

Radioactivity Activity

Before beginning this activity read the information at:

Wikipedia Radioactive Decay, <http://en.wikipedia.org/wiki/Radioactivity>

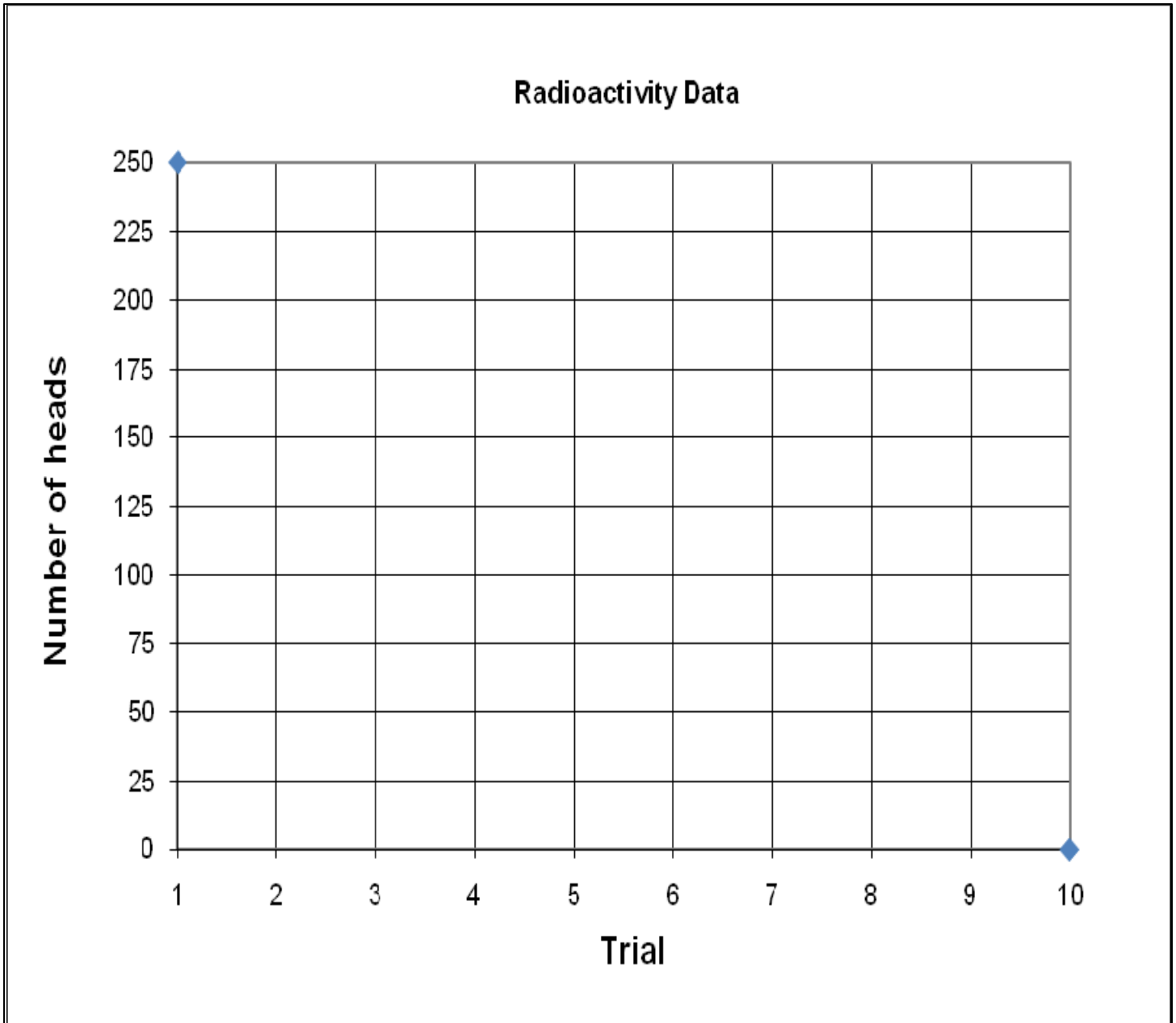
Then complete the activity:

1. There are approximately 250 pennies in the bag. Calculate the theoretical number of heads by dividing each successive number in column B by 2.
2. Pour them out and separate the heads from the tails. Put the tails aside.
3. Count the number of heads and record in the table below in column C.
4. Put ONLY the heads back in the bag.
5. Shake the bag.
6. Repeat steps 2 through 5 until there are no pennies remaining or the table below is complete.
7. Calculate the difference between the theoretical and actual number of heads in column D.
8. How does this exercise simulate radioactive decay?

9. Why might the theoretical and actual numbers be different?

A	B	C	D
Trial	Theoretical number of heads	Actual number of heads	Difference $ B - C $
1	250	250	
2	125		
3			
4			
5			
6			
7			
8			
9			
10			

10. Using the graph paper below, plot the theoretical number of heads and connect the points with a line.
11. Using the graph paper below, plot the actual number of heads and connect the points with a line.



12. If we performed this experiment many, many times, how might your experimental and actual results differ from what you obtained from doing this experiment only once? Why?