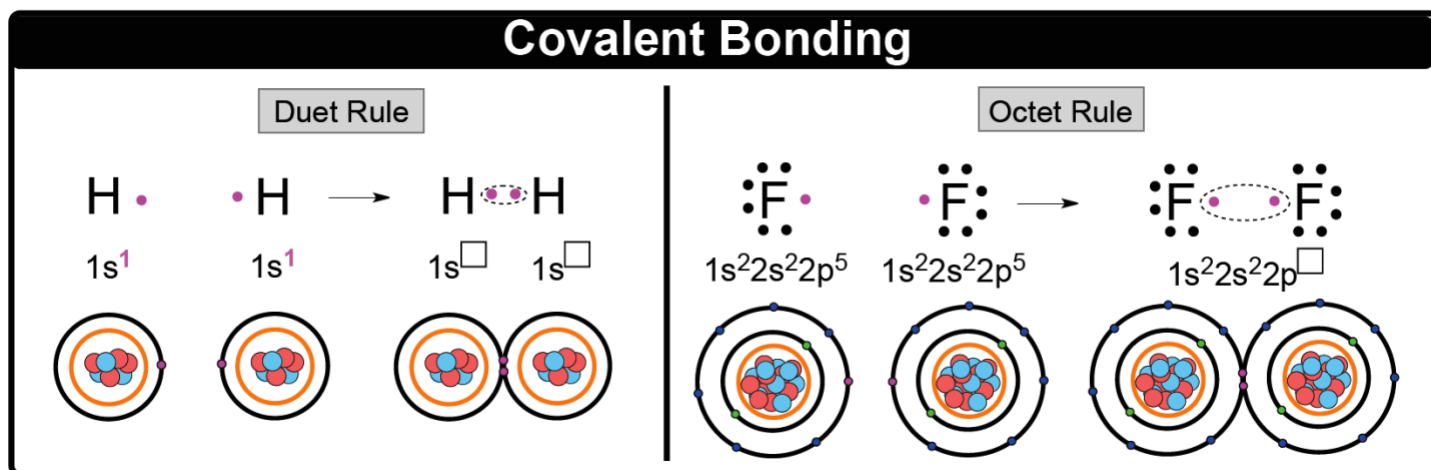


## CONCEPT: COVALENT BONDS

### Covalent Bonding

- A key feature of *covalent compounds* where molecular bonds involve sharing of valence electrons between \_\_\_\_\_.
  - Recall, they do this to achieve \_\_\_\_\_ valence electrons or \_\_\_\_\_ outer shell like the Noble Gases.
    - Octet Rule:** When an element reacts in order to achieve \_\_\_\_\_ valence electrons.
    - Duet Rule:** When the element of hydrogen reacts in order to achieve \_\_\_\_\_ valence electrons.

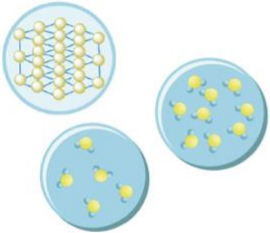




EXAMPLE: Which of these elements is likely to form covalent bonds?

- a) S                      b) H                      c) K                      d) P                      e) Si

### Covalent Compound Properties

- Covalent compounds tend to have the opposite trend of ionic compounds when it comes to their properties.

Covalent Compound Properties		
Physical State	Conductivity	Temperature
 ____, _____, or _____ at room temperature	 _____ electrical conductors (not easily dissolved)	 _____ Melting Points _____ Boiling Points

EXAMPLE: Which of the following compounds is expected to have the lowest boiling point?

- a) LiBr                      b)  $\text{SO}_2$                       c) Na                      d)  $\text{ZnCl}_2$                       e) Pb