DIGGING IN

NOVA SCOTIA HORTICULTURE FOR HEALTH NETWORK

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The Nova Scotia Horticulture for Health Network is a coalition of people interested in supporting horticulture for health initiatives through resource-sharing, exchange of practices/knowledge, and networking.

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Photo top right: J. Vogel

Series

Plant Activities Using Seeds

Text by Susan Morgan, MS and Lesley Fleming, HTR
Photo by S. Morgan

The use of seeds in people-plant programming takes participants back to the fundamentals of growing plants. Experiencing awe-inspiring moments with nature doesn't have to occur on a grand level through travel to an exotic location or a garden with large planting beds – awe can also be experienced through moments with something on a micro level, like seeds. Through close examination and handling of seeds, participants have opportunities to increase focus, attention, and stamina with these small objects from nature, reduce ruminating thoughts, and work fine motor skills, among other potential client goals. Here are several activities on how to utilize seeds in indoor and outdoor settings. Note: research the potential appropriate uses and safety considerations prior to using any type of seed or seed related products with participants for HT/TH activities.

Seed sowing – At various times of the year, notably during cold winter, hot summer, or rainy days, participants can look at seed catalogs and strategize together on what seeds to sow and grow indoors

and out. Garden preparation activities, including soil amendment and composting, can be accomplished in tandem with seed sowing, and subsequent care and tending to seeds in the grow pot, greenhouse, grow stand, or garden offer opportunities for participants to nurture a small living thing and watch its transformation.

Grass seed "heads" – A standard HT/TH activity to do with all ages, this activity with grass seed grown at the closed end of a soil filled sock can be delivered for varying therapeutic outcomes and adjusted for participants of varying abilities. Offer a variety of construction materials, including different colored socks or pantyhose and a rainbow assortment of markers, chenille stems, or objects to be used or affixed onto participant projects, for increased options for personalization.

Seed transformation – The tiny seeds of basil offer a unique opportunity to watch something change before participants' eyes. Simply add water to a small handful of basil seeds, and watch the mucilage form over the seed coat. This can be a transformative experience to watch something in the palm of your hand change so obviously within a relatively short timeframe. Combine this activity with the sensory engaging experience of adding water to a bowl full of chia seed. Seeds can be sown soon after adding water.

Seed comparison – Collect outdoors or purchase a variety of seed for one group of plants, such as different oak acorns or sunflower seeds, and compare their sizes and unique characteristics. Plant the seeds when possible and take notes on their growth and progress.

Seeds of the giants – Compare seed sizes and shapes of large growing plants, such as sunflowers or trees like sequoia, palms, or conifers. Note their natural growth habits and life spans in comparison.

Seed harvesting – Save seedheads for dried floral arranging or bird seed making activities, including ornamental onion (*Allium*), money plant (*Lunaria annua*), love in the mist (*Nigella*), poppy (*Papaver*), coneflower (*Echinacea*), globe thistle (*Echinops*), sea holly (*Eryngium*), assorted ornamental grasses, and more. Research which seed heads are appropriate for wildlife feeding.

Pine cones – From hemlocks and spruces to sugar or Coulter pines, gather different sizes and textures of pine cones and compare and contrast them. These can be collected outdoors or purchased online. Use them for fall and winter crafts, including decorating no-carve pumpkins with nature ephemera (mini pine cones, dried flowers, sticks, moss, etc. affixed with glue), pine cones fragranced with essential oils, or holiday decorations. Share the metaphorical story about the role of wildfire in opening captive seeds in serotinous lodgepole pine cones referencing Yellowstone's 1988 wildfire.


Photo: PC Taylor.unsplash

Seed sorting – Sort seeds from the previous year's garden, wildflower seed mixes, or bird seed mixes, and identify and compare seeds. Use the seeds for planting the upcoming season's garden or assembling bird feeders.

Bird seed – Blend your own bird seed mixes, with purchased seed or previously harvested seed, to use in making bird feeders. Bird feeder recipes are available online, including recipes that do not use ingredients that may cause allergies or adverse reactions for some participants, such as peanut butter or inedible materials. These activities can foster discussion about our relationships with pollinators, the animal kingdom, and each other, as well as encourage storytelling or bring back memories of baking, birdwatching, and similar hobbies with family members.

Edible seeds and nuts – Compare edible seeds and nuts (pumpkin, sunflower, watermelon, sesame, poppy, apple, citrus), learn about their nutritional value, and sample a variety of seeds, nuts, and seed/nut butters.

Seed dispersal strategies – Study the remarkable ways through which various plants disperse their seed – such as wind (dandelion, maple tree, tumbleweed), water (coconut, water lily), animals (attach to fur like cockleburs or passed through the gut like fleshy fruits with seed or buried to be eaten later like acorns), gravity (apple), and explosive action (violet, touch-me-not). Form seed bombs or seed balls (recipes found online) for gift giving.

Seed suncatchers, mandalas, or mosaics – Study the works of Andy Goldsworthy and other artists who use nature ephemera in creating their art or religious people who create elaborate mandalas out of sand or other materials. Take a mindful moment to examine plants or pictures of plants with unique symmetries (think Fibonacci/Golden Spiral), colors, shapes, and other unique features. Use an assortment of seeds of different colors and sizes arranged in symmetrical or unique patterns on clear self-laminating sticky sheets, contact paper, or watercolor paper to create suncatchers, mandalas, or mosaics. Practitioners can use premade templates set underneath to help guide participants as they create their artwork.

Susan Morgan, MS presented at the American Horticultural Therapy Association's 2017 conference with a session titled Activities Reimagined. Her blog Eat Breathe Garden offers interesting activities with a range of materials, all related to plants. Lesley Fleming, HTR incorporates activities from her Artist Training Certificate into HT/TH programming.

Photo: ecowarriorprincess.unsplash

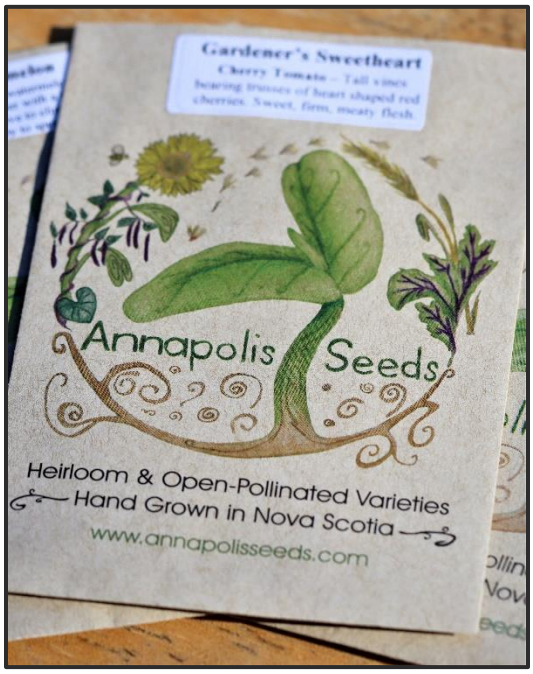
Types of Seeds

By Lesley Fleming, HTR & Amy Davis, MSc
Photos by Annapolis Seeds

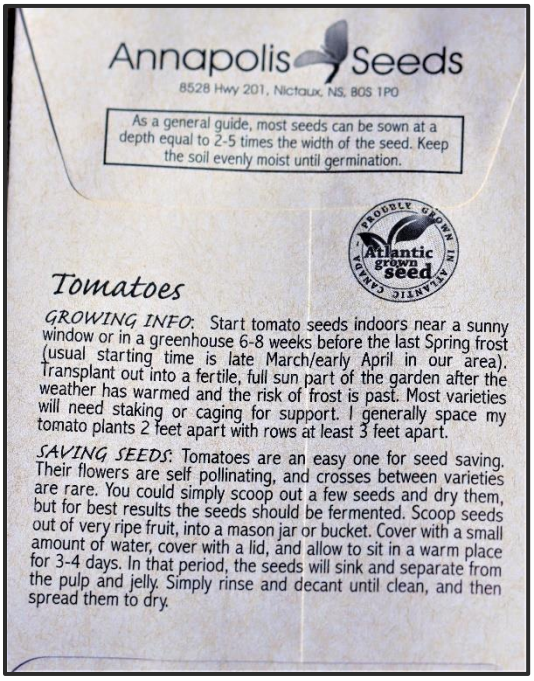
Seeds come in all shapes, sizes and varieties reflective of the wide ranging choice of plants available in today's market. Options for purchasing seeds include ordering from a seed catalogue, shopping online, or visiting a local garden centre.

Tips for optimizing plant production from seed:

- Use viable and vigorous seeds (choose the freshest seeds available)
- Choose seed varieties that can thrive in local area (check climate zone, consider hardiness and frost dates, as well as the 'days to maturity' of plant)
- Ensure that seed dormancy mechanisms have been overcome (like soaking the seed in water or scratching the seed coat)
- Create proper environmental conditions for germination and growth (follow seed packet recommendations for light and temperature requirements, planting depth, etc.)



Different types of seeds may be more appropriate for your application. The following identifies types of seeds:



Open-pollinated seeds (OP): Traditional non-hybridized seeds that reproduce true to type. These have been grown over many years and selected for their characteristics re pest resistance, flavor, and size. Most seeds from catalogues are open-pollinated.

Heirlooms: Heirloom seeds are exactly what they sound like; they are seeds that have been grown and passed down through many generations (they are often decades old). All heirlooms are considered OP seeds, but not all OP seeds are heirlooms. Although very few seeds are considered heirlooms, heirlooms and modern OP seeds can be treated much the same way. Seeds can be saved from plants grown from both types of seeds because they will "breed true" with regards to the traits of the parent plant.

Pre-germinated seeds: Referred to as chitted, these seeds are germinated by the grower and packed in

waterproof sachets. It is recommended that this type of seed be planted immediately in a seed tray or pot. These may be selected where the temperature for germination or germination itself is unreliable.

F1 and F2 hybrids: Modern plant breeding has yielded genetic breeding and hybrid seed types. These seeds have identical genetic traits with typically higher yields and greater resistance to disease. They are more expensive, and are not recommended as seeds from these crops due to sterility percentages and inability to produce. Many F1 and F2 seeds are available in pelleted forms coated in clay or other materials and are used to produce uniform plants with earlier maturity dates. Moisture is critical to pelleted seeds – too little or too much will deter germination. FI seeds are not genetically modified (GMO); they are hybridized in a lab.

Genetically modified organism (GMO)/ seeds: As their name identifies, these seeds have been genetically modified. More than 90% of cotton, corn and soybeans grown in the U.S. are from GM seeds (Colbert, 2016). Genetic engineering seeks to find sustainable crop production methods that provide higher yields, disease resistance, with some crops able to provide higher levels of specific nutrients like protein, folate or calcium. Many people have concerns about GMOs and possible links to cancer, allergies and antibiotic resistance.

Tips for Seed Saving:

- Leave summer and winter squash, cucumbers, and pumpkin on the vine until after frost. Separate the seeds from its pulp and dry at room temperature.
- Leave pod crops on the vine until the pod dries. Harvest before the seed is dispersed.
- Harvest seed heads after they dry but before seed dispersal.
- Seed can be extracted from fruit by placing the fruit in a blender with some water and lightly pulsing the fruit. The seeds will sink to the bottom of the slurry, which can be strained off.
- Once the seed is dried, gently hand rub it to rid it of any chaff, then store in an envelope in a cool, dry, rodent-free place.
- The seed will germinate best the following year. Its germination percentage will decline every year, depending on the storage conditions, seed type, and original seed quality. It is best to replant every year and then select the best plants for seeds.

Colbert, T. (2016). GMOs: Pros & cons. *Healthline.* Retrieved from https://www.healthline.com/health/gmos-pros-and-cons

Horticulture Techniques

Methods of Sowing Seeds

By Lesley Fleming, HTR
Photos by B. Mellish.pexels & Dreamstime

Sowing is the art of placing seeds in the soil at particular depth for good germination. Sowing seeds in containers prior to planting in permanent beds is also an art. The latter is typically done as an early start to germination, a practice for colder climates with shorter growing seasons, and a means of producing good seedlings for transplanting into permanent beds. The methods listed below provide options for sowing seeds.

Broadcasting: Rake soil to a fine tilth. Scatter seeds as evenly as possible by hand, then rake a light layer of soil to cover seeds.

Chitting: Use a tray lined with damp paper towel. Sprinkle seeds, covering the tray. Keep in a warm environment until germination occurs, typically 21C.

Fine Seed Sowing: For very fine seed, mix with silver sand. Sprinkle pinches of mixture along prepared row or tray and cover very shallowly with soil. Some prefer to not cover on top of seeds.

Fluid Sowing: Using a plastic bag and fungicide-free wallpaper paste add seeds to mixture. Cut corner of bag and squirt along a prepared drill.

Multiple Sowing: Place groups of seeds in plastic cells or polystyrene trays and leave in a warm place. Once germinated, move to a cooler location until ready for permanent beds.

Space Seeding: Place two or three large or pelleted seeds in a seed drill and water. Refer to recommendations re planting distance. Cover, label and then thin to one seedling per hole when viable.

Successional Sowing: Sow seeds at regular intervals for successive supply of germinated seeds. This method works for beetroot, kohl rabbi, lettuce, onions, radish, spinach and turnip.

Follow seed packet recommendations which state “plant inside eight weeks before last frost”.

DeJohn, S. (2020). Ready, set, sow! Answers to frequently asked questions about starting seeds indoors. *Gardener’s Supply*. Retrieved from https://www.gardeners.com/how-to/seed-starting-faq/7882.html

Seed Directly In the Ground with Success

Text & photo by Lesley Fleming, HTR

Some edibles have great success being planted from seed directly into the soil. Others do not. Many gardeners for example use tomato transplants instead of starting from seed. Of course planting from seed is the most cost effective way of growing, so the question is – which seeds are the easiest to grow from seed planted directly into the ground?

Lettuce and arugula can be planted in early spring and then continuously throughout the season. Sow arugula seeds 60-120 per meter (3') at .33cm (1/8") deep in rows 20-30cm (12") apart. Same depth for lettuce, with baby lettuce varieties 180 seeds per meter (3') and head lettuce 3 seeds every 20-25cm (10").

Carrots like soil temperatures of 12-24C (55-75F). Sow 90 seeds per meter (3'), planting 1cm (1/2") deep, thinning so that there is 50cm (18") between rows.

Cucumber seeds need 21C (70F) soil to germinate and need protection from cucumber beetles. Plant in soil 9 seeds per meter (3') at 3cm (½") deep. Remember to thin and cover with row cover.

Summer squash seeds need more space, sowing 9 seeds per meter (3') and thinned to 3 plant per meter (1') with 1.22m (4') between seedlings. Place seeds 5cm (2") deep when frost has passed.

Bean seeds can be planted every 2 weeks throughout the season. Sow seeds 2.5cm (1") deep and 5cm (2") apart. Rows should be 50cm (20") apart. Recommended that bean seeds of all varieties be inoculated prior to planting.

Radishes can be sown in early spring and fall to avoid hot temperatures. Plant seeds 1cm (½") deep with 2.5cm (1") between. Keep seeds moist and harvest immediately when mature for optimal taste, crunch and spice.

Peas in dwarf varieties should be planted from seed 1cm (1/2") deep and 31cm (12") apart. Taller varieties may need trellises planted 1-2 meters (3-6') apart at same depth of 1cm (½"). Seeds can be planted in early fall too.

Order of Seeds – Gifts to the Poor

Compiled by Lesley Fleming, HTR
Photo by Pixabay

In the Jewish faith there are six laws about gifts to the poor. This is excerpted from *Seder Zeraim* or "Order of Seeds", an agricultural text. They are inspiring regardless of one's faith.

1. *Pe'ah*, Hebrew for "corner", is an ancient Jewish law that says to leave "the corners of the field" standing for the poor to harvest.
2. *Leket,* meaning "gleanings" are the ears of grain that fall from the harvester's hand or sickle and are gifted to the poor.
3. *Shich'chah* are "forgotten sheaves" that are left in the fields and gifted to the poor.
4. *Oleilot* are "immature grapes" that are gifted to the poor.
5. *Peret* are clusters of grapes that fall while being harvested and are left for the poor.
6. *Ma'asar ani* is the tithe designated for the poor every third and sixth year of the tithing cycle.

HT Activity Plan – Making Biodegradable Seed Pots

Text & photo by Lesley Fleming, HTR

Materials
newspaper, scissors
glue or tape
potting medium
seeds

ACTIVITY DESCRIPTION: Making biodegradable seed pots
THERAPEUTIC GOALS:
Intellectual: learning about biodynamic gardening, materials and environmentally responsible practices
Social: discussing positive impact on environment using recycled materials in group or classroom setting
Physical: fine motor skills
Spiritual & Emotional: connecting & protecting the environment

STEP-BY-STEP PROCESS:

1. Develop a plan including desired number of pots to be made based on future plantings.
2. Gather materials including recycled newspaper with environmentally safe ink and glue.
3. Wrap a sheet of paper around a rolling pin or soda bottle to accommodate desired diameter of seed pot. Glue or tape edge to form cylinder.
4. Slide cylinder off rolling pin and let dry.
5. Cut cylinder into 4 ½" lengths, folding to make a bottom.
6. Stand pots in a seed tray and fill with growing medium.
7. Discuss good environmental practices related to growing plants, composting, soil health and upcycling cartons & paper.

APPLICATIONS FOR POPULATIONS: Most populations will have hand strength and dexterity to roll paper around rolling pin, or physical therapy for those with compromised hand movement. Within school settings, this activity can be a lead-in to science, environment and math lessons appropriate for most ages. Extended projects can include: planting and tending to seeds, transplanting into garden, learning about composting methods and practices, and fundraising selling seeds/seedlings.

SAFETY CONSIDERATIONS: Participant sensitivity to paper, glue or growing medium should be determined prior to activity. Some populations (dementia, intellectually disabled, young children) may be tempted to put seeds into mouth. Paper cuts can be treated with first aid materials, soap and water.

NOTES OR OTHER CONSIDERATIONS: Alternative method – cut 10 ml strips of paper, use damaged egg cartons free of raw egg juices, paper muffin liners, or toilet paper rolls. Left-over newspaper can be composted or additional biodegradable pots can be constructed and donated to community.

REFERENCES/ RESOURCES:

Beaty, V. (2017). 20 upcycled seed starter pots you can easily make at home. *DIY & Crafts*. Retrieved from https://www.diyncrafts.com/25643/repurpose/20-upcycled-seed-starter-pots-can-easily-make-home

Engels, J. (2017). Seedling pots. *Permaculture Research Institute.* Retrieved from https://www.permaculturenews.org/2017/07/21/techniques-making-biodegradable-seedling-pots/

HT Activity Plan form developed by Lesley Fleming, Susan Morgan and Kathy Brechner 2012, revised in 2018.

Series

The Treatment Process: Assessment

Text & photo by Lesley Fleming, HTR

Many disciplines including horticultural therapy, use treatment processes when working with people seeking health improvements. The four main components of the process and of a treatment plan—assessment, goal-setting, therapeutic activity, and measuring outcomes—are essential for not only achieving the desired health outcomes, but for delivering quality treatment based on standards of practice. A four part series will focus on each of the component parts of a treatment plan.

The Treatment Process - Assessment

The term assessment, when used by therapeutic health professionals typically refers to the initial information gathering phase for establishing baseline functioning levels from which to then prepare a treatment plan. Initial assessments should be undertaken for all types of horticultural therapy programming. Client assessments/evaluations should occur throughout the treatment process.

The Canadian Horticultural Therapy Association does not provide codified standards of practice for treatment process or treatment plans. The American Horticultural Therapy Association delineated client assessments in its 2015 *Standards of Practice for Horticultural Therapy* (AHTA, 2015):

> "Standard 4. Horticultural Therapy Treatment Process 1. A participant assessment is completed, documented, and maintained in a manner that complies with patient confidentiality standards that includes relevant diagnostic and/or assessment data, the participant's physical, social, mental, and emotional aptitude, and current level of horticultural skills."

Note that assessment protocols may vary for therapeutic horticulture. Allied health professions tend to have more detailed standards for (initial) assessments.

Formats and forms used for initial assessments are not standardized within the horticultural therapy profession. Formalized charting is a requirement for horticultural therapy, not so for therapeutic horticulture. Often time it is the facility that dictates the protocols and forms to be used, especially when interdisciplinary treatment teams are involved, or specific to the characteristics and needs of the populations being served. Some examples of initial assessment forms can be found in Haller's *Horticultural Therapy Methods Appendix C: Documentation.*

One issue practitioners face when doing initial assessments - facilities unwilling to share health information of clients. Regulations protect individual's personal health information. Requesting information may elicit data for an assessment, or the assessment might begin with the client providing their information.

On-going assessments and measurement of client skills are recommended throughout the treatment process. Assessment tools and techniques will vary widely depending on the individual, population, health deficit, facility protocols and practitioner skills. Professional development from courses, conferences, regional workshops or internships will prepare the practitioner for recognizing and evaluating client status, as can familiarization with allied health disciplines' assessment methodology.

AHTA (2015). *The 2015 Standards of Practice for Horticultural Therapy*. Retrieved from http://ahta.org/sites/default/files/AHTA%20STANDARDS%20OF%20PRACTICE.pdf

Haller, R. & Kramer, C. (Eds.) (2006). *Horticultural Therapy Methods Making Connections in Health Care, Human Service, and Community Programs.* New York: Hawthorne Press.

Kreski, B. (2019). Assessment and documentation strategies for horticultural therapy intervention. In Haller, Kennedy & Capra (Eds.) *The Profession and Practice of Horticultural Therapy*. New York: CRC Press.

Paul, S. & Orchanian, D. (2003). *PocketGuide to Assessment in Occupational Therapy*. Clifton Park, NY: Delmar Learning.

Williams, PN, Kissel Bales, C, Waliczek, TM. & Zajicek, JM. (2007-2008). Development of assessment standards and a computerized assessment tool for use in prevocational horticulture training programs for head-injured individual. *Journal of Therapeutic Horticulture* 18 (1).

Lesley Fleming, HTR has been active in the field of horticultural therapy for more than a decade, with recent research focused on dementia populations. In 2020 she and co-authors A. Davis, L. Bos, B. House and J. Carter had their peer-reviewed article 'Nova Scotia's Horticulture for Health Activity' published in the Journal of Therapeutic Horticulture.

Levels of Racism: A Theoretical Framework and a Gardener's Tale

By Camara Phyllis Jones, MD, MPH, PhD

Reprinted with permission: Jones, CP. (2000). Levels of racism: A theoretical framework and a gardener's tale. *American Journal of Public Health 90*(8); 1212-1215.

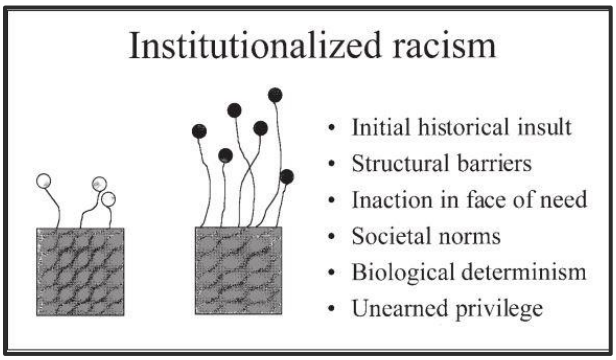
Abstract

The author presents a theoretic framework for understanding racism on 3 levels: institutionalized, personally mediated, and internalized. This framework is useful for raising new hypotheses about the basis of race-associated differences in health outcomes, as well as for designing effective interventions to eliminate those differences. She then presents an allegory about a gardener with 2 flower boxes, rich and poor soil, and red and pink flowers. This allegory illustrates the relationship between the 3 levels of racism and may guide our thinking about how to intervene to mitigate the impacts of racism on health. It may also serve as a tool for starting a national conversation on racism. (Am J Public Health. 2000;90: 1212–1215)

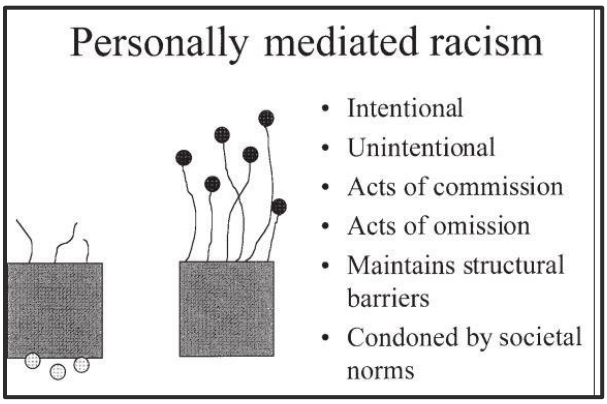
Race-associated differences in health outcomes are routinely documented in this country, yet for the most part they remain poorly explained. Indeed, rather than vigorously exploring the basis of the differences, many scientists either adjust for race or restrict their studies to one racial group.[1] Ignoring the etiologic clues embedded in group differences impedes the advance of scientific knowledge, limits efforts at primary prevention, and perpetuates ideas of biologically determined differences between the races. The variable race is only a rough proxy for socioeconomic status, culture, and genes, but it precisely captures the social classification of people in a race-conscious society such as the United States. The race noted on a health form is the same race noted by a sales clerk, a police officer, or a judge, and this racial classification has a profound impact on daily life experience in this country. That is, the variable "race" is not a biological construct that reflects innate differences,[2–4] but a social construct that precisely captures the impacts of racism. For this reason, some investigators now hypothesize that race-associated differences in health outcomes are in fact due to the effects of racism.[5, 6] In light of the Department of Health and Human Services' Initiative to Eliminate Racial and Ethnic Disparities in Health by the Year 2010,[7, 8] it is important to be able to examine the potential effects of racism in causing race-associated differences in health outcomes.

Levels of Racism

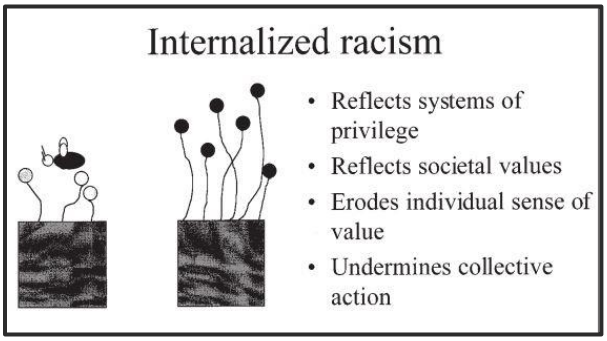
I have developed a framework for understanding racism on 3 levels: institutionalized, personally mediated, and internalized. This framework is useful for raising new hypotheses about the basis of race-associated differences in health outcomes, as well as for designing effective interventions to eliminate those differences. In this framework, institutionalized racism is defined as differential access to the goods, services, and opportunities of society by race. Institutionalized racism is normative, sometimes legalized, and often manifests as inherited disadvantage. It is structural, having been codified in our institutions of custom, practice, and law, so there need not be an identifiable perpetrator. Indeed, institutionalized racism is often evident as inaction in the face of need.



Institutionalized racism manifests itself both in material conditions and in access to power. With regard to material conditions, examples include differential access to quality education, sound housing, gainful employment, appropriate medical facilities, and a clean environment. With regard to access to power, examples include differential access to information (including one's own history), resources (including wealth and organizational infrastructure), and voice (including voting rights, representation in government, and control of the media). It is important to note that the association between socioeconomic status and race in the United States has its origins in discrete historical events but persists because of contemporary structural factors that perpetuate those historical injustices. In other words, it is because of institutionalized racism that there is an association between socioeconomic status and race in this country.



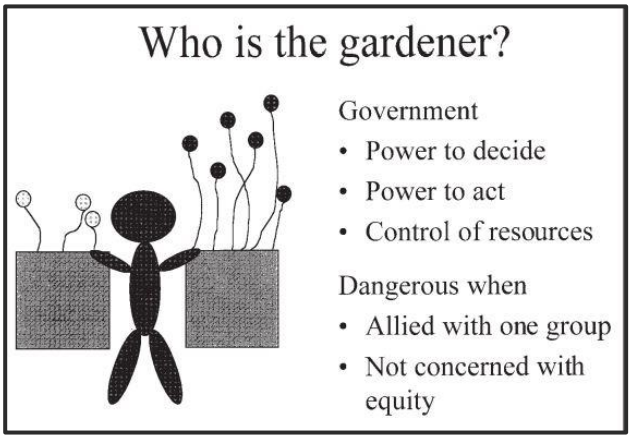
Personally mediated racism is defined as prejudice and discrimination, where prejudice means differential assumptions about the abilities, motives, and intentions of others according to their race, and discrimination means differential actions toward others according to their race. This is what most people think of when they hear the word "racism." Personally mediated racism can be intentional as well as unintentional, and it includes acts of commission as well as acts of omission. It manifests as lack of respect (poor or no service, failure to communicate options), suspicion (shopkeepers' vigilance; everyday avoidance, including street crossing, purse clutching, and standing when there are empty seats on public transportation), devaluation (surprise at competence, stifling of aspirations), scapegoating (the Rosewood incident,[9,10] the Charles Stuart case,[11–14] the Susan Smith case[15–18]), and dehumanization (police brutality, sterilization abuse, hate crimes).



Internalized racism is defined as acceptance by members of the stigmatized races of negative messages about their own abilities and intrinsic worth. It is characterized by their not believing in others who look like them, and not believing in themselves. It involves accepting limitations to one's own full humanity, including one's spectrum of dreams, one's right to self determination, and one's range of allowable self expression. It manifests as an embracing of "whiteness"(use of hair straighteners and bleaching creams, stratification by skin tone within communities of color, and "the white man's ice is colder" syndrome); self-devaluation (racial slurs as nicknames, rejection of ancestral culture, and fratricide); and

resignation, helplessness, and hopelessness (dropping out of school, failing to vote, and engaging in risky health practices).

The following allegory is useful for illustrating the relationship between the 3 levels of racism (institutionalized, personally mediated, and internalized) and for guiding our thinking about how to intervene. I use this story in my teaching on "race" and racism at the Harvard School of Public Health as well as in my public lectures.



Levels of Racism: A Gardener's Tale

When my husband and I bought a house in Baltimore, there were 2 large flower boxes on the front porch. When spring came we decided to grow flowers in them. One of the boxes was empty, so we bought potting soil to fill it. We did nothing to the soil in the other box, assuming that it was fine. Then we planted seeds from a single seed packet in the 2 boxes. The seeds that were sown in the new potting soil quickly sprang up and flourished. All of the seeds sprouted, the most vital towering strong and tall, and even the weak seeds made it to a middling height. However, the seeds planted in the old soil did not fare so well. Far fewer seeds sprouted, with the strong among them only making it to a middling height, while the weak among them died. It turns out that the old soil was poor and rocky, in contrast to the new potting soil, which was rich and fertile. The difference in yield and appearance in the 2 flower boxes was a vivid, real-life illustration of the importance of environment. Those readers who are gardeners will probably have witnessed this phenomenon with their own eyes.

Now I will use this image of the 2 flower boxes to illustrate the 3 levels of racism. Let's imagine a gardener who has 2 flower boxes, one that she knows to be filled with rich, fertile soil and another that she knows to be filled with poor, rocky soil. This gardener has 2 packets of seeds for the same type of flower. However, the plants grown from one packet of seeds will bear pink blossoms, while the plants grown from the other packet of seeds will bear red blossoms. The gardener prefers red over pink, so she plants the red seed in the rich fertile soil and the pink seed in the poor rocky soil. And sure enough, what I witnessed in my own garden comes to pass in this garden too. All of the red flowers grow up and flourish, with the fittest growing tall and strong and even the weakest making it to a middling height. But in the box with the poor rocky soil, things look different. The weak among the pink seeds don't even make it, and the strongest among them grow only to a middling height.

In time the flowers in these 2 boxes go to seed, dropping their progeny into the same soil in which they were growing. The next year the same thing happens, with the red flowers in the rich soil growing full and vigorous and strong, while the pink flowers in the poor soil struggle to survive. And these flowers go to seed. Year after year, the same thing happens. Ten years later the gardener comes to survey her garden. Gazing at the 2 boxes, she says, "I was right to prefer red over pink! Look how vibrant and beautiful the red flowers look, and see how pitiful and scrawny the pink ones are."

This part of the story illustrates some important aspects of institutionalized racism. There is the initial historical insult of separating the seed into the 2 different types of soil; the contemporary structural

factors of the flower boxes, which keep the soils separate; and the acts of omission in not addressing the differences between the soils over the years. The normative aspects of institutionalized racism are illustrated by the initial preference of the gardener for red over pink. Indeed, her assumption that red is intrinsically better than pink may contribute to a blindness about the difference between the soils. Where is personally mediated racism in this gardener's tale? That occurs when the gardener, disdaining the pink flowers because they look so poor and scraggly, plucks the pink blossoms off before they can even go to seed. Or when a seed from a pink flower has been blown into the rich soil, and she plucks it out before it can establish itself.

And where is the internalized racism in this tale? That occurs when a bee comes along to pollinate the pink flowers and the pink flowers say, "Stop! Don't bring me any of that pink pollen—I prefer the red!" The pink flowers have internalized the belief that red is better than pink, because they look across at the other flower box and see the red flowers strong and flourishing.

What are we to do if we want to put things right in this garden? Well, we could start by addressing the internalized racism and telling the pink flowers, "Pink is beautiful!" That might make them feel a bit better, but it will do little to change the conditions in which they live. Or we could address the personally mediated racism by conducting workshops with the gardener to convince her to stop plucking the pink flowers before they have had a chance to go to seed. Maybe she'll stop, or maybe she won't. Yet, even if she is convinced to stop plucking the pink flowers, we have still done nothing to address the poor, rocky condition of the soil in which they live.

What we really have to do to set things right in this garden is address the institutionalized racism. We have to break down the boxes and mix up the soil, or we can leave the 2 boxes separate but fertilize the poor soil until it is as rich as the fertile soil. When we do that, the pink flowers will grow at least as strong and vibrant as the red (and perhaps stronger, for they have been selected for survival). And when they do, the pink flowers will no longer think that red pollen is better than pink, because they will look over at the red flowers and see that they are equally strong and beautiful. And although the original gardener may have to go to her grave preferring red over pink, the gardener's children who grow up seeing that pink and red are equally beautiful will be unlikely to develop the same preferences.

This story illustrates the relationship between the 3 levels of racism. It also highlights the fact that institutionalized racism is the most fundamental of the 3 levels and must be addressed for important change to occur. Finally, it provides the insight that once institutionalized racism is addressed, the other levels of racism may cure themselves over time. Perhaps the most important question raised by this story is who is the gardener? After all, the gardener is the one with the power to decide, the power to act, and the control over the resources.

In the United States, the gardener is our government. As the story illustrates, there is particular danger when this gardener is not concerned with equity. The current Initiative to Eliminate Racial and Ethnic Disparities in Health by the Year 2010 is to be lauded as the first explicit commitment by the government to achieve equity in health outcomes.

Many other questions arise from this simple story. What is the role of public health researchers in vigorously exploring the basis of pink–red disparities, including the differences in the soil and the structural factors and acts of omission that maintain those differences? How can we get the gardener

to own the whole garden and not be satisfied when only the red flowers thrive? If the gardener will not invest in the whole garden, how can the pink flowers recruit or grow their own gardener?

The reader is invited to share this story with family members, neighbors, colleagues, and communities. The questions we raise and the discussions we generate may be the start of a much-needed national conversation on racism.

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The author was with the Department of Health and Social Behavior, Department of Epidemiology, and the Division of Public Health Practice, Harvard School of Public Health, Boston, Mass. (2000). She began working with the Centers for Disease Control and Prevention, Atlanta, Ga.

Professional Practice

Universal Design

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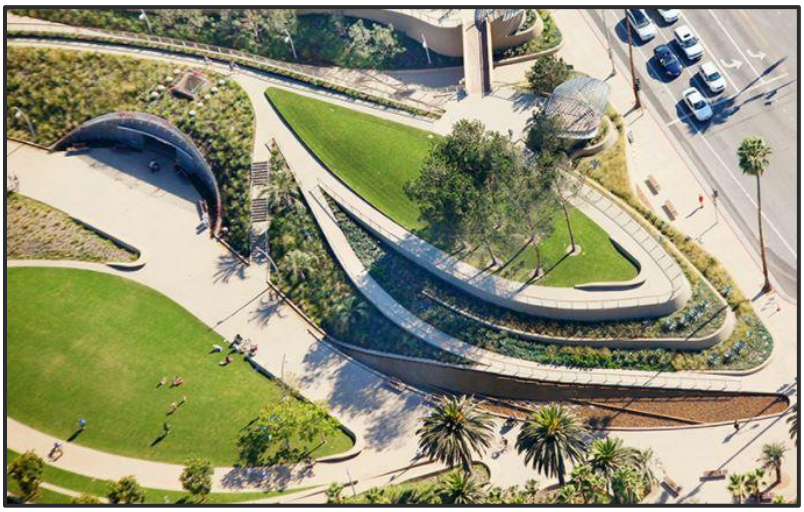


Tongva Park and Ken Genser Square in Santa Monica, California, are easily accessible to everyone from surrounding streets, feature seating with arms, wide paths and ramps, an accessible bathroom near the street, seating in the shade, consistent lighting, and diverse plant life. ASLA 2018 Professional General Design Honor Award. Tongva Park and Ken Genser Square, Santa Monica, California. James Corner Field Operations LLC / Tim Street-Porter

If we want everyone to participate in public life, we must design and build an inclusive public realm that is accessible to all. Public life can't just be available to the abled, young, or healthy.

Everyone navigates the built environment differently, with abilities changing across a person's lifespan. The sizeable global population of people with physical, auditory, or visual disabilities, autism or neurodevelopmental and/or intellectual disabilities, or neuro-cognitive disorders will face greater challenges if we don't begin to more widely apply universal design principles.

While the legal requirements of the Americans with Disabilities Act (ADA) are typically met in public spaces like parks, plazas, streets, and gardens in the United States, these requirements are a minimum standard for accessibility. Because of their focus on technical aspects of accessibility over experiential quality, ADA standards often result in spaces that are still very challenging for people with disabilities to access, leaving them physically and mentally disconnected from public life. Many countries do not have basic accessibility requirements.

Landscape architects and designers can apply universal design principles to create more inclusive spaces for underserved communities, which include those who experience:

Disabilities: One billion people, or 15 percent of the worldwide population, experience some form of disability.

Aging: The global population of people over 65 years of age is expected to double, from 8.5 percent to 17 percent, by 2050, totaling 1.6 billion people.

Limited mobility: The World Health Organization estimates 75 million people, or 1 percent of the global population, require a wheelchair, with nearly a third of that group unable to access them. **Lack of community access:** 26.8 million, or 56 percent of Americans over 65 live in suburbs, while 11 million, or 23 percent of Americans over 65 live in rural areas, with limited access to public

transportation. Given older Americans prefer to age in place, rather than moving to a retirement community, neighborhoods must be designed for all ages and levels of mobility.

Neuro-cognitive disorders: Cognitive disabilities like Alzheimer's disease and other forms of dementia are more prevalent in older populations. Some 44 million, or 0.6% of the global population suffer from Alzheimer's. 16 million people in the U.S. alone have cognitive disabilities. Diminished sensory, cognitive, and motor skills limit people's ability to navigate public spaces.

Neurodevelopmental and/or Intellectual Disabilities: Roughly 70 million people, or 1 percent of the world population are autistic. According to the Centers for Disease Control (CDC), 1 in 6 children in the United States had a developmental disability in 2006-2008. As of 2014, 1 in 59 children aged 8, or 70,000 8 year-olds, in the US, are autistic. Autistic people are often overwhelmed by visual stimulation, the acoustic environment, lighting, and odor present within the built environment.

Blindness and Low Vision: Worldwide, 13 billion people, 17 percent of the population, have some form of visual disability, 217 million people, 3 percent of the population, have a moderate to severe vision disability, and 36 million people, or 0.5 percent of the population, are blind. Intersections, poorly-lit spaces, and sudden level changes can be dangerous for people with low vision.

Deafness and Hardness of Hearing: Worldwide, there are 466 million people with a hearing disability, a number expected to grow to 900 million people by 2050. Some 70 million deaf people around the world rely on visual communication (sign language). There are over 300 documented signed languages in use around the world.

Universal landscape planning and design ensures people with disabilities can better participate in public life. These principles, which build off The Center for Universal Design's principles, should guide the planning and design of *all* public spaces, regardless of intended audience:

Accessible: All public spaces should be physically accessible to everyone, regardless of their physical, cognitive, or mental ability. Specific areas of public spaces shouldn't be designed for people with specific disabilities; all public spaces should work for everyone.

Comfortable: A feeling of safety is the baseline for feeling comfortable, but an inclusive sense of belonging helps everyone to feel comfortable in a space. Universal design offers options for people with a range of abilities and disabilities, fostering feelings of belonging.

Participatory: Landscape architects and designers should always co-design with people with disabilities. Abled landscape architects and designers won't know all of the difficulties that people with disabilities experience in environments designed without them in mind. Disabled landscape architects and designers can also bring their unique experience and understanding to create more accessible spaces. *Note:* Some people, such as those with advanced dementia, may not be able to clearly articulate their challenges with the built environment. In these instances, landscape architects must work with healthcare providers to create solutions.

Ecological: Exposure to nature and green space is proven to provide mental, cognitive, and physical health benefits for people of all ages and abilities. Universal design should provide these benefits throughout the built environment, creating spaces people want to visit and spend time in, while fostering ecological resilience and supporting biodiversity.

Legible: Clear and understandable designs, with very legible multi-sensory signage and signals, help people of all ages and abilities to understand how to move through spaces. Delineating places of movement and relaxation can help people understand how spaces are meant to function as well.

Multi-Sensory: Navigation in the built environment depends almost entirely on visual cues. Incorporating design elements that can be accessed through different senses provides other systems of navigation. For example, the use of auditory, haptic, and textural cues can aid in wayfinding and enrich experiences for all.

Predictable: Maintaining the same clear and understandable design cues throughout a public space creates predictable environments for people of all ages and abilities, increasing comfort and safety.

Walkable / Traversable: Often, people with disabilities are limited in the distances they can travel. In too many communities, walking or using a wheelchair are not options because the environment has been designed primarily for cars. Walkable / traversable communities, which feature wide sidewalks and bicycle lanes, provide amenities like shops, restaurants, and medical facilities nearby, meaning those with limited range can manage and maintain many aspects of their lives independently.

A special thanks to our expert advisory panel for their guidance: Danielle Arigoni, director of livable communities, AARP; Brian Bainnson, ASLA, founder, Quatrefoil Inc.; Melissa Erikson, ASLA, principal, director of community design services, MIG, Inc.; Emily O'Mahoney, FASLA, partner, 2GHO; Clare Cooper Marcus, Hon. ASLA, professor emerita of architecture and landscape architecture and environmental planning, University of California, Berkeley; Danielle Toronyi, OLIN; Alexa Vaughn, Associate ASLA, Deaf landscape designer at OLIN.

The guide was written by Ian Dillon and Jared Green.

[Editor's note: Original publication can be accessed at https://www.asla.org/universaldesign.aspx]

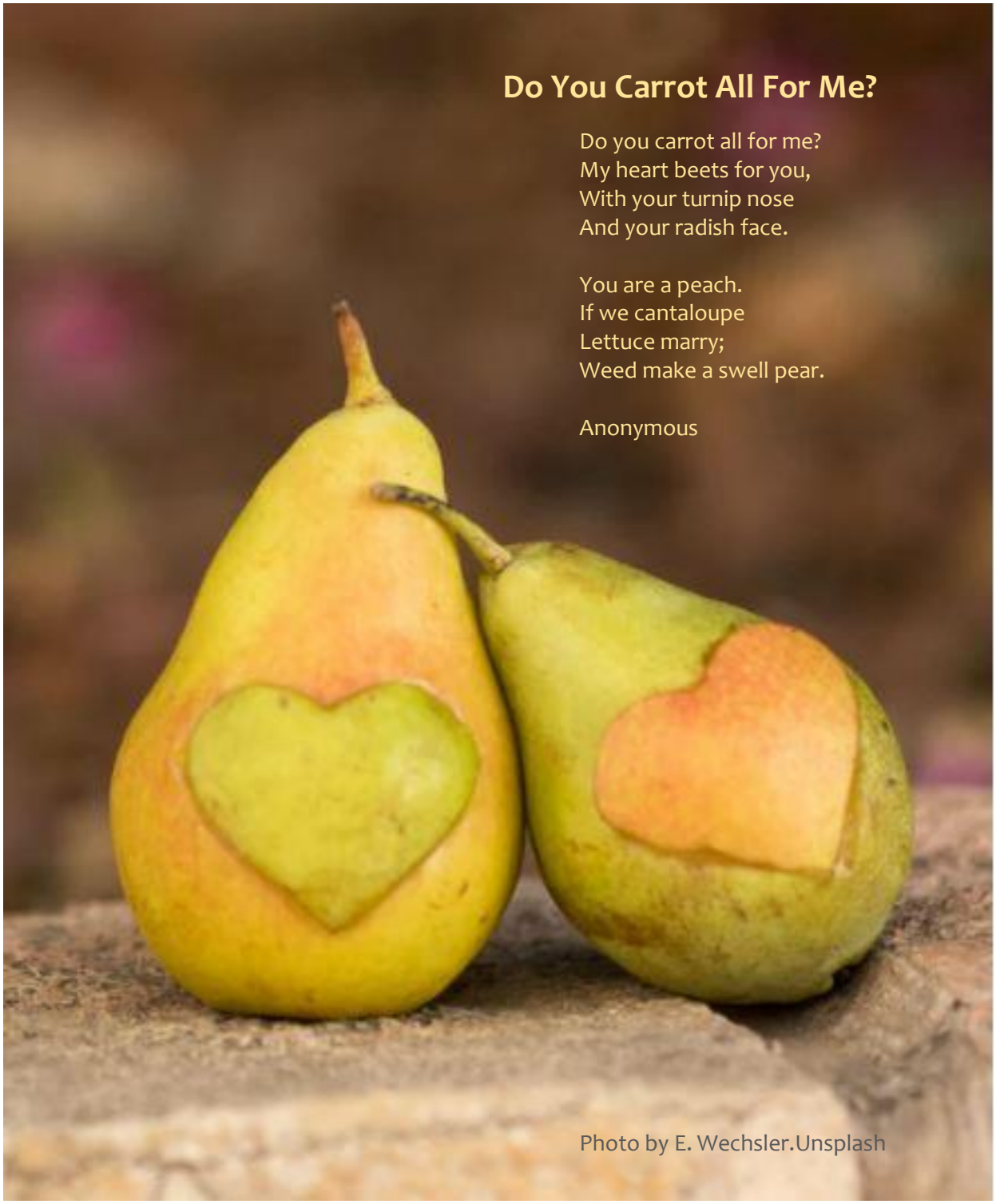
Forcing Blooms in Winter

By Lesley Fleming, HTR
Photos by Pexels

An ideal activity for wintertime is forcing stems to bloom early. A wide variety of spring flowering shrubs can be used including red maple, quince, willow catkins, lilac, forsythia, apple, ornamental plum and cherry (respectively: spp. & cvs. of *Acer rubrum, Chaenomeles*, *Salix*, *Syringa vulgaris*, *Forsythia*, *Malus domestica*, *Prunis triloba, & Prunis subhirtella*). By cutting new branches weekly through January and February, a continual supply of blooms will be available.

There are a few important tips to keep in mind. Branches need about six weeks of cold temperature dormancy to set buds. Look for flower buds, rounder and larger than leaf buds, which tend to be pointed. Using sharp pruners, cut branches at a 45 degree angle above the nod or collar, and twice the height of the vase that will be used. Place in water immediately.

Coaxing the bloom will take two to three weeks with warmer temperatures inside. Once indoors, re-cut branch underwater in sink, using very hot water to deter oxygen from intruding and blocking water intake. Some gardeners crush the branch ends or make a vertical cut up the stem for better water absorption. Add commercial or homemade floral preservative (1 T Listerine or 1 T lemon lime soda per 1 quart of water). Keep branches out of direct sunlight, in a cool location, with water changed out regularly.



Do You Carrot All For Me?

Do you carrot all for me?
My heart beets for you,
With your turnip nose
And your radish face.

You are a peach.
If we cantaloupe
Lettuce marry;
Weed make a swell pear.

Anonymous

Photo by E. Wechsler.Unsplash

Resources Winter 2021

Children's books can inspire and educate. Seed-themed books:

Photo: L. Fleming

Grow Seed Grow by Keith Faulkner has a giant sunflower flap that opens into a 3D flower (photo: top book).

Eating the Alphabet: Fruits and Vegetables A to Z is Lois Ehlert's big, colorful board book that highlights edible plants, some common, others less well known. Easy to replicate illustrations are handy for painting or garden activities like decorating rain barrels.

Plant a Little Seed, written and illustrated by Bonnie Christensen is an inspirational story of two youngsters at a community garden. The illustrations are lush and colorful.

Claire's Gift is a Nova Scotian story set in Cheticamp. A lonely young girl uses her talents hooking rugs, making a very special one with vines and flowers. Written by Maxine Trottier.

American Horticulture Society's Children's Book Award Winners: *Up in the Leaves, Seed School, Errol's Garden,* and *Badger's Perfect Garden*

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Publisher & Editor in Chief Lesley Fleming, HTR
Special Contributor Susan Morgan
Contributors
Amy Davis, Kathy Brechner, Camara Phyllis Jones, Cindy Eyler, American Public Health Association, Sheridan Content Solutions, The Sheridan Press, Katie Von Tersch, Owen Bridge, Jacquelyn Bianchini, American Society of Landscape Architects,
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