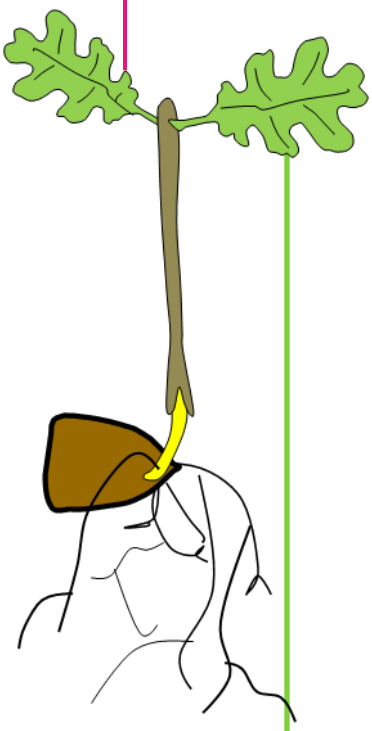


A Guide to Growing your Own Oak Trees

Part 5: How to grow your Oak Seedling

Overview: The seedlings will grow in your classroom or greenhouse for approximately 14 weeks after germination.

Time: Weekly Tree Check ins of half an hour to one hour for 14 weeks. Some periods of more intense care.

Materials:

Watering can and water
Fertilizers: N(5), P(10), and K(20) for root development
N(20), P(20), K(20) for leaf development
Larger containers and dirt if transplanting from seed starter kit
Seed Growth Chart

Procedure

1. Once the acorns have germinated, reduce the amount of water they receive, watering about once a week, enough to keep the soil from drying out. Keep the temperature around 21 degrees Celsius, if you are able. If you are using a seed starter kit, remove the lid and let the seedlings grow in the air.

    a. **Lesson Tie In:** Have students record the germination date of each of their acorns. When most of the seeds have come up, have a 'Germination Party'! Eat different kinds of seeds (not- germinated) and bean sprouts (germinated). Have students think of 3 words that come to mind when they think of 'germination'. Use these words to write a poem as a class or individually.

2. Seedlings grown on a windowsill will have to be turned around every day so that both sides receive an even amount of light and the seedlings don't grow crocked.

3. Fertilizing for root growth: Once the leaves have emerged and unfolded, the seedlings can be fertilized with a root stimulating fertilizer. A N(5), P (10), and K(20) water soluble fertilizer should be used. Follow package directions on how to mix and apply the fertilizer, but application usually happens once a week for three weeks. Make sure the fertilizer doesn't get on the leaves. If it does, just rinse them off with clear water. Have students water their plants during their weekly check-in.

Part 5: How to grow your Oak Seedling

b. **Lesson Tie In:** Explain to students that plants take nutrients from the soil so that they can grow. Just like we eat and drink to get the nutrients we need, plants drink to get the nutrients they need. Those nutrients are things like nitrogen (N), phosphorous (P), and potassium (K).
When we want plants to be especially healthy or to grow really quickly, we'll feed them extra nutrients with fertilizers.
Mix the fertilizer with water, according to package directions and demonstrate how to water the plant (water below the leaves, just above the soil). Let each student fertilize their seedlings. The weekly dose of fertilizer and water should be all the water the seedlings need.

4. If you used a seed starter kit, the oak trees will need to be transplanted to larger containers once their leaves have emerged but the roots have not developed too much (about 1 week after you've started fertilizing). Be very gentle with transplants; do not disturb the soil around the root. Move them to moist soil and water them in thoroughly after you've moved them. Plant one per pot.

5. Fertilizing for tree growth: after three weeks of fertilizing for root growth, start fertilizing the overall tree. A N(20), P(20), K(20) fertilizer should be used. Again follow package directions. This fertilizer will be applied for 11 weeks.

6. Weeding: weeds should be pulled while they are still small. Have students check their plants for weeds during the weekly checking.

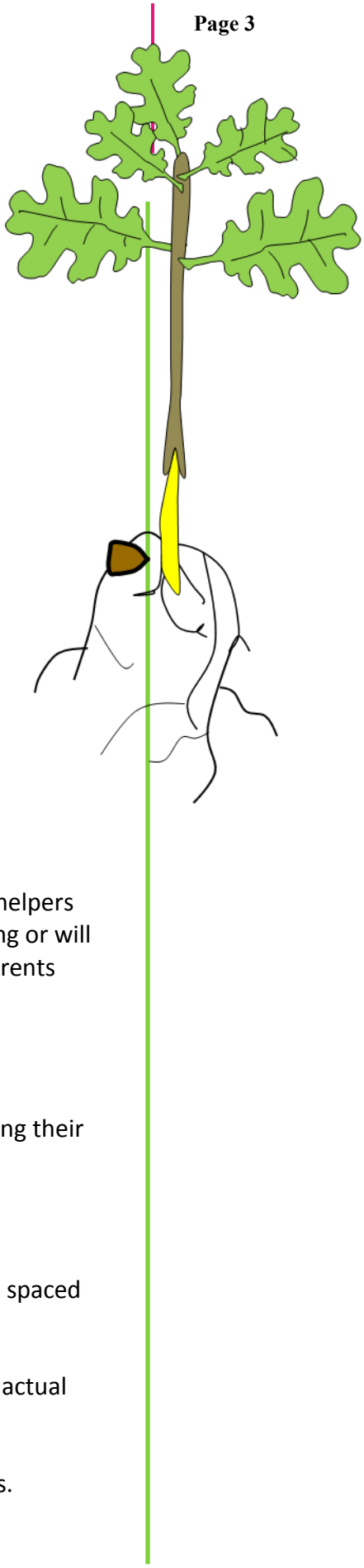
Hardening off: start after 14 weeks

Seedlings grown inside will be weak and have limited ability to handle weather conditions outside. Even the heat difference from day to night can be too much for them.

Hardening off gradually exposes them to the outside, making them stronger. When the days start to get warm, start bringing your seedlings outside for a few hours each day. After a week, you can start leaving them out overnight in a sheltered area (next to the school building). Make sure other students and your grounds crew knows what your seedlings are and how special they are to your class!

Students can bring them out in the morning during recess (or during first nutrition break) and bring them back after the afternoon break.

Part 6: Planting your seedlings!



Overview: Finally, the day you've all been waiting for! The trees are getting planted! Hopefully you've had a good survival rate of trees in your classroom and have about 20 trees to plant.

Time: 1-2 hours preparation, and 1 hour planting.

When: The ideal time for this is April, but keep an eye on your trees' development to know for certain. Don't allow an oak seedling's tap root to grow out of the container bottom. This will break the tap root. Seedlings should be planted before they reach this stage.

Materials:

Flags or pylons to mark planting spots
Shovels (2 or 3, at least)
Watering cans/buckets of water/hose
Mulch (wood chips work well and are available for free from the City's Forestry Department on Upper Ottawa st.)

Background:

If planting trees in the school yard or a community park, volunteers or helpers will be essential. Young children can easily loose interest in tree planting or will just not be strong enough to plant the tree properly. Try recruiting parents come, a senior high school class, community members, etc.

Procedure:

Plan the day well in advance, sending home notices with students inviting their parents to come.

The day before or the morning of:

1. Mark the locations where the trees will be planted. They should be spaced at least 2 meters apart.

2. Dig holes the morning before the planting (optional, but makes the actual planting go much better!)

3. Put the students into groups of three and discuss how to plant trees. Explain the following to them;

Part 6: Planting your seedlings!

The roots are very delicate and need to be treated carefully.

a. Before taking the tree out of its pot, soak it with water. This will make the plant come out easily.

b. Take the tree out of the pot carefully and DON'T remove soil from the roots.

c. Place the tree in the hole so that the top of the soil is level with the ground (try drawing a diagram)

d. The part of the tree that is above ground (the stem) needs to stay above ground! Be careful not to plant the tree too deep.

e. Fill the hole up with soil.

f. Press down around the tree as hard as you can, using your fists or feet. This will make sure there's no air around the tree roots. Get an adult to help you finish this up.

g. Put more dirt around the tree to level it up.

h. Water the tree well with one bucket full of water.

I. Put mulch around the tree in a donut shape. This will keep weeds away. The donut should not be right against the base of the tree, but a few centimeters away from it. Imagine your tree is sitting in the middle of a donut, with space around it on all sides.

The planting:

4. Plant one of the trees as a demonstration, with everyone gathered around.

5. Assign one adult to work with each group of three students. Each group should have about 3 trees to plant. See the instructions under the student discussion for tips on planting.

6. After the students have finished planting (and have gone home), go back and check all the trees to make sure they were planted straight and are firmly in the ground. Also check that the trees aren't planted too deeply.

Part 6: Planting your seedlings!

8. The sad truth about tree planting is that approximately 70% of seedlings don't make it through the first year unless they are closely monitored and cared for. Make sure your school community is committed to maintaining your seedlings. They will need to be watered at least once a week over the summer and frequently during the next year (unless it has rained a lot). Consider setting up a volunteer rotation of parents.

Congratulations on successfully growing and planting your Oak Trees!

There are a multitude of ways to continuing using these trees in your lesson plans for future years. You can take students out to see the trees, doing activities from the "What Trees Do You See?" section.

Also encourage your previous students to keep an eye on their trees and see how they grow over the years.

Oak trees live for anywhere between 100 and 300 years. Your trees will remain in the community for a long time, providing shade, generating acorns, and creating animal habitat for many years to come!

Over the course of it's life time, an Oak Tree will absorb approximately 1 tonne of CO_2 (http://www.carbonfootprint.com/plantingtrees.html).

You and your class have contributed something substantial to your community this year. Celebrate the achievement and congratulate yourselves!