

## main points

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- Individual water molecules are composed of two hydrogen atoms covalently bonded to a single oxygen atom. The bonds are polar with the negative end toward the oxygen.
- Collections of water molecules in liquid or solid form are held to each other by hydrogen bonds.
- Small, polar, hydrogen-bonding molecules dissolve well in water, but large, nonpolar, nonhydrogen-bonding molecules dissolve only poorly in water.
- Water has an exceptionally high specific heat, heat of fusion, and heat of vaporization.
- Water is absolutely necessary for all earthly life.
- Water often must be purified prior to its use by humans.
- Some of water's properties change when substances are dissolved in it.