



Planting Garry Oak Acorns

LESSON

Duration

2–3 lessons

Grade Level

K–7

Group Size

Any

Glossary

Tree, seeds, roots, soil, seedling

Materials

- Garry oak acorns (see list of collection sites)
- Lots of 1 litre milk cartons (good planting container) or 1 litre yogurt or ice cream containers
- Potting soil (mixed with native soil if possible)
- Watering cans
- Paper and pencils
- Measuring rulers

Season

Collection and planting of acorns is best done in October. The first shoots should emerge by February or March.

Setting

Indoors and outdoors

Skills

Classification, identification, stewardship, measurement, graphing

Subjects

Science, math

Objective

An action project enabling students to collect and grow Garry oaks from acorns and care for the seedlings.

Learning Outcomes

Students will be able to:

- Collect and sort Garry oak acorns
- Learn how to plant an acorn and nurture it into a seedling
- Learn the special requirements that oaks have for soil, light, temperature and water.

Method

Students will learn to collect Garry oak acorns, plant them and nurture them into seedlings.

Background

This activity helps students understand the Garry oak's life cycle, develop skills in caring for and measuring the growth of a seedling, and contribute to Garry oak conservation and restoration. It also helps students explore how a plant grows, the process of photosynthesis and the requirements that oaks have for sunlight, temperature and water. Acorns mature and drop from the trees during the fall: September—October. Watch for wildlife gathering acorns as a clue to seed maturity. Try to collect acorns from trees growing close to where you plan to plant them. This will ensure that the new oaks will be adapted to the environmental conditions of the area.

Procedure

1. Pre-Planting

Discuss different types of tree seeds with the class, and pass around samples or pictures: maple keys, oak acorns, spruce and fir cones/ seeds, apple seeds, alder cones.

Ask students what they know and what they want to know about how Garry oaks grow. Discuss the life cycle of the Garry oak tree, and have students draw the cycle in their journals.

In October or early November, plan a field trip to a neighbourhood site featuring Garry oak trees (see list of active restoration sites in Appendix 15, p. 110. Combine this collecting trip with other activities (see Who is Garry and Where Does He Live?, p 16, Meeting Garry: A Garry Oak Field Study, p. 27 and Recipe for a Garry Oak Meadow, p. 36, etc.)

2. Collecting and Storing Acorns

Oak seeds or acorns ripen in the autumn (September to October), and can be collected when the acorns have fallen to the ground. A good time to do this is after a big wind storm! Equip students with small plastic bags for the collection trip. Have students find Garry oak trees in the area and search for acorns. Remind them that other animals (such as squirrels, mice and birds) eat acorns and to leave some for them. Have students write where their acorns came from (site location, date and time of collection), and map and draw what tree they came from. Collected acorns should be given a “float test” in a bucket of water, and any floaters discarded (these are usually partly formed seeds, ones that have dried out, or been damaged). Inspect the acorns again, and separate ones with insect holes, large cracks or those that are very small.

Ask students to propose ideas about why the “floater” acorns don’t sink like the rest. Record their ideas on the board, and have students crack open the acorns that float, to see what they may find inside (provide tools like nut crackers, small hammers, etc). Prepare them for finding the larval worms of acorn weevils inside. Plant the acorns (whether they are sprouting or not) right away, as there is no embryo dormancy in the seed.

3. Planting Acorns

Oak trees form a long deep root, so choose narrow deep containers for your acorns, like milk cartons or large ice cream containers (15–23 cm long). Have students carefully draw their

acorn and label its measurements. Label their containers with their name and the date, punch 6–8 holes in the bottom of the containers for drainage, and fill three-quarters full with a mixture of potting soil, peat and vermiculite, or other potting material that permits good drainage. Don’t pack the mix tightly—leave lots of air spaces in the soil. Place the acorn on its side and lightly cover with about an inch of potting mix. Water each container well, and leave in the classroom window or a greenhouse. Seedlings will grow at room temperature. Water about once a week, and allow excess water to drain out of the containers to prevent the growth of fungus or bacteria.

4. First Shoots: Record Their Growth

Garry oaks spend the first few months growing their root system, so first shoots don’t start appearing until February or March. Once the first shoots appear, have students carefully measure and chart the growth of their seedlings once a week.

For younger students, make a bar graph using thin strips of paper to measure the stem length. Place a strip of paper next to the seedling and snip off at the point where the stem ends. Attach the strip to the horizontal axis of a graph, and use the vertical axis to mark in cm measurements. Try and take at least three measurements over time. Older students can use measuring tapes or rulers to measure the stem lengths and plot the information on graphs once a week.

In May, the seedlings can be moved outside to a partially shaded area (protected from animals, kids and balls!). Students can take their seedlings home to care for them during the summer months, or arrange volunteers to come and water/ feed at the school site, or sell them at a Garry oak festival or plant sale.

5. Planting Out the Seedlings

Seedlings can be transplanted to a bigger pot after their first year, or planted directly in the ground. Make sure you have a good planting site chosen for the seedlings that will accommodate a large tree after several years. Look into planting seedlings at an active restoration site, a school yard or park site, or a reclamation site. Garry oaks grow best in sunny locations with well drained soils. Clear a 1 metre circle of grass/ plants from around the planting site, and dig a hole about 40 cm deep. Backfill the hole about halfway with the loose soil, and gently set the seedling in the hole with the top of the roots at the level of the soil surface. Fill around the seedling with soil, firmly pack the soil down and soak the area well with water. Seedlings will need thorough watering every two weeks for

the first few months—more often in the summer. A layer of leaf mulch around the seedling base is very beneficial.

Assessment Strategies

- Have students draw and label the life cycle of the Garry oak.
- Have students document the steps they carry out collecting, planting and watering, and keep a weekly care chart/growth chart of their seedling.

Extensions

- Have older students develop a Care for Your Garry Oak Seedling information sheet to give away at plant sales with seedlings: they can research information and illustrate the sheet.
- Plant some acorns in containers and some in the ground. Make comparisons of their growth rates.
- Keep track of rainfall during the planting project, and discuss with students how the amount of rainwater compares to the amount of hand watering needed. Collect rainwater for watering oak seedlings, and have students investigate differences between rainwater and tap water.

Assessment

Have students describe the process of growing a Garry oak seedling: note their accuracy of description and understanding of the process.

References

Pacific Forestry Centre. Forestry Facts: *Guidelines for Planting and Establishment of Oak Seedlings*. Natural Resources Canada, Victoria, BC (available free)

1988. David Burnie. *Tree*. Eyewitness books. Albert Knopf. New York.

1985. Giono, Jean. *The Man Who Planted Trees*. Chelsea Green Press: Chelsea, VT (Also available as a video.)