

Seeds to Forest

2018 Module 1: Seedling Growing Program Overview & Teacher Information



Thank you for participating in the [Seeds to Forest Program](#)! This program will bring London students multiple opportunities to learn about trees and interact with their environment. In addition, we will be adding much needed shade to London schoolyards, providing many benefits to the students of today and tomorrow.

As part of the first module of this program, you and your students will be planting tree seeds. We have provided you with native tree species which are well suited to grow and thrive in this region. Before planting your seeds, be sure to watch our instructional video. You and your students can enjoy this video which will walk you through the steps of seedling planting. The link to the video has been emailed to you, and is also listed here for your information:

<https://www.youtube.com/watch?v=ds5K5P6JFfi&feature=youtu.be>

Supplies for Tree Seedling Growing:

Supplies ReForest London has provided:

- Pots and trays
- Soil
- Seeds (keep seed in refrigerator until planting)
- Instructions
- Growth charts and additional classroom activities

You will also need to acquire:

- Watering can, jug, or large recycled juice / soda bottles
- Masking Tape (optional, for labelling)
- Permanent Marker (waterproof if possible)
- A camera to capture the growth of your seedlings over time

About your Tree Seeds:

Your seeds have been **stratified** for several months. This means they have been kept in cold moist conditions in a fridge, to mimic a natural winter. Keep your seeds in the fridge until planting time.

Bur Oak (Quercus macrocarpa)

Red Oak (Quercus rubra)

White Oak (Quercus alba)

There are few species of trees that can match the ecological importance of oak trees. They are especially valued for their adaptability, strength, and hardiness in urban settings. The **Red Oak**, a medium to large tree is known for its brilliant fall color and pointy leaves, and is quite common in our region. **White Oak** is considered one of the most ecologically valuable trees in this region, providing food and habitat for a wide variety of animals, and also showcases brilliant fall colours. **Burr Oak** has a proven tolerance to urban conditions, producing some of the largest urban trees in the Great Lakes region. It is a slower growing oak and produces elongated acorns with a fuzzy “cap” reminiscent of a winter toque!

Planting Instructions

Oak seeds (acorns) need no special treatment prior to planting, however, they should be kept refrigerated in a zip-loc bag of moist sand until planting time. Do not allow the seeds to freeze.

1. Check for sprouting seeds

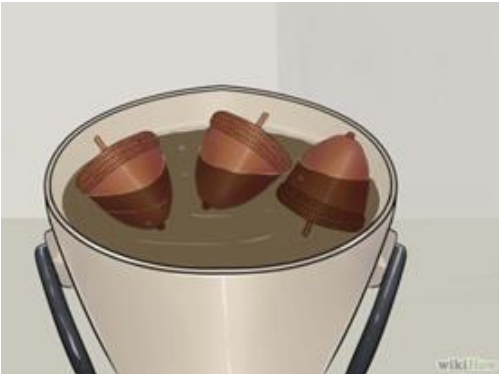
Remove your seeds from the bag of sand. Carefully place the seeds on a flat surface and examine closely to determine if any have begun to germinate or sprout. You will notice they have sprouted if the shell has begun to crack, and a small *shoot* or *radicle* is emerging. These radicles are very delicate and any acorns with an emerging radicle should be handled very carefully. You do not need to perform a float test (next step) if your acorn is already germinating, since we know it is viable. **This step should be done by an adult.**



1. Emerging radicles on White Oak acorns.
(Source: whiteoaknursery.biz)

2. Conduct a Float Test to determine viability.

Not all seeds we collect in the wild will be viable, or grow. One way of testing for viability is to place your acorns and hickory seeds in a bucket of water.



Seeds that sink will be viable, and should be planted.
Seeds that float should be examined closely.

Check for **holes** in the shell of any floating seeds. Holes may mean that small grubs called weevils have chewed in and eaten the nut within. This causes the inner nut to rot, since it becomes exposed to the elements.

You can try cutting open a few of these floating seeds to examine the interior. Use sharp clippers. You will see that an acorn that has been eaten by a weevil will have a darker, rotted interior. **A healthy acorn has a pale white or yellow meaty nut within.**

If you find that a floating acorn has no identifiable holes, or signs of rotting, you can try to plant it anyway. Floating-but-intact acorns have lower germination rates, but in certain years, they may still grow.

Once you have cut an acorn, it is no longer viable – just test a few for demonstration purposes.



2: Acorn weevil larvae. (Source: USDA Forest Service)

3. Prepare soil before planting

Use a large bin to prepare your soil. A clean garbage bin, recycling bin, or large plastic tote work well. You will need to add water to the soil before you attempt to plant the seeds. The soil will be very dry and dusty, so be careful while pouring out of the bag.

Add water a bit at a time, and continue mixing the soil. The texture should be a bit like chocolate cake: it should feel somewhat moist in your hand, and you should be able to hold it in a clump, but it should not be so damp that you can squeeze out any moisture. See the video for a demonstration.

4. Plant acorns

Plant your viable acorns with the root end down. This end will be slightly pointed. If you are unsure of which end is the root end, you can plant the acorn sideways. This might mimic how an acorn will fall in nature and take root. Plant acorns at approximately 1 to 2 inches' depth.

5. Watering, Sunlight and Heat:

Please keep the trees/pots **watered**, especially while at the seed stage! Your soil should not dry out during this period, but it should also not be soaking wet.

Water **every day or two**, or as often as needed to keep the soil moist. **This is true even over March Break and on the Easter Long weekend.** If you are unable to water your seedlings on weekends, please ensure that they receive a very good soaking on Friday afternoon, and water first thing on Monday.



3. Baby Oak trees, a few weeks after planting.

If possible, fill a jug or watering can with water, and leave out overnight prior to watering your young plants. This helps to reduce the level of chlorine in the tap water, and also brings the water to room temperature.

Remove standing water from the trays. The pots should not be sitting in a pool of water. Rotate your trays weekly so that all sides of the plant (and all plants) have **equal access to light**.

If you are growing your seedlings in classroom windowsills, please be mindful of location of **heating units** in the classroom. Placing trays too close to a heater will dry out the soil very quickly, and will cause the pots to over heat. Remember, these types of trees would naturally germinate in our spring-like conditions in the forest.

6. Monitoring Growth

We have provided growth charts for your students to track the growth of their seedlings. (If you require additional forms please visit our website for the printable pdf: <http://reforestlondon.ca/school-curriculum-materials>)

We encourage you to have your students track growth, and make other observations:

- Rate of growth
- Differences in plants
- Characteristics of the plants (eg. Texture, colour, etc)
- Problems
- Surprises
- Predictions

7. Hardening Off

Once the weather warms up and your seedlings are each a few inches tall, you will want to start **hardening off** your plants. This means to allow the plant time to gradually get accustomed to the conditions they may face outside, such as: more intense sunlight, winds, cooler nights, and rains. Hardening off prevents the plants from going into shock when they are finally planted outdoors (after growing up in relatively comfortable indoor conditions!). Ideally, hardening off and subsequently planting the tree outside must be done **after** the last frost.

Steps for hardening off:

1. Place seedlings in a sheltered environment outside. Ideally this would be somewhere with some protection from wind, and some light shade at first, gradually moving the plant into brighter conditions as the days go on.
2. Gradually leave the seedling outside 1 hour longer per day.
3. Begin to leave seedlings outdoors during the night in a protected area. Be mindful that sometimes, little critters might take a nibble out of a tasty young leaf. This is normal!
4. Plant seedlings into the ground after they have been hardened off.

8. Taking Trees Home



In April/May, we will provide you with Species Information Sheets that can be sent home with students / families. These sheets will provide important planting instructions as well as information about the type of tree.

We strongly encourage you to prepare a consent form for parents to sign, to agree to accept a tree for their yard. We know that not all families want a tree, or are permitted to plant a tree at their house / apartment. By sending home a permission slip, you can ensure that the baby trees find good ‘forever’ homes where they can be planted right away and protected.

Students / families may take home seedlings in May or June, and plant them in their yards. You may also offer seedlings to other school families, teachers, neighbours, friends, or relatives.

4. Seedlings about 6-8 inches tall are ready to go home.

Please remind your school families to register the trees at <http://www.milliontrees.ca> so these trees may be added to the Million Tree Challenge total. There is a map on the website so students may see exactly where their trees in London have been planted – watching the live map change with new additions is a great classroom activity.

If there are any trees left over that you are not able to give away, please contact the coordinator by June 8th, 2018 at 519-936-9548 extension 222, or christy@reforestlondon.ca . We will attempt to find homes for your seedlings. However, the best scenario is for trees to find homes in your neighbourhoods.

If you have any questions about your seedlings, please contact Christy Cook at christy@reforestlondon.ca
Email: christy@reforestlondon.ca | Phone: 519-936-9548 x 222