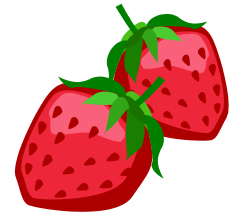


Strawberry Lesson

Goals

Students will...

- Increase their familiarity with strawberries.
- Eat strawberries when offered them.
- Increase their awareness of the environmental benefits of composting.
- Increase their understanding of nutrition.



Objectives

Students will...

- a. Explain how strawberries are grown
- b. Identify parts of the strawberry plant
- c. List the 3 nutrients found in strawberries
- d. Explain 2 health benefits of high fiber foods
- e. Design a healthy meal that includes strawberries
- f. Write a paragraph describing how to grow strawberries

Lesson Activities

- Review points about safety, sanitation, and cooperation
- Introduce strawberries
- Background information on strawberries
- Lessons from the Farm
- Cook winter strawberry muffins
(Form groups of 4 to 6 students)
- Do compost activity while food is cooking
(See compost lesson for mini-lesson)
- Eat
- Wrap-up, distribute copies of recipe and challenge sheets to students
- Clean-up

Other Strawberry Activities

Nutrition Science Lesson: Fruits & Veggies-More Matters

Global and Regional Mapping

Strawberry Fact Sheet

Writing Ideas

Word Search

Background Information on Strawberries



Did you know that...?

There are over 200 seeds on a single strawberry

Strawberry plants need warm sunny days and cool nights to grow best. They are planted in rows on raised beds. It takes about one month for the strawberry to ripen after the flowers bloom. Strawberries have four stages of growth: flower, strawberry bud, green strawberries and ripe, red strawberries.

Strawberries are picked, sorted and packed by hand because they bruise very easily. Right after being picked, they are sent out to be put in large coolers and packed into plastic containers. Then, they are sold at farm stands or farmers' markets or shipped out to grocery stores.

People ate strawberries 2200 years ago

There are many explanations for how strawberries got their name. Some people say it is because straw is placed around the plants to help protect them, while others say that over 1000 years ago, the Anglo-Saxon people called them "streabergen" or "to spread." They were called this because the runners on the strawberry plants would spread away from the plant.

History tells us that people ate wild strawberries 2200 years ago. Wild strawberries were discovered in Virginia in 1588 when settlers from Europe arrived. Also, in 1643, settlers in Massachusetts ate strawberries that were grown by Native Americans. After 1860, strawberries were grown all over America.

Now, eighty percent of all strawberries are grown in California. Other states that grow strawberries include Florida, Oregon and Maine! Mexico and New Zealand also grow strawberries. Strawberries are ready to pick here in Maine near the end of June and first part of July.

Lessons from the Farm - Strawberries



Farmers work very hard in the spring to get their strawberry fields ready. In April, the straw is removed from the strawberries. The straw protects the strawberries from the snow and cold of winter. If some of the fields have strawberries that died, the strawberry farmers plow the land up and plant new plants. Strawberries grow in beds in long rows. Beds are mounds of dirt. Farmers use a tractor to plant the new strawberry plants.

Most of the farmer's time is spent weeding and using a big rototiller to help get air into the ground. This helps the strawberries grow better. As the strawberry plants grow, the farmer spends a lot of time making sure that the runners get planted in the ground. The runners are called "babies."

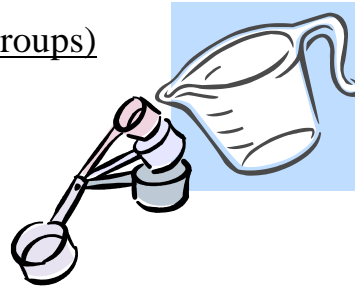
First, flowers bloom among the green leafy plants, and then the flowers turn into small green strawberries, then white strawberries, and finally big, juicy red strawberries! The strawberries are ready to pick at the end of June or first part of July. Strawberries are usually able to be picked for about three weeks.

Some farms have people who work for them pulling weeds out of the strawberries and picking them. Strawberries are great for making shortcake, jam and all kinds of other yummy foods.

Materials and Preparation

Food needed for winter strawberry muffins (for 4 groups)

2 lb. bag (7 cups) flour
4 Tbs. baking powder
2 tsp. salt
1 lb. bag (3 cups) sugar
1 dozen (8) eggs
1 container (2 cups) vegetable oil
4 10 oz. packages frozen strawberries
Drinks for students



Materials needed (for 4 groups)

8 large bowls
4 sets measuring spoons
4 sets dry measuring cups
4 liquid measuring cups
4 muffin tins
8 potholders
4 large spoons
Paper muffin liners
Cleaning towels, napkins
Plastic silverware
Paper plates
Wax paper
Compost bucket
Copies of recipe for each student
Copy of challenge sheet for each student
Copy of strawberry fact sheet for each student
Copy of writing ideas for each student
Copy of strawberry word search for each student

Materials and Preparation continued



Each station should have the following:

Food

1 3/4 cups flour
1 Tbs. baking powder
1/2 tsp. salt
3/4 cup sugar
2 eggs
1/2 cup vegetable oil
1 10 oz. package frozen strawberries

Materials

2 large bowls
1 muffin tin
Paper muffin liners
1 measuring spoon set
1 dry measuring cup set
1 liquid measuring cup
1 large spoon
2 potholders
Cleaning towel
Copy of recipe

Use Maine strawberries and other ingredients from Maine if possible.

Classroom Recipe for Winter Strawberry Muffins

Ingredients:

1 3/4 cups flour
1 Tbs. baking powder
1/2 tsp. salt
3/4 cup sugar
2 eggs
1/2 cup vegetable oil
1 10 oz. package frozen strawberries



Use Maine strawberries and other ingredients from Maine if available.

Student Cooking Activities

Note: This recipe requires the use of ovens.

Thaw strawberries.

Preheat oven to 400°F.

Sift dry ingredients together in large bowl.

In a separate bowl, mix together eggs, oil, and strawberries.

Stir into dry ingredients.

Mix lightly.

Spoon into greased muffin tin or paper lined tins.

Bake 15 to 20 minutes.

Yield: 15 muffins

Nutrition Science Lesson – Strawberries

Fruits & Veggies-More Matters

What is “Fruits & Veggies-More Matters?”

This new initiative, which replaces 5 A Day, reflects the fact that the recommendation for 5 servings of fruits and vegetables is no longer considered accurate for most people. Instead, fruit and vegetable intake should be based on age, sex, and physical activity level, according to the National Fruit and Vegetable Program that introduced Fruits & Veggies—More Matters. (See www.fruitsandveggiesmatter.gov)

Why are fruits and vegetables so important?

Fruits and vegetables contain many nutrients that our bodies need, such as vitamin A, vitamin C and fiber. Strawberries are good sources of vitamin C, fiber and a B vitamin called folic acid (or folate). (**Note:** see spinach nutrition science lesson for functions of vitamin A, C and folate). High fiber foods like strawberries are often low in fat and calories, which helps your body to stay healthy and fit. Fiber helps to lower blood cholesterol and to prevent cancer. Another important nutrient found in strawberries as well as other fruits and vegetables is potassium. Potassium helps fluid move in and out of the cells in your body, helps to keep a normal blood pressure and helps your muscles to move.

How can you add fruits and vegetables to your diet?

It isn't too hard if you divide the servings up throughout the day. For instance, you could have orange juice with breakfast and some carrot sticks with lunch. Are you often hungry when you get home from school? Fruits and vegetables make great snacks (apple, banana, peanut butter and celery sticks, strawberries, carrot sticks etc.). Then at suppertime you could have baked potato, salad, peas, corn, or fruit for dessert. Find creative ways that you could eat more fruits and vegetables each day!

How many fruits and vegetables do you need?

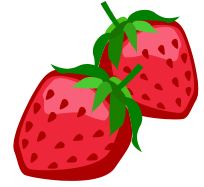
Your daily fruit and vegetable needs depend on your calorie needs. Your calorie needs are determined by your age, sex, and physical activity level.

For additional information and fun activities with fruits and vegetables, see www.fruitsandveggiesmatter.gov.

Strawberry Student Activity Sheet

Name _____

Materials needed: One paper plate per student or sheet of lined paper.



Strawberries are packed with healthy ingredients. Using what you have learned about strawberries, fill in the table below.

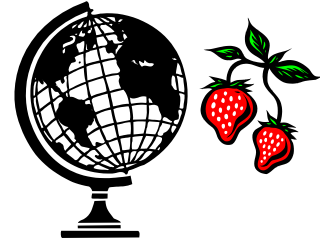
Nutrients	
Vitamins	Minerals
1	1
2	
3	

Fiber is another important thing that strawberries have. How does fiber help a person's health?

Think of the strawberry recipes you have made, you might also have some other ideas for ways to eat strawberries. Decide on one meal---breakfast, lunch or dinner and create a healthy menu that includes strawberries in some way. Write your menu on a separate piece of paper or draw it on a paper plate.

Global and Regional Mapping

Strawberries



World Map

Discuss with students the origin of strawberries. Have them find it on the map.

Strawberries originated in the North America and New Zealand. Now they grow in many places around the world, including California, Mexico, and even Maine!

Strawberries ----- North America (120° , 45°)
New Zealand (150° , 15°)

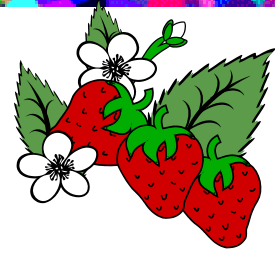
Local Harvest Calendar

Have students determine when strawberries are available in our area from the harvest calendar (they are harvested from late June to early July).

Discuss methods of storing strawberries through the winter months (freezing, drying, juicing, or making them into a jam or jelly).

Date _____ Name _____

Strawberry Fact Sheet



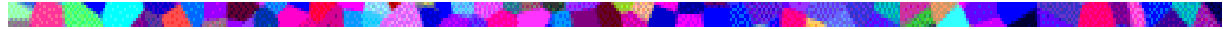
1. What part of a plant is the strawberry?
2. Where did strawberries originally come from?
3. In what season do strawberries grow best?
4. Where are strawberries grown in Maine?

Writing Ideas - Strawberries



1. What did you like or dislike about this lesson?
2. Write a one paragraph narrative that describes how to grow strawberries.
4. Cook the strawberry recipe for your family or friends. What did they think? Did they like it? Were they surprised?
5. Come up with your own ideas

Strawberry Challenge Sheet



I agree to try strawberries the next time they are served to me in the cafeteria or at home.

I agree to eat strawberries	I did it! I ate strawberries!

Strawberry Word Search



M	U	F	F	I	N	S	T	A
A	I	B	D	E	S	H	B	D
E	Y	L	L	E	J	O	D	S
R	A	Q	K	A	B	R	G	J
C	P	I	E	S	T	T	G	A
E	S	B	A	D	H	M	C	M
C	H	E	E	S	E	A	L	R
I	F	F	M	T	K	S	K	V
D	W	Y	U	E	L	B	T	E

Find the words hidden above that are about strawberries.

SHORT (CAKE)
MUFFINS
JAM

CHEESE (CAKE)
PIE
JELLY

ICE CREAM
MILKSHAKE
CAKE

(Answer Key on page 233)