activity 3: Two pencils and no laser

Describe what you see between the edges of the pencils.

Activity 4: Diameter of a hair

Data

distance from hair to screen (x)	
distance between the two dark fringes on either side of the center bright spot (2y)	
laser wavelength (from warning label)	

Calculation of hair diameter

$$D = \frac{2\lambda x}{y}$$



Conclusions

What was the diameter of the hair you measured?

How did your measurement compare to those of your classmates? Who had the largest and smallest hair diameters?

What surprised you the most about this lesson?

