

## Chapter 3:

# Planting your garden

**Y**ou have prepared your site and planned your garden, and now it is time to plant! In this chapter, you will learn about selecting and preparing your containers, timing your plantings, and starting your garden with transplants or seeds.

### Choosing a container

If you are gardening with containers, there are many options to consider. Planter boxes, hanging baskets, and terra cotta pots are what first come to mind, but don't stop there! You can grow delicious food in something far less glamorous and expensive. Bigger is going to be better when we're talking vegetables, but you can grow food in containers as small as a cake pan. Here are some things to consider when choosing a container:

- Choose the right size container for the plant. Think about the root system of the plant you are growing, and plant accordingly. If a vegetable needs a large space between plants in the garden, the same is true of a container. You may only get one plant in a container.
- Whatever you use for a container will need drainage holes. Holes should be about a half inch across.
- Avoid containers with narrow openings. Cheap plastic pots will deteriorate faster, but they will get the job done.

### T OPICS IN THIS CHAPTER

Container selection  
Seeds or transplants?  
Direct seeding  
Transplanting  
Worksheet



- Wooden containers are susceptible to rot but redwood and cedar are relatively rot resistant. Avoid painted wood, and wood treated with creosote, penta or other toxic compounds, as the vapors can damage the plants.
- Use containers that are between one and five gallon capacity. Small pots restrict the root area and dry out very quickly. The size and number of plants to be grown will determine the size of the container used. Deep-rooted vegetables require deep pots.
- Set containers on bricks or blocks to allow free drainage.
- In hot climates, use light-colored containers to lessen heat absorption and discourage uneven root growth.
- Make sure your container is not see-through in any way, or the roots will burn.
- Avoid using tires, as they break down and leach toxic metals and chemicals into the soil.
- For more information on sourcing cheap or free containers for your garden, refer to the "resources for gardening on a budget" section on page 150-151.

## Seeds or transplants?

Before planting your garden, you must decide which crops to seed directly into the soil and which crops to transplant into the garden as plant starts.

Seeds can be less expensive than plant starts, so direct seeding can give you more plants for less money. Seeds also give you a bigger choice of plant varieties, because most stores have space for only a few varieties of plant starts.

Transplanting has its advantages too. Many favorite summer crops need a longer growing season than we have in Oregon. Plant starts for these crops are grown in a warm greenhouse, so they get a jump on the growing season. When you transplant them into your garden, you give them plenty of time to produce a crop before the first frost kills them. Also, transplants are already big enough to get a head start on weeds, while young plants can get crowded out by weeds.

**Direct seed** leafy greens and crops with large seeds or long taproots.

**Transplant** long-season crops like tomatoes, tomatillos, and eggplant. These crops from tropical or subtropical climates need an early start in a greenhouse to ripen fruit in our short summers.

**Many other crops can be either direct seeded or transplanted.** These include members of the cabbage family, the beet

Choosing seeds or transplants		
<b>Direct seed</b>		
<b>Large seeds</b>	<b>Deep taproots</b>	<b>Others</b>
Corn Beans Peas Squash Pumpkins Cucumbers Melons	Radishes Beets Turnips Carrots Rutabaga Parsnips	Garlic (cloves) Leaf lettuce Arugula Mustard Potatoes (called "seed" potatoes)
<b>Transplant only</b>		
<b>Long-season crops</b>		
Tomatoes Hot peppers	Tomatillos Bell peppers	Eggplant Basil
<b>Direct seed or transplant</b>		
<b>Cabbage family</b>	<b>Beet family</b>	<b>Onion family</b>
Broccoli Cauliflower Collard greens Cabbage Kale Kohlrabi Bok choi	Chard Spinach Quinoa Herbs Parsley Cilantro	Onions Leeks Chives Others Head lettuce

family, the onion family, and many herbs. Experiment to see what works for you.

### Knowing when to plant

Whether you plant seeds directly in the garden or use transplants, it is important to plant each crop at the right time. Air and soil temperatures are important for healthy plant growth, so plants that go into the garden too early or too late may do poorly.

Your seed packet will tell you the minimum soil temperature the seeds need to germinate. Gardening calendars may list dates when the soil is warm enough,

but temperatures can change from year to year. Checking the actual temperature with a soil thermometer will help you plant at the right time.

### Direct seeding

#### Reading a seed packet

All seed packets list the same basic information: when to plant, how deep to plant, distance between plants, and days until harvest. Learning to read seed packets will help you to make good decisions when you grow crops from seed.

*Seed packets contain important information to help you make good decisions when planting.*

### How to read a seed packet

**General seed type**

**Specific variety**

**Distance between mature plants**

**How much sun the plant needs**

**Number of days it takes for the first leaves to come up**

**When to start your seeds indoors and outdoors, in relation to average last frost date. (Some crops, like tomatoes, are not suited to sowing outdoors.)**

Thin Plants to	8-30"
Light Requirements	full sun
Days to Germination	6-14
Soil Temp. For Germ.	70-90°
Seed Depth	1/4"

TOMATOES *Lycopersicon esculentum*  
**Sowing Indoors**-Start seeds in sterile seedling mix, 8-8 weeks before your average last frost date. Water lightly after planted and cover with a grow dome or plastic to ensure that seeds do not dry out. When the first set of true leaves have emerged, transplant into a larger pot, burying the stem to a point just below the first set of leaves. At this point, make sure not to overwater, so the stem will have time to adapt in the soil and develop roots.  
**Sowing Outdoors**-Not recommended.  
**Growing Tips**-Cover the young plants with floating row covers or protect them with "Wallo' Waters" to help promote good early growth. The use of Red Plastic Mulch can also increase yields.  
**Fertilization Tips**-As transplants, fertilize with fish emulsion or dilute fertilizer solution every 10-14 days. Apply 1/4 cup of our blended organic fertilizer into the soil around each plant. A handful of bone meal should also be added around each plant if the soil is acidic.  
**Seed Specs**-Min. germ. standard: 80%. Usual seed life: 3 years.

PLEASE READ OUR SEED WARRANTY BEFORE OPENING THIS ENVELOPE

Phone orders and catalog requests: 541-942-9547  
 Fax orders: 888-657-3131  
 Web site: <http://www.territorial-seed.com>

**Days from sowing until harvest**

**Year when seed will germinate best**

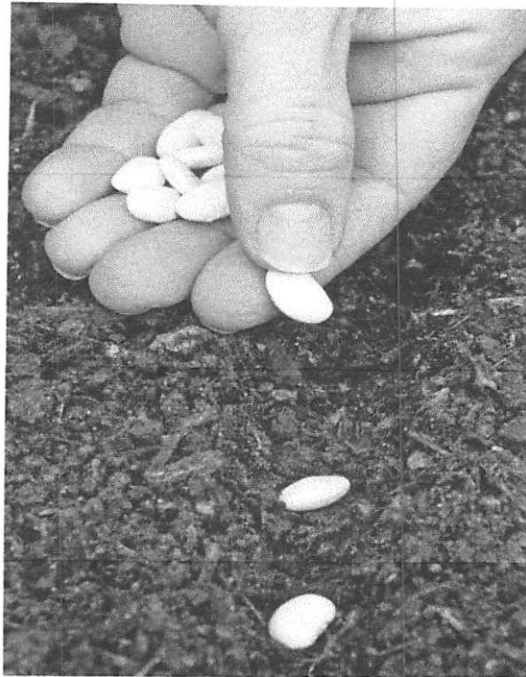
**How deep to sow the seeds**

**How warm the soil needs to be for seeds to sprout**

Seed packet © by Territorial Seed Company. All rights reserved. Reprinted by permission of Territorial Seed Company.



*Sow twice as many seeds as you need and thin the seedbed later.*



Courtesy of Billy Cox

### Buying and storing seeds

Try to buy only enough seeds for this one planting year. Some seeds can last for several years if you store them properly, but they germinate best in the year stamped on the packet.

You can store leftover seeds in a cool, dry place like a closet or basement. Put leftover seed packets in a sealed jar with a drying agent (such as a silica packet from a pill bottle) to absorb moisture.

### What seeds need to germinate

To germinate, or break out of their shells and begin to grow, seeds need moisture and warmth.

Soil temperature affects germination. In spring, when the soil is cold, seeds will sometimes rot before they have a chance to sprout. You might be able to plant large seeds like beans, peas, and corn in cold soils if you pre-sprout the seeds.

To pre-sprout, spread the seeds out

between two layers of damp paper towels, and place the towels in a plastic bag. Keep the bag in a warm place until you see small roots breaking out of the seeds. Once the seeds have sprouted, plant them as usual. Handle them carefully to avoid breaking off the tiny roots.

### Preparing your seedbed

Loosen the soil with a digging fork or shovel, then rake the seedbed smooth to create a loose, even "tabletop" to your bed.

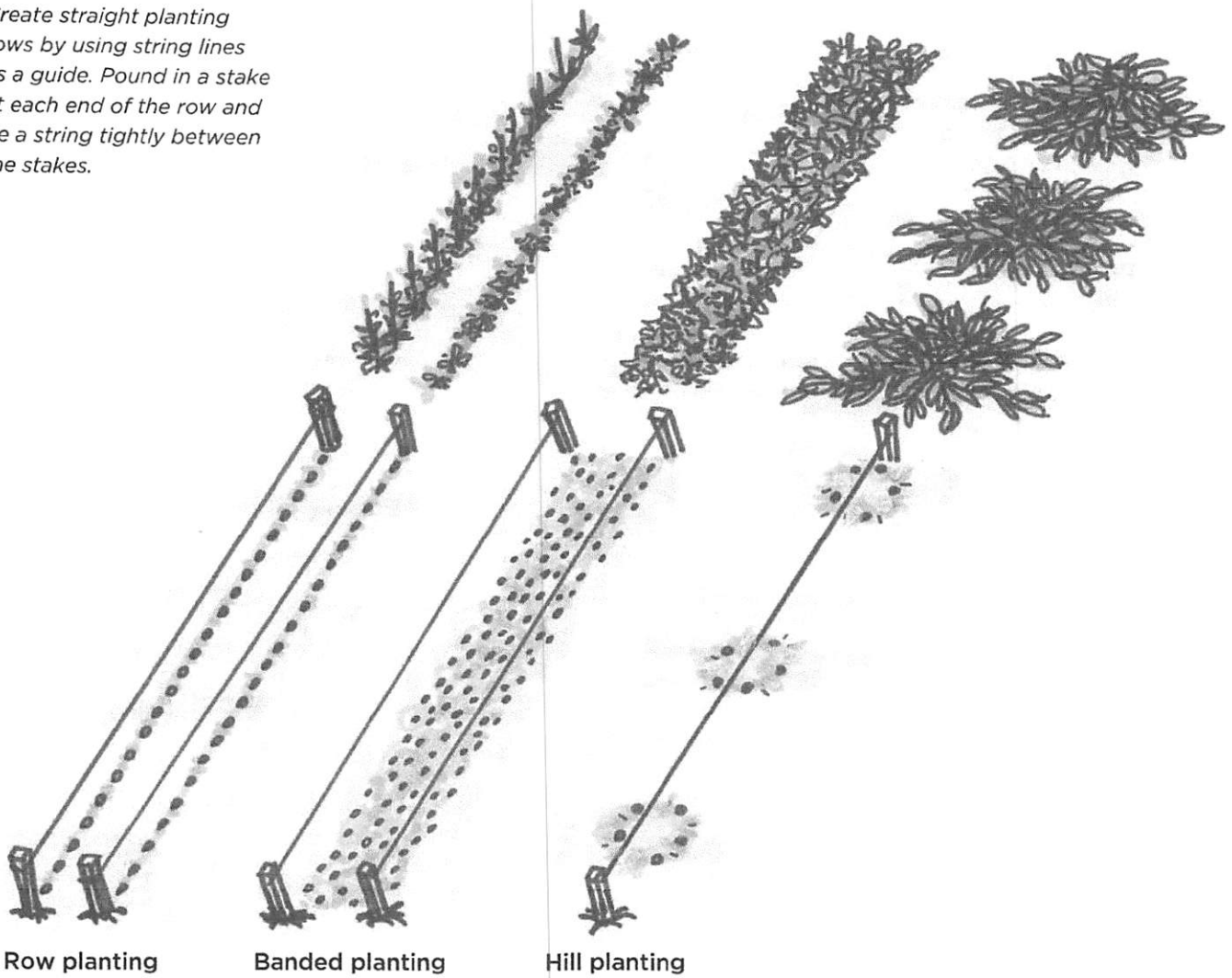
To make less work for yourself, spread your compost and any fertilizer you are broadcasting before you loosen the soil. Mix the compost and fertilizer in as you work the bed.

### Sowing patterns

When you sow your seeds, you can choose one of these patterns: row planting, banded planting, or hill planting.

Minimum soil temperatures for germination	
Crop	Temperature (°F)
Beans, snap	48-50
Cabbage	38-40
Carrots	39-41
Corn*	60-65
Eggplant	55-60
Melons	55-60
Onions	34-36
Peas	34-36
Peppers	55-60
Potatoes	39-41
Radishes	48-50
Tomatoes	50-55
*Supersweet varieties are especially sensitive to low temperatures.	

Create straight planting rows by using string lines as a guide. Pound in a stake at each end of the row and tie a string tightly between the stakes.



Row planting

Banded planting

Hill planting

**Row planting.** Seed packets usually have directions for planting in long, single rows. The packet will tell you how deep the rows should be, how far apart to plant the seeds, and how far apart to space the rows.

Draw rows in the soil using your finger or the edge of a garden tool. You can sow large seeds in the rows one-by-one. For smaller seeds, you can tap the seeds out of the packet or sprinkle them down the row using your thumb and pointer finger. Once the seeds are in place, check your seed packet to see how deep the seeds should be, and cover them with that amount of soil. Wait until you sow all the seeds before covering them so you can see if you missed any spots.

Some of the seeds will not germinate, and others will be eaten by birds or other garden pests. As insurance, sow twice as many seeds as you need and plan to thin the seedbed later.

Row planting works for all plants, but the distance you must leave between rows may waste space in a small garden. You may want to use a different sowing pattern for some crops.

**Banded planting.** You can sow seeds in a wide row instead of long, single rows. Radishes, spinach, beans, peas, beets, lettuce, and carrots grow especially well in banded rows.

Outline your banded row with stakes or twine, or draw the outline in the soil with



your hand or the edge of a garden tool. Broadcast your seeds evenly in the row. Sow more seeds than you think you need. Rake them in and gently cover them with the correct depth of soil. As the seedlings grow, thin some of the plants to give the others room to grow. You can read more about thinning on page 59.

Weeding a banded planting can be more time-consuming than weeding a row planting, because you cannot easily run a hoe between your crops.

**Hill planting.** A “hill” is a grouping of seeds planted close to each other in a small cluster. This is a good way to plant larger vegetables with big seeds, like watermelon, squash, corn, and cucumbers. Planting several seeds in each cluster helps you make sure that at least one seed will germinate and grow.

Look at the planting depth on your seed packet, then poke four or five holes in a small cluster. Put one seed in each hole and gently cover the seeds with soil. After the seeds germinate, thin each cluster to two or three plants. When the seedlings get bigger, thin each cluster to one plant. Cut the smaller seedlings to the ground and let the strongest seedling grow. The distance between clusters should be the same as the crop’s footprint.

### Planting depth

How deep to plant seeds depends on the crop. Check your seed packet for

### TIP

If you are not sure how deep to plant your seeds, follow this general rule: Sow four times as deep as the longest part of the seed.

information. If there are no directions on the seed packet, then follow this general rule: sow as deep as four times the longest part of the seed. If the seed is about a quarter-inch long, then plant it about one inch deep.

But if your soil is particularly heavy, sow seeds only two or three times as deep as the longest part of the seed. In heavy soil, cover the seeds with light potting soil instead of garden soil. The potting soil will make it easier for seedlings to push through.

In any kind of soil, seeds that are sown too deep may never germinate. If seeds are not deep enough, they may wash away, dry out, or be carried off by birds or insects before they germinate.

### Watering seeds

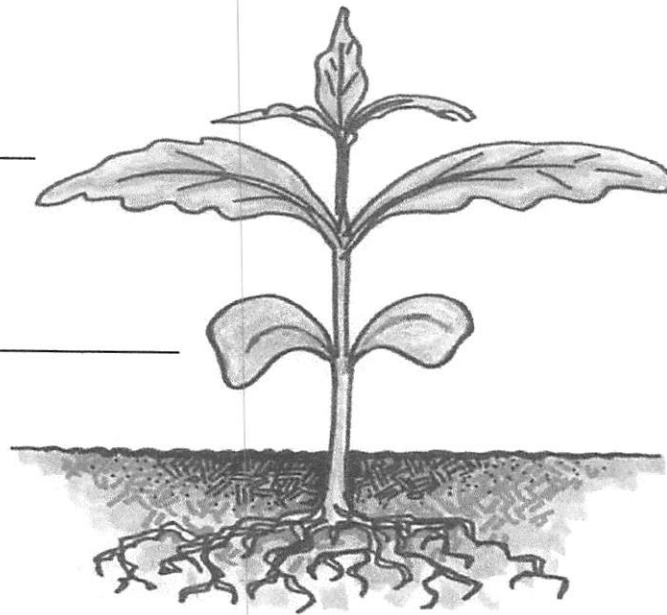
Seeds need moisture to germinate. Mist or lightly water often enough to keep a seedbed moist but not soggy. The soil should feel like a wrung-out sponge. Water new seedbeds every day or two. If the weather is very dry and hot, you may need to water a new seedbed several times a day.

*These squash were planted using the hill planting method. Each cluster has been thinned down to the strongest plant.*



True leaves

Seed leaves



*Begin thinning seedlings as soon as plants develop their first set of true leaves.*

Use a hose nozzle with a mist setting to avoid pushing the seeds too deep into the soil or washing them out. Water the seedbed until water begins to puddle. Let the water soak in, then continue watering until it puddles again. You may have to start and stop a few times to get the seedbed evenly moist.

Seedlings have shallow, tender roots, so you will have to water often until the roots grow deeper and are stronger. As the plants grow, increase the amount of water so that moisture goes deeper into the soil. Let the soil dry slightly between waterings.

## Thinning

When you thin, you remove some seedlings to give the remaining ones space to grow strong roots and leaves. Thinning lets the remaining plants fill out their footprint.

A vegetable garden is not productive when plants are growing too close together. Plants that are too close together compete with each other for sunlight, water, air, and nutrients. They are also easy targets for diseases and pests such as slugs.

Begin to thin seedlings as soon as plants develop their first set of true leaves. These are their mature leaves, which look different from their seed leaves. Thin about once a week until the plants are as far apart as they are supposed to be for mature growth. Remove the seedlings that look weaker and let the stronger ones grow. Gently pull up the weaker seedlings or snip them off at the ground. Water the seedbed well after thinning to keep the remaining plants from drying out. Some thinned seedlings, like lettuce, beets, chard, kale, collard greens, and spinach, can be eaten as “baby greens.”

*The plant start on the left has been in its pot too long. Choose transplants that are stocky and disease-free, like the one on the right.*



Courtesy of OSU Extension





*Transplant "starts" in early morning or early evening to prevent wilting.*

## Transplanting

Instead of sowing seeds, you can start off with transplants. Broccoli, cabbage, cauliflower, eggplant, tomatoes, and peppers all do well when transplanted into a garden as seedlings.

When you buy seedlings, choose stocky, disease-free plants. Transplants should have a few sets of leaves and well-developed roots. Avoid plants that look yellow, are woody, or are already flowering. Also avoid plants that have been in the pot so long that roots are long and wound together. To check the root system on smaller plants in plastic pots, gently tip the plant out of the pot into your hand. Do this by tapping the bottom of the pot while holding the main

stem between your middle and pointer fingers just above the soil.

Sometimes transplants have just come from the greenhouse and did not have time to "harden off." When plants are hardened off, they are moved outdoors from the warm, humid greenhouse to get used to garden conditions. Harden off your young transplants when you bring them home. Take them outside during the day, and bring them in at night. Also expose them to a bit more sunlight each day. Do this for three to five days.

Space your transplants according to their footprint so they have plenty of room to grow. Nursery transplants often come with more than one plant in a single pot. If you are able to gently separate the roots without breaking them, you can plant each seedling separately. If the seedlings are too hard to separate, choose the healthiest looking plant and cut off the rest at soil level to keep them from competing with each other. Remember that even a well-weeded garden will produce less if the plants are too close together.



*Recently transplanted tomato starts.*



Transplant starts in early morning or early evening to prevent wilting. Water the starts several hours before transplanting them. Handle them carefully to avoid damaging roots or bruising stems.

### How to transplant

Dig a hole that is wider and slightly deeper than the root ball. The hole should be big enough that the top of the root ball does not stick up above the soil line. Place fertilizer in the planting hole and mix it into the soil in the bottom of the hole. (You do not have to do this if you added fertilizer when you prepared your bed.)

Set the transplant gently in the hole. The bottom leaves should be at or just below the top of the planting hole. Tomatoes are an exception. Dig a deeper hole, cut off the bottom sets of leaves, and plant the tomato so that only two or three sets of leaves are above soil level.

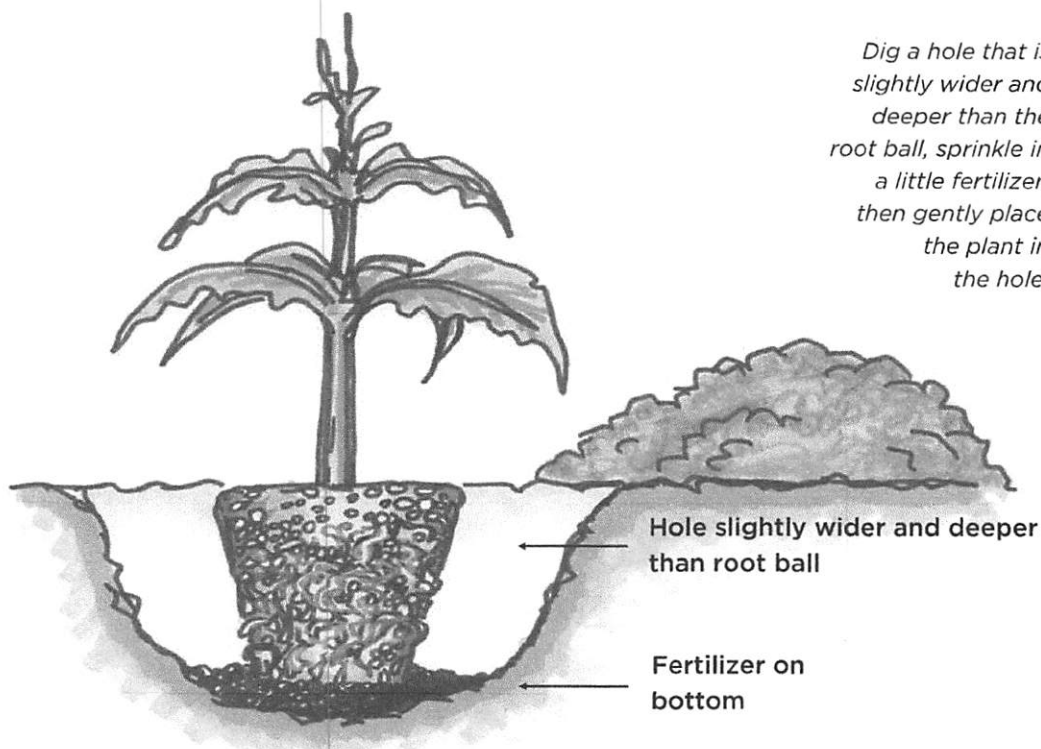
Gently backfill the hole with loose soil, being careful not to compact it. Be sure that the root ball is not sticking up above soil level.

Water the transplant well, but gently. This first watering keeps the young plant from drying out and helps settle the soil into any large air pockets below the surface. You may need to add more soil if the area around the transplant sinks during the first watering.

To make sure that your transplants take root, keep them well-watered during their first week in the garden.



*Wait until outdoor temperatures are warm enough before transplanting summer crops such as tomatoes and peppers.*



*Dig a hole that is slightly wider and deeper than the root ball, sprinkle in a little fertilizer, then gently place the plant in the hole.*



# **Worksheet: Planting your garden**

## **Define: Vocabulary words for the week**

Spend time as a group defining these gardening terms:

Row cover:

Transplant:

Direct seed:

Planting pattern:

Trellis:

Thinning:

## **Reflection:**

Do you have a memory of eating something freshly harvested from a garden?

**Class activity: Soil temperature** *Reference page 56*

Consider the temperature of soil at different times during a garden season. Discuss how temperature differences can affect when and how you plant different crops.

1. What are some seeds that can tolerate the colder soil?

2. What are some seeds that need warm soil?



**Class activity: Direct seed or transplant?** *Reference pages 54-55*

Refer to your planting plan. Which plants will you direct seed and which will you transplant? What are some things to consider to determine if a plant on this list should be direct seeded or transplanted?

(For example, if you are looking for a quick harvest, you might want to use a transplant. However, direct seeding is often cheaper than purchasing transplants.)

Direct Seed	Where might you get these seeds?
Either transplant or direct seed	
Transplant	Where might you get these transplants?

**Review: Types of sowing patterns**     *Reference pages 56-58*

1. What are different types of sowing patterns? Which crops would you plant in each pattern? List three crops for each type of pattern.

2. Which of the above crops would you need to thin?



**Activity: Reading a seed packet**      *Reference page 55*

Using the chart below, find out what a seed packet is telling you in terms of the crop's growing needs and planting window.

Crop	Varieties	Date to plant	Days to Harvest	Foot-print	Height	Some shade ok?	Planting method	Single or 2-week succession	Number of plants /seeds	Notes
<i>Example: Tomatoes</i>	<i>Stupice, Sungold,</i>	<i>May 30</i>	<i>60-65</i>	<i>36"x36"</i>	<i>Tall</i>	<i>Full sun only</i>	<i>Transplant</i>	<i>Single</i>	<i>3</i>	<i>need to be supported</i>

1. What are some important things to look for on a seed packet?

2. What's a good way to store seeds at home? How could you check to see if they are still viable?

**Review: Garden beds & containers**     *Reference pages 41-45, 53-54*

1. What are some of the different types of garden beds and containers?

2. Which garden bed or container options would you choose for your garden? Why?

3. What are some container materials to avoid?



## **Class activity: Garden resources**

Discuss where to find the following things in your community:

- Bark/Mulch
- Fertilizer
- Seeds
- Transplants
- Compost
- Tools
- Land to garden
- Vertical structures
- Trellising materials



### **Wrap Up for Week 3:**

1. What are three things that you took away from this class?

2. What are some things that are still confusing?

### **Getting ready for next week:**

- Bring in a picture (or drawing) of a trellis or vertical garden.



Course notes:

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