

Chapter 6

Meat, Poultry & Fish

Meat, poultry, fish, eggs and beans are all part of the protein foods group. Meat comes from animals, such as cows (beef), pigs (pork), lambs, rabbits, deer (venison) and goats. Chickens, turkeys, ducks, geese and other birds we eat are all called poultry. Catfish, flounder, salmon, crabs and shrimp are all fish. Meat, poultry and fish are full of protein along with other vitamins and minerals.

Enjoy meeting meat!

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Virtual Lessons:

(See *Virtual FoodMASTER CD*)

Beef Basics

Major Muscle

Chicken Challenge

Preparing Chicken

Hamburger Hints

Summary

The class will prepare 70% lean hamburger and 90% lean hamburger. Students will measure and compare the weight before and after cooking. In addition, they will observe and measure the waste.

Objectives

1. Students will be able to identify the healthier ground beef.
2. Students will be able to compare different percentages.
3. Students will select appropriate measurement tools for measuring weight and volume.
4. Students will practice measurement skills using appropriate units for weight and volume.
5. Students will use real-life mathematics to practice subtraction and division.

Academic Content Standards

MATHEMATICS COMMON CORE

Grade 3

- 3.OA.1 Interpret products of whole numbers, e.g., interpret 5×7 as the total number of objects in 5 groups of 7 objects each.
- 3.OA.2 Interpret whole-number quotients of whole numbers, e.g., interpret 56 divided by 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each.
- 3.OA.3 Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.
- 3.NF.1 Understand a fraction $1/b$ as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size $1/b$

Grade 4

- 4.MD.1 Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalence in a two-column table.
- 4.MD.2 Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.
- 4.OA.2 Multiply or divide to solve word problems involving multiplicative comparisons, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.

SCIENTIFIC INQUIRY:

Lean and Fat

Materials

For the teacher: Food scale, 4 paper plates, double burner hot plate, 2 frying pans, 1-2 spatulas, 2 liquid measuring cups, thermometer, 1 pound 70% lean ground beef (thawed), 1 pound 90% lean ground beef (thawed).

For each student: 1 plate.

Procedure

1. Read *Hamburger Hints* and complete the Doodle Bugs.
2. Begin the scientific inquiry by weighing the beef. First, place a paper plate on the scale and zero the scale. Add 70% lean ground beef and weigh. Repeat with 90% lean ground beef. Be sure to explain to students why you zeroed the scale — to make the weight of the plate disappear.
3. Place the 70% and 90% lean ground beefs in separate frying pans. Heat on the double burners over medium-high heat.
4. While the meat is browning, ask your students the following questions: **“How is the appearance of the meat changing? What is the percent fat of the 70% lean ground beef? What is the percent fat of the 90% lean ground beef? Which type of ground beef has more fat? Would it be healthier to eat 70% lean ground beef or 90% lean ground beef? If the meat didn’t have any fat, what percent fat would it be and what percent lean would it be?”** Remind students that the percent fat and percent lean always add up to 100%.
5. Cook the meat thoroughly to 160 degrees Fahrenheit. Then drain the grease into small measuring cups.
6. Let the grease cool. Then ask students to read the volume of the grease.
7. Measure the after cooking weight of each type of ground beef. Remember to zero the scale with a new plate on top before adding the ground beef.
8. Instruct students to complete the *Ground Beef Facts* table and answer the questions.
9. Students may taste the two ground beefs. Ask students which they like best.
10. Work as a class to calculate the before and after cooking cost per ounce of each type of ground beef.

Teacher Tips:

- Be very careful when using the hot plates. Review the dangers of touching the hot plate, hot pans and hot grease before beginning the lesson.
- Be sure to dispose of meat packaging properly.
- Only allow adults to touch the raw meat and hot cooked meat.
- Adults must wash their hands after touching raw meat.
- If any student touches raw meat or a contaminated surface, they must wash their hands.
- Be sure to sanitize all cooking surfaces and wash all cookware and utensils thoroughly.
- Use a small four-ounce liquid measure to measure the grease. Be sure the measuring cup is heat stable.
- Do not allow students to eat meat that is not thoroughly cooked.
- Extension: Refrigerate the waste (grease) overnight. Then show kids the solidified grease the next day. This is a physical change like freezing water to make ice; we can refrigerate grease to make it solid. Similarly, we can melt ice to get water and melt solidified grease to get liquid grease.

Hot Diggity Dog

Summary

The class will prepare and taste two kinds of hotdogs. Students will compare the nutritional value of the hotdogs by reading the food labels. Students will use multiplication and division to solve real life problems.

Objectives

1. Students will be able to find serving size, calories, total fat, saturated fat and sodium on food label Nutrition Facts panels.
2. Students will correctly evaluate hotdogs based on nutritional value and taste.
3. Students will apply division and multiplication skills to solve problems.

Academic Content Standards

MATHEMATICS

Numbers and Operations Standard

Compute fluently and make reasonable estimates.

Expectation:

- Develop fluency in adding, subtracting, multiplying, and dividing whole numbers.
- Select appropriate methods and tools for computing with whole numbers from among mental computation, estimation, calculators, and paper and pencil according to the context and nature of the computation and use the selected method or tools.

Data Analysis and Probability Standard

Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them.

Expectation:

- Collect data using observations, surveys, and experiments.
- Represent data using tables and graphs such as line plots, bar graphs, and line graphs.

Problem Solving Standard

Expectation:

- Build new mathematical knowledge through problem solving.
- Solve problems that arise in mathematics and in other contexts.

Connections Standard

Expectation:

- Recognize and apply mathematics in contexts outside of mathematics.

SCIENCE

Science as Inquiry: Content Standard A

Develop abilities necessary to do scientific inquiry.

Expectation:

- Plan and conduct a simple investigation.
- Use data to construct reasonable explanations.

Science in Personal and Social

Perspectives: Content Standard F

Personal health.

Expectation:

- Nutrition is essential to health. Students should understand how the body uses food and how various foods contribute to health. Recommendations for good nutrition include eating a variety of foods, eating less sugar, and eating less fat.

SCIENTIFIC INQUIRY: Healthier Hot Dog

Materials

For the teacher: 2 large pots, double burner hot plate, tongs, 1 plate, 1 table knife, cost for each package of hot dogs, water, 1 package regular hot dogs, 1 package turkey dogs.

For each student: 1 plate, food labels for each kind of hotdog. Optional: 1/2 bun, ketchup, mustard.

Procedure

1. Place two pots on a double burner. Fill each pot three-fourths full with water and begin heating over medium heat.
2. Read *Hot Diggity Dog* and complete the Doodle Bugs.
3. When the water boils, carefully add four to eight regular hotdogs to the first pot and four to eight turkey hotdogs to the second pot.
4. Boil hotdogs for three to five minutes (or as directed per package instructions).
5. While the hotdogs are boiling, your students may complete the *Hotdog Facts* table. Remind students where to find serving size, calories, total fat, saturated fat and sodium on food labels.
6. When the hotdogs are done, use tongs to remove them from the pot and place them on a plate.
7. Use a table knife to slice the hotdogs into chunks. Place a sample of each type of hotdog on each student's plate. Optional: Squirt ketchup and/or mustard for dipping on each student's plate. If desired, place whole hotdogs in a bun and then cut into smaller portions for each student to try.
8. Discuss the nutrition and taste of each hotdog. Instruct students to complete the *Cost of One Hotdog* table and remaining questions.

Teacher Tips:

- For time efficiency, begin heating water prior to starting *Hot Diggity Dog*.
- When buying regular hotdogs, you can choose beef, pork or beef/pork hotdogs.
- Provide labels to individual students or pairs of students. You can make copies of the actual hotdog food labels or copies of the labels provided in this manual.
- You may provide students with the actual price of the hotdogs or round prices to simplify the calculations.
- Extension: If there are 12 hotdog buns in one package, then how many packages of buns would you need to serve everyone in the class one bun? How many buns would you have leftover?

Regular Hotdog

Nutrition Facts

Serving Size: 1 hotdog
(45 grams)
Servings Per Container: 10

Amount Per Servings

Calories 130
Calories from Fat 110

		% Daily Value
Total Fat	12 g	18%
Saturated Fat	4 g	20%
Trans Fat	0 g	0%
Cholesterol	35 mg	12%
Sodium	540 mg	23%
Total Carbohydrate	1 g	0%
Dietary Fiber	0 g	0%
Sugars	1 g	
Protein	5 g	

Turkey Hotdog

Nutrition Facts

Serving Size: 1 hotdog
(45 grams)
Servings Per Container: 8

Amount Per Servings

Calories 100
Calories from Fat 70

		% Daily Value
Total Fat	8 g	12%
Saturated Fat	2.5g	13%
Trans Fat	0 g	0%
Cholesterol	0 mg	10%
Sodium	510 mg	21%
Total Carbohydrate	2 g	1%
Dietary Fiber	0 g	0%
Sugars	1 g	
Protein	5 g	

Something is Fishy

Summary

The class will double and triple a recipe and then prepare salmon spread.

Objectives

1. Students will be able to identify examples of finfish and shellfish.
2. Students will be able to accurately measure ingredients.
3. Students will be able to communicate the importance of using mathematics to solve real life problems.
4. Students will double and triple a recipe and complete a chart.
5. Students will be able to pull information from a table to answer questions.
6. Students will understand that fish are healthy because of omega-3 fatty acids.

Academic Content Standards

MATHEMATICS

Numbers and Operations Standard

Understand meanings of operations and how they relate to one another.

Expectation:

- Understand and use properties of operations, such as the distributivity of multiplication over addition.

Compute fluently and make reasonable estimates.

Expectation:

- Develop fluency in adding, subtracting, multiplying, and dividing whole numbers.
- Develop and use strategies to estimate the results of whole-number computations and to judge the reasonableness of such results.

Algebra Standard

Understand patterns, relations, and functions.

Expectation:

- Represent and analyze patterns and functions, using words, tables, and graphs.

Measurement Standard

Apply appropriate techniques, tools, and formulas to determine measurements.

Expectation:

- Select and apply appropriate standard units and tools to measure length, area, volume, weight, time, temperature, and the size of angles.

Connections Standard

Expectation:

- Recognize and apply mathematics in contexts outside of mathematics.

SCIENCE

Science in Personal and Social

Perspectives:

Content Standard F

Personal health.

Expectation:

- Nutrition is essential to health. Students should understand how the body uses food and how various foods contribute to health. Recommendations for good nutrition include eating a variety of foods, eating less sugar, and eating less fat.

SCIENTIFIC INQUIRY:

Fish in the Kitchen

Materials

For the teacher: Mixing bowl, 1 set dry measuring cups, spoon, fork, 1-2 table knives.

Doubled recipe: 2 salmon pouches (6-7 ounces each), 8-ounce package light cream cheese, 8-ounce jar chunky salsa, 1 1/2 cups finely chopped vegetables (celery, zucchini, cucumbers or carrots).

Tripled recipe: 3 salmon pouches (6-7 ounces each), 2 8-ounce packages light cream cheese, 8-ounce jar chunky salsa, 2 1/4 cups finely chopped vegetables (celery, zucchini, cucumbers or carrots).

For each student: 1 plate, 2 whole-grain crackers.

Procedure

1. Read *Something is Fishy* and complete the Doodle Bugs.
2. Explain doubling and tripling a recipe. Complete the first row of the *Double and Triple Recipes* table as a class.
3. Students will complete the rest of the table as a class, in small groups or individually. Use the chart to help students explore the relationship between addition and multiplication.
4. Classes with about 24 students should use the doubled recipe. Larger classes may choose to use the tripled recipe.
5. Follow the *Scientific Inquiry: Fish in the Kitchen* directions to prepare the salmon spread. Allow students to help measure and stir ingredients.
6. Instruct students to complete the *While You Wait: Oh My! Omega* page, while waiting to be served the salmon spread.
7. Students will taste the salmon and answer the remaining questions.
8. Refrigerate any leftovers.

Teacher Tips:

- Do not serve salmon to students with fish allergies. These students may eat the crackers with an alternative spread/dip.
- Finely chop vegetables prior to beginning the activity.
- Let cream cheese sit out for a few minutes to soften before beginning.
- If desired, one-fourth cup low-fat mayonnaise may be used in place of the cream cheese.
- Extension: Instead of using boneless salmon you could buy traditional cans of salmon. Bones will need to be removed first. Then students can study the bones, especially the back bones.
- Extension: For more practice with multiplication read Amanda Bean's *Amazing Dreams* by Cindy Neuschwander.

WHILE YOU WAIT: **Oh My! Omega**

Materials

For each student: Student worksheet.

Procedure

1. Students will read the short paragraph.
2. Direct students to read the chart and use the chart to answer the three questions.
3. Discuss the heart health benefits of eating fish. Remind students that fried fish is less healthy.

Teacher Tip:

Many students may think that fish smells bad, encourage students to try different types of fish. They may like one kind better than others.

Answer Keys

Hamburger Hints

Doodle Bugs

Underline: **Lean just means without fat.**
 Fill-in the blank: **100%**
 Cross out: **Saturated**

SCIENTIFIC INQUIRY:

Lean and Fat

70% lean: **16.2 ounces; 10.6 ounces; 1/4 cup (Note: Answers will vary.)**

90% lean: **16.2 ounces; 11.4 ounces; 1/8 cup (Note: Answers will vary.)**

What is the difference in weight of the 70% lean beef before and after cooking?

The 70% lean beef weighs 5.6 ounces less after it is cooked. (Note: Answers will vary.)

What is the difference in weight of the 90% lean beef before and after cooking?

The 90% lean beef weighs 4.8 ounces less after it is cooked. (Note: Answers will vary.)

Which kind of meat had the most waste?

The 70% lean had more waste. It had more fat to melt off and be poured off as waste.

70% lean: **$\$3.00 \div 16.2 = \0.19 per ounce before cooking;**

$\$3.00 \div 10.6 = \0.28 after cooking

90% lean: **$\$3.00 \div 16.2 = \0.19 per ounce before cooking;**

$\$3.00 \div 11.4 = \0.26 after cooking

Hot Diggity Dog

Doodle Bugs

Circle: **60**
 Underline: **Beef, pork, turkey and/or chicken**
 Draw an X beside: **Most are high in calories, fat and sodium**
 Fill-in the blank: **Answers will vary.**

SCIENTIFIC INQUIRY:

Healthier Hot Dogs

Note: Answers based on Nutrition Facts labels will vary depending upon the brands.

Regular hotdog: **45 grams; 130 calories; 12 grams; 4 grams; 540 mg**

Turkey hotdog: **45 grams, 100 calories; 8 grams; 2.5 grams; 510 mg**

Which hotdog is healthier? **The turkey dog is healthier because it had less calories, total fat, saturated fat and sodium.**

Regular hotdog: **10 hotdogs per package; \$4.00 per package; \$0.40 per hotdog**
(Note: Number of hotdogs and price may vary.)

Answer Keys (continued)

Turkey hotdog: **8 hotdogs per package; \$2.80 per package; \$0.35 per hotdog**

(Note: Number of hotdogs and price may vary.)

Which was more expensive for one hotdog? **The regular hotdogs (Answers may vary depending on brand and sales.)**

How many packages of turkey hotdogs would you need to buy to serve everyone in the class one turkey hotdog?

Answers may vary. Examples: $24 \text{ students} \times 1 \text{ turkey hotdog} = 24 \text{ turkey hotdogs needed}$

$24 \text{ turkey hotdogs} \div 8 \text{ turkey hotdogs per package} = 3 \text{ packages}$

3 packages are needed.

Or

$25 \text{ students} \times 1 \text{ turkey hotdog} = 25 \text{ turkey hotdogs needed}$

$25 \text{ turkey hotdogs} \div 8 \text{ turkey hotdogs per package} = 3.13 \text{ packages}$

4 packages are needed.

Which hotdog tasted the best? **Answers will vary.**

Something is Fishy

Doodle Bugs

Circle:

Finfish and shellfish

Box:

Clams, scallops, crabs, lobster and shrimp

Underline:

Fatty fishy like salmon, sardines and herring are high in omega-3 fatty acids.

Fill in the blank:

Answers will vary. (2 times per week is correct)

SCIENTIFIC INQUIRY:

Fish in the Kitchen

Salmon 1 pouch:

2 pouches; 3 pouches

Cream cheese 4 ounces:

8 ounces; 12 ounces

Chunky salsa 1/4 cup:

2/4 or 1/2 cup; 3/4 cup

Vegetables 3/4 cup:

1 1/2 cups; 2 1/4 cups

Crackers 25:

50; 75

Which recipe will you use? **Answer will depend on class size.**

Have you ever eaten salmon before? **Answers will vary.**

Did you like the salmon spread? **Answers will vary.**

Do you think the salmon spread is healthy? **Answers will vary.**

WHILE YOU WAIT:

Oh My! Omega!

1. **Salmon (farmed wild)**

2. **Lobster**

3. **2,070 milligrams**

Proficiency Questions (Workbook)

1. **c** 2. **d** 3. **d** 4. **c** 5. **c** 6. **b**

Proficiency Questions (Virtual CD)

1. **b** 2. **d** 3. **c** 4. **a**