

BONUS CARD DECK



Food Up!

Urban Ag Curriculum

Extra Cards to Supplement Modules

TIPS ON USING THESE CARDS

The Bonus Card Deck is a supplement to the *Food Up! Urban Agriculture Curriculum*. These cards will be useful additions to Modules but are not required. Referencing materials here will be useful for educators and students of all backgrounds. Most of the information in these cards covers fun facts, nutrition information, planting tips, and gardening basics.

There are four types of cards included in this card deck:

1. Kitchen Essentials
2. Recipes
3. Nutrition Basics
4. Garden Strategies

You can print all the cards in advance, or just the ones you need. To save paper and for easy cutting, print this pdf two sided and with 2 slides per page. If you have access to stiff cardboard paper or can laminate cards after printing, the cards will last longer.

CARDS INCLUDED IN THIS DECK

KITCHEN ESSENTIALS

- Basic Ingredients (4)

RECIPE CARDS

- Garlic Parmesan Roasted Carrots (6-7)
- Pico de Gallo (8-9)
- Green Beans (10-11)
- Quick Pickles (12-13)
- Garden Pesto (14-15)
- Strawberry-Rhubarb Lemonade (16-17)
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- Veggie Spring Rolls (22-23)
- Veggie Fried Rice (24-25)

NUTRITION BASICS

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 - Lettuce (70)
- Thinning Seeds (71)
- Wide Row Planting (72)
- Watering (73-74)
- Weeding (75)

KITCHEN ESSENTIALS

- Knives, knives, knives!
- Mixing Bowls
- Serving Spoons
- Measuring Cups
- Can Opener
- Cutlery
- Plates
- Sponges
- Dish Soap
- Stove
- Basic Ingredients



KITCHEN ESSENTIALS: BASIC INGREDIENTS

- Olive Oil
- Salt
- Pepper
- Garlic
- Soy Sauce
- Flour
- Sugar



RECIPE CARDS

QUICK PICKLES



PICO DE GALLO

VEGAN FRIED RICE

SUMMER SUCCOTASH

GARDEN PESTO



VEGGIE SPRING ROLLS

HUMMUS

GARLIC PARMESAN ROASTED CARROTS

GREEN BEANS


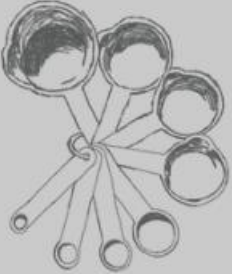
STRAWBERRY-RHUBARB LEMONADE



GARLIC PARMESAN ROASTED CARROTS – RECIPE

Delicious roasted carrots with the addition of Panko breadcrumbs for added crunch!

Prep: 5-10 mins Cook: 25 mins Total Time: 30-35 mins Serves: 6 people

	INGREDIENTS
	<ul style="list-style-type: none">▪ 2 pounds (1kg) carrots, washed and halved▪ 1/4 cup olive oil▪ 4 large cloves garlic, minced (or 1 tablespoon minced garlic)▪ 1/4 cup grated parmesan cheese▪ 2 tablespoons Panko breadcrumbs (or normal breadcrumbs)▪ Salt and pepper, to taste▪ Fresh chopped parsley, optional 

GARLIC PARMESAN ROASTED CARROTS– RECIPE

INSTRUCTIONS

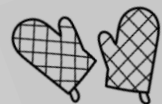


Preheat oven to 400°F (200°C).

Lightly grease or spray a baking sheet with cooking oil spray.

Arrange carrots on baking sheet. Add the olive oil, garlic, parmesan, breadcrumbs, salt and pepper. Toss all ingredients together to completely coat the carrots.

Spread out and bake for 20-25 minutes or until tender. Toss with a spatula halfway through. Remove from oven and serve immediately. Top with fresh parsley if desired.



PICO DE GALLO RECIPE

Chunky, Mexican tomato dip using raw, diced ingredients.

Prep: 15 mins

Makes: 4 cups

Tip: Use ripe tomatoes!

INGREDIENTS

- 1 cup finely chopped white onion (about 1 small onion)
- 1 medium jalapeño or serrano pepper, ribs and seeds removed, finely chopped (adjust based on heat preference)
- ¼ cup lime juice
- ¾ teaspoon fine sea salt, more to taste
- 1½ pounds ripe red tomatoes (about 8 small or 4 large), chopped
- ½ cup finely chopped fresh cilantro (about 1 bunch)



PICO DE GALLO RECIPE

INSTRUCTIONS



In a medium serving bowl, combine the chopped onion, jalapeño, lime juice and salt.

Let it marinate for about 5 minutes while you chop the tomatoes and cilantro.

Add the chopped tomatoes and cilantro to the bowl and stir to combine. Add salt to your taste. For the best flavor, let the mixture marinate for 15 minutes to several hours in the refrigerator. Serve as a dip or with a large serving fork to avoid transferring too much watery tomato juice. Pico de Gallo keeps well in the refrigerator, covered, for up to 4 days.

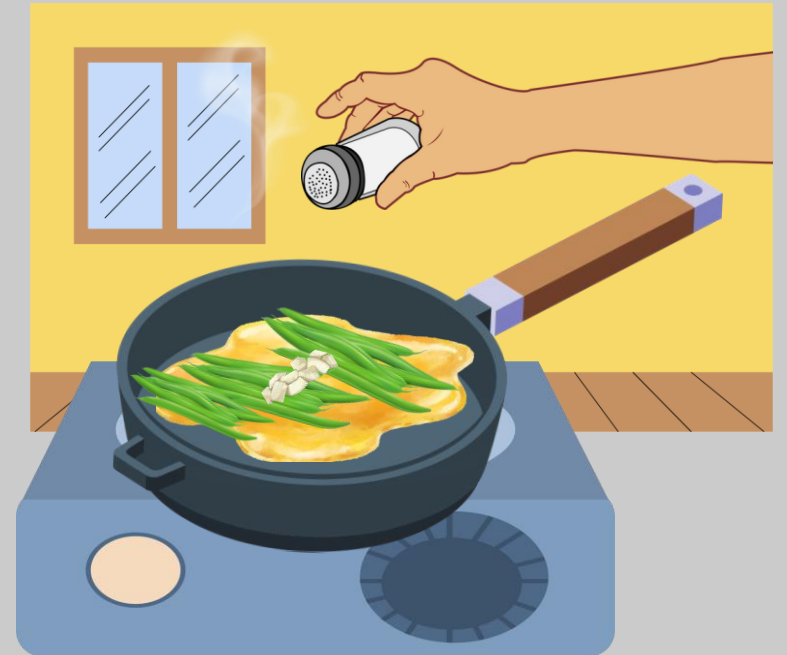
GREEN BEAN RECIPE

Fresh Green Beans with garlic, butter, and lemon pepper.

Prep: 5 mins Cook: 10 mins Total time: 15 mins Serves: 4 people

INGREDIENTS

- 1-pound fresh green beans, trimmed and snapped in half
- 3 tablespoons butter
- 3 cloves garlic, minced
- $\frac{1}{8}$ teaspoon lemon-pepper seasoning, or more to taste
- Salt to taste



GREEN BEAN RECIPE

INSTRUCTIONS



Place green beans into a large skillet and cover with water; bring to a boil. Reduce heat to medium-low and simmer until beans just start to soften, 3 to 5 minutes. Drain and return to the skillet.

Add butter and stir until melted, 1 to 2 minutes.

Add garlic; cook until tender and fragrant, 1 to 2 minutes.

Season with lemon-pepper seasoning and salt before serving.

QUICK PICKLES

Prep: 15 mins Cook 20 min

Total time: 25 min

Tip: Add more vegetables to the mix

INGREDIENTS

- Cucumbers (half per chef)
- More veggies of your choice
- 1 green onion
- 2 cloves garlic (Peeled and smashed)
- 1 Tbsp pickling Spices
- Brine:
 - 4 cups Vinegar
 - 4 Cups Water
 - ¼ Cup pickling Salt
 - 2 tsp sugar



QUICK PICKLES

INSTRUCTIONS



Prepare your vegetables by slicing off any unwanted tops or bottoms and peeling away any unwanted skin. Cut them whichever way you prefer—spears, round chips, ribbons, etc.

Pack the vegetables into glass jars, add your flavorings (herbs, spices, hot peppers, etc.), and set aside.

In a small saucepan, whisk together the vinegar, water, sugar, and salt. Bring the mixture to a simmer, stirring occasionally, until the salt and sugar have dissolved, and everything is well blended.

Remove the brine from the heat, and carefully pour it into the jar over the vegetables using a funnel.

GARDEN PESTO

A creamy spread/sauce made from fresh basil, dill, garlic, Parmesan cheese and olive oil.

Total time: 10 min Makes: 2/3 cup

Tip: Serve with pasta, crackers, veggies... anything you want

INGREDIENTS

- 2 cups of herbs (Basil, Dill, Parsley)
- 1 Clove Garlic
- ¼ cup parmesan or Nutritional yeast
- 2 tbsp Olive Oil
- Juice of half a lemon
- 1 tsp salt



GARDEN PESTO

INSTRUCTIONS



Remove about 2 1/2 - 3 cups (loosely packed) of leaves from the dill bunch.

Put the dill in a food process or blender. Add the almonds/pine nuts, garlic, salt, juice from 1/2 a lemon and the pinch of pepper flakes.

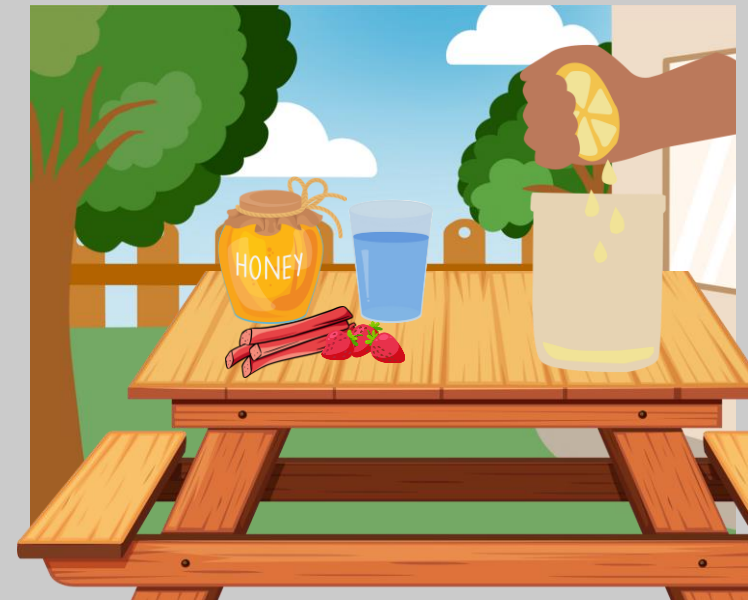
Pulse until everything is minced well and scrape down the sides as needed. While the machine is running, drizzle in the oil and blend for a few seconds until smooth.

STRAWBERRY-RHUBARB LEMONADE

Total time: 20 min Makes: 2 quarts per 2 cups rhubarb

INGREDIENTS

- Rhubarb stems, fresh or frozen
- Sugar or liquid stevia
- Honey*
- Water



STRAWBERRY-RHUBARB LEMONADE

INSTRUCTIONS



Puree rhubarb in food processor, blender or electric juicer.

Strain through cheesecloth-lined strainer or fine mesh strainer, pressing solids.

Let stand several minutes, then skim froth from surface, if desired.

For every two cups rhubarb liquid add $\frac{3}{4}$ -1 cup sugar or $\frac{3}{4}$ to 1 teaspoon liquid stevia extract and 6 cups water.

*If you prefer to use honey, dissolve it in warm water before mixing with the juice. I'd recommend $\frac{2}{3}$ – $\frac{3}{4}$ cup per two cups rhubarb juice.

HUMMUS

Time: 20 min Serves: 6

INGREDIENTS

- 1 15 oz. carton chickpeas (skins off is optional)
- ½ of a small zucchini cut into thick chunks
- ½ of a red pepper cut into a few thick slices
- 1 thin small carrot cut into chunks
- 1 garlic clove
- ⅓ cup tahini
- Juice from ½ a lemon
- 4-6 tablespoon water
- ½ teaspoon coarse salt
- Handful of freshly chopped chives
- 1-2 tbsps. pine nuts
- 1 tablespoon extra virgin olive oil



HUMMUS

INSTRUCTIONS



Put the vegetables into a food processor and give it a few quick pulses.

Add the chickpeas, tahini, garlic and begin to blend. Add the water a tablespoon at a time and continue to blend until you get the consistency you desire.

Transfer the hummus to a small bowl and top with chives, pine nuts and drizzle with the olive oil.

Serve with leftover vegetable slices and or crackers.

SUMMER SUCCOTASH

A vegetable dish consisting primarily of sweet corn and lima beans or other shell beans.

Total time: 25-30 min Serving: Varies by input

INGREDIENTS

- 1½ cups onion, chopped
- 1 cup fresh zucchini, coarsely chopped
- 3 cups fresh corn kernels
- 1 cup fresh green beans, blanched and cut in half-inch pieces
- 1 cup tomatoes, coarsely chopped
- 2 teaspoons kosher salt



SUMMER SUCCOTASH

INSTRUCTIONS



In a large skillet or saucepan over medium-high heat, sauté onion in butter until soft, about 2 minutes.

Add chopped zucchini, and sauté 3 minutes.

Add salt, pepper, basil and cilantro. Heat until mixture is hot.

VEGGIE SPRING ROLLS

Prep: 15 mins Cook: 10 min Total: 25 min Makes: 6

INGREDIENTS

- 2 cups butter lettuce, stems removed, chopped
- 2 carrots, cut into thin strips
- 1 English cucumber, cut into thin strips
- 1 cup purple cabbage, thinly sliced
- ½ bell pepper, thinly sliced
- 3 scallions, chopped
- ¼ cup cilantro, chopped
- 10 mint leaves, chopped
- 2 cups thin rice or glass noodles or
- 12 round spring roll wrappers



VEGGIE SPRING ROLLS

INSTRUCTIONS



Bring a medium pot of water to a boil. Turn off the heat and drop in the rice noodles. Let it sit for 10 minutes to soften. Follow the noodles' package instructions, if this varies.

In a shallow pan, submerge a spring roll wrapper in water for about 10 seconds until it softens, then lay it on a work surface (cutting board or clean dish towel) and start layering in the veggies. Make sure to leave about an inch border to wrap the roll.

Fold in the wrapper's sides and roll it up like a burrito. Place on a tray and cover with a damp dishtowel.

Serve with sauce of choice.

VEGGIE FRIED RICE

Prep: 5 min-10 min Cook time: 20 min Total: 30 min Serves: 8

Tip: Pre-Cook the rice & use more vegetables

INGREDIENTS

- 2 cup rice
- 1 cup peas
- 1 cup corn kernels
- 4 tablespoon oil, I used canola oil
- 4 cloves of garlic, minced
- 1 onion, finely chopped
- 2 carrot and chopped
- 4 tablespoon soy sauce
- 1 teaspoon sesame oil, optional
- *Optional 4 green onions for garnish, sliced



VEGAN FRIED RICE

INSTRUCTIONS



Heat the oil in a wok or large skillet, add the garlic, onion, and carrots, and cook them over high heat for about 2-3 minutes, stirring frequently. Add the peas and corn kernels and cook for 2 more minutes, stirring frequently.

Add the rice, the soy sauce, and the sesame oil. Stir and cook for 2-3 more minutes.

Garnish with the green onions and serve your vegan fried rice immediately.

SNEAKY SUGAR!

WHAT IS SUGAR? Sugar is a general name for those sweet, soluble carbohydrates found in food that give us energy and taste great. It comes from many sources... sugar (from cane and beets), corn syrup, agave nectar, honey, maple syrup, and more!



DID YOU KNOW? Sugar comes in many forms, usually:

Natural: Sugar naturally found in whole, unprocessed foods such as fruit and yogurt

Added: Sugar added during processing, cooking, or before eating a food

Natural

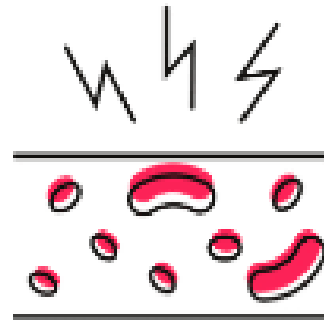


Added



SUGAR & HEALTH

Sugar isn't inherently bad—it provides energy and we do need energy to move, to think, and to be alive. But excessive consumption of sugar, especially added sugars, has been linked to several health problems including tooth decay, heart disease, obesity, diabetes, inflammation, and fatty liver disease to name a few.



The USDA and World Health Organization recommend no more than **5-10%** of total calories should come from **added sugar**. Most diets far exceed this recommendation.

Recommendation: **6-9 tsps.** of sugar per day. Most Americans eat about **17 tsps.** per day!



One drink can hide a lot of added sugar.



12 oz. soda
10 teaspoons



10 oz. fruit drink
8 teaspoons



8 oz. powdered drink
6 teaspoons



8 oz. chocolate milk
3 teaspoons



8 oz. white milk
no added sugar



8 oz. water
no added sugar

Water and white milk have NO added sugar.

DELICIOUS AND SURREPTITIOUS

Sugar often hides on nutrition facts labels under names other than 'sugar.' Be on the lookout for following words, indicating **ADDED** sugar:

[glucose, fructose, sucrose, maltose, galactose, lactose, dextrose, agave nectar, high-fructose corn syrup, corn syrup, dextran, fruit juice concentrate, malt syrup, molasses, honey, cane juice, barley malt, treacle, and more!]



Be sure to **READ** nutrition facts labels and ingredients lists. Try to select foods with little **ADDED** sugars. This is easier if you avoid highly processed foods.

Nutrition Facts	
Serving Size 100 g	
Amount Per Serving	
Calories 250	Calories from fat 10
% Daily Value*	
Total Fat 4%	4%
Saturated Fat 1.5%	4%
Trans Fat	
Cholesterol 50mg	28%
Sodium 150mg	15%
Total Carbohydrate 10g	3%
Sugar 5g	
Added Sugar 3g	
Protein 16%	
Vitamin A 1%	Vitamin C 3%
Calcium 2%	Iron 2%

*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs.

Aim to eat sugar from natural sources, like fruits and yogurt.

One easy way to reduce sugar intake is to avoid drinking soda!



NUTRITION BASICS: FORMIDABLE FIBER

Fiber is the indigestible part of plant foods—the part your body can't directly absorb or digest (unlike fats, proteins, other carbohydrates).

Even so, eating a diet high in fiber is incredibly good for your health! It can keep your digestive system regular, assist with weight control, lower cholesterol, and reduce the risk of heart disease, type 2 diabetes, and a host of other diseases.

GOOD SOURCES OF DIETARY FIBER:

- Whole grains (think oatmeal, whole wheat)
- Legumes and pulses (lentils, beans, peas)
- Vegetables
- Fruits (especially raspberries)

The garden is a great place to find fiber!



... DID YOU KNOW?

There are TWO types of dietary fiber? Both are good for you.



- 1) **SOLUBLE** – fiber that dissolves in water to form a gel it can help lower cholesterol and blood sugar, reduce disease risk (found in oats, peas, beans, apples, psyllium)
- 1) **INSOLUBLE** – fiber that doesn't dissolve in water promotes the movement of material through your digestive system and increases stool bulk (found in wheat flour, cauliflower, potatoes, green beans etc.)

While you don't digest fiber, the bacteria in your gut does! These bacteria are very important. They generate signals that influence your health, metabolism, immune system, and overall well-being!



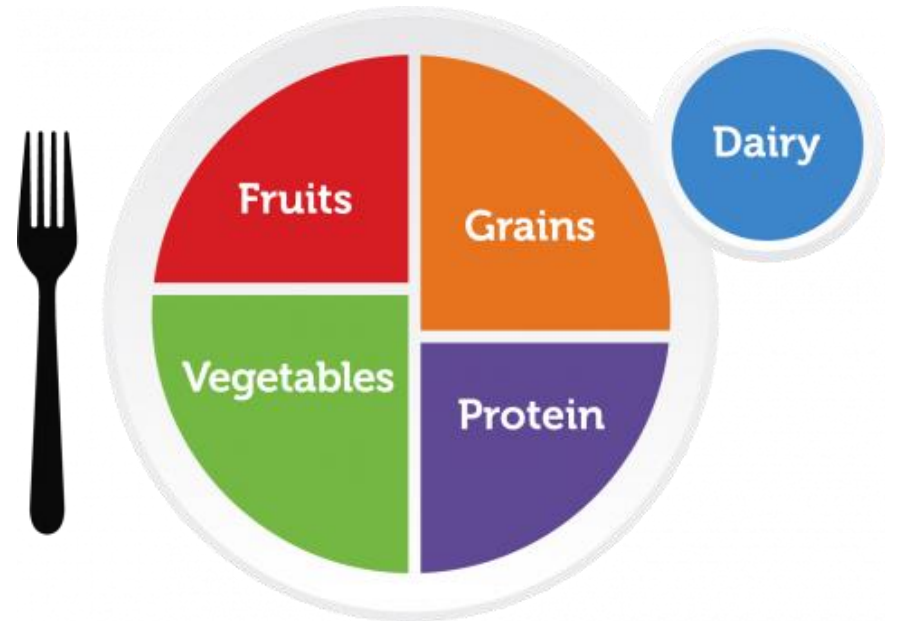
SOLUBLE FIBER is often a **PREBIOTIC**, meaning that it promotes the growth of good **PROBIOTICS** in your gut!



NUTRITION BASICS: BALANCED EATING

A balanced diet is a key part of a healthy lifestyle because nutrition affects every part of our life. Nutritious foods and a balanced diet:

- Gives us **energy** to live, work and play.
- Helps our body **grow**, rebuild, and heal itself.
- Allows our minds to **think** and our eyes to **see**.
- Strengthens our immune system to **fight off** sickness.
- Supports **bodily functions** like breathing, digesting food, keeping warm, and walking.



DID YOU KNOW?

Eating foods from all the food groups is very important for your health. Try to choose a variety of foods from each group and eat foods of different colors and textures.

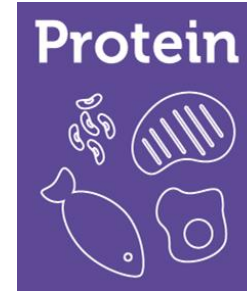
... MORE ON BALANCED EATING

The more **COLORFUL** your diet, the better!

You need a combination of foods throughout the day. Aim to get a eat proteins, grains, vegetables, and fruits frequently, Add dairy when you can, but limit high-fat, high-sugar processed foods.

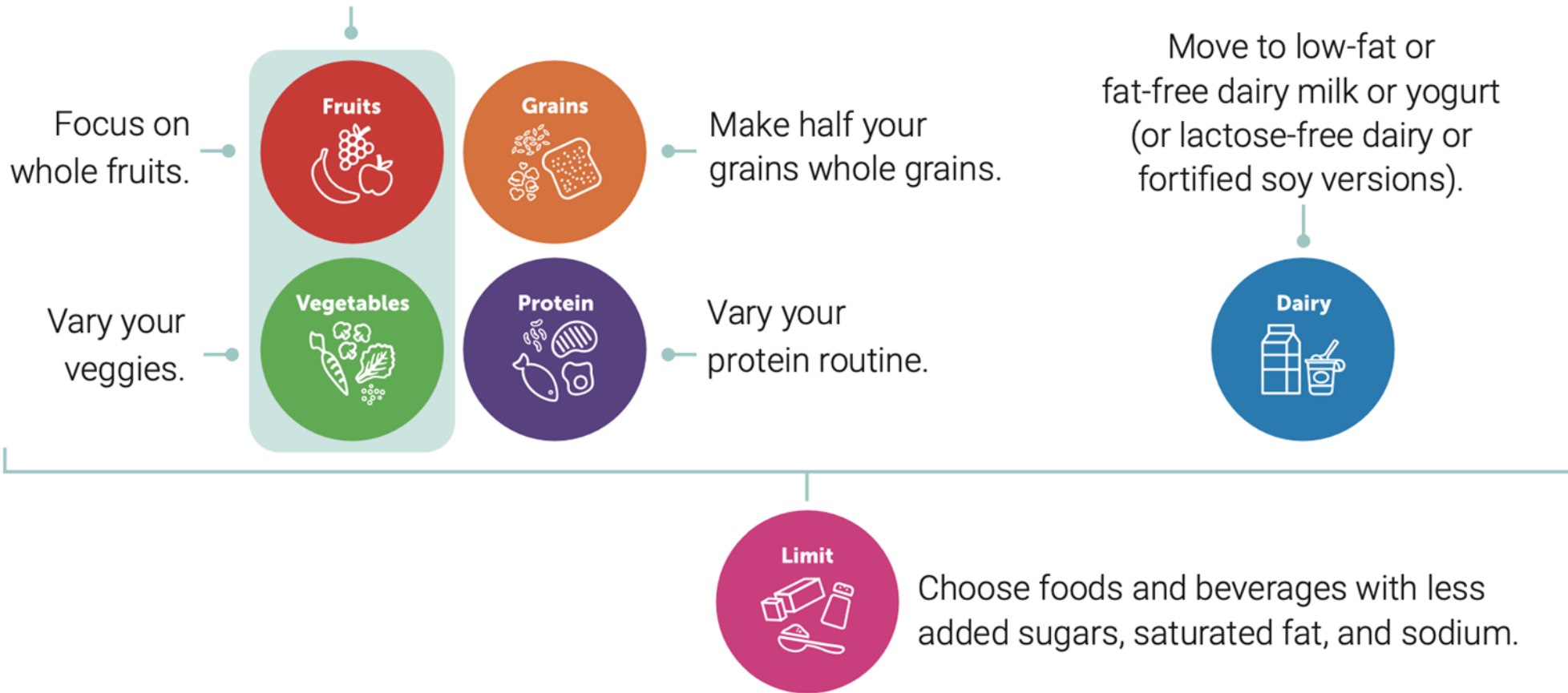
When choosing oils, pick olive oil and other unsaturated oils first.

- Focus on whole fruits.
- Vary your veggies.
- Make at least ½ of your grains whole grains.
- Vary your protein.
- Move to low-fat or reduced-fact dairy and milk products.



Healthy eating is important at every stage of life.

Make half your plate fruits & vegetables.

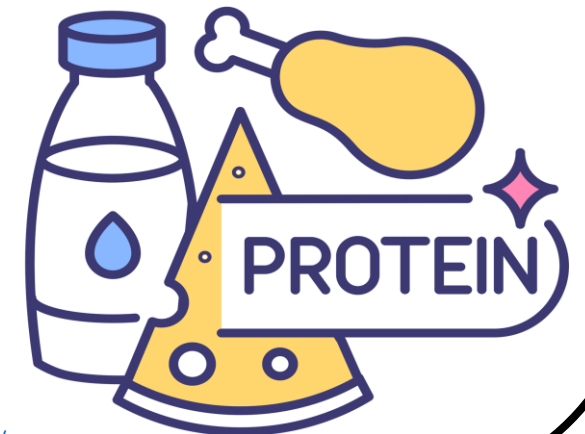


The benefits add up over time, bite by bite.

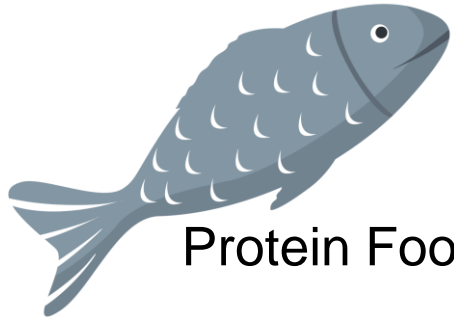
NUTRITION BASICS: POWERFUL PROTEIN

“Protein is an essential macronutrient, but not all food sources of protein are created equal, and you may not need as much as you think.

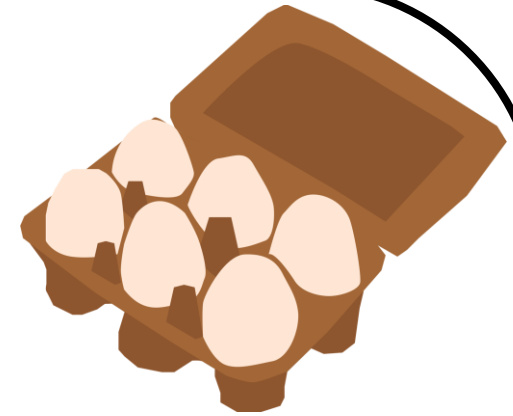
The average person needs about 7 grams of protein every day for every 20 pounds of body weight. Because protein is found in an abundance of foods, many people can easily meet this goal.”



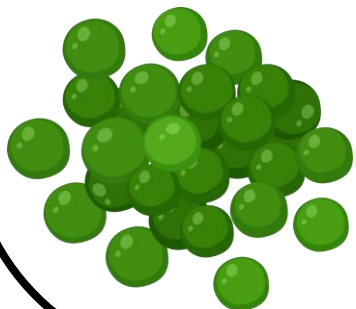
... MORE ON PROTEIN



Protein Foods include all foods made from seafood; meat, poultry, and eggs; beans, peas, lentils; and nuts, seeds, and soy products.



When we eat foods for protein, we also eat everything that comes alongside it: the different fats, fiber, sodium, and more. It's this protein “package” that's likely to make a difference for health.



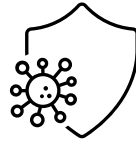
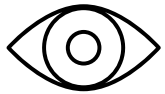
FOOD FACTS: COLORFUL CARROTS

Scientific Name: *Daucus carota* subsp. *sativus*

DID YOU KNOW?

Carrots are...

- Nutrient dense and contain vitamin A, which is good for your eyes, immune system, growth, and development.



- Naturally sweet and come in many colors (ex. purple, white, yellow, and even black).
- Most people eat roots, but the leaves/stem are also edible.
- California grows about 85% of the carrots produced in the USA today.



FOOD FACTS: TRICKY TOMATOES

Scientific Name: *Solanum lycopersicum* L.

DID YOU KNOW?

- A tomato is a fruit (botanically), but commonly considered a culinary vegetable due to its low sugar content.
- Cultivated tomatoes are the most widely consumed 'vegetable' in the world because of their use as a basic ingredient in a wide variety of raw, cooked, and processed foods



FOOD FACTS: TRICKY TOMATOES

- It's estimated there are around 7,500 varieties of tomatoes worldwide.
- Tomatoes are divided into nine different categories based on their size and shape.



Beefsteak



Campari



Cherry



Oxheart



Globe



Plum



Grape



Tomberries



Pear

WHICH TOMATOES CAN YOU IDENTIFY?



FOOD FACTS: GREEN BEANS

Scientific name: Phaseolus vulgaris

Green beans have two main types: **Bush** and **pole**.

- **Bush beans** are 1-2 feet tall and grow un-supported.
- **Pole beans** grow on a pole or wire, climbing up to about 10 feet. There are more than 130 different varieties of pole beans of all different colors.



FOOD FACTS: GREEN BEANS

- Green beans are also called snap beans and string beans.
- Green beans have high levels of vitamin K.
- After tomatoes and peppers, green beans are the third most common home-garden vegetable.
- Green bean plants do not have to be pollinated. Pods are ready for harvest around three weeks after the beans flower. This process from seed to harvest-ready takes around two months.



FOOD FACTS: CUCUMBER

Scientific name: *Cucumis sativus*



- **Persian Cucumbers** are “regular” cucumbers. They have soft, edible seeds and the skin is waxy to seal in moisture.



- **Gherkin cucumbers** are small (only two inches long), dark green, and prickly. They are used to make pickles.

- **Apple Cucumbers** are small round cucumbers that are pale greenish-white in color and grow to be the size of a baseball.



FOOD FACTS: CUCUMBER

Scientific name: Cucumis sativus

- Cucumbers are botanically considered **fruits** just like tomatoes!
- Cucumbers grow from flowers and contain dozens of seeds.
- It takes 10-20 bee visits per flower to produce a cucumber, and one vine can produce 25-125 cucumbers.
- Cucumbers are 96% water.
- Cucumbers can be 20° cooler on the inside than the outside air.



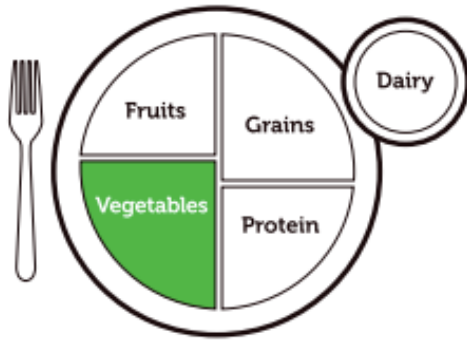
FOOD FACTS:



BELL PEPPER

WHAT IS IT?

Peppers grow in many shapes, sizes, colors, and flavors from sweet bell peppers to spicy chili peppers.

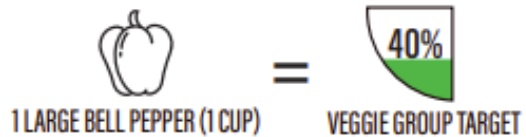
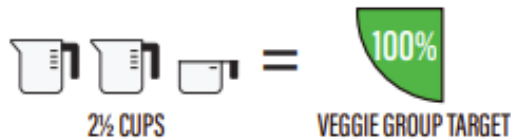


VARY YOUR VEGGIES

Different color peppers have different benefits. Eating a variety of colors throughout the week can help you vary your veggies.

HOW IT FITS INTO MYPLATE

A 2,000 calorie diet has a daily Vegetable Group target of 2½ cups. Add different types of peppers to meals and snacks to reach your goal!



To find your food group targets, go to ChooseMyPlate.gov/Checklist

FUN FACTS & TIPS



Thomas Jefferson grew a variety of peppers at his house in Monticello, VA.



Peppers are high in Vitamin C—add them to omelets, stir fries, or chili for added flavor.



Red bell peppers are simply ripened green bell peppers.



For a crunchy and filling snack, try pairing pepper slices with hummus dip.



For more information go to ChooseMyPlate.gov
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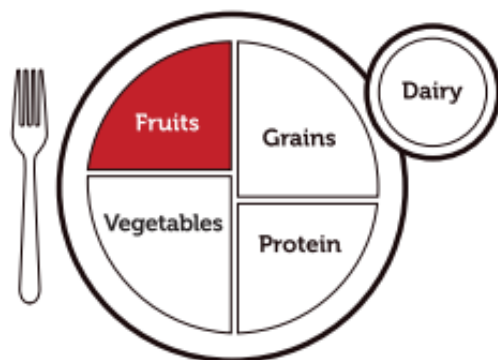
FOOD FACTS:



STRAWBERRY

WHAT IS IT?

Available fresh in the spring and summer, strawberries are a fruit grown on flowering plants in the rose family.

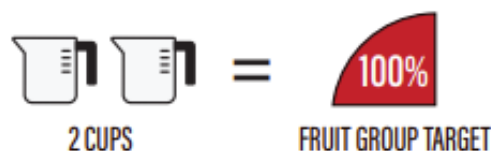


FOCUS ON WHOLE FRUITS

Strawberries are a lower-calorie sweet treat that can be easily consumed fresh or frozen in a variety of snacks and meals.

HOW IT FITS INTO MYPLATE

A 2,000 calorie diet has a daily Fruit Group target of 2 cups. Snacking on strawberries adds up quickly toward your goal!



To find your food group targets, go to [ChooseMyPlate.gov/Checklist](https://www.ChooseMyPlate.gov/Checklist)

FUN FACTS & TIPS



Strawberries were first commercially grown in America in the 1800s.



Approximately 90% of America's strawberries are produced in California.



For a fun family outing, visit a farm that offers pick-your-own strawberries.



Blend fat-free or low-fat yogurt with fresh or frozen strawberries for a sweet smoothie.



For more information go to [ChooseMyPlate.gov](https://www.ChooseMyPlate.gov)
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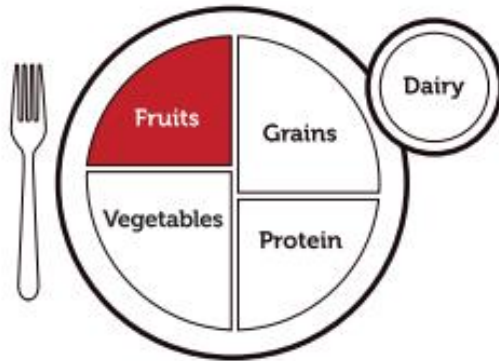
FOOD FACTS:



WATERMELON

WHAT IS IT?

Commercially grown in 44 different states, watermelon is a flowering plant that grows in the summer months in the U.S.

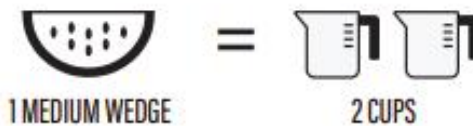


FOCUS ON WHOLE FRUITS

Watermelon is one of the most affordable fruits available and is a simple, sweet way to add fruit to your plate.

HOW IT FITS INTO MYPLATE

A 2,000 calorie diet has a daily Fruit Group target of 2 cups. By eating just 1 medium watermelon wedge, you'll already meet your goal!



1 MEDIUM WEDGE

2 CUPS



2 CUPS

FRUIT GROUP TARGET

To find your food group targets, go to ChooseMyPlate.gov/Checklist

FUN FACTS & TIPS



USDA developed the classic variety, called Charleston Grey, in 1954.



Texas, Florida, Georgia & California grow 66% of the watermelon in the U.S.



Cool off! Freeze slices of watermelon into "popsicles" for an icy cold sweet treat.



For more information go to ChooseMyPlate.gov
USDA is an equal opportunity provider, employer, and lender.



August 2017

GARDEN STRATEGIES

COMPOST AND MANURE



MANAGING SOIL

WATERING



SOIL ORGANIC MATTER

WEEDING

PLANTING CARROTS



PLANTING LETTUCE

WIDE ROW PLANTING

TRELLISING



PLANTING TOMATOES



PLANTING SQUASH

MULCH



THINNING SEEDLINGS

GARDEN STRATEGIES: COMPOST

The decomposition of organic matter (such as yard materials and food scraps) by microbes in the presence of moisture and oxygen that produces heat and a soil amendment called **compost**.

Compost is made by adding layers of different organic materials. As your heap rots (or decomposes), the heap becomes **compost**. There are many ways to make compost.

Compost is a **free organic fertilizer**. It improves soil structure, helps soil to hold water, and increases crop yields.

Compost can be used as mulch, topdressing, a soil amendment, or organic fertilizer. Mix it into planting areas to improve soil properties.

WHAT TO COMPOST



Vegetable and fruit scraps, coffee, tea, eggshells, nut shells, yard waste, paper napkins, paper scraps, cardboard

WHAT TO NOT COMPOST



Dairy products, fats and oils, eggs, meat/fish bones, pet waste, produce stickers, medication, diseased plants, cigarettes, broken glass

"GREENS & BROWNS" COMPOSTING

GREENS

Think Wet - Nitrogen Rich



BROWNS

Think dry - Carbon Rich



GARDEN STRATEGIES: MAKING COMPOST – MANY WAYS

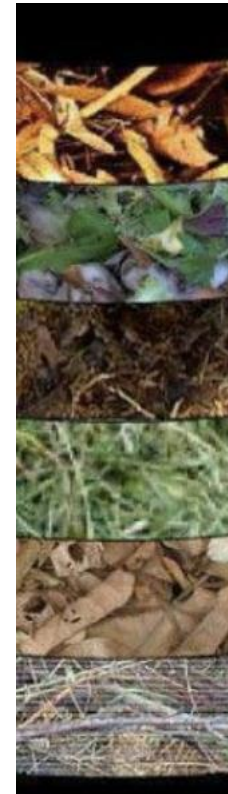
Alternate between brown and green materials in your compost pile. Try to keep the ratio roughly 3 parts browns to 1-part greens. Make sure larger pieces of material are chopped and shredded. Keep it moist (but not too wet).

**Greens = Nitrogen
Wet Materials**

Food scraps • Grass
clippings • Fresh manure
• Garden clean out

**Browns = Carbon
Dry Materials**

Brown leaves • Straw
• Soiled paper • Saw
dust • Woodchips



Cover with Brown layer (dried leaves)

Green layer: Food scraps

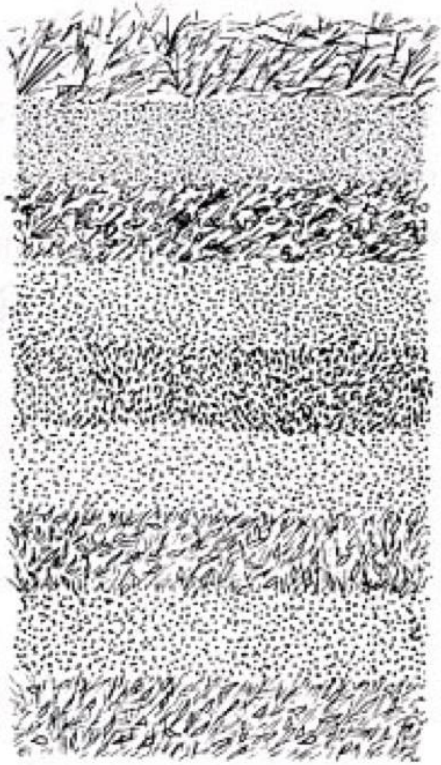
Brown layer: Newspaper, straw

Green layer: grass clippings

Brown layer: dried leaves

Base: sticks

GARDEN STRATEGIES: MAKING COMPOST – MANY WAYS



Dry grass and straw

Soil and wood ash

Green leaves and weeds

Soil

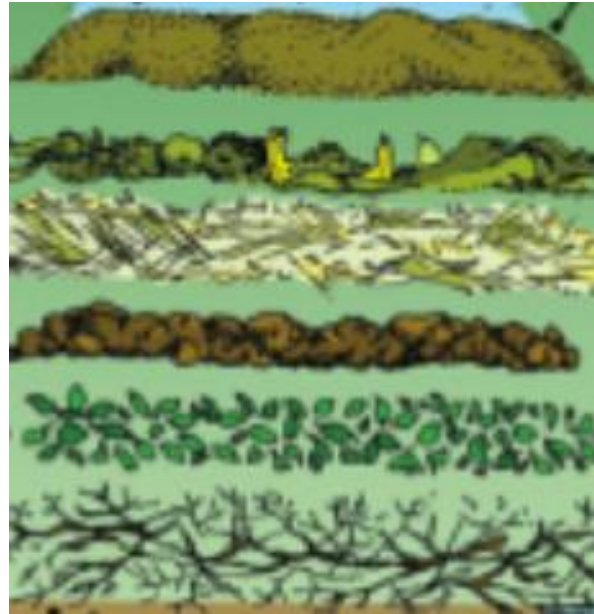
Maize husks

Soil

Manure and stable litter

Soil

Dry leaves and straw



6. Soil. Sprinkle on ash, sprinkle on water

5. Green Plant Material / Food Scraps

4. Dry plant material

3. Animal droppings

2. Green leaves. Sprinkle on water to help the heap to rot

1. Dry Plant Material (twigs or branches)

ADD these to compost:

Leaves, grass, soil, crop parts, food scraps, twigs or branches

Do **NOT** add:

plastic, whole bones, meat

GARDEN STRATEGIES: STEPS TO MAKE COMPOST

Occasionally turn compost mixture to provide aeration. This helps speed up the composting process and supplies air throughout.

As materials breakdown, the pile will get warm. It may even steam! Don't be alarmed... this is normal and means that it is working. Now, wait.

When your material is dark with no remains of food or waste, the compost is ready. Add it to lawns and gardens.



PROBLEM SOLVING – COMPOST

ISSUE	PROBLEM	SOLUTION
The compost has a bad odor	Not enough air or too wet	Turn it! Add dry material if the heap is too wet
The centre of the heap is dry	Not enough water	Moisten and turn the heap
The compost is damp and warm only in the middle	Too small	Collect more material and mix the old ingredients into a new heap
The heap is damp and sweet-smelling, but will not heat up	Lack of nitrogen	Mix in a nitrogen source like fresh manure, or still bloodmeal
There is still a high proportion of not decomposed material	Composting period was too short	Leave the compost heap for some more days. Sieve it and use the finest part

GARDEN STRATEGIES: HOW TO USE MANURE & COMPOST

- **DO NOT** put fresh manure on your garden. It will burn plants.
 - Animal manure, like compost, must be well decomposed before use.
- To make sure you are using manure effectively, you should:
 - Dry manure in the shade and store it for later use. It is best to apply manure to crops once it is **crumbly** like forest litter. It should not be heavy or sticky. Manure and compost should both have pleasant smells when used.
- **You can mix compost with animal manure or apply them separately.** Both should be applied *just before* trees and crops are planted.



GARDEN STRATEGIES: MULCH

Mulching is covering of the soil using organic materials such as **grass or crop residue**. Mulch is a layer of leaves, grass, straw or other organic material that is spread between plants to feed and protect the soil.

NO SEEDS IN MULCH!!



USING MULCH

If properly applied, decaying mulch adds nutrients and protects the soil. It helps protect the soil by reducing soil erosion and weed growth, conserves water, and helps maintain soil moisture. Mulch that is too heavy can sometimes contain rodents.



GARDEN STRATEGIES: HOW TO MANAGE SOIL

Protect the soil

- Cover the soil with plants
- Clear only the areas to be planted
- Practice erosion control
- Use barriers to stop soil loss

Improve soil fertility

- Make and use compost
- Mulch around plants
- Grow green manure crops
- Practice crop rotation
- Plant legumes

GARDEN STRATEGIES: SOIL ORGANIC MATTER

Organic matter plays a **major role in soil health**. Most gardens benefit from increases in soil organic matter.

WHAT IS IT?

Soil Organic Matter (SOM): living, dead, and decomposing plants, animals, and microorganisms in soil.

- Improves soil **fertility** and **structure**;
 - Soils that have more organic matter have a crumbly structure that provides nutrients to plants overtime, resists compaction, and has better drainage, aeration, and biological activity.
 - **Think:** loose, easy to prepare soils, with lots of earthworms and a dark color

HOW TO BUILD SOM?

- Apply compost, peat moss, manure, or mulch to soil
 - Most gardens perform best when SOM is at least 2% by weight (5-10% even better for vegetable beds). This can be tested with a basic soil test.



SOIL ORGANIC MATTER



Compost



Earthworms Castings



Manure

GARDEN STRATEGIES: CARROT PLANTING TIPS

Plant: Spring (cool season crop). Sow carrot seeds 2-3 weeks before the last expected frost.

How:

- Till site thoroughly (to a depth of ~10"). Remove stones, rocks, soil clumps.
- Add compost and sandy topsoil if soil is not loose and airy already.
- Sow seeds directly (rather than transplanting) about 1/4" deep and about 2-3" apart. Space the rows 12"+ apart. Distribute seeds evenly, despite small size. Option: mix seeds with fine sand and plant pinches of the mix.
- Cover seeds and keep moist with frequent watering but avoid soaking or keeping wet. Sometimes it is slow to germinate, so be patient! It takes about 14-21 days.
- Thin and weed frequently – thin to about 3-4" apart when carrots are 2-3 inches tall. Crowded carrots will not grow roots.



...MORE ON PLANTING CARROTS

Harvest: Mid-to-late summer.

Other Tips: Carrots like full sun, free draining soil (sandy is good) or raised beds (8-12") if you soil is hard with clay. Give them plenty of space to grow down. You may want to mulch your carrots! Plant every 4 weeks through mid-summer for continued harvesting. Planting radishes along with carrots can be helpful to avoid soil crusting!



GARDEN STRATEGIES: TOMATO PLANTING TIPS

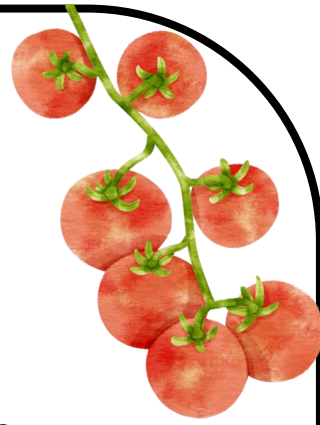


Plant: Late spring and early summer. Tomatoes are tender and prefer sun and warm weather (*no frost!). It may take 60-100 days before you can harvest tomatoes grown from seed.

How:

- Select location with full sun, preferably where tomatoes, eggplants, or peppers haven't been planted in recent years. Work compost into soil before planting. *If starting from seed, sow tomatoes indoors about 6 weeks before planting or the last frost date. Plant seeds about ½ inch deep in small trays.
- Once you have small plants, surround with tomato stakes or cages to keep fruit off the ground. Plant about 2-3 feet apart and water well, particularly in the early morning.
- Apply 2-4 inches of organic mulch (straw, hay, bark chips) about 5 weeks after transplanting to retain moisture and control weeds.
- Fertilize ~1x per 3 or 4 weeks until harvest (do not use fast release nitrogen fertilizers).
- Watch as plants grow – you may need to pinch off suckers on vine tomatoes (new, tiny stems/leaves between branches and main stem) or tie the stems to stakes with rags, nylon stockings, or twine to aid with air circulation.
- Trim off lower leaves (bottom 12 inches).

...MORE ON PLANTING TOMATOES



When to Plant: May-June

Harvest: Leave tomatoes on the vine as long as possible. Harvest when very red and firm (or the appropriate color), regardless of size, with perhaps some yellow remaining around the stem.

Other Tips: When plant seedlings or transplants, add a handful of organic tomato fertilizer or bone meal (a good source of phosphorus) to the hole. **Do NOT** use lawn fertilizer. Pinch off a few lower leaves and place root ball just deep enough that bottom leaves are barely above soil surface. Tomatoes also do great in containers!

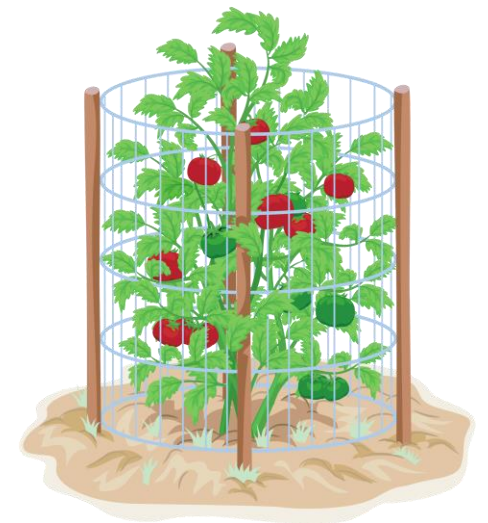


GARDEN STRATEGIES: TRELLISING

"Trellises and cages are common plant supports used in vegetable gardens. Many varieties of peas and beans need something to climb. Vine crops such as squash, melons and cucumbers can produce straighter, cleaner fruit if grown on a trellis.

Many tomato varieties are 'indeterminate,' or vining, which means they will continue to grow all season long. They will sprawl along the ground unless you support and contain them.

Even determinate varieties, which reach a certain height and stop growing, benefit from stakes and cages. Their fruits will be cleaner and less likely to rot or become food for slugs. Trellises also help prevent disease."



GARDEN STRATEGIES: TRELLISING

You can grow many long-vined varieties in small areas on trellises. If the varieties have fruit, those that are no more than three pounds and no larger than a cucumber or small melon will be the most successful.



GARDEN STRATEGIES: PLANTING SQUASH

Harvest: Mid-to-late summer.

- Plant **Winter Squash** 4-5 feet apart, with 5-7 feet between rows and 3 feet between hills. Pick when it is full size, the rind is firm and glossy, and the portion of the squash touching the soil is cream to orange color.
- Plant **Summer squash** with hills and rows of 3 to 4 feet apart. Pick when they are 6-10 inches long.

Other Tips: Squash plants need full sun to grow and are commonly planted 1 inch deep in hills.



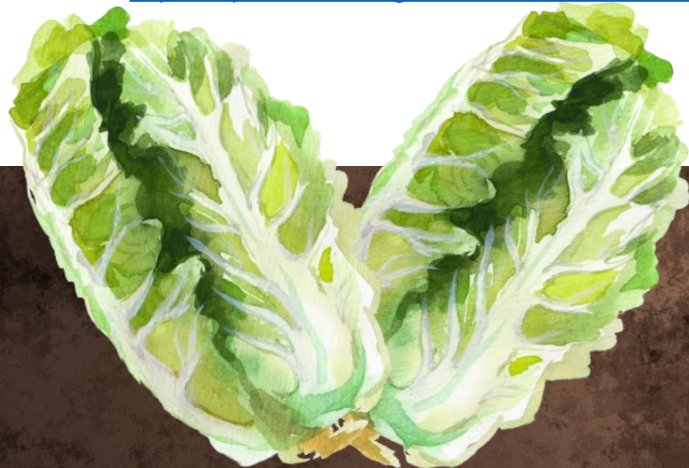
GARDEN STRATEGIES: LETTUCE

When to Plant: Early Spring (March 21-April) and Early Fall (August 7-September 6).

How: Space each lettuce plant 6-18 inches apart.

Harvest: If growing leaf lettuce, pick when the outer leaves are 4 to 6 inches long. If growing heads, pick when it is moderately firm, and the leaves are also between 4 to 6 inches long.

Source: (2009). Got Dirt? A Garden toolkit for implementing youth gardens. Wisconsin Department of Health Services Division of Public Health. <https://squaremeals.org/Portals/8/files/Farm%20to%20School/Got%20Dirt%20Garden%20Toolkit.pdf>.



GARDEN STRATEGIES: THINNING SEEDLINGS

Purpose: Thinning seedlings allows sprouting seeds to have enough room to grow and removes the competition for necessary resources: light, air, and water.

- Remove extra seedlings once the seeds have begun to sprout in the garden.

Without thinning:

- Plants may have stunted growth.
- Root crops may become distorted.
- Vine crops may grow poorly because of self shading.



GARDEN STRATEGIES: WIDE ROW PLANTING

Purpose: Maximizes the usage of space, sunlight, and nutrients to increase the number of small vegetables.

- Using a rake, draw out your wide rows.
- Thinning and hand weeding is needed during the growing season.

- Instead of rows, one could plant seeds in 4- to 24-inch-wide bands
 - Bands decrease risk of malformed roots



GARDEN STRATEGIES: WATERING



Early morning or early afternoon

- **Why?** Leaves that are dry during the night have lower risk for diseases.

If using drip irrigation, watering can be done at any time during the day so long as there is newspaper, straw, or grass mulch underneath.

- Drip hoses work well for tomatoes and plants that do not enjoy their leaves wet.



GARDEN STRATEGIES: WATERING

Factors to Consider for Watering: Weather (temperature, wind, sun), soil or mulch, plant variety

- **Monitor** soil.
- Check soil **1-2 inches** deep.
- **Water** when soil is dry.

Overwatering: suffocates plants by blocking oxygen to the roots and decreases the necessary amount of nitrogen fertilizer



GARDEN STRATEGIES: WEEDING

Purpose: Weeds take necessary resources (water, light, and nutrients) away from your plants. Weeds also bring diseases and insects that can damage your garden.

How to Control Weeds:

- Use mulch and cultivation.
- Make a barrier around the garden plants through combine old newspapers with grass clippings.

