

Name _____ Date _____ Period _____

Practice sheet for test Chapter 2.1 Atomic Structure**Early Models of the Atom**Democritus of Abdera: (4th century B.C.) believed that the world is made out of two things:

Democritus, Aristotle and many others did not proof their theories by experiments. For many centuries educated people thought experiments to be below them and unworthy, one of the reasons why there was so little technological and scientific progress during these times.

Dalton's Atomic Theory

1. All elements are composed of _____ called _____
2. Atoms of the same element are _____. Atoms of any one element are _____ from those of any other element.
3. Atoms of different elements can chemically combine in simple _____ to form compounds.
4. Chemical reactions occur when atoms are rearranged, but atoms of one element are never be changed into atoms of _____ as a result of a chemical reaction.

Modern atomic theory differs from Dalton's atomic theory due to the discovery of two things:

1. _____
2. _____

Many scientists contributed to our understanding of the structure of the atom. What were the findings of... (and describe their famous experiments)

J. J. Thomson _____

Rutherford _____

Define the following:

Atomic number _____

Mass number _____

Isotopes _____

Atomic mass unit u _____

Atomic mass _____

Atomic number	= # of	
Number of electrons	= # of	
Mass number	= # of	plus # of
Mass number minus atomic number	= # of	

Complete the tables

Table 1

Particle	Symbol	Relative charge	Relative mass	Actual mass (g)
Electron				9.11×10^{-28}
Proton				1.67×10^{-24}
Neutron				1.67×10^{-24}

Table 2 (*You find the chemical symbol for each in the periodic table)

Name	Symbol*	Atomic #	Mass #	Protons	Neutrons	Electrons
Silver			108	47		
Sodium					12	11
Tellurium		52	128			

Table3

Atomic #	Mass #	# of protons	# of electrons	# of neutrons	Atom
					⁴⁰ Ar 18

Table4 (*You find the atomic number for each in the periodic table)

Isotope	Atomic mass unit u	Atomic number*	Number of neutrons
Ex: nickel-60	60 u	28	$60 - 28 = 32$
bromine-80			
zinc-65			
carbon-12			

Why is the average **atomic mass** of an element, shown in the periodic table, often a number with many decimal points and not a simple whole number like the mass number of one isotope?

Which number is usually the bigger number, atomic number or mass number? Why?

Answer on a separate sheet: What are the steps in the scientific method?

What is the difference between scientific law and theory?

Give an example of how the scientific method can be applied in solving everyday life problems