

S10 Unit A: Chemistry - Your Periodic Table Practice

Name: Key!

Date: Sept 13 2012

1. Define:

a) Atomic Number: # of protons in an atom or # of e⁻

b) Atomic Mass (mass number):..... sum of protons and neutrons

2. LD is experimenting with his home made sub atomic particle beam. He aims the beam at a sample of magnesium atoms. In the first trial, the beam adds a proton to each magnesium atom. In the second trial, the beam removes a proton from each atom. In the third trial, the beam removes a neutron from each atom. And in the fourth trial, the beam removes two electrons from each atom. Describe what happens to the magnesium atoms after each trial.

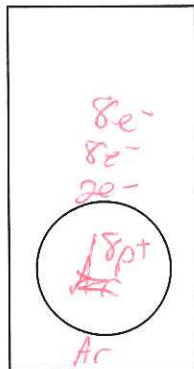
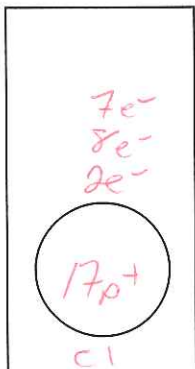
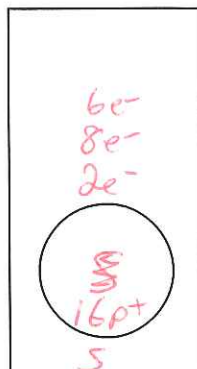
a) Trial 1..... it would become Al (aluminum)

b) Trial 2..... it would become sodium

c) Trial 3..... it would still be magnesium but would be an isotope

d) Trial 4..... it would become the Mg²⁺ ion

3. Draw the electron orbital diagrams for sulphur, chlorine and argon below. Using your diagrams, suggest a reason why argon is very unreactive while sulphur reacts easily and chlorine reacts so well that it is dangerous to handle in element form.



Ar is stable because its valence orbital is full.

Cl is reactive because its valence orbital is not full.

valence = outer orbital

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4. Use your periodic table to complete the chart below.

Element Name	IUPAC Symbol	Atomic #	Group #	Period #	metal/non-metal	state	family/series name
chlorine	Cl	17	17	3	n	g	halogen
magnesium	Mg	12	2	3	m	s	alkaline
zinc	Zn	30	10	4	m	s	transition
nitrogen	N	7	15	2	n	g	-----
iodine	I	53	17	5	n	s	halogen
gold	Au	79	11	6	m	s	transition.
sodium	Na	11	1	3	m	s	Alkali metals
thorium	Th	90	4	7	m	s	actinide.
mercury	Hg	80	12	6	m	liquid	transition
gadolinium	Gd	64	10	6	metal	solid.	lanthanides.
argon	Ar	18	18	3	n	g	noble gas
silver	Ag	47	11	5	m	s	transition
potassium	K	19	1	4	m	s	alkaline
calcium	Ca	20	2	4	m	s	alkaline earth
hydrogen	H	1	1	1	n	gas	-----
cerium	Ce	58	-----	6	m	s	lanthanide.

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5. Use your periodic table to complete the chart below.

Name	Symbol	Mass #	Atomic #	Protons	Neutrons	Electrons	Electric Charge
fluorine atom	F	19	9	9	10	9	0
nitride ion	N ³⁻	15	7	7	8	10	3-
boron atom	B	11	5	5	6	5	0
carbon atom	C	14	6	6	8	6	0
aluminum ion	Al ³⁺	27	13	13	14	10	3+
gold ion	Au ⁺	195	79	79	116	78	1+
potassium atom	K	40	19	19	21	19	0
bromine	Br	79	35	35	44	35	0
chlorine	Cl ⁻	36	17	17	19	18	1-
sulphur	S ²⁻	32	16	16	16	18	2-
silver	Ag	110	47	47	63	47	0
cesium ion	Cs ⁺	132	55	55	77	54	1+
iodine	I	125	53	53	72	54	1-

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6. Use your periodic table to complete the chart below.

Element Symbol	Atomic number	Mass number	# electrons	# protons	# Neutrons
$^{12}_6\text{C}$	6	12	6	6	6
$^{13}_6\text{C}$	6	13	6	6	7
$^{14}_6\text{C}$	6	14	6	6	8
$^{18}_8\text{O}$	8	18	8	8	10
$^{16}_8\text{O}$	8	16	8	8	8
$^{20}_{10}\text{N}$	10	20	10	10	10
$^{21}_{10}\text{Ne}$	10	21	10	10	11
$^{32}_{16}\text{S}$	16	32	16	16	16
$^{207}_{82}\text{Pb}$	82	207	82	82	125
$^{238}_{92}\text{U}$	92	238	92	92	146

Bonus Question: Answer Only **ONE!!!**

Fair Bonus Question: What is the only letter of the alphabet not found on the periodic table?

Unfair Bonus Question: Which meat is the "meat of life" on the Periodic Table of Meat?