Name: _____

Period: ____

RADIOACTIVE DECAY:
A SWEET SIMULATION OF A HALF-LIFE

POST LAB ANALYSIS:

1. How good were your predictions of how many radioactive "nuclei" decay each half life? *Explain*.

2. If you started with a sample of 600 radioactive nuclei, how many would remain *undecayed* after three half lives?

3. If 175 *undecayed* nuclei remained from a sample of 2800 nuclei, how many half-lives have passed?

4. Why did we pool the class data? How does this relate to measuring half-lives of radioactive nuclei (is it better to start with more or less and why)?

5. How many half lives would it take for 6.02×10^{23} nuclei to decay to 6.25% (0.376×10^{23}) of the original number of nuclei?

6. Is there any way to predict precisely *when* a specific piece of candy will land marked side down or "decayed"? If you could follow the fate of an individual atom in a sample of radioactive material, could you predict when it would decay? Explain.

7. Strontium-90 has a half-life of 28.8 years. If you start with a 10-gram sample of strontium-90, how much will be left after 115.2 years? Justify your answer (show work).