

MATERIALS

- 25 apples (MacIntosh, Jonathan, or Fuji are good choices)
- Apple corer-peeler-slicer machine, cutting board, plastic knife, newspaper, hand sanitizer
- Portable stove and stock pot
- Mixing spoon, container for water
- 2 cinnamon sticks, 1/2 lemon, salt
- Small serving cups, spoons

PREPARATION

- Set up the apple station: Cover a table with newspaper and firmly attach the apple corer-peeler-slicer machine to the table. Place apples, cutting board, plastic knife, and hand sanitizer nearby.
- Set up the stove and stock pot. Fill a cup or container with one or two cups of water and place nearby, along with cinnamon, lemon, and salt.
- Identify an activity for students while other students cycle through the apple station.

PROCEDURE

Step 1: Process the Apples

- Introduce the main activity and lesson materials. Display the apple corer-peeler-slicer machine and demonstrate how it works. Point out the sharp parts of the machine so that students know to avoid them.
- Divide students up into 4-person work groups. Students will cycle through the applesauce station in 3-minute rotations. While one group processes apples, the other groups will work on their related activities.
- Begin the station rotation. As students arrive, ask them to use one squirt of hand sanitizer.
- Have each student select one apple. Place the apple, bottom end first, onto the machine. Have a student slowly turn the machine handle to process the apple. When it is completely processed have the student carefully remove the apple, cut it in half with the plastic knife, and dump it into the stock pot. Remove the apple core and reset the machine for the next student.
- After all groups have cycled through the apple station, bring the entire class back together. Add about a cup of water to cover the bottom of the stock pot, and turn on the stove to medium-high. Cut a lemon in half and squeeze the juice of one half into the pot. Throw in two cinnamon sticks and a generous pinch of salt.
- Simmer, uncovered, for about half an hour. You may need to mash up the apples with the spoon as it cooks.

Step 2: Apple Tasting

- Gather as a class and review classroom eating etiquette.
- Arrange the small serving cups on the work table. Place a modest scoop of applesauce in each.
- Select 2 student volunteers to assist with serving — one to pass out cups and the other to distribute spoons. Remind students to wait until everyone has been served before eating.

What happens when food spoils?

Patterns & Preparation

ENGAGE

What's your favorite way to eat apples? Do you have any favorite kinds? How would you describe the taste, texture, and appearance of your favorite apple(s)?

Have the students brainstorm as many adjectives as they can to describe the taste, texture, and physical characteristics of apples (i.e. sour, sweet, round, large, tart, mushy, crisp). Record their responses on the flip chart until you have a sizeable adjective word bank.

OBJECTIVES

- Students will understand the advantages and disadvantages of heating food
- Students will use adjectives to compare/contrast different apple varieties based on taste sensations and physical features

EXPLAIN

Why do we heat foods?

Humans are unique in that we are the only species that uses heat to transform our food. Cooked foods have been an important part of human survival for centuries. Over time, humans have developed many different cooking processes to heat food, such as roasting, baking, broiling, frying, smoking, and microwaving.

There are many foods that require cooking before they are suitable for human consumption. For example, potatoes and beans need to be cooked before we can eat them. Heat can improve a food's flavor and make it easier to digest. Heat also destroys harmful bacteria, an absolute must when consuming meat products. Pasteurization is a common, yet contentious, form of heat processing used on many dairy products, orange juice, and apple cider, which extends shelf life and kills potential pathogens. On the downside, heating foods can decrease their vitamin content. Fresh apples have a high amount of Vitamin C, but cooked apples have none. Heat breaks down and eliminates certain vitamins. Therefore, it's important to eat a balanced diet of raw and cooked foods to access the full spectrum of vitamins.

During this lesson, we explore the ways in which heat transforms apples. Apples are an especially versatile food and can be eaten fresh or cooked. When we cook apples, we radically transform their taste, texture, and appearance. Some varieties of apples, such as Granny Smith, are almost unbearably sour and crisp when eaten fresh. When cooked, however, they lose a bit of their sour "bite" and retain a subtle crunch, making them ideal for pies and tarts. Tada! Another food transformation!

ADDITIONAL CONTENT INTEGRATION *(see previous page)*

Set aside 3-4 fresh apples for the tasting activity. Before serving the applesauce, allow students to sample a fresh apple slice. Encourage them to chew slowly, paying close attention to the taste and texture. Have students consult the adjective word bank from the "engage" activity to describe taste, texture, and appearance of the fresh apples. Record the student's apple tasting responses on the flip chart. Repeat the same process for the cooked applesauce. Compare and contrast the taste of fresh vs. cooked apples. How has cooking transformed the taste and texture of the fresh apples?

ADDITIONAL MATERIALS

- Chart paper
- Marker

EVALUATE

Exit Slip: What is another way to prevent food spoilage?