

ACTIVITY 8.6

Developing Concepts

Group Activity for use with Lesson 8.6

Investigating Exponential Decay

SET UP

Work in a small group.

MATERIALS

- 100 pennies
- cup

► **QUESTION** Can an exponential decay model show a decreasing amount?

► EXPLORING THE CONCEPT

1 Make a table to record your results.

Number of toss	0	1	2	3	4	5	6	7
Number of pennies remaining	?	?	?	?	?	?	?	?

2 Place the pennies in the cup. Shake the pennies in the cup then spill them onto a flat surface. Remove all of the pennies that land face up. Count and record the number of pennies remaining.



3 Repeat **Step 2** until there are no pennies left in the cup.

4 Make a scatter plot of the data you have collected.

► DRAWING CONCLUSIONS

1. Describe any patterns suggested by the scatter plot.
2. Look at your data and scatter plot to complete the following statement.

Each time the cup is emptied, the number of pennies you remove is about ? of the number in the cup.

3. Write an exponential equation to model this situation.
4. Compare your equations and graphs with those of other groups. Describe any patterns you see.

Number of toss	0	1	2	3	4	5	6	7
Number of pennies remaining	100	54	23	12	7	3	2	0

