

Spinach Smoothies

Instructions and ingredient quantities are written for a class of approximately 20 children.



Ingredients

4 cups local spinach
6 bananas
1 bag frozen strawberries (approx. 10 oz.)
1 bag frozen peaches or blueberries (approx. 10 oz.)
16 oz. container plain yogurt
2 cups milk or apple juice
Honey (optional)
Ice (if needed)

Materials

At Each Student Cooking Station

Cutting boards or paper plates (one per child)
Plastic knives (one per child)
Tablecloths (one per table)
2 large mixing bowls
Mixing spoons (one per table)
1-cup measuring cups (one per table)

At the Teacher's Station

Blender (and extension cord if necessary)
Ice
Honey
Paper cups (one for each student)
Large spoon
Milk or apple juice

At Sink Area and for Clean Up

Sponge, dish soap, paper towels

Before you start cooking:

Set up the students' tables for the cooking class. Wash the tables/desks and lay table cloths over them. Put a cutting board and plastic knife at each child's place. Put one large bowl, one small bowl, and one spoon on the table. Divide the bananas and yogurt evenly among the tables (put yogurt in small bowls). Store the frozen fruit in a cooler with ice so that it stays hard and frozen.

Steps with the Students

Keep it Clean

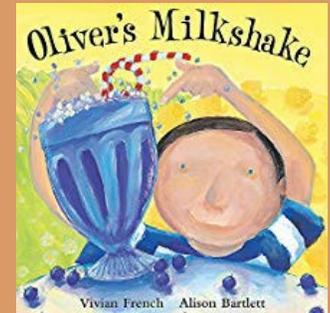
Ask students to wash their hands. Review proper hand washing techniques: Wet hands with clean water, add soap, rub hands together vigorously and scrub thoroughly. Rub hands with soap for at least 20 seconds (sing the ABCs), rinse with clean water.

Introduce the Ingredients

Write the list of ingredients on the board. Show students the ingredients. Point out that some of the ingredients are fresh and some are frozen. How are frozen and fresh ingredients different? How do the students think the frozen ingredients will affect the smoothies? If you are teaching the lesson in the late fall, winter, or early spring the *local* spinach you are using is likely to taste sweeter than regular spinach. Tell students that to grow in the winter, spinach needs protection from the cold, just like people need protection from the cold. Ask students to brainstorm several things that keep us warm in the winter. Highlight "shelter and coats" when students offer these answers. Show students the shelter farmers build for crops (hoop houses or greenhouses) explain how they work (capture the warmth of the sun). Next, tell students about the amazing "coat" spinach makes for itself for protection from frost in the form of sugar crystals!

Literature Connections

Oliver's Milkshake
by Vivian French



Curriculum Connections

Use hands-on cooking classes as a mechanism for teaching curriculum concepts. A few ideas for activities to accompany the spinach smoothie recipe are:

1. When reviewing the ingredients, ask students if the smoothie ingredients are a liquid, solid, or gas. How do they know? Once the smoothies are blended, ask again if the smoothies are a liquid, solid, or gas. How did the solid ingredients become a liquid? (Show students the "liquefy" button on the blender). Are there other times when a liquid becomes a solid or a solid becomes a liquid?
2. Read *Oliver's Milkshake*. Ask the students to identify the ingredients of his milkshake. Write the ingredients on the board and create a recipe for Oliver's Milkshake.
3. Measure the temperature of the finished smoothie. Ask the students to make predictions ahead of time. Whose guess is the closest to the actual temperature?

Curriculum Alignment

Find a list of which Common Core State Standards and NC Essential Standards this lesson plan aligns with on the lesson plan page at www.growing-minds.org.

Introduce the Equipment

Show students the tools they will use. Demonstrate the proper way to use a blender and emphasize that an adult must always help them.

What's going to happen? Review the Steps with Students

Go over each of the steps of making the recipe, from washing the ingredients to trying the smoothie. **Write the steps on the board.**

Step 1: Wash the spinach.

Step 2. Cut the spinach and add to the large bowl.

Step 3. Peel the bananas. Using the plastic knives, cut the bananas into chunks. Place them in the large bowl with the spinach.

Step 4. Measure one cup of yogurt and add it to the large bowl.

Step 5. As a group, decide which frozen fruit to add to the smoothie. Add two cups of fruit to the large bowl.

Step 6. Take the bowl of ingredients to the teacher's station. (one group at a time)

Step 7. Add the ingredients to the blender with one cup milk or juice. Blend well.

Step 8. Taste it! Add honey and/or ice if needed and reblend.

Get Them Cooking!

Wash and Prepare the Ingredients

Wash and prepare the ingredients! Choose several children to wash the spinach by running under water (with a teacher's assistant or volunteer's help). Evenly divide the ingredients between the children's tables.

Cut and Tear

Ask students to take a seat at the tables/desks. Prompt students to tear or cut their spinach into pieces and add the strawberries and spinach to the large bowl. Ask several students to peel the bananas. Give remaining children a portion of banana and ask them to use their plastic knives to cut the bananas into chunks and add them to the large bowl with the spinach.

Choose and Add the Fruit and Yogurt

Guide the students in working together as a group to decide which frozen fruit to add. Talk with students about how to make a decision. Talk about the importance of listening and asking one another questions. Introduce the idea of voting. Once the students agree on which fruit to add, prompt them to take turns measuring and adding a total of two cups of frozen fruit to their large bowl and one cup of yogurt.

Blend it!

As they complete the process of choosing and measuring their ingredients, prompt the groups of students to come to the teachers station one group at a time. Place the ingredients into the blender. Choose two students to each add 1/2 cup of milk or juice. Blend well. Once the ingredients are blended, do they think the finished smoothie will be a solid or a liquid? How do they know?

Last Steps

Taste it!

Give each child a cup of smoothie. Prompt the children in each small group to try the smoothie together, all at once.

Clean Up

Kids can help in the clean up process by putting their cups in the trash and taking their cutting boards and knives to the sink. While you finish clean up, ask a volunteer to read the suggested book.



Did you know. . .

Spinach grows quickly. It can be harvested and eaten after only 37 to 45 days!



Spinach is a very hardy crop and can withstand temperatures as low as 20 F.

Spinach is a member of the goose-foot family, making it a close relation to beets and chard.

Medieval artists extracted green pigment from spinach to use as an ink or paint.

More Spinach Activities

Paint by vegetable?!

You can make all kinds of paints with vegetables. Here are easy steps for making green paint from spinach: Finely chop one cup of fresh spinach. Put in a glass or ceramic bowl. Barely cover the spinach with boiling water and let stand for 5 minutes. Press and smash the spinach with the back of a spoon. Strain through a small strainer. Mix the one to two teaspoons of the concentrated spinach juice with 6 teaspoons of powdered sugar. Now you are ready to paint on paper!

Want to make edible paint?

Just smash spinach in a mortar and pestle until it is a paste. Put in a bowl and add a bit of cream cheese. If it's thick, add a teaspoon of water. Viola, edible paint. Give students a pita bread for their canvas and let them use their imaginations to create edible paintings! Make additional colors with beets (red/pink) and blueberries (blue).