

Transplanting and Direct Seeding

Planting Young Plants

Whether your students grew their own plants from seed or purchased started plants from a local garden store, when it's time to set these transplants in outdoor garden beds or containers, a little planning and TLC will help get them off to a strong start. Here are a few things to keep in mind to make planting day a success.

Hardening Off

Have you heard the advice to “harden off” your seedlings before you transplant them to the outdoor garden and wondered what this meant? Simply put, it means letting plants become accustomed gradually to outdoor conditions of light and temperature before you plant them outside. Plants that your students have grown inside or purchased plants that have been grown in a sheltered greenhouse environment need to be “toughened up” before they're ready to face the rigors of the outside world, with its bright sunlight, cooler temperatures, and drying winds.

Begin hardening off plants 7-10 days before you plan to plant them outside. Start by setting your seedlings out in a sheltered, partly shaded spot for a few hours; then bring them back indoors. Each day, gradually increase the amount of time the plants spend outside and light intensity they receive until they spend the day in full sun and the night outside. If your plants are in a cold frame, you can open the top wider and for a longer amount of time as the days progress. Outdoor conditions also increase evaporation and transpiration (the process of plants giving off moisture), so make sure the potting mix doesn't dry out! After a week or so your seedlings will have toughened up enough to withstand the challenges of outdoor conditions. They'll be ready to get established quickly in their new home and put out strong new top and root growth.

Putting Plants in the Ground

Whether you are planting into garden beds or containers, the technique is basically the same.

- **Wait for Cool, Cloudy Weather**

If you can, choose a cool, overcast day for planting, ideally with some gentle rain in the forecast. If Mother Nature won't cooperate, try to plant early in the morning before the sun is hot or late in the afternoon. Then rig up some temporary shade structures over plants while they recover from the stress of transplanting.

- **Give Plants a Drink in Advance**

Make sure your plants were well watered a few hours before you're ready to begin planting (or the night before if you are planting first thing in the morning). You want your plants to be well-hydrated but you don't want the soil dripping wet.

- **Have the Planting Hole Ready**

Be sure to have the soil in your bed or container ready to receive the new plant, and dig the planting hole before you take the plant out of its pots. This will minimize the time the roots are exposed to drying air. Dig the planting hole as deep as the rootball of the the plant so that it will be growing at the same depth in its new location.

- **Handle with Care**

Show students how to remove a young plant from a pot by turning the pot upside down into your hand while holding the stem of the plant between your fingers. The plant's root ball should slip out easily. If it doesn't, tap the edge of the pot against a solid surface as you're holding it upside down; this should dislodge the root ball.

- **Plant at the Correct Depth**

If the roots of the plant are matted around the outside of the rootball, gently tease them apart with your fingers so they are pointing outwards while keeping the rootball intact. Then place the plant in the planting hole so that the top of the root ball is even with the soil surface. Gently firm the soil around the rootball. If your plant needs support, such as a stake for tomatoes, put it in place now.

If your plants have been growing in plantable pots, cut away any of the pot material that sticks up above the surface of the soil in the pot before you set the pot in the planting hole so that the surface of the soil in the pot is even with the soil surface in the garden. Any pot material that sticks up above the soil surface will act as a wick, pulling moisture out from around the plant.

- **Water After Planting**

Water newly set-out plants gently but thoroughly. You don't want to disturb the soil or roots, but you want to make sure that the entire depth of the rootball receives water.

- **Add Some Protection**

Even if your seedlings have been hardened off before planting, it's a good idea to give your young plants some temporary shelter from sun and wind while plants get established.

STARTING SEEDS OUTSIDE (DIRECT SEEDING)

1. Have your garden beds prepared ahead of time. For guidance on preparing soil read [Preparing the Soil](#).
2. Read the instructions on the back of seed packets to determine when to plant them or consult [When to Plant Seeds](#).
3. Work with students to mark rows and beds.
4. Sow your seeds, following the instructions on the seed packet for planting depth and spacing between seeds. If you're planting in a row, make a furrow of the correct depth with the handle of a hoe or rake; then place the seeds at the recommended spacing in the furrow. Large seeds, like those of beans or corn, are easy to place individually. Smaller seeds, like those of carrots and lettuce, can be challenging to space out. Mix small seeds with fine sand and sprinkle the seed/sand mix into a furrow. Once seeds are in place, cover with soil and then gently firm the soil with your hand or the blade of a hoe, so the seeds make good contact with the earth.

To plant seeds in wide rows or beds, scatter seeds onto the prepared seedbed as evenly as you can. Show students how to do this by rolling seeds off the ends of your fingers with your thumb. You can also mix small seeds with sand, as suggested above. Cover the seeds lightly with soil; then gently firm the soil.
5. After planting, water the bed using a gentle soaking spray. A strong stream of water may cause seeds to float to the lowest part of the garden. Check to make sure moisture penetrates a few inches into the soil.
6. Monitor your seedbed and keep the soil moist but not soaking, since excess moisture can cause seeds to rot. Keep a careful watch after seedlings begin to emerge from the soil. Young plants have shallow root systems that can dry out easily.
7. If too many seedlings emerge in the same spot, remove enough extra plants so that the ones remaining have adequate room to grow. This is called thinning. It can be a somewhat tedious task, but it's an important one for good plant growth. Thin plants when they are a few inches tall and have developed their first set of true leaves (what appears to be the second set of leaves). Consult the seed packet for information on proper spacing. Try to select the strongest seedlings to grow on. The best way to thin is to snip off the extra seedlings at the soil level with a small pair of sharp scissors. Pulling out the extras risks damaging the roots of the remaining plants.