

VII-3 THE 'M AND M' HALF-LIFE ANALOG

Exploration

Problem

How can you use large objects to develop an understanding of half-life and radioactive disintegration?

Materials

One shoe box and lid, "M & M"s or other materials provided by teacher, paper, pencil, and graph paper.

Procedure

1. Place the "M & M"s in the shoe box and place the lid on the box. Shake the box for several seconds. Open the box and remove all the candy pieces with the "M" showing. Count these and record the number in the table below. Do not put the removed pieces back in the box.
2. Repeat number one until one or no pieces remain. Record the number removed each time.

Shake #	Pieces Removed	Pieces Remaining

3. Add the total pieces removed to find the total. Then find the pieces remaining after each shake.
4. Now graph the pieces remaining vs. the number of shakes. Plot the data and draw a smooth line that best fits the points.

Total pieces _____

Summing Up

1. What is the meaning of the graph you sketched from your data?
2. Approximately what percent of the remaining M & M's did you remove after each shake? Why?
3. Each shake represents a "half-life" for the M & M's. What does half-life mean?

