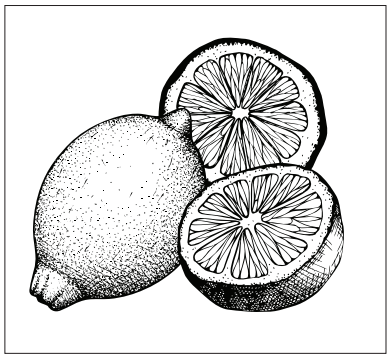
Commodity Fact Sheet

Citrus Fruits

Information compiled by Sunkist® Growers

How Produced – Citrus trees are propagated asexually through a procedure known as grafting which fuses two different varieties of plants. In the case of citrus trees, one variety, the rootstock, is selected for its hardiness and the other variety, the scion, is selected for for its high-quality fruits. The rootstock, grown from a seed, is typically a two- to three-year-old seedling while the scion is a bud from a mature tree. Through grafting, the scion fuses to the rootstock and becomes a new tree. In approximately five years, the tree produces the same variety of fruit that was budded onto the rootstock. The successfully grafted trees are sold to citrus growers through wholesale nurseries and are certified disease-free. There are approximately 270,000 bearing acres of citrus trees in California.



History – Oranges and lemons can be traced back to the ancient Middle East. In Sanskrit, the oranges and lemons were called “Nagrunga” and “Nimbu” and their nectar was used both as a drink and as medicine. The Arabs called oranges “Naranji” while the Romans called them “Arancium.”

All navel oranges are related to each other and can be traced back to the Washington navel tree that still stands today in Riverside, California. Eliza Tibbets, a Riverside pioneer, is credited with planting California’s first two Washington navel trees in 1873. The resulting sweet seedless oranges helped launch Southern California’s modern citrus industry.

Varieties – Citrus fruits of one variety or another are available year-round from California, Arizona, Florida, and Texas. Navel oranges, a consumer favorite, are sweet, seedless and easy to peel. They are winter oranges, available November through June, and derive their name from their distinctive blossom end. Cara Caras are a type of navel orange which is available December through May. They have a rich pink pulp, are naturally sweet, low in acid, and seedless. Valencia oranges, which are excellent for juicing as well as for eating fresh, are summer oranges available February through November. California also produces Moro and Sanguinelli “Blood” oranges, named for their exterior blush and ruby interior flesh.

Traditional lemons, such as the Eureka and Lisbon varieties, are a California classic and available all year long. They have a tart flavor and a zesty peel. Traditional lemons are not typically eaten as a whole fruit but are wonderful flavor enhancers. Meyer lemons have a golden peel and, as a cross between a mandarin and a lemon, are less acidic than traditional lemons.Desert grapefruit are harvested November through December while summer grapefruit are available April through October. Specialty citrus includes Melo Golds and Oro Blancos, grapefruit varieties that are popular with those preferring a sweeter taste. Pummelos, or “Chinese” grapefruit, considered a delicacy among many Asian cultures, are the largest of all citrus fruits. Almost a dozen different mandarin, tangelo, and tangerine varieties, such as Clementines, Gold Nuggets, and Pixies, are available November through May. Most are easy to peel and have a lively flavor. Minneola tangelos, available December through May, are a cross between a grapefruit and a mandarin. They are juiciest variety.

Commodity Value – California is the leading producer of fresh citrus varieties for consumption and second only to Florida in overall citrus production. Both oranges and lemons are among the top 20 commodities produced in the state as listed by the California Department of Food and Agriculture. Oranges and their products are also one of California’s leading agricultural exports. South Korea is the top importer with Canada, Hong Kong, and Japan following closely. Other importers include Singapore, Malaysia, Australia, New Zealand, and Taiwan. Lemons are also a high value export crop. Japan is the largest importer of California lemons.

Top Producing Counties – Most of the nation’s fresh citrus products are produced in California and Arizona. The ideal climate in these areas permits the growth of fruit that is as pleasing to the eye as it is to the flavor. The leading counties in California citrus production include Tulare, Kern, Fresno, Ventura, Imperial, Riverside, and San Diego.

Nutritional Value – Citrus is well known for its high vitamin C content, a key nutrient that supports your immune system and health. Eating citrus is an easy way to meet your daily needs. Cara Cara Navel oranges, also called The Power Orange®, contain 100% of the daily recommended vitamin C intake as well as vitamin A, folate and fiber. Oranges, lemons, grapefruit, mandarin, tangelos and tangerines are great tasting, low calorie foods that are good sources of carbohydrates and fiber. They are also sodium-, cholesterol-, and fat-free.

For additional information:
Sunkist Growers
Website: www.sunkist.com

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This is one in a series of fact sheets composed by the California Foundation for Agriculture in the Classroom (CFAITC). For additional educational materials: CFAITC, 2600 River Plaza Drive, Suite 220, Sacramento, CA 95833-3293 • (916) 561-5625 • (800) 700-AITC • Fax: (916) 561-5697
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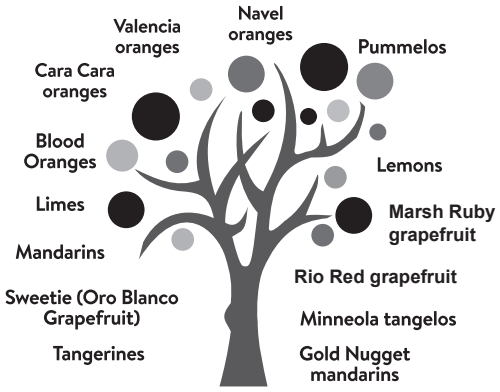
Citrus Fruit Activity Sheet



Citrus Varieties

Availability of Citrus Varieties by Month												
ORANGES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
NAVEL ORANGE	■	■	■	■	■	■					■	■
VALENCIA ORANGE		■	■	■	■	■	■	■	■	■	■	
CARA CARA ORANGE	■	■	■	■	■							■
BLOOD ORANGE	■	■	■	■	■	■						
GRAPEFRUIT												
CALIFORNIA STAR RUBY				■	■	■	■					
MARSH RUBY							■	■	■	■		
PUMMELO	■	■	■							■	■	■
SWEETIE (Oro Blanco)	■										■	■
MELO GOLD											■	■
TANGELOS												
MINNEOLA TANGELO	■	■	■	■								■
MANDARINS												
CLEMENTINE										■	■	■
W. MURCOTT	■	■	■	■	■						■	■
GOLD NUGGET		■	■	■	■	■						
LEMONS	■	■	■	■	■	■	■	■	■	■	■	■

Lesson Ideas

- Test the pH of a citrus variety and two non-citrus fruits. Create a hypothesis and compare your findings.
- Experiment with the effect lemon or lime juice has on cut avocados or apples. Explain the significance of pH and enzymes in cut fruit preservation.
- Use the citric acid of a citrus fruit to create electricity.
- Make orange, lemon, or grapefruit juice popsicles.
- Make a bar graph comparing the vitamin C content of different fruits, including citrus fruits.
- Observe and practice various grafting techniques used in growing citrus trees.
- Perform experiments that show the effects of freezing on citrus fruits.
- Compare the climates of different citrus growing regions of the world.
- Determine the percentage of water in a citrus fruit.
- Measure and graph the peel to fruit weight ratios of several different citrus fruits.

Fantastic Facts

1. California and Arizona produce most of the United States' fresh citrus fruit.
2. Citrus fruit trees are reproduced by grafting.
3. Citrus has nutrients, like vitamin C, that support your immune system and health.
4. Cara Cara Navel oranges offer the most vitamin C with 100%of the daily recommended intake in just one orange. They are called The Power Orange® because they also provide fiber, folate, potassium and vitamin A.
5. Navel oranges are named for the small, navel-like formation on their blossom end.
6. Cara Cara Navel oranges and grapefruit have a natural pink to ruby tint, which is due to the natural presence of the antioxidant lycopene.
7. You can reduce the amount of salt you use without sacrificing flavor by adding lemon zest and juice to your meals.
8. Blood oranges are known for their rich, ruby-colored flesh, which they get from high concentrations of anthocyanins – natural plant pigments that have antioxidant properties.

Lesson Plan: What's Inside?

Introduction: From pummelos to pixies, citrus fruits come in a wide range of sizes. They also differ in quantity of segments, presence of seeds, and volume of juice.

Objective: Students will examine a variety of citrus fruits. They will estimate and then measure the quantitative characteristics of the fruit.

California Standards: CC Math: 3-4.MD.2,4; 5.MD.2; 6.SP.4; HS.N-Q.1,2,3

Materials: A variety of whole citrus fruits (oranges, limes, grapefruit, lemons and tangerines), knife, paper towels, juicer (optional), string, ruler, balance, crayons.

Procedure:

1. Have students predict how many segments and seeds they will see when the fruits are cut cross-wise. Plot the estimates on a graph. Use unit fractions as appropriate.
2. Weigh each fruit whole and record the results. Measure the circumference using a string and a ruler. Plot the results on a graph.
3. Cut the fruit cross-wise and count the number of segments and seeds. Record and chart the results and compare to the estimates.
4. If seeds are present, remove and dry for planting at a later date.
5. Use the juicer to remove the juice from the fruit. Reweigh the citrus halves to determine the juice content of the citrus fruit. Plot the fruit weight and juice weight on a graph.
6. Mix the juices to make a citrus drink for the class to enjoy.

07/20 Learn About Ag This Fact and Activity Sheet was developed by California Foundation for Agriculture in the Classroom in conjunction with California educators and meets the required education standards of the California Department of Education.