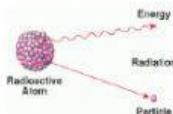


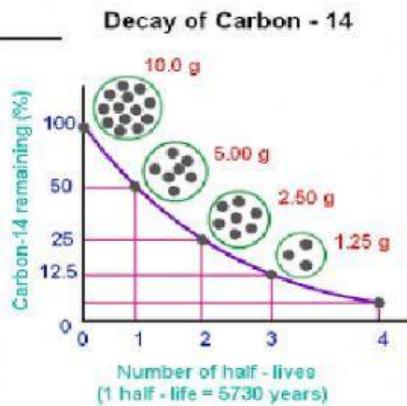
- SPS3. Standard SPS3: Students will distinguish the characteristics and components of radioactivity.
- C. Explain the process half-life as related to radioactive decay.
- Learning Target: I will be able to explain and demonstrate half-life as it relates to Radioactive Decay.



Scan QR Code to watch the video!

### Half-Life 101 Video Review

1. What is Radioactive decay and why does it occur? \_\_\_\_\_
2. What is Half life decay? \_\_\_\_\_
3. Why is half life different for radioactive elements? \_\_\_\_\_
4. Answer the following questions by referencing the chart to the right.
  - How many protons & neutrons does C-14 have? \_\_\_\_\_
  - What is Carbon-14 mass number? \_\_\_\_\_
  - What is Carbon-14 half life? \_\_\_\_\_
  - What is the total sample amount? \_\_\_\_\_
  - How much is left after 1 HL? \_\_\_\_\_ 3 HL? \_\_\_\_\_ 4 HL? \_\_\_\_\_
  - How many years have passed after 1 HL? \_\_\_\_\_ 4 HL? \_\_\_\_\_
  - What percent remains after 3 half lives? \_\_\_\_\_



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5. Steps for solving Half-life problems

- Write \_\_\_\_\_ beside each half-life problem
- Read and \_\_\_\_\_ you need to solve the problem.
- Put a \_\_\_\_\_ by what you are \_\_\_\_\_ for.
- Make a \_\_\_\_\_ for your half-life \_\_\_\_\_ and half-life \_\_\_\_\_.
- Put the \_\_\_\_\_ that you are given in the \_\_\_\_\_ and solve for \_\_\_\_\_

**Practice Problem 1**

Magnesium-25 has a half-life of 15 hours. How much Magnesium-25 will remain in a 20.0 g sample after 60 hours?

HL = \_\_\_\_\_

SA = \_\_\_\_\_

EA = \_\_\_\_\_

ET = \_\_\_\_\_

Time	Amount

**Practice Problem 2**

An 80g sample of a radioactive isotope decays to 5g in 32 days. What is the half-life of this element?

HL = \_\_\_\_\_

SA = \_\_\_\_\_

EA = \_\_\_\_\_

ET = \_\_\_\_\_

Time	Amount

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### **Practice Problem 3**

Xenon-135 has a half-life of 12 days. How many grams of Xe-135 in a 6.0 g sample remains after 24 days?

HL = \_\_\_\_\_

SA = \_\_\_\_\_

EA = \_\_\_\_\_

ET = \_\_\_\_\_

Time	Amount

### **Practice Problem 4**

Phosphorus-32 has a half-life of 14 days. How long will it take for the P-32 sample to decay to one-fourth of its original mass?

HL = \_\_\_\_\_

SA = \_\_\_\_\_

EA = \_\_\_\_\_

ET = \_\_\_\_\_

Time	Amount

### **Practice Problem 5**

In 5.49 seconds, 1.20g of argon-35 decays to leave only 0.15g. What is the half-life of argon-35?

HL = \_\_\_\_\_

SA = \_\_\_\_\_

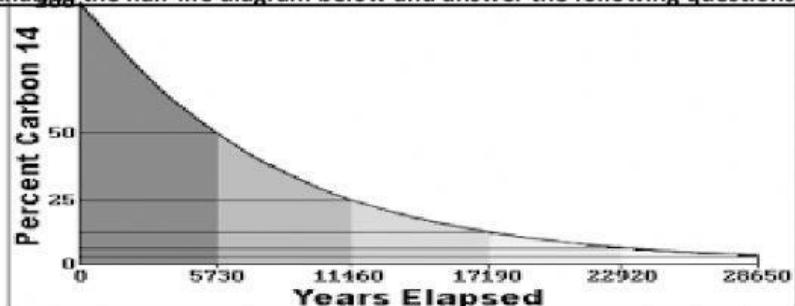
EA = \_\_\_\_\_

ET = \_\_\_\_\_

Time	Amount

- SPS3. Standard SPS3: Students will distinguish the characteristics and components of radioactivity.
- C. Explain the process half-life as related to radioactive decay.
- Learning Target: I will be able to explain and demonstrate half-life as it relates to Radioactive Decay.

**Analyze the half-life diagram below and answer the following questions:**



1. What is the half-life of Carbon-14? \_\_\_\_\_
2. If only 25% of Carbon-14 remains in this sample, how many years have passed? \_\_\_\_\_
3. If 400g of Carbon-14 were in an organism when it originally died, how much Carbon-14 was left after three half-lives? \_\_\_\_\_



Scan QR Code to take the quiz!

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