

Name: \_\_\_\_\_

Date: \_\_\_\_\_ Period: \_\_\_\_\_

## 4.1 – Defining the Atom

1. What is an atom?
2. Who was the first person to believe things were made atoms?
3. When did he come up with his idea?
4. Why did later “scientists” not believe his idea?
5. Who was the modern scientist to prove the existence of atoms?
6. What are the four steps to Dalton’s Atomic Theory?
  - 1.
  - 2.
  - 3.
  - 4.
7. Does science have instruments that are able to “see” atoms? If so, what are they?

## 4.2 – Structure of the Nuclear Atom

8. What are the three kinds of sub atomic particles? Symbols? Location? Charges? Relative masses?

Name	Symbol	Charge	Location	Relative Mass

9. Explain Rutherford's Gold-Foil Experiment.

10. How did this change the way people thought the atom looked like?

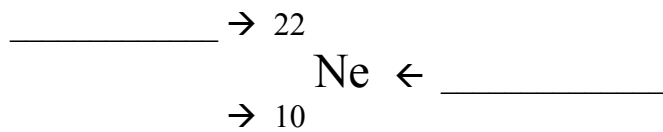
## 4.3 – Distinguishing Among Atoms

11. What makes one element different from another?

12. What does the atomic number represent?

13. What makes up an atom's mass number?

14. Fill in the blanks with the following labels: *chemical symbol*, *atomic number*, and *mass number*.



How many protons in this atom? \_\_\_\_\_ Neutrons? \_\_\_\_\_ Electrons? \_\_\_\_\_

15. Do **all** atoms have the same number of protons as neutrons?

16. Complete the following table.

Element	Protons	Neutrons	Mass Number	Electrons
Al			27	
		18		17
	26		56	

17. What is an isotope?

18. How do we name isotopes?

19. What is an AMU?

20. Why are atomic masses decimals?

21. Do all isotopes of an element occur in equal amounts in nature?
22. Boron has two isotopes: boron-10 and boron-11. Which is more abundant, given that the atomic mass of boron is 10.81? Why?
23. How do you calculate the atomic mass of an element?
24. What is the atomic mass of element if 50% had a mass of 10, 30% had a mass of 11, and 20% had a mass of 12? Show work
25. How is the periodic table organized?
26. What is a period? How many are there?
27. What is a group? How many are there?