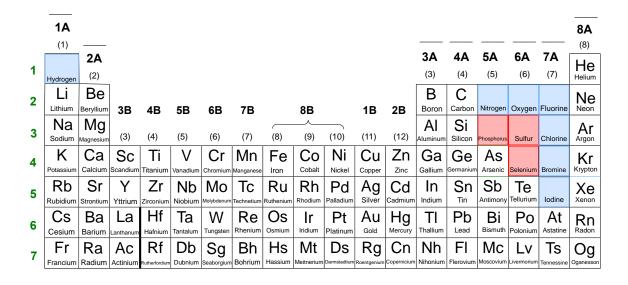
• The **Oxidation Number**: an element's ability to _____, ___ or ____ electrons when alone or in a compound.

The Natural State

• For an atom in its **Natural State** (standard state), its oxidation number (oxidation state) is equal to ______.



EXAMPLE: Which	of the following choices re	epresents a natural state with an o	oxidation number equal to zero?
a) Na ₃	b) Cl	c) He	d) Mn ₄

lons

- Recall, an ion is an element or compound with a _____ or ___ charge.
 - □ For a *monoatomic ion*, the oxidation number is ______ to its charge.

EXAMPLE: Which of the following elements would have the most positive oxidation number based on its ionic form?

a) Silver, Ag

b) Scandium, Sc

c) Sodium, Na

d) Sulfur, S

PRACTICE: Which of the following elements would have the lowest oxidation number?

a) Indium, In b) Strontium, Sr

c) Argon, Ar

d) Manganese, Mn

CONCEPT: CALCULATE OXIDATION NUMBERS

Oxidation Number Rules

- Oxidation Numbers don't always correspond to real charges and therefore a list of rules will be necessary.
 - □ When different elements are in a compound these specific rules will be used to calculate oxidation numbers.

Specific Oxidation Number Rules					
Element(s)	Oxidation Number				
Group 1A	when connected to any other element				
Group 2A	when connected to any other element				
Fluorine	when connected to any other element				
Hydrogen	when connected to nonmetals Ex: , ,				
	, when connected metals or boron Ex:,,				
Oxygen	when it is not a peroxide or superperoxide				
	when it exists as a peroxide Ex: , , ,				
	when it exists as a superoxide Ex: , ,				
	☐ Superoxide = Group 1A elements + oxygens.				
Group 7A (CI, Br, I)	except when they are connected to oxygen				

a) NaO ₂	b) CO ₂	c) Cs ₂ O ₂	d) O ₂
Oxidation Number o	f Non-listed Elements		
When asked to determine	ermine the oxidation number of a	non-listed element within a comp	ound:
STEP 1: Treat the no	n-listed element as		
STEP 2: Use the list t	o WRITE the known oxidation nu	mber of the other elements.	
STEP 3: If an elemen	t has a subscript then remember	to distribute it.	
STEP 4: ADD up the	oxidation numbers, create an equ	ation and make it equal to the	of the compound.
EXAMPLE : Give the	e oxidation number of the carbon	atom in the acetate ion: C₂H₃O₂¯	

EXAMPLE: Which compound has oxygen with the lowest oxidation state?