

5 • What Do Atoms Look Like?

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			

Let's make this more visual.

If the proton were 10 cm in diameter...
the size of a(n) _____,
how big would everything be?

object	actual size	model size
proton	10^{-15} m	10 cm
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).

Where Do The Electrons "Live":

A good model for an atom is to think of the atom as a hotel (The Atomic Hotel).

Our task will be to

- learn the structure of the hotel rooms and then
- correctly assign the electrons to the rooms.