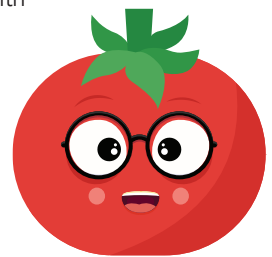


# Florida TOMATO



## Dear Teacher,

Kick off the new year learning about a tasty nutritious treat that packs a juicy explosion of colorful flavor! This month's star feature is the Florida tomato. Tomatoes come in all sorts of shapes and sizes, not to mention colors – all spectrums of the rainbow, from red to purple. There are even striped tomato varieties. With so many fantastic flavors to choose from, it's hard to pick a favorite. Open your students' eyes to the wonders of this fabulous fruit. Or is it a vegetable? Let's find out!



## Classroom Recipe

### Blender Garden Salsa 1 Serving Per Student

#### INGREDIENTS

- 2 medium Florida tomatoes, chopped
- 1/2 Florida green pepper, diced
- 1/2 Florida red pepper, diced
- 1 jalapeño, seeded and chopped
- 1 lime, juiced
- 1/2 teaspoon cumin
- 1/2 cup packed cilantro
- 1/4 teaspoon salt

#### PREP:

1. Wash all ingredients and prepare as directed.
2. Harvest fresh cilantro from your school garden.
3. Wash to remove any dirt or debris and put the whole stem with the leaves in the blender.
4. Add the remaining ingredients.
5. Blend all the ingredients on a low setting until they are just combined.
6. Serve with tortilla chips and enjoy!



#### CAUTION: HOT JALAPEÑOS

Wear disposable gloves when handling spicy peppers. Avoid contact with skin and eyes. Safely dispose of all the seeds.

## Meet Your Farmer



Florida has the perfect climate to grow tomatoes throughout the state. They can be planted as field crops or grown in hydroponic towers. Invite a farmer to visit your class to teach your students all about growing one of Florida's signature crops. Contact the Florida Department of Agriculture and Consumer Services' Farm to School team to find a tomato producer near you.

For more resources, visit these websites:

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

Tomatosphere™ Program  
[FirstTheSeedFoundation.org/Tomatosphere](http://FirstTheSeedFoundation.org/Tomatosphere)



*This institution is an equal opportunity provider.*

## Class Chatter

### Did You Know?

- Tomatoes are botanically classified as a fruit, but sold commercially as a vegetable.
- Fresh tomatoes are the third most popular vegetable consumed by Americans. Potatoes and lettuce hold first and second place.
- Florida's tomato season is from October to June. November, December and April to May are the peak harvest months for Florida tomatoes.
- Once tomatoes reach the mature green stage they are harvested by hand. It takes 100-120 days for a tomato to grow from seed to maturity.
- Tomatoes are packed full of nutrients and vitamins, particularly potassium and vitamins A and C.

## Tasty Tips



- Choose tomatoes that have a bright, vibrant skin color and are free of bruises and blemishes. A good tomato should be firm to the touch. Soft or dark spots can indicate bruising or rotting.
- Always store tomatoes at room temperature. They stop ripening and can lose their flavor when stored in the refrigerator. Storing tomatoes in a brown paper bag will trap the ethylene gas they give off, hastening the ripening process and enhancing the flavor.
- Wash tomatoes just before eating them with water that is about ten degrees warmer than the tomato.
- Store cut tomatoes in a non-metal container in the fridge. The acidity of tomatoes can react with certain metals.



## Are you getting enough Iron?

- Iron helps the blood carry oxygen to the lungs, muscles and other body tissues.
- Iron deficiency is the most common nutritional deficiency and the leading cause of anemia in the United States. Young children, adolescent girls, pregnant or breastfeeding women and women of childbearing age are considered to be at a higher risk for developing iron deficiency.
- To ensure you are maximizing your iron absorption, serve a food high in vitamin C with a plant source of iron to help increase the absorption of the iron. A chili made with plenty of tomatoes and beans is the perfect example!

### Nutrition Facts

Serving Size (1 cup)

Amount Per Serving

Calories 6      Calories from Fat 0

% Daily Value\*

Total Fat 0g      0%

Saturated Fat 0g      0%

Trans Fat 0g

Cholesterol 0mg      0%

Sodium 8mg      0%

Total Carbohydrate 1g      1%

Dietary Fiber 1g      4%

Sugars 0g

Protein 0g

Vitamin A 12%      •      Vitamin C 5%

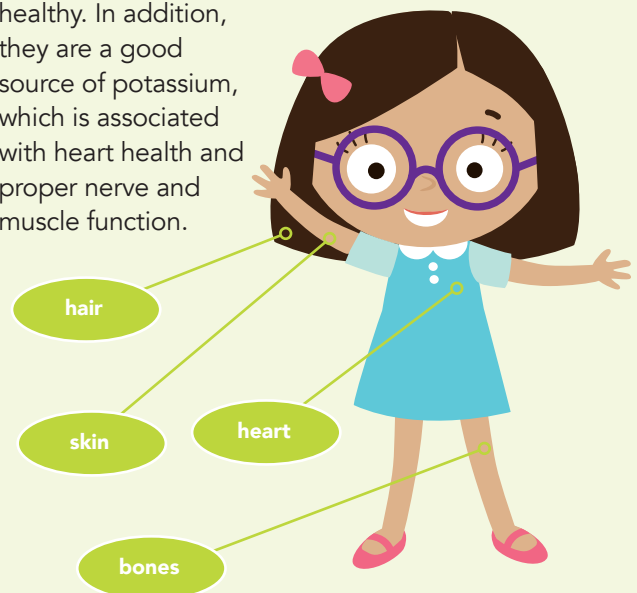
Calcium 2%      •      Iron 2%

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

## Good for Your Body

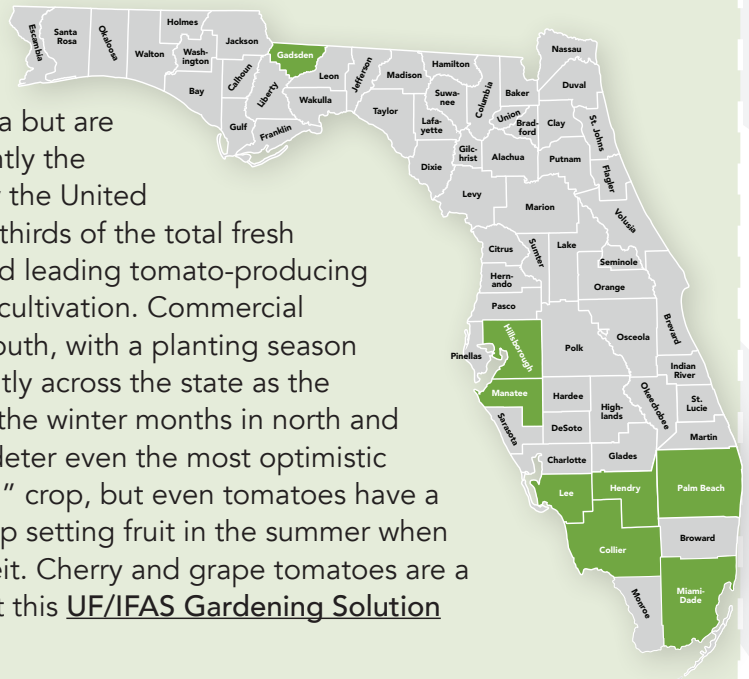
Tomatoes get their reddish hue from lycopene, a phytonutrient that plays a role in chronic disease prevention. The best way to increase the absorption of lycopene from tomatoes is to cook them!

Tomatoes also contain vitamins A and C, which may help fight infection and keep our hair, bones and skin healthy. In addition, they are a good source of potassium, which is associated with heart health and proper nerve and muscle function.



## Background Information

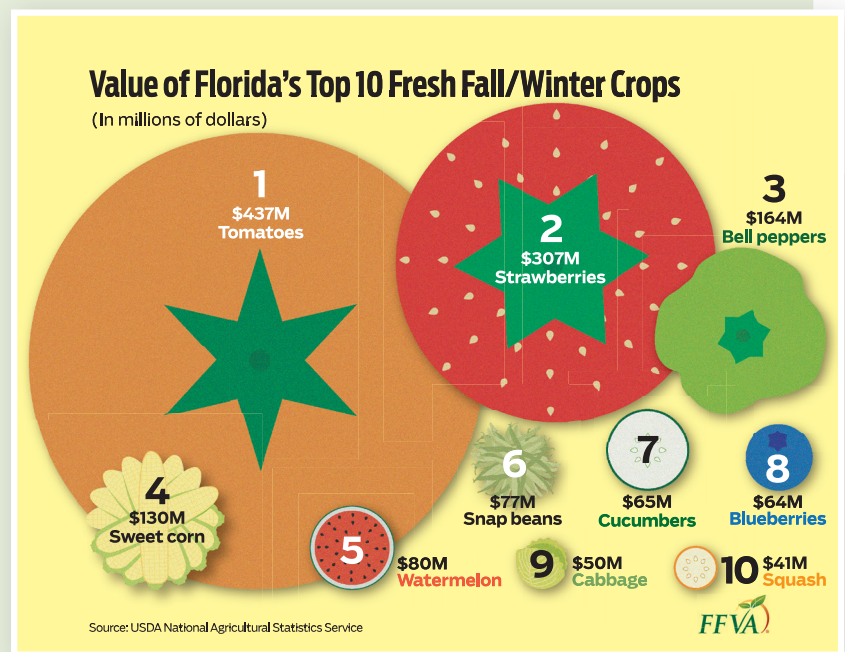
Tomatoes originated in Central and South America but are being cultivated around the world. China is currently the world's leading producer of tomatoes followed by the United States. California and Florida produce nearly two-thirds of the total fresh tomatoes for the U.S. market. Florida is the second leading tomato-producing state in the country with over 30,000 acres under cultivation. Commercial tomato production predominantly occurs in the south, with a planting season from August to February. Planting dates vary slightly across the state as the cooler weather shuts down tomato production in the winter months in north and central Florida. Any danger of frost is enough to deter even the most optimistic gardener. Tomatoes are considered a "hot season" crop, but even tomatoes have a limit. They grow best in warm weather but will stop setting fruit in the summer when evening temperatures reach 80 degrees Fahrenheit. Cherry and grape tomatoes are a great variety to try out in your school garden. Visit this [UF/IFAS Gardening Solution](#) resource for more tomato growing tips and tricks.



## Tomatoes Top the List

The following graphic from the Fresh Fruit and Vegetable Association (FFVA) shows the value of Florida's top 10 cool season crops in 2013. Using a spreadsheet program, generate a visual representation of this information to compare the economic impact of these Florida crops. Try making a bar graph, a pie chart and one other format of your choice. Choose which representation of the data is the easiest to interpret and complete the following exercises.

1. Estimate the difference between the highest value crop and lowest value crop.
2. Estimate the difference between tomatoes and bell peppers. Using the figure, estimate the total combined value of these two crops.
3. Estimate the total combined value of all the fruits. How does this compare to the highest value vegetable?
4. Calculate the actual values. How close were your estimates?



### BONUS:

If the fresh fruit and vegetable market expanded since 2013 by 10 percent, what would the total value of Florida's top 10 cool season crops be?



# SLICE INTO SOME SUNSHINE

Field-grown & freshly harvested  
by FLORIDA growers



Who knew that produce had the power to brighten your day? Field-grown and freshly harvested in the Sunshine State, Florida tomatoes are bursting with juicy flavor. But they're more than just delicious. When eaten as part of a healthy diet, they can support your body's well-being. Cooked or raw, Florida tomatoes pack a powerfully healthy punch.

## 10 REASONS TO EAT FLORIDA TOMATOES

All values are based on eating a full medium tomato (148 g)

- 1 Only 25 calories per whole tomato
- 2 The most widely available source of lycopene, a natural antioxidant
- 3 Nearly half of your daily recommended Vitamin C
- 4 A good source of Vitamin A, essential for healthy vision
- 5 Naturally fat-free, cholesterol-free and low in sodium
- 6 Offers 10 percent of your daily value of potassium
- 7 Contains 1 gram of fiber
- 8 One of nature's most versatile ingredients
- 9 Hand-grown and nurtured by Florida growers for maximum goodness
- 10 Grown in 100% Florida Sunshine

For all these reasons, you owe it to yourself to try Florida tomatoes – in salads, sandwiches, your favorite recipes, or by themselves as a tasty snack. So, bite into a slice of sunshine... and credit yourself for having a **really bright idea!**

FLORIDA  
TOMATOES  
floridatomatoes.org

## DID YOU KNOW FLORIDA IS THE NATION'S LARGEST GROWER OF FRESH FIELD-GROWN TOMATOES?

For generations, our growers have been harvesting wholesome, great-tasting tomatoes for your table!

### District 1

Peak: January – March

### District 2

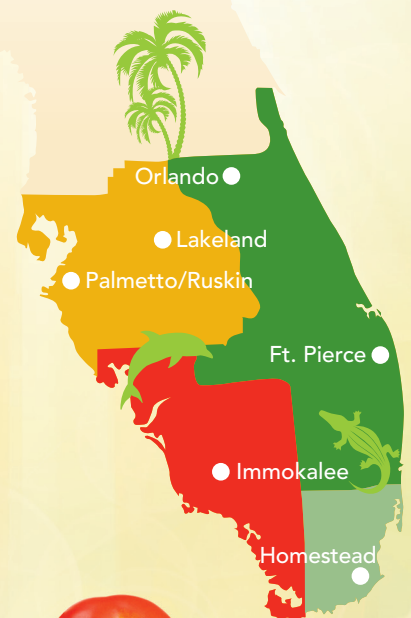
Peak: December – January  
Mid-February – May

### District 3

Peak: December – January  
Mid-February – May

### District 4

Peak: Mid-November – December  
Mid-April – mid-June



"Florida tomatoes are beautiful and delicious! I had a blast trying them in my recipes."

– Patsy Kreitman,  
author of the blog "famfriendsfood"

## Let's 'Ketchup' With The Tomato...

Throughout history the tomato has had several interesting nicknames including "apple of gold" or "apple of paradise." Tomatoes have a shady past and were once believed to be poisonous. A member of the deadly nightshade family, a German myth about werewolves followed this "wolf peach" to Europe.

### ROUND



### GRAPE



### YELLOW PLUM



### HEIRLOOM



### ORANGE CHERRY



### KUMATO



To find out when more Florida crops are in season, visit: [FreshFromFlorida.com](https://www.freshfromflorida.com)

## The Great Tomato Debate!

Contrary to popular belief, a tomato is actually a fruit. The fact that tomatoes are botanically classified as a fruit led to legal action in the United States in 1887. Tariff laws at the time imposed a duty (tax) on vegetables, but not fruits.

The matter of whether a tomato was a fruit or vegetable was brought before the U.S. Supreme Court in May 1893. They declared that the tomato would be considered a vegetable, but only when referring to the Tariff Act of 1883, allowing it to be subject to taxation.

I know I'm supposed to be a fruit, but I feel like a vegetable!



## Tomato Tips & Tricks

Take a tour of our Fresh for Florida Kids Teaching Garden and learn how to grow tomatoes! Visit this [link](#) to watch the video.

### Video Questions

1. Describe the tomatoes you saw in the video.
2. What is the difference between a determinate or indeterminate tomato variety?
3. List 3 benefits of trellising your tomatoes.

Visit the [Tomato Dirt](#) website to learn some tomato terminology.



## Science, Technology, Engineering and Math Connection

**Seeds from Space! How does outer space affect plants and seeds? Let's find out!**

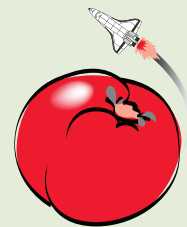
- Tomatosphere™ is a free program where K-12 students germinate tomato seeds sent back to Earth from the International Space Station to investigate the effects of the space environment on the growth of food that will inevitably support long-term human space travel.
- Tomatosphere™ engages students in scientific processes that teach and reinforce inquiry skills, while they explore concepts related to plants, space, careers, nutrition and agriculture.

Register your class today at:

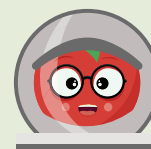
[firsttheseedfoundation.org/tomatosphere](http://firsttheseedfoundation.org/tomatosphere)

Encourage your students to utilize the following University of Florida IFAS Extension resources to learn how to grow tomatoes on Earth:

- [Tomato Varieties in Florida](#)
- [Growing Heirloom Tomato Varieties in Southwest Florida](#)
- [Tomatoes in the Florida Garden](#)
- [Florida Vegetable Gardening Guide](#)



**TOMATOSPHERE™**



I don't want to be a fruit or a vegetable! I want to be an astronaut!

### FOLLOW-UP QUESTIONS:

1. Choose three varieties of Florida tomatoes that you think would be good candidates to grow on the International Space Station. Provide reasons for your choices.
2. Compare heirloom tomatoes to traditional tomato varieties. What are the main differences and similarities?
3. Describe how you would plant tomatoes in your school garden or at home. What environmental conditions do you need to take into consideration?

## Classroom Contest:

Design a trellis for your favorite tomato. Draw an image and then construct a model of your trellis or tomato support system. Write a speech to advertise to the class the design features of your trellis to advocate for your design.

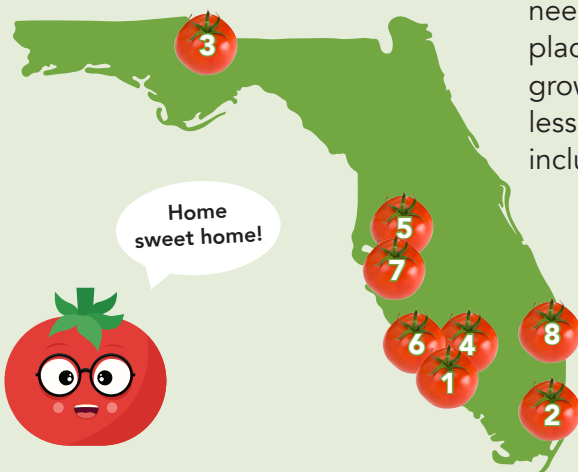
## *Temperatures and Tomatoes*

Soil temperature is a measurement of the warmth of soil and is an important factor in plant germination and blooming. Soil temperature affects the functional activity of the root system and duration of plant growth. The temperature of the upper soil layers will fluctuate with atmospheric changes. At a depth of 2 feet, the daily temperature range rarely exceeds 1 degree Fahrenheit (°F), however, seasonal variations in soil temperature can penetrate to much greater depths. It is important to monitor both daytime and nighttime soil temperatures to ensure it is the right time to plant.



This diagram shows how heat is exchanged with the soil in warm and cold seasons. During the summer, sunlight shines directly on the soil, the top layers will be warmer and heat will conduct downward into the deeper layers. Since sunlight shines at an angle in the winter months, heat from the warmer lower layers will conduct back to the surface. Seasonal crops depend on particular soil temperatures for maximum growth and productivity. Realistically, most plants will grow in soil that falls between the minimum and optimum soil temperatures for plant growth even though there is an ideal temperature for every plant.

Since the sun heats the air that comes in direct contact with the ground, air temperature directly affects the soil's temperature. In order for a tomato plant to grow, soil temperatures must remain between 50°F and 95°F; ideally, the optimal soil temperature range is between 70°F and 85°F. Warm soil helps the tomato seeds germinate faster, but tomato seedlings need to have cooler soil so the new foliage does not suffer from heat stress. The growing season for tomatoes in Florida varies depending on location but generally runs from mid-October through mid-June.



Because of the certain temperature-related constraints needed to grow tomatoes, they are only grown in a few places across the state. Some of the most productive tomato growing areas in Florida are located where temperatures are less extreme during the fall and winter months, which includes the following counties:

- Collier
- Dade
- Hendry
- Hillsborough
- Lee
- Manatee
- Palm Beach



Below is a table of the monthly average maximum temperatures (°F) observed during the tomato season for each of the tomato producing counties:

County	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June
Collier	87.3	82.2	77.8	76.0	78.5	81.0	85.4	89.7	91.7
Dade	84.4	79.7	75.9	74.4	75.0	78.0	81.4	84.5	87.1
Hendry	85.5	80.5	76.0	74.4	77.4	80.3	84.3	88.7	90.6
Hillsborough	84.8	78.8	73.7	72.1	74.7	78.2	82.7	88.1	90.4
Lee	86.7	81.3	76.6	74.7	77.2	80.4	84.6	89.4	91.9
Manatee	84.5	78.2	73.0	71.2	73.8	76.9	81.4	87.1	90.0
Palm Beach	85.1	79.5	74.7	72.6	75.1	78.4	82.8	87.2	90.6

### The WeatherSTEM Connection...

Temperature data provides information on how hot or cold the air is at a particular place and time. Specifically, temperature is the measure of kinetic energy of the air molecules. If the molecules are moving quickly, the temperature will increase, and if they move slower, the temperature will decrease. Scientists use an instrument called a thermometer to measure temperature in units of Fahrenheit (°F) or Celsius (°C).



Thermometers can be used to measure the temperature of a variety of substances, including: gases, liquids and solids. Using the information you have just read about how both air and soil temperature affect tomatoes, let's explore the possibility of growing tomatoes in your school's garden.

Using a WeatherSTEM station in your county, let's explore some different weather variables. To find the closest WeatherSTEM station to you, use the link below but replace 'your-county-name' with the name of the county where your school is located:


<https://your-county-name.weatherstem.com>

(For example, if your school is located in Leon County, visit <https://leon.weatherstem.com>)

Select an available WeatherSTEM station in your county and write down the current values for:

CURRENT TEMPERATURE		°F
LOW TEMPERATURE FOR THE DAY		°F
HIGH TEMPERATURE FOR THE DAY		°F
RAINFALL (LAST 24 HOURS)		°F



If the school you selected happens to report values of Soil Temperature, you can continue using this station for the activities. If you do not see Soil Temperature listed as one of the variables, go back to the main WeatherSTEM page for the county you selected and look for a location with a leaf icon (  ). This icon means the station is reporting agricultural measurements, such as soil moisture, soil temperature and leaf wetness. Once you have picked a station that reports these variables, you are ready to begin the activity.

## Activity #1

Using the data mining tool on the website, let's go back and look at the daily average temperature at the WeatherSTEM station over the time period of November 1, 2015 to February 29, 2016. To do this:

1. Click on and select 'Thermometer'.
2. Scroll down to the bottom of the page; select the time period from the calendar.
3. Make sure that 'Chart' is selected as the output format.
4. Set the interval to 'Daily' and operation to 'Average'.

The graph displays the average temperature for each day during our selected time period.

**Answer the following questions:**

1. What are some of the things you first notice about the data on the graph?
2. Why do you think this is the case?
3. How did you come to these conclusions?
4. Do you see any days that stand out as the lowest and highest values?

Write those dates and average temperature values down on a sheet of paper. Go back to the data mining tool and select 'Soil Temperature'. Some locations have more than one soil temperature sensor, either in different locations or at different depths in the soil. Feel free to pick more than one soil temperature for the comparison.

5. Do you see any interesting patterns or correlations between the air and soil temperatures?
6. Why do you think this is the case?

## Activity #2

Now let's compare data from a station outside of the state of Florida. Follow the same steps above, but from a different WeatherSTEM station. Find a partner to discuss the graphs based on what you learned in the previous activity and make sure you answer the following questions:

7. Why would the values be different from the two locations?
8. How can the location and local weather impact the observations?



**BONUS:**

Convert the average temperatures data found in the table from Fahrenheit (°F) to Celsius (°C).

County	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June
Collier									
Dade									
Hendry									
Hillsborough									
Lee									
Manatee									
Palm Beach									

**Explore these other  
WeatherSTEM lessons!**



[weatherstem.com/resources](http://weatherstem.com/resources)