



# FLORIDA RADISH



## SPECIAL NEWS

Looking for ways to get excited about radishes? Have students share ways that they might eat radishes at home.

Talk about how radishes can add color and crunch to lots of recipes. Encourage them to share what they have learned about this cool root vegetable with their families!

Look up recipes at the following website by searching “radish” so that the students can see different radish recipes.

[FarmToSchoolFL.com](http://FarmToSchoolFL.com)

## DEAR TEACHER

This month's Harvest of the Month is radishes! The lesson plans, worksheets and activities provided were developed to guide your classroom's understanding of the origins and nutritional benefits of the ravishing radish. We hope you are able to utilize all of the materials, and be sure to encourage your students to try radishes at home.

## CLASSROOM RECIPE

### RADISH AND CUCUMBER SALAD

YIELDS 24 1-OUNCE SERVINGS

#### INGREDIENTS:

- 1 Florida Cucumber, thinly sliced
- 2 bunches radishes, thinly sliced (about 16 radishes)
- 1 bunch scallions, chopped
- 3/4 cup sour cream
- 3/4 tsp to 1 tsp salt, or to taste



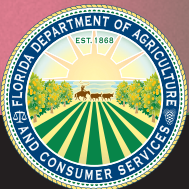
Image Credit: Natasha's Kitchen

#### PREPARATION:

1. In a medium salad bowl, combine sliced cucumbers, sliced radishes and chopped green onion.
2. In a small bowl, mix together 3/4 cup sour cream and 3/4 tsp salt or add salt to taste.
3. Stir the sour cream dressing into the salad just before serving.

Florida Farm to School:  
[FarmToSchoolFL.com](http://FarmToSchoolFL.com)

National Farm to School Network:  
[www.FarmToSchool.org](http://www.FarmToSchool.org)



*This institution is an equal opportunity provider.*



# FLORIDA RADISH FACT SHEET

## CLASS CHATTER

### DID YOU KNOW?

- One cup of sliced radishes has approximately 19 calories.
- Radishes are a type of root vegetable. Radish comes from the Latin word radix - meaning "root".
- Florida is the leading producer of radishes in the United States and harvests over 20 percent of the country's radish acreage. The bulk of Florida's radish farms can be found in Orange and Palm Beach counties, where the warm, sunny climate is ideal for growing a wide variety of vegetables.
- There are five common radish varieties grown in the United States. The most well-known variety is the red globe radish. This radish is small (1-4 inches) and has red and white coloring. It is commonly eaten whole or sliced into salads.
- Radishes were used as currency (or money) in ancient Egypt.
- When buying, squeeze radishes to be sure they are not mushy. Do not buy radishes if the tops are yellow or if there is any sign of decay.



## ALL ABOUT SERVING SIZE

The size of the serving on the food package influences the number of calories and all the nutrient amounts listed on the top part of the label. Pay careful attention to how many servings there are in the food package and ask yourself, "How many servings am I consuming?"

NUTRITION FACTS		
Serving size: 1 cup, slices		
Servings: 1		
Amount Per Serving		
<b>Calories</b>	19	Calories from Fat 0
% Daily Value*		
<b>Total Fat</b> 0g		0%
Saturated Fat 0g		0%
Trans Fat 0g		
<b>Cholesterol</b> 0mg		0%
<b>Sodium</b> 45mg		0%
<b>Total Carbohydrate</b> 4g		3%
Dietary Fiber 2g		7%
Sugars 2g		
<b>Protein</b> 1g		
Vitamin A	0%	Vitamin C 23%
Calcium	3%	Iron 2%

\*Percent Daily Values are based on a 2,000 calorie diet.

## GROWING RADISHES

- Radishes need ample sunlight to grow.
- Radishes are a fast-growing crop and grow from seed to edible plant in just 25 days.
- Radish leaves may be harvested and eaten, but do have a prickly texture.
- Over watering can cause radishes to crack and split. Older radishes will also split easily, so harvest them as soon as they are ready.



# LESSON PLANS

**CONTENT AREAS:** Lessons are most applicable for science and environmental science courses, but the content also includes standards from social studies, art, language arts and especially math.

**STANDARDS:** SC.6.N.1.5, SC.6.N.1.3, SC.7.N.1.5, SC.7.L.17.2, SC.7.L.17.3, SC.8.N.1.5, LAFS.6.SL.1.2, LAFS.6.SL.1.3, LAFS.6.SL.2.4, LAFS.68.RST.1.1, LAFS.68.RST.1.2, LAFS.68.WHST.2.6, LAFS.68.WHST.3.7, MAFS.7.SP.2.4, VA.68.C.2.1, VA.68.C.2.2, VA.68.C.2.3, SS.7.C.2.12, SS.7.C.2.13, and SS.7.C.2.14

**OBJECTIVE:** Students will analyze the history and content of radishes, create a potting mix for growing radishes, plant radishes and observe and record the growth, and evaluate the taste of their radishes.

**MATERIALS:**

- |                                    |                            |
|------------------------------------|----------------------------|
| • Coloring materials               | • potting tray             |
| • 500ml (cm <sup>3</sup> ) beakers | • newspaper                |
| • calculator                       | • sand                     |
| • metric ruler centimeters (cm)    | • compost                  |
| • plastic tub                      | • peat moss                |
| • mixing shovel                    | • perlite                  |
|                                    | • 3 different radish seeds |

**INTRODUCTION:** Post the following warm-up problem to begin the discussion on radishes:

“To obtain the proper nutrient levels for plant growth, 1mL of plant fertilizer is needed for every 50mL of soil. How much soil would be needed for 10mLs of fertilizer?”      *Answer:  $1\text{mL}/50\text{mL} = 10\text{mL}/x$        $x=500\text{mL of soil}$*

Give students five minutes to answer the warm-up and then review as a class. Ask students if they have ever tried to grow radishes. Gauge their prior knowledge by asking questions like - “What climate do radishes grow best in? How long does it take before a radish is ready to harvest?”

**GUIDED ACTIVITY:** After a brief discussion on the starter problem and radishes, ask students to independently read “*Radish History and Facts*”. Then, ask students to do additional research on radishes. Discuss key information with students, such as, “Why are radishes so popular world-wide?” or “Why are they easy to grow and harvest?”

Next, pass out the materials for the handout “*Radish Potting Mix Lab*”. Students will need at least one hour to complete this lab. Use a tub that is approximately 30cm long, 20cm wide and 6cm deep to mix your potting soil. A wheelbarrow can also be used. To create the potting mix for a class of 24 students, two bags of play sand, two bags of compost, one large bag of peat moss, one large bag of perlite and a small bag of fertilizer (or other nutrient dense soil amendment) are needed. Purchase several different varieties of radish seeds so the students are able to compare the growth rate of the different varieties and evaluate if the time it takes for them to be harvested varies between species.

**ACTIVITY 2:** For the next four weeks students are to observe and record the growth of the radishes they planted using the “Radish Observation Chart”. Once the radishes have been growing for a month or longer, students are to use their charts to complete the “Radish Evaluation Lab”.

**INDEPENDENT ACTIVITY:** Students will create a cartoon depicting how to plant and harvest radishes from start to finish.

## BACKGROUND INFORMATION

The scientific name for a radish is *Raphanus sativus*. The name derives from Greek and means “to quickly appear”. Radishes are quick to sprout as the seeds germinate extremely fast. You can harvest radishes in less than one month! The name, radish, derives from the Latin word *radix*, which means “root”. The radish is a member of the Brassica family and is native to Europe and Western Asia. It is possible that the Ancient Egyptians were the first to begin cultivating this root.

“On the pyramid it is declared in Egyptian writing how much was spent on radishes and onions and leeks for the workmen...” “ From An Account of Egypt by Herodotus.

Radishes grow well in Florida in the muck soil of the Everglades. Radish production had declined since the 1980's, but the root vegetable is still widely grown in the Palm Beach area. They are simple to grow and are machine-harvested. Every part of a radish is edible, from its flower to the root. Radishes are full of vitamin C and also contain fiber and folate. Adding radishes to salads or stir-fry adds flavor and a boost of nutrition!

**For more on these facts and additional information, please visit these sources:**

- [www.ipmcenters.org](http://www.ipmcenters.org)
- [www.gracelinks.org](http://www.gracelinks.org)
- [www.nutrition-and-you.com/radish.html](http://www.nutrition-and-you.com/radish.html)
- [www.kew.org](http://www.kew.org)
- [www.organicfacts.net](http://www.organicfacts.net)
- <http://foodfacts.mercola.com/radish.html>

## ADDITIONAL READING

- “Black Radishes” book by Susan Lynn Meyer
- Crop Profile for Radish in Florida:  
[www.ipmcenters.org/cropprofiles/docs/FLradish.pdf](http://www.ipmcenters.org/cropprofiles/docs/FLradish.pdf)
- “The Great Success of Duda’s Ready-to-Eat Radish Line” by Christina DiMartino with  
[www.theproducenews.com](http://www.theproducenews.com)



# RADISH POTTING MIX LAB

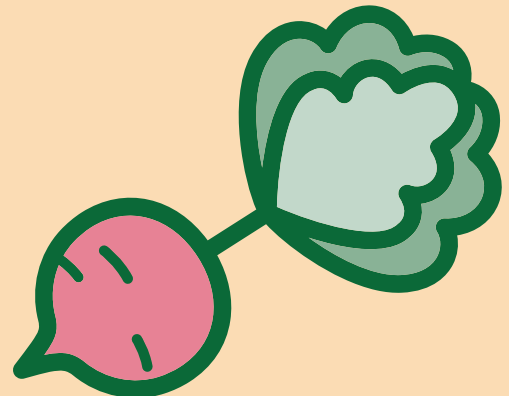
Seeds remain dormant or inactive until conditions are right for germination, the sprouting of a seed into a plant. All seeds need water, oxygen and proper temperature for germination to occur. Some seeds need specific amounts of sunlight, too. In this lab you will prepare different growth media for radish seeds and monitor the temperature and the amount of time it takes your seeds to sprout. Be sure to use a container with a minimum depth of at least 5 cm (2 inches) to grow your radishes in. Excellent quality potting mix, as well as compost, is needed for proper root growth. The soil also needs to be sifted so it is loose and fluffy. Scatter the seeds at least 1 cm (1/4 inch) apart and cover them with at least 0.5 cm (1/8 inches) of soil. Place the container in a place where it will get at least 3-4 hours of sunlight, preferably in a south facing window.

**Directions:** Follow each step to make your own potting mix to use in the potting tray. Answer the questions on your own piece of paper.

1. Find the **volume** of your potting tray. Do not measure higher than **5 cm for the height** of your tray. Show the formula for the volume of your tray (in cm<sup>3</sup>) and your work.  
Volume = length x width x height
2. Your tray will need equal amounts of sand, compost and peat moss. How will you divide the volume of your potting tray into three equal parts? Explain how you complete this step mathematically and list the appropriate amount of sand, compost and peat moss in **cm<sup>3</sup> or mL**.  
Sand \_\_\_\_\_  
Compost \_\_\_\_\_  
Peat Moss \_\_\_\_\_
3. Once you have your work **approved** by your teacher, you may mix your potting mix in a plastic tub using a hand trowel or spoon.
4. All groups need to add perlite to the potting mix to help aerate the growth medium and trap in needed moisture. The ratio of perlite to potting mix is 1:25 or 1/25. That means that for every one part of perlite, 25 parts of potting mix is needed. With that ratio in mind, show how much perlite will be needed if you have 6,500 ml or cm<sup>3</sup> of potting mix.
5. Some of the groups will receive fertilizer for their potting mix. The ratio of fertilizer to potting mix is 1:50 or 1/50. That means that for every one part of fertilizer, 50 parts of potting mix is needed. With that ratio in mind, show your work to solve how much fertilizer in mL or cm<sup>3</sup> will be needed if you have 6,500ml or cm<sup>3</sup> potting mix.
6. Describe the technique your group used to spread the seeds evenly throughout the tray in order to achieve at least one seed per cm<sup>2</sup>. Did other groups use a different method? What method worked the best?
7. On your "Radish Observation Chart," write the name/ variety of your radish and how long it will take to mature fully and be ready to harvest.

## Materials Needed:

- 500ml (cm<sup>3</sup>) beakers
- calculator
- metric ruler (cm)
- plastic tub
- small hand trowel (hand shovel)
- potting tray
- newspaper
- sand
- compost
- peat moss
- perlite
- 3 different varieties of radish seeds



# RADISH GROWTH CONDITIONS LAB

**Directions:** Choose a location for your radishes to grow over the next few weeks. Observe your group's tray and record the temperature conditions. Compare this to the temperature conditions in other locations.

## MATERIALS

- Pencil
- Clipboard
- Calculator
- Thermometer
- Radish seed packet
- Metric ruler

1. Using a thermometer measure and record the air temperature above your tray on your "Radish Observation Chart." Use a metric ruler to measure the height of your radishes and record the:  
Variety/Name of radish \_\_\_\_\_  
Days to harvest (according to seed package) \_\_\_\_\_
2. Qualitative data: On blank paper, record descriptive observations about your tray of radishes. Do the other group's radishes look different? Describe what you see. Continue to collect qualitative data over the next few weeks.

## Radish Observation Chart

Date	High Temp. °F	Low Temp. °F	Range in Temp. °F	Sprout/Seedling Height in CM
Mean (Average)				

# RADISH EVALUATION LAB

## ***Background Information:***

Radish seed packets will let you know how long it will take for the vegetable to be ready to harvest. For most radishes, the tip of the root ball should be visible above the soil. Do not wait too long, as they are quick to spoil in the ground and can split if left to mature too long. To harvest, simply grab the leaves of the radish and pull them out of the tray.

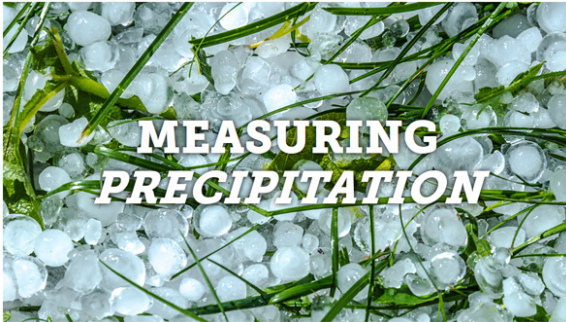
## ***Directions:***

Use your “Radish Observation Chart” to answer the following questions about the radishes your class has grown.

1. How many days passed from planting to harvesting your radishes?
2. Were your radishes ready for harvest within the harvesting guidelines on the seed package? Explain.
3. Which varieties of radishes were the fastest growing and which were the slowest?
4. What variables or factors might have influenced the growth rate of the radishes?
5. Did the radishes with the fertilizer grow faster, larger, or both?
6. Did all the radish seeds that were originally planted in your tray germinate and grow to the full maturity? Why or why not?
7. Taste test! Describe the difference in flavors of at least two of the radishes that were grown in your class (Be sure to wash them first!)

## ADDITIONAL RESOURCES

Explore these other WeatherSTEM lessons



[Weatherstem.com/resources](https://Weatherstem.com/resources)



*For more resources, please visit:*  
**FarmToSchoolFL.com**