

KEM

Name: _____

Per: _____

1. Write in the space, "metals", "metalloids", or "nonmetals" to indicate which type of element the statement describes. The statement may apply to more than one type of classification.

a.	metals	Located on the left side of the P.T.
b.	nonmetals / sm	Located on the right side of the P.T.
c.	nonmetals	Solids are brittle
d.	metals	Majority of the elements
e.	nonmetals	Gain electrons to form negative ions
f.	semi-metals	Located along the "staircase"
g.	metals	Have luster
h.	metals	Malleable
i.	metals	Lose electrons to form positive ions
j.	metals	Ductile
k.	sm / metals	Fair/Good Conductors of heat & electricity
l.	nonmetals	Poor electrical & heat conductors
m.	nonmetals	Many are gases at STP
n.	semi-metals	All elements are solids.
o.	nonmetals	Typically have high electronegativities
p.	metals	Typically have low ionization energies

2. Use Table S to fill in the names and states of each element below. Check all the boxes which describe the element.

	Name	Physical Properties				Chemical Properties		
		State at STP (s, l, or g)	Brittle	Malleable /ductile	Conductor		Electrons	
					Good	Poor	Lose	Gain
C		s	✓			✓	✓	✓
Ag		s		✓	✓		✓	✓
Mg		s		✓	✓		✓	✓
I		s	✓			✓		✓
S		s	✓			✓		✓
Au		s		✓	✓		✓	✓
Fe		s		✓	✓		✓	✓
Br		l				✓		✓
Ar		g				✓	neither	
H		g			✓	✓	✓	✓
Hg		l			✓	✓	✓	✓

BrINC(H)OF = diatomic

3. Put a check in each box that correctly describes the element given.

	Metal	Metalloid	Nonmetal	Alkali Metal	Alkaline Earth Metal	Transition metal	Halogen	Noble gas	Monatomic	Diatomic
Sb		✓							✓	
Sr	✓				✓				✓	
Rn			✓					✓	✓	
P			✓						✓	
Pt	✓					✓			✓	
Cs	✓			✓					✓	
S			✓						✓	
Fe	✓					✓			✓	
Br			✓				✓		✓	✓
Ar			✓					✓	✓	✓
H			✓							✓
Si		✓							✓	
B		✓							✓	
F			✓				✓			✓
He			✓					✓	✓	
Se			✓						✓	
Zn	✓					✓			✓	
Ra	✓				✓				✓	

4. Write in the space, "alkali metals", "alkaline earth metals", "transition metals", "halogens", or "noble gases" to indicate which group each statement is describing.

a.	transition metals	Elements Typically Form Colored compounds and solutions
b.	noble gases	Full valence shell
c.	alkali metals	Most active (reactive) metals
d.	halogens	Most active nonmetals
e.	noble gases	Monatomic gases
f.	halogens	Diatomic elements
g.	noble gases	Stable and unreactive
h.	halogens	7 valence electrons
i.	alkaline earth metals	2 valence electrons
j.	alkali metals	Form ions with a +1 charge
k.	noble gases	Elements rarely gain or lose electrons
l.	transition metals	Elements tend to have multiple oxidation numbers (charges)

m.	alkaline earth	Elements always form +2 ions when bonding with other elements
n.	noble gases	Have negligible electronegativity values

5. Give 2 Expected Properties of Each Element Listed Below:

a. Sulfur

brittle
dull
non conductive
high electronegativity (EN) high ionization energy (IE)

b. Calcium

Lustrous
malleable
good conductor
Low EN + Low IE

c. Argon

Monatomic gas
non conductive
No EN, High IE

6. Would an element with the electron configuration 2-8-6 be expected to have a low or high ionization energy? Explain your answer.

Nonmetals become stable mostly through gaining electrons therefore it takes a lot of energy to remove an electron.

