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# WASATCH COMMUNITY GARDENS

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SCHOOL GARDEN CURRICULUM

VOLUME 2

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## Introduction

Did you make it through the Wasatch Community Garden School Gardens' Curriculum Volume 1 and decide that you loved it and wanted more? You're in luck, because you are holding Volume 2!

This curriculum continues the successful features of Volume 1 with easy-to-grow vegetables, minimal summer maintenance, fun arts and craft activities, and a very budget conscious blend of activities. This year students get to learn about some new and exciting vegetables like baby bok choy and purple potatoes, while keeping some old favorites like beets.

Again, this curriculum has lesson plans for the nine growing months of the year that include planting plans and worksheets. Everything you need to continue successfully growing and eating food with your class out in the garden is included here. If you have any other questions, head to [www.wasatchgardens.org](http://www.wasatchgardens.org) for resources, workshops, and more support.

Let's get growing!

# EDUCATOR SPOTLIGHT

*MATHILDA URIBE*

Looking at Mathilda (Tillie) Urbe's generous smile and happy demeanor, it is easy to see how she has spent 23 years inspiring her first grade students. Her deep love of science and her cheerful approach to hard topics makes them seem super approachable to both her students and colleagues.

Luckily for Wasatch Community Gardens, Tillie is also an avid gardener and key partner at Escalante Elementary School. When asked about the garden, she exclaims, "I'm a farm girl!" noting that her father owned and operated a dairy farm in Colorado. Farming is in her blood.

It's this history of gardening and farming that really inspires her and instills in her a deep commitment to teaching her students about the wonders of the natural world.

When asked about the school garden, Tillie believes that the garden is a critical teaching tool for her students - one that she doesn't mind making room for in her daily routine.

*"I just ignore the rules! Little kids learn by doing and exploring, and the more you can get their hands in the dirt or manipulating things, the more they're going to learn and the deeper their thinking skills will go, so it's more beneficial for me to have my kids out in the garden and working out here than it is to be in a classroom reading about it."*

## February - Signs of Spring

### *Materials*

Seed catalog, plastic sheet (an extra-large black hefty outdoor trash bag or a clear drop cloth from the hardware store are both great alternatives), construction paper, scissors, glue, crayons

### *Preparation*

Gather seed catalogues and supplies

### *Activity - 35 minutes*

Intro - 5 minutes

Although it still feels like winter, the world is actually starting to wake up, and in February we might be able to see our first signs of spring! Today, we are going to go out to the garden to try to observe some signs of spring and start to get our garden ready for March planting.

Out in the garden - 10 minutes

Go out to the garden and clear your bed of snow. Use tools if they're available or just mittened hands. Spend some time making observations that could mean that spring is right around the corner. Are there any birds singing? Are there any green sprigs on the trees or around the garden? If appropriate, talk to your students about the winter solstice (December 21) vs the spring equinox (March 21). The winter solstice is the official start of winter, and the equinox is the start of spring. Whether or not it looks like spring outside, February really is more spring-y than we give it credit for. The longer daylight hours can start to awaken the world in subtle but surprising ways for the careful observer.

Seed Catalog Plants - 20 minutes

Now that we've talked a bit about seeds, we are going to talk about eating the different parts of the plants. We are going to try to imagine a plant that you could eat EVERY part of - from the roots to the leaves and everything in between.

First of all, do we eat all the parts of the plant? Let's start by drawing a plant, and labeling its parts. Then, we'll see if we can think of a vegetable that goes with every part of the plant that we think of. On the white board, draw a plant and brainstorm vegetables that correlate with every part of the plant: Leaf [kale, lettuce], Root [carrot, radish, beet], Stem [asparagus, celery], Flower [broccoli, nasturtium], Fruit [tomato, squash], Seed [sunflower seed, almond, dried beans].

Distribute seed catalog to groups of students. Have students use their catalog and other art supplies to design a plant that you could eat every part of!

Have students hang up their creations around the classroom.

## March - Seeds Fuel the Garden

### *Materials*

Seeds for snacking (sunflower, sesame, flax, wheat), bok choy seeds for planting, pre-soaked lima beans, worksheets, pencils

### *Preparation*

Soaked lima beans

### *Activity - 30 minutes*

Intro and Eating Seeds - 5 minutes

Seeds are amazing! They are chock-full of good fats and oils. *\* Overview: Good fats, bad fats - what's the difference? Good fats give our bodies energy, and you need them to grow and develop. Bad fats make our bodies produce bad cholesterol, which can lead to health problems. \**

Pass out worksheet and seeds to students. Have students taste all the seeds and see if they can describe the flavors (nutty, oily, fatty, dry, etc.). Have them rank the seeds from favorite to least favorite and have them write down whether or not they liked them.

Exploring Seeds - 10 minutes

Let's talk a little bit more about seeds. Seeds are pretty cool! The seed is made up of three main parts: embryo, endosperm and seed coat. The embryo is basically a miniature plant. The endosperm is the built-in food supply, which is made up of proteins, carbohydrates or fats. The testa (seed coat) is the hard outer covering, which protects the seed from disease and insects. It also prevents water from entering the seed, which would initiate the germination process before the proper time.

Hand out soaked Lima bean seeds and have students dissect them and try to identify the embryotic plant. See if students can discover all of the parts of the seed along with the worksheet.

Plant Seeds - 15 minutes

After the class is done with the worksheet, let them know that they are ALSO going to plant the garden today. Discuss how to plant the bok choy. Divide the students into three groups and assign each group a vegetable to plant. Explain HOW they are going to plant the garden bed. If it's appropriate, show the students the planting plan and explain that the garden bed should look like the plan. If students are too young to understand the plan, simply have each group take their turn planting, and be careful about giving instructions.



# April - Watching the Garden Grow

## Materials

Ruler, pencil, paper, clipboard, poster board, envelope, construction paper

## Preparation

Draw the x and y axis of the bar graph on the poster board. Cut rectangles that represent 1 cm out of construction paper and put into the envelope. Affix the envelope to the poster board.

## Activity - 20-30 minutes/week

Intro - 5 minutes

Explain that the class is going to be tracking the growth of the seedlings out in the garden. Every week, they are going to go outside to measure the growth of the seedlings and graphing it inside on the poster board.

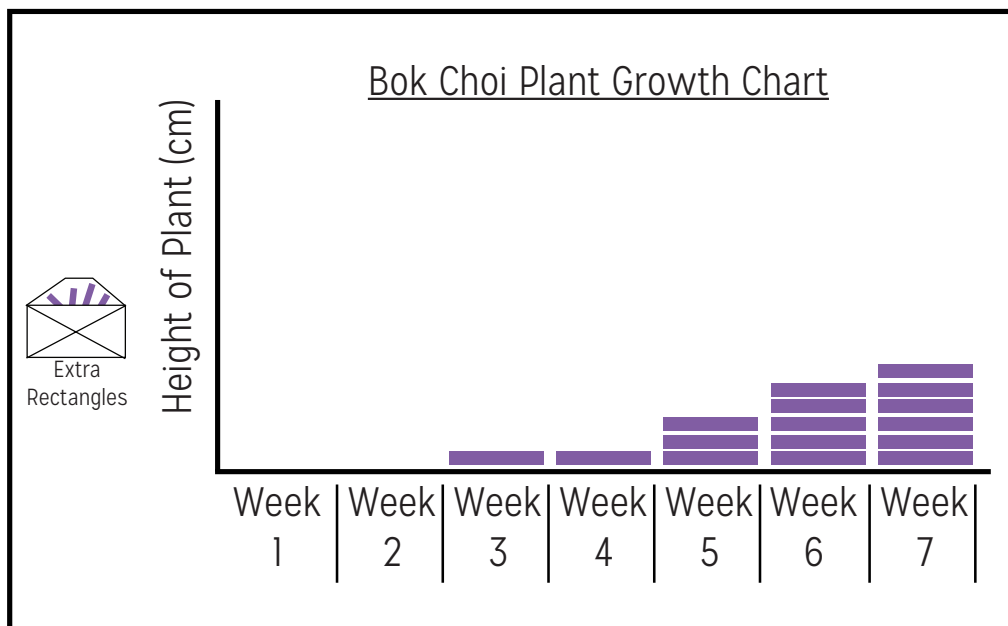
In the Garden - 10 minutes

Once a week for 6-8 weeks, head out to the garden to measure seedlings. Have students work in pairs to measure and record how tall the seedlings are. Caution the students to be VERY CAREFUL not to disturb the growing plants as they measure! Have students take turns measuring and recording so that each student gets a chance to read the rulers.

Graph It - 10 minutes

Back in the classroom, write down all the recorded numbers on the board and (either as a class or individually) come up with an average for each plant. Affix the correct number of rectangles to the graph to represent the total height of the plant for that week.

Watch your plants grow!



## May - Salad Party

### Materials

Salad plants (carrots, bok choy, chives), salad dressing in a jar (made of  $\frac{1}{4}$  cup brown sugar,  $\frac{1}{4}$  cup olive oil, 2 tablespoons soy sauce), other salad ingredients (slivered almonds, crunchy chow mien noodles, shredded carrots), bowls, forks, harvest salad bowls, outdoor workstation/table, knife, cutting board, cheese grater, large salad bowl, 3 buckets for 3-tier sink, dish soap, sponge, bleach, poster board, computer paper, water colors/brushes/water cups, summer seeds (flowers and beet seeds), potato starts

### Preparation

Mix salad dressing, gather supplies, set up 3-tier sink, cut worksheet in half lengthwise, pre-sprout potatoes

### Activity - 45 minutes

Intro - 5 minutes

Today the class is going to go outside and harvest the salad that we grew! We are going to go out to the garden and harvest and make a yummy salad.

Make Salad and Plant Summer Garden - 25 minutes

Have the students harvest the bok choy into their bowls. Have them bring them to the front table, and add the shredded carrots, chow mein noodles, and almonds. Drizzle salad dressing on top.

After students are done eating, have them wash, rinse, and sanitize their bowls. Place them upside-down on the table to dry. While students are finishing their salads, other students can be out in the garden, observing signs of summer and enjoying the sunny weather. When all the students are done eating and washing up, have them all gather around the class bed.

Clear the class bed of all the spring plants, being sure to remove the roots. Have students rake the bed smooth with their fingers. Using the planting plan, plant potato starts throughout the bed, then rows of carrots, rows of beets, and flowers on the end caps.

We've Tried Poster - 20 minutes

Head back inside and discuss what you've tried this year! Have students try to remember all the cool things they tasted out of the garden, and write them on the board.

Set up water colors and water cups on tables. Pass out strips of paper and have students paint a small image of all the vegetables that they have tasted, with the name of the vegetable. Have students include their name, and when they are done, paste them to the poster board labeled "Classroom Tasting Club."

#### BOK CHOI SALAD

##### *Dressing:*

- $\frac{1}{4}$  cup light brown sugar
- $\frac{1}{4}$  cup olive oil
- 2 Tablespoons soy sauce

##### *Salad:*

- 5-6 bulbs bok choy - chopped
- Shredded carrots
- $\frac{1}{4}$  cup sliced almonds
- Optional: crunchy chow mien noodles



## June - Take a Break

### *Materials & Preparation*

None

### *Activity*

In Utah, June is a quiet month in the garden. The water should be on automatic at the garden and the weeds shouldn't be too crazy yet. You should be able to walk away from the garden for the full month of June. Take a rest. Spend some time rejuvenating. Enjoy the month of calm.



## July or August - Plan a Work Party

### *Materials*

Gloves, water bottle, garbage bags, snacks

### *Preparation*

Gather a crew of helpers!

### *Activity*

Head out to the garden to see how it's doing. Gather a few helpers or spend some time working alone in the garden weeding beds and pathways. The heat of July often jumpstarts weeds, so at least one work session in the middle of the summer is necessary to keep things in check.

# September - Back to School

## Materials

Poster board, worksheet

## Preparation

Dedicate an area on your walls to the garden. By following this curriculum, your class will be creating various artworks, and it's nice if they're all grouped together into one "Garden Corner." The Garden Rules poster could be created before the lesson begins or you can create that as a class.

## Activity - 30-45 minutes

Garden Rules - 5 minutes

Let your class know that they will be working out in the garden this year! Working out in the garden can be super fun, but there are a few rules that need to be followed.

Point out the Garden Rules poster on the wall and discuss the rules with the class.

*Wasatch Community Gardens uses the following rules, but feel free to come up with your own!*

- 1. Be respectful and always listen carefully in the garden.*
- 2. Keep your feet on the pathways.*
- 3. Pick and eat only what you are invited to pick and eat.*
- 4. Don't kill any bugs, insects, or animals in the garden.*

Garden Tour and Seed Planting - 10 minutes

Go out to the garden to observe what is growing. Explain that the students in your last class planted the plants that are in the garden bed, but that this class gets to eat them! You are going to "pay it forward" in the spring when you will plant the beds for next year's students. Practice the garden rules by trying to find bugs (but not kill them!), keeping feet on pathways as you walk through the garden, and pulling weeds NOT plants. Explain that the plants that are in the bed are not quite ready to eat, but next month we will be harvesting them.

Worksheet - 10 minutes

Now that we've seen the garden, let's discuss nutrients. Write the words nutrition and nutrients on the board. Have the class discuss what they are. (Nutrition is understanding that what we eat affects our health. Nutrients are the foods we eat: the vitamins, minerals, carbohydrates, proteins, fats, and water that keep our bodies functioning.)

One way to be healthy is to get plenty of nutrients. Discussion: Ask the class if they know how to get a variety of nutrients. You get them by eating a wide variety of foods! Can the class name all the different categories of foods and an example from each one? Do they know some key nutrients from each food group, i.e. calcium from dairy, Vitamin C from fruits, iron from proteins, carbohydrates from grains, etc. It is helpful to have a MyPlate poster on the wall to help students visualize the food groups.



## October - Eating Potatoes

### **Materials**

Potatoes, waffle iron, knife, cutting board, worksheet, napkins, salt/pepper, gloves, yarn

### **Preparation**

Gather supplies, \*optional: pull images of Peru up on the SmartBoard\*

### **Activity - 45 minutes**

Learning about potatoes - 5 minutes

The very first thing the class is going to eat out of the garden are potatoes! Potatoes are a really cool vegetable, one with which everyone is familiar. What are some of the different things that are made from potatoes? (Chips, French fries, mashed potatoes, hash browns, etc.)

Did you know that potatoes are from South America? In particular, they are from the Andes, and have become very important to Peru. Peru is said to have over 4,000 types of potatoes due to a favorable variety of climates and soil that allows tubers to grow. History reveals that potatoes in Peru were domesticated in multiple locations independently. It was thought that genetic manipulation was performed by the ancient farmers on the wide variety of species and cultivars somewhere between 7,000 to 10,000 years ago. Over the years, selective breeding has been done, hence a thousand different types of potatoes remain in Peru.

Make Andean Bracelets - 20 minutes

Before we go out to the garden we are going to make bracelets as colorful as the amazing cloth that the people in the Andes wear. Let each student choose 3 colors of yarn. Once all students have their three strands of yarn, have them tape one side of their yarn to their desk. Have them twist their yarn. Twist, twist, twist the yarn until the colors are really tight and close together. Once the strands are twisted together, fold them in half and let them wind around themselves. You've created a rope! Help students tie their ropes into loops as bracelets.



Harvest Potatoes - 15 minutes

Head out to the garden and harvest all the potatoes. Being VERY careful not to disturb the other plants growing in the bed, dig up all the potatoes in the bed and put them in a bucket. Roughly rinse them off in the bucket of water, and take the clean potatoes back into the classroom.

Cook Potatoes - 5 minutes

Back inside the classroom, wash a few potatoes that you are going to eat. Grate potatoes with a cheese grater and place on a heated waffle iron. Sprinkle with salt and cook for 10 minutes. When it's done, cut it into enough pieces for each student to taste.

# November - Fiber and Beets

## Materials

Beets, orange zest, orange juice, salt/pepper, crackers, bowl, gloves, cheese grater, cutting board, pencils, worksheets

## Preparation

Grow beets, gather supplies

## Activity - 45 minutes

Intro - 5 minutes

Today we're going to talk about an awesome nutrient called FIBER. Who knows what fiber is? Fiber is a nutrient found in many foods such as whole grain breads, dried beans, fruits and vegetables. Our body does not digest fiber; therefore, it helps our stomach to feel full without providing any calories. Why is fiber good for us? Fiber helps keep our intestines healthy by promoting movement of waste out of our body. Fiber also helps us to maintain a healthy weight by providing a feeling of fullness without calories. So, basically, the long and short of it is that fiber helps our digestive system. It helps us poop, which helps keep our insides clean and healthy. We are going to do an experiment about all of this. So, fresh, raw vegetables are a good source of fiber, and we have a super yummy raw vegetable to eat today - beets. We are going to go out to the garden to make a beet salad. Now, beets are a dark purple color, and you'll see that they help you poop because after eating the beet salad today, your poop will be purple tomorrow. It works best if you eat lots of beets. The more beet salad you eat; the more purple your poop will be. Ready to try this?

Beet Salad in the Garden - 10 minutes

Out in the garden, pick beets and rinse/wipe off the dirt. Make and eat beet salad in the garden. (Stop by classrooms for jackets on the way to the garden if necessary). Wash hands on the way back into the classroom.

Physical Activity - 25 minutes

Explain that fiber works with exercise to keep your insides healthy and clean. So, now that we've eaten some fiber, we're going to do some exercises that help our digestive system. We will be doing a mixture of running and yoga. Have everyone practice the poses: Plank, Down Dog, Garden Warrior, Triangle. Once everyone gets the poses, do a few laps around the gym to warm up.

Do 2-3 laps around the gym

Do 2-3 Sun salutations: Reach to the sky, fold over and touch your toes. Put your hands on the ground and step your feet back into Plank pose. Move into Down Dog. Lift your right leg to the sky. Swing it forward and bring it forward in between your hands. Stand up into Garden Warrior. Straighten both legs and tilt into Triangle. Put your hands back on the ground and step back into Plank pose. Move into Down Dog. Lift your left leg to the sky, and swing it forward to come back into Garden Warrior on the left. Straighten both legs and tilt back into Triangle. Put your hands back in the ground, come back into Plank pose one more time. Go into Down Dog. Step your up to your hands, folding deeply into your legs. Lift up, raise your hands to the sky, and bring them back down to your sides. That's one Sun Salutation.

Repeat 2-3 times.

### BEET SALAD

#### Ingredients:

- 1 large beet - grated with a cheese grater
- 1/2 teaspoon orange zest
- 1 Tablespoon orange juice
- Pinch of salt/pepper

Grate the beets, mix in the orange zest, juice, salt and pepper. Serve on a cracker.

# WORKSHEETS

Name \_\_\_\_\_

Date \_\_\_\_\_

Can you think of a vegetable that represents each part of the plant?

Flower:

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Leaf:

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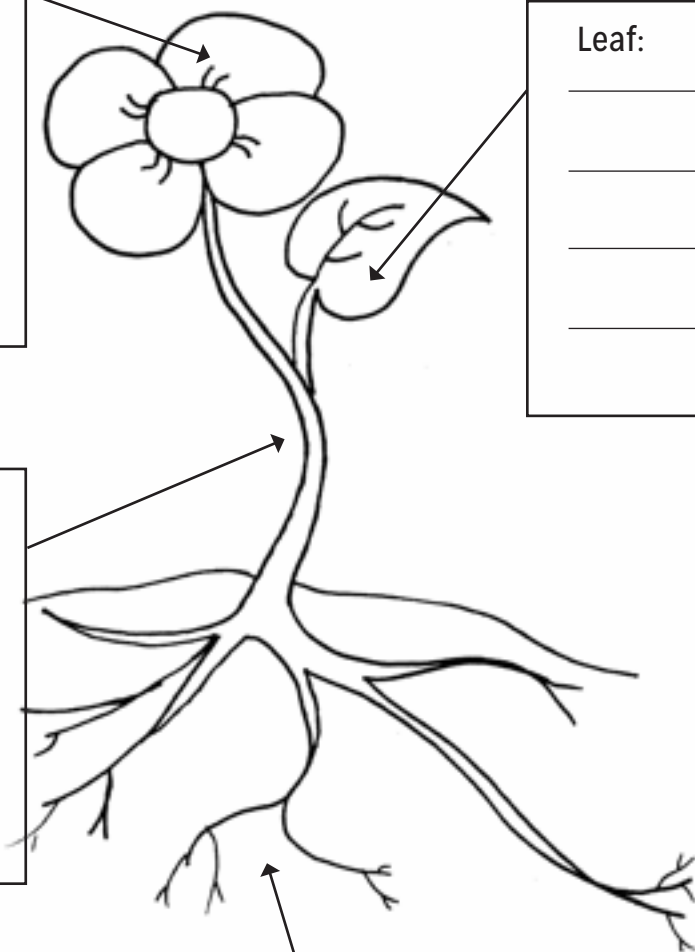
Stem:

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Root:

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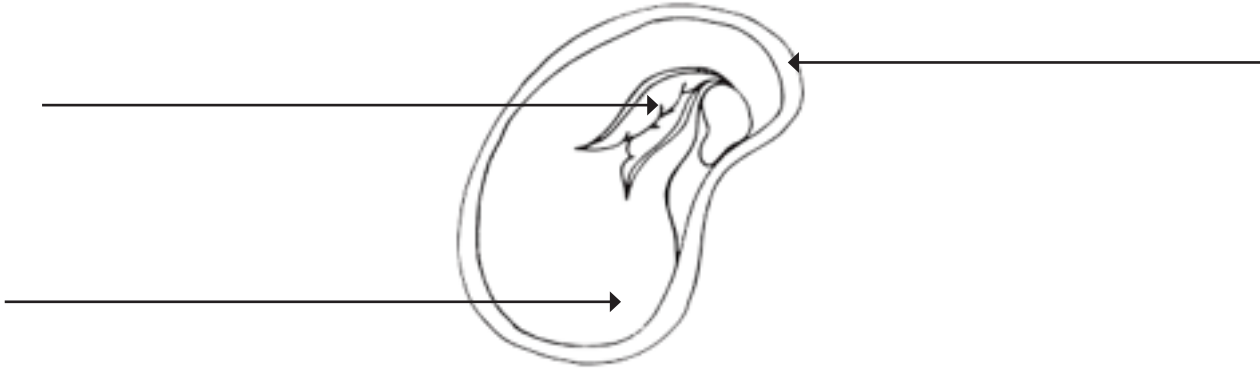
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Use the back of this worksheet to design a plant that you could eat every part of!

Name \_\_\_\_\_

Date \_\_\_\_\_

Can you label the parts of the seed that you found? (seed coat, endosperm, embryo)



You tasted 4 kinds of seeds: Put a #1 by the one you liked the MOST, a #2 next to your second favorite, a #3 next to your third favorite, and a #4 next to the one you didn't like:

Sunflower	Pumpkin	Flax	Sesame

Can you describe what the seeds tasted like?

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Name \_\_\_\_\_

Date \_\_\_\_\_

This year I tried lots of awesome foods in my school garden!





In October, I tried...	In November, I tried...	In March, I tried...	In May, I tried...
			



Name \_\_\_\_\_

Date \_\_\_\_\_

This year I tried lots of awesome foods in my school garden!

In October, I tried...	In November, I tried...	In March, I tried...	In May, I tried...
			



Name \_\_\_\_\_

Date \_\_\_\_\_

Write 3 sentences describing what you saw out in the garden:

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What is nutrition?

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What are nutrients?

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Name three nutrients:

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Can you name three different colored vegetables? Can you guess what *nutrients* they contain?

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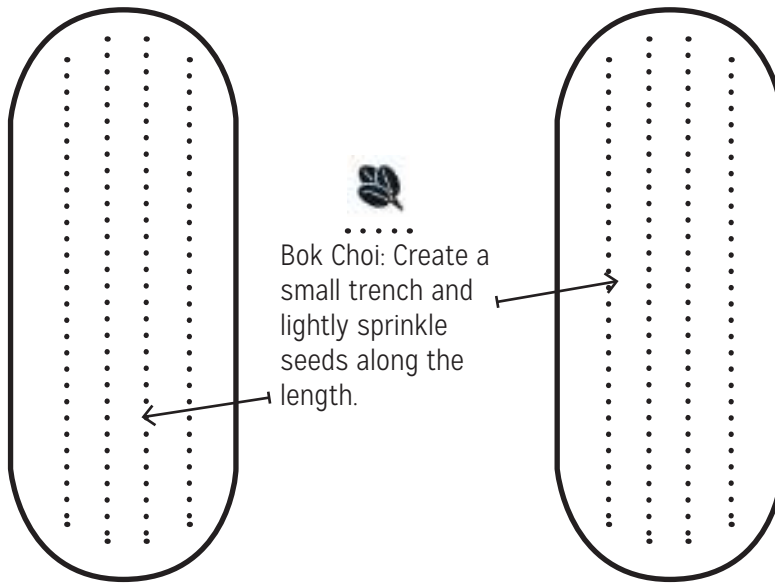
# PLANTING PLANS



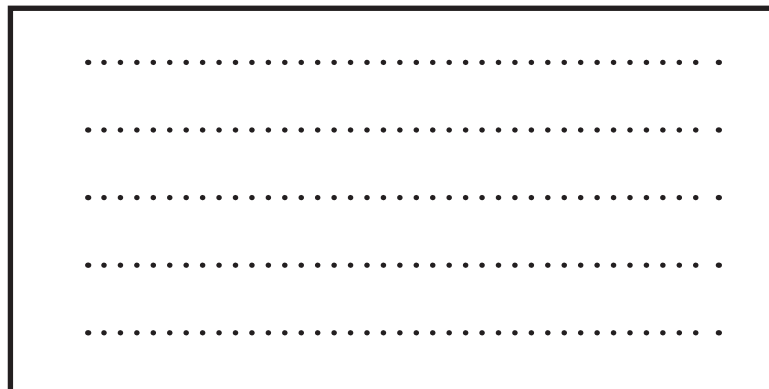



# Spring Planting Plan

Wasatch Community Gardens recommends feed-trough garden beds or raised boxes for school gardens. They are easy to maintain, hard to accidentally walk into, and have the potential to be relocated if needed. These planting plans are for either two 48-inch feed-trough beds or one 4'x 8' raised bed. Be sure to check the seed packets for detailed planting instructions (seed depth, etc). All these plants can be planted as soon as the soil is workable. For other questions, visit [www.wasatchgardens.org](http://www.wasatchgardens.org)



Example of a feed-trough garden bed



 Bok Choi: Create a small trench and lightly sprinkle seeds along the length.

## HOW TO GROW POTATOES

**1.** Measure your garden beds and determine how many potatoes you'll be able to fit if you "trench" the bed. From there, order some cool seed potatoes! You can find seed potatoes almost anywhere - from your local IFA to the big box store around the corner. For a large selection of really cool potatoes, check out [mainepotatolady.com](http://mainepotatolady.com)



*This bed has been trenched: it has 4 eight-inch deep trenches dug along its length. The piles of soil between the trenches will be used to fill in around the growing potato plants.*

**2.** After you've acquired your seed potatoes, store them in a cool, dark place while they sprout. After they've sprouted from their eyes, slice the potatoes into golf-ball sized pieces, ensuring that there are one to two sprouts on each piece.



**3.** On planting day, head out with your class to the garden. Give every student a potato, warning them to be careful NOT to break off the sprout! While the students are watching, quickly trench your bed. After the bed is trenched, have students plant their potatoes in holes 3-4 inches deep along the BOTTOM of the trenches. We like to have kids dig holes with their hands (dirty fingernails are good for you!), but you can pass out small hand tools if you'd prefer.



**4.** Throughout the summer, fill in the trenches as the potato plants grow. When the foliage has withered and died, you'll know it's time to head back out to the garden with your class to dig up your potato treasures!



# Summer Planting Plan

Wasatch Community Gardens recommends feed-trough garden beds or raised boxes for school gardens. They are easy to maintain, hard to accidentally walk into, and have the potential to be relocated if needed. These planting plans are for either two 48-inch feed-trough beds or one 4'x 8' raised bed. Be sure to check the seed packets for detailed planting instructions (seed depth, etc). For other questions, visit [www.wasatchgardens.org](http://www.wasatchgardens.org)

