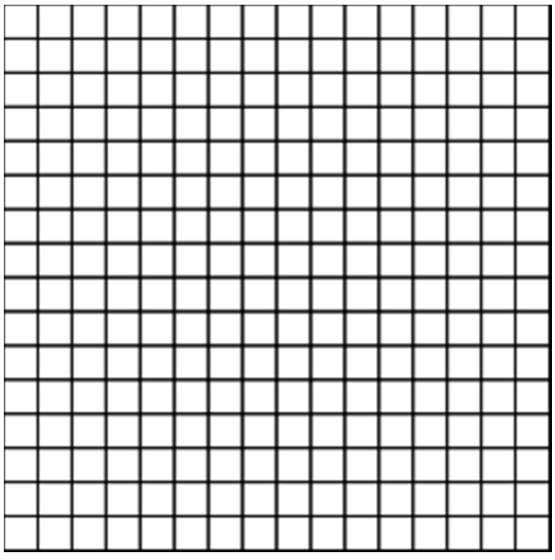
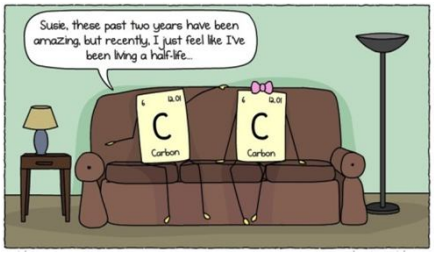
Name _____ Period _____

Nuclear Decay of Element Z

Element Z has a half-life of one week. *(What do you think this means?_____)*
Use the plotted grid below to trace the decay of a 256-gram sample of element Z over a 10-week period.
Each box on the grid represents 1 gram of element Z. After you complete each step, answer the following question.

Week	Direction	Question
1	Use a pencil to draw a large X through ½ of the boxes on the *left side* of the grid.	How many grams of element Z decayed? _____
2	Use a *different colored pencil* to draw a large X through ½ of the *remaining* boxes.	How many grams of element Z remain now, after 2 weeks? _____
3	Use your *pencil* to *shade in* ½ of the *remaining* boxes.	How many grams of element Z are left? _____
4	Repeat step 3 using the *colored pencil*.	How many grams of element Z remain? _____
5	Use a pencil to draw an X in ½ of the *remaining* boxes.	How many grams of element Z remain? _____
6	Repeat step 5 using the *colored pencil*.	How many grams of element Z remain? _____
7	Use your *pencil* to draw a *circle* in ½ of the *remaining* boxes.	How many grams of element Z remain? _____
8	Repeat step 7 using the *colored pencil*.	How many grams of element Z remain? _____
9	Shade in ½ of the *remaining box* with your pencil.	How much of element Z remains? _____
10	Repeat step 9 using the *colored pencil*.	How much of element Z remains? _____





Analysis:

On a separate sheet of graph paper, make a line graph that shows the decay of element Z over a 10-week period. Use your answers to the above 10 questions as your data. Plot weeks on the X axis and grams of element Z on the Y axis.

On the back of the graph, write answers to the following:

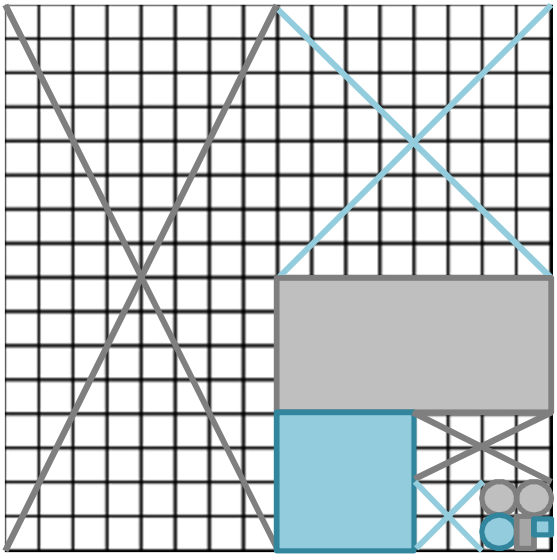
1. *Write a sentence describing what your graph shows.*
2. *Describe "half-life" in your own words.*
3. *Research and find out!: What is carbon-dating? Please explain why/how scientists use the technique of carbon-dating and what this activity has to do with it.*

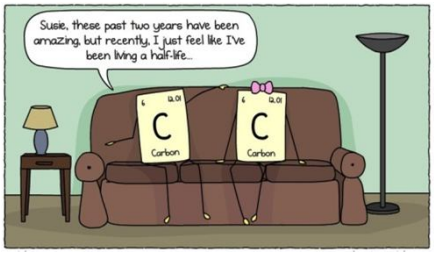
Name _____KEY_____ Period _____

Nuclear Decay of Element Z

Element Z has a half-life of one week. *(What do you think this means?*____**answers will vary … discuss ideas**_____*)*
Use the plotted grid below to trace the decay of a 256-gram sample of element Z over a 10-week period.
Each box on the grid represents 1 gram of element Z. After you complete each step, answer the following question.

Week	Direction	Question
1	Use a pencil to draw a large X through ½ of the boxes on the *left side* of the grid.	How many grams of element Z decayed? **128 g**
2	Use a *different colored pencil* to draw a large X through ½ of the *remaining* boxes.	How many grams of element Z remain now, after 2 weeks? **64 g**
3	Use your *pencil* to *shade in* ½ of the *remaining* boxes.	How many grams of element Z are left? **32 g**
4	Repeat step 3 using the *colored pencil*.	How many grams of element Z remain? **16 g**
5	Use a pencil to draw an X in ½ of the *remaining* boxes.	How many grams of element Z remain? **8 g**
6	Repeat step 5 using the *colored pencil*.	How many grams of element Z remain? **4 g**
7	Use your *pencil* to draw a *circle* in ½ of the *remaining* boxes.	How many grams of element Z remain? **2 g**
8	Repeat step 7 using the *colored pencil*.	How many grams of element Z remain? **1 g**
9	Shade in ½ of the *remaining box* with your pencil.	How much of element Z remains? **0.5 g (½ g)**
10	Repeat step 9 using the *colored pencil*.	How much of element Z remains? **0.25 g (¼ g)**





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Decay of Element Z Key