4th Grade- Winter Twig Training Script

The walk is divided into an indoor (20-30 min-learn how trees grow, age of branch, age of tree, key training) and outdoor portion (45min- tree ID only)

On this walk we will be learning how:
- A tree grows/age
- To use a dichotomous key to help ID trees (scientists use keys to organize information about nature.)

Trees can be identified in many ways. Last year you used leaves to identify trees that were useful in colonial times. This year we'll be using winter twigs to identify trees. (Can use bark to identify trees)

*Why is it important to learn how to ID a tree in the winter? (*Tap a sugar maple? Cut down fruit trees? Tree bark for medicine?)

Activity #1:How Do Trees Grow? (2 ways)
- Trees grow from the ends of its branches. Not from ground up. (opposite way people grow)
- Around its trunk- a layer of new growth develops under the bark.

Tree Cross Section: *remember how to tell age of pine sapling*? (count whorls- white pine and spruce)
Is there another way to tell how old the tree is? (count the rings in the trunk cross section-one ring bigger/year)
*Where is the oldest ring? (*center-not alive)
Where is the live part of the stem/trunk?
   (Cambium layer-outside inch of trunk/stem; btwn bark and sapwood, where tree grows new wood every year)
Why would cutting the bark in a ring around the trunk kill the tree?
   (can't transport water and minerals from roots up to leaves and sugars down from leaves to roots)
Do you notice any patterns in the rings?(weather/growth patterns-large gap/ good /yr; small gap/slow growth yr)

Winter Twig: identify
- leaf scar (last yr's leaf was attached),
- terminal bud/scars(bud at very end of branch)
- growth ring (line at base of terminal bud)

How old is branch? (count growth rings along branch).
Notice any patterns in the growth rings? (If rings are close together then bad growth yr)

Worksheet:
Tree growth section: If we put a swing on a tree today (smaller tree) and seat is 2 feet off the ground, how high off the ground will the seat be when you come back after 20 years?

Activity #2: Tree Identification (hand everyone twig samples)
Practice id of trees using key (specific features of twigs)
What do you notice? Are all the samples the same? How are they different? Are any familiar? Are there any you haven't seen before?
How could you separate these samples into 2 groups? What 2 types of trees are there?(D and C)
Dichotomous key: groups are broken down into 2 groups. Answers to questions have 2 possibilities.

Conifer Tree ID: Comparison of leaves
  1. Needle vs scale
  2. Single vs bunch: a single leaf is attached to the branch.

Deciduous Tree ID: Comparison of winter buds, branches
  1. Buds opposite vs alternate
  2. Branches have thorns or catkins (cylindrical flower cluster)
  3. Terminal buds in a cluster vs single.