

Atomic HW # 1

KEY



	atomic number	atomic mass	# protons	# neutrons	# electrons	element symbol	GROUND STATE electron config
1	9	19	9	10	9	F	2-7
2	13	27	13	14	13	Al	2-8-3
3	14	28	14	14	14	Si	2-8-4
4	22	48	22	26	22	Ti	2-8-10-2
5	11	23	11	12	11	Na	2-8-1
6	33	75	33	42	33	As	2-8-18-5
7	8	18	8	8	8	O	2-6
8	30	65	30	35	30	Zn	2-8-18-2
9	56	137	56	81	56	Ba	2-8-18-18-2
10	49	115	49	66	49	In	2-8-18-18-3
11	80	201	80	121	80	Hg	2-8-18-32-18-2

12. Define Metalloid

How will you remember these two? What is the “DOG FOOD” memory aid?

AlPo is a dog food brand name, look at the can in our classroom.
Al + Po are not metalloids, they're dog food.

B

Al

Si

Ge

As

Sb

Te

Po

At

Atomic HW # 2 KEY

≡

You must have your periodic table out to do this HW.

What group number are the

Alkaline Earth Metals 2 Halogens 17 Alkali Metals 1 Noble Gases 18

Where are the INNER Transitional metals?

The bottom 2 rows that are not attached to the bigger part of the table are the “inner transitional” metals. They actually fit into group three, underneath Y (yttrium). La through Lu all fit into group 3, period 6. Ac through Lr all fit into group 3, period 7. This is weird, LOOK at the other periodic tables in the classroom, do not get fooled.

Where are the TRANSITIONAL metals?

The transitional metals are all found in groups 3 through 12, PLUS all the metals underneath the stairs on the periodic table. Because of their “sub-orbitals” electrons can be in places you might not know about, and they can sometimes make more than one kind of cation. Any metal here, with more than one +number in the top corner can make more than one kind of cation, and are named differently, using ROMAN NUMERALS in their names.

On the Periodic Table...

the rows going left to right are called PERIODS, and there are 7 of them.

The columns called the GROUPS, and there are 18 of these.

List ALL the non-metal atom symbols from LOWEST atomic number to highest.

Note: there are too many boxes here, just saying.

H	He	B	C	N	O	F	Ne	Si	P
S	Cl	Ar	As	Se	Br	Kr	Te	I	Xe
At	Rn								

How many elements are on the periodic table? 118 How many are metals? 96 ($118 - 22 = 96$)

What elements are in...

Period 6, group 9 Ir Iridium Period 3, group 14 Si Silicon Period 5, group 11 Ag Silver

Period 1, group 18 He Helium Period 2, group 13 B Boron Period 4, group 8 Fe Iron

Atomic Theory HW #3 Key

Ψ

Atoms with the same number of protons & electrons,
but different numbers of neutrons are called... ISOTOPES

These are the accepted values for atomic mass and abundance for the naturally occurring isotopes of silicon. Calculate the average weighted atomic mass for silicon. (Use the “isotope mass” with decimal AMU’s, not the “symbol” for the math.)	Isotope Symbol	Mass AMU	Natural proportion
	Si-28	27.98	92.23%
	Si-29	29.98	4.69%
	Si-30	30.41	3.08%

$$\begin{aligned}
 &(27.98 \text{ u})(.9223) = \\
 &(29.98 \text{ u})(0.0469) = \\
 &(30.41 \text{ u})(0.0308) = \underline{\hspace{2cm}} \quad \text{OR} \\
 &\hspace{10em} \text{sum this up}
 \end{aligned}$$

$$\frac{(27.98 \text{ u})(92.23\%) + (29.98 \text{ u})(4.69\%) + (30.41 \text{ u})(3.08\%)}{100}$$

How many protons, neutrons and electrons are in the isotope Mn-57?

$$\begin{aligned}
 p &= 25 \\
 e &= 25 \\
 n &= 27 \\
 (57 - 25 &= 27)
 \end{aligned}$$

How many protons, neutrons and electrons are in the isotope Mo-96?

$$\begin{aligned}
 p &= 42 \\
 e &= 42 \\
 n &= 54 \\
 (96 - 42 &= 54)
 \end{aligned}$$

How many protons, neutrons, and electrons are in the isotope Rb-87?

$$\begin{aligned}
 p &= 37 \\
 e &= 37 \\
 n &= 40 \\
 (87 - 37 &= 40)
 \end{aligned}$$

Parts of an Atom	Mass in AMU	LOCATION in atom	Charge
Neutrons	1 amu or 1 u	nucleus	Neutral/ no charge
Electrons	Zero in HS	Flying around the nucleus	Negative one (-1)
Protons	1 amu or 1 u	nucleus	Positive one (+1)