

Let's Have A Luau!

Covalent versus Ionic Properties

A creative lab!

Covalent Bonds - Each atom desires to be stable. Each needs 8 electrons in their outer layer to be stable. They tend to share electrons to get the needed eight. These usually only involves one pair of electrons but sometimes involves two or three pairs (think double and triple bonds). The sharing creates a covalent bond. They each get to count the shared electron as their own to add up to eight

Needed:

- White T-shirts
- Fabric Markers
- Grass skirts

Have students use their artistic ability to draw a Hawaiian on their t-shirts and include the components of a covalent bond.

COvalent bonds mean that the valence electrons are being shared making a **MO**lecule. The sharing makes it so easy for them to "let go" or for the bond to break. (The friendly, sharing Hawaiian and the sugar reference for Hawaii) This also explains why it is easier to melt/boil a covalently bonded compound - the **LO** part of the saying.

The ionic bonds are much stronger; a relationship that exists because one of the elements has lost an electron, making a positive ion, and the other has gained, making a negative ion. Opposites attract very strongly so high melt/boil and, yes, they conduct well when dissolved.

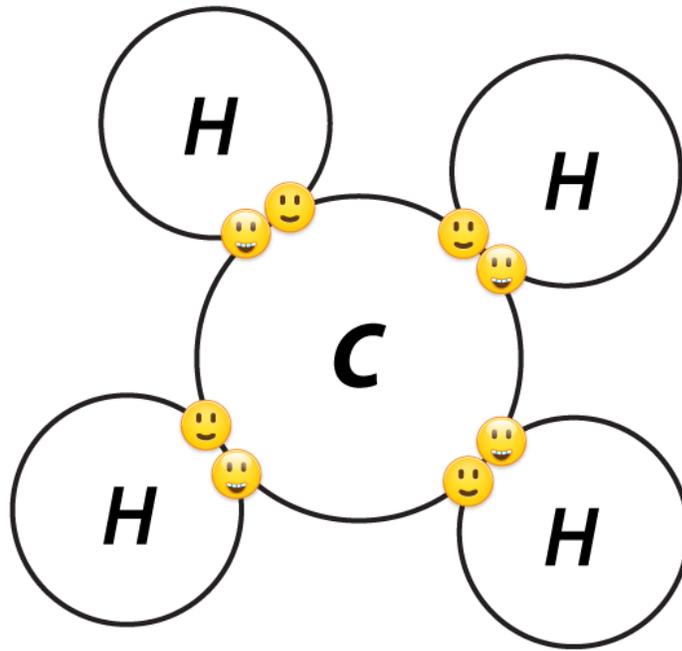
Atoms maintain stability when the number of valence electrons appropriately fills the outermost energy level.

When electrons are shared, the sharing is not always equal, one atom could have a stronger pull on the electrons so the electrons spend a bit more energy/time with a portion of the molecule, thus it is **PO**lar. But no electrons have officially permanently been lost or gained, so there are no charged ions involved, so it remains **NEU**tral, and because it is neutral, most covalently bonded molecules do not conduct well when dissolved, so the **NO** part of saying.

Once students finish their t-shirts, have them put them on along with the grass skirts and have them sing the elements of the lab (a great way for the covalent bond concept to be remembered!):

CO – MO – LO – PO – NEU – NO

Now doesn't that sound Hawaiian!



Covalent Bond

