

SC Farm Bureau
Ag in the Classroom
Post Office Box 754
Columbia, SC 29202



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Sylvia's Spinach

By: Katherine Pryor

Sylvia is a picky eater, and she especially dislikes spinach. One day, her teacher gives each student in her class a different seed packet, and Sylvia ends up with...you guessed it...spinach! Each student plants their seeds, and Sylvia's spinach was the very last to sprout leaves. Eventually the class plants their sprouts in the school garden, and this time, Sylvia's spinach is among the first vegetables ready to be harvested! When it is time to sample the vegetables they grew, Sylvia surprises herself by tasting her spinach and discovers she actually likes it! This wonderful story about Sylvia confirms the studies that young people will often try a food they dislike if they are involved in the growing process, and most will continue eating it!



Did You Know? (Ag Facts) ²

- Spinach is an excellent source of Vitamin K, which helps prevent heart disease, builds strong bones, and plays an important role in blood clotting.
- Spinach is a cold-hardy crop, meaning it can withstand hard frosts with accompanying temperatures as low as 20°F.
- Spinach is thought to have originated in ancient Persia (Iran).

Discussion Questions

- Why doesn't Sylvia like spinach?
- What does it take to care for a plant?
- Why is it important to eat vegetables even if we don't love them?

Grade Level(s): K-3

Purpose: Students will be able to name the six parts of the plant, and a food we eat from each plant part.

Vocabulary:

- **agriculture:** the science and business of growing crops and raising livestock
- **commodity:** fruits, vegetables, nuts, or grains as a unit that are bought or sold
- **farmer:** a person who produces food, fiber, or plants for others to use
- **nutrient:** a chemical component of food that is essential, in some quantity, to a living organism

Background Agricultural Connections: ³

The fruits and vegetables we eat come from parts of plants. Flowering plants have six main parts—roots, stems, leaves, flowers, fruits, and seeds. Each plant part serves a different function.

Roots act as anchors, holding a plant in place. They take up water and nutrients a plant needs from the soil. Roots can also store extra food for future use. Beets, carrots, radishes, and turnips are examples of edible roots.

Stems provide support for leaves, flowers, and fruit. Water, nutrients, and sugars travel to and from other parts of the plant through the stem. Asparagus is a stem that can be eaten.

Potatoes, often mistakenly thought to be roots, are actually enlarged underground stems called tubers.

Leaves use energy from sunlight to carry out photosynthesis and make food for the plant.

Edible leaves include arugula, cabbage, lettuce, mint, and spinach. Celery and rhubarb, commonly thought to be stems, are actually the part of a leaf called the leaf stalk or petiole.

Flowers contain the parts of the plant necessary for reproduction and play an important role in pollination. The shapes, colors, and scents of some flowers attract insect and animal pollinators. Following pollination, the fertilization process occurs within the flower. During fertilization, the ovary swells and seeds are produced. The flowers of some plants are edible. Broccoli and cauliflower are flowers that can be eaten.

Fruit is the part of the plant that contains seeds. This botanical definition includes many foods that are typically considered to be vegetables, such as cucumbers and green peppers, as well as more commonly recognized fruits, such as apples, oranges, bananas, and strawberries.

Seeds have three parts—the embryo, the endosperm, and the seed coat. The embryo grows into a new plant, the endosperm provides nutrients for the embryo, and the seed coat is the protective outer covering that encloses the embryo. With proper conditions, seeds will grow into new plants. Corn, wheat, peanuts, black beans, and sunflower seeds are examples of edible seeds.

It is important for students to understand that not all roots, stems, leaves, flowers, fruits, and seeds are edible and that some may even be harmful to humans if eaten. Stress the importance of not eating parts of wild plants unless a trusted adult is confident that the plant parts are safe to eat.

Plant Parts We Eat ⁴

Materials:

- Vegetable samples/salad parts
- Plant Part Diagram
- *Sylvia's Spinach* by Katherine Pryor
- Plant Parts We Eat
- Gloves for teacher when handling food
- Utensil to cut vegetables

Procedures:

1. Discuss with students how plants are an important part of our everyday life. We need them to make air and they provide food and fiber so that we can have something to eat and something to wear. They are also used to give us homes and they provide us transportation. In some way, we use every part of the plant. We eat the root of some plants, the leaves of other plants, and we eat the fruit. It is seldom that we eat the entire mature plant. Usually when we eat plants we call them either fruits or vegetables. Since most plant foods are grouped into the two groups many of the foods we eat as vegetables are actually fruits. Some of the foods we call vegetables are not vegetables at all. They belong in another group. Plant scientists have given us some ways to tell if a plant is a leafy food (vegetable) and root food (not a vegetable) and a tuber (not a vegetable) and a fruit.
2. Display the following definitions for students and discuss.
 - a. A **fruit** is a fruit if the seed is surrounded by a fleshy part that we eat. Foods such as apples, bananas, cucumbers, peppers, tomatoes, squash are all fruits because there is a fleshy part around the seed that we eat.
 - b. True **vegetables** are the leaves, stems or immature flowers of plants. They include things like lettuce, cabbage, turnip greens, celery, cauliflower and asparagus.
 - c. We also eat the **roots** of some plants. A root is under the ground and has many hair-like parts that get minerals and water from the soil. Root foods include carrots, radishes, parsnips, and turnips.
 - d. Potatoes are not root, even though they grow underground. They are not vegetables either. They are actually **tubers** (underground swollen stems).
 - e. Onions are not roots either. They are stems and leaves that grow under the ground.
 - f. Sometimes we eat only the **seeds** of a plant. Some of these foods include corn, peas, and beans. However, they also include nuts like pecans, walnuts and almonds. Other seeds we eat are rice, wheat and oats.
3. Look at Plant Part Diagram. Explain to students that you will be reading *Sylvia's Spinach* and you want them to think about what part of the plant the spinach may be.
4. Read *Sylvia's Spinach* and utilize discussion questions above. Help students come to the conclusion that spinach is the leaf of a plant.
5. Ask the students to examine each fruit or vegetable that has been brought to class. Display Plant Parts We Eat. Once again go over the definition of a fruit. Examine the foods brought in. (This would work great under a document camera so that students do not touch the food. Wash the vegetables before this lesson as students will be tasting after the exploration.)

- Determine where the seed might be. Cut the foods in half. Examine for seeds. If there are no seeds what part of the plant did this food come from?
 - Determine how many foods brought were fruits.
 - Determine how many foods brought were vegetables (leafy or immature flowers)
 - Determine how many foods brought were roots or tubers.
 - Determine how many foods brought were seeds.
6. Let the students taste and enjoy!

Edible Plant Game ⁵

Materials:

- Edible Plant Part Cards, 28 cards printed on cardstock
- Colored pencils
- PowerPoint presentation showing color photos of fruits and vegetables (pages 1-33 of this PDF - https://cdn.agclassroom.org/media/uploads/2015/12/09/Edible_Plant_Game_and_Cards.pdf)

Procedures:

1. Show the Edible Plant Game PowerPoint slide show to the class. Discuss the description of each fruit or vegetable as you show each picture. Talk about how the fruit or vegetable is grown, what part of the plant is consumed, and what nutrients it provides. Explain to students that they will be playing a game based on the information from the presentation.
2. Reproduce the edible plant cards on cardstock. Give one to each student and instruct them to color their plant card with colored pencils.
3. You will need 28 participants for this activity. If you have fewer students, assign more than one card to several students. If you have more students, make extra copies of some of the cards.
4. After students have colored the cards, collect them and shuffle them. Pass a card out to each student. Instruct students to form a large circle and hold their edible plant card in front of them.
5. Begin the game by having one student read his or her question from the card aloud. The student who has the correct answer will hold his or her card up for the class to see and say, I am a _____. Then that student will read the question from their card aloud to the class. Continue the game until all 28 cards have been shared.
6. After the class has done the activity once, redistribute the cards so everyone has a new food. Do the activity again, this time a little faster!

Extension Activities:

- Play the My American Farm interactive game [Finders Keepers](#).
- Read the book, *To Market, To Market*, by Nikki McClure. This beautiful story follows a mother and son to the farmer's market. As they check off items on their shopping list, the reader learns how each particular food was grown or produced, from its earliest stages to how it ended up at the market.

Suggested Companion Resources:

- [A Seedy Fruit Challenge](#)
- [Endless Options](#)
- [Food Group Puzzle](#)
- [Mapping Meals Activity](#)
- [Portion Size Comparison](#)
- [The Healthy Hop 'n Shop](#)
- [An Orange in January](#)
- [Good Enough to Eat: A Kid's Guide to Food and Nutrition](#)
- [Plants Feed Me](#)
- [The Fruits We Eat](#)
- [The Scrambled States of America](#)
- [To Market, To Market](#)
- [MyPlate Activity Poster](#)
- [Nutrition Posters](#)
- [What is a Fruit? What is a Vegetable? Bulletin Boards](#)
- [Brittlelactica: Planet in Need](#)
- [Eat & Move O-Matic](#)
- [Ag Today](#)
- [My American Farm](#)
- [State Agricultural Facts](#)

Sources/Credits:

1. Pryor, Katherine. *Sylvia's Spinach*, Readers to Eaters, 2012.
2. NC Ag in the Classroom
3. Utah Ag in the Classroom
4. Alaska Ag in the Classroom
5. California Ag in the Classroom

Suggested SC Standards Met:

English/Language Arts:

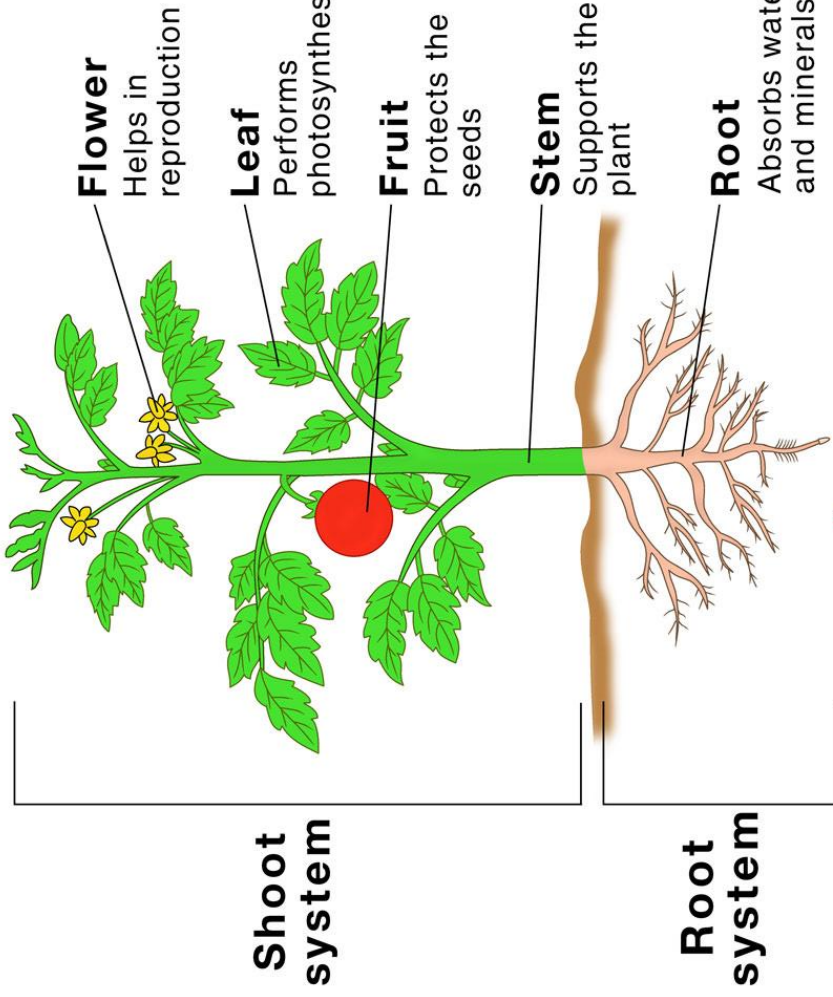
- K.RL.5.1 With guidance and support, ask and answer who, what, when, where, why, and how questions about a text; refer to key details to make inferences and draw conclusions in texts heard or read.
- K.RL.5.2 With guidance and support, ask and answer questions to make predictions using prior knowledge, pictures, illustrations, title, and information about author and illustrator.

- K.RL.6.1 Describe the relationship between illustrations and the text.
- K.RL.7.1 With guidance and support, retell a familiar text; identify beginning, middle, and end in a text heard or read.
- K.RL.7.2 Read or listen closely to compare familiar texts.
- K.RL.8.1 With guidance and support, read or listen closely to: a. describe characters and their actions; b. compare characters' experiences to those of the reader; c. describe setting; d. identify the problem and solution; and e. identify the cause of an event.
- 1.RL.5.1 Ask and answer who, what, when, where, why, and how questions to demonstrate understanding of a text; use key details to make inferences and draw conclusions in texts heard or read.
- 1.RL.5.2 Make predictions using prior knowledge, pictures, illustrations, title, and information about author and illustrator.
- 1.RL.6.1 Describe the relationship between the illustrations and the characters, setting, or events.
- 2.RL.5.1 Ask and answer literal and inferential questions to demonstrate understanding of a text; use specific details to make inferences and draw conclusions in texts heard or read.
- 2.RL.5.2 Make predictions before and during reading; confirm or modify thinking.
- 2.RL.8 Analyze characters, settings, events, and ideas as they develop and interact within a particular context.
- 3.RL.5.1 Ask and answer literal and inferential questions to determine meaning; refer explicitly to the text to support inferences and conclusions.
- 3.RL.8 Analyze characters, settings, events, and ideas as they develop and interact within a particular context.

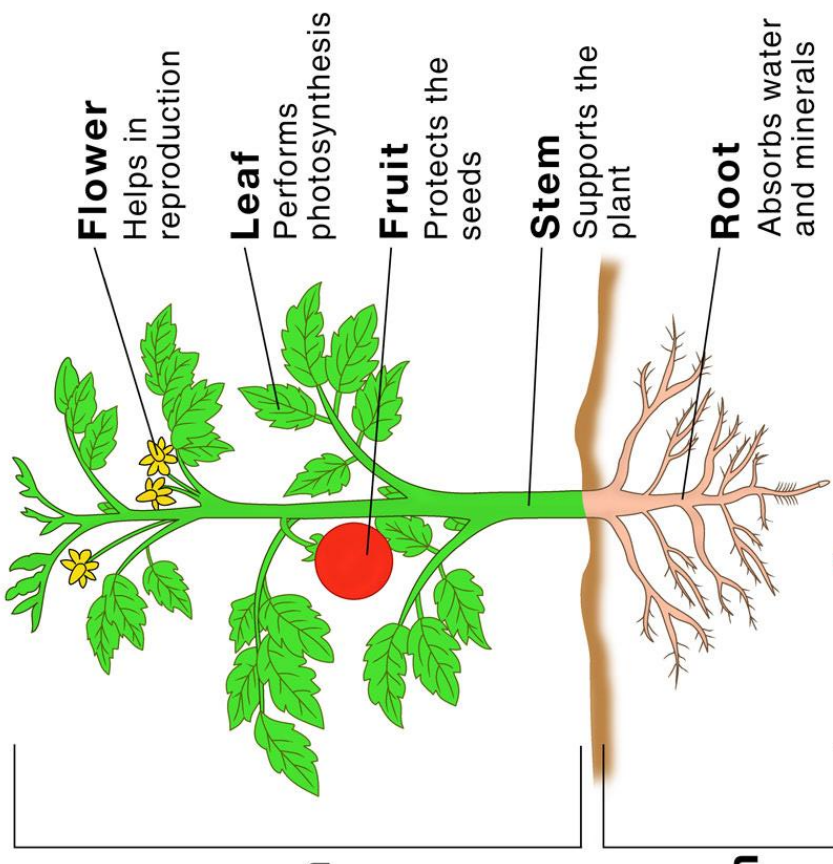
Science:

- K.L.2: The student will demonstrate an understanding of organisms found in the environment and how these organisms depend on the environment to meet those needs.
- 1.L.5: The student will demonstrate an understanding of how the structures of plants help them survive and grow in their environments.
- 2.L.5B.1 Obtain and communicate information to describe and compare how animals interact with other animals and plants in the environment.
- 3.L.5A.2 Develop and use a food chain model to classify organisms as producers, consumers, and decomposers and to describe how organisms obtain energy.

Parts of a Plant



Parts of a Plant



Flowers



Cauliflower



Broccoli



Artichoke

Stems



Rhubarb



Asparagus



Celery

Leaves



Cabbage



Lettus



Spinach

Roots



Carrots



Radishes



Potatoes



Sweet Potatoes

Seeds



Corn



Beans



Peas



Popcorn

Fruits



Tomatoes



Peppers

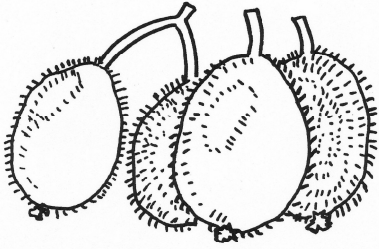


Cucumbers



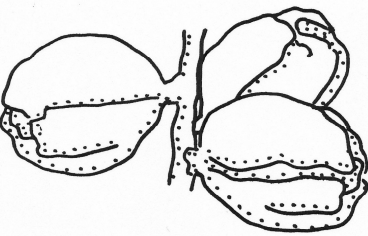
Pumpkins

I AM A KIWIFRUIT



Who looks like a baby cabbage and is a good source of Vitamin C?

I AM A BRUSSELS SPROUT



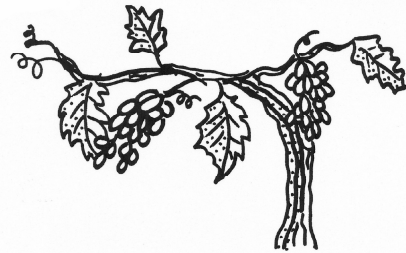
Who is the top producing agricultural state in the U.S.?

I AM CALIFORNIA



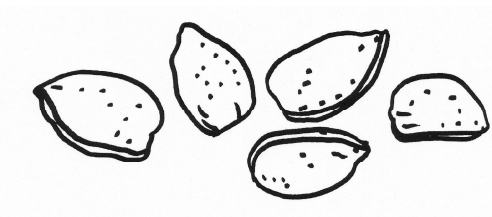
Who is the fruit that can be dried to make raisins?

I AM GRAPES



Who is the nut that may be eaten roasted or raw?
California is the world's top producer of these nuts.

I AM AN ALMOND



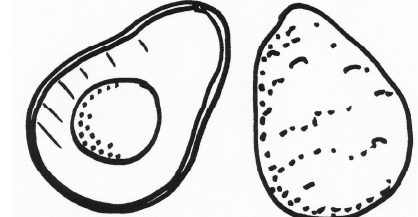
You should fill half of your plate with fruits and _____?

I AM VEGETABLES



Who is a green fruit that when mashed up makes a tasty dip for chips and topping for tacos?

I AM AN AVOCADO



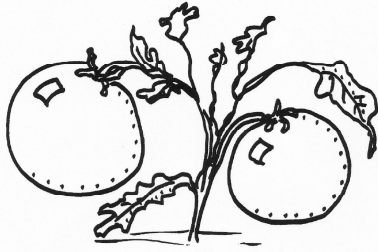
Who is a type of squash grown for Jack O' Lanterns at Halloween and pies at Thanksgiving?

I AM A PUMPKIN



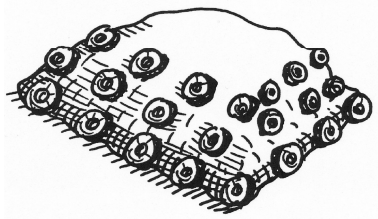
Who is a red fruit that is used in pizza and spaghetti sauces and is a good source of Vitamin C?

I AM A TOMATO



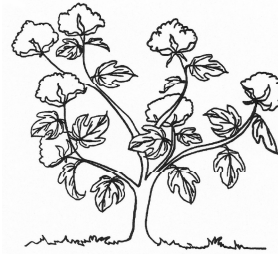
Who is a livestock feed made of fermented grass crops like clover, alfalfa, and corn?

I AM SILAGE



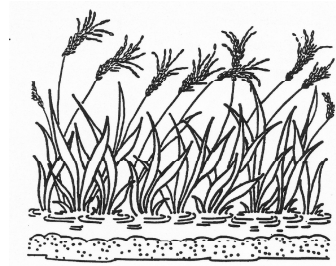
Who is a plant that makes fabric for clothes?

I AM COTTON



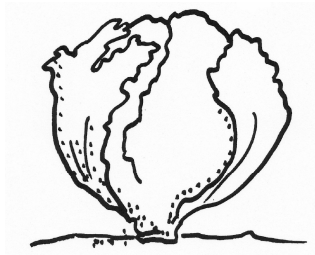
Who is a grain that is planted by dropping seeds from airplanes that fly over flooded fields?

I AM RICE



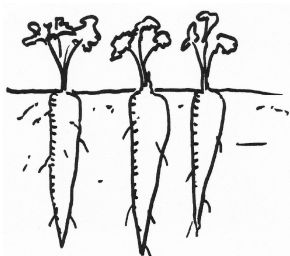
Who is the type of salad green that has a very cold name?

I AM ICEBERG LETTUCE



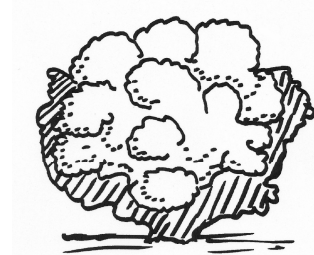
Who is an orange root that is full of Vitamin A?

I AM A CARROT



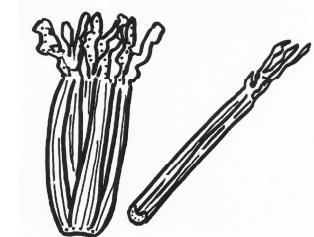
Who is a white flower that people eat?

I AM CAULIFLOWER



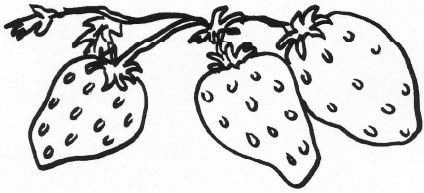
Who is a green stem that is sometimes eaten with peanut butter or cream cheese?

I AM CELERY



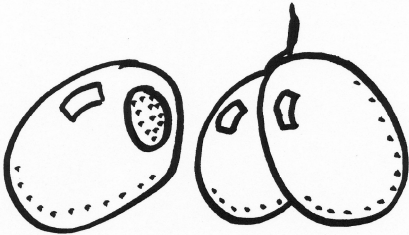
Who is a red fruit that is a good source of Vitamin C with lots of tiny seeds on its outside?

I AM A STRAWBERRY



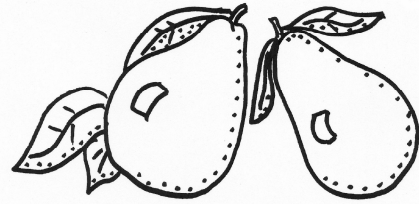
Who is a black or green fruit that is sometimes put on pizzas and is used to make cooking oil?

I AM AN OLIVE



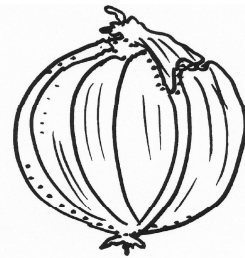
Who is a yellow, green, or brown tree fruit that is high in fiber and has a slightly gritty texture?

I AM A PEAR



Who is a bulb that grows underground and makes your eyes water when you cut it?

I AM AN ONION



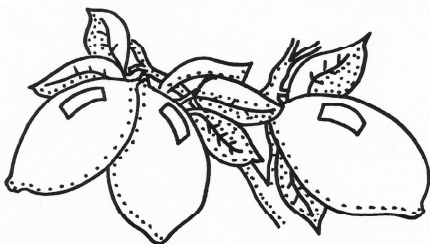
Who is a green, edible flower with spiky ends? California is a leading producer of these vegetables.

I AM AN ARTICHOKE



Who is a sour yellow citrus fruit?

I AM A LEMON



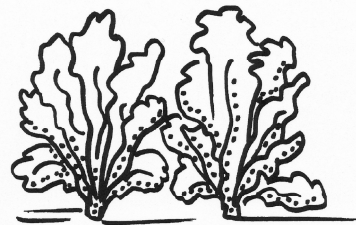
Who is a grain used to make most breads in the United States?

I AM WHEAT



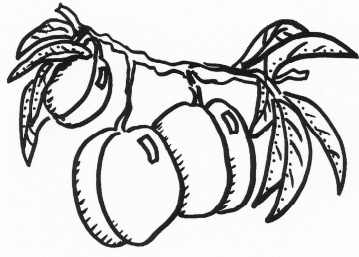
Who is a leaf that is often added to salads for a source of Vitamin A?

I AM SPINACH



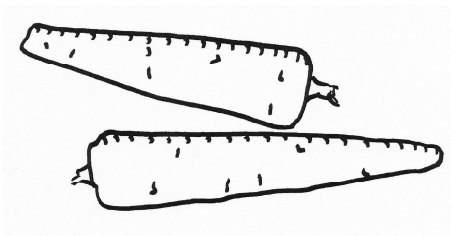
Who is a fuzzy fruit with yellow to pink skin that can be eaten fresh or canned?

I AM A PEACH



Who is a white root vegetable that looks something like a carrot?

I AM A PARSNIP



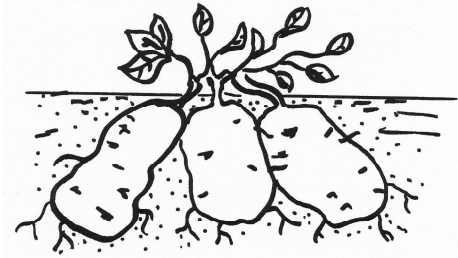
Who is a pink to red melon with black seeds?
Sometimes these melons can be seedless.

I AM A WATERMELON



Who is an underground stem called a tuber that comes in many varieties, including russet, red, and Yukon Gold?

I AM A POTATO



Who is a brown, furry skinned fruit with green flesh and black seeds?