

Name: _____

Blk: _____ Date: _____

Water is AWESOME!

In the space below write down the important information presented to you by Hank Green in the Crash Course Biology Lesson "Water- Liquid Awesome": (link for this video is provided)

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

You were informed in the above video that water is a "POLAR" moleculeso what is the difference between _____ Molecules? Let's investigate:

When we learn about MATTER in junior science we are taught that it can be divided into two branches:

3. _____ – elements and compounds

4. _____ - solutions, suspensions and mechanical mixtures

Water is an example of a pure substance (a compound). But a glass of water is not just one water molecule, it is many water molecules that function as a single entity due to an inter-molecular force known as the _____.

There are two types of Bonding Categories:

- I. _____ Bonding
- II. _____ Bonding

_____ is the junior science bonding which you used to classify a compound as being either _____. Well, as you may know it is not that simple....some substances, like water, are somewhat ionic and somewhat covalent....we call these molecules "_____". As we already learned in the chemical reactions unit; when determining if a compound is held together by what is called true covalent, polar covalent or ionic bonds we use the _____ and the formula:

$$\Delta EN = EN(larger) - EN(smaller)$$

If the ΔEN is between 0.0 and 0.5 it has _____

If the ΔEN is between 0.6 and 1.6 it has _____

If the ΔEN is between 1.7 and 3.3 it has _____

WHAT IS A DIPOLE?

A dipole translates to mean _____. Much like the earth with the north and south pole. One pole is designated as being _____ while the other is _____. In polar covalent and ionic compounds there is a _____ and the appropriate regions are designated with a _____ or a _____.

However, we know that all atoms are made up of a densely packed _____ surrounded by loosely held _____ that are circulating the nucleus in what are called _____. When these electrons are on one side of the atom that side is _____ (making the other side _____). This means that even covalent compounds can (even if short lived) possess a _____.

INTER-MOLECULAR BONDING (also known as _____ in honour of Dutch scientist Johannes Diderik van der Waals) is the bonding that holds two adjacent molecules together. There are three types of inter-molecular bonding forces: Dipole-Dipole force, Hydrogen Bond and London Forces. It is because of these forces that we can _____ water.

Read the Summary of Molecular Polarity and Polar and Non-Polar Solvents on page 207 and then use your own words to describe them in the space below:

London Forces:

Dipole-Dipole Force:

Hydrogen Bonding:

Now read pages 205-206 and explain the process of **SOLVATION: (AKA LIKE DISSOLVES LIKE:)**
