



What is Gluten?

Grade Levels & Subjects: Grades 3 - 5 English Language Arts

Learning + Food Objectives:

Students will be able to describe what gluten is and how it impacts our health. They will demonstrate their understanding of it by developing recipes for a gluten-free cookbook.

Common Core Standards:

Common Core English Language Arts

Reading informational texts to create final project

CCSS.ELA-LITERACY.RI.4.2

Determine the main idea of a text and explain how it is supported by key details; summarize the text.

CCSS.ELA-LITERACY.W.4.6

With some guidance and support from adults, use technology, including the Internet, to produce and publish writing as well as to interact and collaborate with others.



MATERIALS NEEDED

- Student Worksheet (Attached below)
- Access to technology

CLASSROOM PROCEDURE

INTRODUCTION (10 minutes)

1. Instruct students to form small groups of 4-6 students.
2. Direct students' attention to the *Vocabulary Table* in the student worksheet and review the instructions.
Teacher can omit or add words to fit the needs of students.
 - a. Groups should divide up the list of vocabulary words below and find the definitions for the words that you're responsible for using a dictionary or the internet.

INSTRUCTION (50-90 minutes)

1. Explain that today's lesson will focus on understanding what gluten is and how it affects the body. Direct students to access their student worksheets.
2. Start the lesson by viewing the video "Ask Dr. Smarty" together – to give students an overview of the topic before reading an article together.
 - a. Students should take notes in the corresponding box of their student worksheet.
 - b. Teachers should turn on closed captioning and consider whether they want to adjust the speed of the video.
 - c. Teacher can review video transcript to determine if they wish to ask students more specific questions
3. Now, help students access the whole class reading – KidHealth's "*Celiac Disease*" or other article explaining *Celiac Disease*
 - a. You can choose to click on the "Listen" (audio) option to have the article read aloud or you can have volunteer student readers for each section.
 - b. Point out the section titles in the article and the corresponding rows of the article note-catcher.
4. Begin reading the article aloud, pausing to allow time for students to write or copy/paste 1-2 facts about gluten from each section of this article. The teacher should consider reading 1 or more sections aloud, alternating with the student readers.
5. Now, instruct students to move to their assigned groups pre-determined by the teacher. Once grouped, instruct students to refer to their vocabulary tables.
6. Instruct them to update their vocabulary table (column 3) with any new information they learned from the video or the article. Explain that they'll need this information for their project.
7. Introduces the gluten project – *Gluten-free Cookbook*
 - a. Using the readings, videos and images from the suggested resources, work with your group to create a *Gluten-free Cookbook* with at least 4 gluten free recipes.
 - b. The cookbook should also include gluten vocabulary, facts, and pictures.
 - c. Projects should reference at least 1 article, at least 2 images and at least 1 video
8. Before releasing students to begin on their project take some time to review the Recipe and the Resource Table. Remind students that they should use this list to gather information for their projects.
9. Allow students time to work on their projects (at least 45-50 minutes).
10. Discuss deadlines and logistics for the day projects are due before the end of class.

CLOSING (10 minutes)

1. Exit Activity: Students should respond to the following prompt:
 - a. *What is the most important thing you learned about gluten?*
 - b. *Why is this the most important?*

ADDITIONAL RESOURCES

- Articles for further reading:
 - “Celiac Disease: An Infographic to Understand” by Mind the Graph - <https://mindthegraph.com/blog/celiac-disease/#.YTV3tp5uc-Q>
 - “What is Gluten?” By Fitivate - <https://fitivate.com/what-is-gluten/>
 - “More Evidence that You Should be Eating Gluten” by Susan Rinkunas - <https://www.vice.com/en/article/wnwgj5/gluten-free-foods-higher-in-calories-lower-in-protein-study>
 - “Gluten the Pros and Cons” by Pacifica Compounding Pharmacy - <http://www.pacificapharmacy.com/2020/07/02/gluten-the-pros-and-cons/>
- Videos:
 - “Science: What is Gluten? Here’s How to See and Feel Gluten” by America’s Test Kitchen - <https://www.youtube.com/watch?v=zDEcvSc2UKA>
 - “What is Gluten?” by Sutter Health - <https://www.youtube.com/watch?v=1Bsd4MVqmZg>
 - “Is Gluten That Bad for Your Health” by What I’ve Learned - <https://www.youtube.com/watch?v=M0La27FNrA4>
 - “Gluten is Perfectly Fine for the Vast Majority of People” by Markham Heid - <https://www.vice.com/en/article/9k47w8/gluten-is-perfectly-fine-for-the-vast-majority-of-people>

RECIPE FROM VIDEO

Video: Banana Muffins by Chef Kayla White (<https://vimeo.com/408610213>)

Below is the recipe from the video in this lesson. Pilot Light Anywhere lessons are designed to be able to be delivered from a remote setting; however, this recipe can be demoed by the teacher virtually/in person, sent home to families, or used for reference.

Banana Muffins

Serves: 12

Ingredients:

- 2/3 Cup Chopped Dates
- 6 Very Ripe Bananas
- 1/2 Cup + 2 Tablespoons Unsalted, Melted Butter
- 2 Large Eggs
- 2 Cups Gluten Free Flour
- 2 1/4 Teaspoons Baking Powder
- 1 1/4 Teaspoons Baking Soda
- 1/2 Teaspoon Salt

Materials:

- 12 count muffin pan
- Glass bowl
- Stove
- Pan to boil water
- Food processor or fork

Preparation:

1. Preheat the oven to 400 degrees Fahrenheit and spray a 12 count muffin pan.
2. Put bananas in a glass bowl and cover. Microwave for 4-6 minutes until soft.
3. Using a strainer, let the liquid from the bananas drain into a small pot, you should have about 1 cup.
4. Reduce the liquid to about half and set aside.
5. Boil enough water to cover the dates and let them soak for about 25 minutes or until soft.
6. In a food processor or using a fork, mash the bananas.
7. Mix in the eggs, melted butter, banana liquid, and dates until everything is fully incorporated.
8. Whisk all dry ingredients together and fold into the wet ingredients.
9. Divide batter between all 12 muffins.
10. Bake until slightly golden and springs back when lightly touched - about 18 minutes.

Notes: The beauty of this recipe is that you can add or substitute as you like. Cinnamon would be a nice addition instead of cardamom or star anise. The dates could be substituted for chocolate chips of any kind, dried fruit, or swirl some Nutella in there. Dates were used to keep the muffins sugar free, but you can use anything. All-purpose flour can be used instead of gluten free flour if gluten isn't an issue. Be creative and enjoy!

The student worksheet below can be printed or copied onto any online learning platform.



What is Gluten?

What is Gluten?

Directions: In your groups, divide up the list of vocabulary words below and find the definition for each word that you're responsible for.

| Gr 3 - 5 Gluten Vocabulary Table | | | |
|----------------------------------|--------------------|----------------------------|---|
| | Word | Definition from dictionary | Draw a picture OR Describe in your own words |
| 1 | Gluten | | |
| 2 | digestive system | | |
| 3 | small intestine(s) | | |
| 4 | celiac disease | | |
| 5 | nutrients | | |
| 6 | protein | | |
| 7 | intolerance | | |
| 8 | inflammation | | |



What is Gluten?

Resources for Grades 3 - 5

| Article | Videos | Images or Infographics |
|---|--|--|
| What is Gluten and Why is it Bad for Some People? By Medical News Today | What the Heck is Gluten? (ASAP Science) | How Much Do You Know About Gluten? (NeoGen) |
| Celiac Disease by Nemours Kids Health | Ask Dr Smarty: ABCs of Gluten Free | 4 Hidden Sources of Gluten (Univ of Utah) |
| Information for Kids (BeyondCeliac.org) | What's the Big Deal with Gluten (Ted-Ed) | Gluten-Free Foods Infographic (InfographicNow.com) |
| Types of Gluten Intolerance by Children's National | Mayo Clinic Minute: The Truth about Gluten | What is Gluten? (image, part of an ISSA article) |

Gluten Video Table

Directions: Use the space below to write and draw based on what you learned from the video.

Video Title: [Ask Dr Smarty: ABCs of Gluten Free](#)



What is Gluten?

Gluten Article Note Catcher

Directions: Using the *KidsHealth "Celiac Disease"* article, write or copy 1-2 facts about gluten from each section of this article. You can choose to click on the "Listen" (audio) option if you need to hear the article a second time.

| Section of the Article | The Main Idea of Each Section |
|---|-------------------------------|
| <i>What's Gluten?</i> | |
| <i>Why do kids get Celiac Disease?</i> | |
| <i>Signs & Symptoms</i> | |
| <i>How Do People Know They Have it?</i> | |
| <i>How is it Treated?</i> | |
| <i>Gluten Free Foods</i> | |
| <i>Support Groups</i> | |

Gluten Free Cookbook Planning Guide

Directions: Use the space below to plan out your cookbook or recipes.

| Facts about Gluten | Gluten Vocabulary | Gluten Images | Recipe |
|--------------------|-------------------|---------------|--------|
| | | | |