

2015

Math in the Modern World

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Designing Information Assignments for Literacy

Professor: Steven Cosares

Suggested Courses: First Year Seminar, Math in the Modern World

Activity Duration: 30 minutes in class, 1-2 hours at home

Activity Learning Objectives:

- To familiarize students with using an extensive database of material, in this case to obtain data and information regarding nutrition and making good dietary choices
- To help student recognize and evaluate the trade-offs that are often necessary when making decisions
- To help a student reflect on her competency in Inquiry and Problem Solving through a writing assignment

Activity Description: Students will be asked to gather nutrition data regarding their favorite snacks and assess how well they contribute to their maintenance of a “healthy” diet, as defined through, articles, websites and guidelines established by the US Department of Agriculture.

Vocabulary/Keyword(s): Key phrases in the domain of nutrition science and the concept of a “recommended daily allowance” of key nutrients will be presented.

Materials and Resources: When introducing the assignment, the instructor should bring in a variety of snacks with packaging that presents relevant “Nutrition Facts”. Students may be asked to present their own snacks as well. Students will be expected to find key values from the package to place in a chart that will be shared with the entire class. The instructor will provide information, e.g., from the website of the Dept. of Agriculture, that describes various nutrients and any lower up upper bounds that are recommended in a typical, reasonably healthy diet.

Activity:

The U.S Department of Agriculture set up the *Food and Nutrition Information Center* (FNIC) to provide “credible, accurate, and practical resources” about nutrition for health professionals, educators, government personnel and consumers. Their website (<https://fnic.nal.usda.gov/>) contains over 2500 links to webpages providing information and guidance about subjects like Diet, Nutrition Programs, Disease, Food Safety, Food Labeling, Supplements, Weight and Obesity.

One of the links takes you to the Dietary Reference Intakes, which are developed and published by the Institute of Medicine to provide the most current scientific knowledge on nutrient needs of healthy populations. They provide tables giving the Recommended Daily Allowances (RDA) for vitamins, minerals and macro nutrients to maintain good overall nutrition.

- Browse through the site to familiarize yourself with how information is provided to help you maintain a healthy diet. Through your search, you may have found, for instance, that for college-age adults the RDA for Vitamin D is 600 IU, though many health professionals recommend more. The recommendation is that adults consume about 1.5 grams of Sodium each day but that they not exceed 2.3 grams. It also says that men typically require more dietary fiber per day than women. Use the site or another reliable source to find number of grams of Protein (and amino acids) per day that would be recommended for someone your age and gender. Find the number of milligrams of Calcium that would be recommended.
- During class, we identified some snack foods and listed in a table some of the nutrition facts provided on their labels. For example, Nature Valley's Oats 'n Honey granola bars come with the following label:



We placed in information in a table taking the following form:

Snack	# Calories	Fat (g)	Sodium (mg)	Protein (g)	Dietary Fiber (g)	Sugars (g)
NV Granola	190	60	160	4	2	11

- Select about three or four of your favorite healthy snacks to add them to the table developed in class. Find the number of calories, and the amount of fat, sodium, protein, and dietary fiber and sugars that are contained in each serving of your selections and add that information to the table.
- Suppose that you wish to develop a diet so that **your weekly intake** of snacks, like those listed in your table, has a total number of calories that is less than 1500 and the total amount of Sodium should be less than 2 grams. Pick **one** of your favorite snacks and determine the **maximum** number of servings of this snack that you can eat in a week without exceeding these limits. If you had this

many servings, would your total intake of Protein be at least 50 grams? Would you have at least 25 grams of dietary Fiber? Does this number of servings per week contain too much sugar for you?

5. Is there a snack in the table that is clearly better for you, (in terms of meeting the lower and upper limits listed above), than your favorite snack? Why or why not?
6. Can you develop a mix of different snacks for the week to achieve a weekly intake that is better overall than eating just your favorite one every time?
7. Write a composition of about four or five paragraphs that describes the challenge of finding the right mix of healthy snacks for **your** weekly diet and how you met these challenges. Discuss how the information provided by the FNIC influenced your decisions about which snacks are best to include in your diet. Discuss whether you were surprised by any of the information provided on a snack's package and whether you may eat more or less of your favorite snack based on what you learned. Identify which nutrition limits are most difficult for you to satisfy. What do you think would happen if you ignored such limits?

Your composition will be graded on the following factors:

- Comprehension: You demonstrate an understanding of the situation and the problem you are asked to solve. Your solution is clearly presented.
- Analysis: Your choices reflect consideration of the limits imposed. You clearly compared and evaluated different alternatives.
- Clarity: Your composition is well written. Any tables or pictures you include make your points clearer.



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