



## Wild Nutrition

### A Nutrition and Home Economics Unit for Grades 5-8

Developed by Allaire Diamond M.S., M.Ed. as part of the project **People, Plants & Gathering in Northern Maine**, a collaboration between the USDA Forest Service Northern Research Station and the University of Vermont, funded by the Northeastern States Research Cooperative. Principal project investigators: Dr. Marla Emery, USDA Forest Service, and Dr. Clare Ginger, University of Vermont.<sup>1</sup>

**Topics:** Nutrition, food choices, wild foods, nutrient content, nutrient chemistry

#### Maine Learning Results Addressed:

*Health Education & Physical Education B2b: Locating Health Resources:*

- (3-5) Students locate resources from the home, school and community that provide valid health information.
- (6-8) Students locate valid and reliable health information.

**Objectives:** Students will

- Classify parts of a recipe
- Identify wild foods that could substitute for some ingredients in conventional recipes
- Compare the nutrient content of wild foods with conventional ingredients

**Background:** Wild foods can be delicious regional and local additions to common recipes. Often, they have less sugar and higher amounts of other vitamins and nutrients than foods grown in conventional agriculture. In this lesson, students learn about how wild foods can be part of a healthy diet. They begin by analyzing recipes and learning about wild plants to come up with potential substitutions for some conventional ingredients. Then, they compare nutrient content of wild and conventional foods/ingredients for which information is available from a USDA database. Optional extensions include mathematic analysis of the nutrient content, and categorizing the foods based on the USDA food pyramid.

#### Materials:

- Recipes provided by students
- Computer with internet access
- Copies of **Wild Nutrition** handout with organizers for each student
- Wild Nutrition assessment checklist
- See also materials lists by day

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<sup>1</sup> Photo by Allaire Diamond

**Time:** Three 45-minute periods. Including optional activities will increase time.

**Assessments:**

- Rewritten recipe with wild foods
- Description of the nutritional changes that would be part of this recipe
- *See attached checklist for assessing both of these products, or develop your own*

**Activities:**

**BEFORE BEGINNING**

1. Before teaching this lesson, assign students homework: Bring in 3 recipes from cookbooks at your house, or if you don't have cookbooks, look up online. It is best if recipes are ones the student or his or her family has made so that students are familiar with them and can imagine the substitutions. Bring hard copies of all 3 recipes. Recipes should be for:
  - a. A salad
  - b. A vegetable dish
  - c. A muffin with fruit
2. Make any additional modifications to these lessons based on your class and grade level.

**DAY 1**

**Materials**

Student recipes from home

Colored pencils

1. When students arrive with their recipes, ask how many have ever cooked following a recipe. Ask how many have made one of the recipes they brought. (show of hands for both questions)
2. Briefly explain the components of a good recipe and ask students to find these components on their recipe. Explain that a recipe provides specific ingredients and instructions for a specific food so that the food has the proper proportions of ingredients prepared in a safe and appropriate way. Recipes often allow for some variation depending on availability of ingredients and personal tastes. Write these recipe components on the board:
  - a. Complete list of ingredients in the order they are to be used
  - b. Amounts for each ingredient
  - c. Clear, step-by-step instructions
  - d. Equipment to be used, including both type and size
  - e. Terms for temperature and cooking technique such as simmer, medium high, or chill, as well as baking temperature if necessary
  - f. Yield or number of servings
3. Students should clearly mark each of these components on their recipes – this can be done using different colored pencils as long as they note which color is for which component.
4. Now, analyze the ingredient list. Each ingredient should fall into at least one of the following categories, perhaps more than one:
  - a. **Carbohydrate or grain** (ex. Flour, rice, or pasta)

- b. **Vegetable or fruit** (ex. Carrots, cranberries, or beans)
  - c. **Protein** (ex. Meat, tofu, egg, kidney beans, or peanut butter)
  - d. **Fat** (ex. Oil or butter)
  - e. **Leavening** (ex. Yeast, baking soda, baking powder)
  - f. **Flavoring or spice** (ex. Cinnamon, salt, pepper)
  - g. **Sweetener** (ex. Sugar, honey, molasses)
  - h. **Acid/preservative** (ex. Vinegar, lemon juice)
5. Ask students to label their ingredient lists in their recipes with these categories.

## DAY 2

### Materials

Copies of **Wild Nutrition** handout with organizers for each student

Computers with internet access

Optional but recommended: Teacher computer with projection capabilities for demonstration

1. Ask how many students have ever had to substitute an ingredient in a recipe when they didn't have what the recipe called for. Ask a few students to share their substitutions and if they were successful. Explain that substituting ingredients is a way to be creative as well as resourceful, and use what you have available or in season. Tell students that they will now learn about some wild plants that people eat in northern Maine and that we're going to think about ways those foods might be able to substitute for others in their recipes.
2. Demonstrate navigating through the websites **People, Plants, and Gathering in Northern Maine** ([http://nrs.fs.fed.us/sustaining\\_forests/conserves\\_enhance/special\\_products/maine\\_ntfp](http://nrs.fs.fed.us/sustaining_forests/conserves_enhance/special_products/maine_ntfp)) and Healthaliciousness (<http://www.healthaliciousness.com/nutritionfacts/>). Project the sites on a screen and show how students can find plants on the first website, and enter foods into the Healthaliciousness website in order to find the nutritional information. If possible, you could link to these sites through a class website so that students don't need to type in the addresses.
3. Proceed to computers and access the websites. Give students the **Wild Nutrition** worksheet and its two organizers – this handout gives directions on navigating the site and other online resources. Familiarize yourself with these sites and the worksheet's directions before doing this with students.

## DAY 3

### Materials

Completed student handouts from Day 2

Student recipes

Paper and pen/pencil or computers for rewriting recipes

Materials for extension activities, if desired

1. **Culminating Activity:** Students should rewrite their recipe to include the wild food ingredient. Along with this they should include a brief, clear description of how the nutrient content of the recipe changes when the wild food is used (ex. Because of the nutritional

differences between wild and cultivated blueberries, the recipe will have more fiber, less sugar, more vitamin C, more riboflavin, etc.)

- a. **Extension activity #1:** Compare with USDA food pyramid. Categorize the wild foods from the website according to the ‘steps’ on the pyramid. Possible analysis could include questions about whether or not a person could eat a balanced diet with mostly or only wild foods. What would they need to supplement the wild foods? Are there ‘wild’ options for these needs (ex. Meat obtained from hunting or fishing).
- b. **Extension activity #2: Math.** Assign mathematical extensions of recipe/nutrient analysis. For example: Double or halve the recipe. Determine the recipe’s nutrient content per serving by combining nutrient content from the various ingredients. Figure out how many servings of the recipe you would need to get the USDA’s Recommended Daily Allowance (RDA) of a particular nutrient.
- c. **Class extension option.** Create a “Wild Nutrition Alternatives” cookbook. Compile selected student recipes (at least one from each student) in a book with the original recipe next to the rewritten one with substitutions and nutrition information. Copies could be distributed to students to take home, or sold for a fundraiser.



# Wild Nutrition

## Materials needed:

3 recipes from cookbooks or computer printouts. You should have recipes for:

1. A salad
2. A vegetable side dish
3. A fruit muffin

Computer with internet connection

Pencil

## Directions

1. Access the website **People, Plants, and Gathering in Northern Maine** ([http://nrs.fs.fed.us/sustaining\\_forests/conserves\\_enhance/special\\_products/maine\\_ntfp](http://nrs.fs.fed.us/sustaining_forests/conserves_enhance/special_products/maine_ntfp)). Spend some time reading about Faye Hafford (People→Faye Hafford), a woman with many experiences gathering and eating wild plants. Read the plant profiles of the plants she eats – you can get to these by clicking on the plant names in her profile. You can click on the “Plants” icon at the bottom of every page to get to a list of other plants described on the site. You can also use the plant list (Plants→List of All Plants) to find other plants used as food.
2. As you work, fill in possible ingredient substitutes on the **Wild Nutrition Organizer**. You should be able to find a substitute for at least one ingredient in each recipe, but for some you can find substitutes for multiple ingredients or find multiple substitutions for the same ingredient.
3. For each of the wild food potential substitutions you found, look up the nutrition facts for both that food and the one it might replace. For example, if beaked hazelnuts will replace peanuts, look up both. Use this resource to find nutrition information:  
<http://www.healthaliciousness.com/nutritionfacts/>  
This website accesses a U.S. Department of Agriculture (USDA) database of nutrient content in foods, including many wild foods and foods eaten in a variety of Native American cultures – such as horned owl or beluga eye! When you type in a food, you’ll be presented with many options. Choose the food that most accurately represents a wild food – for example “Blueberries Wild Raw” rather than “Blueberries Raw”.
4. Compare the nutrient information of the original ingredient with the new ingredient. Be sure to click on the tabs that show the vitamin and mineral content of the foods as well as the basic nutrient information. Fill in the **Nutrient Comparison** organizer with this information.
5. According to the U.S. Food and Drug Administration, a food must have over 20% of the Recommended Daily Allowance (RDA) of a nutrient to be labeled an “Excellent Source Of” that nutrient. It must have 10-19% of a nutrient’s RDA to be considered a “Good Source” of that nutrient. Which nutrients are your wild foods “excellent sources of” or “good

sources” of? How does this compare with the foods they will replace in the recipes? Note these changes on your table from #4.

*Appendix B. Additional Requirements for Nutrient Content Claims.* In *Guidance for Industry: A Food Labeling Guide*. April 2008. United States Food and Drug Administration. Available online:

<http://www.fda.gov/Food/GuidanceComplianceRegulatoryInformation/GuidanceDocuments/FoodLabelingNutrition/FoodLabelingGuide/ucm064916.htm>

6. **Final assignment:** Rewrite your original 3 recipes with the wild food substitute ingredients. Below each recipe, write a paragraph describing how the nutritional content of the recipe will change (from the original recipe) with the wild food ingredients. This paragraph should summarize your work from #4 and #5 above. Pass in your table from #4 along with the recipes.



## Wild Nutrition Organizer

Name: \_\_\_\_\_

As you learn about wild foods, fill out the table below with possible substitutes for ingredients in your recipe.

Ingredient in your recipe	<i>Possible wild substitute #1</i>	<i>Possible wild substitute #2</i>	<i>Possible wild substitute #3</i>	<i>Possible wild substitute #4</i>

When you're finished with the table, circle the wild ingredient that would best substitute for the one in your recipe. Now, rewrite your recipe to include the wild ingredient instead of the original one.

### Wild Nutrition: Nutrient comparison.

Fill in the table below with the names of the original recipe ingredients, the serving size given with the nutritional ingredients, the amount of sugar per serving, and the amount of vitamin C per serving. Be sure to include the measurement units for the sugar and vitamin C (grams, percent, or other unit). If the serving sizes are different for the wild food, you will need to ask your teacher's help in making sure the proportions are equal.

Original ingredient	Serving size	Amount of sugar per serving	Amount of vitamin C per serving	Wild food substitute	Serving size	Amount of sugar per serving	Amount of vitamin C per serving

## Wild Nutrition Assessment Checklist

Name: \_\_\_\_\_

Criteria	Met all requirements	Met most requirements	Needs work	Comments
Three recipes were brought from home				
Components of recipes are clearly labeled				
Use of computer and class time was productive				
Wild nutrition comparison table is complete				
Change in nutrition content due to wild food substitutions is clearly described				
Nutrition information is accurate				
Recipes are rewritten to include wild food substitutions				