

Activity: Planting Goal: Cognitive Populations: All

TH Activity Plan – Hardening Off Plants

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Materials

Tender plants or seedlings to be hardened off

Plant tags & permanent markers

Tray(s) for moving plants

A timer, clock or watch with alarm to track time

Gloves, sunscreen, hats, outdoor wear, wipes

Wagon or garden cart, if the number of plants, facility rules & conditions make it appropriate

ACTIVITY DESCRIPTION: Participants will move tender plants such as seedlings or overwintered plants from a protected area to the outdoors.

THERAPEUTIC GOALS:

Cognitive/Intellectual: Practice sequencing steps; improve executive function skills/cognitive follow through; improve memory & recall skills

Physical: Work fine & gross motor skills; improve balance & range of motion; improve movement across uneven surfaces

Psychological/Emotional: Practice patience, resilience & overcoming challenges; practice nurturing plants

Sensory: Increase tolerance for non-preferred activities; increase tactile precision

Social: Work cooperatively in a group; take turns doing steps within a group; practice communication skills/teamwork

STEP-BY-STEP PROCESS:

1. **Pre-Session Preparation:** Find a protected location for plants outdoors, preferably a spot that is easily accessible and out of direct sunlight but with a sunny spot nearby for acclimating plants later. Identify and label plants with tags. Look up local weather forecast for next several days. Make sure that daytime and nighttime temperatures are fairly comparable, meaning similar in range, to indoor temperatures, and watch for forecasted storms with potential hail, snow, high winds, or other potentially damaging weather conditions for tender plants.
2. Facilitator begins session by providing each participant with gloves and outdoor wear, as needed.
3. Place plants grown indoors onto a small tray for the participant(s) to carry to the protected outdoor location. Be careful not to make the tray so heavy that it causes participant strain or negatively affects mobility. Place plant tray(s) & watering cans on wagon for transport, as needed.
4. Take plants to the protected outdoor area. They can be transferred to a table or the ground, if appropriate.
5. Set a timer or write down the time when the plants are placed outdoors. Start this activity by placing the plants outside for two hours in the warmest part of the day, then gradually extend the time the plants remain outdoors each day into the cooler morning and afternoon hours.
6. Fill watering cans or use another water source to water the plants as usual, but slowly reduce the amount of water they receive by allowing them to dry for one extra day between waterings. Be sure not to reduce the watering too much in order to avoid plants wilting. Observe plants daily to check for wilting.
7. When the plants have been outside for the allotted amount of time, transfer them back indoors each day until air temperatures have stabilized above 70 degrees on average.

8. Gradually increase the amount of time and direct sunlight (as needed per plant types and their light requirements) that the plants are left outside each day until they can be left outdoors overnight for two nights before any transplanting activity is to take place.
9. This process will need to be repeated every day until plants are ready for planting outdoors.
10. Monitor the environmental conditions to make sure that the plants are not receiving too much sun, wind, or water and that they will not be subject to freezing as they are hardened off.
11. Once the plants have been hardened off, they will be ready for transplanting.

APPLICATIONS FOR POPULATIONS: This activity offers opportunities for participants to practice sequencing, executive functioning, and cooperation skills through the step by step process of acclimating plants. Participants can take on the role of caregiver or protector of the tender plants as they adjust to outdoor environmental conditions. Tasks can be supervised so that all levels of abilities can participate, adjusting staff/participant ratio to suit. Such activities have applications with exceptional youth, maturing adults, currently or formerly incarcerated, drug and/or psychological rehabilitation program participants.

SAFETY CONSIDERATIONS: Observe working conditions, obstructions, and accessibility of walking pathways in advance of the activity. Use sun protection, gardening gloves, and other seasonally appropriate outdoor gear. Consider adaptive techniques for lifting and moving plants in order to allow participants with mobility issues to work independently as appropriate. Supervise handling of plants during activity. Wash hands and/or use hand sanitizer after completing tasks.

NOTES OR OTHER CONSIDERATIONS: Herbs and other plants that have been growing in a protected indoor environment will need to be hardened off before transplanting them outdoors. The process of hardening off allows plants to become slowly acclimated to outdoor temperatures and increased sun, wind, and water stress of the outdoor environment. If a plant is not allowed to adjust to these changes slowly, it can lead to poor nutrient uptake, wilting, sun scorched leaves, decline, or death. Large temperature changes affect plant health.

To prepare tender plants for the process of hardening off:

- Reduce water and fertilizer, starting ten days before transplanting to an outdoor bed. Do not allow the plants to wilt.
- Set the plants outdoors on warm, sunny days in a protected location where they will not be windblown or in direct sunlight. Plants that have been growing indoors cannot be immediately placed in direct sunlight, as this will burn the leaves and may cause plant death.
- Gradually increase the amount of time that transplants are left outside each day and the amount of sun they receive, until they can be placed in full sun and left out overnight.

Adjust tasks within the activity to suit the range of participant abilities. Employ task sharing, cueing, and encouraging words for participants with cognitive and fine and gross motor challenges. Have participants work in small groups of 2 or 3 in order to increase collaboration and support of others and reduce the possibility of overstimulation during activity.



REFERENCES/ RESOURCES:

University of Georgia Cooperative Extension. (2021). Acclimate house plants to the outdoors.

<https://site.extension.uga.edu/fultonag/2021/06/acclimate-house-plants-to-the-outdoors/>

University of Illinois Urbana-Champaign. (2020). Starting a garden: Hardening off indoor seedlings.

<https://extension.illinois.edu/blogs/good-growing/2020-04-06-starting-garden-hardening-indoor-seedlings>

Edits were made for THAD purposes in 2023.

TH Activity Plan form developed by Lesley Fleming, Susan Morgan and Kathy Brechner (2012), revised in 2023.