Seed Starting 101

- Types of seeds:

* + Organic: non-GMO, grown without chemicals, and is organic per USDA standards
	+ Non-GMO: not genetically modified, but not necessarily grown organically
	+ Heirloom: passed down for multiple generations, open pollinated, and can be grown organically or non-organically
	+ Open-pollinated: flowers were pollinated by natural methods (bees, wind, flies), are not hybrid, and are often considered the best tasting yields/quality seeds

> Transplants: young plants you grew or are bought from local farms or garden centers

- Types of planting:

* + Transplanting /starting early: starting plants early to then transplant to the garden
	+ Direct Sow: planting seeds directly in the soil
	+ Container planting: planting in containers such as fabric pots, five-gallon buckets, or other pots, can be direct sown or transplanted
	+ Raised beds: garden beds that are raised from the ground and filled with compost and/or soil – this is many folks preferred choice if you have rocky or compacted soil
		- Lasagna gardening is a method of filling a raised bed to minimize costs/outsourced materials. You can start with cardboard, or just begin with logs, then layer leaves, compost, and finally a soil mixture

- Reading a seed packet:

* + Direct sow or transplant: the method in which you’ll plant the seeds
	+ Light requirements: how much light the plant needs
	+ Soil temperature/germination temperature: what temperature the seed/plant needs
	+ Germination time: how long the seed will take to germinate after planting
	+ Spacing: how far apart the seeds should be, as well as what they should be thinned to
	+ Days to maturity: how long from germination to harvest
	+ Seed depth
		- This is very important! Every seed can have a different optimal seed depth that has to do with temperature, moisture, light exposure, and access to oxygen.
		If seeds are planted too deep, it can cause the seedling to die before it even reaches the surface. If they are too shallow, the seedling can dry up and die on the soil surface before forming a root.

- Hardening off: placing your young plants outside for seven days before transplanting into the ground. This helps them acclimate to the outdoor conditions. Transplants should never be placed in full sun right away as this can cause sun damage and stunt the plant. Before planting, you can also remove any early flowers that have grown to help with root development.

- Annual vs. Perennial

* + Annuals live for one growing season, they seed within this period as well
	( nasturtiums, peppers, lettuce, beans, zinnias, marigolds, corn)
	+ Biennials live for two years, going to seed during the second season
	( carrots, parsley, brassicas, onions, radish, beets, hollyhocks)
	+ Perennials live for more than two year, all the way up to hundreds of years
	( Lupine, oregano, asparagus, fruit trees, strawberries)

- Last frost date, which means the projected last frost temperatures (under 32 degrees) expected in your area. These are just projected dates and can be hard for places like the UP where weather is unpredictable. Some areas in the UP only have one true frost free month some years ~

- Some plants need what is called “cold stratification” where they go through a period of cold temperatures before being ready to germinate. Fowers mainly require cold stratification like Lupine, Black-eyed Susan, Arnica, and Poppies

- No-till vs. Tilling

* + No-till gardening or farming is when farmers minimize soil disruption to build soil structure and health. No-till growing decreases soil erosion, which is necessary if you have area prone to flooding, or have sloped growing areas
	+ Tilling is the practice of working and breaking up the top layers of soil before and after planting. This is mainly used in conventional large-scale farming and reduces the need to weed by completely disrupting the soil structure. It also causes massive erosion rates

- Succession planting: planting seeds on multiple dates throughout the season (like every three weeks) to ensure harvests all season. Lettuces, herbs, peas, and beans are examples of crops that can be succession planted. Seed packets will often include a succession timeline

- Crop rotation: rotating crops helps reduce pest pressure (squash vine borer) and pathogens (tomato diseases) that can be carried from year to year in the same crop/same soil. You also want to ensure your soil is being regenerated and nitrogen-fixing crops like legumes can be planted to help build back soil heath in between plantings.

- Invite the pollinators! You want to invite in beneficial insects by planting annual flowers, flowering herbs and vegetables, and native perennials within vegetable patches

- Season extension:

Cool-season vegetables: asparagus, beets, broccoli, Brussels sprouts, cabbage, carrots, cauliflower, celery, Chinese cabbage, collard greens, endive, Swiss chard, kale, kohlrabi, leek, lettuce, mustard greens, onion, parsnips, peas, Irish potatoes, radishes, rhubarb, shallots, spinach, and turnips

* + Low tunnels
	+ High tunnels
	+ Greenhouses
	+ Row cover
	+ Cold frames

Warm-season vegetables: beans, corn, cucumbers, eggplant, melons, peppers, zucchini and summer squash, pumpkin and winter squash, sweet potato, tomato, and watermelon