



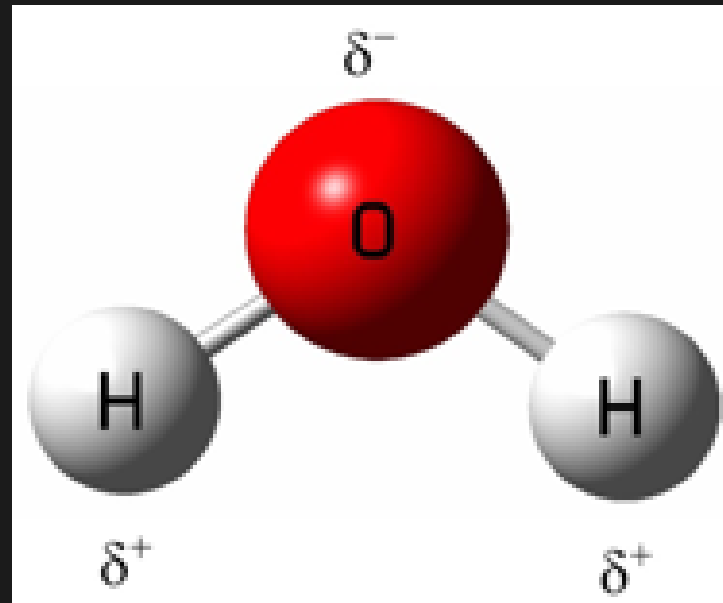
Unit 4: Chemical Reactions

Lesson 12: Attractive Molecules

Guiding Question: How can we predict how substances will interact with each other based off of their types of attraction?

Do Now:

- How can this diagram of water help us explain why oil and water don't mix?
 - Why is water together and why is oil together?



Demo: Oil & Water

- Oil & water in a water bottle
 - Notice they are separate!
- If we add food coloring to the bottle, where will it go?

Why?

Notes: page 2

The charged wand experiment provides evidence that some molecules are attracted to a charge. The most obvious explanation for this observation is that the molecules that are attached to the charged wand have some sort of charge on them.

Notes: page 2

- Polar molecules share their electrons unevenly. They contain partial charges and are attracted to the charged wand.
- Non-polar molecules share their electrons evenly. They have no charge and do not respond to the wand.

Notes: page 2

One end of a polar molecule has a partial positive charge and one end has a partial negative charge. It is important to stress that this charge is “partial,” as opposed to the type of charge on an ion. In order to differentiate between full charges and partial charges, chemists use the symbols δ^+ and δ^- (delta plus and delta minus) to indicate partial charges.

Notes: page 2

- Intermolecular forces are the forces of attraction that occur between molecules (“inter” means between and “molecular” means molecules)
- These attractive forces are responsible for many observable properties of molecules.
 - Polar substances bead up into droplets on wax paper, form menisci, and group together in liquids
 - Nonpolar substances will not dissolve in polar substances. Polar molecules will group together, leaving the nonpolar substances above or below them depending on density.

Revisit Your Models

- Turn to page 5 & look at your models from last class.
- On the half sheet of paper, you are drawing **one model** based on what we just discussed.
 - Show food color molecules, shaving cream molecules, paper molecules. Do any of these have any partial charges? Show this!
 - Your model needs to include: a **key**, **arrows**, **labels**, a **written explanation**
- **You will have 8 minutes to draw your model.**

Switch Models!

- Ms. Wilson will collect your models and give you someone else's model.
- In a different color:
 - What is at least one thing this model did well?
 - What is at least one thing that could make this model better?
 - What is one thing this model did that you could use in your own?
- **You will have 8 minutes to give feedback on someone else's model.**

Make Some Changes

- Take a look at the feedback on your model.
 - On the back of the paper write REVISION.
 - Make appropriate changes to your model based on this feedback.
- **You will have 8 minutes to make changes.**
- Raise your hand when you are done.

Closure

- Answer guiding question on page 2
 - How can we predict how substances will interact with each other based off of their types of attraction?
- Put Quiz #3 Review and Station Review in Bin.
- Achieve 3000: The Car that Runs on Chocolate is due 3/9 at 11:59pm (that's tonight!)