

Unannounced online quizzes
encourage attendance, engage
students and reinforce concepts

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Chapter 7

Water

Water

- 70% of Earth's surface BUT
- Single most limiting factor for plant growth in many areas
- Civilizations NEED water



Water

- Herbaceous plants are 80-90%
- Woody plants are 50%
- Lettuce and tomatoes are 90%



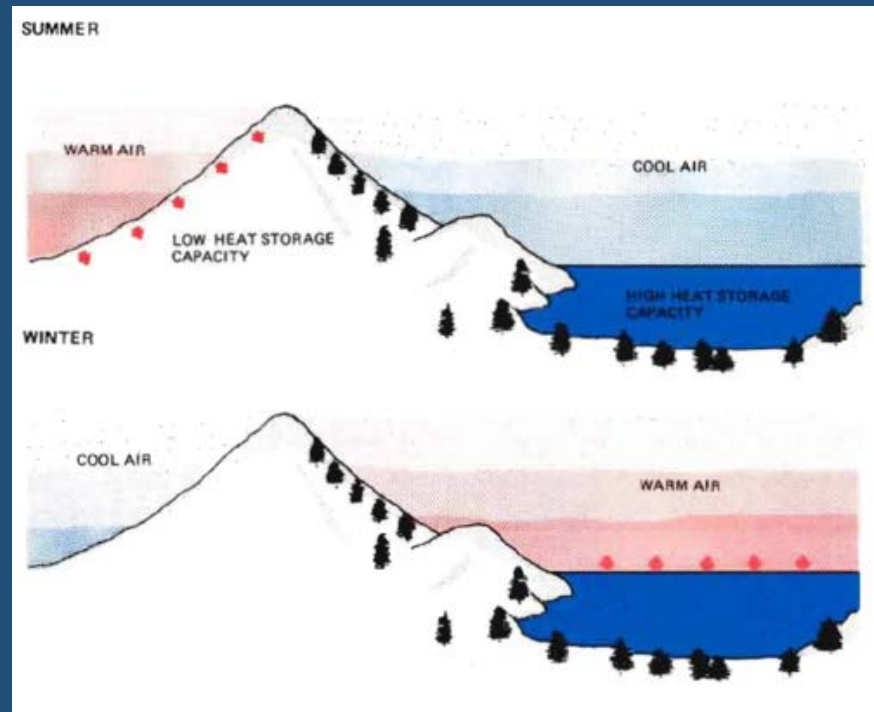
Water

- How does a plant get water?
- How is water used?
- How can we manage water well?



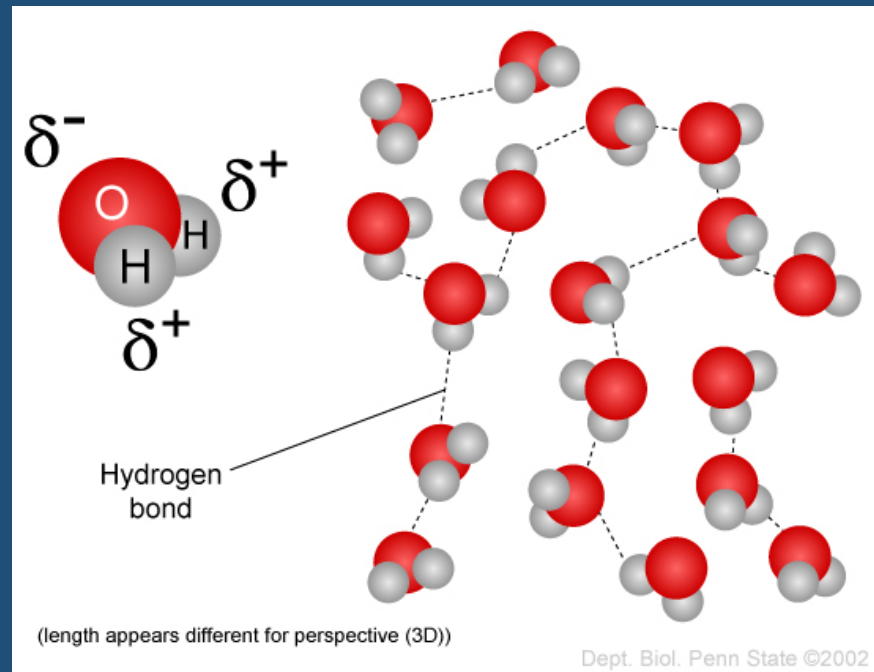
Properties of Water

- High specific heat
 - Takes a lot of energy to heat it
- Stabilizes temperatures
 - Lake effect
 - Islands and coasts have moderate climates



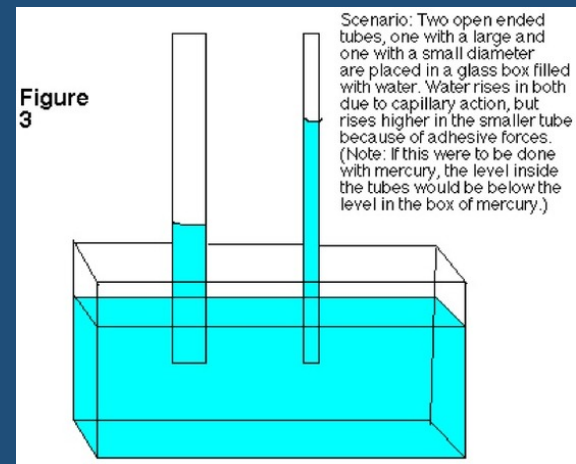
Properties of Water

- Physical Properties
 - Polar molecule
 - Hydrogen bonding creates cohesion
 - Attraction to other surfaces creates adhesion



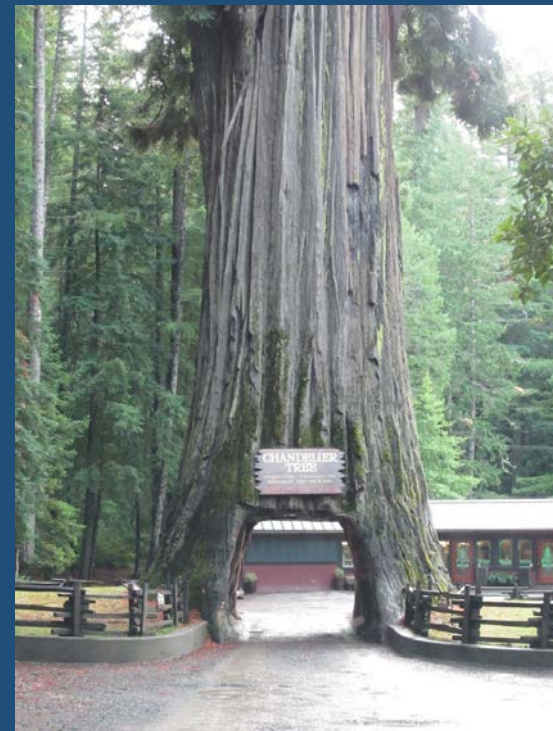
Properties of Water

- Physical Properties
 - Polar molecule
 - Surface tension helps water move through a plant
 - Adhesion – water sticks to surfaces
 - Cohesion – water sticks together
 - CAPILLARY ACTION



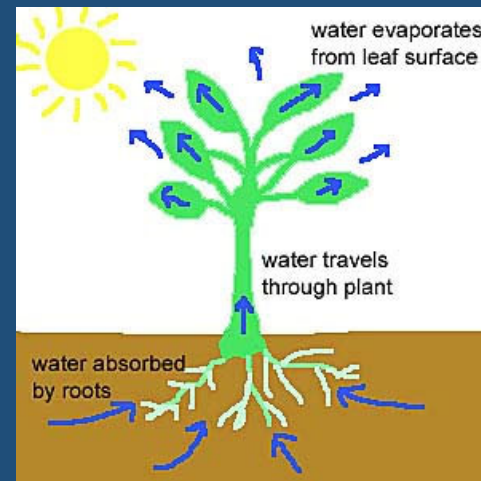
Properties of Water

- Transpiration
 - How does a plant pull water up 30 m+ (100 ft+)?



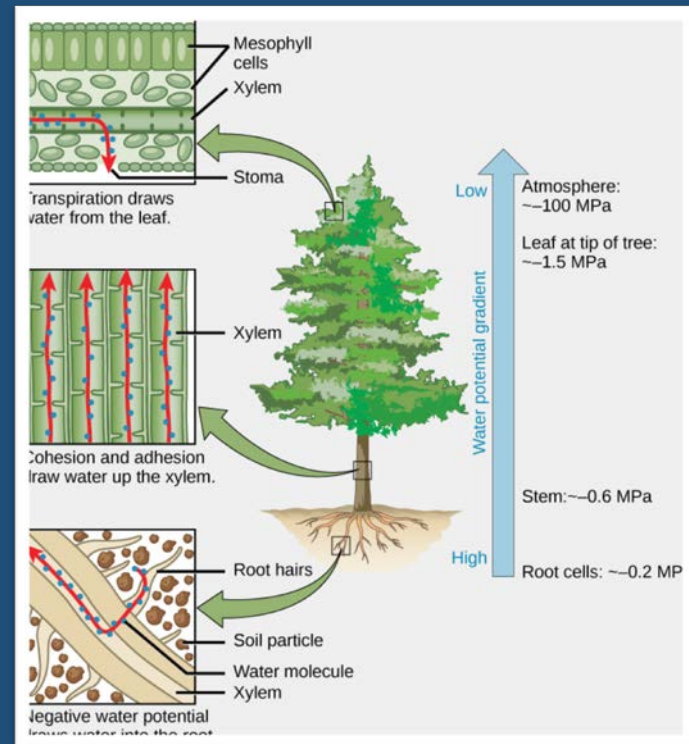
Properties of Water

- Transpiration
 - How does a plant pull water up 30 m+ (100 ft+)?
 - Water evaporates from stomates
 - Evaporation creates a “pull” or potential
 - Water moves from soil to stem and leaves and out through stomates



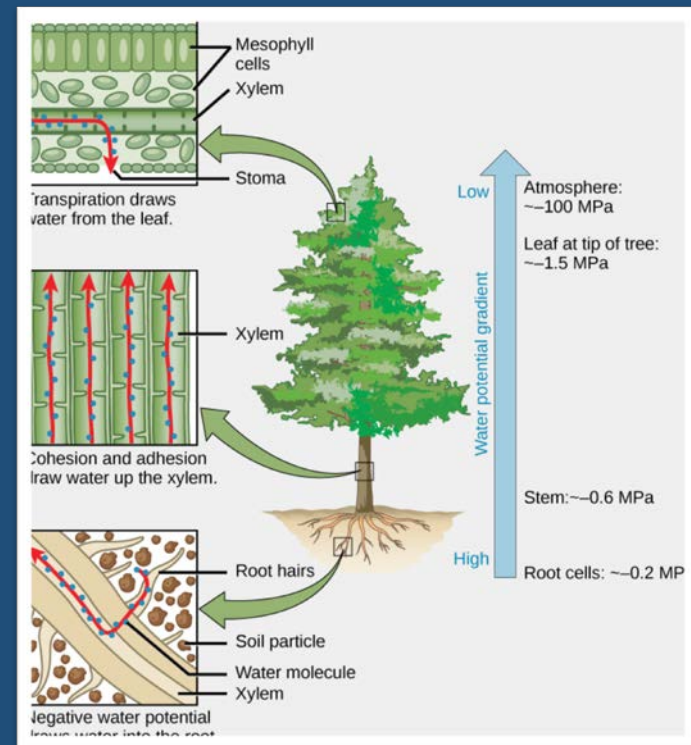
Properties of Water

- Transpiration
 - Water follows a gradient because of diffusion
- If any section of the gradient breaks down, flow stops



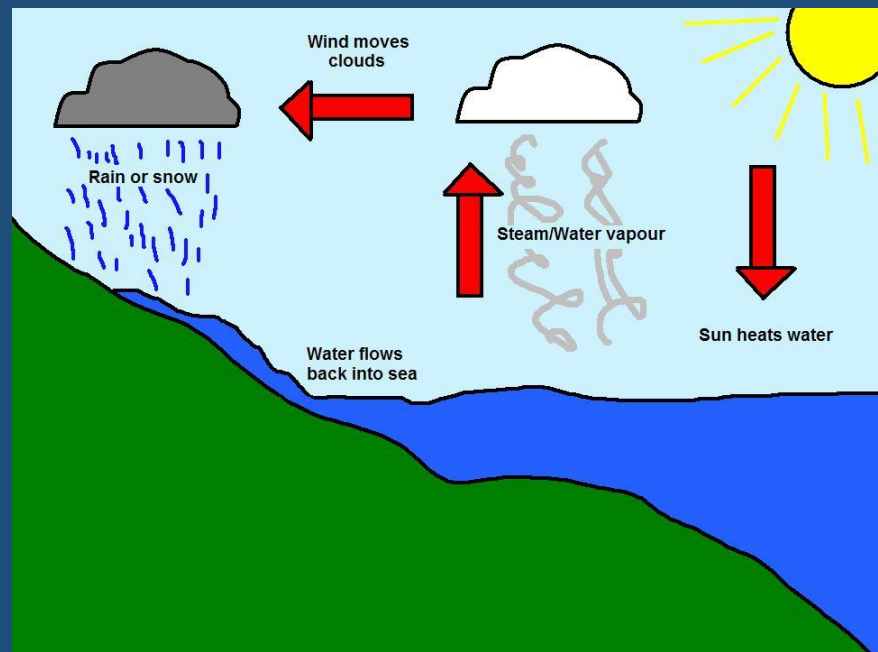
Properties of Water

- Transpiration
 - Permanent Wilting Point (PWP)
 - Plant wilts so much it can't recover
 - -15 bars or -1.5 MPa



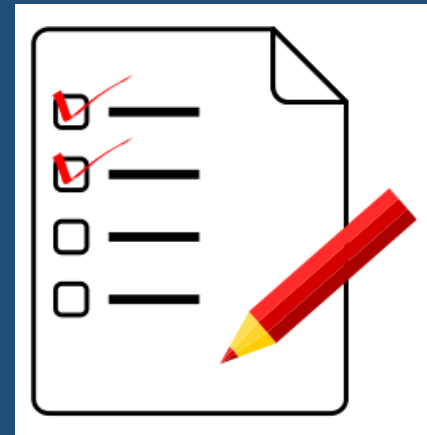
Summary

- Water is essential for all things plant
- Both yield and quality are reduced by water stress
- Manage water carefully!



FF to the next class period...

- Use the Kahoot! App or go to www.kahoot.it



Match up grades with VLOOKUP function

- Students use ID number
- Excel can match the Kahoot! scores to their ID
- Import scores into LMS

