



Timely Planting Information for June 2010

Teachers, there is still time to plant before school is out so that you can supply your own carrots for October's Big Crunch. All you need is a small sunny space to grow enough carrots for one classroom and someone to commit to weeding weekly in the summer. Using the Square Foot Gardening method, you can plant 16 carrots in one square foot of space! Metrically, that is 30 cm x 30 cm – a ruler by a ruler regardless.

Grade Level: all

Objectives: to plant enough carrots for your classroom to participate in The Big Crunch in October 2010. To help children understand the concepts of soil, seed and plant needs and cycles and to reinforce that seeds are an essential part of the growing cycle of plants follow up with the Spring 2010 version of *Growing Up and Down*, an imagery activity, below.

Materials: garden space with full sun, 1 package of carrot seeds, several rulers 30 cm in length; for the guided imagery, a plant mister

Time Allotment: 20 - 30 minutes to plant, 20 minutes for guided imagery

Advance Preparation: ensure that the garden space has been turned over; raked smooth

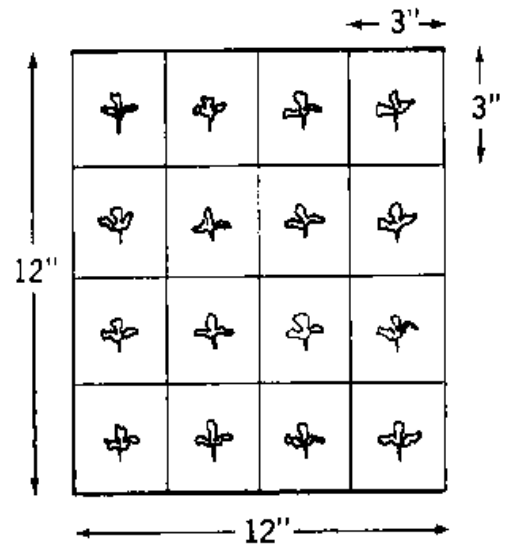
Square Foot Gardening – An Intensive Use of Space

How does it Work?

- * Based on a 12 inch by 12 inch square, which gives you 1 square foot of productive space; that is 30 cm by 30 cm for metric Mfolk! Or we can say a 'common ruler by a common ruler'
- * How many plants are placed in each square depends on the specific variety, how big plants get, how far apart they should be planted, in order to develop properly to grow to maturity; in general this still works out to the recommendations on the seed package after thinning.

16 per square foot: radish, carrots, beets, onions (3 inch spacing)

Planting Day: Lay out the rulers (or use string) to divide the space into 30 cm blocks. Ask students to use their finger (or the end of a



pencil) to make 4 rows of 4, or 16 shallow depressions for the seeds. Carrot seeds are tiny and should not be planted too deeply. The rule of thumb is to plant a seed 3 times the width of the seed. If possible plant only one seed per hole. Once the entire square has been planted, cover with some fine soil and water with a gentle stream so as to not wash away the seeds.

Why this method? Simple, versatile system; attractive as it provides a checkerboard of contrasting textures and shapes; achieves a healthier garden with 80% less work and use of space of row gardening; gives you limits to what you grow rather than emptying the entire seed packet down a row; allows you to stagger your planting over weeks; reduces the chance that a pest or disease will wipe out your entire crop because you only grow small amounts at a time in a small area; once the plants are established, they shade out weeds and act as a mulch for themselves because of the intensity; allows you a more gradual harvest so you won't feel overwhelmed. A great math exercise for children! Because you are more connected to only one square foot at a time, as you weed and water you will see problems like wilting from lack of water, pest damage, disease more readily.

For more information about this intensive method of gardening for other vegetable varieties, check out: [Square Foot Gardening](#) by Mel Bartholomew, Rodale Press, Pennsylvania ©1981 & 2005; Cool Springs Press ©2006. OR call the CHEP Community Gardening office at 655-5322 or communitygardening@chep.org and I will send you a handout.

Optional Directions for Seed Tape: Carrot seeds are tiny and sometimes difficult for little fingers to handle. A simple method is to buy carrot seeds on a seed tape, or make your own. Here are the directions. Seed tapes allow you to form shapes, spell out names or even make pictures in the soil.

Materials: cold water, ½ cup of white flour, 1 roll of single ply toilet paper or strips of newsprint, 1 clean plastic container such as a syrup or mustard dispenser, package of seeds, ruler or tape measure.

Add cold water to flour and mix until it is the consistency of thin paste. Pour the paste into the dispenser. Lay the strips of paper on a flat surface with a ruler or measuring tape alongside as a spacing guide. If using newsprint, tear into long narrow strips. FYI almost all newspapers are using vegetable dyes for their ink; newsprint tears nicely along the grain of the paper (the length). Place the small seeds in a bowl or saucer. Lay a continuous line of paste down the middle of the toilet paper/newsprint. Use the spacing suggested on the package to estimate how far apart each seed should be. While the flour paste is still moist, have the students drop a seed every so many centimetres. Let dry. To store, loosely roll up the strip and place in a paper bag. When ready to plant, lay the strip directly in the seedbed in desired lengths and designs. Sift a fine dusting of soil over the tape and sprinkle with a gentle spray of water. The paper will decompose and become part of the earth!



Growing Up and Down, Spring 2010

Laying the Groundwork: This guided imagery activity can bring seeds to life in the imaginations of children. By enacting this story, students will trace the life of a seed from storage before planting to harvesting in the fall. Because carrots are biennials, they do not flower and produce seeds until the second year, so we will end our imagery when they are harvested in year one. See explanation in *Carrot Facts*.

Explorations: Directions: Tell students that they will pretend to be seeds in their seed coats, curled up with their seed buddies, silent inside paper seed packets (children could wear jackets or sweaters to simulate their own seed coats). Ask them to crouch on the floor as seeds – closing their eyes, listening carefully and acting out what happens. Be sure they are spread out, leaving room for them to grow! Read the guided imagery.

For younger students, try this one: *Make believe you are a powerful little seed. You are very tiny and sound asleep in a package. Oops, you feel movement in the package as it is opened. Someone has picked you up and put you in the ground – you can feel and smell the dark earth. Pat, pat, pat, you have been planted! It starts to rain. You drink a little rain water. You begin to wake up and grow, first a tiny root, then another. You push and push with your little head to get through the ground, and suddenly, out pops your head. The sun shines and warms you. It makes you happy and healthy. More rain falls and you drink now. Now you really start to grow. Your arms reach out to the sun. Your legs stand firm in the soil to hold you straight and tall. The breeze gently blows you. You love the sun and the rain and the breezes. You are a healthy, happy plant. What will you be? A flower? A vegetable? A fruit?*

For older students, use this one: *Finally, winter is over, and after a wet spring, I can feel that everything is just right – the sunshine, the rain, the warmth of the soil, for a planting day. Oops, I feel some movement in the package as it is being opened... Heh! Someone is picking me up.*

Join me, as you are my seed buddies, waiting with me in the packet (students join in).

Somehow we know it is planting day! The ground was prepared for us the day before and the person is placing us into the warm, moist earth along with some dark, healthy compost and then covering us up. With a pat, pat, pat of the top of the soil, the person is gone and we are alone in the quiet comfort of the dark soil.

As seeds in the ground, we begin to wake up very slowly. Moisture from rain reaches down into the ground near us. (With a spray bottle, spray the air above the children to simulate rain. Continue reading.)

Drink! We are so thirsty that we drink until we are puffed with water! Our coat softens and splits as we swell. (children can take off their coats/sweaters) The soil around us is warmed by the sun and is just the right temperature. It feels great! Tremble and tingle as the warmth and moisture awakens us from our slumber.

But we aren't the only one down here in this healthy soil! Earthworms are squirming around on their way to find food. They are making little tunnels that will eventually help bring air and water to our roots. They are eating rotting leaves and old plants, turning them into nutrients that we can use to grow strong.

Very slowly, stretch a tiny root into the soil to absorb more water. It digs straight down, growing longer and longer each day. Drink the water and eat the food from our seed lobes. Soon we are strong enough to push our

tiny stem and leaves through the ground and into the bright sunshine. Ahhhh! Let's open our eyes as we come up out of the ground.

Next, brighten lights in the room and continue:

Spread open your little leaves and catch the sun's warmth. We no longer need the food from our seed because we can now make our own! Our green leaves combine air, water from the earth, and energy from the sun to make delicious sugar and starch for our growing body. With each day, we grow bigger and stronger!

*In the hot sunshine, we grow our taproots deeper and deeper searching for water. On some days, a warm gentle rain falls on our new leaves and soaks down to our thirsty roots. **(Use rain from the spray bottle sparingly and continue)** Drink up not only the water but also the nutrients in the soil. Can you feel that straight long tap root reaching into the soil? That root is what makes us special to people.*

Honeybees come to visit, tickling our feathery green leaves with their furry bodies. As they turn to leave, they brush off some of the pollen they have collected from other flowers.

People come to pick us and put us in this cool storage, ready to go to market. There people will take us home for dinner. Imagine what they'll make with you. Soup? A muffin? Or will they eat us raw with dip? Whatever it is, it will be just scrumptious. And many of the vitamins and minerals we contain can nourish the boy or girl who eats us.

When finished reading, pause and tell the students at the count of three to open their eyes and turn back into humans again. Take some time for them to tell everyone what they decided to be and what it was like to experience life as a seed. Review the cycle they experienced going from seed to plant. Ask them to explain how they got their food and water.

This activity has been prepared for The Big Crunch, October 2010.

For more information visit our website www.chep.org. The imagery activity was inspired from *Sprout Yourself*, healthy foods from healthy soils by Elizabeth Patten & Kathy Lyons and *So What? Sow Seeds!* The Growing Classroom by Roberta Jaffe & Gary Appel.

