Nutrition Circle Graphs

Pillar: Healthy Eating
Division: II and III
Grades: 6-8
Core Curriculum Connections: Mathematics

I. Rationale: Given a food label from a breakfast cereal, students will identify the total number of grams of fat, protein, and carbohydrates present in the cereal and use these values to construct and label a circle graph representing this nutritional information. The data displayed on the graph, along with other nutritional information contained on the label, could then be used to create additional problems involving percents, ratios, and proportional reasoning corresponding to specific outcomes in grades 6, 7, and 8. The dual purpose of this lesson is for students to become familiar with how to use the Canada Food Guide by solving problems that reflect the practical application of math and nutrition in their everyday lives.

II. Activity Objectives:

Student will be able to:

- read and understand the nutritional information found on food labels.
- recognize healthy and unhealthy food choices.
- compare nutritional data found on labels to the recommended guidelines in the Canada Food Guide.
- utilize the Canada Food Guide in a practical way (solving math problems).

III. Curriculum Outcomes: Mathematics

Statistics and Probability	Grade 6	Grade 7	Grade 8
General Outcome Collect, display and analyze data to solve problems. Collect, display and analyze data to solve problems	**Specific Outcome**: 3. Graph collected data, and analyze the graph to solve problems. [C, CN, PS, R, T] [ICT: C6–2.5, C7–2.1, P2–2.1, P2–2.2]	**Specific Outcome:** 3. Construct, label and interpret circle graphs to solve problems. [C, CN, PS, R, T, V] [ICT: P2–3.3]	**Specific Outcome:** 1. Critique ways in which data is presented in circle graphs, line graphs, bar graphs and pictographs. [C, R, T, V] [ICT: C7–3.1, C7–3.2, F4–3.3]

IV. Materials:

- breakfast cereal nutrition labels
- computers with internet access
- excel spreadsheet program

V. Procedure:

1. Using PowerPoint software and projector, or a overhead and transparency, review and discuss the information found on a standard nutrition label focusing on fat, protein and carbohydrates.

2. Using the Excel spreadsheet program, demonstrate how to locate and enter the values for fat, protein and carbohydrates.

3. Review the total calories and percentages of the fat, protein and carbohydrates found in the food.

4. Pair students at computer terminals.

5. Provide students with a nutrition label from a healthy food (ex: bran cereal with raisins).

6. Have the students enter the fat, protein and carbohydrate values in the Excel spreadsheet for the bran cereal.

7. Review the number of calories from fat, protein and carbohydrates.

8. Review the percentage of fat, protein and carbohydrates.

9. Demonstrate how to use the chart wizard to create a circle graph/pie chart.

10. Have the students create a circle graph to represent the percentages of fat, protein and carbohydrates in the food. Print each graph and save for the following lesson.

11. Review the student-generated circle graphs to determine whether the cereal contained the most fat, protein or carbohydrates.

12. Assignment: Ask students to bring in the label from a snack food that they enjoy. This lesson will be continued on the following day with labels supplied by students.

13. The Nutri-Facts website can be used for the extension activity or for students who do not have labels to use for Step 12.

- (Nutri-Facts)
  This website allows the user to enter the name of a food and get the nutrition label for several different brands.

VI. Extensions and Variations:

1. Create additional problems that require students to perform calculations and solve problems to reinforce other mathematical concepts they may be learning such as:

Grade 6: 5. Demonstrate an understanding of ratio, concretely, pictorially and symbolically. [C, CN, PS, R, V]	Create problems that require students to write ratios and calculate percentages based on the information and recommendations in the Canada Food Guide.

6. Demonstrate an understanding of percent (limited to whole numbers), concretely, pictorially and symbolically. [C, CN, PS, R, V]	*Ex: Write a ratio that represents the grams of protein found in the cereal to the grams of protein found in your snack food.* *What is the ratio of the number of servings of grains that a 2 yr old girl needs to the number of servings that an 18 yr. old male requires?*
Grade 7: 3. Solve problems involving percents from 1% to 100%. [C, CN, PS, R, T] [ICT: P2–3.4]	Have students solve problems utilizing the percent daily values listed on the labels.
Grade 8: 5. Solve problems that involve rates, ratios and proportional reasoning. [C, CN, PS, R]	Numbers of servings recommended for each age group could be used to solve problems involving ratios and proportional reasoning.

VII. Assessment Ideas:

- Collect circle graphs for informal assessment of correct format and accurate data and provide feedback.
- Check students' calculations of percentages for their chosen snack food label and formally assess their corresponding graph.
- Formative assessment of teacher created math problems

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