California Foundation for Agriculture in the Classroom

Luscious Leaves

Purpose

The purpose of this lesson is to review the functions of plant leaves and to develop an understanding of leaves as edible parts of some plants. Many edible leaves are part of a healthy diet and are a good source of vitamin A.

Time

Teacher preparation:
30 minutes

Student activities:
60-70 minutes

Materials

For the class:

- Area for students to wash hands
- Butcher paper or area to write on board

For each group:

- Five edible leaf samples: lettuce, kale, spinach, parsley, Swiss chard

For each student:

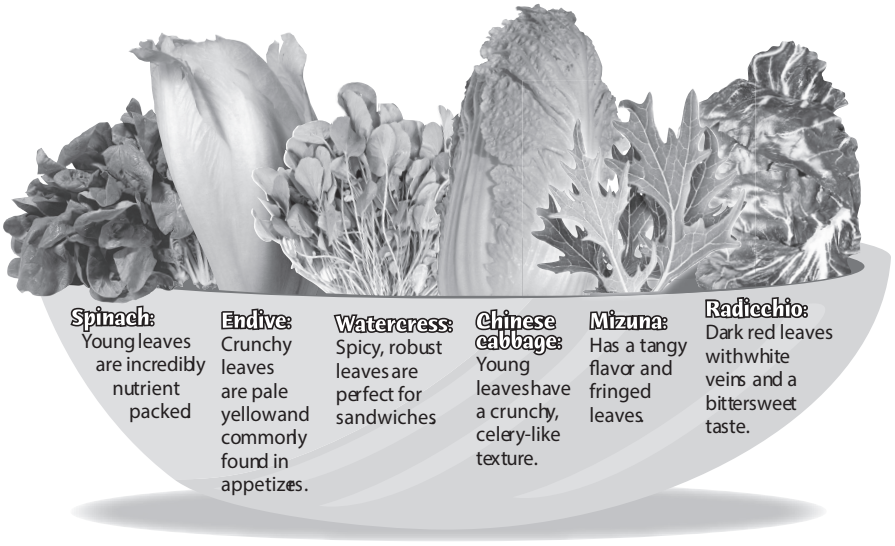
- Student handout with leaf investigation chart and vitamin A chart

Background Information

The main function of a plant's leaves is to gather energy from the sun to carry out photosynthesis and make food for the plant. During photosynthesis, leaves use light energy to convert carbon dioxide and water into sugar.

Many leaves of plants are edible and are grown for food. Edible leaves include cabbage, lettuce, grape leaves, parsley, spinach, mustard greens, and Swiss chard. We are fortunate to have many different varieties of edible leaves grown by farmers in California. As a result, we have many healthy options when shopping for produce in our supermarkets or farmers markets.

Make sure students understand that not all leaves are edible and that they should never eat anything they are unsure of unless it is approved by a responsible adult.



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Content Standards

Grade 2

Science 3e, 4b, 4c, 4e, 4g

Next Generation Science
2-LS4-1

Mathematics
- Measurement & Design 1, 4

Health 1.1N, 1.2N

English Language Arts
- Writing 8
- Reading 7
- Speaking and Listening 1a, 1b, 1c

Grade 3

Science 3a, 5c

Next Generation Science
3-LS3-1

Mathematics
- Measurement & Design 4

English Language Arts
- Writing 8
- Reading 7
- Speaking and Listening 1a, 1b, 1c

Procedure

Part 1

1. Discuss the functions of plant leaves with your class. Possible topics include making food for the plant, decomposing and adding nutrients to the soil, and providing habitats for animals. After you talk about the functions of leaves, ask your students if they can think of any edible leaves that people like to eat. Make a list on the board. Explain that leafy greens are part of a healthy diet. Students ages 4-8 need 1 ½ cups of vegetables per day and students ages 9-13 need 2 to 2 ½ cups of vegetables per day. Two cups of raw leafy greens is considered one cup from the vegetable group.
2. Tell your students that today they are going to investigate five different types of edible leaves, by tasting, smelling, measuring, and observing. They will also compare their nutritional value by looking at their levels of vitamin A per serving.
3. Tell students that vitamin A is important for maintaining good vision, fighting infection, supporting cell growth, and keeping skin healthy. Research has shown that consuming foods rich in vitamin A may even prevent some kinds of cancer.
4. Organize students into groups of three or four and have them wash their hands before sitting in their seats. Distribute worksheets to each student and tell them that they will be using the *Leaf Tasting Investigation* chart for the next part of the lesson.
5. Show your class one edible leaf and show them where it is listed on the chart. Demonstrate how you would like each group to record the color, texture, smell, taste, and length of each leaf in the chart. Use a ruler to measure the length of each leaf. Examples of texture could include smooth, fuzzy, bumpy, sandpapery, slippery, etc. Be sure to discuss possible vocabulary with your students before they begin describing leaf texture, smell, and taste. Distribute a washed sample of the leaf to each group and guide them through the data collection. When students have recorded data in their charts, instruct them to tear off a small piece of the leaf to taste.
6. Repeat this procedure with the remaining four leaves and have students fill out the questions on the chart.

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Part 2

1. Have students fill in their chart to compare the vitamin A levels of the five leaves they tasted in part one. Students should use the chart template on the back page of their tasting chart.

2. Write these vitamin A % values on the board for all students to see.

% Daily Value of Vitamin A for One Serving *(One serving of raw leafy greens = 2 cups)*				
Lettuce = 53%	Kale = 267%	Spinach = 112%	Parsley = 202%	Swiss Chard = 88%

3. Go through one example with the class and then have them work in their groups to fill in the bar graphs for the remaining leaves. Discuss which edible leaves are the best source of vitamin A and why this is an important nutrient.

Conclusion

Farmers grow some plants for their edible leaves. Many edible leaves are a delicious source of vitamin A, and many other nutrients that are important in a healthy diet.

Extensions

- Give each student a leaf and a crayon. Instruct students to remove the paper wrapping from the crayon. Have each student make a leaf rubbing by placing the leaf under a piece of paper and then rubbing the side of their crayon over the top of the paper. The image of the leaf will be visible. Mount the rubbings on colorful paper.

- Have students plant a lettuce or kale seed in a plastic cup. After the seedlings sprout, students can take them home to transplant and share healthy, leafy greens with their families.

- Bring in fresh and dried herbs. Discuss how they look and taste.

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Variations

- Make an edible leaf salad that the whole class can enjoy at the end of the lesson. For homework, have students track how many servings of leafy greens their family eats in a week.
- Discuss the following chart with the class and research why these nutrients are important in a healthy diet.

There are many nutritional benefits of eating fresh, green, leafy produce!

Folate	Spinach, Chinese cabbage, leaf lettuce
Potassium	Beet greens, spinach, loose leaf lettuce, chard, parsley, endive
Vitamin A	Turnip greens, mustard greens, kale, collard greens, Chinese cabbage, leaf lettuce, romaine lettuce, spinach
Vitamin C	Kale, cabbage, collard greens, mustard greens, red cabbage, spinach
Iron	Spinach, chard, collard greens, parsley
Fiber	Spinach, collard greens, parsley

ELL Adaptations

- Model the *Think, Pair, Share* method: Have students turn to a partner and say, "What kind of leaves do we eat?" Explain that their partner should then respond, "We eat lettuce, spinach, and other examples."
- When introducing new vocabulary words, show students an example of the object.
- Make a "word wall" of new vocabulary and have students cut out pictures from magazines to match the vocabulary words.