Utah Agriculture in the Classroom
UtahStateUniversity EXTENSION

The Utah Garden Planner

Starting Your School Garden Right

The success of a school garden depends largely on the planning that goes into it, beginning even before the first seed is planted in the spring. When planning your garden, it's important to:

- Keep a schedule of when seeds need to be planted, and know if they can be transplanted or must be sown directly outdoors. This information will usually appear on seed packets but is also included on the Crop Cards provided in this guide.
- Choose a sunny location to plant.
- Make sure you have a convenient water supply.
- Make arrangements for tending the garden during the summer months when school is not in session.
- Make the garden magical. Students will forget that weeding is work and garden science is education if you can make the projects fun for them.

Using this Guide

The Utah Garden Planner is an easy way to keep track of the life cycles of the plants you put in your garden. The Bulletin Board and Crop Cards will help you see what crops will flourish in your area, plan around school year limitations, and guide you through planting cycles. Instructions for using the Bulletin Board and Crop Cards can be found on the following pages.

This guide provides general information on planting, growing, harvesting, and eating several common fruits and vegetables. For more resources, including garden-based learning activities and lesson plans, please visit our School Gardens page, which can be found under Teacher Center at utah.agclassroom.org. For more detailed information about growing specific fruits, vegetables, and herbs, as well as soil care and gardening basics, visit Utah State University Extension's Yard and Garden web page: extension.usu.edu/yardandgarden/.

The Bulletin Board

The Utah Garden Planner bulletin board is an easy-to-use classroom tool that can help you view your planting and harvesting times at a glance. The bulletin board along with the information in this guide will enable you to select plants that do well in Utah's climate and create an individualized schedule that will fit into your school calendar. If you wish to use the document-sized mini planner included in this guide, simply hand-write the information provided.

Instructions

1. Fill in your last spring and first fall frost dates at the top of the planner. Then use a dry-erase marker to draw a vertical line that spans the entire height of the calendar at those two dates. This is crucial, because it gives you a starting and ending point for measuring the rest of the dates you need. Freeze dates can be found through the Utah Climate Center at climate.usurf.usu.edu/reports/freezeDates.php.
2. Next, cut apart the bulletin board strips (on the Garden Planner Crops page), and select the crops you'd like to grow in your garden. You can set the others aside to save for future use.
3. Find the Crop Cards for the crops you've selected to grow in your garden and set the others aside to save for future reference. Read the information provided for each crop. Take note of which plants can be started indoors and which need to be sown directly outdoors. Some plants do not transplant well and will not have a high success rate if their roots are disturbed.
4. Determine if each of the crops you've selected is in Group A, B, C, or D. It helps to arrange them in this order, because it indicates in what order they will be planted. Note that the bulletin board strips are color-coded by group: A—purple, B—green, C—blue, and D—orange.
5. Recall that the group indicates the planting date:
   - Group A — three to four weeks before average last frost
   - Group B — one to two weeks before average last frost
   - Group C — on or one week after average last frost
   - Group D — one to three weeks after average last frost

   Using this information, count backward or forward from the "frost free" line that you have already drawn. Draw a small line within the boundaries of that row, and tape the color-coded strip at that point.
6. From there, you will be able to see the approximate germination date where it is marked on the strip. You will also see an approximate growing and harvesting period. (Note: if using the document-sized mini planner, you will need to use the information on the Crop Cards to count the amount of time for each period and then mark it appropriately.)

   If you can see that there will be conflicts within the school year at those planting dates, you can move the strips forward or backward up to one week and still *most likely* get good results. There can be wide variation in growing times for different varieties of the same vegetable, so it may be helpful to compare the information provided on your seed packets to that provided in this guide.

For crops not included in the kit, you may use a dry erase marker to write in their information. When you are finished, you will have a colorful schedule to guide you through your spring planting.

Crop Cards

The Crop Cards included in this guide can help you and your students become familiar with some of the most popular garden plants that do well in the state of Utah. Begin with easy plants to build up your basic knowledge. The cards include difficulty ratings: *—easy, **—moderate, and ***—difficult.

The Crop Cards are also organized by groups with common planting dates:

- Group A — three to four weeks before average last frost
- Group B — one to two weeks before average last frost
- Group C — on or one week after average last frost
- Group D — one to three weeks after average last frost

In addition to helping plan your garden schedule, the Crop Cards contain information on plant spacing, sun and water requirements, and preparing your produce for eating. The size of the cards and the information provided on them can help you plan many classroom activities, and by laminating them you will be able to use them for years to come. A few activity ideas include:

- Have students pair up, and give each pair a card. Have the class then line up in order of shortest growing season to longest, so students can visualize the order in which plants grow in the garden.
- In pairs, have students become “crop specialists” by giving them time to read their card and then presenting to the whole class the important information about their crop.
- Plan your garden layout by letting students play the role of an assigned plant. For example, the pumpkin plant will need four feet of space in all directions and a lot of sunlight, but the lettuce will only need eight to twelve inches and can be in partial shade. Have students space themselves accordingly, and then rearrange them to see the best places to plant all of the seeds.
- Referring to the “Eating” section on the cards, discuss why it is important to eat a wide variety of fruits and vegetables. Ask students for ideas on different ways the food on the card can be prepared and eaten.

Mini Garden Planner

Crop	February	March	April	May	June	July	August	Sept.	October

Crop Cards

Germination: 10 days
Harvest: 60-75 days

Group A

Cabbage**

Cabbage is part of the brassica family, which also includes broccoli, cauliflower, kale, brussels sprouts, and more. Try growing them side by side for visual and taste comparisons.

Growing

These hardy plants can be seeded directly outdoors in early spring and stand up to light snow and medium frosts.Transplants also do well but are more susceptible to frost. Varieties with longer days to maturity may be direct seeded in late spring for fall harvest. Keep cabbage evenly watered throughout the growing season—too much water near harvest time may lead to the head splitting open; too little water can lead to a browning of the leaf tips.

Eating

Cabbage leaves can be eaten fresh or cooked. Try making a cabbage salad by coring the cabbage, removing the thick stem, shredding the leaves, and adding vinegar, olive oil, salt, and pepper. Letting the salad rest in the refrigerator for an hour to wilt may make the texture more palatable for kids.

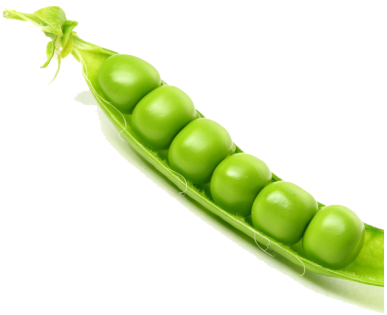
For cooked cabbage dishes, try using Asian stir-fry flavors like chili, ginger, garlic, and sweet and sour sauce.

Planting Depth	Plant Spacing	Sunlight	Water Usage
1/4-3/4 Inches	12-18 Inches	Full	Moderate

Germination: 10-20 days
Harvest: 60-70 days

Group A

Peas*



Peas are part of the legume family and can enrich the soil as they grow, making them a great rotation for more nutrient-demanding crops. Peas are a cool season crop, and if planted early enough, they may even be ready for student snacking before the summer break.

Growing

Seed directly outdoors as soon as the soil can be worked. Pea plants require little care, but may be trellised on string tied between stakes to lift the plant off the ground for easier harvesting. Dwarf varieties can be grown without support, but many other varieties require trellising. Keep the mature pods picked to extend the season for as long as possible.

Eating

Fresh or cooked, peas offer a sweet burst of spring-time flavor. For the most simple preparation, remove the shell and eat straight out of the garden. To cook, shell and then steam the peas in a few inches of water until their green color deepens, about two to three minutes. Salt is optional. Peas can also be added to stir fries, scrambled eggs, and garden salads to add a sweet variety to the diet.

Planting Depth	Plant Spacing	Sunlight	Water Usage
1 Inch	1-2 Inches	Full	High

Crop Cards

Lettuce*

Germination: 7-10 days
Harvest: 45-60 days

Group A

Lettuce is a cool weather crop that will bolt when temperatures warm up in the summer. This means the plant is getting ready to go to seed and will begin to grow a tall, central flower stalk. It will start to ooze a bitter white sap when cut. As the flower stalk develops, the taste will become more bitter and the lettuce will no longer be good to eat.

Growing

For an early crop, seed outdoors in late fall, and plants will germinate when snow melts in the spring. Lettuce may also be transplanted or direct seeded continuously at two week intervals for an extended harvest in the spring or fall. When harvesting, you may take the whole plant, or just cut the outside leaves to let the plant continue growing and producing new leaves.

Eating

Preparation of lettuce is simple—just rinse, shake the water off the leaves, and serve with a dressing of your choice, or as the base of a garden salad buffet.

There is an enormous range of textures, colors, and flavors of lettuce. Try growing several varieties and performing class taste tests to compare the many exciting varieties that are available.

Planting Depth	Plant Spacing	Sunlight	Water Usage
1/8-1/4 Inch	8-12 Inches	Full or Partial	High

Radish*

Germination: 7 days
Harvest: 25-35 days

Group A

While the peppery flavor of radishes may be too strong for some students, their exciting growth may be temptation enough to taste them. Radishes grow quickly and may even flower and go to seed early enough that students can observe a full plant life cycle before summer break. Try planting the French Breakfast variety (long and slender) alongside Cherry Belle (squat and round) for student comparisons.

Growing

Seed directly outdoors in loose soil that is mostly free of rocks. Rocky or heavy soil can stunt or cause deformities in bulb growth. Radishes can be harvested as soon as the bulbs form and will get spicier the longer the bulbs are in the ground.

Eating

Radishes are sweetest when they are young and only take about 30 days to become the best size for eating. They will often mature around the same time as lettuce, making an ideal topping for a salad. If students have a hard time eating them sliced into large rounds, try mincing them and tossing them into the salad mix to spread the peppery flavor throughout the salad instead of leaving it in concentrated areas.

Planting Depth	Plant Spacing	Sunlight	Water Usage
1/4-1/2 Inch	2 Inches	Full	Moderate

Crop Cards

Spinach* | Group A

Germination: 7 days
Harvest: 35-40 days

Spinach is highly nutritious and extremely easy to grow. While students may be familiar with "slimy" canned or cooked spinach, offering them the fresh variety as part of a leafy salad may be a new and eye-opening experience.

Growing

Sow directly outdoors in a sunny location in late fall (for next year's harvest) or sow continuously in early spring. Harvest while the leaves are young and tender. Spinach will bolt (go to seed) when temperatures get too high and will no longer be good to eat, so harvest before temperatures are consistently above 80°F.

Eating

For students who have never tried fresh spinach, they may find a wonderful surprise when the baby leaves of this plant mixed into a salad. The leaves are thick and sweet and extremely nutrient-dense. While fresh young spinach is delicious, the thick mature leaves of this plant can also stand up to light cooking. Simply rinse the leaves, and wilt them in a pan with just the water that clings to them. Turn the leaves often to create an even cooking temperature. After just three or four minutes, they will become a dark emerald color and will be ready to be served with salt, incorporated into an omelette, or mixed in with an alfredo pasta for color, flavor, and nutrition.

Planting Depth	Plant Spacing	Sunlight	Water Usage
1/2-1 Inch	3 Inches	Full	High

Carrot*** | Group B

Germination: 14-21 days
Harvest: 60-75 days

Carrots can be very sensitive to moisture, weather, and soil conditions. Extreme care is necessary when sowing this plant, but carrots are beautiful, and their underground growth can be magical to students unfamiliar with root crops.

Growing

Seed directly outdoors. For best germination rates, use a piece of plywood to cover the carrot seeds. This will provide shelter from rainstorms that can carry the tiny seedlings away, ensure good soil contact with the seed, and hold in moisture. After seeds have sprouted, remove the board and add compost or mulch over the seedlings. Harvest when the root-tops begin to poke out of the ground, or let them remain in the ground until needed. Carrots are biennial and can be overwintered; please refer to USU Extension's Yard and Garden site for more information.

Eating

Carrots can be washed and served fresh with the tops still on, a trick that delights many young students. Additionally, they can be served sliced into sticks, steamed lightly and salted, or even incorporated into a summertime soup.

Planting Depth	Plant Spacing	Sunlight	Water Usage
1/4-1/2 Inch	3 Inches	Full or Partial	Moderate

Crop Cards

Potato** | **Group B** | **Germination:** 14-21 days | **Harvest:** 70-100 days

Like most garden produce, fresh potatoes can have a surprising amount of flavor compared to their store-bought counterparts. Potatoes are also available in a wide variety of flavors, colors, and sizes. A potato is a tuber—a swollen section of stem that the plant uses for food storage. Due to the large number of nutrient-dense potatoes a single plant can produce, it is no wonder that these plants are grown, eaten, and treasured throughout the world.

Growing

Potato "seeds" are actually potatoes that are ready to send out new sprouts from the eyes. To plant, cut the potatoes into chunks that each have at least one eye and are a minimum of a cubic inch in size. Sow them in regular garden soil or in a container with compost. As the plants emerge, layer compost or mulch over the stems or build up mounds around them. This will stimulate the plants to turn their stems into more tubers.

Eating

Potatoes need to be cooked to break the inedible starches down into nutrients that can be digested. However, this process is extremely easy. The simplest method of preparation is to wrap the potatoes in tinfoil, stick them with a fork, and place them on an oven rack at 350°F (place a baking sheet underneath to catch any drips). Bake them for about an hour or until they are cooked through the middle; then add your favorite toppings and serve.

Planting Depth	Plant Spacing	Sunlight	Water Usage
4-6 Inches	10-12 Inches	Full	Moderate

Bush Bean* | **Group C** | **Germination:** 6-10 days | **Harvest:** 55-65 days

Bush beans can be prolific and supply large harvests if managed properly. Sow these with students at the end of the school year and make sure the beans are picked continuously throughout the summer; that way, when students return in the fall, there may still be beans to harvest. Alternatively, beans may be planted in mid-summer to start producing beans when students return in the fall.

Growing

Sow directly outdoors when soil is warm. Beans are easy to grow and require very little care other than the time it takes to harvest. By keeping the young beans picked, the harvest can continue through the beginning of the fall school calendar. Bush beans should be picked when young and still tender, right as the seeds begin to form (when the seeds inside are visible bulges on the outside, they are still edible but past their prime).

Eating

For the best texture, add beans to boiling water and cook for about four minutes. The beans will still taste fresh and will have a nice crunch. If the students in your class prefer, boil the beans longer for a more processed flavor and less cruncy texture. Then drain the water, drizzle with olive oil, and sprinkle with salt for a tasty side dish or snack. Green beans are also an excellent addition to a summertime soup.

Planting Depth	Plant Spacing	Sunlight	Water Usage
1 Inch	2-3 Inches	Full	Moderate

Crop Cards

Pole Bean* | Group C | Germination: 6-10 days | Harvest: 60-70 days

As the name suggests, this type of bean will climb poles and fences, making it a fun and edible way to decorate the school yard. It is an efficient use of vertical space for those who have little room to garden, and some varieties even produce beautiful flowers before putting out edible beans.

Growing

Sow directly outdoors when soil is warm. Rather than letting these beans trail across the ground, you must train them by wrapping them around their trellis a few times. Once they get started, they will continue to climb on their own.

Eating

As with bush beans, pole beans should be picked when young and still tender, right as the seeds begin to form (when the seeds inside are visible bulges on the outside they are still edible, but past their prime). For the best texture, add the beans to boiling water and cook for about four minutes. The beans will still taste fresh and will have a nice crunch. If the students in your class prefer, boil the beans longer for a milder flavor and less crunchy texture. Then drain the water, drizzle with olive oil, and sprinkle with salt for a tasty side dish or snack. Green beans are also an excellent addition to a summertime soup.

Planting Depth	Plant Spacing	Sunlight	Water Usage
1 Inch	2-3 Inches	Full	Moderate

Corn** | Group D | Germination: 10-14 days | Harvest: 65-85 days

Available in many sizes, colors, and even “flavors,” corn (or maize) can be planted at the end of the school year for midsummer or fall harvest. Sweet corn, which is the kind grown for eating fresh on or off the cob, is likely to ripen in midsummer and be past its prime by the time students return to class in the fall. However, popcorn can be dried on the plant, stored, and then popped any time.

Growing

Seed directly outdoors after danger of frost has passed. Corn grows quickly and requires plenty of water and rich soil, but it does not require much weeding because it grows tall quickly, shading out competition.

Eating

Harvest sweet corn when the silks begin to turn brown and kernels release a somewhat milky juice when punctured. For easiest preparation, remove the corn husks and silk, then boil for about five minutes. Serve with butter and salt.

Harvest popcorn as late in the year as possible but before wet conditions cause it to mold. Store where it will stay dry. To pop it, place a cob into a paper bag, and then microwave it like you would any other type of popcorn, listening for the popping to slow down to avoid burning the kernels. Add salt and butter for a traditional movie snack.

Planting Depth	Plant Spacing	Sunlight	Water Usage
1-2 Inches	9-12 Inches	Full	High

Crop Cards

Pumpkin*

Germination: 7-10 days
Harvest: 85-120 days

Group D

Pumpkins, like all varieties of squash, have both male and female flowers. Pollen must be carried from the male to the female, usually by bees, in order for a pumpkin to form.

Growing

Seed directly outdoors. Plant three or four seeds in mounds four feet apart. Then thin plants to two per mound after they have sprouted. For larger pumpkins, begin to pinch off new blossoms after two or three of the first blossoms have begun to form green bulges (future pumpkins) at their base. Avoid flat spots and discoloration by occasionally and gently rotating the pumpkin on the vine. They are ready to harvest when they are fully orange and sound hollow when thumped.

Eating

While the most traditional method of using pumpkin is to make pie, it can also be baked and eaten very much like any other squash. Cut the pumpkin in half and scoop out the seeds. Then place the halves face-down in a baking dish. Pour enough water into the pan to come up the sides about half an inch. Bake at 450°F until you can easily pierce the pumpkin skin with a fork. The time will vary widely depending on the size of the pumpkin. To serve, mash the pumpkin in a bowl and add the desired seasonings—butter and salt for a savory dish or cinnamon and sugar for a sweet dish—and serve.

Planting Depth	Plant Spacing	Sunlight	Water Usage
1 Inch	See Growing Information	Full	High

Summer Squash*

Germination: 7-10 days
Harvest: 45-55 days

Group D

Available in many shapes, colors, and sizes, summer squash can be prolific, so don't over plant. Keep young summer squash picked at the size of two to six inches for the best ripeness. However, some varieties (like zucchini) can reach giant sizes and students may enjoy observing the growth.

Growing

Though sensitive to frost, these plants are otherwise very easy to grow. Keep harvesting squash over the summer to ensure that the plant will still be fruiting when students return to school in fall. For gardens with little room, the long vines of this plant can be trellised with string or twine to fences or poles, utilizing vertical space and keeping the squash visible as they grow.

Eating

Summer squash can be very versatile, lending itself to the rest of the flavors in a dish. It can be eaten fresh, but its flexibility makes it ideal for almost any cuisine. It works well in stir fries and even soups, but avoid overcooking it to preserve its wonderful texture.

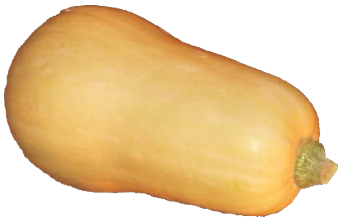
Planting Depth	Plant Spacing	Sunlight	Water Usage
1 Inch	2-3 Feet	Full	Moderate

Crop Cards

Winter Squash*

Germination: 7-10 days
Harvest: 80-110 days

Group D



This category encompasses a wide range of delicious and very interesting plants. Try comparing acorn squash to butternut in taste tests, or plant spaghetti squash for a fun and interesting way to observe texture. Some other varieties include banana, Hubbard, and sweet meat.

Growing

Seed directly outdoors. Plant three or four seeds in mounds four feet apart. Then thin plants to two per mound after they have sprouted. Like all squash, these plants are very sensitive to early frost, so plant when the soil is warm. After the squash fruits have formed on the vine, wait for the skin to toughen before harvesting. Seeds from these plants are easy to save, but plants cross pollinate easily, leading to interesting hybrids the following year.

Eating

The squash in this category vary widely, as do their flavors and preparation methods. However, most can be cut in half and seeded, then baked at 450°F, face-down in a pan that contains about half an inch of water in the bottom. Some varieties are also good baked whole or cut into sections and boiled. Whatever method, the best indication of doneness is to poke through the skin with a fork. If it pierces easily, the squash is ready to season and eat.

Planting Depth	Plant Spacing	Sunlight	Water Usage
1 Inch	See Growing Information	Full	High

Tomato***

Germination: 7-10 days
Harvest: 65-85 days

Group D

Though garden vegetables are often more flavorful than their grocery store counterparts, tomatoes are perhaps the most striking example. Though your students may claim not to like tomatoes, encourage them to retry the fresh tomatoes you grow and see if their minds are changed. Cherry varieties in particular may be sweet and fruity enough to help children discover how delicious a tomato can be.

Growing

It is best to begin these plants indoors six to eight weeks before last frost. For best results when starting seeds, keep the container covered with plastic wrap until germination. When plants are ready to be moved outdoors, harden them off for several days before transplanting. It is important to keep a regular water supply to tomatoes throughout the season—never let the soil dry out completely. Be sure to put a tomato cage around the young plants to provide support when the branches become heavy with ripe tomatoes.

Eating

Tomatoes are popular additions to green salads, but this might remind students of all the tomatoes that they have tried and not liked. Try cutting cherry tomatoes in half and mixing them with olive oil, fresh basil, and a little bit of feta cheese. For full-size tomatoes, slice them thinly and lay them on bread, top with fresh basil and mozzarella, and toast until the cheese is melted.

Planting Depth	Plant Spacing	Sunlight	Water Usage
1/4 Inch	18 Inches	Full	Moderate

Crop Cards

Pepper***

Germination: 15-20 days
Harvest: 65-80 days

Group D

Peppers come in many shapes, colors, and levels of spiciness, and they are often one of the most exciting plants in the garden.

Growing

Peppers can be difficult to grow from seed, which must be started indoors 6-8 weeks before the last frost. The young seedlings require more light than is typically available in the classroom, so grow lights are necessary. Remember, though, if the seedlings don't do well, many plants are available through local nurseries and are not only inexpensive, but will also grow well from transplants. Before planting outdoors, be sure to harden off the new plants by setting them outdoors for a few hours per day, gradually increasing the amount of time each day for about one week.

Eating

Bell peppers are mild and can be eaten raw, though for children this may be over-powering. When preparing peppers, remember that most of the heat is located in the seeds and ribs inside the pepper, and by removing these you can still have a peppery spice that won't burn the mouth as much. These fruits can be used for a wide range of cuisines—try a Mexican salsa, Italian stuffed peppers, or a Chinese-style stir fry for variety.

Planting Depth	Plant Spacing	Sunlight	Water Usage
1/4 Inch	18 Inches	Full	Moderate

Cucumber*

Germination: 7-10 days
Harvest: 45-60 days

Group D

Cucumbers can be left to trail on the ground or can be trained up fences and trellises to make a beautiful and edible landscape. There is a difference between cucumbers to eat fresh and those to be pickled, so pick the appropriate variety.

Growing

Sow directly outdoors when the soil is warm. Cucumbers must be picked before the seeds begin to harden, but when to harvest them is largely dependent on their use. Pickling cucumbers should be picked between one to six inches, and cucumbers for fresh eating will taste sweetest if picked around five inches but will still taste good until they reach about 10 inches in length.

Eating

Serve cucumber slices with a little bit of salt, or try a cucumber and tomato salad. Simply dice one cucumber and one tomato, add about a teaspoon each of vinegar and olive oil, toss in fresh garden dill if available, and sprinkle with a little bit of salt. You can leave this in the fridge for up to an hour to let the flavors spread throughout the ingredients, but don't leave it too long or the ingredients will become mushy.

Planting Depth	Plant Spacing	Sunlight	Water Usage
1 Inch	2 Feet	Full	Moderate

Crop Cards

Germination: 10-14 days
Harvest: 75-90 days

Group D

Water-melon***

With the right variety of watermelon, your fall class can still enjoy this fruit during school time. Larger varieties of watermelon can take over 90 days to mature, the perfect amount of time to plant seeds with students in the spring, and then harvest fruit when they return in the fall.

Growing

Sow directly outdoors when soil is warm. Make sure the plants receive plenty of water while growing and blooming, and then reduce the amount of water while the melons develop. This will make the fruit sweeter and crisper. Harvest when the fruit sounds hollow when thumped. To harvest, be sure to cut the vine. Pulling the fruit off the vine can leave a wound on the fruit where bacteria can get in and spoil it.

Eating

The preparation of this summer treat is as easy as slicing the melon into wedges and handing it to children. Cube the melon and mix with other summertime fruit and add a bit of chopped fresh mint for a nice, refreshing fruit salad.

Planting Depth	Plant Spacing	Sunlight	Water Usage
1 Inch	2 Feet	Full	Moderate