

Water:

It is important to marine science... Where did it come from?

-Volcanic outgassing &/or comets

Water has many properties which make it an incredible solvent (able to dissolve stuff).

Even water sold in bottles has stuff dissolved in it!

Use a protractor to draw 2 lines on a piece of paper that form an angle of 104.5°

This represents a water molecule. (Label the H's & O's) This bond angle is created due to polarity.

Covalent Bond – defn. & ie. H_2O

Ionic Bond – defn. & ie. NaCl

Compare with CO_2 --- 180°

Polarity – unequal sharing of e^- s induces a charge on the molecule.

The shape of water affects the properties of water:

Polarity

Surface tension (do surf tensn w/pclip)

Discuss surface shape...bubble
and detergent effects on it...water
striders rely on this tension

Density: 1.0g/mL (look @ density graph)

Density of water liquid differs
from solid...temp. based.

WHY? The bonds created between
the O & H's of different molecules
are the hydrogen bonds...they are
weak but strong enough to hold
water together...

CALORIES TO BREAK BONDS:

Covalent Bonds.....100's of kilocalories

Ionic Bonds.....10's of kilocalories

Hydrogen Bonds....4.5 kilocalories

Van der Waals Bonds. 0.6 kilocalories

Sun is enough to break H & vdW Bonds