GLEANERS

2022 Summer Nutrition Club: The Mystery of Mealtime

Lesson 3: The Department of Dairy Defense

Approximate Lesson Length: 45 minutes

Supplies Needed:

- MyPlate model or image
- Case File Handouts - 1 per child
- Post-assessment MyPlate sheets - 1 per child
- Coloring utensils (crayons, colored pencils, markers, etc.) - available in red, orange, green, blue, and purple
- Clue Station Supplies
    - Non-fat milk – about 1 cup per small group of 4-8 children
    - Whole milk - about 1 cup per small group of 4-8 children
    - Food coloring - 2 different colors
    - Shallow bowls – 2 per small group of 4-8 children
    - Cotton swabs – 2 per small group of 4-8 children
    - Dish soap
    - Small cups for soaking cotton swabs in dish soap – 1 per station
    - Labels for bowls (card next to each bowl, write directly on paper bowls, etc.)
- "Hot on the Trail" activity supplies
    - "Hot on the Trail" questions – 1 copy, 2 pages
    - Large footprint cut-outs – 6 copies
    - Large cow hoof cut-outs – 6 copies
    - Large "Case Closed" cut-outs – 2 copies
    - *Optional*: laminate the footprints and cow hoof prints so they are more durable during the activity
- Hand sanitizer
- Magnifying Glass Pretzel Kabob recipe supplies (refer to Case File for recipe) - plan for 4 kabobs per child
    - Small paper plates – 1 per child
    - Napkins – 1 per child
    - Pretzel sticks - 4 per child

    - Cheese cubes (any variety) - 4 per child
    - Grapes (any variety) - 4 per child
    - Ingredient alternatives for special dietary needs
- Sanitizing wipes and paper towels for cleanup
- Disposable food prep gloves

Preparation:

- Purchase/gather supplies and ingredients
- Day of lesson:
    - Train adult helpers on their roles with the lesson. Recruit their help with set-up and classroom management activities such as:
        - Handing out materials throughout lesson
        - Assistance with small group activities
        - Prepping and serving recipe
        - Keeping children quiet, focused, and organized
    - Set up Magic Milk clue stations (place all supplies out of the children's sight/reach if possible):
        - Fill 2 shallow bowls with milk at each station – 1 with non-fat milk and the other with whole milk
            - Milk should be around 2 inches deep in the bowl for best results
            - Label each bowl with the numbers 1 and 2 (keep track of what number bowl both types of milk are poured into)
        - Have 2 different colors of food coloring available at each station.
        - Pour a small amount of dish soap into a small cup at each station. Place one end of the cotton swabs in the dish soap and set two swabs at each station.
    - Set up "Hot on the Trail" activity
        - Lay footprints in a hopscotch line (close enough that kids can hop from one to the other) in an open space. Repeat with cow hoofprints in a separate line, allowing plenty of space between the two lines. See sample hopscotch layout at the end of this guide.
        - Place a "Cased-Closed" cut-out at the end of each line of prints, opposite from where the kids will start.
        - Secure all paper cut-outs to the floor with tape for safety.
    - Prepare and plate Magnifying Glass Pretzel Kabobs.

Food Preparation:

- Wash grapes and cube cheese (unless buying pre-cut cubes).
- Prepare each plate with 4 pretzel sticks, 4 cheese cubes, and 4 grapes. Allow the children to assemble their own kabobs by threading the cheese and grapes on the pretzels.

Objectives:

By the end of the lesson, children will:

1. Be able to recognize which dairy products are beneficial to their bodies

2. Be able to state one way that consuming dairy benefits their body
3. Be able to state that it is sometimes okay to indulge in sweet treats
4. Be able to answer a variety of questions about fruits, vegetables, grains, proteins, and dairy

1. Welcome

- Welcome back to Summer Nutrition Club, Nutrition Detectives! By this time, you are well educated on the "Mystery of Mealtime". However, there are still more clues to uncover before we can solve the mystery!
    - But first can someone tell me something they learned in last week's lesson?
- This is our last mission to solve the "Mystery of Mealtime" - are you ready to find more clues?
- This week you have been assigned to work with the special agents at the Department of Dairy Defense.

2. Department of Dairy Defense

- You have now entered the Department of Dairy Defense where we defend against weak bones.
- Dairy foods help detectives have strong bones and teeth to keep them from breaking bones while solving the case. This is because dairy contains vitamin D and calcium.
- Can anyone name some examples of dairy foods that we may eat? (ex: milk, yogurt, cheese, ice cream, etc.)
- Where does dairy milk come from?
    - Cows!
    - You may know someone that gets an upset tummy if they drink or eat cow's milk. That is why beverages like almond milk and soy milk were made. Since these drinks are not made from cow's milk make sure to look for added calcium to keep your bones strong. Even if you are able to eat and drink cow's milk, these alternatives can be fun to try!
- Many sweet treats contain dairy such as ice cream and milkshakes. These foods can taste really great! To keep our bodies strong and healthy, we can choose to just eat these foods *sometimes* instead of every day. There are lots of other dairy foods that we can choose every day to keep our detective skills sharp.
    - Dairy options like plain milk, cheese and yogurt are the best to help us be the best detectives!
    - Chocolate or strawberry milk, flavored yogurt, ice cream, milkshakes, and other sweet treats are fun to choose sometimes, but we just want to look out for eating a lot of sugar every day.
- Now let's put those detective skills to the test and try to spot the high sugar imposters in a dairy line up of suspects. Turn to page 2 of your case file.
    - Examine each dairy suspect closely and pick out which three you think are the highest in sugar.
    - ANSWERS: chocolate milk, strawberry yogurt, and ice cream
    - Do you think these foods are good choices to eat every day or sometimes?

3. Hot on the Trail

- Now that you have gathered all the evidence, let's see if you can solve the mystery of mealtime by using everything you have learned!
    - Divide the children evenly into 2 teams and have them make two lines
- We are going to play a game called "Hot on the Trail". When a detective is "hot on the trail", it means they are really close to finding more clues and solving the mystery! I will be asking each team questions about what we learned from all three lessons of Summer Nutrition Club. If the team member gets the question right, they will hop on the footprints to the other side.

    - Ask questions one by one. When they answer correctly, they can hopscotch to the other side. The first team to get all detectives to the other side wins! *If kids do not get the answer on the first try, give more hints to help them think back to the previous lessons*
- See “Hot on the Trail” question sheet (Team 1 and 2) for questions/answers.

4. Use Your Clues Station

- For today, we will be working as scientists in our clue stations! We will be solving the mystery of Magic Milk.
    - Split the children into small groups of 4-8 with an adult helper at each station.
- In the Magic Milk experiment, we will be testing whole milk and non-fat milk to see what happens when we add dish soap.
    - Adults at each station will add 2 drops of each color of food coloring into the center of the milk.
    - The adult helper will then take the dish soap-soaked cotton swab and hold the tip of it in the middle of the food coloring, slightly submerging it in the milk. Move the swab around slightly to touch all the drops of food coloring and see how they react.
        - Have children write down their observations in the Case File Handout (page 2)
        - Ask the children which bowl they think is whole milk and which one is non-fat milk.
        - *Note:* the whole milk should cause the colors to expand and swirl (see images below) while the non-fat milk should not have much happen.
    - Repeat steps for the second bowl of milk.
    - After all the groups have completed the experiment on both bowls of milk, the groups come back together to go over their findings.
        - What differences did you notice between the whole milk and non-fat milk?
        - Which bowl do you think had the whole milk (1 or 2) and which had the non-fat milk (1 or 2)?
        - Does anyone have a guess of why the two milks were different?
            - Answer: This is because whole milk has fat molecules while non-fat milk does not. The dish soap chases after and captures the fat molecules like a game of tag, which is what creates the firework effect on the surface. This change in the milk is so small that without the food coloring, it would be impossible to see with your eyes.
            - The experiment needed fat to make the cool firework effect. If the fat was not there, this would not be able to happen. The same is true in our bodies. We need some fat in our diet in order for our bodies to work properly – especially our brains!



5. Recipe Sampling

- Have children wash their hands with hand sanitizer.
- Quickly remind the kids of the "Rules of a Good Detective”:
    - Use your senses
    - Be brave and polite

    - Don’t give up
- Today we will be trying Magnifying Glass Pretzel Kabobs. You can put a cheese cube and a grape on each pretzel stick to look sort of like a magnifying glass. Does anyone know what a detective uses a magnifying glass for?
- While children are assembling and eating their snacks, ask if they can identify which MyPlate food group each ingredient belongs in.
    - Cheese: Dairy
    - Pretzel: Grain
    - Grape: Fruit

6. Wrap Up/Post-Assessment

- While children are finishing their samples, ask the following questions (record responses):
    - Raise your hand if you tried a new food today.
    - Who can raise their hand and tell me one thing you learned today?
- Post-Assessment
    - To show what we have learned in Summer Nutrition Club, we are going to do a MyPlate coloring activity.
        - Hand out a MyPlate sheet to each child and make sure each table has coloring utensils available in red, orange, green, blue, and purple. Children can share colors with their neighbors as needed.
        - Children do <u>not</u> need to include their name on the sheet. Read instructions to children and encourage them all to do their own best work. It’s OK if they aren’t sure about an answer – they can just make their best guess.
        - Collect completed assessments once all children have finished. If desired, review the results to see how much the children learned and email aggregate data to Sarah Wilson, Gleaners’ Nutrition Manager, at swilson@gleaners.org.

7. Clean Up

- Gather and clean supplies
- Sanitize tables
- Throw trash away

Hot on the Trail Questions (Team 1)

1. What does dairy have that keeps our bones strong?
    a. Calcium or Vitamin D
2. TRUE OR FALSE? Peanut butter is a protein source from animals.
    a. False
3. Which is a better choice when eating dairy.... chocolate milk OR plain non-fat milk?
    a. Plain low-fat yogurt
4. What is an example of a plant source of protein? (Hint: think of protein tic tac toe, BLANK and jelly sandwich)
    a. Peanut butter, beans, tofu, nuts
5. How much of your plate should be fruits and veggies?
    a. Half
6. Name a vegetable you like to eat.
    a. Carrots, cucumber, cauliflower, broccoli, etc.
7. Which one is an example of a **whole** grain...brown rice OR white rice?
    a. Brown rice
8. How many food groups are a part of MyPlate?
    a. 5
9. TRUE OR FALSE? Eating fruits and vegetables from all colors of the rainbow helps me stay healthy.
    a. True
10. TRUE OR FALSE? Grains give us energy.
    a. True
11. What animal does dairy milk come from?
    a. Cows
12. When should we use MyPlate to help us know what to eat..... at every meal or once a day?
    a. Every meal
13. TRUE OR FALSE? Dairy helps us have strong bones.
    a. True
14. In Summer Nutrition Club, we learned about grains, proteins, fruits, vegetables, and what other food group? HINT: The topic of today's lesson
    a. Dairy
15. How much of your plate should be protein at mealtimes?
    a. One-fourth or a small part
16. How much of the grains you eat should be **whole** grains? (HINT: should it be half or none?)
    a. Half or more

Hot on the Trail Questions (Team 2)

1. How much of the grains you eat should be **whole** grains? (HINT: should it be half or none?)
    a. Half or more
2. How much of your plate should be protein at mealtimes?
    a. One-fourth or a small part
3. In Summer Nutrition Club, we learned about grains, proteins, fruits, vegetables, and what other food group? HINT: The topic of today's lesson
    a. Dairy
4. TRUE OR FALSE? Dairy helps us have strong bones.
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    a. Calcium or Vitamin D
11. TRUE OR FALSE? Peanut butter is a protein source from animals.
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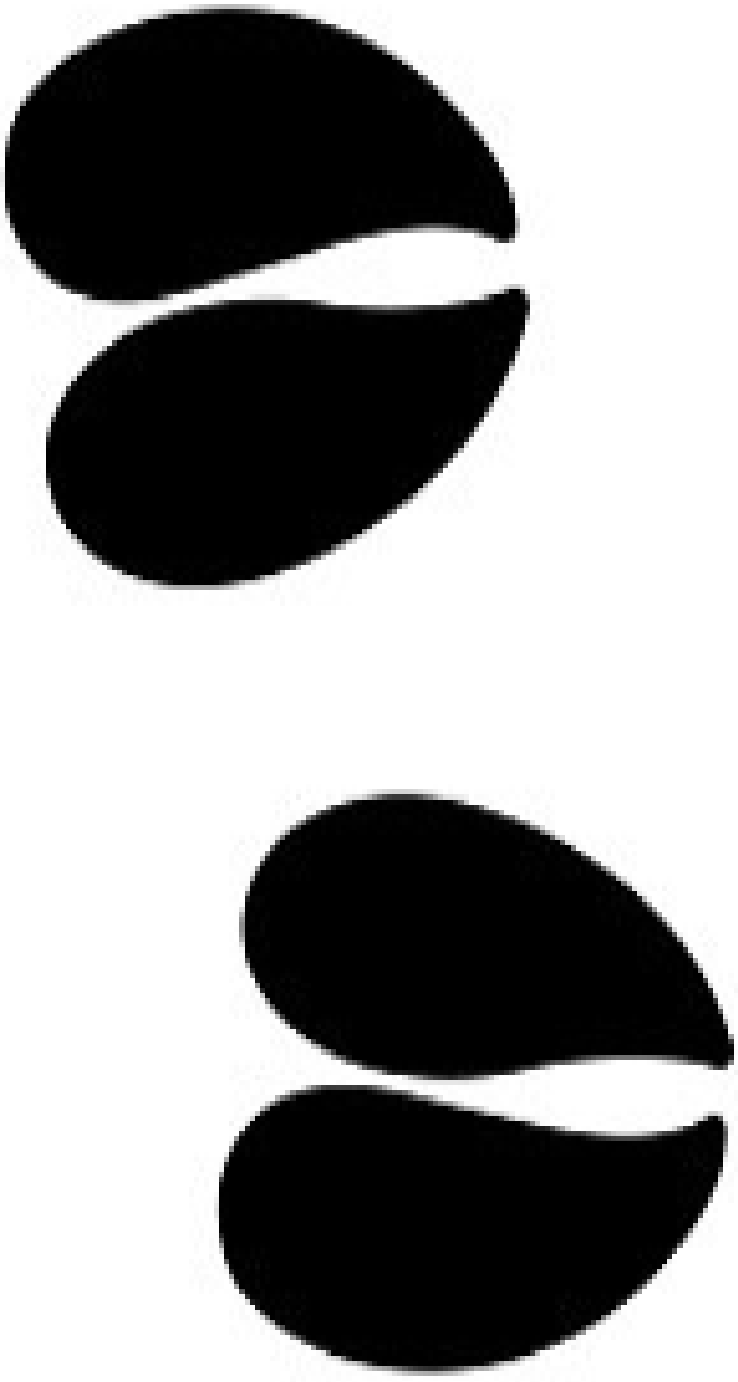
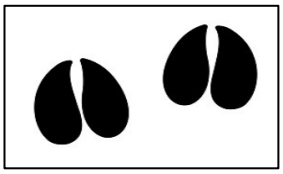
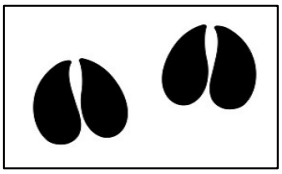
12. How much of your plate should be fruits and veggies?
    a. Half
13. Which is a better choice when eating dairy.... chocolate milk OR plain non-fat milk?
    a. Plain non-fat milk
14. What is an example of a plant source of protein? (Hint: think of protein tic tac toe, BLANK and jelly sandwich)
    a. Peanut butter, beans, tofu, nuts
15. Name a vegetable you like to eat.
    a. Carrots, cucumber, cauliflower, broccoli, etc.
16. Which one is an example of a **whole** grain...brown rice OR white rice?
    a. Brown rice

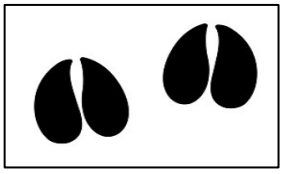


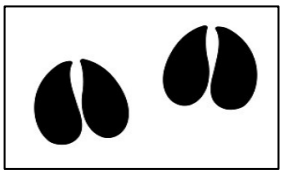
CASE CLOSED

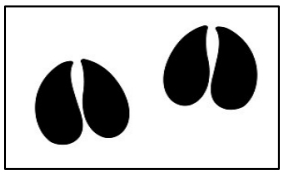
(allow several feet between the two lines)

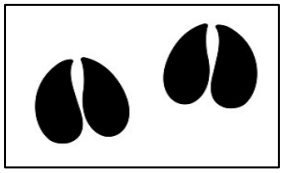


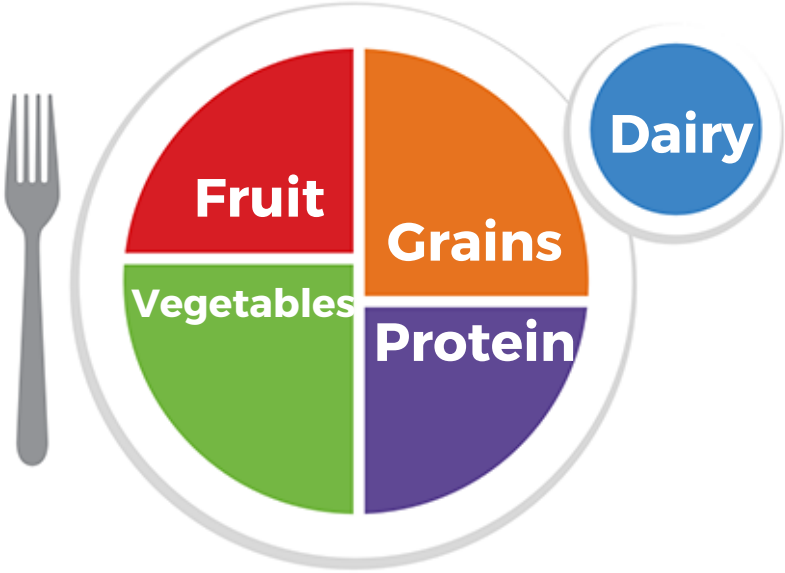












Color each food by what food group it belongs to:

Color fruit **RED**

Color vegetables **GREEN**

Color grains **ORANGE**

Color protein **PURPLE**

Color dairy **BLUE**

Milk

Chicken

Broccoli

Carrots

Apple

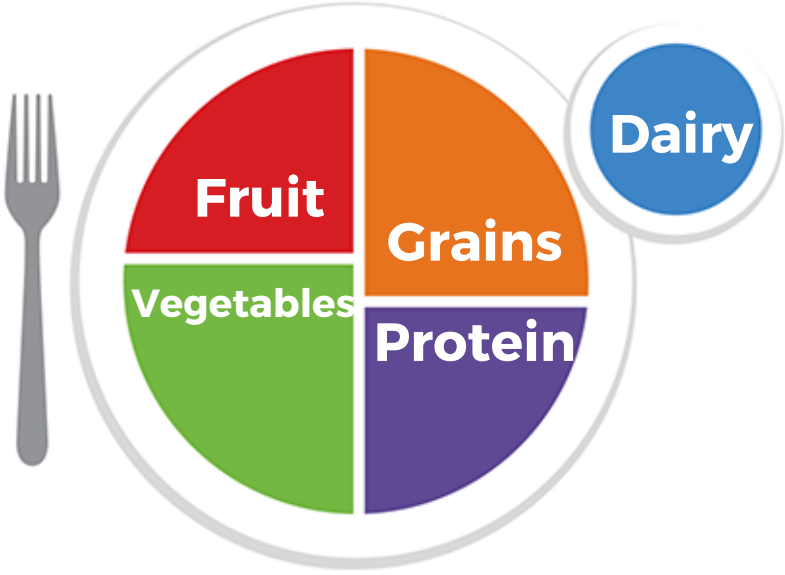
Cereal

Beans

Bread

Cottage Cheese

Blueberries



Color each food by what food group it belongs to:

Color fruit RED

Color vegetables GREEN

Color grains ORANGE

Color protein PURPLE

Color dairy BLUE