

Activity 7

Resources

Card 1

Steven has been told by a dietitian that he needs to eat 2,400 calories a day in order to maintain a healthy weight. He's always on the go so it is hard for him to know how much he's eating. Steven started keeping a food journal. On the right is a page from his food journal.

Based on this one day, is Steven keeping a balanced diet?

What are his eating habits like?

What does he need to do to balance his equation?

Monday

Breakfast

Egg 90 calories

Toast 90 calories

Snack

Chips 240 calories

Water

Apple 40 calories

Lunch

Sandwich 300 calories

Water

Brownie 120 calories

Dinner

Rice 100 calories

Chicken 120 calories

Corn 50 calories

Ice Cream 300 calories

Mikayla leads a sedentary lifestyle. She spends most of her time watching TV and read. On the weekends, she goes to the movies and visits her grandmother. Last week, Mikayla noticed that her clothes were feeling tighter. Her mom suggested that she keep a food journal. On the right is a page from Mikayla's food journal.

Based on this one day, is Mikayla keeping a balanced diet?

What are her eating habits like?

What does she need to do to balance her equation?

Goal: 2,000 calories a day

Breakfast

Cereal, 2 servings, 500 calories

Orange juice, 120 calories

Banana, 100 calories

Snack

Chocolate chip cookies, 300 calories

Milk, 120 calories

Lunch

Cheeseburger, 350 calories

Soda, 120 calories

French fries, 240 calories

Peaches, 100 calories

Ice Cream, 250 calories

Snack

½ Peanut Butter and Jelly Sandwich, 240 calories

Milk, 120 calories

Dinner

3 Slices of Pizza, 800 calories

Soda, 240 calories

Salad with dressing, 200 calories

Chocolate cake, 250 calories

Milk, 120 calories

Snack

Popcorn, 120 calories

Soda, 120 calories

Keisha has a very active lifestyle. She runs 3 to 5 miles a day, lifts weights, and takes karate classes. She wants to make sure her diet is healthy. A page from her food journal is shown to the right.



Based on this one day, is Keisha keeping a balanced diet?

What are her eating habits like?

What does she need to do to maintain her balanced equation?

Goal: 3,000 calories a day

Breakfast

Egg omelet, 300 calories
Wheat toast, 120 calories
Mixed fruit salad, 80 calories
Ham, 120 calories

Snack

Mixed vegetables, 20 calories
Yogurt, 80 calories
Chocolate milk, 180 calories

Lunch

Fried chicken drumsticks, 400 calories
Corn on the cob, 200 calories
Milk, 240 calories

Snack

Peanut butter crackers, 240

Dinner

Steak, 300 calories
Baked sweet potato, 90 calories
Broccoli with cheese, 120 calories
Apple pie, 250 calories
Water

Snack

Hot chocolate, 120 calories
Crackers, 40 calories

Observations _____

Answers _____

Card 2 – Mikayla's Food Journal

Equation _____

Observations _____

Answers _____

Card 3 – Keisha's Food Journal

Equation _____

Observations _____

Answers _____

What did you learn from participating in these experiences?

Diet & Exercise Food Journal

	Monday	Tuesday	Wednesday	Thursday	Friday
Breakfast					
Lunch					
Dinner					
Snacks					
Physical Activity					

Diet & Exercise Food Journal – *Directions*

1. Record **each and everything** you eat and drink for 5 days.
2. Try to be as specific as possible.
Don't just write: *bread* Try writing: *1 slice of Food Lion whole-grain bread*
3. If you know the number of calories your food has, write it down too!
4. Record physical activity or time spent being active.
You can write: *Football game* Or you can write: *1 hour* Or you can write: *Ran, 30 min.*
5. Have fun!

Balancing My Equation – Data Sheet

Directions: Pick one day from your food journal. Record what you ate that day in the table below. Using the calorie calculator, find the estimated number of calories you consumed.

	Food or Drink	Number of Calories
Breakfast	1.	
	2.	
	3.	
	4.	
	5.	
Lunch	1.	
	2.	
	3.	
	4.	
	5.	
Dinner	1.	
	2.	
	3.	
	4.	
	5.	
Snacks	1.	
	2.	
	3.	
	4.	
	5.	
Total Number of Calories		

Balancing My Equation – Student Sheet

A. How many calories are you SUPPOSED to consume a day? Use your MyPyramid plan to help you.

B. How many total calories did you ACTUALLY consume on the day you chose? Use your data sheet to help you.

C. Are the calories you actually consumed MORE or LESS than the calories you are supposed to consume? How do you know?

D. Use the $<$, $>$, or $=$ symbols to show the relationship between what you ACTUALLY consumed and what you are SUPPOSED to consume.

E. Use the balance and the weights to help you write an equation showing the amount you ACTUALLY consumed and what you are SUPPOSED to consume. Is the equation balanced? How do you know?

F. If your equation is NOT balanced, what could be the effects on your body if you did this every day?

G. If your equation is NOT balanced, what do you need to do? Create an action plan.

H. If your equation IS balanced, what are you doing right? Can you improve in any way?

Extensions for Activities 7 and 8

Students may use equations and comparison symbols to compare their actual and recommended servings of each nutrient.

This strategy can be used by students towards analyzing and evaluating the diets of others, and even offer advice to those on how to optimize their food intake.

Further, give students a specific purpose for which to adapt and/or improve diets. For example, newly diagnosed diabetes, or eating for athletic performance. See *The New York Giants: Eating for Performance*:

<http://kidshealth.org/Features.jsp?lic=1&feature=30>.

Activity 9 – How can I make sure I’m getting what I need?

- ◆ **Purpose:** Review and Application of Skills and Knowledge
- ◆ **Overview:** Through mathematics and technology integration, students will further understand what it means to have a balanced diet, as well as explore the causes and effects of healthy and unhealthy eating habits, and eating in moderation.
- ◆ **Learning Outcomes:** Students will be able to...
 - Science NCSCOS 4th grade
 - 4.01 Explain why organisms require energy to live and grow.
 - 4.02 Show how calories can be used to compare the chemical energy of different foods.
 - 4.03 Discuss how foods provide both energy and nutrients for living organisms.
 - Healthful Living NCSCOS 4th grade
 - 4.04 Demonstrate the ability to plan healthy meals and snacks that emphasize the principles of My Pyramid.
 - 4.05 Summarize the concept and the benefits of eating in moderation.
 - 4.06 Distinguish between healthy and unhealthy eating patterns.
 - 4.10 Analyze the relationship between physical activity and nutrition and the cardiovascular system.
 - Mathematics NCSCOS 4th grade
 - 1.05 Develop flexibility in solving problems by selecting strategies and using mental computation, estimation, calculators, or computers, and paper and pencil.
 - 4.03 Solve problems by comparing two sets of related data.
 - 5.01a Identify, describe, and generalize relationships in which quantities change proportionally.
 - 5.01b Identify, describe, and generalize relationships in which change in one quantity relates to change in a second quantity.
 - 5.02 Translate among symbolic, numeric, verbal, and pictorial representations of number relationships.
 - 5.03a Verify mathematical relationships using models, words, and numbers.
 - English Language Arts NCSCOS 4th grade
 - 2.09 Listen actively by asking questions; paraphrasing what was said; interpreting speaker's verbal and non-verbal messages; interpreting speaker's purposes and/or intent.
 - 4.02 Use oral and written language to present information and ideas in a clear, concise manner, and to discuss.
 - 4.05 Use planning strategies to generate topics and organize ideas (e.g., brainstorming, mapping, webbing, reading, discussion).
 - 4.10 Use technology as a tool to gather, organize, and present information.
 - 5.09 Create readable documents through legible handwriting (cursive) and/or word processing
 - Computer Technology Skills NCSCOS 4th grade
 - 2.13 Identify, discuss, and use online collaborative tools (e.g., email, surveys, videoconferencing) to collect data for content area assignments/projects.
 - 3.06 Use word processing as a tool for writing, editing, and publishing paragraphs, stories, and assignments.
 - 3.07 Locate, select, organize, and present content area information from the Internet for a specific purpose and audience, citing sources.

- ◆ **Classroom Time Required:** 1-2 days or 90 minutes
- ◆ **Materials:** pan balance (1 per group), 2 sets of metric weights per group (minimum recommended: four 50—g, three 100—g, three 200—g, and one each of 500—g and 1000—g for a total weight of 2,600), supply of centimeter cubes, calculators, chart paper, markers, *Optional* MyPyramid poster or pocket chart
- ◆ **Technology Resources:** *Optional* Laptop computers, educational blogging (preferred) and/or wiki site (1 blog/wiki per student)
- ◆ **Pre-activities:**
 - A week before the activity, have students begin a food journal (See *Resources* for a sample page). Students will use their own diets for this activity.
 - Prior to the activity, have students log foods and food amounts into the data sheet. This can be done as a homework assignment.
 - Students may work independently or in pairs. Each student or pair will need a laptop, one pan balance, 2 sets of metric weights, a supply of centimeter cubes, calculators, and data sheets. They will also need their My Pyramid plan from activity 3.
- ◆ **Activities:**
 - Begin by reviewing the information learned about nutrition during all previous activities, especially activity 3.
 - Ask students to remind you what the purpose of food is (to provide energy and nutrients). Then, ask them, “How do we know how much energy and nutrients we need?” Students should have a good idea of strategies they can apply to answer this question.
 - Have students write the question of the day and make/adjust predictions to both questions. Discuss predictions.
 - Say, “While it’s important to have a balanced number of calories, it’s just as important to have a balanced amount of nutrients. The MyPyramid plan gives you a benchmark number to follow when you make food choices throughout the day.”
 - “The food journal not only helps us keep track of calories but of nutrients by looking at the food groups. How do you think looking at food groups helps us to know that we are getting the right amount of nutrients?” Allow students to make predictions. By the end of this investigation, they should understand that each food group is a major source of one or two nutrients. By eating the right variety of food groups we make sure we get all the nutrients we need to grow and go.
 - Ask, “Does anyone know what the food groups are?” Students may or may not know. Then, remind students of the chart they made in Activity 5 with the food sources for each nutrient.
 - At this point, introduce and explain the USDA MyPyramid. It might be helpful to have a poster or pocket chart of the Pyramid, along with sample food sources. Have students reflect on what this means for them.
 - Have students look at their *Balancing Equation* data sheet from activity 8. Now, have students make a chart (See *Resources*) to classify the foods they entered onto the data sheet into each of the food

groups. Help students who have difficulty understanding combination foods, or foods made up of more than one food group.

- Once students have classified the foods, facilitate in determining the approximate total number of servings.
- Then, give them the *A little bit of this, a little bit of that* student sheet and appropriate materials. Facilitate students in completing the investigation.
- When students have completed the investigation, gather the class back together to discuss their predictions, procedures, observations, and conclusions.
- *Optional* At this time, students may use educational blogging or wiki sites to blog about their experiences with Activities 8 and 9. (See *Websites*) Once blogs are up and running, students may visit and comment on each other's blogs. Family members and staff may also be invited to read and comment on student blogs.
- Finally, direct students to all essential questions and the QOD.
- Have a short closing discussion to review essential understandings for this activity and add student ideas to the charts.

◆ **Assessment**

- Student work sheets
- Students should record an answer to the QOD in their science notebooks which correctly applies essential understandings of the activity.
- Blogs and/or wikis

◆ **Modifications**

- Students can complete only portions of the student work sheets.
- Students may complete investigation as a center activity.
- A class blog may be created to chronicle experiences rather than individual blogs.

◆ **Supplemental Information**

- MyPyramid for Kids - <http://www.mypyramid.gov/KIDS/>
- MyPyramid Pocket Chart - <http://www.carolina.com/product/952964.do>
- Help students understand why certain snack or junk foods must be eaten in moderation.

◆ **Critical Vocabulary**

- MyPyramid, food group, dairy, classify, blog and/or wiki, combination foods

◆ **Websites and Parent Resources**

- On Educational Blogging - <http://connect.educause.edu/Library/EDUCAUSE+Review/EducationalBlogging/40493?time=1223825181>
- Free Student Blogging – http://gaggle.net/gen?_template=/templates/gaggle/html/blog/index.jsp&gclid=CLSNm7uAopYCFRIMDQodXz9Q6Q
- Wikispaces - <http://www.wikispaces.com/>

- Edublogs - <http://edublogs.org/>
- Blogging for Elementary Students - http://www.education-world.com/a_tech/tech/tech217.shtml
- Wiki Ideas for the Classroom - <http://www.teachersfirst.com/content/wiki/wikiideas1.cfm>

