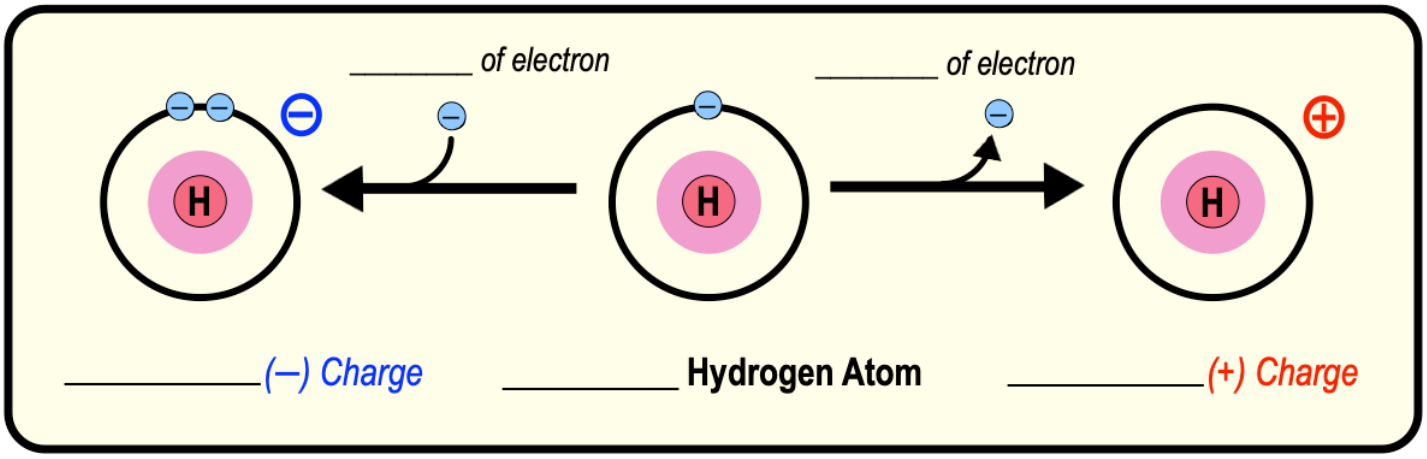
CONCEPT: IONIC BONDING

Ions: Anions vs. Cations

- _____: atoms or molecules with a net *electrical* _____.
  - □ Have either a negative or positive charge due to the *gain* or *loss* of _____.
  - □ _____: ____*egatively* (**–**) charged ions resulting from a _____ of an electron.
  - □ _____: *positively* (____) charged ions resulting from the _____ of an electron.

EXAMPLE: Anions vs. Cations.



PRACTICE: When atoms gain or lose electrons, they become negatively or positively charged. They are known as:

a) Molecules. b) Isotopes. c) Ions. d) Radioactive. e) Unstable atoms.

PRACTICE: Which of the following statements is true of ALL atoms that are anions?

a) The atom has more electrons than protons.
b) The atom has more protons than electrons.
c) The atom has fewer protons than a neutral atom of the same element.
d) The atom has more neutrons than protons.

PRACTICE: If oxygen has 9 electrons it will be a _____:

a) Negatively charged cation.
b) Negatively charged anion.
c) Positively charged cation.
d) Positively charged anion.

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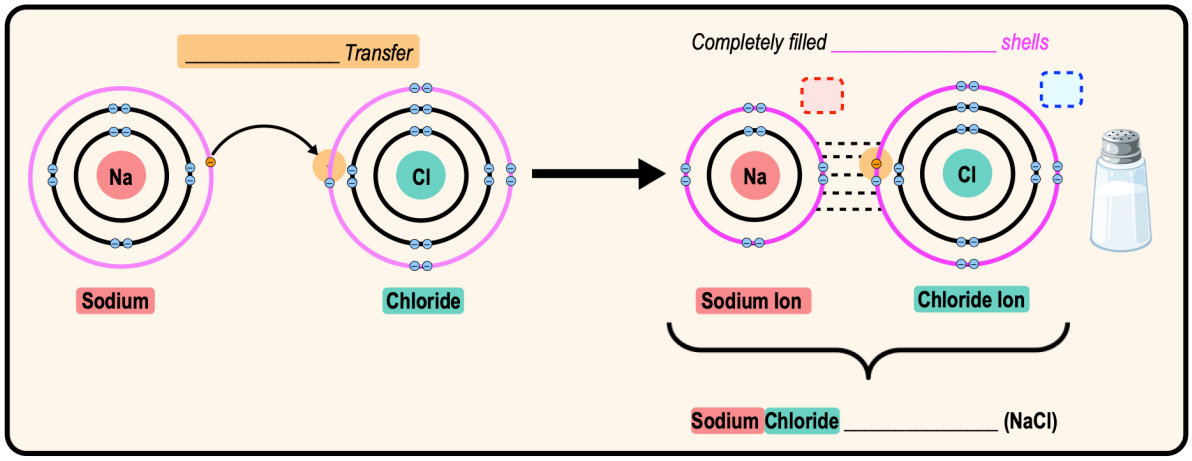
Ionic Bonds

- _____ *Bonds*: electrical *attractions* between *oppositely* charged ions (cations & anions).
  - □ Transfer of _____ can fill the *valence shells* of BOTH atoms & create charges.

EXAMPLE: Formation of Ionic Bond in Sodium Chloride (NaCl).



PRACTICE: An ionic bond is a bond in which:

a) Atoms share electrons. b) Atoms share a proton. c) Atoms of opposite charges attract each other.

PRACTICE: Cations and anions would be most frequently associated with which of the following:

a) Polar covalent bonds. b) Van der waals forces**.** c) Ionic bonds.

d) Nonpolar covalent bonds. e) More than one of the above is correct

PRACTICE: When are atoms most stable?

a) When they have the fewest possible valence electrons.

b) When they have the maximum number of unpaired electrons.

c) When the valence shell is completely full of electrons.

d) None of the above.

PRACTICE: Which of the following neutral atoms would be most likely to lose an electron and become a cation of +1?

a) A.

b) B.

c) C.

d) D.