

Average Atomic Mass: Guided Notes

Name: _____ Pd: _____

Objective: To define average atomic mass and calculate a weighted average.

Review: Isotopes: Atoms of the same element with a different # of _____, so the _____ is different. So, in a large sample of lithium you will find some atoms with a mass of ____, and some atoms with a mass of ____, and some atoms with a mass of _____.

Average Atomic Mass

1. What is an **average**?
2. How do we calculate an average?
3. A **weighted average** is a way to find an average using _____
4. How do we find %?
5. _____ Number: Protons + Neutrons, Mass of 1 atom, Whole #, Not on periodic table
6. _____ Atomic Mass: Average of **all** the atoms of an element, Decimal #, On the periodic table
7. What is the equation used to find average atomic mass?
average atomic mass = _____
8. What does amu stand for?
9. Mass is usually measured in _____ and abundance is a _____ written as a _____.
10. _____ is the percentage of time that a particular isotope occurs in nature.
11. Average atomic mass is closest in mass to the _____ abundant isotope & between the masses of the smallest & largest isotope.
12. Example #1: Calculate the average atomic mass of Boron.

13. Example #2: Chlorine has two naturally occurring isotopes Chlorine-35 and Chlorine-37. The average atomic mass for Chlorine is 35.453. Without doing any calculations, which isotope is more abundant? Why?

14. Example #3: The atomic mass of rubidium is 85.4678 amu, the naturally occurring isotopes are $^{85}\text{Rb} = 84.9117$ amu and $^{87}\text{Rb} = 86.9086$ amu. Determine the percent abundance of each isotope.
15. Example #4: The atomic mass of Thallium is 204.3833 amu. The two stable isotopes are thallium-203 and thallium-205. Calculate the percent abundance of each isotope.
16. Example #5: Naturally occurring europium (Eu) consists of two isotopes with a mass of 151 and 153. Europium-151 has an abundance of 48.03% and Europium-153 has an abundance of 51.97%. What is the atomic mass of europium?
17. Example #6: Antimony has two naturally occurring isotopes. The mass of antimony-121 is 120.904 amu and the mass of antimony-123 is 122.904 amu. Using the average mass from the periodic table, find the abundance of each isotope.
18. **Check for Understanding:**
Element "X" has 2 isotopes. X-63 has a mass of 62.93 amu and is 69.2% of the total. X-65 is 30.8% of the total with a mass of 64.93 amu. What is element X?