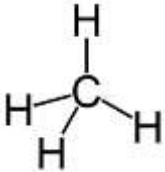
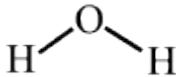


COMPARING WATER TO METHANE	METHANE 	WATER 
FORMULA	CH ₄	H ₂ O
BONDING	Covalent	
POLARITY <i>This is the KEY chemical property that causes the major differences seen in the physical properties</i>	Non-polar	Polar
DENSITY <i>At room temperature (25°C)</i>	$\approx 0.46 \text{ g/cm}^3$ GAS	$\approx 1.00 \text{ g/cm}^3$ LIQUID
HEAT CAPACITY <i>The amount of heat required to raise the temperature one degree.</i>	2.2 (J/(g°C)) ∴ need to add less heat to methane to get it to change temperature	4.2 (J/(g°C)) ∴ need to add more heat to water to get it to change temperature
HEAT OF VAPORIZATION <i>The amount of heat required to turn a liquid into a gas at a given pressure.</i>	760 J/g ∴ need to add less heat to methane to get it to change into a gas	2260 J/g ∴ need to add more heat to water to get it to change into a gas
MELTING POINT <i>The temperature at which a substance changes state from solid to liquid at atmospheric pressure</i>	-182°C	0°C
BOILING POINT <i>The temperature at which a substance changes state from liquid to gas at atmospheric pressure</i>	-162°C	100°C



THE BIG IDEA: Because water is polar, it has thermal properties that sustain life on Earth.