

How do I know if the food I eat is nutritious?

EDIBLE GARDEN PROGRAM (6-8)

Knowing Nutrition for Meal Planning

(ILS 6 A and D, 7A, 24B, 22B)

Overview

The key question for this activity is, "How do I know if the food I eat is nutritious?" And there is no better way for students to answer that than to grow and cook their own food. Using the garden and kitchen as the facilitators, they will inspire student inquiry and teach them about Sustainable Agriculture, specifically, local food production and consumption.

For the purpose of this curriculum sustainable agriculture shall be defined as follows: "Sustainable Agriculture is a system of food production, supported by consumers, where farming operations, practices and technologies *work in harmony* with the natural systems that sustain life on earth."

Suggested Grade Level

This curriculum is designed for middle school/junior high grade levels. The topics covered can be built upon in complexity throughout that age range.

Approximate Time

60 minutes.

Objectives

1. The students will be able to create their own nutritious meal (Planning the Meal Activity).
2. The students will gain an understanding of the difference between the Food Guide Pyramid and Nutrition Labels.

Activity Abstract

The students will build a lunch or snack through a Food Pyramid Serving Size activity. The Guide and Nutrition Labels will be compared through the evaluation of a frozen meal. A Pyramid balanced menu is then discussed with the class.

Background Information

Planning a meal using the produce the students have grown can be an extremely rewarding experience. Before they can successfully plan a meal, the students should review the Food Guide Pyramid and Nutrition Labels, which presumably were taught in earlier grades. The Pyramid can then be used to expose the students to serving sizes. The specific nutrient levels targeted in the Pyramid are the Recommended Dietary Allowances (RDAs) for protein, vitamins and minerals and levels of food components such as fat, saturated fat, cholesterol, sodium and fiber. For more extensive background



go to this web site, <http://www.ericsp.org/pages/healthpe/index.html>, and look under Nutrition.

Serving sizes specified by the Food Guide Pyramid represent unit quantities that consumers can use to estimate the amount of a food they should eat. The guide is intended for healthy people. The serving sizes in the Food Guide and on food labels serve different purposes. In the Food Guide only a few serving sizes are specified for each food group, using simple memorable household units. People are to use the serving size amounts to visually estimate the amount of food they are eating. Serving sizes on Nutrition Labels must also be expressed in consumer-friendly household units - cups, ounces, pieces, etc. In both cases - Food Guide and Nutrition Label - it's important that the "serving size" is a unit of measure and may not be the portion an individual actually eats.

Nutritional Facts label (regulated by the Food and Drug Administration) serving sizes and the Food Guide Pyramid (released by USDA) serving sizes vary. The Food Guide Pyramid translates recommendations of the Dietary Guideline for Americans and nutrient standards like the Recommended Dietary Allowances into food group-based advice for a healthful diet. The Nutrition Facts label serving sizes are based on – but not necessarily equal to – the amount of food customarily eaten at one time as reported from nationwide food consumption surveys.

For example, a serving size of pasta for the Pyramid is 1 cooked cup and for a Nutrition Labels it is 2 cooked cups. This difference is because the Pyramid serving sizes for the Bread Group is based on one slice of bread. So one cup of cooked pasta has approximately the same nutritional value and caloric value as one slice of bread. The Nutrition Label uses a two cup serving size because that is the typical amount of pasta eaten in one sitting. One Nutrition Label serving of pasta equates to two bread group servings using the Pyramid. For more detailed information visit this web site:

<http://www.usda.gov/cnpp/Insights/Insight22.PDF>

Older students who have learned about serving sizes can study calories and develop their own calorimeter and run an experiment. See EXTENSIONS at the end of this Activity.

The carbohydrates, fats, and proteins in food supply energy, which is measured in calories. High-fat foods contain more calories than the same amount of other foods, so they can make it difficult for you to avoid excess calories. However, *low fat* doesn't always mean low calorie. Sometimes extra sugars are added to low-fat muffins or desserts, for Calories are the amount of energy in food. Typical food patterns for a day should be the consumption of 1600 calories for sedentary women and older people, 2200 calories for children, sedentary men and active women and 2800 calories for active men and very active women.

Use the Food Guide Pyramid as a starting point for menu planning. It provides a good guide to make sure you get enough nutrients. Make choices from each major group in the Food Guide Pyramid, and combine them however you like.

- **Use plant foods as the foundation of your meals.** There are many ways to create a healthy menu and they all should start with the three food groups at the base of the Pyramid: grains, fruits, and vegetables. Eating a variety of grains (especially whole grain foods), fruits, and vegetables is the basis of healthy eating. Enjoy meals that have rice, pasta, tortillas, or whole grain bread at the



- center of the plate, accompanied by plenty of fruits and vegetables and a moderate amount of low-fat foods from the milk group and the meat and beans group. Go easy on foods high in fat or sugars.
- **Keep an eye on servings.** Use the Serving Size worksheet included in this Activity to guide the students with menu planning. Make sure the menus contain items from several food groups. For example, a sandwich may provide bread from the grains group, turkey from the meat and beans group, and cheese from the milk group.
 - **Choose a variety of foods for good nutrition.** Since foods within most food groups differ in their nutrient content and other beneficial substances, choosing a variety helps you get all the nutrients and fiber you need. It also helps keep your meals interesting from day to day.

Materials

- Poster of the Food Guide Pyramid and Nutrition Labels
- Copy of the Food Guide Pyramid and Serving Size handouts for each student (See Appendices A and B)
- (4-6) Measuring cups for Serving Size frozen dinner activities
- 8” paper plates, one for each student
- (2-3) Ounce scales (postal rate scale is great)
- (15) 4” dia. paper plates for weighing food
- One food from each of the Pyramid food groups to be measured for serving size (consider building a lunch or snack – have enough for each student to have a serving)
- Serving Size Labels for each food (contains name of food and amount per serving)
- (3) Large Paper plates for each frozen dinner
- (3) Frozen Plate Dinner for each group of seven students. Save the Nutrition Labels for the activity
- (6) spoons
- Notepad and pencil for each group
- A Lunch Menu example that contains all of the Pyramid Food Guide food groups. (This is to show the students an example of a menu they might create to prepare their garden produce for a lunch.)
- 1:7 adult:student ratio
- Nutrition Expert - A parent or Certified Dietician
- A nutritious menu to be used in preparation for the Planning the Meal Activity

Set-up

De-thaw the frozen meals. Save nutrition label on packaging.
Set out the food selected for measuring serving sizes. Next to each food item place the label stating the serving size measurement. Place the scales near weighed food and the measuring cups near volumetrically measured food.



Procedure (Session 1)

1. **Tap prior knowledge.** Ask the students what they know about eating nutritionally. Do they feel they eat nutritiously? Let them know that they will be planning and preparing a nutritious lunch using their garden produce. But first they need to learn about nutrition and serving sizes. They will do this today building a lunch or snack.
2. **Introduce scientific concept.** Handout and discuss the Food Pyramid (Appendix A) and Serving Size Handout (Appendix B).
3. Hand out the 8” paper plates and have each student write their name of the top of the plate.
4. **Hands-on experience.** Have the students go through the Serving Size measuring stations to create their lunch or snack. Refrigerate lunch or snack until eaten.
5. Divide the class into groups of seven students; assign an adult to each group. Give each group a frozen plate dinner, a measuring cup, a scale and two spoons.
6. Have the group measure the serving sizes of each frozen dinner food type and log them on the notepad. Have them identify the food, food group and serving size, then compare them to the Serving Size worksheet and the Nutrition Facts label on the frozen meal food label.
7. **Relate activity to concept.** As a class, discuss the number of Pyramid serving sizes present in the dinner and determine if the meal was nutritious. Review the Pyramid to determine the students understanding. Discuss how the Nutrition Label serving sizes compare to the Pyramid Serving Sizes. Does the lunch or snack they measured look like it will be a filling meal or snack?
8. **Conclusion/Wrap-up.** Write the Lunch Menu example on a chalkboard and discuss it with the class. Does it contain an item from each Pyramid food group? Does it contain a variety of foods? Are plant foods a large component of the meal? This exercise will prep the students for the Planning the Meal Activity.

Extensions

1. CALORIES – 7th Grade. <http://www.cwu.edu/~verheys/220su02/popcan.html>
Calorie determination experiment using a homemade calorimeter. Can eliminate the burning of nuts to avoid nut allergies for the experiment.
<http://www.howstuffworks.com/question670.htm> This web site is a good source of information about calories.
2. NUTRITION – 8TH Grade. <http://www.sustainweb.org/g5cp/index.htm>.
Nutrients in Food worksheet and information. Created by SUSTAIN a healthy food advocacy group.

References

FOOD GUIDE PICTURE. At this site you can get a black and white picture of the Food Guide Pyramid by typing in the Search “Picture of the food guide pyramid”. The Search will give you a selection. Select “Food Guide Pyramid Coloring page.” This site looks like a fun place for the students to learn about the Food Guide Pyramid.
<http://kidshealth.org/Search01.jsp>



ERIC Clearinghouse on Teaching and Teacher Education --

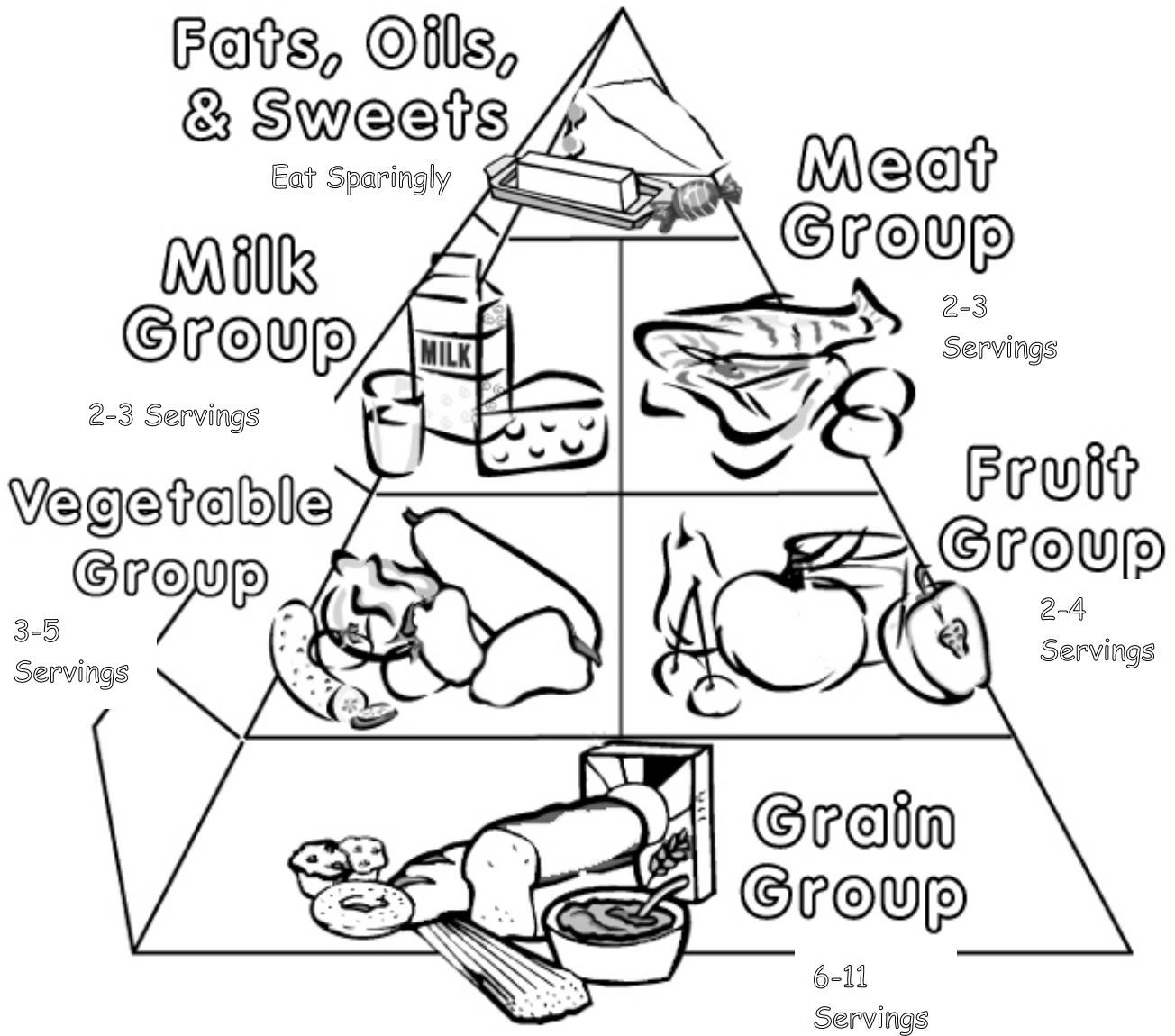
Under "Nutrition" look at "Using the Food Guide Pyramid: A Resource for Nutrition Educators". This is an excellent source of information and ideas relating nutrition to serving sizes. <http://www.ericsp.org/pages/healthpe/index.html>

http://www.pueblo.gsa.gov/cic_text/food/food-pyramid/main.htm Food Guide Pyramid and Dietary Guidelines . Good source for additional information. The Serving Size worksheet was taken from this web site.



Appendix A: Food Pyramid.

THE FOOD GUIDE PYRAMID



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Appendix B: Serving Sizes Handout.

**SERVING SIZES USING THE
FOOD GUIDE PYRAMID**

The Food Guide Pyramid is an outline of what to eat each day based on the Dietary Guidelines. It's not a rigid prescription but a general guide that lets you choose a healthful diet that's right for you.

The Pyramid calls for eating a variety of foods to get the nutrients you need and at the same time the right amount of calories to maintain healthy weight.

Use the Pyramid to help you eat better every day...the Dietary Guidelines way. Start with plenty of breads, cereals, rice, pasta, vegetables, and fruits. Add 2-3 servings from the milk group and 2-3 servings from the meat group. Remember to go easy on fats, oils, and sweets, the foods in the small tip of the Pyramid.

What Counts as One Serving?

The amount of food that counts as one serving is listed below. If you eat a larger portion, count it as more than 1 serving. For example, a dinner portion of spaghetti would count as 2 or 3 servings of pasta.

Be sure to eat at least the lowest number of servings from the five major food groups listed below. You need them for the vitamins, minerals, carbohydrates, and protein they provide. Just try to pick the lowest fat choices from the food groups. No specific serving size is given for the fats, oils, and sweets group because the message is USE SPARINGLY.

SERVING SIZE GUIDE - Each item below is one Pyramid Serving

Milk, Yogurt, and Cheese

1 cup of milk or yogurt 1 1/2 ounces of natural cheese 2 ounces of process cheese

Meat, Poultry, Fish, Dry Beans, Eggs, and Nuts

2-3 ounces of cooked lean meat, poultry, or fish 1/2 cup of cooked dry beans
1 egg, or 2 tablespoons of peanut butter count as 1 ounce of lean meat

Vegetable

1 cup of raw leafy vegetables OR 1/2 cup of other vegetables, cooked or chopped raw,
3/4 cup of vegetable juice

Fruit

1 medium apple, banana, orange 1/2 cup of chopped, cooked, or canned fruit, grapes
3/4 cup of fruit juice

Bread, Cereal, Rice and Pasta

1 slice of bread 1 ounce of ready-to-eat cereal
1/2 cup of cooked cereal or rice 8 crackers

