GLUTEN DETECTIVES CAMP
LESSON PLANS:

**WILD WEST:**
Gluten Bounty Hunters
Roundin’ Up Nutrients

**NIFTY 50’s:**
Microwave Cooking
Play(doh)ing with Villi

**FUTURISTIC:**
Public Service Announcement
Saving Robobot

We have created six activities that should not only be fun, but also help the kids think about what Celiac’s is, and how they can live a happy, gluten-free life.
**WILD WEST**

**Gluten Bounty Hunters--Reading Food Labels**

**Purpose:** The purpose of this activity is to teach the campers how to effectively read food labels. Often, gluten ingredients or cross contamination of wheat are missed on labels; therefore, the campers need to be on the look-out for undercover gluten. This activity is wild-west themed; essentially, gluten is the “bounty”, and the kids will get points for finding gluten and its derivatives on food labels. We propose that the kids work in groups of 2-3 to help accommodate various reading levels/ages. Each group can be given 5-10 food packages or alternatively, there could be a bucket of 20 or so food packages that the kids can pick from, read the label, and then put items back.

Below, is a list of some gluten-containing and gluten-free foods that are good candidates for this activity because they are common food items. Kids will get a point for determining whether or not the product is safe to eat, and an additional point for identifying wheat ingredients on each package label. This will also include keeping an eye out for text that says “made in a factory that also processes wheat”! Campers can use the attached sheet of common gluten ingredients so they know what to look for on the food label. At the end of the activity, the kids can count up how much “bounty” they have collected, and the team with the most will be the winner!

Hopefully, this activity will not only give the campers more confidence when navigating the grocery store aisles, but will also make them more aware about the need to check labels and ask servers, especially in restaurants, if food contains gluten.

**Proposed food items:**
- Barilla Pasta
- Quaker Oat Squares
- Morning Star Veggie Burger Patties
- Soy sauce
- Quaker Oats Chocolate Chip Chewy Bars
- Nature Valley Sweet and Salty Nut Bars
- Honey Nut Cheerios
- Instant Oatmeal
- Tabouli
- Malt O Meal Hot Cereal
- Pretzels
- Tortilla Chips  
- Swanson Chicken Broth  
- Prego Traditional Tomato sauce  
- Wishbone Ranch Dressing  

Additional materials needed:  
- The attached common gluten ingredients sheet  
- Pencil for keeping track of score  
- Attached score sheet  

**Common Gluten Ingredients on Food Labels**

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<th>*Atta</th>
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<tr>
<td>*Barley</td>
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<td>*Rye</td>
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<td>*Durum</td>
<td>*Seitan</td>
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<td>*Farina</td>
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<td>*Fu</td>
<td>*Triticale</td>
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<td>*Hydrolyzed wheat protein</td>
<td>*Wheat bran</td>
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<tr>
<td>*Kamut</td>
<td>*Wheat germ</td>
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<tr>
<td>*Malt (vinegar, extract, syrup)</td>
<td>*Wheat Starch</td>
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# Gluten Bounty Point Tracker

Record the number of gluten “bounty” found in each food ingredient!

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Roundin’ Up Nutrients

Purpose: To give the kids a better understanding of what is actually happening within their guts when normal gut functioning is disrupted by Celiac Disease. At the beginning of the activity the instructor should explain that as a result of Celiac’s, our body’s immune system recognizes normal small intestine villi as foreign invaders that need to be destroyed. Villi line the small intestine creating a large surface area and aiding in nutrient absorption. When villi get attacked by immune cells (B and T cells), some villi are destroyed and can no longer aid in nutrient absorption. Since there are less villi around now, it is harder for our bodies to perform nutrient absorption. The instructor would then explain that this is one of the reasons why you feel tired or fatigued when you eat gluten. If there’s less nutrient absorption due to less villi, your body does not utilize food to the best of its ability and gets tired.

The actual activity would involve kids lining up in two lines facing each other and acting as the villi of the small intestine. The kids would sit across from each other in two lines, and an instructor would roll a large amount of plastic balls (like from a ball pit) between the two lines of kids. Additionally, before the activity, kids could label all the balls with different types of nutrients (carbohydrates, protein, fat, vitamins, minerals, water). The kids would have to try to grab as many balls as they can (absorption). The instructor would say that this is how absorption works in a healthy person. The next part of the activity would include pulling some kids out each line to demonstrate that a person with Celiac’s has less villi. To make sure the kids are not upset about being pulled out of line they can be responsible for rolling balls between the two lines. If you roll the same quantity of balls through the two lines, and there are less kids in each line, they should collect less balls than originally, demonstrating that if there are less villi around, then you cannot absorb as many nutrients.

This activity can be related back to the Wild West by saying that the balls/nutrients are cattle and that each child/villi is a cowboy/cowgirl that is trying to lasso the nutrients and herd them. If you have less cowboys/cowgirls around, you cannot lasso as many cattle. This activity can also be turned into a competition by dividing the kids into two teams and comparing how many balls can be grabbed in a limited amount of time.

Items Required:
- Large quantity of plastic balls—Ideally as many as possible since theoretically it should not be easy to grab as many balls when there are less kids in each line. If you don’t have access to these types of balls, any assortment of balls would work (marbles, ping pong balls, tennis balls, golf balls, etc.)
Purpose: The purpose of microwave cooking is to teach kids that they can still make quick, good gluten-free food using just a microwave. Sticking to a gluten-free diet does not necessarily mean preparing food should be more complicated. In this activity, the instructor can give the kids three different microwave cooking options. Option 1 and 2 are probably the easiest and each individual child can make their own. Option 3 could be a bag per group.

Brief History of Microwaves: The microwave was originally designed during World War II as a part of radar technology. The first person to promote the microwave as a way of heating food was Percy Spencer of the Raytheon Company. The first home-use microwaves were introduced by Tappan in 1955. Microwaves are useful because they heat food much faster than conventional ovens. Food is heated by passing microwave radiation through it and exciting particles within the food, thus causing an increase in the food’s temperature.

Option 1: Pizza Bagels
1. Cut a gluten-free bagel (Udi’s) in half and place cut-side up
2. Spread pizza sauce on to each bagel half
3. Cover each half with cheese
4. Top with any other pizza toppings
5. Microwave on high until cheese is melted (1 to 1.5 minutes)

Ingredients
• 1 Udi’s Plain Bagel, cut in half
• 2 tablespoons jarred pizza sauce
• 8 slices pepperoni/any other toppings
• 2 tablespoons shredded mozzarella

Option 2: Quesadillas
1. Place gluten-free tortilla on flat surface and sprinkle on cheese and green chillies
2. Place second tortilla on top
3. Microwave on high until cheese is melted (30-45 seconds)
4. Cut into wedges

Ingredients
- 2 gluten-free tortillas
- 1 cup shredded cheddar or Monterey Jack cheese
- 1 tablespoon canned green chilies, minced
- 1 jar salsa, to serve with

Option 3: Peanut Butter Cup Cereal Bites
1. Place cereal in large bowl
2. In a microwaveable bowl, combine chocolate chips, peanut butter, and butter
3. Microwave chocolate chip, peanut butter, and butter combination on high for 1 to 1.5 minutes. Stir occasionally until smooth.
4. Mix in vanilla and stir
5. Pour mixture over cereal and mix
6. Place cereal mixture in zip lock bag and add sugar. Shake until coated
7. Spread over wax paper to cool

Ingredients
- 9 cups Rice Chex cereal
- 1 cup chocolate chips
- ½ cup peanut butter
- ¼ cup butter or margarine
- ¼ teaspoon vanilla
- 1 ½ cups powdered sugar
- Zip loc bags
- Wax paper

All recipes retrieved from: http://udisglutenfree.com/community/gluten-free-toolkit/dorm-room-favorites-gluten-free-microwave-meals/
Play(doh)ing with Villi

Purpose: The purpose of this activity is to further describe the mechanism behind Celiac’s Disease. To do this, the kids will first learn how to make gluten-free art supplies and apply that to their understanding of celiac disease.

In this activity, kids will learn how to make play-doh, one of the iconic art supplies of the 50’s! This activity will help show how even non-edibles, such as art supplies, could contain gluten and be dangerous for the campers’ bodies.

They will be making gluten-free playdoh to be used to make a model of the villi in their intestines, a site that is affected for those with Celiac Disease. Students will be separated into two groups: those who will receive an outline of the villi “before eating bread” and those who will receive an outline of the villi “after eating bread” (see attached PDF's of villi). They will use their newly created playdoh to fill the outlines of these pictures.

Once this is complete, the students will compare the sizes of the villi and discuss the differences. In groups, they will talk about what gluten could do to the small intestine of their bodies and how that would prevent them from getting enough nutrition.

Materials Needed:
Here are the ingredients to make gluten-free playdoh:

Easiest Gluten-Free PlayDoh Recipe

Ingredients:
1 Cup White Rice Flour
1/2 Cup Cornstarch
1/2 Cup Salt
1 Tbsp Cream of Tartar
1-1/2 tsp vegetable oil
1 Cup Water, hot but not boiling
Food Coloring, as desired

Directions:
1. Mix all dry ingredients together in a medium pot.
2. Add the vegetable oil, then the water, and continue to mix until thoroughly combined.
3. Heat the pot on the stove over low heat for about 3 minutes. I like to stir frequently with a silicone spatula.
4. When the dough starts to pull away from the sides easily, turn out the dough onto parchment paper. Let it cool briefly until you can work it with your hands.
5. Knead food coloring into the dough until you get the color you desire.

Additional Notes:
- Don’t overcook the dough. It shouldn’t need more than five minutes.
To add food coloring, I use the method I’ve used since I was a kid: Using your thumbs, make a well in the middle of the ball of dough and drop the food coloring into the well. Close up the well with the outside dough, keeping the food coloring in the middle of the ball. Then, carefully begin kneading it until the color is evenly distributed throughout the dough.

- You don’t have to use the parchment paper. The dough shouldn’t be sticky. I use the parchment paper to simply keep residue and food coloring off my counter top. Wax paper or a plate would work just as well.
- If needed, adjust the texture with small amounts of water (for dry, crumbly dough) or cornstarch (for sticky dough).
- Makes about 2 cups of play dough, or about 2 baseball-size balls of dough.
- Store in tightly sealed plastic bags or containers.

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**FUTURISTIC**

**Public Service Announcement**

**Purpose:** In this activity, kids will send a video back in time to themselves, explaining what Celiac’s is, how they discovered it, and what tips and tricks they have now for avoiding gluten. We have prepared a fill-in-the-blank script, so that kids can add information about their own specific story. After filling in the script to meet their needs (i.e. with info about how they learned they had Celiac’s, the foods they need to avoid, how long they have had Celiac’s), the kids can then make a video!

**Public Service Announcement Script**

Hi ______ (insert name) from the future!!

Greetings from the year ____! Wow! It’s hard to believe that ____ years ago we were diagnosed with Celiac’s disease. Do you remember how we figured it all out? Well, you were feeling _____ (tired, achy, sick, crampy, low energy) and did not know why. Then, you went to the doctor, and after _____ (amount of time), you realized that the culprit was gluten! The whole diagnosis process was... _____. (at this point, kids can add in more specific information about how they were diagnosed. Did they have to do a lot of tests? Did it take the doctor a long time to catch the disease? After cutting out gluten, how long did it take before they felt normal again?)
At first, it was hard to understand what was safe to eat, and why our body couldn’t process gluten like everyone else’s. Remember, Celiac’s is an autoimmune disease; this means that our body “attacks” our own cells. This happens because when we eat gluten, the body accidentally converts it into a scary molecule that no longer looks like gluten, but rather like a foreign, dangerous invader called an antigen. This antigen gets attacked by B cells and T cells, the body’s army against foreign invaders. The B cells make antibodies that attack the gluten antigen, and the T cells destroy the gluten. What makes Celiac’s so dangerous is that gluten is attached to our own cells in the small intestine, an organ that helps break down food. This means that when the B and T cell army attacks gluten, it is also attacking cells in the small intestine, damaging the organ and making it harder to process food. This is why we feel so icky after eating gluten… it causes us to break down our own helpful cells!

After _____ (amount of time) dealing with Celiac’s though, we are getting to be an expert on how to avoid it. And now that we have mastered living with Celiac’s, we are busy doing all these fun things (campers can think of three things they might be doing in the future!) like:

1)____________________
2)____________________
3)____________________

I can’t wait to see you again in the future!

______________ (insert name)

Materials needed:
- Premade script
- Video camera
- Costumes the kids can wear (something futuristic, shiny, etc)
- A potential backdrop the kids can stand in front of (a solid colored wall, a sheet, etc)
- A way to send kids the video after (like as a video file in an email)

___________

**Saving Robobot!**

**Purpose:** The goal of this activity is to get students thinking about gluten-free foods and materials that are a part of their daily lives. Robobot is coming from the future trying to seek helpers because he found out that he is gluten free. He went back in time to get help
from the students and needs tips on food to eat or not eat. Using the handout, each student will be able to draw/color pictures answering the following four questions:

1. What is your favorite food that is gluten free?
2. What is something you know that is not gluten-free?
3. What is something that is not food related that has gluten in it?
4. What do you think gluten looks like?

They will be able to draw different images of foods in the boxes, and they can share it with the class. In the end, the kids will be able to learn from other students about gluten/gluten-free foods that they can carry on into the future! This will give a chance for the students to celebrate the gluten-free foods they enjoy eating everyday while also getting them to think about common foods that they should always keep an eye out for. This also gets their creative juices going by drawing some exciting art!

**Materials Needed:**
- Attached Gluten Robobot Worksheet
- Markers and other coloring tools
Before Eating Bread
After Eating Bread
Hi! I’m RoboMan and I come from the future. I can not eat gluten so I went back in time to get YOUR help! Can you draw me answers to these questions?