

2 • Atoms and Elements

Parts of Atoms:

Most people already know that the atom is made up of three main parts, the _____ and _____ in the **nucleus** and the _____ somewhere outside of the **nucleus**.

Let's summarize:

	proton	neutron	electron
symbol			
charge			
location			
mass			
size (see below)			

Let's make this more visual using information from the Chart of Fundamental Particles.

If the proton were 10 cm in diameter... the size of an orange, how big would everything be?

object	actual size	model size	model
proton	10^{-15} m	10 cm	orange
neutron	10^{-15} m		
electron	10^{-18} m		
atom	10^{-10} m		

The atom is often represented as a miniature _____ . Draw it:

The **mass** of the atom is due to the _____

The **size** of the atom is due to the _____

ATOMIC STRUCTURE

How Many Particles in Each Atom?

The particle that defines the identity of an atom is the _____ . (shown on the periodic table)

Every hydrogen atom has ___ proton.

Every magnesium atom has ___ protons.

Any atom that has 23 protons is _____.

Any atom that has 92 protons is _____.

The mass of an atom is mostly from the _____ and _____.

Find O on the periodic table. It's mass is _____ amu.

It has ___ protons. It must have ___ neutrons.

Electrically neutral atoms (as opposed to ions) have one electron for every proton.

Fill in this chart for these neutral atoms:

Atom	Mass	protons	neutrons	electrons
He				
Si				
Be				
H				
Rn				
Ar				
F				
Pb				

If the mass is not close to a whole number, it is because the atom has several _____.

These are atoms with the same number of _____ but different numbers of _____.

Chlorine has two isotopes: Cl-35 (___ p+ & ___ n^o) and Cl-37 (___ p+ & ___ n^o).