

Tree Care Workshop Series

Session #2



ReGreenSpringfield



Today's Session Outline

- Basic knowledge of plant growth
- General care and maintenance of trees
- Special plant care (Part 1) Shrubs

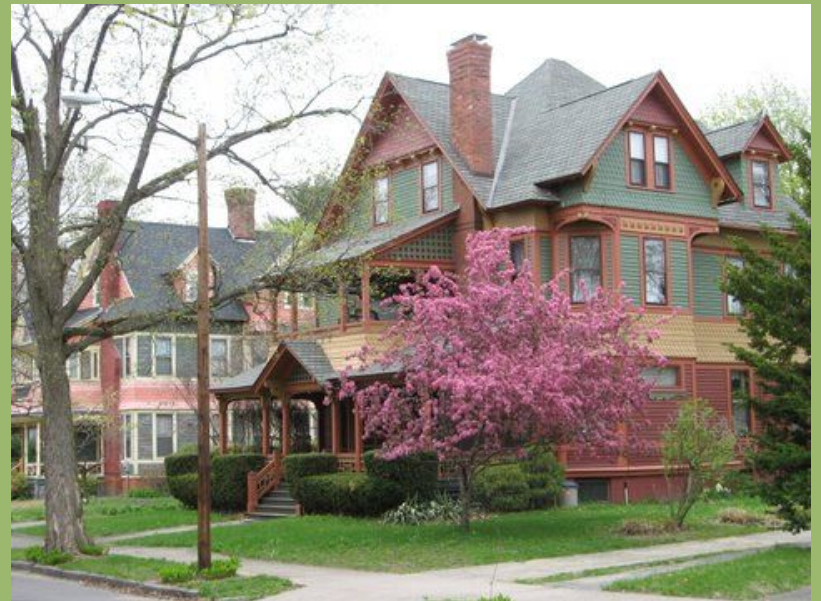
Tree Growth

Parts and Processes

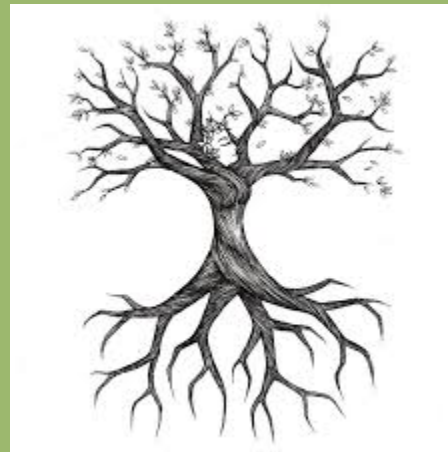
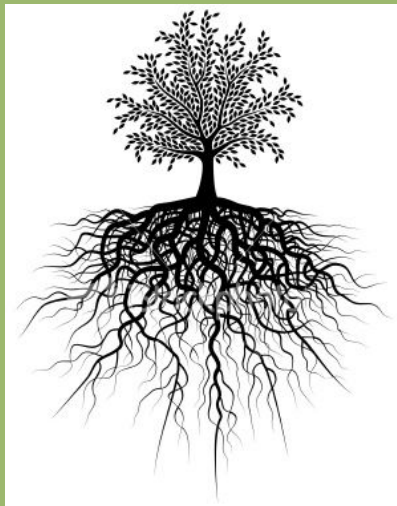


Trees

- Woody plant with a single stem, growing to at least 12 to 15 feet tall. Has branches and a distinct head some distance from the ground
- Trees made up of
 - Roots
 - Stems and Branches
 - Leaves



Typical Impression of Tree Roots



Actual Tree Root Growth



Actual Tree Root Growth

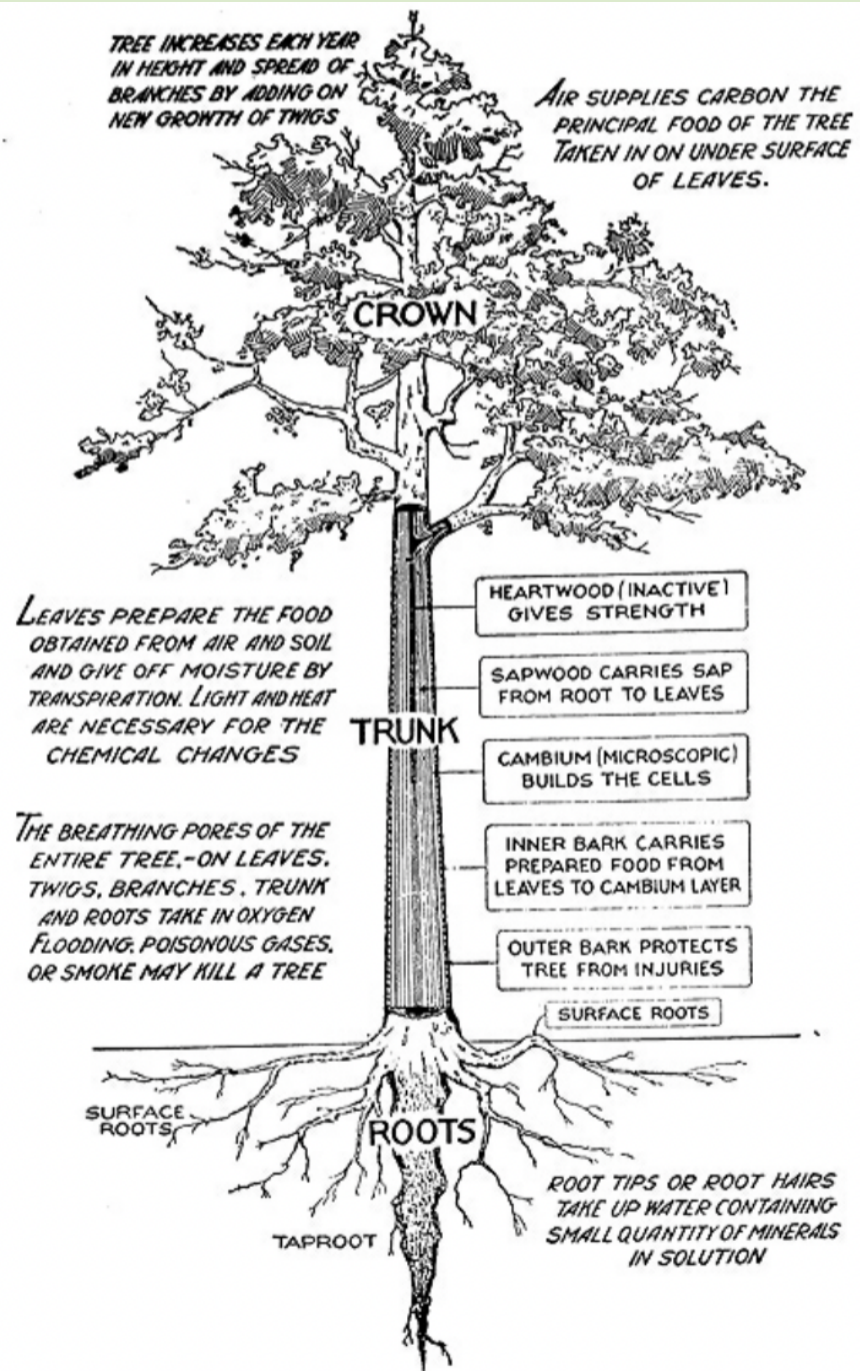


Actual Tree Root Growth

- Anchorage, support, storage, movement of water and nutrients
- Found in upper 2-6' of soil
- Root Apical Meristem

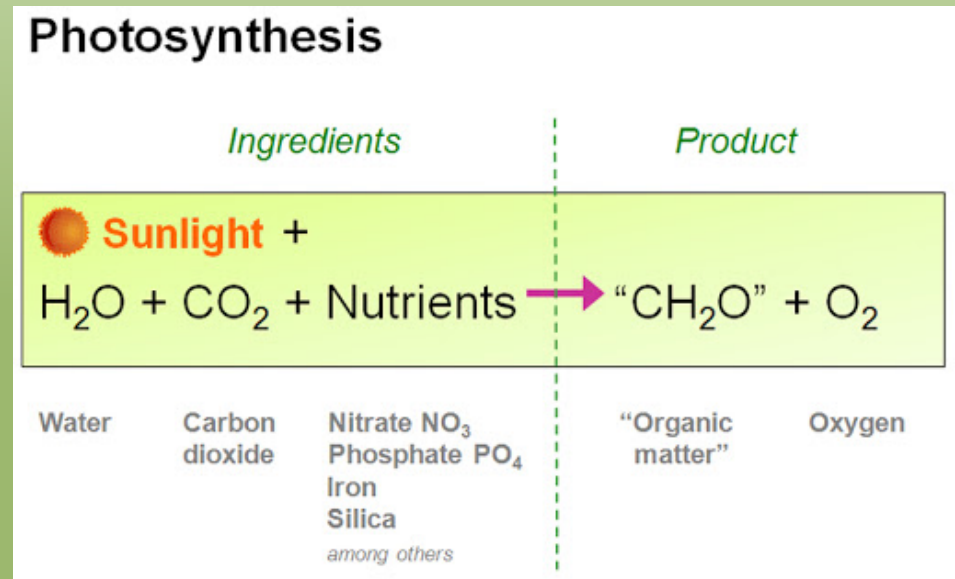


Tree Growth



Photosynthesis

- Green plants use sunlight to make food from carbon dioxide and water
- Occurs during the day
- Releases oxygen
- Environmental effect
internal processes



Photosynthesis

Ingredients

Product

 **Sunlight** +

$\text{H}_2\text{O} + \text{CO}_2 + \text{Nutrients}$



$\text{“CH}_2\text{O”} + \text{O}_2$

Water

Carbon
dioxide

Nitrate NO_3
Phosphate PO_4
Iron
Silica
among others

“Organic
matter”

Oxygen

Glucose

Stems and Branches

- Movement, Support, Maximizing Photosynthesis
- Vascular System
 - Xylem
 - Phloem
 - Cambium

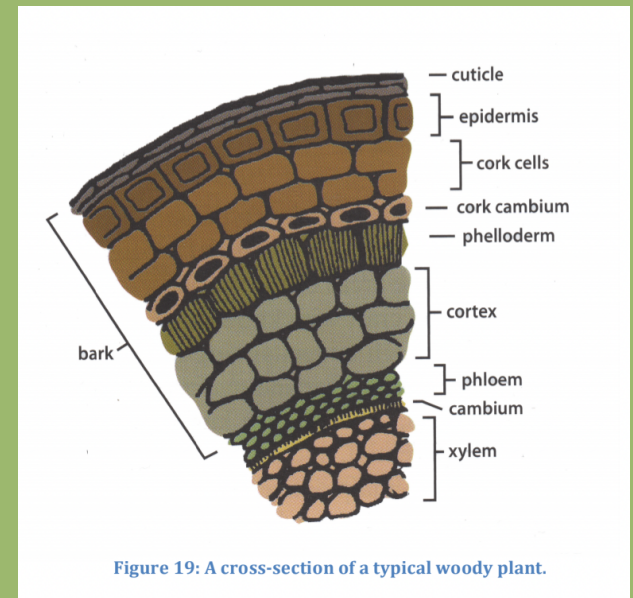


Figure 19: A cross-section of a typical woody plant.

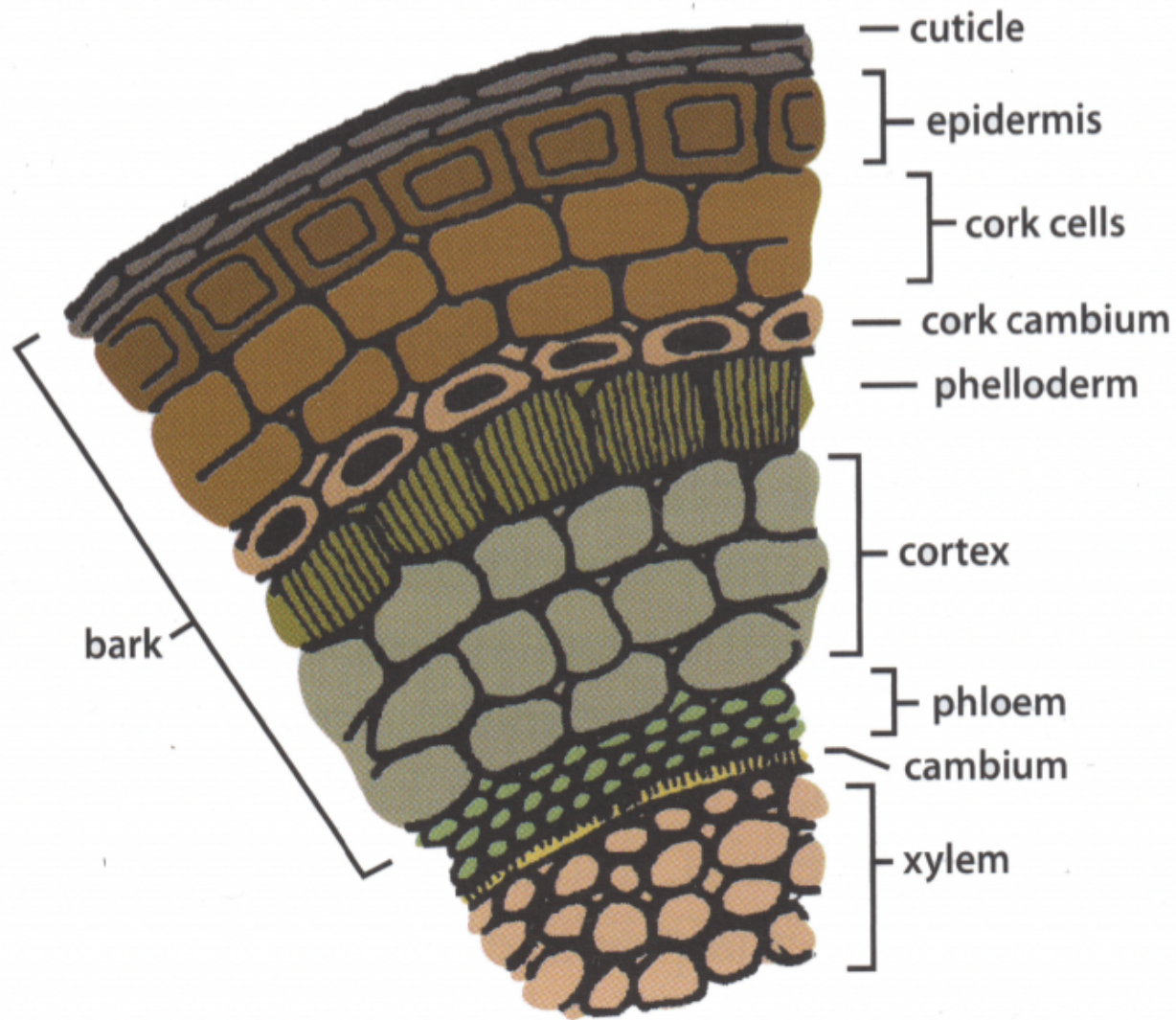
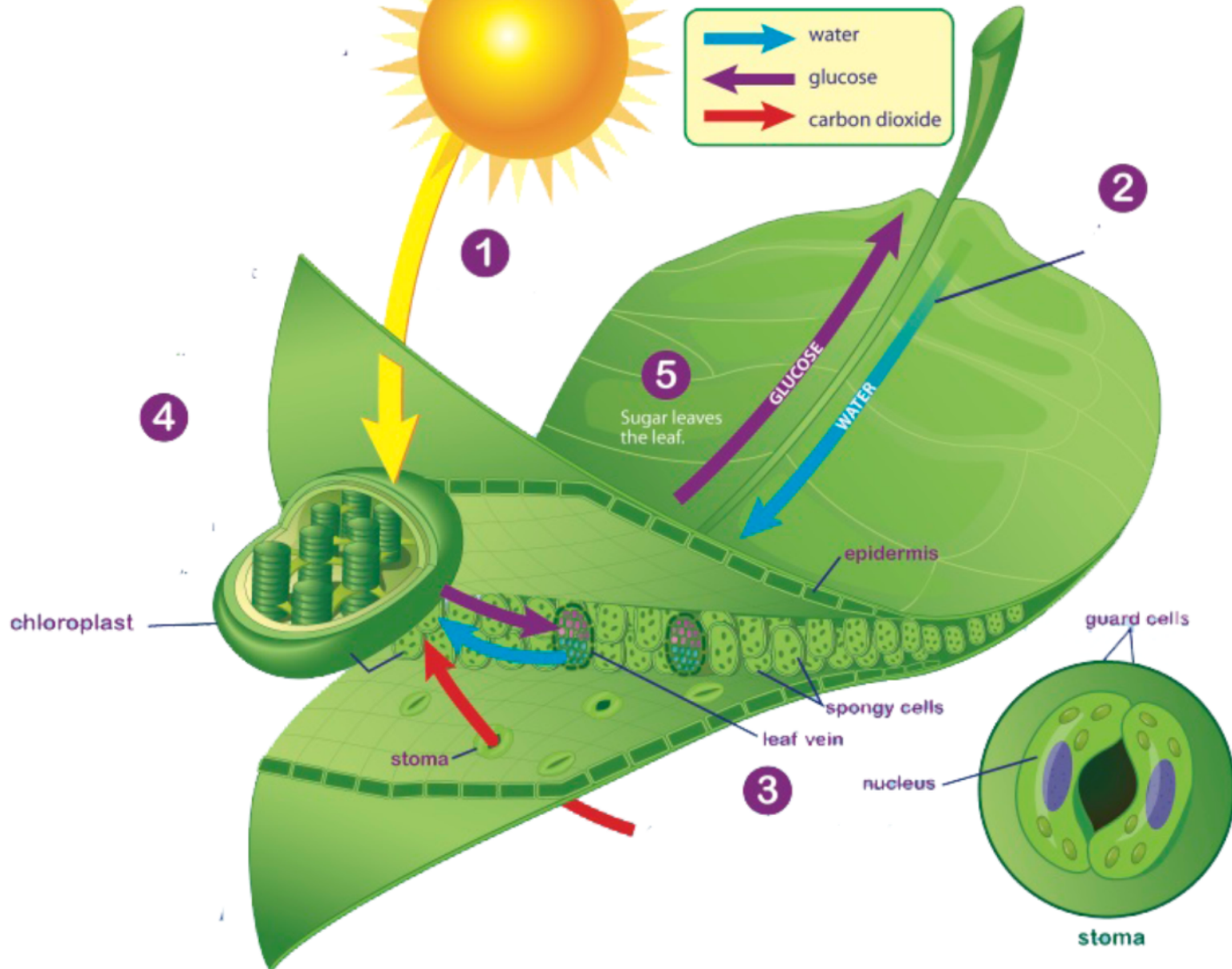
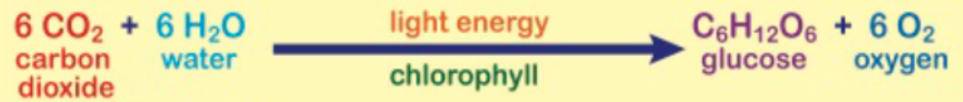


Figure 19: A cross-section of a typical woody plant.

Photosynthesis

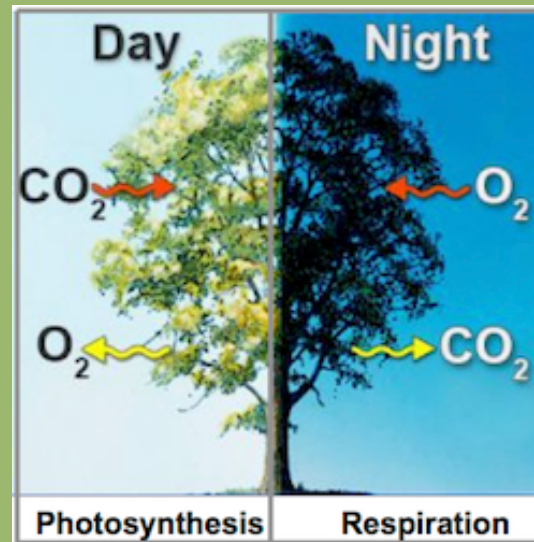
<https://www.youtube.com/watch?v=VDSFck-h8D4>

Photosynthesis



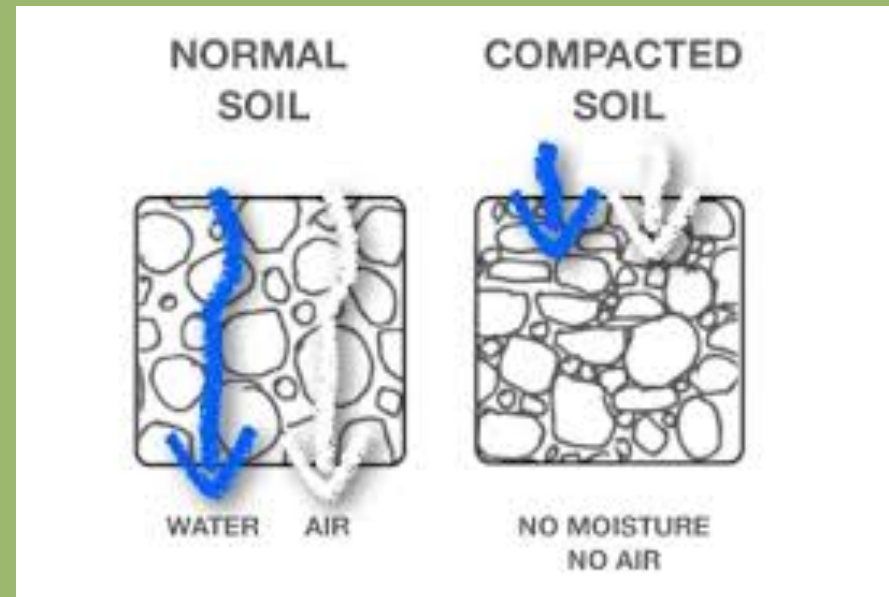
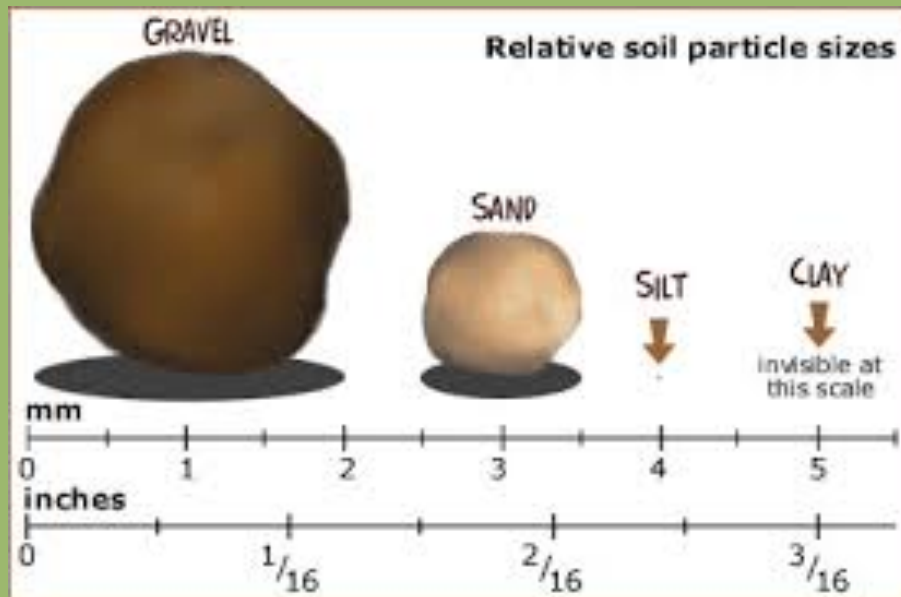
Respiration

- Creating and releasing usable energy for tree
- By-products are CO₂ and water vapor
- Happens all the time
- Water and oxygen break down sugar



Soils

- Sand, silt, clay
- Water availability
 - Important for photosynthesis and respiration
- Compaction

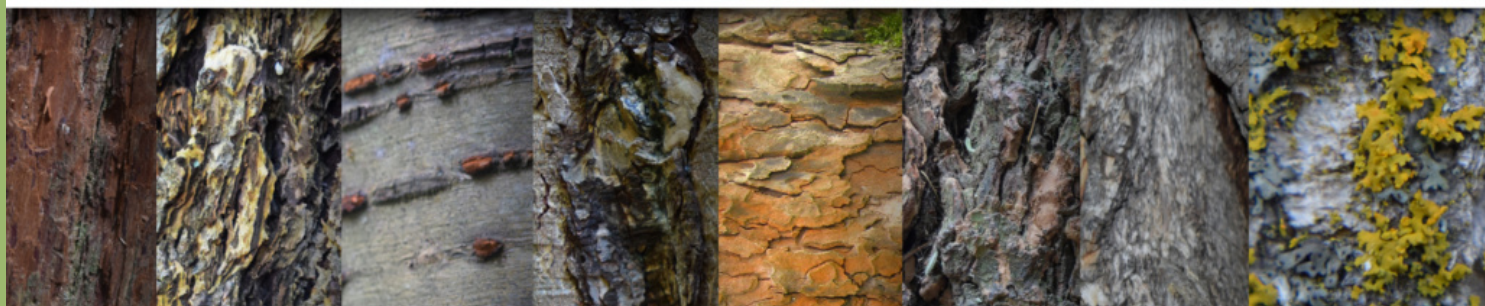


Soils

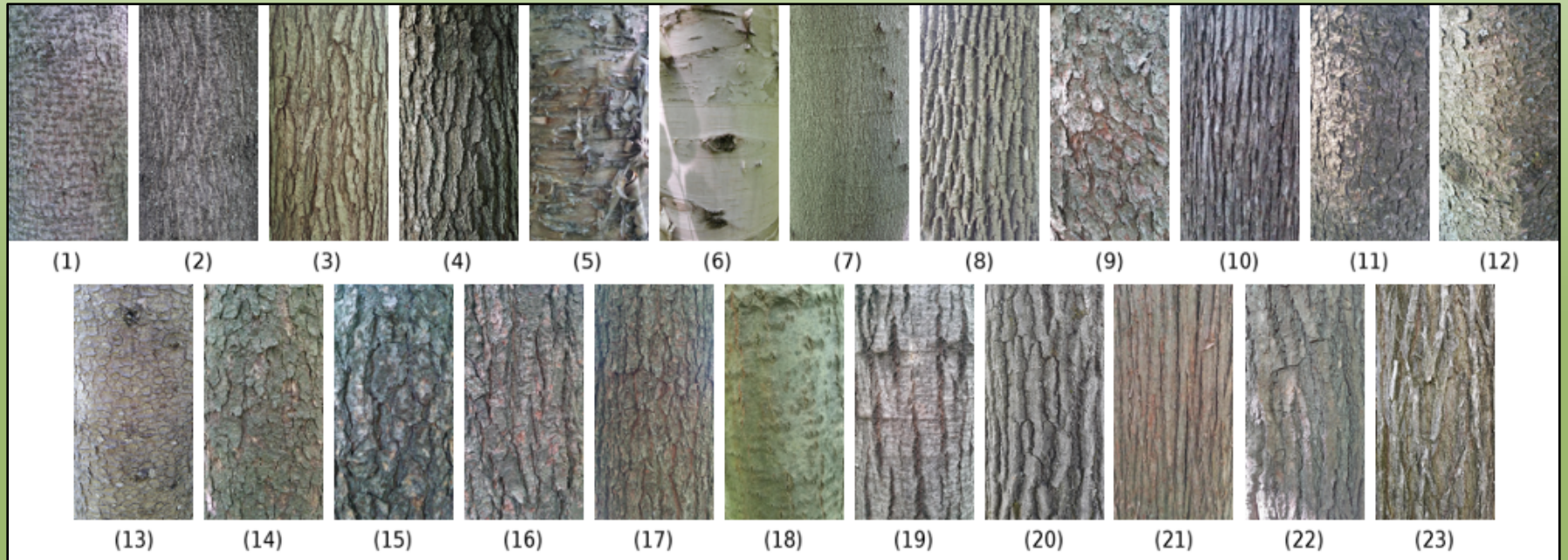
<https://extension.psu.edu/soil-health-soil-physical-properties>



Tree Bark



Tree Bark



Tree Bark

- COLOR
- DEEP
FISSURES
- CRACKS
- PEELING
- SHAGGY
- SMOOTH
- SCALES
- PLATES



BLACK GUM - DEEP FISSURES

Tree Bark

- COLOR
- DEEP
FISSURES
- CRACKS
- PEELING
- SHAGGY
- SMOOTH
- SCALES
- PLATES



PAPER BIRCH - PEELING BARK

Tree Bark

- COLOR
- DEEP
FISSURES
- CRACKS
- PEELING
- SHAGGY
- SMOOTH
- SCALES
- PLATES



RED PINE - PLATES

Tree Bark

- COLOR
- DEEP
FISSURES
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- PLATES



AMERICAN BEECH - SMOOTH

Tree Bark

- COLOR
- DEEP
FISSURES
- CRACKS
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AMERICAN BEECH - SMOOTH

Tree Bark

- COLOR
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Tree Species Bark



Alder



Ash



Aspen



Beech



Blackthorn



Cherry



Common Lime



Dog Rose



Downy Birch



English Elm



English Oak



Eucalyptus



Goat Willow



Hawthorn



Hazel



Holly



Hornbeam



Horse Chestnut



Juniper



Larch



Leyland Cypress



Lombardy Poplar



Magnolia



Mountain Ash



Norway Spruce



Rhododendron



Scots Pine



Silver Birch



Sweet Chestnut



Sycamore



Turkey Oak



Weeping Willow



White Poplar



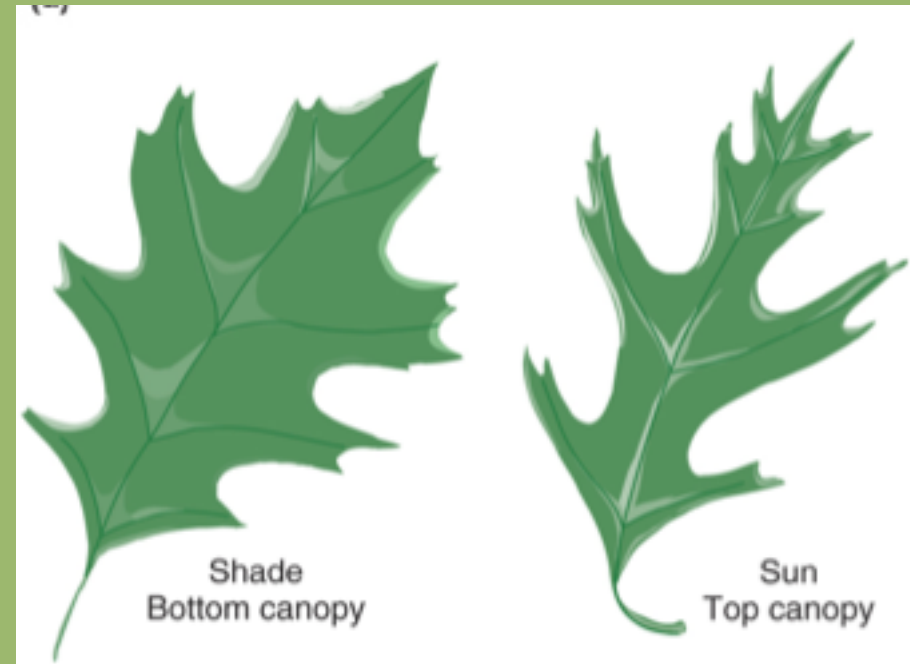
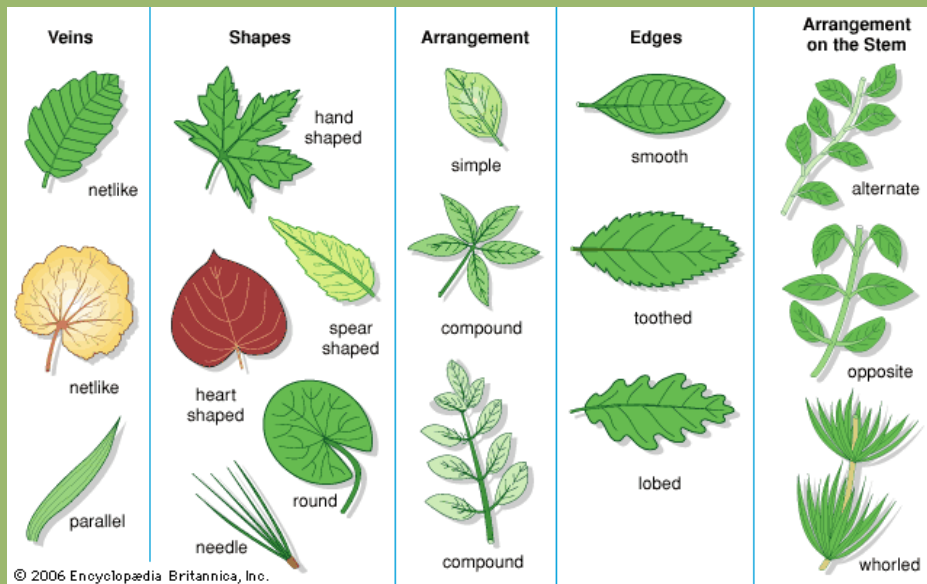
Wych Elm



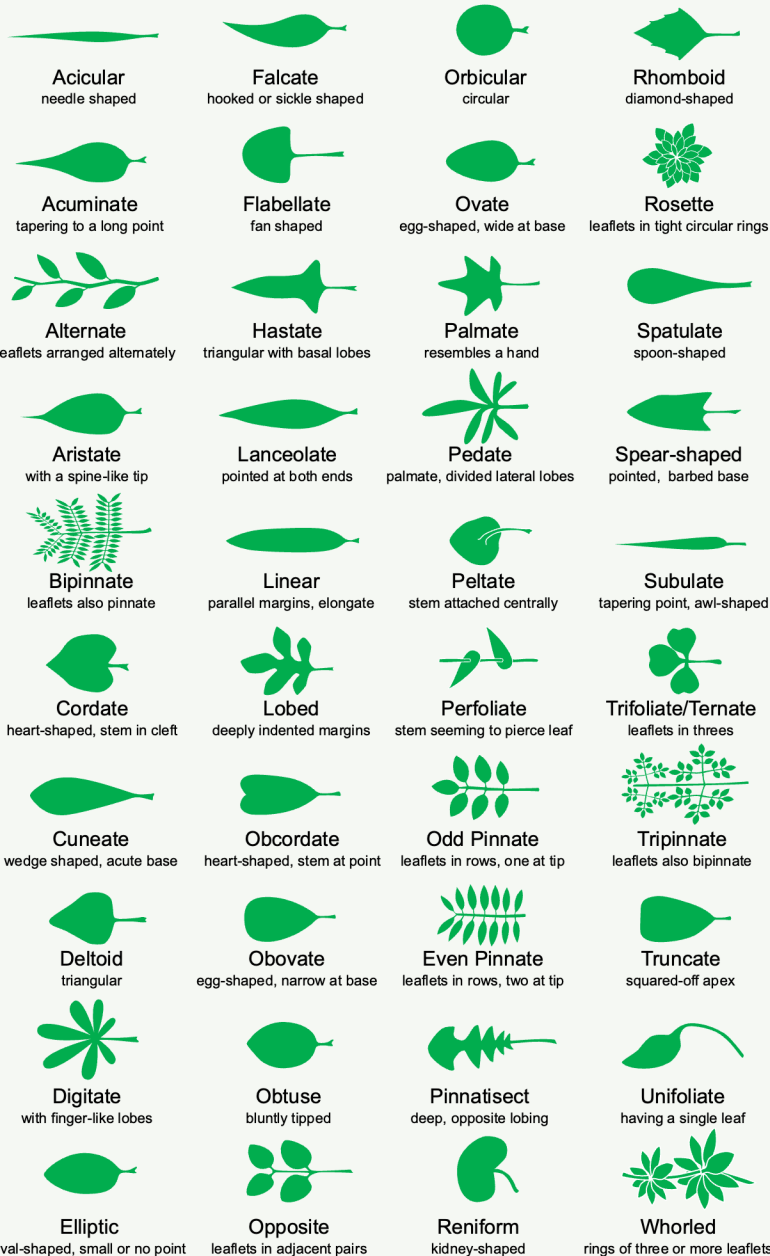
Yew

Leaves

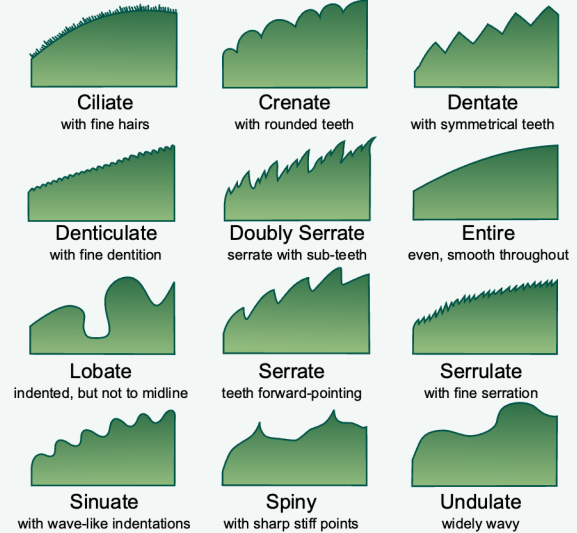
- Shape, size, color, orientation
- Photosynthesis
 - Sun Leaves vs. Shade Leaves



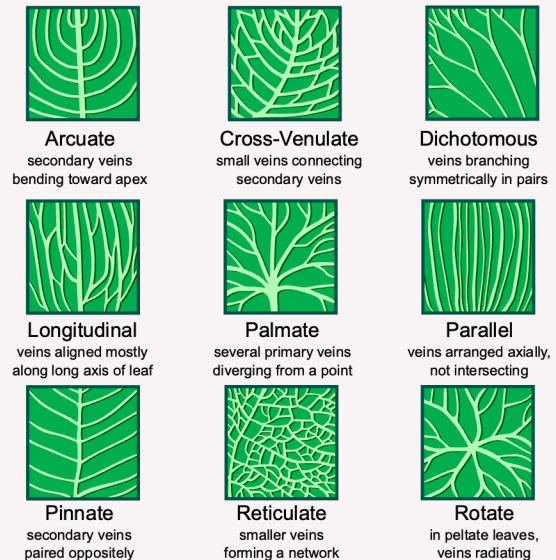
SHAPE & ARRANGEMENT



MARGIN



VENATION



TIME FOR A
BREAK





United States
Department of Agriculture

Forest Service

Northeastern Area
State and Private Forestry

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November 2008

ReGreenSpringfield
www.regreenspringfield.org



Tree Owner's Manual

for the
Northeastern
and
Midwestern
United States

www.treeownersmanual.info



Tree Owner's Manual for the Northeastern and Midwestern United States



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