

Lesson - SPS03A

Water

Use the included Google Slides and PowerPoint from the video.

Get Ready to Learn!

- ❑ Liquid water takes the shape of container (needs no top)
- ❑ Molecules can move around in a liquid
- ❑ Because of a slight charge, water is a polar molecule
- ❑ Water changes state when heat is added or removed
- ❑ Freezing, melting, and evaporation are physical changes
- ❑ Water is known as "Universal Solvent"



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Why is this Important?



- ❑ Because of the slight charge, water molecule is very special
- ❑ Water expands when it freezes
- ❑ Ice, made from water, floats

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Do You Know?



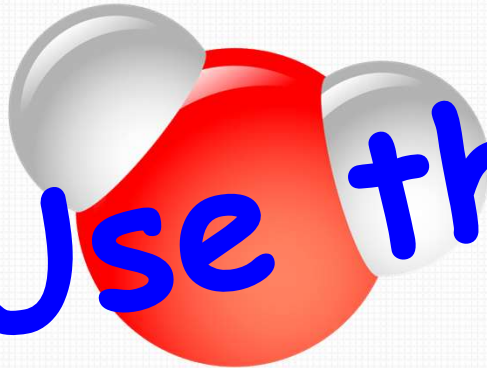
- ❑ Liquids take the shape of container
- ❑ Molecules can move around in a liquid
- ❑ Liquids maintain their volume - not compressible
- ❑ Attractive forces of molecules major factor in behavior
- ❑ Water is known as "Universal Solvent"

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What is important to know about water?

Water Molecule

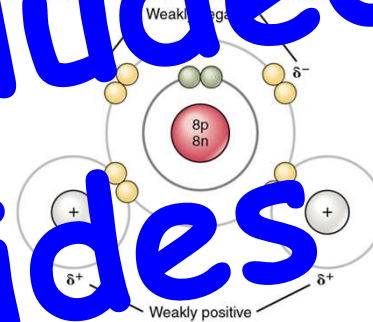
- Always two hydrogen atoms
- Always one oxygen atom



What is important to know about water?

Water is a Polar Molecule

- The way oxygen and hydrogen atoms arrange themselves, giving a slight charge makes water a very special molecule

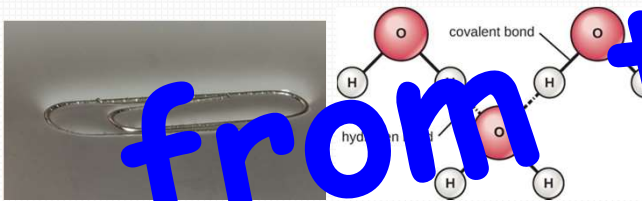


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What is important to know about water?

Surface Tension

- Like the poles of a magnet, water molecules are attracted to each other
- This forms a "skin" on the water surface
- Surface tension can make steel float



What is important to know about water?

Solid Water (Ice) Floats


- Water Molecules spread out due to charges
- Volume decreases as temperature decreases
- Minimum volume is at 4°Centigrade
- Volume INCREASES when frozen about 9% more (Highest Density)



What is important to know about water?


Water Container Identification

- Water exists on Earth in all three states




Solid

Ice needs no container



Liquid

No top needed



Gas

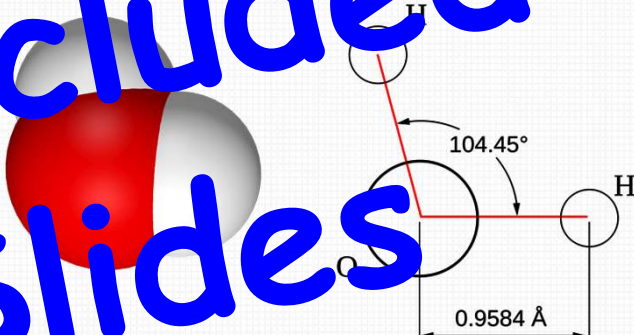
Must be contained

What is important to know about water?

Water Molecule Geometry

Water's Atomic Angles

- Hydrogen atoms are at a 104.45° angle




What is important to know about water?

Change of State


Liquid to Gas

- Boils at 100°C or 212°F



Gas to Liquid

- Condensation at 100°C or 212°F



What is important to know about water?

Change of State

Solid to Liquid

- Melting at 0°C or 32°F



Liquid to Solid

- Freezing at 0°C or 32°F




Use the included slides from the Google PowerPoint and the video.

What is important to know about water?
Change of State


Solid to Gas **Gas to Solid**

- ☐ Sublimation
- ☐ Deposition



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Why is this important?



- ☐ Because of the slight change, a water molecule can be in very special
- ☐ Water expands when it freezes.
- ☐ Ice, made from water, floats

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Water

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