

**Polar and Non-polar Molecules**

It would be a good idea to add some visuals.

Polar and non-polar molecules are a result of molecular geometry and can result in the molecule having uneven charges or positive/negative charged poles. Polar molecules are molecules that have an uneven distribution of electrons in the orbits or shells that the atoms share. Non-polar molecules, being the opposite of polar molecules, are molecules that have an even distribution of electrons thus containing an even charge overall without poles.

Explain what poles are.

Water is an example of a polar molecule because it contains an uneven distribution of electrons due to its signature 'Mickey Mouse' type shape which gives it a positive pole where the two hydrogen atoms are and a negative pole on the other side. With this type of molecular geometry the charges are stacked and creates an imbalance.

In water, hydrogen is slightly positive and oxygen is slightly negative.

There is a rule for determining if a mixture will form a solution that involves the polarity of the liquids that will be mixed. If two or more polar liquids, such as water and alcohol, are mixed they will form a solution but if a polar and a non-polar liquid are mixed they will not form a solution. This is due to the dipole-dipole forces that the polar molecules contain and the non-polar molecules lack.

You should explain what dipole-dipole forces first before stating their effect on molecules.

Some examples of polar liquids not including water are: alcohol, hydrochloric acid, and hydrogen peroxide. Non-polar liquids include: oil, pentane, and hexane. A useful fact about non-polar liquids is that most of them are hydrocarbon liquids. Although non-polar liquids do not like to dissolve in water, dubbed the universal solvent, they will dissolve in other non-polar substances. Like substances usually dissolve in other like substances.

Give some examples of similar substances that dissolve into each other.