Teaching Points

Water is essential to life. This collection provides models of water to help students become familiar with the many properties of water that make it such an important molecule. With this collection, students can:

- See spontaneous hydrogen bonding
- Compare hydrogen bonds to ionic and covalent bonds
- Make ice crystals
- Dissolve salt (hydration shells)
- Evaporate water (water cycle)
- Compare how ethane and ethanol interact with water (polar – non-polar interactions)
- Explore capillary action

Models in this Collection

- 6 Water Cups
- 2 3x3x3 NaCl Lattices
Documentation Included

- How do the models fit back in the suitcase?
- Basic Lesson Plans for the Water Kit®
- Water Kit® Osmosis Lesson Student Handout
- Water Kit® Osmosis Lesson Teacher Key
- Water Kit® pH Lesson Student Handout
- Water Kit® pH Lesson Teacher Key
- Patterns in Crystal Structures Teacher Notes
- Patterns in Crystal Structures Student Handout
- Patterns in Crystal Structures Teacher Key
- Molecular Nature of Water Constructivist Lab

All instructional materials for classroom use are available for printing. They are accessible online at: http://www.3dmoleculardesigns.com/Teacher-Resources.htm

General Model Information

- CPK coloring:
  
  Carbon  Oxygen  Hydrogen

- Ion coloring:
  
  Sodium Ion  Chloride Ion

Model Details

- Each Water Cup contains:
  - 12 water molecules
  - 1 sodium ion
  - 1 chlorine ion
  - 1 ethane core with 5 non-magnetic hydrogens
  - 1 hydroxyl group
  - 1 non-magnetic hydrogen cap with grey post

- Each 3x3x3 NaCl Lattice contains:
  - 27 atoms, each with 6 embedded magnets to simulate ionic bonding