



Using Native Plants in Stormwater and Erosion and Sediment Control



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Never go to a doctor who's office plants have died

If life is a bowl of cherries what am I going to do with the pits?

Erma Bombeck (1927-1996) – humorist/author

"If you can't make it better, you can laugh at it."
-Erma Bombeck



Ground Rules

- Keep cell phones off during the training
- Questions and comments are encouraged
- Everyone will have an opportunity to speak and share their thoughts at the appropriate times
- Be supportive of all participants



Module 1.

Course Overview and Introduction



Agenda

- 8:30 – 9:00 Module 1 – Introduction to Plants and Plant Parts
- 9:00 – 10:00 Module 2 – The Classification of Plants
- 10:00 – 10:15 Break
- 10:15 – 11:15 Module 3 – Why Native Plants?
- 11:15 – 11:45 Module 4 – The ESC and SWM Law, Regulations and Specifications and Plants
- 11:45 – 12:45 Lunch
- 12:45 – 1:45 Module 4 – Continued
- 1:45 – 2:30 Module 5 – Planning
- 2:30 – 2:45 Break
- 2:45 – 3:15 Module 6 – Installation
- 3:15 – 3:45 Module 7 – Plan Review and Inspection (How to kill a plant)



Resources

- <http://www.jamesriverassociation.org/what-we-do/watershed-restoration/Native%20Plants.pdf>
- <http://pollinator.org/PDFs/CentralAppalachian.rx4.pdf>
- http://web4.audubon.org/bird/at_home/pdf/Plant_Natives_ACTION_PLAN.pdf
- http://www.dcr.virginia.gov/natural_heritage/documents/cp_nat_plants.pdf
- http://www.dcr.virginia.gov/natural_heritage/documents/riparian_nat_plants.pdf
- <http://www.fairfaxcounty.gov/dpwes/publications/lti/07-03attach3.pdf>
- <http://www.deq.virginia.gov/Programs/CoastalZoneManagement/CZIssues/Initiatives/NativePlants.aspx>



Module 1a

Plants



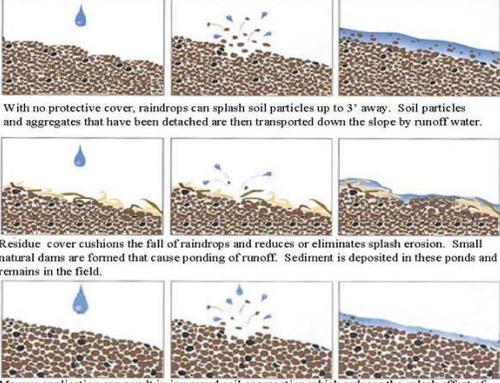
Why a course on plants?

**Plants are the first line of defense when it comes to
Erosion and Sediment Control and Stormwater
Management**



Why a course on plants?

Erosion Control - first line of defense. "If there is no erosion, there can be no sediment."



With no protective cover, raindrops can splash soil particles up to 3' away. Soil particles and aggregates that have been detached are then transported down the slope by runoff water.

Residue cover cushions the fall of raindrops and reduces or eliminates splash erosion. Small natural dams are formed that cause ponding of runoff. Sediment is deposited in these ponds and remains in the field.

Manure application can result in improved soil aggregation which reduces the splash effect of raindrops and increases infiltration with reduced runoff.




Why a course on plants?

Plants prevent erosion

- Prevents raindrop impact
- Prevents puddling and sealing of the soil
- Promotes higher infiltration rates
- Increases water uptake
- Reduces runoff velocity
- Roots binds soils together and prevents erosion
- Vegetative controls are 3x less expensive than structural controls




Why a course on plants?

Type of Ground Cover	Percent Reduction
Permanent grass	99
Perennial ryegrass	95
Annual ryegrass	90
Small grains	95
Millet or Sudan grass	95
Field brome grass	97
Grass sod	99
Hay or straw (@2 tons/acre)	98

EFFECTIVENESS OF VARIOUS GROUND COVERS IN PREVENTING
SOIL EROSION



Why a course on plants?

But also:

- Plants clean the air
 1. They take up CO₂ and release Oxygen (a.k.a. photosynthesis)
 2. Micro-organisms on the leaves break down air pollution
- Plants take up water
 - Runoff reduction
- Plants clean the (storm) water
 - Roots have micro-organisms growing on them and near them that clean up pollution in groundwater
- Provide humans and animals with food/fuel/paper/building materials/shelter



Anything bad about plants?



Module 1b

Parts of the plants

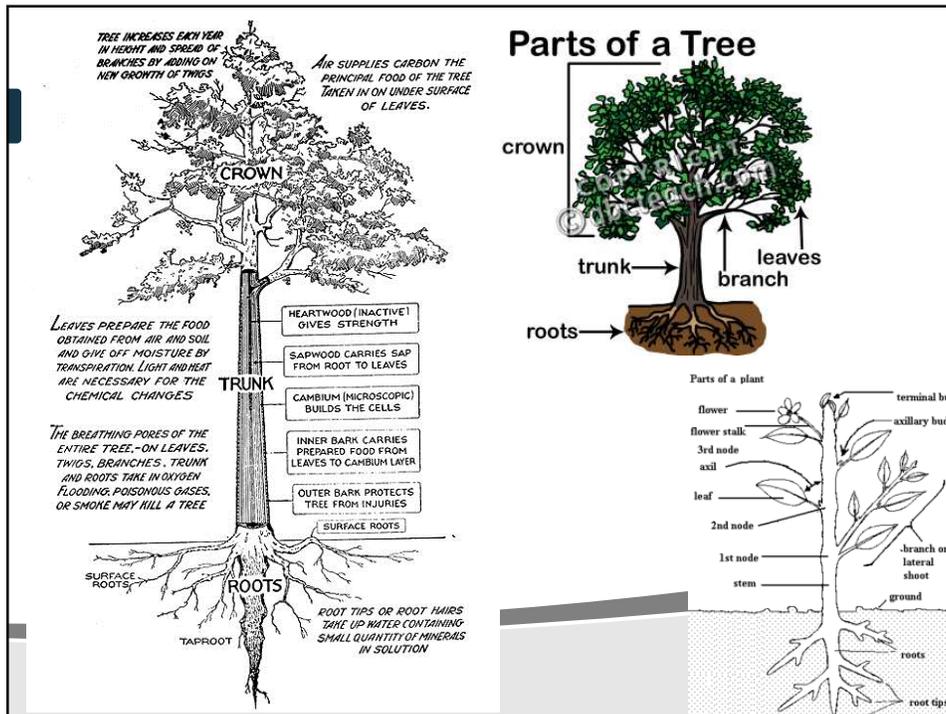
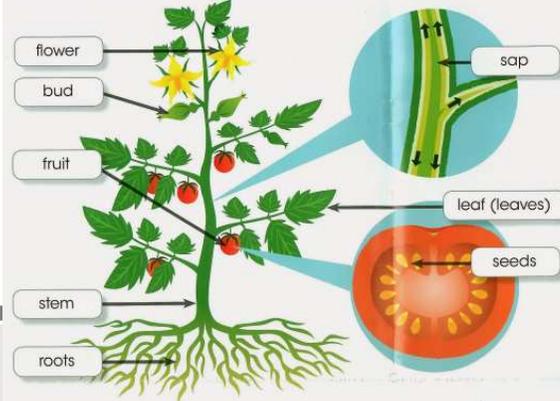
The parts of plants

So what are some of the parts of plants?

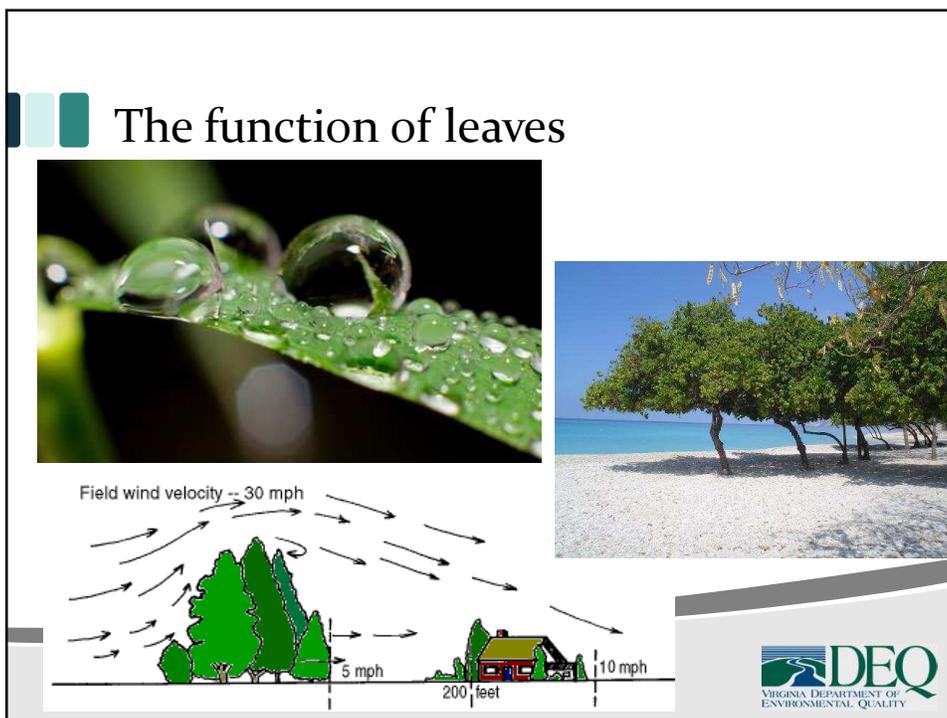
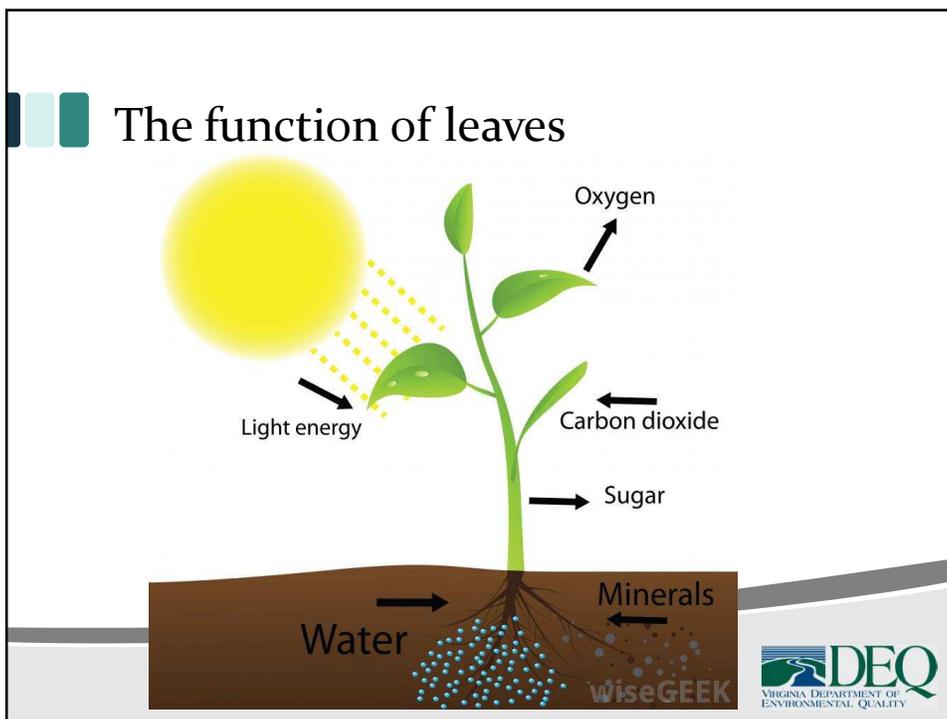
- Leaves
- Stems
- Roots
- Flower
- Bud/Growth point
- Fruit (seed)

Parts of a plant

These are the main parts of a flowering plant.

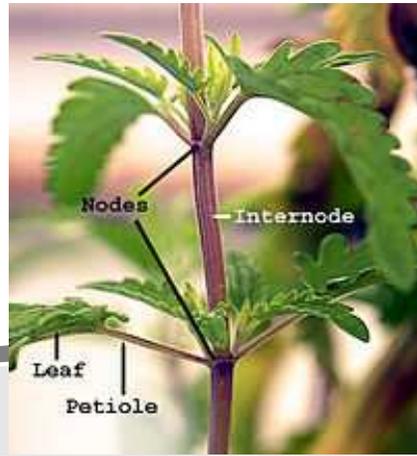




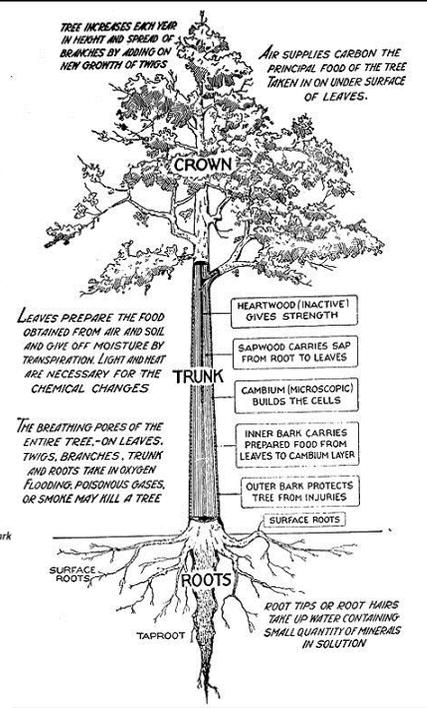
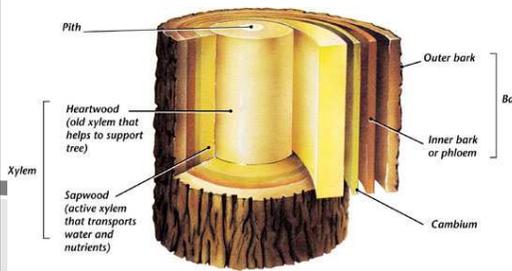


The function of stems

- Transport of water and nutrients
- Transport of fixed sugars
- Rigidity



The function of stems



Radial growth



Roots



Roots



Flowers



