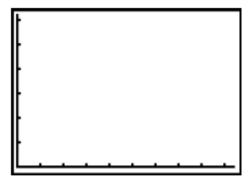
Activity

1. Report the data in the table below and save the list to the computer with the TI-GraphLink.

Light Bulb (watts)	Light Intensity (mW/cm²)

2.	What pattern do you see in the data from the list of numbers? That is, what is the
	relationship between the number of watts for a light bulb and the brightness of that bulb?
	Use numbers in your answer if possible.

3. Sketch the bar graph from your data in the area provided below. Label each part.



- **4.** What was the name of the line (equation/function) that you got from the Manual-Fit?
- **5.** The number in front of the *x*-value is the rate of change of light intensity per change in wattage (light intensity per watt). Use this value from the expression in Question 4 and compare it with your guess about the pattern in Question 2.



6. Complete the table for your experiment.

Light Bulb (watts)	Light Intensity Measured (mW/cm²)	Y1 Value for Light Intensity(mW/cm²)	Percent Difference (Y1 – M) × 100 / M

7.	What does	your model	predict for	the light i	intensity of	a 300 watt	light bulb?
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8.	What does	vour model	suggest	would be	needed to	create a	liaht int	ensity d	f 1.00	mW/cm ² ?
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Going Further

- 1. Since a watt is a measure of power, what is the meaning of the units of light intensity (milliwatts per square centimeters)?
- **2.** Given the following data, determine the rate of change (slope) of the light intensity as one changes the watts. Complete the table using this factor.

Light Bulb (watts)	Light Intensity (mW/cm²)
15	0.10
40	0.27
60	0.40
75	0.50
100	0.67
150	1.00
77	
	1.7

- **3.** What do you think would happen to the numbers for the intensity if you cut your distance in half for the experiment? Why?
- **4.** Express the rate in terms of a 10-watt change in the light bulb. (mWatts/cm² per 10 watts).