Name _____ Date _____ Class _____

Project
Fill It Up!

Activity 1: Collect the Data *Use after Lesson 6-7*

In this project, you will find polynomial models to represent the shape of a container. You will need a flat-bottomed, clear container with an irregular shape, such as a glass vase.

1. Find the total volume of the container. To do so, fill the container with water and then pour the water into a beaker with measurements labeled in milliliters.

2. Divide the total volume by 10 and round to the nearest whole number. (For example, if the total volume is 847 milliliters, divide by 10 and round 84.7 to 85.) Use the beaker to add water to the container in 10 equal increments based on the amount you calculated. After each increment is added, measure the height of the water in the container. Record your data in the table.

	Volume (mL)	Height of Water (cm)
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

3. Make a scatter plot of the data in the table, letting *x* represent the volume in milliliters and *y* represent the height in centimeters.

4. Use the regression feature on your graphing calculator to find a quadratic polynomial model for your data.

5. Describe the shape of the graph of the model and its end behavior.

Activity 2: Compare the Models *Use after Lesson 6-9*

In this activity, you will find another polynomial model for your container and compare it to the one you found in Activity 1.

1. Use your calculator to find a cubic polynomial model for the data you collected in Activity 1.

2. Compare the quadratic model and the cubic model. Which model appears to fit the data better?

3. Can you use this model to predict data points that were not plotted? Explain.

Holt Algebra 2