**Recipe Analysis for Meal Contribution Instructions (Accompanies the Excel Spreadsheet)**

1. The recipe analysis worksheet is a tool to help you calculate the contribution of ingredients towards the meat/meat alternates, vegetables/fruits, and grains components of the meal pattern requirements. Determining the contributions your recipes (either USDA modified or locally produced) make towards the meal pattern requirements is an important step in ensuring the meals you serve are nutritious and meet Federal meal pattern requirements.
2. A calculator is most helpful when working with decimals. To determine the contribution a recipe’s ingredients make toward meal pattern requirements, you must follow several steps. To illustrate the procedures, a worksheet has been completed for Spaghetti with Meat Sauce (Food Buying Guide Appendix A, page A-8) Beef and Spaghetti Casserole (Food Buying Guide Appendix A, page A-9), and Beef Stew (Food Buying Guide Appendix A, page A-10). The Spaghetti with Meat Sauce example uses larger quantities of food typically used in a school setting (100 portions). The Beef and Spaghetti Casserole recipe uses a smaller quantity of food for a smaller school setting (25 portions), and the Beef Stew recipe yields 50 portions.
3. Keep in mind the rounding rule used when calculating the credit for meal pattern components. For crediting purposes, you need to round down to ensure that each portion served provides the minimum amount of credit you are claiming. This is different for the rounding rule used when calculating how much food to purchase and/or prepare. The rounding rule used for purchasing and/or preparing food is to round up to ensure enough food is purchased and/or prepared.

**Recipe Name**.

Record the name of the recipe at the top of the page.

**Servings per Recipe.**

Record the number of servings your recipe will yield.

**Column 1 – Ingredients.**

List the recipe ingredients in Column 1 of the worksheet. It is not necessary to list ingredients that do not contribute towards meal pattern requirements. Record a description of each ingredient precisely as possible. For example, record “ground beef, no more than 20 percent fat” or “spaghetti, dry” if these are the exact ingredients called for in the recipe. It is a good idea to group ingredients together that contribute to the same meal component: list all the meat/meat alternates ingredients first, list all the vegetable ingredients next, all the fruit ingredients next, then list all the grains ingredients.

Indicate with an X in the correct column if the ingredient contributes toward the meat/meat alternate, vegetables/fruit or the grains.

**Column 2 - Quantity of Ingredient as Purchased.**

Record the “as purchased” weight or volume measure of each ingredient in the recipe in Column 2 of the worksheet. Convert ounces to their decimal equivalent of a pound. (see “Decimal Weight Equivalents in the Food Buying Guide Introduction page I-36). The quantity specified in Column 2 of the worksheet must be in the same units as the purchase unit which will be recorded in Column 3. For example, if 2 No. 10 cans of peas are recorded in Column 2, make sure the purchase unit in Column 3 is a No. 10 can also.

Special Considerations for Column 2:

When the recipe calls for the prepared/ready-to-use form of an ingredient, and the Food Buying Guide does not provide yield data for that form, you will have to convert the weight of that ingredient to its unprepared weight in order to determine how many servings are provided by that ingredient.

If the recipe calls for food in a certain form and if yield data for the food in the same form is available in this guide as described in Column 1, conversion of the weight is not necessary. For example, if your recipe calls for onions, fresh, peeled, and diced, no conversion is necessary since the Food Buying Guide provides yield data for onions, fresh, diced, ready-to-use as described in Column 1 (see page 2-36 of the Food Buying Guide).

However, if the form of the food used in the recipe is not listed in Column 1 of the Food Buying Guide, conversion of the ingredient weight is necessary. For example if the recipe calls for eggplant, raw, pared, cubed, a conversion of the ingredient weight is needed since the Food Buying Guide only provides data for whole eggplant as described in Column 1. In other words, in order to determine the number of 1/4 –cup servings provided by the amount of raw, pared, cubed eggplant in the recipe, you must determine the weight of the whole unpared eggplant (the “as purchased” weight) so that you can then use the yield data in the Food Buying Guide.

To convert the weight from the prepared/ready-to-serve form to the as-purchased weight, divide the weight of the prepared/ready-to-serve ingredient given in the recipe by the corresponding yield factor provided in Column 6 (Additional Yield Information) of the Food Buying Guide.

The resulting answer will be entered in Column 2 of the worksheet. Do not round up.

For example, a recipe calls for 10 pounds of raw, pared, cubed eggplant, but the Food Buying Guide only provides yield data for whole eggplant. In this case, the weight of the raw pared, cubed eggplant in the recipe needs to be converted to the weight of the whole eggplant in order to record in Column 2, the amount of whole eggplant that will provide the amount of pared, cubed eggplant required for the recipe. To convert the weight of raw, pared, cubed eggplant to the weight of the fresh whole eggplant, divide 10 pounds of raw, pared, cubed eggplant by the yield factor in Column 6 (which is 0.81). The calculation is as follows: 10 divided by 0.81 = 12.34. You would record 12.34 pounds of fresh whole eggplant in Column 2 of the Recipe Analysis Worksheet, and you would then record that whole eggplant yields 6.7 (1/4 –cup servings) of cooked vegetable cubes per pound in Column 4 of the Recipe Analysis Worksheet.

For additional examples using Column 6 yield data, see calculation examples from Method 3 in the Food Buying Guide Introduction, pages I-63 through I-65. You may also refer to Appendix B of the Food Buying Guide for another example of determining yields of prepared/ready to serve ingredients, pages B-2 through B-3.

**Column 3 – Purchase Unit.**

Record the purchase unit in which you buy the ingredient such as pound, No. 10 can, dozen, etc., in Column 3 of the worksheet. Keep in mind that it is important to use the same purchase unit of the ingredient as specified under “Purchase Unit,” Column 2 of the Food Buying Guide.

**Column 4 – Servings per Purchase Unit.**

Record the number of servings per purchase unit of the ingredient in Column 4 of the worksheet. This information will be found in Column 3 of the Food Buying Guide. The number of servings per purchase unit varies for different preparation methods or forms of the ingredient as served. Therefore, you should pay particular attention to the description of the food as served when selecting the number of servings per purchase unit to use in the calculations. The description of the form of the food should be most nearly like that of the food after preparation of the recipe is complete and as it is served. For example, if a recipe specifies raw, sliced carrots as an ingredient and the carrots are cooked in the process of preparing the recipe, use the information in Column 3 of the Food Buying Guide for cooked sliced carrots.

Special Considerations for Column 4:

For a grain ingredient you will need to be aware of the two different ways the serving data is provided in the yield tables:

1. By number of grains ounce (oz.) equivalent (eq.) servings

Most grain items, such as crackers, taco shells, and bread, provide the number of ounces or grams per serving. If the ingredient you are using provides the yield data by number of servings, the purchase unit you need to record in Column 4 of the Recipe Analysis Worksheet must be the yield data for 1 ounce equivalents (oz. eq.) grains. Refer to the Revised USDA Exhibit A: Whole Grain-Rich Ounce Equivalency Requirements for School Mel Programs. You will indicate in which grain group A-I your product is located. If you are using one serving of a grain ingredient per portion, you may want to do this calculation by hand to avoid some confusion with the spreadsheet.

1. You may credit grain products, such as baked goods, including breads, biscuits, bagels, etc., using the oz. eq. of grains per serving method. The USDA allows SFAs to credit these grain products based on 16 grams of grains per serving. For cereal grains such as oatmeal, pasta, and brown rice, a one-oz. eq. is 28 grams (approximately 1.0 ounce by weight) of dry product. Since these grains are served cooked and water is added in preparation, the cooked volume equivalent is ½ cup cooked cereal, pasta, or rice. (Refer to the USDA Policy Memo SP 30-2012, Grain requirements for the National School Lunch Program and School Breakfast Program dated April 26, 2012.)
2. By volume

Items categorized as cooked cereal grains, pasta, rice, and wild rice are listed by portions of a cup for example, ¼ cup, ½ cup, or ¾ cup. If the ingredient you are using provides the yield data by fractions of a cup, you need to:

1. Know the total number of servings needed using one specific volume measurement. For example, if you need 50 ¼-cup servings plus 50 ½-cup servings you will need either a total of 150 ¼-cup servings or 75 ½-cup servings
2. Choose one volume measurement and use the corresponding yield data for that specific volume measurement. For example, if the ingredient is barley and you have calculated the number of ½ cup servings needed for all servings combined, “pound” will be recorded in Column 3 and 21.2 is recorded in Column 4 since this yield data corresponds to the ½ cup serving of cooked barley.
3. Understand that the servings per portion will be in units of the specific volume measurement that you have chosen in step B. As in the example above for barley, the portion chosen is ½ cup, the yield data needed to calculate the number of servings corresponds to ½ cup, therefore, the answer will be in ½ cup servings of grains.

Note: You will need to know what volume portion will provide one oz. eq. grains. According to the new USDA Exhibit A for cooked cereal grains, pasta, rice, and wild rice, one oz. eq. grains = ½ cup cooked. The amount of dry cereal equivalent to one oz. eq. grain varies with the type of cereal. Refer to the new USDA Exhibit A, group I for details for dry cold ready to eat breakfast cereal.

**Column 5 – Calculation of the meat/meat alternates contribution per serving.**

Follow these steps:

1. For each meat or meat alternate ingredient in the recipe, the computer will multiply the number recorded in Column 2 by the number recorded in Column 4. (Column 2 X Column 4 = Column 5.) The computer will record the answer to two decimal places.

Note: When whole eggs are an ingredient in a recipe, the number entered in Column 4 of the worksheet, servings per purchase unit (obtained from Column 3 of the Food Buying Guide), should be 24 one-ounce servings per dozen large eggs. One egg equals two oz. eq. meat alternate. This is necessary so that the Column 5 entry will be in units of one-ounce servings.

1. If more than one meat or meat alternate ingredient is used in the recipe, the computer will add all the numbers recorded in Column 5 to determine the total oz. eq. of meat or meat alternate ingredients in the recipe.
2. The computer will divide the total of Column 5 by the number of portions the recipe yields to determine the contribution per portion.
3. The computer will round down to the nearest ¼ ounce (0.25 ounce.).

Note: The contribution that meat or meat alternate ingredients make toward meal pattern requirements is expressed as ounces of “equivalent meat/meat alternate.” The minimum equivalent meat or meat alternate provided by a portion of the recipe must be 0.25 ounce to be credited as a meat/meat alternate contribution.

**Colum 6 – Calculation of the vegetables (Column 6a) and fruits (Column 6b) contribution per serving.**

Follow these steps:

1. For each vegetable or fruit recipe ingredient on the worksheet, the computer will multiply the number recorded in Column 2 by the number recorded in Column 4. (Column 2 X Column 4 = Column 6). The computer will record the answer to two decimal places.
2. If more than one vegetable or fruit ingredient is used in the recipe, the computer will add all of the numbers recorded in Column 6a for vegetables and Column 6b for fruits to determine the total number of ¼ cup vegetable and fruit servings in the recipe. Then, the computer will record the sum in the space provided for the total.
3. The computer will divide the total number of ¼ cup servings by 4 to convert to cups and divide the total number of cups by the number of portions the recipe yields to determine the contribution per portion.
4. The answer will be recorded to two decimal places and convert decimal places to the nearest portion of a cup. Vegetable/fruit servings are always rounded down to the nearest 1/8 cup.

Note: A recipe must provide a minimum of 1/8 cup vegetable or fruit per serving to count toward the vegetable/fruit component of the meal pattern requirements.

Special Considerations for Column 6a - Vegetables:

Note that the leafy greens equivalent cups is half the volume served. You can make the adjustments in the quantity of ingredients as purchased or the servings per purchase unit.

Note that you will need to determine the amount of vegetables in each of the vegetable subgroups. Total each vegetable subgroup, and divide by the number of portions, then round down to the nearest 1/8 cup. If one subgroup does not equal at least 1/8 cup, then the vegetables in the various subgroups may be combined. Those vegetables that can be combined for the “other” vegetable subgroup are the dark green, red-orange, dried legumes/peas, and the “other” vegetables. Do not include the starchy vegetable subgroup in the “other” vegetable subgroup. If starchy is included, you may want to include all of the extra vegetable in the “additional” vegetable subgroup.

Special Considerations for Column 6b - Fruits:

Note that dried fruit equivalent cups is twice the volume served. You can make the adjustments in the quantity of ingredients as purchased or the servings per purchase unit.

**Column 7 – Calculation of the grains contribution per serving.**

Follow these steps when using an item having yield data in the FBG. For individual grain items, you may use the new revised USDA Exhibit A chart to calculate the contribution towards the grains component instead of using this worksheet.

1. For each grain recipe ingredient listed on the worksheet, the computer will multiply the number recorded in Column 2 by the number recorded in Column 4. (Column 2 X Column 4 = Column 7.) The answer will be recorded to two decimal places.
2. If more than one grain ingredient is used in the recipe, the computer will add all the numbers recorded in Column 7 to determine the total number of oz. eq. grains in the recipe. The computer will record the sum in the space provided for the total.
3. The computer will divide the total figure in Column 7 by the number of portions the recipe yields to determine the contribution per portion.
4. The computer will round down to the nearest ¼ oz. eq. grain.

**Totals:** The totals row is used to record the sum or total for the numbers recorded in each component column. For example, all the numbers recorded in Column 5, meat/meat alternates, will be added together and the sum will be recorded in the “totals” space of Column 5. The computer will add the numbers recorded in Columns 6 and 7 the same way and the sums or totals will be recorded in the appropriate column in the space provided for the total.

**Portions per Recipe:** The computer will record the total number of portions a recipe provides or yields from the number of Servings per Recipe that you enter. This number will be the same for each of the component columns. For example, if your entire recipe provides 100 portions, 100 will be entered in this row for Columns 5, 6 and 7.

**Calculations:** The computer will do these calculations as stated on the template.

**Each Portion Contributes:** This row provides the final rounded down, calculated answers of how one portion will credit towards each meal pattern component.

Note: The computer will always round down after determining the creditable amount of a meal pattern component. This is to ensure that each portion served will provide the minimum contribution towards meal pattern requirements. When rounding down, sometimes there may be a little bit more credit than what is claimed. It is necessary to round down so that there will never be less credit than what is claimed. (Keep in mind, when calculating how much food to purchase you would not round down, but would round up.) The computer will round appropriately for each meal component.