



**Grow Eat
Learn**

Nourish Nova Scotia

Winter Sowing

Activity Guide





Introduction

Winter sowing is an easy, fun way to grow seedlings. It involves planting seeds in a container with a vented top and drainage holes...in the winter!

Containers are placed outdoors, where they act as mini greenhouses, allowing seeds to sprout when conditions are right. This method is ideal for starting native plants for pollinator gardens, as well as vegetables and herbs that like cold temperatures to germinate.

This activity can be done in the classroom using recycled jugs, then moved outside for the remainder of the process. It offers a fun, hands-on climate action learning opportunity for all grade levels and supports curriculum outcomes across multiple subjects. This activity guide walks you through the steps of winter sowing, provides additional tips and resources, and includes a printable handout outlining the process.

Benefits of Winter Sowing



- Encourages reusing recycled materials.
- Is inexpensive and easy.
- Doesn't require grow lights or take up classroom space.
- Helps grow strong, healthy seedlings.
- Keeps you connected to gardening during the heart of winter.

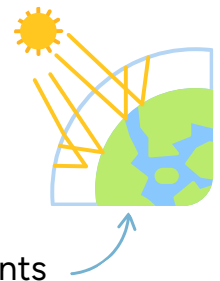


Learning Connections

Fulfills Course Related Outcomes for:

- Science 1-8
 - Grade 3 (soil studies)
 - Grade 4 Science (habitat studies)
 - Science 8 (climate change & greenhouse effect)
- Science 10 (Sustainability & Ecosystems)
- Food/ Health and Nutrition 8
- Healthy Living 9
- Citizenship 9
- Culinary Trades 10
- Agriculture 11
- Mi'kmaw Studies 11
- Community-Based Learning 11

Winter Sowing: Climate Education & Action



This activity aligns with four of our climate action themes and helps students understand how Earth's surface is warming by demonstrating the **greenhouse effect**.

Climate Connections



Waste Reduction & Circular Systems

Winter sowing encourages students to repurpose common household waste as they bring in their jugs from home.



Water Stewardship

This activity involves creating a built-in snow/rainwater catchment system!



Habitat Creation & Biodiversity

Winter sowing is a great way to start a diversity of pollinator plants, including native perennials, for the creation of habitat.



Growing & Processing Food

When winter sowing is used to start vegetable and herb plants that like cold to germinate, youth learn a resilient extension method for growing food.

Activity

Winter Sowing

Using Recycled Jugs

Involve students and their families in this climate action by inviting them to bring in their recycled clear water and juice jugs in the weeks leading up to this activity.

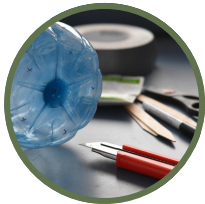


Materials Needed:

- Recycled translucent jugs
- Something to pierce drainage holes: pointed screw driver, craft knife
- Scissors
- Duct tape
- Larger bin/bucket to pre-moisten soil
- Potting soil (a mix that's good for starting seedlings)
- Seeds (see list below)
- Labels & Weatherproof Marker

Instructions:

Preparing and Planting



1. Prepare the jugs: Gather and wash jugs. Discard lids. Make 5–8 drainage holes in the bottom using a pointy knife, craft knife, or ¼" drill bit.



2. Create your mini greenhouse: Make a horizontal cut halfway up the jug, leaving about 5 cm uncut to form a hinge connecting the top and bottom. If helpful, draw a guideline with a marker first. If the jug has a handle, make sure the hinge is placed underneath it.



3. Add soil: Fill the bottom with pre-moistened potting soil, leaving 2–3 cm of space below the cut. Be sure to have at least 6–7 cm of soil depth in your jug (more for larger jugs). Soil should be moist like a wrung-out sponge—wet but not dripping. It's helpful to empty the bag of potting soil into a large bin, add water and mix before filling the jugs.

4. Plant seeds, water, and label: Follow seed packet instructions. Most seeds should be planted about 1–2 times as deep as they are wide. Sprinkle tiny seeds on the soil surface and dust with soil (skip covering them up if instructions say surface sow). Plant bigger seeds in small finger holes and cover. Gently pat the soil, water lightly, and add label with the plant name and date.



5. Close, seal, and label the jug: Tape the jug back together using duct tape, sealing completely along the cut seam. Write the plant name on the outside of the jug with a waterproof marker.

6. Set outside and observe: Place the mini greenhouses together in a spot that receives sun and is protected from heavy wind, foot traffic, snowplows, and other disturbances. Let nature take care of the watering—snow and rain will make their way into the open hole. (Make sure your jugs aren't under an overhang or roof?) Observe growth: perennials may take longer to germinate, while hardy annuals may sprout in just a few days.

Maintenance

7. Vent mini greenhouses: As days become longer and warmer in spring, untape and open the tops on hot days to release excess heat. Replace the tops at night if temperatures are still cool. Once the temperature is consistently 10°C and warmer, vent regularly and **water gently if soil feels dry**. Eventually tops can be left open as seedlings grow taller.

Transplanting

8. Winter sowing often produces strong seedlings that don't need hardening off. When seedlings have at least a few true leaves, gently separate them into individual plants or small clumps, lifting them with soil around the roots. If they're hard to remove, roll the jug on its side to loosen the soil first. Plant individual seedlings or clumps into prepared holes in the garden or pots.. Adding compost into holes first will give your seedlings a fertility boost. Pat the soil around the planted seedlings and water well so they will settle in and grow well.



Winter Sowing

What to Plant and When

Jan/Feb

perennials
that need to be cold
stratified including
native plants

Examples

- Bee Balm
- Coneflower
- Joe Pye Weed
- Black-Eye Susan



Why grow native plants?

Native plants grow well in local soil and weather and need less care once planted. They give food and shelter to pollinators like butterflies, bees, hummingbirds, and moths, which help grow many of the foods we eat. Planting native wildflowers—especially ones that feed caterpillars—helps the whole **food web**. Winter sowing is a fun way to start these plants and add them to the schoolyard.

Mar/Apr

annual veggies,
herbs, and flowers
that like cold to
germinate

Examples

- spinach
- lettuce
- arugula
- kale
- broccoli
- calendula
- onions
- peas
- sage
- dill



May/Jun

plant out the winter
sown seedlings into
pots or garden beds

When to transplant?

- When seedlings have at least their first **true leaves**
- When the last hard frost has passed in the spring

This is just a small sample of plants that can be winter sown. Avoid plants with delicate roots that don't transplant well, and check other sources for more options.

Words to Know

Sow: to plant seeds.

Stratification: a cold period that helps certain seeds wake up.

Germination: when a seed wakes up and starts growing.

True leaves: leaves that grow after the first baby leaves and look like the plant's real leaves.

Perennial: plant that comes back every year.

Annual: plant that lives for one growing season and then dies (has to be replanted every spring).

Food web: shows how energy moves through nature with plants and animals connected by who eats who.

Winter Sowing Basics

Watering



- **Nature takes care of the watering** through the winter! This happens when snow and rain enter the top hole.
- **Condensation** also builds up at the top of the jug where the warmer air in the mini greenhouse rises and meets the cold air on the outside of the jug. This condensation then drips down and moistens the soil resulting in a self-watering system!
- **Watering in the spring** is often necessary. Use a watering can to direct water through the top hole and down the sides (not straight onto soil/seedlings). Bottom watering also works well—place jugs in a bucket of water long enough for moisture to be absorbed through the drainage holes, saturating the soil before removing the jug.



Other Tips

- **Grow several of the same kind of plant in each jug.** If you're doing this activity in the classroom, give each student a set number of seeds for that plant that works well with the amount of space in their mini greenhouse.
- **Save seeds** from your native winter sown plants after they flower. Share them in community for next year's winter sowing!
- **Transplant in clumps!** The strongest will survive.
- **Signs that your jug may need to be watered:**
 - No water droplets on the side and top of the jug
 - Jug is light to pick up
 - Soil is lighter in colour and may have cracks

Additional resources

How to Winter Sow

- [Winter Sowing: An Easy, Low-Cost Method for Starting Seeds](#), Niki Jabbour
- [All the Dirt on Winter Sowing](#), University of Maryland
- [How to Winter Sow](#), Ottawa Wildflower Seed Library

Starting Seedlings for Pollinator Gardens

- [What Native Plants Attract Pollinators in Atlantic Canada](#) by The David Suzuki Foundation
- [Growing Habitat to Inspire Learning](#) by Amber Keller
- [How to Source Native Seeds and Plants](#) by The David Suzuki Foundation
- [Creating Native Plant Lists for your Habitat Project](#) by Pollinator Partnership

Seed Sources

For best results, source native seeds from your bioregion and vegetable and herb seeds from local seed companies or organizations that grow or source seeds locally. Some seed suppliers may donate seeds for school projects. Below are a few suggestions:

- [La Finquita Seeds](#), Wallace, NS
- [Annapolis Seeds](#), Nictaux, NS
- [Yonder Hill Farm](#), Laconia, NS
- [Cochrane Family Farm](#), Stewiacke, NS
- [Ottawa Wildflower Seed Library](#), Ottawa, Ontario



Handout

Winter Sowing

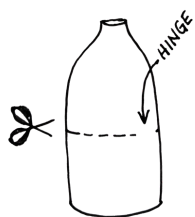
What you need

- Reused transparent plastic jugs (4 litre water jugs are ideal)
- Potting soil
- Large container to pre-soak soil in
- Scissors & sharp tool to make drainage holes
- Seeds
- Water and watering can
- Duct tape
- Weather-proof marker
- Patience!

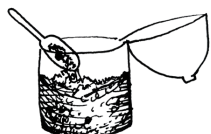
Let's get growing!



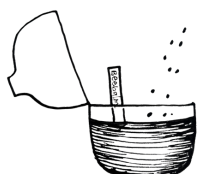
1. Wash jug & make drainage holes in the bottom using a craft knife, 1/4" drill bit or awl. Discard lids.



2. Cut jugs in half horizontally using scissors, leaving a hinge connecting the bottom to the top.



3. Add pre-moistened soil: Fill the bottom of your mini greenhouse with soil, leaving 2-3cm of space between the top of the soil and the cut in your jug. (Empty potting soil into a large bin, add water and stir to pre-moisten. Soil should be as wet as a wrung out sponge.)



4. Plant seeds, water, and label.



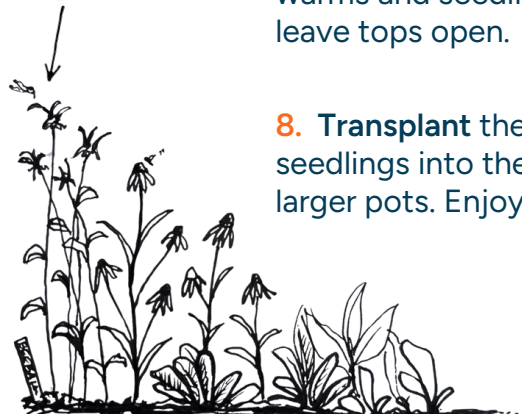
5. Close & seal the jug, taping it back together with duct tape. Use the weatherproof marker to label on the surface of the jug.



6. Set outside & observe! Let mother nature take care of the watering.



7. Vent jugs on warm spring days and close them on cold nights. When temperatures stay at 10 °C or warmer, vent regularly and water lightly if soil is dry. As the season warms and seedlings grow, leave tops open.



8. Transplant the successful seedlings into the garden or larger pots. Enjoy!

