The National Food Service Management Institute was authorized by Congress in 1989 and established in 1990 at The University of Mississippi in Oxford. The Institute operates under a grant agreement with the U.S. Department of Agriculture, Food and Nutrition Service.

**PURPOSE**
The purpose of the National Food Service Management Institute is to improve the operation of child nutrition programs through research, education and training, and information dissemination. The Administrative Offices and Divisions of Information Services and Education and Training are located in Oxford. The Division of Applied Research is located at The University of Southern Mississippi in Hattiesburg.

**MISSION**
The mission of the National Food Service Management Institute is to provide information and services that promote the continuous improvement of child nutrition programs.

**VISION**
The vision of the National Food Service Management Institute is to be the leader in providing education, research, and resources to promote excellence in child nutrition programs.

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Culinary Techniques for Healthy School Meals

Preparing Dry Beans and Peas 1
**Objectives**

Improve the quality of dry beans and peas served.
Improve the variety of dry beans and peas served.
Improve the appeal of dry beans and peas served.

**Main Ideas in This Lesson**

- Dry beans and peas are served as meat alternates in school menus.
- Dry beans and peas are good sources of vegetable protein and fiber.

**Preparation for Learning**


**Practice or Application**

Prepare one or more of the recipes listed with one of the Culinary Techniques.

**Additional Suggestions**

Demonstrate the correct way to sort dry beans or peas.
**Important Terms**

**Culinary**
Relating to the kitchen or cooking. An example of use is to describe food preparation skills as culinary skills.

**Culinary Technique**

**Ethnic**
A descriptive term relating to large groups of people classed according to common customs. Ethnic foods and recipes are those that are unique to a particular culture, such as Mexican, Italian, or Native American.

**Just-In-Time Preparation**
This term is used throughout the lessons to mean preparing a menu item in small enough quantities so that it will be at its peak of quality when placed on the serving line. This preparation schedule avoids holding any food for a long time. Other terms that mean the same thing are batch cooking and cooking to the line.

**Legume (leg-umes)**
Seeds that grow in pods, including beans, peas, and lentils. When they are used fresh, they are treated as a vegetable.

**Mise en Place (meez-un-plahss)**
A French term used by chefs and other food professionals to describe all the different things that have to be done to get ready up to the point of cooking. Translated, it means put in place. It includes all the get ready steps in food preparation such as using the recipe to assemble the equipment needed and getting ingredients ready to combine.
Bean Math

- Dry beans will expand 2 1/2–3 times their original size after cooking.
- One cup of dry beans will yield 2–3 cups of cooked beans.
- One pound of dry beans measures 2 cups.

The term dry bean refers to the process of allowing bean seeds to dry in their pods until they are fully mature before collecting them at harvest. Dry beans are available in two types of packaging.

- Dry bean packages: need soaking before cooking.
- Canned beans: are soaked, cooked, and recipe ready.

Legumes: beans, peas, and lentils

Dry beans are oval or kidney shaped.

Red Beans: used in bean burritos, bean tostadas, nachos frijoles, soups, salad bar choice, marinated salads, and main dishes or side dishes such as vegetarian beans or baked beans

- pinto
- pink beans
- light red kidney
- dark red kidney
- red beans
- pea beans
- black beans

White beans: used in soups, salads, salad bar choice, or served as a vegetable

- navy
- small white
- great northern
- cannellini (white kidney bean)
- garbanzo (chickpeas)

Peas are round.

Peas: used in side dishes, salads, casseroles, and soups

- black-eyed peas
- split peas

Lentils are flat disks.

Lentils: used in soups

- green
- red
- yellow
- black
Meat alternates is a term used in child nutrition programs to mean main dish foods that provide alternate sources of protein for school lunch and breakfast menus. The groups of foods included as meat alternates are cheese, eggs, cooked dry beans and peas, peanut butter and other nut or seed butters, and yogurt. Guidance information from the U.S. Department of Agriculture explains how to use these foods on school menus. Dry beans and peas are part of the meat, poultry, fish, dry beans, eggs, and nuts food group. Some of the most popular menu items served in schools comes from this important group.

**Menu-Planning Practices for Healthy School Meals**

- Cooked dry beans and peas are low in fat and should be frequently offered to students.
- Explore the great variety of beans available.
- Cooked dry beans and peas can be offered in salad bars, served as a vegetable or side dish, made into soups, pureed and served as a vegetable dipper, and served as a meat alternate.
- Try using herbs, spices, and lemon for seasonings in place of part of the salt.

**Purchasing Practices for Healthy School Meals**

- Rinse and drain pre-cooked canned beans to reduce the sodium content. Draining and rinsing sodium-containing canned dry beans can reduce sodium content by about 40%.
- Packaged dry beans are naturally low in sodium.

---

Children should consume 3 cups of beans a week, based on a 2,000 calorie meal plan.

Dry beans and peas
- are excellent sources of plant protein.
- provide nutrients such as fiber, iron, potassium, folate, and zinc.
- are naturally low in fat and sodium.
- have no saturated fat or cholesterol.

Dry beans and peas are called legumes (pronounced leg·ume). This group of foods provides vegetable protein and fiber that are important parts of a healthy diet. However, vegetable protein is of lesser quality than protein from animal sources. Protein is made up of building blocks of amino acids; some of these are essential to human growth and some are not. When the protein contains all the essential amino acids, it is called complete. When it lacks some essential amino acids, it is incomplete. Protein from animal sources is generally complete and protein from plant sources is incomplete.

Dry beans and peas are often paired with another food that provide vegetable protein. These combinations provide complete protein in the meal. For example, serving refried beans on corn tortillas with a little cheese can be a healthy main dish. Other combinations include black beans and rice, or red beans and rice, black-eyed peas and cornbread, Hoppin’ John (black-eyed peas and rice), and succotash (corn and lima beans).

Research reports encourage everyone to eat more servings of dry beans and peas because of the fiber provided and because these foods are naturally very low in fat. School recipes should be selected to provide a moderate amount of fat and promote the health benefits natural to dry peas and beans. Nutrition aside, legumes are some of the most delicious, versatile foods on any menu.
Types of dry beans and peas.
Dry beans and peas can be purchased dry or canned. If they are purchased dry, the culinary technique must add the moisture back to the beans before they are cooked. There are many different types of dry beans and peas. Preparing dry beans and peas is a step-by-step process that is the same regardless of the kind of beans or peas. Canned beans, and some peas, are the dry product that has been cooked. They should be added to a recipe at the step where the dry beans or peas have been cooked.

Sorting dry beans.
Sorting means looking through the dry beans or peas to remove any foreign matter or shriveled beans or peas. The foreign matter found most often in dry legumes is small stones about the size of a bean that get in the product during processing. It does not mean that the legume is not food, but with the volume processed, only human eyes can be counted on to remove anything that should not be cooked. If this step is skipped, a customer could break a tooth eating a delicious chili or bean soup. Shriveled beans or peas should be discarded since they have lost too much moisture and will not cook properly even after soaking.

When cooking a large volume of dry beans or peas, use a scoop and spread out a scoop of the dry beans in a metal pan, examine, remove foreign matter, then pour that batch in another container. Go through this process until all the beans or peas have been examined scoop by scoop. After the beans are sorted, they should be soaked, then cooked.

Never add soda.
Some home cooks may have learned to cook dry beans with soda added to the water. This should never be done by a foodservice professional because soda destroys thiamin, one of the important B vitamins in dry beans and peas. Beans that are soaked long enough and cooked correctly are very tender and nutritious.

Be careful with acidic ingredients.
Recipes for main dishes that include dry beans and peas often include tomatoes or other acidic ingredients. Other acidic ingredients in bean recipes include molasses, brown sugar (slightly acidic), and ketchup. An acid keeps dry beans from getting soft during cooking. If acid ingredients are added to the soaked beans at the beginning of cooking, the beans will be tough. Recipes usually call for the beans to be cooked until just tender, then acidic ingredients added. This is a good example of why it is important to follow the recipe. Recipes are developed to consider the basic principles of cooking for each type of food.

Holding legumes after cooking.
Cooked legumes can be prepared 1 or 2 days before they are needed for use in a recipe. After cooking, the legumes should be chilled in the refrigerator in shallow pans. They should remain in the cooking liquid. Once chilled, the pans should be covered and kept at 41 °F and below until the next step of preparation.

Continued heating on a steam table will eventually cause a legume to have a floury or pasty taste. Heat the amount needed in batches, just-in-time for service and place on the steam table.

Some recipes that include legumes also include cheese. In fact, some of the most popular ethnic recipes in schools combine these two food groups. Since cheese is higher in fat, it is ideal to combine with another food such as a legume that is naturally low in fat.
<table>
<thead>
<tr>
<th>Favorite Beans</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adzuki Beans</td>
<td>Small, oval, burgundy red with white stripes. Light, sweet, nutty flavor with firm texture. Used primarily for bean paste in Asia.</td>
</tr>
<tr>
<td>Baby or Small Lima Beans</td>
<td>Flat-shaped, creamy white-colored beans. Smooth, fruity, sweet flavor. Less mealy texture. Popular as a vegetable side dish or added to soups and casseroles.</td>
</tr>
<tr>
<td>Black Beans</td>
<td>Medium black-skinned ovals. Earthy, sweet flavor with a meaty texture. Often used in thick soups or with rice. The black bean is a basic ingredient of many Mexican, Caribbean, and Latin American soups and side dishes.</td>
</tr>
<tr>
<td>Black-eyed Peas</td>
<td>Medium size, oval shaped, with black dot on creamy skin. Distinct savory flavor and light smooth texture. Can be cooked without pre-soaking because they have thin skins. Popular in Southern cuisine and sometimes used with rice dishes such as Hoppin’ John.</td>
</tr>
<tr>
<td>Cranberry Beans</td>
<td>Medium ovals with a creamy background and burgundy highlights. Full, rich flavor with meaty texture. Most often used in Italian bean dishes and soups.</td>
</tr>
<tr>
<td>Dark Red Kidney Beans</td>
<td>Large, kidney-shaped bean with a deep reddish-brown color. Robust full-bodied flavor and soft texture. Often used in chili and in salads and with rice.</td>
</tr>
<tr>
<td>Garbanzo Beans</td>
<td>Medium size, round bean, beige color. Nut-like flavor and firm texture. Also called chickpea. Most often used in soups, salads, and main ingredient in popular Middle Eastern dishes hummus and falafel.</td>
</tr>
<tr>
<td>Great Northern Beans</td>
<td>Medium size, white color, and oval shape. Mild flavor and powdery texture. Most often used in soups, stews, and cassoulet.</td>
</tr>
<tr>
<td>Large Lima Beans</td>
<td>Flat-shaped, creamy, white-colored beans. Smooth flavor and sweet taste. Popular as a vegetable side dish or added to soups and casseroles.</td>
</tr>
<tr>
<td>Light Red Kidney Beans</td>
<td>Large, kidney-shaped bean. Robust, full-bodied flavor, and soft texture. Most often used in chili, and are popular in salads and with rice.</td>
</tr>
<tr>
<td>Navy Beans</td>
<td>Small white ovals. Mild, delicate flavor and refined texture. Used in pork and beans, or baked beans, also used in soups and stews, and are great pureed.</td>
</tr>
<tr>
<td>Pinto Beans</td>
<td>Medium ovals, mottled beige, and brown color. Earthy flavor and powdery texture. Often used in refried beans, and are great for Tex-Mex and Mexican bean dishes.</td>
</tr>
</tbody>
</table>
1. **Sort the beans or peas.**

   Scoop and spread the dry beans in a metal pan, examine, remove foreign matter, then pour that batch in another container. Go through this process until all the beans or peas have been examined scoop by scoop.

2. **Wash beans thoroughly in a colander to remove all traces of dirt and discard any damaged seeds or debris.**

3. **Soak the beans.**

   All dry beans must be soaked in water to soften the bean and remove tannins, phytic acid, trypsin inhibitors, and flatulence-causing sugars (oligosaccharides).

   **Soaking Methods:**

   - **Quick Hot Soak:**
     Cover beans with water and bring to a boil.
     Simmer for 2–3 minutes.
     Remove from heat.
     Cover the pot and soak for 1 hour until beans expand two to three times their dry size.
     Drain and discard the liquid.
     Proceed with the recipe.

   - **Overnight Cold Soak:**
     Pour the beans in a stock pot with enough water to cover.
     Refrigerate overnight (12 hours).
     Proceed with the recipe.

4. **Measure the liquid according to the recipe. Add the soaked beans.**

5. **Bring the liquid to a boil, and then reduce heat to simmer until the beans are done.**

   Properly stored and soaked beans will be tender and ready to use after simmering for 45–60 minutes.

   Beans are done when they can be mashed easily with a fork or spoon.

   Add acidic foods, such as tomatoes, to the beans after they are tender because they tend to toughen the skin.

6. **Follow the recipe to use the cooked beans and peas.**

   Remember, canned, cooked dry beans or peas can be used instead of cooking the dry type.

---

**Try these USDA Recipes that include this Culinary Technique**

**Main Course Dishes**
- Beef and Bean Tamale Pie . . . . . D-15A
- Chili con Carne with Beans . . . . . D-20
- Taco Pie with Beans . . . . . . . . . D-45B
- Vegetable Chili . . . . . D-49
- Vegetable Quesadilla . . . . . D-52

**Side Dishes**
- Baked Beans . . . . . . . I-06
- Three Bean Salad . . . . E-11
- Marinated Black Bean Salad . . . E-21
- Hummus . . . . . E-24
- Refried Beans . . . . I-15
Quality Standards

Before any food is placed on the serving line, it should be evaluated using the Quality Score Card. The quality standards described on the score card can only be reached when the recipe is followed exactly. The school nutrition manager and assistant who prepared the food should make the determination whether the food product meets the standards on the Quality Score Card. If the decision is made that the food does not meet the quality standards, do the following things:

1. Substitute another item on the serving line. Follow the school district procedure for menu substitutions.
2. Use the product another way, if possible, in order to avoid wasting the food. This decision must be made by the manager and the assistant using their best knowledge of food production and food safety. It would not be appropriate to use a substandard food product in another dish where it would also not meet quality standards.
3. Determine what happened during preparation that caused the poor quality and make plans to correct the preparation next time.

Review the Quality Score Card for Dried Beans or Peas.
Quality Score Card for Dry Beans and Peas

Date: ______________  Name of Menu Item: ________________________________________________

Proudly Prepared by  ________________________________________________________________

Quality Scored by  _________________________________________________________________

**Directions**: When the food is ready to serve, use this Quality Score Card to evaluate the quality. Mark **YES** when the food meets the standard and **NO** when it does not. Mark **NA** (Not Applicable) when a specific quality standard does not apply to the food being evaluated. Use the **COMMENTS** section to explain why a food does not meet a standard.

*Remember, if a food does not meet the quality standards, it should not be placed on the serving line.*

<table>
<thead>
<tr>
<th>Quality Standard</th>
<th>Yes</th>
<th>No</th>
<th>NA</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Appearance</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Product appears moist, but not watery.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beans or peas retain their shape.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No oil or fat is visible.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Texture or Consistency</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Product has a soft texture.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Product is moist, not dry.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Product gives little resistance to bite.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Flavor and Seasoning</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flavor is distinctive for the specific beans or peas.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Product is free from a scorched or burned taste.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seasonings are well blended.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Service Temperature</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>160 °F–180 °F</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Culinary Practice is an activity designed to give foodservice assistants an opportunity to practice preparing dry beans and peas using one of the culinary techniques. Use the Culinary Practice Score Card for the activity.

1. Foodservice assistants may work as partners or individually, depending on the directions from the manager. One partner should be someone who cooks and the other, someone who has other responsibilities. Both foodservice assistants should work together to complete the Culinary Practice.

2. The manager and foodservice assistants should discuss the Culinary Practice for Preparing Dry Beans and Peas. Make a note of the date the Culinary Practice should be completed and discussed with the manager.

3. The manager will approve the recipe to be used for the practice. The recipe should use one of the culinary techniques that were discussed in the lesson. Each culinary technique summary includes a list of the USDA recipes that include that technique.

4. The manager and foodservice assistants who prepared the product will evaluate the product before it is placed on the serving line. Use the Quality Score Card.
**Culinary Practice Score Card for Dry Beans and Peas**

**Name(s):**
____________________________________________________________________________________

(This practice activity may be completed individually or with a partner. The manager will make this assignment at the end of the lesson.)

**Purpose:** The purpose of the activity is to practice Preparing Dry Beans and Peas.

**Culinary Technique:** (Identify the culinary technique that you will use. Refer to the previous pages for a description of each technique.)
_____________________________________________________________________________________________

**Name of the Recipe:** ___________________________________________________________________

**Date for Production:** ___________________________________________________________________

**Directions:** The manager and foodservice assistant(s) will select a recipe for dry beans or peas that includes one of the culinary techniques described in this lesson. Check **YES** or **NO** when each step is completed.

<table>
<thead>
<tr>
<th>Plan food production for just-in-time service.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did you plan food production for just-in-time service?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Review the Quality Score Card and the recipe.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did you review the recipe so you are familiar with the ingredients, equipment, and directions?</td>
</tr>
<tr>
<td>Did you review the Quality Score Card so you will know how the finished product should look and taste?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Organize equipment and ingredients.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did you assemble all the equipment needed?</td>
</tr>
<tr>
<td>Did you assemble all of the ingredients needed?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Use the right culinary technique.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did you use the culinary technique correctly?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Deliver a quality product.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did you use the Quality Score Card to evaluate the product?</td>
</tr>
<tr>
<td>Did you review the product with the manager?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Discuss the following questions with the manager before serving.</th>
</tr>
</thead>
<tbody>
<tr>
<td>How can the appearance of the food be improved?</td>
</tr>
<tr>
<td>How can the flavor or taste of the food be improved?</td>
</tr>
<tr>
<td>How can the texture and tenderness of the food be improved?</td>
</tr>
<tr>
<td>How can the service temperature of the food be improved?</td>
</tr>
</tbody>
</table>

The manager’s signature indicates this practice has been completed satisfactorily. The manager should keep this on file or submit it to the central office to document the completion of the lesson.

**Name of Manager:** ___________________________________________  **Date Signed:** ________________
References


