

# LESSON 10: BISCUITS AND MINCEMEAT

## SWEET POTATO BISCUITS

Serving Size: 12 servings, 1 per student

### Ingredients:

- 2 cups flour (NUT & SESAME FREE)
- 1 tbsp baking powder
- 1 tsp salt
- 1/3 cup butter, melted
- 1 cup canned sweet potatoes
- 1/2 cup water

### PREP BEFORE CLASS:

Preheat oven to 450°F. Place butter on oven to soften (plastic bowl) or in oven (metal bowl.) Line baking pan with foil and grease. Open can of sweet potatoes, drain. Prepare food processor.

### Directions:

1. Ask students to measure the dry ingredients (flour, baking powder, and salt) into a medium bowl and mix.
2. Ask students to measure canned sweet potatoes and water into the food processor. Blend until smooth.
3. Have another student add all wet ingredients to the dry ingredients and mix until just combined.
4. **Testing gluten formation by over mixing:**
  - Place 3 biscuits onto a lined and greased tray and continue mixing batter 10 more times.
  - Place 3 more biscuits on the tray and repeat with 15 and 35 additional stirs.
5. Bake for 10 minutes or until golden brown.
6. Serve with mincemeat.
7. Do a taste test of each biscuit batch to see how texture and density changed due to over-mixing and gluten formation,
8. Enjoy with mincemeat.



## MINCEMEAT

Makes 12 servings, 2 tbsp each

### Ingredients:

- 1/2 cup raisins
- 1/2 cup dates, pitted (NUT & SESAME FREE)\*
- 1 apple
- 1 orange
- 1/2 tsp cinnamon
- Pinch of salt

### PREP BEFORE CLASS:

Wash dry and fresh fruit, core apple, and cut apple into wedges.

*\*If you cannot find nut-free dates, substitute with dried apricots or raisins.*

### Directions:

1. Pass out apple wedges, have student helpers chop apple into small pieces.
2. Have students remove pits from dates.
3. Give each student a turn zesting the orange into a small bowl. Once zest is removed, cut orange in half and help students squeeze out all the juice.
4. Ask students to measure all mincemeat ingredients including orange juice and zest into food processor. Blend until mixture is chopped and sticky, but it should not be completely smooth.
5. Spoon roughly 2 tbsp of mincemeat onto each student's plate. Have students spoon it onto biscuits. Can also be eaten by itself with a spoon. Enjoy!



### SHOPPING LIST

#### Ingredients to buy:

- 1 apple
- 1 orange
- 1/2 cup raisins
- 1/2 cup dates, pitted (NUT & SESAME FREE) or substitute with apricots
- 1/3 cup butter, melted
- 2 cups flour (NUT & SESAME FREE)
- 1 tbsp baking powder

#### Ingredients in the bin:

- salt
- cinnamon
- water

### OBJECTIVES

- Describe protein bonds, and explain the role that those bonds play in gluten formation
- Demonstrate that different factors and variables can affect gluten outcome
- Describe gluten related intolerances
- Understand what grains contain gluten

### INTRODUCTION

🕒 3-5 min

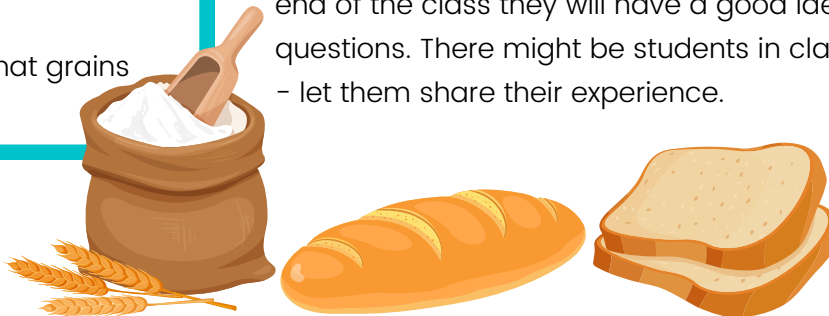
Complete Start of Class Checklist (see beginning of the curriculum)

Questions to ask students before starting:

- Have you heard of gluten before?
- Have you heard of celiac disease?
- What baked goods can you find gluten? What role does it play?
- Does gluten have a taste? What is the texture?

Let students share their guesses and opinions. Tell them that at the end of the class they will have a good idea on how to answer these questions. There might be students in class with gluten intolerance - let them share their experience.

### DEVELOPMENT

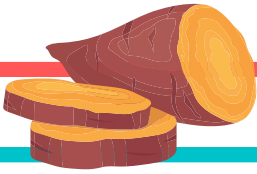


🕒 5-7 min

- Have you ever heard of gluten? It's a special protein found in foods made from wheat, barley, and rye. Gluten helps to hold those foods together and gives them a bouncy and chewy texture. You can think of gluten as a stretchy netting that keeps things like bread, muffins, and pancakes from falling apart.
- When you add water to flour, it creates gluten. Before baking, gluten feels sticky and stretchy. But when it bakes, it becomes bouncy and chewy. So, gluten is responsible for making our baked goods hold their shape and have a nice texture. Next time you look at a slice of bread, notice the netting of gluten that holds it together.
- When we make dough and knead it, we're actually helping the gluten to form. The more we knead, the more gluten forms. But here's the thing: if we knead too much, the gluten gets overworked. It becomes stringy and sticky, and the dough feels tight and tough. If you ever tried to stretch an overworked dough, it won't stretch properly.

### VOCABULARY

- **Gluten:** A mixture of two proteins present in cereal grains— especially wheat—that is responsible for the elasticity, texture, and structure of dough.
- **Glutenin:** One of the two major proteins in wheat flour, making up 47% of the total protein content; contributes to the formation of gluten.
- **Gladin:** The second of the two major proteins contributing to the formation of gluten, can be found in wheat and several other cereal grains.
- **Protein:** A substance found in foods consisting of long chains of amino acids joined by peptide bonds; an important part of the human diet.



### STAR INGREDIENT: SWEET POTATO

- What food group are sweet potatoes in? Vegetable group!
- Why are sweet potatoes good for us?
  - Vitamin A: for healthy eyes and skin
  - Vitamin C: for healthy immune system, helps fight infection
  - Calcium: for bone strength

### DEVELOPMENT

- When we bake overworked dough, like biscuits, something interesting happens. They rise too much, but inside they become dense and doughy. You can compare them to biscuits made with properly kneaded dough. Notice how the textures are different. Do they taste different? Do they bounce the same way?
- It's important to know that once you overwork dough, you can't fix it. So, it's best to avoid overworking flour products to prevent this outcome. Take your time and be gentle when kneading dough, and you'll have delicious and perfectly textured baked goods
- As you prepare your first recipe, Sweet Potato Biscuits, students will be able to see how gluten forms and changes the texture of biscuits, if you over-mix the dough.

### CULINARY TECHNIQUE: KNEADING

- Kneading means to work the dough, usually by hand, for the purpose of developing the glutes in the flour, which is what gives baked goods their structure and texture.
- What Kneading Does?
  - The process of kneading the dough helps to evenly distribute the ingredients and incorporate air, which assists in making the bread light (versus dense) and contributes to the overall texture of the loaf, both inside and out. Most importantly, the act of kneading develops gluten, which is necessary for the bread to expand without bursting.
- What are the Ways to Knead Dough?
  - The usual technique for kneading involves placing the ball of dough on a flat, lightly floured surface and pressing it with the heel of the hand in a sort of forward rolling motion, then rotating the dough and repeating. The dough is both squeezed and stretched; it is this squeezing and stretching that develops the gluten molecules.
- Just the right amount of kneading
  - If you think you have kneaded enough but the dough is limp and loose and won't hold shape, these are signs you need to knead a bit more. The dough should also not be shaggy or tear easily; continue to knead until the dough is smooth and holds together.

# LESSON 10:

## THE KNEED-TO KNOW DOUGH: GLUTEN

### PRO TIP

Are you in a sticky situation?

- Don't be afraid to add flour to the dough while you are flattening it! This will keep the dough from sticking to you and keep it where it belongs.
- Here is another tip: Make sure to work on a lightly floured surface! Lightly sprinkle some flour to your surface to prevent it from sticking.



### FUN FACTS


- Alternatives for gluten sensitivity: almond, oat, rice flours.
- Wheat allergies is one of the top eight food allergens in the US and common for children.

### DEVELOPMENT CONT.

Discuss other topics related to gluten as you work on the recipes.

- Celiac Disease: Celiac disease is a special digestive disease that some people are born with. It means their bodies can't properly digest gluten, a protein found in wheat, barley, and rye. When they eat even a tiny bit of gluten, their body gets really upset and damage their gut. This can make them very sick.
- Wheat Allergy: Just like some people have allergies to things like pollen or pet dander, some people can be allergic to wheat. Their immune system gets too sensitive to wheat, and when they eat it, their body overreacts. This can cause them to have symptoms like itching, sneezing, or even trouble breathing.
- Non-celiac Gluten Sensitivity: Some people may not have celiac disease or a wheat allergy, but they still have a hard time with gluten. They might get sick or feel uncomfortable after eating gluten, but it doesn't cause the same damage to their body. This is called non-celiac gluten sensitivity.
- Did you know that only about 1% of Americans have celiac disease? But there are more people, about 6-7% of the population, who have gluten sensitivity. People with these conditions need to be aware of what they eat and make sure to avoid gluten if it makes them sick.

### END OF CLASS CHECKLIST

 10 min

- Follow End of Class Checklist (see beginning of the curriculum) and complete Taste Test, Thumbs Up Test, Clean Up & Dismissal

