



Tasty Tidbits

Note to Project Helper



Congratulations on having a young person ask you to be his or her helper. Your role as a project helper is very important to the young person's total educational experience. Not only will you provide encouragement and recognition; you will also be the key person with whom the young person shares each of the experiences in this 4-H activity guide.

The Foods curriculum series is designed to help youth have fun in the kitchen as they learn basic food preparation skills, prepare different foods, do fun experiments, and go on fact-finding missions. These educational materials have been created with a focus on healthy food selection, smart food purchasing, food safety and science, food preparation, food preservation, and careers in the food industry. The design emphasizes teaching young people the importance of balance with their food choices as they are building healthy food habits that will carry them to adulthood.

Food is meant to be enjoyed, but it is also important to find a balance of regularly making healthy choices and occasionally indulging in a treat. The recipes that are included were developed with this concept in mind. Youth learn to prepare recipes that encourage increased fruit, vegetable, low-fat dairy, lean protein, and whole grain consumption. They will also be challenged to increase the nutritional value of recipes by making healthy ingredient choices.

Five pieces are available in the Foods curriculum. There are four activity guides—Fantastic Foods, Tasty Tidbits, You're the Chef, and Foodworks. These guides have been designed to be developmentally appropriate for grades 3–4, 5–6, 7–9, and 10–12, respectively, but may be used by youth in any grade based on their skills and expertise. The fifth piece, the Project Helper Guide, provides you with additional background and tips on helping youth through the activities in their guide. The Project Helper Guide is available online as a free downloadable item.

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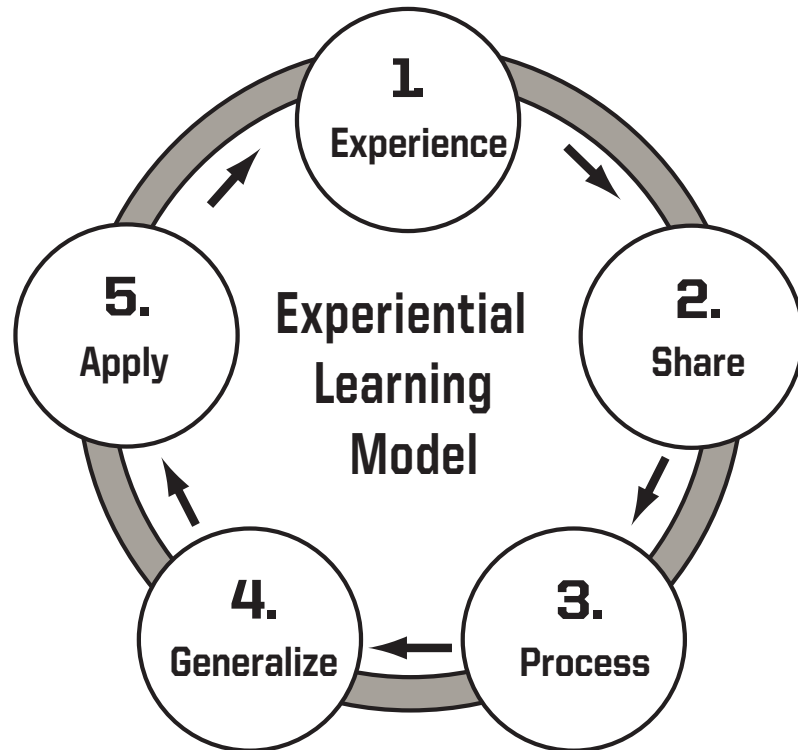
The Experiential Learning Model

Acknowledgments

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Pfeiffer, J.W., & Jones, J.E., "Reference Guide to Handbooks and Annuals"
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The experiential model and its five steps are used in each activity in this guide as a means to help youth gain the most from the learning experiences.

The five steps encourage youth to try to do the activity before being told or shown how (experience). As the helper, you will want to help the youth describe what they experience and their reaction (share). You can use the questions listed at the end of the activity to help the youth:

Discuss what was most important about what they did (process);

- Relate the life skill practiced to their own everyday experiences (generalize); and
- Share how they will use the life skill and project skill in other parts of their lives (apply).



Having Fun with Tasty Tidbits

Are you ready?

Are you ready to do fun experiments, prepare delicious recipes, and go on fact-finding missions? That's what Tasty Tidbits is about. You'll have fun learning about different ingredients in food, healthy eating, and food safety.

Your project guide walks you through a variety of activities. As you do the activities, be sure to write the things you've learned on the record sheet in the back of the manual.

Your project helper

Your project helper is important to your having a good experience learning about foods. This person might be your project leader or advisor, neighbor, family member, friend, or anyone willing to work with you to complete your activities. Involve your helper as you work with each activity and answer the questions. This adult is there to back you up and help you be successful.

Be sure to ask an adult before turning on the stove to cook or bake.

Interactive Demonstrations

An interactive demonstration is a fun way to share what you have learned with others. The key is getting your audience involved in doing what you are doing, not just showing them. You can give an interactive demonstration at a 4-H club meeting or anywhere a lot of people gather, like your school or a county or state fair.

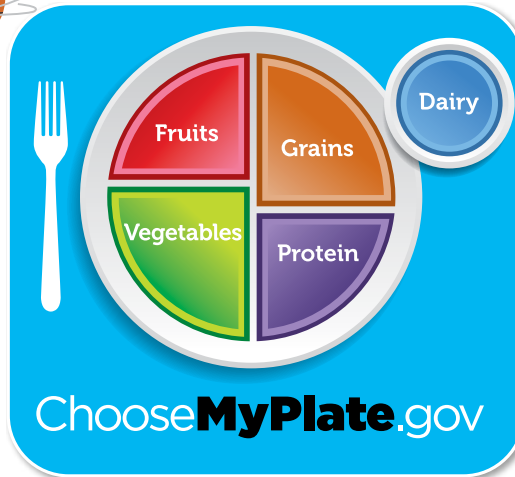
You can choose almost any topic you find in this Tasty Tidbits project guide or another topic of interest to you. Here are some questions to ask when choosing a topic:

- Is it something that can be done in three to five minutes?
- Is it something other people might like to learn about?
- Is there something hands-on for the audience to do?
- Can the supplies for the hands-on activity be used over and over again, or do they have to be replaced every time? Having to replace them adds to the cost.

Your demonstration should last about three to five minutes, and you need to be able to do it over and over again with different people. You should have a conversation with the people you are demonstrating to. Your goal is to involve the audience. You can do this by having them do what you are doing, play a game, answer questions, or do a hands-on activity. Some examples: how to use a measuring cup or measuring spoon, or how to find things on a Nutrition Facts label.



SERVING UP MyPlate



Fruits: Fuel Up With Fruits at Meals or Snacks

Pears, watermelon, plums, raisins, berries, and applesauce (without extra sugar) are just a few of the great choices. Make sure your fruit juice is 100% juice.



Vegetables: Color Your Plate With Great- Tasting Veggies

Try to eat more dark-green, red, and orange vegetables, and beans and peas.



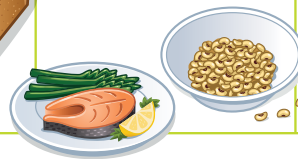
Grains: Make at Least Half Your Grains Whole Grains

Choose whole-grain foods, such as whole-wheat bread, oatmeal, whole-wheat tortillas, brown rice, and popcorn, more often.



Protein: Vary Your Protein Foods

Try fish, shellfish, beans, and peas more often. Some tasty ways include a bean burrito, hummus, veggie chili, fish taco, shrimp stir-fry, or grilled salmon.



Dairy: Get Your Calcium-Rich Foods

Choose fat-free or low-fat milk, yogurt, and cheese at meals or snacks. Dairy foods contain calcium for strong bones and healthy teeth.



Keep on Moving!

Kids need at least 60 minutes of physical activity every day. Whether that's running, biking, tossing a ball, or playing tag, every little bit counts. So, run around at recess, jump rope with friends, ride your scooter, or play a sport. It all adds up!



Know Your "Sometimes" Foods

Look out for foods with added sugars or solid fats, such as candy, cake, cookies, chips, ice cream, soda, fruit punch, lemonade, hot dogs, and bacon. They fill you up so that you don't have room for the foods that help you eat smart and play hard. Enjoy these every once in a while, not every day.



Serving Up MyPlate — Grades 5 & 6
U.S. Department of Agriculture • Food and Nutrition Service • September 2012 • FNS-446

<http://teammnutrition.usda.gov>



Credit: All MyPlate material are registered property of the United States Department of Agriculture.

A Closer Look at MyPlate

Make at least half your grains whole grains.

Choose from whole wheat bread, cereal, and pasta. Tortillas, rice, and crackers also come in whole grain varieties. Whole grain foods contain more vitamins, minerals, and dietary fiber than processed white food products. Look at the ingredient section of the food label, and make sure the first ingredient says “whole grain wheat” or other grain. Choose whole grains more often.

Choose a variety of protein-rich foods.

Beef, chicken, fish, and pork are all great sources of protein. Don’t forget that nuts, beans, cheese, and eggs all are protein-rich too. Include a variety of protein choices in your meals and snacks.

Get your calcium-rich foods.

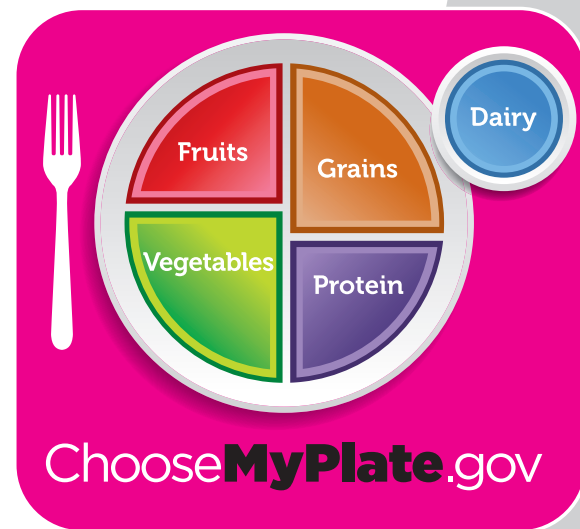
Calcium is essential for strong bones and teeth. Kids your age need at least three servings from the dairy group every day. Choose milk, yogurt, or cheese for the best calcium boost.

Know your “sometimes” foods.

These foods contain added sugars, salt, and fat. They include cakes, cookies, pies, chips, soda and fruit punch, hot dogs, and some lunch meats. These foods fill you up but don’t give you any vitamins, minerals, or dietary fiber—nutrients your body needs to function well and be healthy. Enjoy these “sometimes” foods only once in a while, not every day.

Be physically active every day.

Kids need at least 60 minutes of physical activity every day. Choose running, dancing, baseball, or biking. Or you can jump rope, ride a skateboard, or participate in a team sport. No matter what you choose, it all counts. You don’t have to do all 60 minutes at once. Any physical activity counts toward your goal. So get out there and get moving!



Cooking Terminology



You use specific cooking methods in the kitchen, and it's important to know the difference between them. For example, if you *boil* a food instead of *simmering* it, you may end up with something very different from what you expected!

Match the following words with their descriptions by drawing a line to connect them.

- | | |
|-----------------|--|
| Bake | Spreading shortening, margarine, or butter on the bottom and sides of a pan using a pastry brush or paper towel or by spraying with a nonstick cooking spray |
| Blanch | Cooking briefly in a small amount of fat in a skillet until soft and glossy |
| Boil | Flavoring a food by adding salt, pepper, spices, or herbs |
| Broil | Soaking food in a mixture of seasonings, acid, or oil to enhance the flavor or to tenderize |
| Brown | Plunging vegetables into boiling water for a brief time to preserve color, texture, and nutritional value |
| Grease | Cooking food in the oven |
| Knead | Cooking food by direct heat under a broiler in a gas or electric range |
| Marinate | Heating a liquid until it is almost boiling, but not bubbling |
| Sauté | Heating a liquid food until bubbles keep rising and breaking on the surface |
| Season | Working with dough by pushing your hands against the dough, folding, turning, and pushing it again to make it smooth |
| Simmer | Cooking food until it browns on the outside |

Tools of the Trade

Can opener	Chef's knife	Cutting board	Food thermometer
			
Ladle	Measuring cups	Measuring spoons	Microplane grater
			
Pancake turner	Paring knife	Slotted/solid spoon	Strainer
			
Timer	Vegetable peeler	Wire whisk	Wooden spoon
			

How to Read a Recipe

A recipe is a set of instructions with the ingredients and directions to make a particular food dish or beverage. Understanding how to read a recipe before you begin cooking or baking is important. Learning how to read a recipe is the first step in the cooking process.

How to read a recipe (Adapted from *kidshealth.org*)

- 1. Read the whole recipe twice before you begin.** Some ingredients that aren't in the ingredient list might appear in the directions section. For example, water may be listed in the directions as an ingredient, or eggs might be divided in a way that's only explained in the directions.
- 2. Recipe name:** This tells you what you're making.
- 3. Servings:** This tells you the number of servings the recipe makes. This helps you decide if you need to double the ingredients to serve more people or use half the ingredients to serve fewer people.
- 4. Time:** This tells you how long it takes to make the recipe. This helps you decide if you have enough time to make the recipe before it's time to eat. Some recipes are divided in two parts, prep time and cooking time. Prep—short for preparation—time is when you'll be busy in the kitchen measuring, mixing, stirring, and doing whatever else the instructions tell you to do. Cooking time is when the food is actually in the oven or on the stove.
- 5. Ingredients:** This is the list of things you need to make the recipe. Make sure you have all the ingredients and equipment to make the recipe. Sometimes a recipe includes special ingredient information:
 - Optional ingredients aren't as important to the recipe but can be added if you want to use them. For example, a recipe may suggest you can sprinkle nuts on top of brownies before baking.

FRUIT AND GRANOLA YOGURT PARFAIT

- 1 6-oz container of nonfat Greek yogurt
- 2 t honey
- 1 c strawberries, fresh, sliced
- 1 c blueberries, fresh
- Half a banana, sliced
- 1/4 c granola cereal, low-fat without raisins



Fruit and granola yogurt parfait

- | | |
|--------------------------------------|---|
| Ready in 10 minutes | Makes 2 servings |
| 1 6-oz container nonfat Greek yogurt | 2t honey |
| 1 c strawberries, fresh, sliced | 1c blueberries, fresh |
| Half a banana, sliced | 1/4 c granola cereal, low-fat without raisins |

Mix the yogurt and honey together, then divide evenly into two bowls. Top the yogurt in each bowl with 1/2 cup strawberries, 1/2 cup blueberries, and half the banana slices.

Sprinkle 2 tablespoons of granola on top of the fruit and yogurt in each bowl. Enjoy!

- Ingredients without a specific measurement. You might see “salt, to taste” as an ingredient. This means you can add as much or as little as you and your family like. Start by adding a little, tasting, and then adding more if you want. Remember, you can’t take it back if you add too much!
 - Some ingredients have instructions that tell you what to do before you get to the directions; for example, one apple, peeled and sliced or one egg, lightly beaten.
 - Some ingredients or parts of the recipe need to be prepared ahead; for example, *Marinate the chicken for 30 minutes before cooking* or *Mix the gelatin and chill until set*.
- 6. Directions:** This tells you the steps to follow to make the recipe. Always read the directions first, from start to finish, before you begin. They tell you if you need an adult to help you. They also help you make sure you have all the ingredients and that you understand and can follow all the steps. This is where you find special instructions like preheating the oven. Most baked recipes require you to preheat the oven—an important step in the directions that you don’t want to miss.
- 7. Nutritional facts:** This tells you how many calories one serving of the recipe contains. It also might list fat, protein, carbohydrates, dietary fiber, and vitamins and minerals. This information is important for people who must follow a special diet to stay healthy.
- 8. Serving suggestions:** Some recipes offer suggestions for ways to serve the dish you are making. For example, a pasta sauce recipe might say, *Serve with whole grain spaghetti noodles and a green salad*.

THIS	STANDS FOR
c	cup
t	teaspoon
T	tablespoon
pkg	package
oz	ounce
pt	pint
qt	quart
gal	gallon
lb	pound



Food Safety 101

PROJECT SKILL:
Understanding food safety methods

LIFE SKILL:
Preventing illness

TIME: 15-20 minutes



(Adapted from [foodsafety.gov](https://www.foodsafety.gov) FightBac)

Food safety is super important for keeping you and your family from getting sick. Here are some simple steps you can follow each and every time you purchase, prepare, and cook food in your kitchen.

Step 1: Clean

- Wash your hands and all cooking surfaces before and after food preparation. Also wash your hands and surfaces while you're preparing food if you have spills.
- Wash your hands with soap and warm water for at least 20 seconds before handling food and again after handling food. Also wash before you make or eat a snack or meal, and after you play with pets, use the restroom, or blow your nose.
- Wash fruits and vegetables well under running water just before eating, cutting, or cooking.
- Put backpacks, books, purses, and other non-food items on the floor, not on the counters or kitchen table.

Step 2: Separate

Cross-contamination is the scientific word for how bacteria can be spread from one food product to another. Preventing cross-contamination is especially important when handling raw meat, poultry, eggs, and seafood. Keep these foods and their juices away from ready-to-eat-foods.

- Keep raw meat and poultry apart from foods that won't be cooked.
- Wash your hands with warm soapy water for 20 seconds after handling raw meat and poultry.
- Always wash cutting boards, dishes, and utensils with hot, soapy water after they come in contact with raw meat, poultry, eggs, and seafood.
- Never place cooked food on an unwashed plate that held raw meat, poultry, or seafood.

Step 3: Cook

Because bacteria can't be seen, smelled, or tasted, it's important to cook foods properly.

- Always cook food to a safe minimum internal temperature, as shown in the chart.
- Use a food thermometer to make sure meats, poultry, fish, and eggs are cooked to the correct temperature.
- Place the food thermometer in the thickest part of the food, away from bone and fat, to check the temperature.

Beef, pork, veal, and lamb – steaks, roasts and chops	145°F
Chicken and turkey – whole, pieces or ground	165°F
Ground meats including hamburger, and egg dishes	160°F
Reheating leftovers	165°F

- When cooking in a microwave oven, stir, cover, and rotate food for even cooking. Use a food thermometer to check the temperature of the food in several places.
- Let food stand for a few minutes after cooking it in the microwave.
- Always cook eggs before eating them. Cooked eggs should be firm, not runny.

Step 4: Chill

Keep cold foods cold. That’s an important rule to remember to avoid foodborne illness.

- Chill leftovers and takeout foods within two hours, and keep the fridge at 40°F or below.
- Some foods that need to stay cold are:
 - Sandwiches or salads made with meat or poultry
 - Tuna salad and egg salad
 - Milk, cheese, and yogurt
 - Peeled or cut fruits and vegetables
- Use an insulated lunch box or bag to keep food cold at school.
- Keep your lunch in the coolest place possible. Never leave it in the direct sun.
- Add a frozen gel pack or frozen juice box, or use an insulated container to keep food cold.



1. How do you make sure you’re washing your hands for the right length of time? Do you use a timer, sing a song, or do something else? Explain.

2. Why do you need to keep raw foods and cooked foods separate from each other?

3. Why is it important to thoroughly wash fruits and vegetables before eating them?

4. Write down the plans you have in place to keep your foods separate and your family safe.

CHECKING YOUR THERMOMETER

It’s important to check your thermometer regularly to make sure it reads temperatures correctly. The two ways to do this are the ice water test or the boiling water test.

- **Ice water test:** Fill a glass with ice. Add just enough water to cover the ice (but not so much that the ice floats in the water). Wait for a few minutes, then insert your thermometer into the center of the glass and stir gently. Don’t let the thermometer rest against the ice, or you will get a low reading. The thermometer should read 32°F.

- **Boiling water test:** With help from an adult, bring a pot of water to a rolling boil. Place the thermometer into the boiling water, making sure it doesn’t touch the sides or bottom of the pan. Your thermometer should read 212°F. (If you live at a high altitude, this number may vary.)

Don’t worry if the thermometer is off by a few degrees. Just take that into account when you are taking the temperatures of foods. Some thermometers can be adjusted by following the manufacturer’s instructions. But if your thermometer is off by more than 10 degrees and can’t be adjusted, you should replace it.

Green Fuzzy Stuff

PROJECT SKILL:

Storing fruit

LIFE SKILL:

Using scientific methods

Time: 25-35 minutes
(not including waiting time)

SUPPLIES

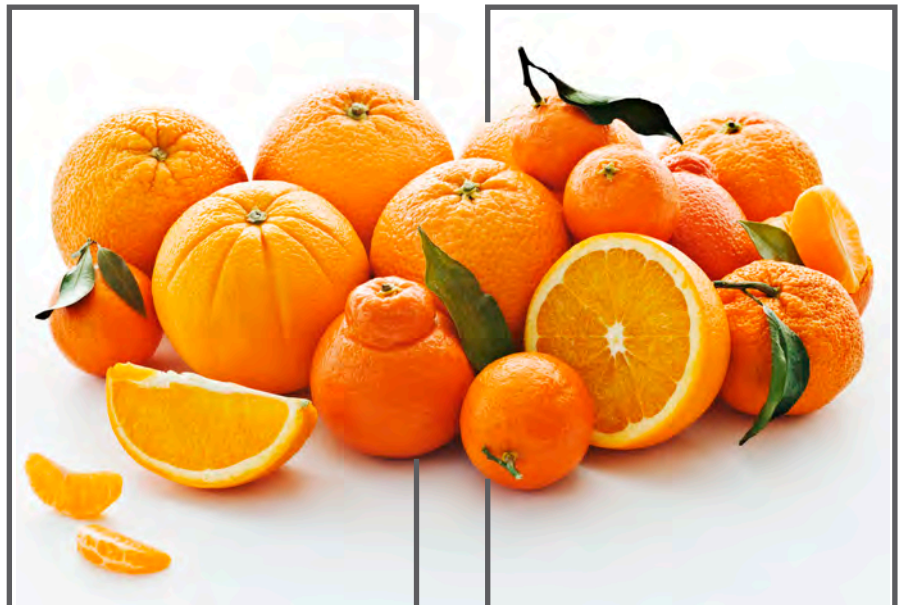
- Two cotton balls
- Two oranges
- Two lemons
- Two bread bags/wrappers
- Small bowl
- Magnifying glass, optional

Maybe you've noticed that placing foods like fruit or bread on top of the refrigerator or in a cupboard close to the refrigerator causes them to mold more quickly than if they were in the refrigerator.

In the same way, foods become moldy faster in the summer than any other time of the year. Mold loves to grow in warm and moist places. So let's experiment and grow some mold!

1. Rub both oranges and both lemons on the floor to get bacteria on them. Don't forget to clean the floor where you rubbed the pieces of fruit. It could be sticky!
2. Place the oranges and lemons in a bowl, and leave them on the counter for two days. Don't cover them.
3. After two days, place one lemon and one orange in each bread bag. Wet the cotton balls and place one in each bag with the fruit. Close the bag tightly.
4. Place one bag in the refrigerator (the control) and the other in a warm dark place (the variable). This can be a bread box, the top of the refrigerator, or a cabinet next to the dishwasher or refrigerator.
5. Observe the bags every day, but leave them unopened for one or two weeks.
6. When you're done experimenting with the fruits, put them back in the bags and discard them. Be sure to wash your hands!

Caution: Don't touch the mold or breathe on it. It may contain a natural antibiotic called penicillin, which some people are allergic to.





KITCHEN TALK

1. After two weeks, what happened to the fruit in the bread bag that was stored in the refrigerator (the control)?

2. What happened to the fruit stored in a warm, dark place (the variable)?

3. How does this experiment suggest the best way to store fruit?

4. Describe another food science experiment you could do that uses a control and a variable.

Good bacteria and mold at work

Not all bacteria and mold are bad. Good bacteria and mold can change one food into another. For example, as certain bacteria (*lactobacilli*) in milk grow, they change the nature of the milk. As the bacteria divide and multiply, they give off a waste product called lactic acid. It makes milk taste sour and causes the proteins in milk to stick together in a semisolid mass called a cultured milk product. The cultured milk product is used to make yogurt, sour cream, cottage cheese, and many other kinds of cheese. That's how bacteria and mold can make good stuff to eat. One famous moldy cheese is blue cheese.

Discover how good bacteria change one food into another in Make Your Own Yogurt in this manual!

EXTRA BITE



Get some unripe pears, plums, peaches, or avocados, and place your moldy lemon in a paper bag with those fruits. The moldy lemon releases a gas called ethylene, which ripens the unripe fruit! Where do you suppose the saying, "One rotten apple spoils the whole barrel," came from? Do your findings support this saying?

Reheating Leftovers

PROJECT SKILL:

Reheating leftover foods

LIFE SKILL:

Preventing illness

TIME: 15-20 minutes

SUPPLIES

- Leftover food
- Thermometer



Does your household ever have leftovers from a meal? If handled properly, leftovers can be used for another meal or snack. If leftovers are not handled properly, they can make you sick. After a meal, leftovers need to be refrigerated within two hours of the time they were served. The food needs to cool down quickly, so use shallow containers when refrigerating your leftovers. Separate the leftovers into smaller containers if necessary.

Even if leftovers have been properly put away, they are sometimes forgotten. If you think a leftover may have been in the refrigerator too long, do not eat it. Do not taste food that looks or smells strange. Follow the saying, "When in doubt, throw it out!" (See the 4-Day Throw Away rule in Level A, Saving Leftovers.)

The chart below lists different times for keeping leftovers.

Leftovers	Length of time in refrigerator
Cooked meat and meat dishes	3-4 days
Gravy and meat broth	1-2 days
Cooked chicken and chicken dishes	3-4 days
Cooked chicken, with broth or gravy	1-2 days

If leftovers have been stored properly, they also must be reheated properly. To be safe, leftovers must be reheated until the inside temperature is 165°F. Check your family's reheating habits by completing this activity.

1. Suggest that your household has a cooked meat dish such as lasagna for dinner. Plan for leftovers.
2. Package the leftovers in a container, and refrigerate within two hours.
3. After two or three days, put a single serving of the leftovers in a microwave-safe dish.
4. Cover the dish with a paper towel, and reheat in the microwave for one minute.
5. Rotate, and if the food is still cold to the touch, microwave for another minute.
6. Continue steps 4 and 5 until the food is hot.
7. Check the temperature by putting the thermometer in the middle of the food. It should read 165°F.
8. If the temperature is not 165°F, continue reheating until it reaches this temperature.



1. What did you fix as leftovers?

2. How long did it take your leftovers to reach 165°?

3. What did you learn about proper storing and handling of leftovers?

4. What should you do with a leftover if you don't know how long it's been in the refrigerator?

Freeze it!

This chart shows safe freezer time limits for leftovers.

Leftovers	Length of time in freezer
Cooked meat and meat dishes	2-3 months
Gravy and meat broth	2-3 months
Fried or cooked chicken	4 months
Cooked chicken meals	4-6 months
Cooked chicken with broth or gravy	6 months



Instead of putting leftovers in the refrigerator, place them in the freezer. See Level A, Saving Leftovers for more information about freezing leftovers in the right kind of containers. The "Freeze it!" chart tells you how long foods stay safe when frozen.

Common leftovers

Here is a list of common leftovers. Do you have anything to add to this list?

- Lasagna
- Chicken pot pie
- Meat loaf
- Beef stew
- Chicken and noodles
- Sloppy joes
- Chicken and rice casserole
- Chili

Make Your Own Yogurt

PROJECT SKILL:

Making yogurt

LIFE SKILL:

Understanding good bacteria

TIME: 60-90 minutes
(not including
waiting time of
8-12 hours)

SUPPLIES

- Starter culture (a container of commercially prepared plain yogurt with active cultures)
- 2-1/2 c milk - whole, 2%, 1%, or skim
- Candy thermometer
- Saucepan
- Wooden spoon
- Liquid measuring cup
- Measuring tablespoon
- Two or three wide-mouth glass jars with screw-on lids
- Two or three thick towels

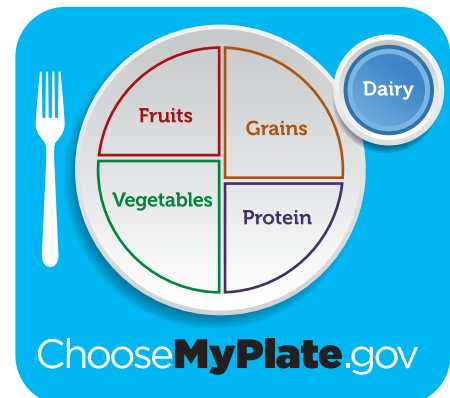


The process of making yogurt begins with a starter culture. A starter culture can be a few spoonfuls of fresh, plain, whole-milk yogurt that you buy at the grocery store. Don't use a flavored yogurt. You can make sure the yogurt contains live, active cultures by looking for this information on the container. This means that the yogurt contains living bacteria. A pasteurized product does not have live bacteria, because the heat used during pasteurization kills it.

Homemade yogurt is not quite as thick as the yogurt you buy at the store. You can eat it plain or mix in some fruit, fruit preserves, honey, or whatever you want to experiment with.

Let's make some yogurt!

1. Warm the milk in a saucepan on low heat until it reaches 180°F. Remove the pan from the stove. Use a candy thermometer to check the temperature. You'll see tiny bubbles forming around the edge of the pot and a "skin" on top of the milk. Heating kills any bacteria in the milk that may cause it to spoil before the yogurt forms.
2. Remove the skin from the milk with a wooden spoon. Cool the milk until it reaches 110°F (for about a half-hour at room temperature). This keeps the good bacteria in the starter culture from dying when you add it to the milk.
3. Add a tablespoon of the yogurt to the cooled milk. Use a wooden spoon to mix it well.
4. Pour the mixture into the clean glass jars. Cover. Wrap a towel around each jar to keep the heat in. Bacteria love the warmth, and they'll grow faster.
5. Let the yogurt culture stand at room temperature away from drafts and vibrations for 8-12 hours. Don't disturb it! The yogurt is ready when it pulls away from the sides of the jar in one piece as you tilt the jar. If it's not ready, leave it for two more hours, and check again. Don't let it stand for longer than 12 hours, or the yogurt will be tangy.
6. Refrigerate your yogurt to stop the growth of bacteria. Allow it to chill before you eat it. But don't eat all your yogurt; save some—plain, of course—to start your next batch!





1. How would you describe your yogurt?

2. Were you satisfied with the result? If not, what do you think would make a difference?

3. Besides eating it plain, what other ways could you use and enjoy your homemade yogurt?

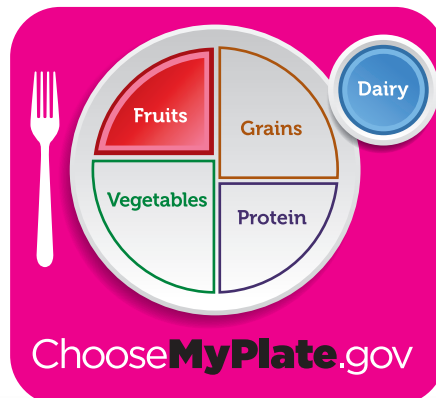
4. How can you teach your friends or family members about the process of making homemade yogurt?

Milk and bacteria

You may be surprised to learn that not all bacteria are harmful. Some foods that are good for you are made by the action of bacteria.

Milk contains protein, calcium, fat, and carbohydrates along with other vitamins and minerals. The carbohydrate in milk is called lactose. Lactose is a sugar found only in milk. Certain bacteria feed on lactose and release lactic acid as a waste product.

As bacteria grow, more and more lactic acid collects in the milk. Acid gives a sour taste to the milk. It looks different too. That's because acid breaks down the protein in milk, so the milk becomes thicker and thicker. After a while, the milk is "cultured" and has a tart taste with a custard-like texture. Sound familiar? The milk turned into yogurt!



EXTRA BITE



Create your own fruit and yogurt pops with this easy recipe.

- Add 12 ounces of homemade yogurt or two 6-oz containers of fat-free plain or vanilla yogurt
- 2 c fresh fruit, cubed or sliced
- 1 T honey

1. Put all the ingredients in a blender. Cover and blend until smooth. Or place the fruit in a bowl and mash it with a potato masher or the back of a fork until it's fairly smooth; then add the yogurt, and stir to combine.
2. Divide the mixture among six 5-ounce paper cups. Insert an ice pop stick, skewer, or plastic spoon into the center of each pop. Poke a hole in a small piece of foil, and slide it over the stick to cover the top of the cup and keep the stick secure. You can also use an ice pop mold.
3. Freeze for about six hours or until frozen.
4. Makes six pops!

The Gritty on Grains

PROJECT SKILL:

Making whole wheat muffins

LIFE SKILL:

Processing information

TIME: 45-60 minutes

INGREDIENTS

- 2/3 c whole wheat flour
- 2/3 c all-purpose flour
- 1/3 c sugar
- 2 t baking powder
- 3/4 c buttermilk
- 2 eggs
- 2 T oil
- 1/2 t lemon peel, grated
- 3/4 c banana, chopped
- Vegetable cooking spray

SUPPLIES

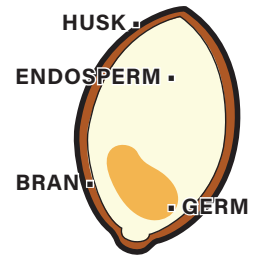
- Muffin tin
- Cooking spray
- Microplane grater/zester
- Measuring cups/spoons
- Large bowl
- Small bowl
- Mixing spoon

Directions

1. Spray a muffin tin pan with vegetable cooking spray. Preheat oven to 400°F.
2. Stir the flour, whole wheat flour, sugar, and baking powder together in a large bowl, and set aside.
3. In a small bowl, mix the buttermilk, eggs, oil, and grated lemon peel.
4. Pour the buttermilk mixture into the flour mixture, and stir just enough to make the flour moist. Then fold in the chopped banana. Do not over mix.
5. Spoon the batter into the muffin tin, filling each three-quarters full.
6. Bake for 20 minutes or until light brown. Cool. Makes six muffins.

One of the Dietary Guidelines is to make half your grains whole grains. The many different grains include wheat, corn, rice, oats, rye, and barley. Each grain has four parts.

- **Husk** – the outer covering, which cannot be eaten
- **Bran** – the outer layer that protects the soft insides; contains dietary fiber, B vitamins, and minerals
- **Endosperm** – the largest inner part; contains starch and protein
- **Germ** – the smallest inner part; contains fat, protein, B vitamins, vitamin E, and minerals



Foods like white bread and macaroni are made from milled grain products. Milling removes the bran and germ from the grain kernel, which also removes many nutrients. To make up for this loss, bakeries sometimes add back the vitamins and minerals. When they do, the label on the bread or baked goods says it is “enriched.”

In a food labeled “whole grain,” the bran, endosperm, and germ are all still there. Nothing has to be added back to whole grain foods, so they are a better source of the grain’s vitamins and minerals as well as dietary fiber.

Next time you go to the grocery store, look for some whole grain foods. Go a step further and look at the ingredient lists of some foods in your cabinets. Look for these names: whole wheat, whole barley, whole oats, cracked wheat, graham flour, or whole cornmeal. These ingredients should be listed first in the ingredient section of the food label. If the whole grain isn’t listed first, the product is likely not a whole grain product.

Now let’s bake up a batch of whole wheat lemon-banana muffins.

Whole wheat lemon banana muffins

Number of Servings: 6
(110.96 g per serving)
Weight: 665.78 g

Nutrition Facts

Serving Size (111g)
Servings Per Container

Amount Per Serving	
Calories 240	Calories from Fat 60
% Daily Value*	
Total Fat 7g	11%
Saturated Fat 1g	5%
Trans Fat 0g	
Cholesterol 75mg	25%
Sodium 240mg	10%
Total Carbohydrate 38g	13%
Dietary Fiber 3g	12%
Sugars 15g	

Protein 6g	
Vitamin A 2%	Vitamin C 4%
Calcium 8%	Iron 8%

*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

	Calories:	2,000	2,500
Total Fat	Less than	65g	80g
Saturated Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

Calories per gram:
Fat 9 • Carbohydrate 4 • Protein 4



KITCHEN TALK

1. What was the most difficult thing about making muffins?

2. What part of the grain kernel is in our muffins?

3. Describe how you can tell what's in a food product by reading a label.

4. How will reading the label affect what foods you buy in the future?

Fiber

Dietary fiber is a compound found only in fruits, vegetables, and grain products. It is present in two different forms, insoluble and soluble.

- Insoluble fiber helps the body get rid of waste and cleans out the digestive tract. Sources of insoluble fiber are whole grain foods, cauliflower, green beans, root vegetables, and fruit skins.
- Soluble fiber might lower blood cholesterol levels and help regulate blood sugar. Sources of soluble fiber are oats, peas, beans, apples, and oranges.

How much fiber do you need? Girls ages 9-13 need 26 grams per day, and boys ages 9-13 need 31 grams per day. It's easy to increase your intake of dietary fiber. Make whole grains, fruits, and vegetables a part of your diet every day. At least twice a week, eat a meal that includes beans and peas. Start doing this, and you will be on your way to making dietary fiber a part of your everyday life.



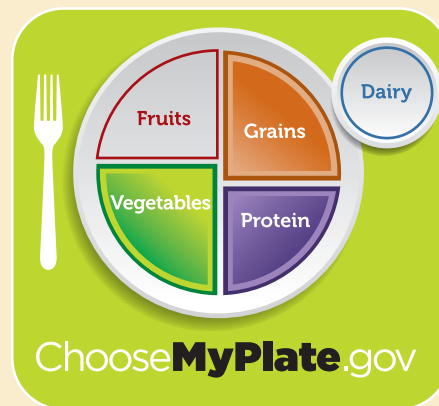
EXTRA BITE



Try this twist of a snack. You'll need:

- Whole wheat tortillas
- Sliced lunch meat (ham, turkey, roast beef, chicken)
- Cheese and any type of vegetables you like

Put your meat and cheese filling on the middle of the tortilla. Roll it up and microwave for 20-30 seconds. Enjoy!



Here Come the Fruits and Veggies

PROJECT SKILL:

Making fruit and vegetable salads

LIFE SKILL:

Making healthy lifestyle choices

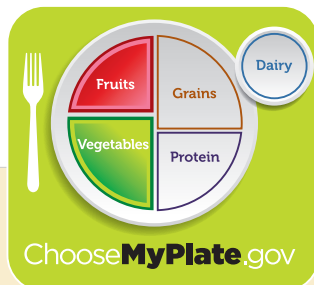
TIME: 30-40 minutes

INGREDIENTS

- 1/3 c prepared Italian or light salad dressing
- 4 c any combination of veggies:
 - Broccoli, broken into flowerets
 - Cauliflower, broken into flowerets
 - Carrots, sliced
 - Celery, diced
 - Mushrooms, sliced
 - Water chestnuts, sliced
 - Radishes, sliced
 - Cucumbers, halved and sliced
 - Olives, sliced
 - Red and/or green peppers, cut into strips
 - Red cabbage, shredded

SUPPLIES

- Cutting board
- Knife
- Measuring cups
- Large bowl



One of the Dietary Guidelines is to make half your plate fruits and veggies. Eating a variety of fruits and vegetables provides vitamins, minerals, dietary fiber, water, and other nutrients that are important for good health. Diets high in fruits and vegetables may lower the risk of heart disease, high blood pressure, and even cancer. Whether fresh, frozen, canned, or dried, all forms of fruits and vegetables are good for your health. For the most health benefits, look for varieties that have no added sugar, salt, or sauces. Here is a delicious marinated veggie salad that will help you meet the goal of making half your plate fruits and veggies.

Directions

1. Choose the veggies you want in your salad. Slice, dice, shred, and prepare the raw veggies.
2. Combine the veggies in a large bowl. Toss gently to mix.
3. Pour the Italian dressing over the veggies, and combine gently.
4. Cover and marinate in the refrigerator four hours or overnight. Stir occasionally.

Dip it!

In addition to making raw fruit and veggie salads, you can make a dip for these delicious foods. Try this ranch-flavored veggie dip that features a homemade ranch seasoning mix.

HOMEMADE RANCH-FLAVORED VEGGIE DIP

- 1 8-oz container of nonfat, plain Greek yogurt or low-fat sour cream
- 2 T homemade ranch seasoning mix, recipe below
- 2-4 T milk or buttermilk (optional)

Directions: Mix the yogurt and dry ingredients together and add milk, one tablespoon at a time, if you'd like a thinner dip. Refrigerate for at least four hours to allow the flavors to blend. Serve with your favorite veggies.

Ranch Seasoning Mix

- | | |
|--|-------------------------|
| 1/3 c dry buttermilk powder
(found in the baking aisle) | 2 t onion powder |
| 2 T dried parsley | 2 t dried onion flakes |
| 1-1/2 t dried dill weed | 1 t ground black pepper |
| 2 t garlic powder | 1 t dried chives |
| | 1/2 t salt |

Directions: Whisk all ingredients together until well blended. For a more finely ground seasoning mix, pulse in a food processor or blender until it reaches the consistency you like. Store in an airtight container for up to three months.



1. How did you prepare your raw veggies?

2. What combination of veggies did you choose?

3. How can you use your raw veggie salad to help friends and family make healthy lifestyle choices?

4. What fruits would you choose to make a fruit salad?

5. What fruits and vegetables do you plan to eat tomorrow?



Ranch seasoning mix

Number of Servings: 16
(3.98 g per serving)
Weight: 63.7 g

Nutrition Facts

Serving Size (4g)
Servings Per Container

Amount Per Serving

Calories 15 Calories from Fat 0

% Daily Value*

Total Fat 0g 0%

Saturated Fat 0g 0%

Trans Fat 0g

Cholesterol 0mg 0%

Sodium 85mg 4%

Total Carbohydrate 2g 1%

Dietary Fiber 0g 0%

Sugars 1g

Protein 1g

Vitamin A 0% • Vitamin C 2%

Calcium 4% • Iron 0%

*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

	Calories:	2,000	2,500
Total Fat	Less than	65g	80g
Saturated Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

Calories per gram:
Fat 9 • Carbohydrate 4 • Protein 4

EXTRA BITE



Knives are one of the most versatile tools in the kitchen. But you must learn how to properly use and care for knives to avoid an injury. Here are some do's and don'ts for knife safety:

DO

- Keep knives sharpened, and let others know when knives are newly sharpened.
- Use a knife only for its intended purpose.
- Use the right knife for the job.
- Carry knives with the cutting edge slightly away from your body and pointed down.
- Store knives properly in racks or knife sheaths.

DON'T

- Touch knife blades.
- Try to catch a falling knife. Let it fall.
- Hand a knife to someone. Put it down on the counter and let the other person pick it up.
- Leave a knife soaking in a sink of water.
- Talk to people while using a knife.

Visit:

http://extension.usu.edu/files/publications/publication/FSC_Educational_Tools_2011-01pr.pdf for detailed photos and instructions for using and storing knives.

Where are the SoFAS? (Not the Kind for Sitting On)

PROJECT SKILL:

Altering the fat and sugar content of foods

LIFE SKILL:

Healthy lifestyle choices

TIME: 30-45 minutes

SUPPLIES

For Baked Tortilla Chips

- 4 corn or whole wheat flour tortillas (from the dairy or ethnic foods sections of the grocery store)
- Vegetable oil or cooking spray
- Pastry brush if using vegetable oil

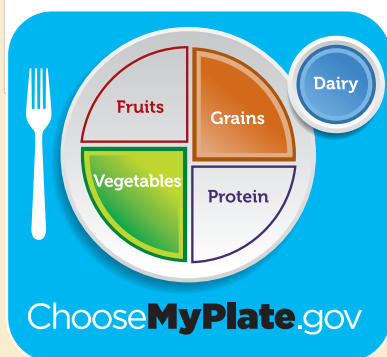
INGREDIENTS

For Nachos

- 8 tortilla chips
- 1/4 c shredded Monterey Jack or cheddar cheese
- 1/4 c salsa

SUPPLIES

- Knife
- Cutting board
- Pastry brush if using oil
- Cookie sheet



SoFAS stands for solid fats (SoF) and added sugars (AS). Choosing a diet low in solid fats and added sugars is important for good health. You can lower the SoFAS in your daily diet by limiting the number and amount of high-fat, sugar-added foods you eat. To do so:

- Decrease the amount of fat and sugar you use in a recipe.
- Substitute low-fat products; for example, nonfat or 1% milk for whole milk.
- Prepare foods in different ways; for example, baking instead of frying.
- Choose naturally sweet foods like fruits or 100% juice instead of foods with added sugar like cookies, pies, and sodas.
- Prepare and eat meals at home instead of restaurants so you can control the ingredients.

Here is a simple recipe for a popular snack that you can make at home. It contains less solid fat than the prepackaged version from the store.

Baked Tortilla Chips

Directions

1. Preheat the oven to 350°F.
2. Place tortillas on a cutting board. Brush or spray a small amount of oil on each tortilla.
3. Cut each tortilla into eight wedges.
4. Place the wedges on a cookie sheet in a single layer. Bake for approximately 10 minutes or until the chips are crisp and lightly browned.
5. Store chips in an airtight container. Eat them plain, dip them in salsa, or make a batch of nachos!

Nachos

Directions

1. Arrange the tortilla chips in a circle on a microwave-safe dinner plate.
2. Sprinkle the cheese and salsa over the tortilla chips.
3. Microwave, uncovered, on high (100%) for 20-30 seconds. If the cheese is not melted, microwave again for 10-15 seconds. Or bake on a cookie sheet in a 400°F oven for four minutes or until cheese melts.
1/4 cup shredded cheddar cheese adds 87 cal, 6 g fat, 3.5 g saturated fat, 21 mg cholesterol, 8 g protein, 177 mg sodium; 1/4 cup salsa adds 18 cal, 0 g fat, 0 g saturated fat, 0 mg cholesterol, 1 g protein, and 437 g sodium.

Baked tortilla chips

Number of Servings: 4
(29.16 g per serving)
Weight: 116.64 g

Nutrition Facts

Serving Size (29g)
Servings Per Container

Amount Per Serving
Calories 70 **Calories from Fat 10**

% Daily Value*

Total Fat 1g **2%**

Saturated Fat 0g **0%**

Trans Fat 0g

Cholesterol 0mg **0%**

Sodium 35mg **1%**

Total Carbohydrate 14g **5%**

Dietary Fiber 1g **4%**

Sugars 0g

Protein 1g

Vitamin A 0% • Vitamin C 0%

Calcium 0% • Iron 0%

*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

		Calories: 2,000	2,500
Total Fat	Less than	65g	80g
Saturated Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

Calories per gram:
Fat 9 • Carbohydrate 4 • Protein 4



KITCHEN TALK

1. How did your baked tortilla chips compare with fried, store-bought ones?

2. Compare the food label from some store-bought chips with the homemade ones. Which one has less fat? Which one has fewer ingredients?

3. What was the most difficult thing about making baked tortilla chips?

4. The next time you are at a restaurant, will you choose foods that are baked or fried? Will you choose fruit desserts over those with added sugar?

5. What other foods could be prepared differently to lower the fat and/or sugar content?

Identifying SoFAS

Reading the Nutrition Facts label on packaged foods can help you tell how much SoFAS the product contains. You can easily find the amount of fat in a product, but it's harder to find the added sugars. These sugars and syrups are added to foods or beverages when they are processed or prepared. They do not include naturally occurring sugars like those in milk and fruits. To find the SoFAS, you need to look at the ingredient section. Look for words like:

- Sugar; brown, granulated white, raw invert, powdered
- Syrups; maple, agave, malt syrup, corn syrup, high-fructose corn syrup
- Honey ▪ Molasses ▪ Dextrose ▪ Fructose ▪ Sucrose

The grams of sugar listed on the Nutrition Facts label don't tell you if the sugar is added or occurs naturally. Read the ingredient list to figure it out for yourself. For example, 100% orange juice has 11 grams of sugar in a 1/2-cup serving, all of which is naturally occurring. Orange drink has up to 15 grams of sugar in a 1/2-cup serving, most of which is added.

EXTRA BITE



Fruit salsa

Usually when people think of salsa, they think of the mixture of tomatoes, onions, chilies, and cilantro served in Mexican restaurants. Instead of making the classic salsa, try this fruit salsa the next time you make some baked tortilla chips.

Ingredients

- 3 c diced fruit – strawberries, blueberries, peaches, apples, kiwi, or other fruits
- 2 T orange juice
- 1 T all-fruit spread in the flavor of your choice

Chop all the fruit into very small pieces (dice), and place it in a bowl. Mix the orange juice and all-fruit spread together until smooth. Pour it over the fruit and stir gently. Chill or eat immediately with baked tortilla chips. This recipe is also delicious on grilled chicken or fish!

Fit It In!

PROJECT SKILL:

Fitting fast food into your life

LIFE SKILL:

Making healthy decisions

TIME: 45-60 minutes

HEALTHY TIPS

Side orders

- Order the smallest portion of french fries, share with a friend, or skip them and get a salad or fruit.
- Choose a plain baked potato, and ask for toppings like cheese and sour cream on the side. You can decide how much you want to put on your potato.
- Limit creamy salad dressings.
- Add dressing sparingly. Try to use only a little of the packet.
- Choose low-fat frozen yogurt desserts over fried fruit pies, cookies, milkshakes, or ice cream.

Beverages

- Choose 100% juice, low-fat or fat-free milk, unsweetened iced tea, or water instead of soda.
- Order the smallest soda, or lightly sweeten your iced tea.

Breakfast foods

- Limit fried foods such as hash browns.
- Choose an English muffin or toast rather than a higher fat biscuit, croissant, or Danish pastry.
- Choose plain oatmeal, and add the optional toppings yourself so you can control portions.
- Choose low-fat items such as fruit and yogurt parfaits or cold cereal.

Fast food is a part of nearly everyone's life. It would be hard to say you'll never have fast food again! But fast food isn't known for being good for you. Fast-food meals are usually high in calories, fat, and salt, but they aren't necessarily "junk food" either. Most fast-food restaurants offer healthy items so you can choose a meal with less fat, calories, and sodium. Most also have nutritional information on their packaging, menu board, and/or website. All you have to do is look for it, or ask the people working there for the information. Then the next time you go to your favorite fast-food restaurant, you can make a healthy meal choice.

Let's compare two fast-food meals.

Menu 1	Calories	Fat (g)	Sodium (mg)
Quarter-pound burger with cheese	520	26	1100
Small french fries	230	11	160
12-ounce milkshake	560	16	240
Two chocolate chip cookies	320	16	180
Totals	1630	69	1680

Menu 2	Calories	Fat (g)	Sodium (mg)	Nutritional Savings
Cheeseburger	250	9	480	
Side salad	20	0	10	
Ranch dressing	170	15	530	
Lowfat milk	100	2.5	25	
Ice cream cone, kiddie size	45	1.5	20	
Totals	585	28	1065	1045k cal 41g fat 615mg sodium
Without the ranch dressing	415	13	535	1215k cal 56g fat 1145 mg sodium

Calories, fat, and sodium have been greatly reduced by making better choices in menu 2. One difference in the two menus is the sandwich choice. Here are some helpful hints to make a healthier sandwich choice.

- Choose smaller or regular-sized sandwiches because the large, double, and super sizes have more calories, fat, and sodium.
- Choose broiled or grilled chicken sandwiches, salads, and unbreaded items.
- Limit extras and special sauces, and instead choose toppings such as lettuce, tomatoes, and cheese.

Now let's practice what you've just learned.

- Write down the foods you usually eat at your favorite fast-food restaurant.
- With an adult's help, go to that restaurant's website. Find the calories, fat, and sodium for each item you just wrote down.

Menu 1	Calories	Fat (g)	Sodium (mg)

- Make a similar chart or table, and write down some healthier food choices from the same restaurant. Write down the calories, fat, and sodium for each of these foods.

Menu 2	Calories	Fat (g)	Sodium (mg)

- Compare the two meals. Were you surprised?



1. Which foods did you replace in your original meal? _____

2. What was the hardest part of deciding what foods to replace? _____

3. Where else besides fast-food restaurants do you have to make decisions on what kind of foods to eat? _____

4. The next time you are at a fast-food restaurant, how will you decide what to order? _____

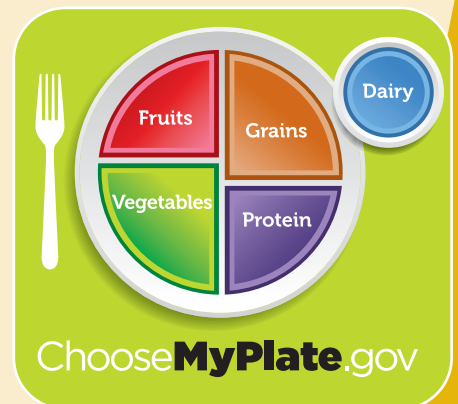
5. Do you think making healthier choices will make a difference in your overall health? _____



1. Dining at fast-food and other restaurants should be "sometimes" treats, not everyday occasions.

Don't forget MyPlate when ordering at your favorite restaurant. Does your meal fit into MyPlate? If not, how could you order so that it does?

2. Remember, you're in charge of making better food choices for yourself. If you don't take care of you, who will?



Baking Better Batters

PROJECT SKILL:

Altering cake recipes for healthy living

LIFE SKILL:

Making healthy lifestyle choices

TIME: 90-120 minutes

INGREDIENTS

Makes one single-layer cake.

- 1 c flour
- 1 c sugar
- 1/4 c unsweetened cocoa
- 1 t baking powder
- 1/4 t baking soda
- 1/4 t salt
- 3/4 c buttermilk*
- 1/4 cup oil OR 1/4 cup unsweetened applesauce
- 1/2 t vanilla
- 1 egg

**To substitute for buttermilk, use 1 T vinegar or lemon juice plus milk to make 1 cup.*

SUPPLIES

- 8-inch round cake pan or 8x8-inch square pan
- Cooking spray
- Large bowl
- Measuring cups/spoons
- Electric mixer or large spoon

Cakes are fun to make and fun to eat! The Dietary Guidelines recommend choosing a diet low in saturated fat and moderate in total fat. Cakes contain both fat and saturated fat, making them “sometimes” foods. Remember that snacks and treats are different! Snacks contain vitamins, minerals, dietary fiber, and other nutrients that are good for your body. Treats generally contain solid fats and added sugars and very little, if any, other nutrients that are good for your body.

A way to cut down the amount of fat in some cakes is to substitute an ingredient for the oil, butter, or shortening. One possible substitute is applesauce. Applesauce provides the moisture and texture the cake needs without the fat. Applesauce also can be used in quick breads, brownies, and muffins. Other substitutes include mashed banana, baby food, pureed prunes, canned pumpkin, and nonfat Greek yogurt. These substitutes don’t work well in recipes where the fat content is more important, such as pie crusts or other pastries. In cookies it’s usually better to replace only half the fat with one of the substitutes. Follow this recipe two times to make two single-layer chocolate cakes. Use vegetable oil for one, and applesauce (or one of the other substitutes) for the other.

(One-layer chocolate cake recipe adapted from *Better Homes and Gardens New Cookbook, 12th edition*).

1. Preheat oven to 350°F. Grease and lightly flour one 8-inch round cake pan or one 8x8-inch square pan.
2. In a bowl combine flour, sugar, cocoa powder, baking powder, baking soda, and salt. Add milk, oil (or applesauce), and vanilla. Beat with an electric mixer on low speed until combined. Beat on medium speed for two minutes. Add egg and beat two minutes more.
3. Pour batter into prepared pan.
4. Bake at 350°F for 30-35 minutes or until a toothpick inserted in the center of the cake comes out clean.
5. Cool 10 minutes on wire racks. Using a sharp knife, loosen cake from the pan sides.
6. Cool completely. Frost as desired or dust lightly with powdered sugar. Each cake makes eight servings.
7. Repeat the entire process for the second cake. This time substitute applesauce for the oil.

Notice the difference in calories and fat for the different cakes.





1. Compare the two cakes you made for flavor, appearance, and texture.

	Cake 1	Cake 2
Flavor		
Appearance		
Texture		

2. Which cake did your family prefer? Why?

3. How will you prepare cakes differently in the future as a result of this activity? _____

4. What other ingredients can you substitute to make lower-fat foods?

One-layer chocolate cake with oil

Number of Servings: 8
(80.58 g per serving)
Weight: 644.66 g

Nutrition Facts

Serving Size (81g)
Servings Per Container

Amount Per Serving

Calories 240 Calories from Fat 70

% Daily Value*

Total Fat 8g 12%

Saturated Fat 1g 5%

Trans Fat 0g

Cholesterol 30mg 10%

Sodium 210mg 9%

Total Carbohydrate 40g 13%

Dietary Fiber 1g 4%

Sugars 26g

Protein 4g

Vitamin A 0% • Vitamin C 0%

Calcium 4% • Iron 6%

*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

Calories: 2,000 2,500

Total Fat Less than 65g 80g

Saturated Fat Less than 20g 25g

Cholesterol Less than 300mg 300mg

Sodium Less than 2,400mg 2,400mg

Total Carbohydrate 300g 375g

Dietary Fiber 25g 30g

Calories per gram:
Fat 9 • Carbohydrate 4 • Protein 4

One-layer chocolate cake with applesauce

Number of Servings: 8
(81.4 g per serving)
Weight: 651.16 g

Nutrition Facts

Serving Size (81g)
Servings Per Container

Amount Per Serving

Calories 190 Calories from Fat 10

% Daily Value*

Total Fat 1g 2%

Saturated Fat 0g 0%

Trans Fat 0g

Cholesterol 30mg 10%

Sodium 210mg 9%

Total Carbohydrate 41g 14%

Dietary Fiber 1g 4%

Sugars 27g

Protein 4g

Vitamin A 2% • Vitamin C 0%

Calcium 4% • Iron 6%

*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

Calories: 2,000 2,500

Total Fat Less than 65g 80g

Saturated Fat Less than 20g 25g

Cholesterol Less than 300mg 300mg

Sodium Less than 2,400mg 2,400mg

Total Carbohydrate 300g 375g

Dietary Fiber 25g 30g

Calories per gram:
Fat 9 • Carbohydrate 4 • Protein 4

EXTRA BITE



Another easy way to reduce the fat and cholesterol in baked goods is by using two egg whites for each whole egg in the recipe. Two egg whites are equal in volume to one whole egg.

MAKING SUCCESSFUL CAKES

The mixing method affects a cake's texture, volume, and moistness. Follow the recipe carefully for best results.

- Overbeating or underbeating causes problems in texture and structure.
- Cream fat and sugar like the recipe says to produce a fine-textured cake.
- Egg whites should be at room temperature before beating them into the batter to maximize the cake's volume.
- Check the date on the baking powder. Using old baking powder that is past its expiration date decreases the cake's volume.
- When a recipe calls for margarine or butter, use only sticks, not whipped or light, which contain more water and may affect the batter and its stickiness to the pan.
- Do not substitute vegetable oil for shortening, margarine, or butter, even when they are to be melted. Recipes using solid shortening need the solids for proper structure and texture.

Twisting Tasty Pretzels

PROJECT SKILL:

Making pretzels

LIFE SKILL:

Completing a task

TIME: 90-120 minutes

INGREDIENTS

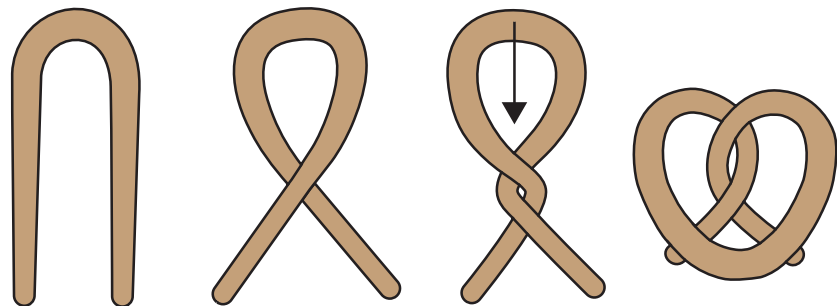
- 3/4 c whole wheat flour
- 3/4 c all-purpose flour
- 2/3 c milk
- 2 T vegetable oil
- 2 t baking powder
- 1 t sugar
- 1/2 t salt
- 2 T all-purpose flour
- 1 egg
- Your favorite topping (coarse salt, cinnamon-sugar, oats, or sesame seeds)

SUPPLIES

- Measuring cups/spoons
- Medium bowl
- Large spoon
- Small bowl
- Whisk or fork
- Cookie sheet

Pretzels are a great low-fat snack food, and just about everybody loves to eat them. They fit into MyPlate in the grains group. Making pretzels from scratch can be fun. This recipe makes 16 soft pretzels for you and your family to enjoy. Be creative! Twist and shape your way to this fun snack.

1. Heat oven to 425°F.
2. In a medium bowl, mix together the whole wheat flour, all-purpose flour, milk, vegetable oil, baking powder, sugar, and salt. Stir until dough is soft.
3. Sprinkle the 2 tablespoons all-purpose flour over a clean surface. Put the dough on the floured surface.
4. Divide the dough in half to make two balls. Roll each ball around three or four times.
5. Knead each ball of dough by curving your fingers around it and folding it toward you. Then push it away with the heels of your hand using a rocking motion. Repeat 10 times.
6. Turn a bowl upside down over the two balls of dough, and let them rest for 15 minutes.
7. Divide each ball of dough into eight pieces. Use plastic wrap to cover the ball you are not working with so it doesn't dry out.
8. Roll each piece into a 12-inch rope. (You can place the rope next to a ruler.)
9. Twist each rope into a pretzel shape and place on an ungreased cookie sheet.



10. Crack an egg into a small bowl. Beat the egg with a fork until the yolk and white are mixed well. Brush each pretzel with some of the egg mixture. Sprinkle on your favorite topping.
11. Bake 9-11 minutes or until pretzels are light golden brown. Use a pancake turner to remove the pretzels from the baking sheet. Cool them on a wire rack for 10 minutes. Store in a container with a tight-fitting lid.



1. What's the best thing about making pretzels?

2. Did you have to practice a lot to get good pretzel shapes?

3. What did you learn about rolling and shaping pretzel dough?

4. Describe how you might apply what you learned to another task.

EXTRA BITE



1. Add 1/2 cup shredded Cheddar cheese to the flour mixture to make some cheesy pretzels!

2. Try different shapes, such as sticks and logs, or thinner pretzels. Maybe try making pretzel letters with your family's initials! Remember, different shapes and thicknesses might need a slightly shorter or longer baking time. Make sure to watch your pretzels so they don't overbake.

Tasty pretzels

Number of Servings: 16
(28.72 g per serving)
Weight: 459.52 g

Nutrition Facts

Serving Size (29g)
Servings Per Container

Amount Per Serving

Calories 70 Calories from Fat 20

% Daily Value*

Total Fat 2.5g 4%

Saturated Fat 0g 0%

Trans Fat 0g

Cholesterol 15mg 5%

Sodium 150mg 6%

Total Carbohydrate 10g 3%

Dietary Fiber 1g 4%

Sugars 1g

Protein 2g

Vitamin A 0% • Vitamin C 0%

Calcium 2% • Iron 4%

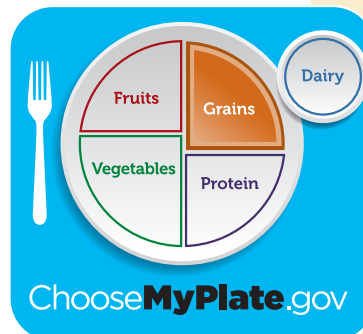
*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

	Calories:	2,000	2,500
Total Fat	Less than	65g	80g
Saturated Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

Calories per gram:
Fat 9 • Carbohydrate 4 • Protein 4

When using the oven

- Adjust the racks higher or lower before you turn the oven on.
- Allow space between the dish or pan and the sides of the oven, so air can circulate.
- Arrange dishes or pans so that one isn't placed right over the other.
- Carefully remove the cover off hot food, making sure the steam doesn't burn your face or hands.
- Before you pick up a hot pan, have a safe place to set it down. Use a hot plate or a cooling rack. Never set a hot pan directly on the kitchen counter or table.



Easy Cheesy Lasagna

PROJECT SKILL:

Making a main dish in the oven

LIFE SKILL:

Managing resources

TIME: 90-120 minutes

INGREDIENTS

- 8 oz uncooked whole wheat lasagna noodles
- 4 c (32 oz) spaghetti sauce, store bought or homemade
- 2 c (8 oz) mozzarella cheese, shredded
- 2 T Parmesan cheese
- 2 c (16 oz) low-fat cottage or ricotta cheese
- 2 T dried parsley or 1/4 cup fresh parsley, chopped
- 1 t dried basil or 1 T fresh basil, chopped
- 1/2 t garlic powder

SUPPLIES

- Measuring cups/spoons
- Medium bowl
- Large spoon
- 13x9-inch baking pan



Most pasta, rice, and grain-based dishes require two cooking steps:

- Cooking the grain
- Combining with other ingredients

It's time-consuming to cook the noodles for lasagna. But there is a way to make lasagna without cooking the noodles first. Try this recipe and see.

1. In a medium bowl, mix together the cottage or ricotta cheese, Parmesan cheese, parsley, basil, and garlic powder.
2. Pour 1-1/2 cups of the spaghetti sauce into a 13x9-inch baking pan, and spread it evenly over the bottom.
3. Place four uncooked, whole wheat lasagna noodles over the spaghetti sauce.
4. Spread half the cottage or ricotta cheese mixture (1 cup) evenly on top of the noodles.
5. Sprinkle half the mozzarella cheese (1 cup) on top of the cheese mixture.
6. Spoon 1 cup of spaghetti sauce evenly over the cheese.
7. Make another layer with:
 - a. four uncooked noodles
 - b. 1 cup cheese mixture; and
 - c. 1-1/2 cups spaghetti sauce—be sure the spaghetti sauce completely covers the noodles.
8. Sprinkle 1 cup of mozzarella cheese on top of the sauce. Bake the lasagna in the oven, uncovered, 40-45 minutes at 350°F. Remove from the oven and let cool for 15 minutes before cutting. Makes eight servings. Serve with garlic bread and salad for a complete meal.

Easy cheesy lasagna

Number of Servings: 8
(228.97 per serving)
Weight: 1831.79 g

Nutrition Facts

Serving Size (229g)
 Servings Per Container

Amount Per Serving

Calories 320 **Calories from Fat 80**

% Daily Value*

Total Fat 9g **14%**

Saturated Fat 0.5g **3%**

Trans Fat 0g

Cholesterol 5mg **2%**

Sodium 930mg **39%**

Total Carbohydrate 38g **13%**

Dietary Fiber 4g **16%**

Sugars 2g

Protein 21g

Vitamin A 0% • Vitamin C 0%

Calcium 30% • Iron 6%

*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs.

Calories: 2,000 2,500

Total Fat Less than 65g 80g

Saturated Fat Less than 20g 25g

Cholesterol Less than 300mg 300mg

Sodium Less than 2,400mg 2,400mg

Total Carbohydrate 300g 375g

Dietary Fiber 25g 30g

Calories per gram:
 Fat 9 • Carbohydrate 4 • Protein 4



KITCHEN TALK

1. Do you think lasagna noodles baked in the oven taste as good as those that are cooked on top of the stove? _____

2. Did you have any problems making the lasagna?

3. Which method of preparing the noodles makes the best use of your time?

4. What are some other things you can do to better manage your time?

Make your own!

Homemade marinara sauce is simple to make and only takes about 30 minutes. You can also cook it in a slow cooker, and it will be ready for dinner when you get home.

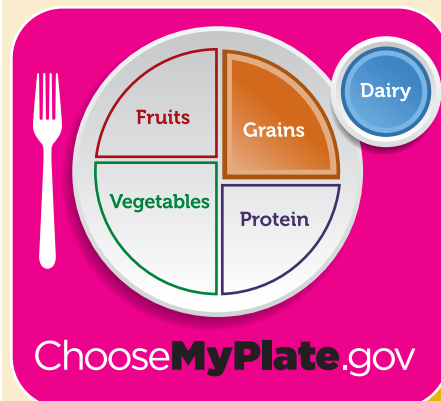
- 1/4 c extra virgin olive oil
- 1/4 medium onion, diced (about 3 T)
- 4 cloves garlic, minced
- 3 (28-oz) cans crushed tomatoes
- 1 t dried Italian seasoning
- 1/4 c fresh basil, chopped, or 1 T dried basil
- 1/2 t crushed red pepper flakes, optional
- 1-1/2 t salt
- Freshly ground black pepper to taste

Heat the oil in a medium-sized saucepan over medium-high heat. Sauté the onion and garlic, stirring, until lightly browned, about five minutes. Add the tomatoes and herbs and seasonings, and bring to a boil. Reduce the heat and simmer, uncovered, for about 25-30 minutes or until thickened; stir occasionally. Taste for seasoning and add more if you like. Serve or store covered in the refrigerator for up to three days or freeze for up to two months. Enjoy!

EXTRA BITE



1. Freeze any leftover lasagna in individual serving containers to make a quick snack or meal when you need one. You can reheat it in the microwave (at 50 percent power for 10 minutes) or in the conventional oven (at 350°F for 20-25 minutes).
2. Consider adding chopped veggies to your cheesy lasagna! Try grated carrots, mushrooms, onions, green peppers, spinach, or chopped broccoli.



Biscuits—Savory and Sweet

PROJECT SKILL:

Making biscuits

LIFE SKILL:

Making healthy substitutions

**TIME: 30-45 minutes
for each recipe**

INGREDIENTS—SAVORY

- 1 c all-purpose flour
- 1 c white whole wheat or whole wheat flour
- 2-1/2 t baking powder
- 1/2 t salt
- 1/2 c vegetable shortening
- 3/4 c to 1 c milk

INGREDIENTS—SWEET

- 1 c all-purpose flour
- 1 c white whole wheat flour
- 1 T baking powder
- 1/2 t salt
- 3 T sugar
- 1/2 cup (1 stick) butter, chilled and cut into eight pieces
- 3/4 c to 1 c milk

SUPPLIES

- Large bowl
- Pastry blender or two knives
- Fork
- Biscuit cutter
- Baking sheet

Biscuits can go with any meal. Think about it—they go with pasta, meat dishes, some desserts, and even breakfast foods. There are many variations and lots of toppings for biscuits. Biscuits need a gentle touch and shouldn't be overworked, or they will be tough instead of flaky. Follow the directions below to make delicious, flaky, tender biscuits that your whole family will love.

For a savory biscuit, let's make a traditional baking powder biscuit using white whole wheat flour, which you can find at most grocery stores near the all-purpose flour. White whole wheat flour is made from whole grain wheat; it has all the benefits of other whole grain flours but with a lighter color and flavor.

Directions—Savory

1. Heat the oven to 450°F.
2. In a large bowl, combine the flours, baking powder, and salt.
3. Using two knives or a pastry blender, cut the shortening into the flour until it's the consistency of coarse meal.
4. Add milk; stir with a fork until the mixture leaves the sides of the bowl and forms a soft, moist dough. At this stage you might still see some dry flour. That's OK. It mixes in during the next step.
5. On a floured surface, fold the dough over itself two or three times, until it holds together and is less sticky.
6. Roll out or pat down the dough until it's 1/2-inch thick, and cut with a floured cutter.
7. Place the cut biscuits on an ungreased cookie sheet or in a baking pan. Bake at 450°F 8-12 minutes or until light golden brown. Serve hot.

Makes about eight biscuits.

Sweet biscuits, often called shortcakes, make a delicious dessert when topped with fruit and lightly sweetened whipped cream.

Directions—Sweet

1. Heat the oven to 425°F.
2. In a large bowl, combine the flours, baking powder, salt, and sugar. Using two knives or a pastry blender, cut the butter into the flour until it's the consistency of coarse meal.
3. Add milk; stir with a fork until the mixture leaves the sides of the bowl and the dough is just moist. Be careful not to overwork. The dough doesn't have to hold together well at this stage.
4. On a floured surface, fold the dough over itself two or three times, until it holds together and is less sticky.
5. Gently pat the dough into a 6-inch-by-12-inch rectangle about 3/4-inch thick. Cut into eight (3-inch) shortcakes with a floured round cutter. Transfer to a greased, foil-lined cookie sheet. Brush tops with a little milk, and sprinkle sugar on top of each shortcake. Bake at 425°F 10-15 minutes, until risen and golden brown.

How Much Is It?

PROJECT SKILL:

Determining if quantity purchasing is a better deal

LIFE SKILL:

Managing resources

**TIME: 45-60 minutes
for each recipe**

SUPPLIES

- Pencil
- Notebook
- Calculator



Many grocery stores display the price of a food right on the shelf. Sometimes stores list the “unit price” next to the product price. The unit price is how much the food costs per unit of measure, such as per ounce, pound, quart, or liter. If the store doesn’t list the unit price, you can figure it easily. Just divide the product’s price by its unit of measure. For example, if a box of cereal costs \$3.25, and there are 25 ounces of cereal in the box, the unit price is $\$3.25 \div 25 = 13\text{¢}$ per ounce of cereal.

Every family has a budget. Maybe you have to manage your allowance money. Sometimes you probably wonder where your money goes, because you don’t realize how much you’re spending on stuff!

Take a look at how you buy soda beverages.

If you buy one soda every day from a vending machine, do you know how much you spend in a month? How does \$60 sound? And that’s if you buy just one 20-ounce bottle a day for \$2!

How much soda do you really buy every day? _____

How much does that cost a month? _____

Multiply that by 12 for how much you spend in a year. _____

Now just think about what would happen if you bought a case of 24 cans of soda for \$6.48 at the store. How much money would you save each day over buying that can in a vending machine, where a can of soda costs \$1? Multiply that by 365 to see how much you’d save in a year.

Let’s take a look at some different ways to buy soda.

1. Go to the grocery store, and check out the prices of various sizes of a soda beverage you like to drink. Find as many different sizes as you can.
2. Fill in the chart with the prices you found, then figure the price per ounce.

	Size	Price	Fluid Oz	Price/Oz
2-liter				
6-pack				
12-pack				
24-pack				
Vending				



KITCHEN TALK

1. Which size is the cheapest by unit price (price/ounces)?

2. Which size is the best buy for you and your family?

3. What other foods could you purchase according to their unit prices to save money?

4. How can you and your family use unit prices to better manage your resources?

Soda should be a treat. Treats are “sometimes” foods or beverages that usually contain very few nutrients like vitamins, minerals, dietary fiber, and protein. Sodas add calories, sugar, and additives to your diet but provide you with almost no nutrients. What other beverages could you choose instead that would benefit your health?



EXTRA BITE



It's not always true that the largest package of a food item costs less (on a unit price basis) than a smaller package. Find an item at the grocery store that costs less per unit in small packages. And remember, if you can't use all the food in a larger package, it may not be a bargain.

What's in a Name?

PROJECT SKILL:

Comparing costs of different brand name foods

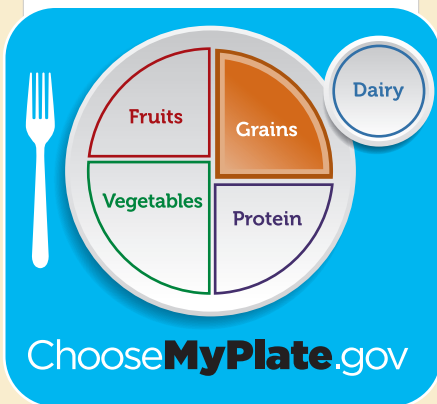
LIFE SKILL:

Making decisions

TIME: 45-60 minutes

SUPPLIES

- Decide whether to use loose-kernel popcorn or microwave popcorn. Then choose four brands:
 - National name brand
 - Store brand
 - Generic brand
 - Pre-made (next to the chips)



When you're shopping at the grocery store, you can find many products that have three or more different brands. The types of name brands include:

- National brand names
- Grocery store brand names
- Generic brands or "no-names"

National name brands are marketed by advertising and coupons. Grocery store chains sell products that are almost identical to national name brands. In fact the store often buys the item from the national company in large quantities at a lower price and puts the store's label on it. That's why a store-brand item is less expensive than the national brand of the same item.

Generic label items generally are the least expensive choice. The nutritional value is usually as good as the national and store brands unless the label says otherwise. The quality might not be as high, however. For example, the pieces of a chopped food item might be more irregular. Sample a generic brand for taste and looks before deciding what brand to buy in the future.

How can you tell which is the better buy? Each food is different, and you should try each to find the one you prefer. Let's do a test with popcorn.

1. Prepare the various popcorn packages according to the label directions.
2. Compare the different popcorns for how they taste, look, and cost. Sometimes the amount of unpopped kernels and hulls is important to a taster. As you fill in the chart below, you might want to note that.
3. To figure out cost per serving, divide the price of the popcorn by the number of servings listed on the package label. Now you can compare different sized packages that produce a different number of servings.
4. Compare the Nutrition Facts labels on each product.

Which brand has the fewest calories per serving? _____

Fewest grams (g) of fat per serving? _____

Fewest milligrams (mg) of sodium? _____

Most dietary fiber per serving? _____

	Type of popcorn	Appearance	Taste	Cost	Size of serving	No. of servings	Cost/ Serving
National brand							
Store brand							
Generic brand							
Pre-made							



KITCHEN TALK

1. Which type of popcorn costs the least per serving?

2. Which popcorn is the best value for your family? Why?

3. What other types of food have both generic and name brands?

4. How can you show your family how to decide between national, store, and generic brands?

5. When comparing the nutrition facts for each popcorn, which is the best choice nutritionally?

EXTRA BITE



Try investigating a different food that is available in national, store, and generic brands. You could investigate three brands of the same flavor of ice cream for ingredients, texture (how smooth it feels in your mouth), fluffiness (how fast it melts), flavor, sweetness, and cost. Based on what you found about the three products, which one would you buy?

When do “duds” pop?

Everyone has duds when making popcorn—kernels in the bottom of the bowl that didn’t pop. The next time you make popcorn, take out the duds and place them in a jar. Cover them with approximately 1/4 cup of water (just enough to coat the seeds when you shake the jar). Let the duds soak for 5-10 minutes, and then remove them. Try to pop them now!

Number of duds I soaked _____

How many popped? _____

Why does this work? No matter how dry seeds seem to be, they usually have a tiny bit of water in them so they can sprout into a plant when conditions allow.

When you make popcorn, that tiny bit of water turns into steam and pushes the sides of the kernel until it pops to let the steam out. Duds happen because the kernels were too dry.

Popcorn companies say they soak the kernels in water before storing them in airtight containers. That way, the water can’t evaporate away. You can use this idea by storing your popcorn kernels in a jar instead of the plastic bag they came in.



Check 'Em Out!

PROJECT SKILL:

Comparing costs of convenience foods

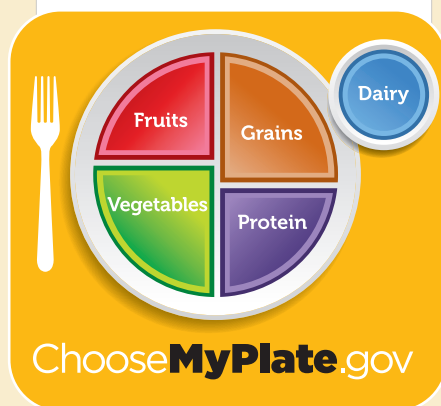
LIFE SKILL:

Managing resources

TIME: 30-60 minutes

SUPPLIES

- Three or four pizzas, same size and ingredients, such as:
 - Frozen pizza
 - Homemade pizza (use a roll of refrigerated dough)
 - Box mix pizza
 - Restaurant-made pizza
 - Microwave pizza
 - Pizza pan(s)
 - Pizza cutter or knife



Nearly everybody today uses convenience foods. These are the “heat ‘n’ eat” packages of processed foods that you pop in the oven or zap in the microwave. But are they a good deal? Only you can decide, because everyone’s situation is different. Convenience foods generally cost more but save time, so you need to decide if time or money is worth more to you.

1. Make the different pizzas over a period of time so your family can eat them up! Larger families may be able to eat two or more pizzas at one time. Follow the directions on the package when preparing each pizza.
2. While the pizzas are baking in the oven, think about how much time you spent:
 - Making or preparing the pizza before baking it.
 - Baking the pizza.

Write the time in the chart.
3. Serve the pizza to your family. Talk about everyone’s likes or dislikes for each pizza. Write those comments in the chart.
4. Make one copy of the blank Nutrition Facts label for each pizza. Fill in the information from the food label on each pizza, and compare your findings.

Pizza compare # _____

Number of Servings:

(_____ per serving)

Weight: _____ g

Nutrition Facts

Serving Size (_____ g)
Servings Per Container _____

Amount Per Serving

Calories _____ **Calories from Fat** _____

% Daily Value*

Total Fat _____ g _____ %

Saturated Fat _____ g _____ %

Trans Fat _____ g _____ %

Cholesterol _____ mg _____ %

Sodium _____ mg _____ %

Total Carbohydrate _____ g _____ %

Dietary Fiber _____ g _____ %

Sugars _____ g _____ %

Protein _____ g _____ %

Vitamin A _____ % • Vitamin C _____ %

Calcium _____ % • Iron _____ %

*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

	Calories:	2,000	2,500
Total Fat	Less than	65g	80g
Saturated Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

Calories per gram:
Fat 9 • Carbohydrate 4 • Protein 4

	Type	Prep Time	Baking Time	Cost	Taste
Frozen					
Homemade					
Microwave					
Box mix					
Restaurant					



KITCHEN TALK

1. Which type of pizza was the cheapest?

2. Which pizza is the best buy for you and your family? Why?

3. List two things you learned about convenience foods.

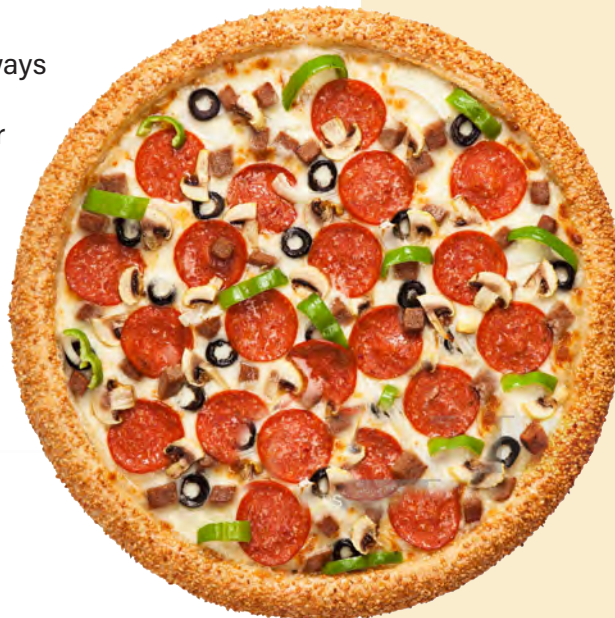
4. How can you apply what you learned about convenience foods?

5. Which pizza do you consider the most nutritious? Why?

Convenience foods

Shopping for convenience foods can be confusing. How do you know if they're a good deal? Usually you grab what you like. Sometimes we forget that it can be just as easy to make it ourselves at a much lower cost.

Convenience or processed foods almost always cost more than preparing the same product from scratch. That's because a manufacturer processed the food so you don't have to; usually you just heat the food. Only you can decide if a convenience product is worth the higher price tag. Remember to think about the environmental effects of packaging and the health consequences of higher fat and sodium in processed products, too!



EXTRA BITE



One benefit to making your own pizza at home is that you can control the ingredients. This is a great opportunity to include whole grains in the crust, add less cheese, or increase the vegetables on your pizza. Choose just one of your favorite meat toppings and then pile on your favorite veggies. Try bell peppers, onions, mushrooms, broccoli, zucchini, and fresh spinach. What veggies would you include on your homemade pizza? Also consider adding grilled or cooked chicken, turkey sausage, turkey pepperoni, or ham as low-fat, lean protein choices.

Make Your Own!

PROJECT SKILL:

Making instant oatmeal packets

LIFE SKILL:

Managing resources

TIME: 15-20 minutes to make packets, 3-5 minutes to use packets

SUPPLIES

- A large container with a tight-fitting lid, or approximately 24 snack-sized zip bags
 - 10 c instant oats
 - 1 t salt
 - 1-1-1/2 c brown sugar (or other sweetener), depending on how sweet you like your oatmeal
 - 2 t cinnamon
 - 1 c powdered milk
- Optional additions: nuts, seeds, dried or freeze-dried fruits, other spices such as pumpkin pie spice

Maybe you think you can't make grocery store food products from scratch because it's too much bother. Take instant flavored oatmeal packets, for example. If you think you couldn't live without the instant oatmeal you buy in the store, give this easy recipe a try. It's fast, convenient, and more economical to make your own. Plus you control what's in the recipe!

To make the packets:

1. Thoroughly mix all the ingredients together.
2. Place in the container or measure out 1/2 cup of oatmeal mixture per snack-sized bag. Seal tightly and label.

To use the packets:

1. Pour a packet into a bowl, and add 2/3-3/4 cup of boiling water. Stir. Let sit for 1-2 minutes, then serve.

Or add both the oatmeal mix and water to a microwave-safe bowl and cook in the microwave 1-2 minutes. Let sit for 1-2 minutes, then serve.



Instant oatmeal packets

**Number of Servings: 24
(46.52 g per serving)
Weight: 1116.5 g**

Nutrition Facts

Serving Size (222g)
Servings Per Container

Amount Per Serving	
Calories 210	Calories from Fat 20
% Daily Value*	
Total Fat 2.5g	4%
Saturated Fat 0g	0%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 160mg	7%
Total Carbohydrate 41g	14%
Dietary Fiber 4g	16%
Sugars 14g	
Protein 8g	
Vitamin A 6%	• Vitamin C 6%
Calcium 15%	• Iron 10%

*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

	Calories:	2,000	2,500
Total Fat	Less than	65g	80g
Saturated Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

Calories per gram:
Fat 9 • Carbohydrate 4 • Protein 4



1. How do you like the way your oatmeal packets taste?

2. How long did it take for you to make the packets?

3. Which packet costs the most to make one serving of instant oatmeal, homemade or store-bought?

4. What optional ingredients did you add to your oatmeal? What flavors would you like to try in the future?

5. Using your homemade oatmeal as an example, how can you help your friends better manage their resources?

Something unexpected

Your instant oatmeal packets can be made into a grab-and-go cold breakfast just as easily as a hot steamy bowl of oatmeal. Here's what you need to make no-cook refrigerator oatmeal:

Supplies

- 8-oz jar or container with lid
- 1 packet of your favorite homemade instant oatmeal
- 1/2 c cold water, juice, milk, or other liquid
- 1/4 c low-fat or nonfat plain yogurt

Directions

1. Place all the ingredients in the container or jar, and shake or stir well to combine.
2. Place the jar in the refrigerator for four hours or overnight. You can also make these up to three days ahead.
3. The mixture thickens and becomes creamy as it sits in the refrigerator.
4. These can be eaten cold or quickly microwaved if you prefer.

Note: The recipe is analyzed using the basic instant oatmeal packet recipe with water.

EXTRA BITE



Instant oatmeal packets from the store come in a variety of flavors. You can make these same flavors in your homemade instant oatmeal packets. Try brown sugar and cinnamon with raisins, maple sugar pecan, strawberry and cream, apricot, almond, or apples and cinnamon. Look for freeze-dried or regular dried fruits near the produce section at your grocery store.

No-cook refrigerator oatmeal

Number of Servings: 1
(221.77 g per serving)
Weight: 221.77 g

Nutrition Facts

Serving Size (222g)
Servings Per Container

Amount Per Serving

Calories 210 **Calories from Fat 20**

% Daily Value*

Total Fat 2.5g **4%**

Saturated Fat 0g **0%**

Trans Fat 0g

Cholesterol 0mg **0%**

Sodium 160mg **7%**

Total Carbohydrate 41g **14%**

Dietary Fiber 4g **16%**

Sugars 14g

Protein 8g

Vitamin A 6% • Vitamin C 6%

Calcium 15% • Iron 10%

*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

		Calories: 2,000	2,500
Total Fat	Less than	65g	80g
Saturated Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

Calories per gram:
Fat 9 • Carbohydrate 4 • Protein 4

Frozen Cookies

PROJECT SKILL:

Freezing batter or baked products

LIFE SKILL:

Managing resources

TIME: 30-45 minutes (not including freezing and baking times)

SUPPLIES

- Ingredients for your favorite cookie
- Cookie sheet(s)
- Wax paper
- Rigid freezer container
- Colored marker and freezer tape

It's easy to freeze baked foods such as cookies and cupcakes. The question is, should you bake and freeze them, or freeze the batter until it's time to bake them? Sometimes it depends on what you're freezing.

Cookie dough is great to freeze. If you want a couple of cookies but not a whole batch, you can grab some dough out of the freezer and bake just a few. It saves time and mess. Because cookies are a "sometimes" food, this also keeps you from overeating something that should be a treat, not a snack. Remember that treats are foods with few vitamins, minerals, and dietary fiber but lots of calories, fat, sugar, and sometimes, sodium. Snacks provide us with vitamins, minerals, and dietary fiber and only small amounts of fat, sugar, and sodium.

The best types of cookie dough to freeze are shortbread, chocolate chip, peanut butter, refrigerator, and sugar. Cake-type cookies or those with runny batters do not freeze well. Cookie dough can be kept frozen four to six weeks.

Find your favorite cookie recipe, gather the ingredients, and let's freeze!

1. Mix ingredients according to your recipe directions.
2. Line the cookie sheet with wax paper.
3. Scoop balls of dough onto the cookie sheet.
4. Place the cookie sheet in the freezer for about an hour or until the dough balls are frozen.
5. Put the frozen cookies between layers of wax paper in a rigid container.
6. With a colored marker, write the type of cookie and date frozen on the tape that you attach to the container.

Baking

Bake at the usual temperature for a few minutes more than what the recipe calls for.

Or cookies can be thawed overnight in the refrigerator, then baked for the time the recipe calls for.





1. What type of cookie did you freeze?

2. What was the most difficult part in freezing cookie dough?

3. How can frozen cookie dough help you plan for a future occasion when you'll need cookies?

4. What foods can be frozen before use so you can better manage your time and resources?

EXTRA BITE



Compare your frozen homemade cookie dough to a name-brand refrigerated cookie dough. Bake both kinds of cookies and see which one you like best. Compare the ingredient list from your recipe to the one on the refrigerated cookies. Which cookie has the shortest ingredients list?

Freezing baked cookies

Baked cookies also freeze well and are a quick dessert or treat. If stored correctly, they can stay in the freezer for three or four weeks.

Using a tightly sealed container is important because the cookies can pick up unpleasant odors in your freezer. When freezing baked goods, make sure you:

- Use only real vanilla and other extracts, because freezing changes the taste of artificial flavorings.
- Cool completely before packing.

Layer your baked cookies in a rigid container the same way as you did your cookie dough. Label the container with the type of cookie and date.

To thaw your frozen baked cookies, let them come to room temperature or microwave them on high for 20-30 seconds.



Pizza Freeze

PROJECT SKILL:

Freezing pizza

LIFE SKILL:

Practicing creativity

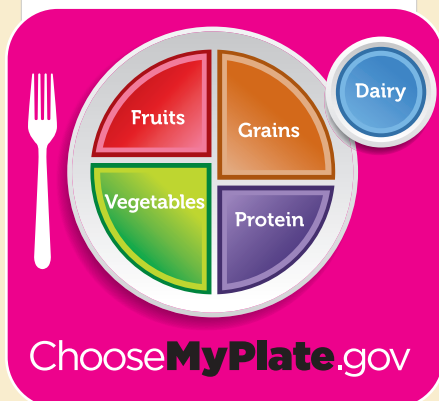
TIME: 15-30 minutes (not including freezing and baking times)

INGREDIENTS

- One container refrigerated all-ready pizza crust, or one recipe of homemade pizza crust
- 2 c tomato sauce
- Two to four toppings of your choice
- 2 c shredded cheese
- 2 T grated Parmesan cheese

SUPPLIES

- Measuring cups/spoons
- Baking sheet
- Plastic wrap



Did you know you could make frozen pizza from scratch just like the frozen pizzas you buy at the grocery store? It's easy, and you get to choose how many and what kinds of toppings you'd like. The next time you want to plan a pizza party with your friends, try freezing several pizzas ahead of time. Here are some tips:

- Make your pizza on a pizza pan or baking sheet, and place it in the freezer. Wait until the pizza is frozen before wrapping it in plastic wrap. This keeps the sauce from smearing on the plastic wrap.
- Cook and cool meat toppings such as turkey pepperoni, turkey sausage, chicken, or ground beef.
- Pizza can be stored in a freezer for up to one month.

Here are some topping suggestions, but you can add your favorite to this list.

Green pepper	Turkey sausage, crumbled	Sliced ham
Sliced turkey pepperoni	Monterey jack cheese	Pesto sauce
Fresh herbs (cilantro, parsley, etc.)	Broccoli	Chicken, cooked
Mushrooms	Cheddar cheese	Eggplant, grilled/sliced
Cooked meatballs, sliced	Zucchini or yellow squash	Lean ground beef, crumbled
Pineapple, drained	Onions	Banana peppers
Olives, sliced	Fresh tomato slices	Mozzarella cheese, shredded or fresh
	Feta cheese	

Choose some toppings and let's get freezing!

1. Find a pizza pan or baking sheet that fits in your freezer. Make sure it fits before you make your pizza.
2. Roll the pizza dough onto the pan or sheet. Use your fingers to mound up the crust around the edges.
3. Spread the tomato sauce over the crust. Arrange toppings, and then pile on the shredded and Parmesan cheese. Remember to cook and cool the meat and other cooked toppings before adding them to your pizza.
4. Put the pizza, still on the pan, into the freezer.
5. When the pizza is frozen solid, take it out of the freezer. Wrap it tightly with plastic freezer wrap. Label with the type of pizza and date frozen.
6. Place it back in the freezer until ready to bake.
7. Bake your frozen pizza within one month.

Baking instructions:

- Preheat oven to 450°F.
- Baked unthawed pizza on pizza pan or baking sheet 15-20 minutes or until crust is golden brown and the cheese is bubbly.

Going Bananas

PROJECT SKILL:

Freezing and drying bananas

LIFE SKILL:

Managing resources

TIME: 15-30 minutes for frozen, 2-3 hours for dried

SUPPLIES

- Six firm, ripe bananas
- 1/4 c lemon juice
- 1/2 c orange juice
- 1/2 c wheat germ or coconut (optional)
- Measuring cups/spoons
- Small bowls
- Knife
- Cutting board
- Cookie sheet
- Plastic wrap
- Three reclosable plastic freezer bags

Bananas are one of those fruits you can freeze or dry. Drying doesn't sterilize foods. It just takes out enough water from the food so that:

- Microorganisms don't grow and multiply during storage.
- Enzymes that ripen the food naturally are prevented from doing so.

Freezing doesn't sterilize food, either. But the super-cold temperatures stop microorganisms from growing and prevent ripening enzymes from doing their job.

Sometimes dried fruit is more convenient than frozen, especially when you want to take it somewhere with you. What's the difference in taste? Find out for yourself!

To make frozen banana chips:

1. Peel and slice two bananas. Dip the banana slices into the orange juice, then into wheat germ or coconut, if you'd like.
2. Arrange in a single layer on a cookie sheet.
3. Cover with plastic wrap, and freeze. When frozen solid, transfer to a reclosable plastic freezer bag.

To make dried banana chips:

1. Peel and slice four bananas. Dip the banana slices into the lemon juice.
2. Arrange in a single layer on a greased cookie sheet.
3. Bake at 175°F for two to three hours or until golden. Banana chips can be dried until they are crisp.
4. Cool chips completely before storing. Package in glass jars, tins, or reclosable plastic bags.





KITCHEN TALK

1. How are your dried banana chips similar to or different from the ones you froze? Think about texture, color, and anything else you notice. _____

2. Which banana chip was the most difficult to make? _____
3. How can knowing how to freeze and dry banana chips help you manage your resources? _____

4. What are other methods of time management in the kitchen besides freezing and drying foods? _____

Recipe analyzed with yogurt and banana. Additional toppings have not been analyzed.

Yogurt and Bananas

If you like bananas and yogurt, you're going to love this easy, frozen snack.

Supplies

- One 6-8-oz container low-fat or fat-free yogurt, your favorite flavor
 - Two bananas, peeled and cut in half across the middle
 - Four wooden ice pop sticks or skewers
 - Chopped peanuts, granola, coconut, or sprinkles, optional
1. Find a baking sheet or large plate that fits in your freezer. Line it with aluminum foil or wax paper.
 2. Place an ice pop stick or skewer in the cut end of each banana half.
 3. Dip the banana half into the yogurt, or spread a thin coating of yogurt over the banana.
 4. Roll the yogurt-coated banana in the optional ingredients if you'd like.
 5. Place on baking sheet or plate and freeze for at least one hour or until frozen solid.
 6. Enjoy your delicious and nutritious frozen banana pop!

Yogurt-covered bananas

Number of Servings: 4
(101.5 g per serving)
Weight: 406 g

Nutrition Facts

Serving Size (102g)
Servings Per Container

Amount Per Serving

Calories 80 **Calories from Fat 0**

% Daily Value*

Total Fat 0g **0%**

Saturated Fat 0g **0%**

Trans Fat 0g

Cholesterol 0mg **0%**

Sodium 20mg **1%**

Total Carbohydrate 18g **6%**

Dietary Fiber 2g **8%**

Sugars 11g

Protein 2g

Vitamin A 4% • Vitamin C 8%

Calcium 6% • Iron 0%

*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

	Calories:	2,000	2,500
Total Fat	Less than	65g	80g
Saturated Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

Calories per gram:

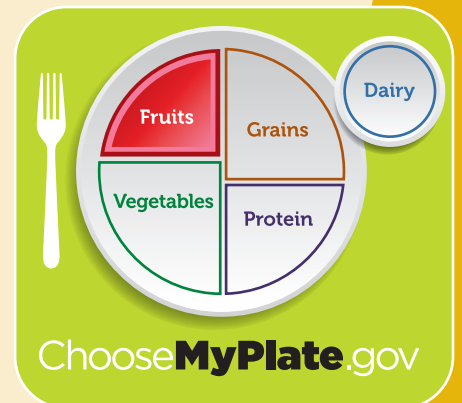
Fat 9 • Carbohydrate 4 • Protein 4

EXTRA BITE



Dried fruit is a nutritious snack choice, but it packs a lot of calories into a small serving. Dried fruit has most of its water removed, which concentrates the sugars and calories in the fruit. A serving of fresh fruit is about one cup, while a serving of dried fruit is only 1/4 cup. Keep portions of dried fruit small and have a glass of water to go along with it!

Fresh fruits like bananas and apples have an enzyme that starts turning the fruit brown as soon as it's cut. To slow the browning, dip sliced bananas, apples, and other fruits that turn brown into pineapple juice or lemon, orange, or another citrus juice. The acid in the juice slows the browning process and keeps the cut fruit looking fresh longer.





1. What was the hardest part about making the breakfast sandwiches?

2. What fillings and breads did you choose for your breakfast sandwiches?

3. What would you do differently the next time you make the breakfast sandwiches?

4. How long do you have to heat your breakfast sandwiches in your microwave?

Freezer breakfast sandwich recipe is analyzed using one large egg, one slice 2% American cheese, one slice Canadian bacon, and one whole wheat English muffin.

Freezer breakfast burrito recipe is analyzed using whole wheat tortillas, turkey sausage links removed from casing, 2% shredded cheddar cheese, large scrambled eggs, and salsa.

Other breakfast foods that freeze well:

- Pancakes
- Waffles
- French toast
- Oatmeal

Leftover whole grain pancakes, French toast, and waffles can be quick-frozen on a baking sheet and then stored in a zip-top plastic bag. Take out the portion you want for breakfast and pop it into the toaster, toaster oven, or microwave. Oatmeal can be made in large quantities and frozen individually for a quick breakfast. Place oatmeal in 1/2 cup to 1 cup containers and freeze. When ready to eat, place frozen oatmeal into a microwave-safe bowl and microwave for 1–2 minutes or until heated through. Stir every 30 seconds.

Freezer breakfast burritos			
Number of Servings: 8 (214.23 g per serving)			
Weight: 1713.88 g			
Nutrition Facts			
Serving Size (214g) Servings Per Container			
Amount Per Serving			
Calories 430		Calories from Fat 210	
		% Daily Value*	
Total Fat 23g			35%
Saturated Fat 6g			30%
Trans Fat 0g			
Cholesterol 460mg			153%
Sodium 740mg			31%
Total Carbohydrate 27g			9%
Dietary Fiber 2g			8%
Sugars 3g			
Protein 26g			
Vitamin A 15%		Vitamin C 4%	
Calcium 15%		Iron 20%	
*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:			
	Calories:	2,000	2,500
Total Fat	Less than	65g	80g
Saturated Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate	Less than	300g	375g
Dietary Fiber		25g	30g
Calories per gram:			
Fat 9 • Carbohydrate 4 • Protein 4			

EXTRA BITE



You can also make homemade breakfast burritos for your freezer!

Here's how:

Cook two turkey or pork sausage links removed from their casings, turkey or pork bacon, or ham (about a half-pound). Drain on paper towels, and wipe the skillet clean.

Scramble eight large eggs in the same skillet coated with cooking spray. Add onions, peppers, mushrooms, or other veggies while cooking the eggs. When the eggs are done, add the meat back to the skillet along with some salsa. Mix well and cool slightly.

Spoon the egg-and-meat mixture into the center of eight whole wheat tortillas. Fold edges in and roll up burrito-style. Wrap each burrito individually in foil, and place in a zip-top freezer bag labeled with the date. Put in the freezer. When ready to eat, remove the foil and wrap the burrito in a paper towel. Microwave for 20-30 seconds on half power, turn burrito over, and microwave on high for 60-90 seconds or until heated through.

A Career in Food Science

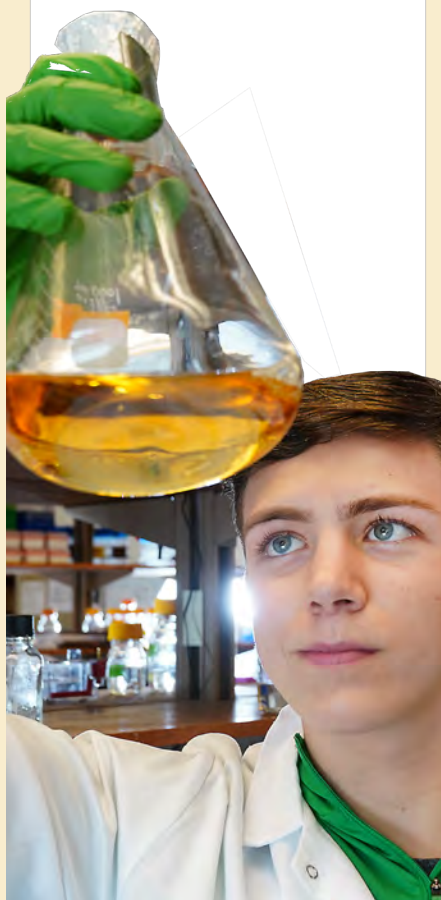
PROJECT SKILL:

Researching a career

LIFE SKILL:

Making decisions/Using knowledge

.....
TIME: 60-90 minutes
.....



Food scientists make sure the foods available in our grocery stores are fresh, flavorful, and safe. Food scientists affect nearly every step from the time fresh produce and grains leave the field or livestock leaves the farm. They make sure the fruits and vegetables, milk and other dairy products, and meat have a good appearance and are safe for us to eat. They also use the harvested grain, fruits, vegetables, and livestock to make the new products we see at the grocery store. Food scientists might have titles such as quality assurance specialist, product developer, plant manager, production manager, food technologist, or others. They might work for major food companies, ingredient suppliers, or government agencies such as the U.S. Department of Agriculture (USDA) or Food and Drug Administration (FDA).

Some of the areas that food scientists focus on are:

- Food processing: using raw ingredients to make new food items. Making yogurt from milk is one example.
- Product development: creating and perhaps marketing new food or beverage products. An example is a new flavor of an existing product.
- Food packaging: designing the materials of a product package, such as creating a package that makes a food more shelf stable.
- Nutrition labeling: determining the nutritional content of a food product to print the Nutrition Facts label on the product packaging.
- Food safety: ensuring food items are not contaminated during production or delivery to the grocery store.

Education required:

- High school diploma
- Bachelor's degree in food science
- Perhaps a master's or doctoral degree in food science, food chemistry, food engineering, or food microbiology

College courses you might take:

- Chemistry and food chemistry
- Biology
 - Biochemistry
- Microbiology
 - Physics
- Food engineering

You will get to try several experiments that relate to a food science career in your Foods manuals. For this activity, let's explore the ways food scientists affect our grocery shopping experience. Think about the different focus areas of food science and explore how they make your favorite foods available to you.



KITCHEN TALK

1. Make a list of your favorite foods.

2. If your list is long, narrow it down to two items—one packaged item and one fresh item (fruit, vegetable, meat, or dairy product). _____

3. Observe details about your two foods.

Some examples:

- For your packaged item: Does it have a Nutrition Facts label?
- What kind of packaging? What is the expiration date?
- Where did your fresh item come from—the U.S. or another country?
- Does it still look and taste fresh?

4. Think about these big and small details. Which of these details does a food scientist have a hand in?

5. What would our grocery store choices look like if we didn't have food scientists?



EXTRA BITE

A parent or your Foods project helper can help you look for information on the internet.

To learn more about the field of food science, visit the Institute of Food Technologists' website at www.ift.org.



Who Needs Blanching?

PROJECT SKILL:

Preparing vegetables for freezing

LIFE SKILL:

Mastering technology

TIME: 60-90 minutes

SUPPLIES

- 2 lb fresh broccoli, with tight compact green heads and tender stalks
- Paper towels
- Knife
- Cutting board
- Timer
- Two pint-sized reclosable freezer plastic bags
- Freezer tape
- Colored marker
- Deep pot that holds approximately a gallon of water
- Wire basket, colander, or blancher that fits into the deep pot



In Freezer Breakfast, we learned how to properly freeze different foods. In this section we'll learn how different processes can affect the quality and taste of our foods. Freezing vegetables poses a problem. It changes their texture. They lose their crispness, so it is best to use them in cooking instead of in fresh dishes.

Vegetables must be blanched before freezing. Blanching, or scalding destroys enzymes that keep ripening the food even in the freezer. If these enzymes aren't stopped, they cause the vegetables to lose their color, flavor, and texture.

Let's see how broccoli reacts to different methods of preparation for freezing.

1. Prepare the fresh broccoli.
 - Trim off large leaves and tough parts of the stem.
 - Wash carefully.
 - Cut broccoli lengthwise into uniform pieces, leaving the head about 1-1/2 inches across.
2. Place half the broccoli in a reclosable freezer plastic bag so that some heads are at each end of the container. It is not necessary to leave headspace for broccoli because it packs loosely.
 - Seal tightly, pressing out all the air. Label it "not blanched," and place it in the freezer.
3. Blanch the other half of the broccoli.
 - Heat a large, deep pot with one gallon of water to a full boil.
 - Place broccoli in a wire strainer, colander, or basket and lower into the boiling water.
 - Cover the pot and immediately begin timing. Be extra careful to not burn yourself as steam comes up around the pot lid.
 - When four minutes are up, lift the basket from the boiling water, and plunge it into ice-cold water to stop the cooking process.

Cool vegetables for about as long as they were blanched. Change the chilling water as necessary until the vegetables are completely cooled.

- Lift the basket from the cool water, and let it drain for a few minutes.
 - Pack the blanched broccoli like you did in step 2.
 - Seal the bag properly along the zip top, being careful to squeeze out all the excess air. But don't squish the broccoli!
 - Label the package "blanched broccoli," and mark the date. Place the bag in the freezer.
4. Keep the two bags you prepared in the freezer for at least a week. Be sure an adult knows why your broccoli is there.
 5. On a day that you have some time, take the broccoli from the freezer. Allow the packages to thaw completely. This may take several hours. Cook your broccoli, then compare.
 6. Describe the differences in the chart on the next page.



1. List at least one problem you encountered when blanching the broccoli.

2. Name four foods that must be blanched before freezing.

3. Why is it important to blanch vegetables before freezing them?

4. Describe how you would apply what you learned as you preserve other vegetables.

See for yourself

Some vegetables change a lot when they're frozen. Freezing certain vegetables for raw salads or for toppings on a casserole, such as lettuce, tomatoes, green onions, celery, or radishes, can have soggy results. Don't take our word for it; freeze a lettuce leaf, slice of tomato, green onion, or stalk of celery and check it out for yourself!

I froze _____

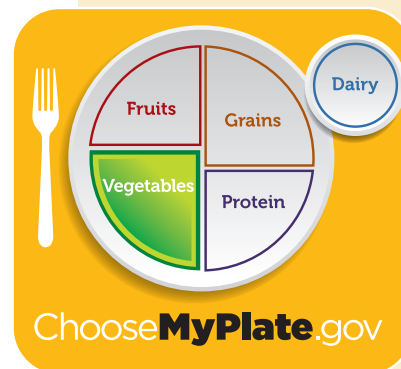
What happened? _____

	Color	Flavor	Texture
Blanched			
Unblanched			



1. Try freezing one of your favorite vegetables when it's in season, super fresh, and economical to buy.

2. Try freezing your own combination of mixed vegetables. Use any combination you like. If you need some ideas, go to the grocery store or farmers market to see what's available.



Colors and Reactions

PROJECT SKILL:

Experimenting with pigments of vegetables

LIFE SKILL:

Making decisions

TIME: 90-120 minutes

SUPPLIES

- 2 c red cabbage
- 1 c fresh broccoli
- 6 t vinegar
- Four small glass cups
- Water
- Masking tape
- A marker

This food is for experimentation, but you can eat the control. Don't eat the broccoli or red cabbage with the vinegar added, because it might have a strong taste.

Food scientists are challenged to develop food products that consumers want. Knowing about pigments and how food color affects consumer choices is important. (Learn more in the sidebar on the next page.) Food scientists also investigate how to control conditions that change not just the color, but also the flavor, texture, aroma, or taste, of fruits and vegetables.

You're the food scientist in this fun experiment! See what happens to the color and texture of broccoli and red cabbage when you add vinegar, an acid.

1. With a piece of masking tape and a marker, label the glass cups:
 - a. Broccoli control
 - b. Broccoli/vinegar
 - c. Red cabbage control
 - d. Red cabbage/vinegar
2. Have an adult help you cut the cabbage and broccoli into small pieces. Place in separate bowls, and set aside.

Broccoli control

3. In a small saucepan, bring 3/4 cup water to a boil. Add 1/2 cup broccoli to boiling water and cover. Boil for seven minutes.
4. Drain water and put broccoli in labeled glass cup.

Broccoli/vinegar

5. Add 2 teaspoons vinegar to 3/4 cup water in a small saucepan and bring to a boil. Add 1/2 cup broccoli to boiling water and cover. Boil for seven minutes.
6. Drain water and put broccoli in labeled glass cup.

Red cabbage control

7. In a small saucepan, bring 1-1/4 cups of water to a boil. Add 1 cup of red cabbage. Boil for 10 minutes.
8. Drain and put cabbage in labeled glass cup.

Red cabbage/vinegar

9. Add 4 teaspoons vinegar to 1-1/4 cups of water and bring to a boil. Add 1 cup of red cabbage. Boil for 10 minutes.
10. Drain and put cabbage in labeled glass cup.
11. Record results of experiment in the chart.

Sample	Color	Texture
Broccoli control		
Broccoli/vinegar		
Red cabbage control		
Red cabbage/vinegar		



1. What effect does vinegar have on chlorophyll? On flavonoids?

2. How could these results be helpful when canning vegetables?

3. If you were a food scientist, what do you need to know about pigments?

4. How can you use this experiment to help you develop another food science experiment?



Pigments

The color of foods makes their first impression. You probably wouldn't want to try a purple pizza crust. Now think about fruits and vegetables. You don't see blue bananas, red celery, or orange lettuce at the grocery store or farmers market. Pigments determine the color of food. The three categories of pigments in fruits and vegetables are:

- **Chlorophyll:** Green pigment found in peas, broccoli, and spinach.
- **Flavonoids:** Red pigments in red cabbage, purple grapes, cherries, and strawberries. Also white pigments found in onions, potatoes, turnips, and cauliflower.
- **Carotenoids:** Yellow, orange, and red-orange pigments found in carrots, sweet potatoes, tomatoes, and winter squash.

Pigments are affected by heat, pH changes, and chemical reactions. They can change the color of foods. So different food processes like canning and freezing can cause the food colors to change.

Taste Testing

PROJECT SKILL:

Evaluating cottage cheese

LIFE SKILL:

Making decisions

TIME: 30-45 minutes

SUPPLIES

- Two bowls
- Masking tape
- Colored marker
- Two spoons
- Name brand small-curd cottage cheese, 1% or 2% fat
- Store brand small-curd cottage cheese, 1% or 2% fat
- Glass of water

A new food must be evaluated (judged) before it can be sold in the grocery store. The most important way to evaluate food is sensory—how it looks, smells, tastes, and feels (texture). Food scientists do taste tests with groups of people called panels to find out what they like or don't like about a food product. After a panel rates the food, the food technologist makes changes to it. Then the taste test panel must rate the food again. Taste testing is done until the food technologist is happy with the ratings.

Let's do an evaluation of cottage cheese, a dairy food. Three senses are important when evaluating dairy products.

- **Sight** – to inspect how the food looks and how it is like or not like other dairy products.
- **Smell** – to detect odors and get the flavor when you combine odor with taste.
- **Taste** – to find four main taste sensations—sweet, sour, salty, and bitter—and to rate the food's texture.

Taste testing can pick up many differences in the texture and flavor of cottage cheese. The texture could be dry, creamy, even or uneven-sized curds, gummy, sandy/grainy, and weak. The flavor could be too weak or too strong, fresh or not fresh, salty, metallic, unnatural, or sweet. Let's evaluate two types of cottage cheese.

1. Ask a friend or family member to help you. Label the bowls A and B. Don't look while your helper puts two spoonfuls of each cottage cheese into the bowls. Have them write down which cottage cheese they put in bowl A and which in bowl B.
2. Using the chart, evaluate the two cottage cheeses. Check the box if you think the cottage cheese has that defect.
3. First smell the cottage cheese in bowl A.
4. Eat one spoonful from bowl A. Note the taste and odor. Swallow after you note all the flavor defects.
5. Eat another spoonful from bowl A. Note the smoothness, coarseness, sandiness, and size of the curds by pressing the cottage cheese against the roof of your mouth.
6. Drink a small glass of water to rinse your mouth.
7. Duplicate steps 3, 4, and 5 for bowl B.

Body & Texture	Dry	Creamy	Crumbly	Gummy	Sandy	Weak
Bowl A						
Bowl B						

Flavor	Lacks flavor	Too strong	Unnatural flavor	Lacks freshness	Metallic	Salty	Too sweet
Bowl A							
Bowl B							



1. When you found out which cottage cheese was A and which was B, were you surprised at the results?

2. Did the name-brand cottage cheese have fewer defects than the store-brand cottage cheese?

3. Based on these results, what type of cottage cheese will your household buy?

4. How would what you see, smell, or taste help you decide between a name-brand item and a store-brand item?

EXTRA BITE



Many people like to combine cottage cheese with tomatoes or pineapple. Try other vegetables and fruits, nuts and seeds, or herbs as toppings. These can make your cottage cheese a nutritious breakfast or lunch that takes just minutes to prepare. What kinds of toppings would you like on your cottage cheese?

Careers!

People with many types of jobs help make new food products.

- **Product developers** invent new food products or make existing foods better.
- **Process developers** follow the product developers by figuring out how to manufacture the new foods. They design equipment and adapt new products to new technology.
- **Food scientists** invent new food products and improve existing ones. They also figure out new ways to manufacture foods, design equipment, and adapt new products to new techniques.
- **Registered Dietitians/Nutritionists** determine which nutrients the new food product has for the Nutrition Facts label on the package.
- **Home economists** help consumers use the new food product at home by writing the directions to prepare, cook, and store it. They also develop recipes that use the new food product.



Glossary

Batter: Semi-liquid mixture of flour, egg, and liquid

Blanching: Heating food such as raw vegetables for a certain length of time to stop the action of enzymes.

Chlorophyll: The green substance in plants that makes it possible for them to make food from carbon dioxide and water.

Complex carbohydrate: Nutrient that provides energy and dietary fiber; starch.

Confectioner's sugar: Superfine sugar used for icings; also called powdered sugar.

Cut in: To mix fat—shortening or butter—into a flour mixture using a pastry blender or two knives in a scissor-like way.

Dietary fiber: The part of a plant food that is not digestible.

Enzyme: A special protein found in small amounts in all plants; promotes ripening in fruits and vegetables.

Freezer tape: Special tape used in wrapping food packages that will be frozen.

Fruit browning: The darkening of light-colored fresh fruit caused by a reaction between the oxygen in air and enzymes in the fruit.

Gram (g): A metric unit of measure equal to one-thousandth of a kilogram.

Grease: To rub a dish or pan with butter, margarine, oil, or shortening so food does not stick.

Grease and flour: To grease a pan and then coat it with about a tablespoon of flour by shaking the pan, tilting it back and forth. Flour that does not stick is discarded.

Headspace: Space left at the top of a container to let foods expand as they freeze.

Insoluble: Cannot be dissolved in a liquid.

Knead: To work dough with hands by folding and pressing.

Lactic acid: Waste product of bacteria feeding on lactose in milk.

Lactose: A type of sugar found only in milk.

Microorganism: A tiny living thing that can be seen only with a microscope.

Milligram (mg): A metric unit of measure equal to one-thousandth of a gram.

Moisture and vapor resistant: Prevents or slows the absorption of moisture; used to describe material used for freezing that does not let flavor escape.

Mold: A superficial, often woolly growth produced by a fungus, especially on damp or decaying organic matter or on living organisms.

Nutrients: Substances in food that are essential for good health.

Pasteurization: Heat-treating process to kill bacteria.

Pastry blender: A kitchen tool used to blend fat into flour; some cooks use two knives.

Pigment: A substance that gives color to something else.

Processed food: Raw ingredients that are changed into food, and food that is changed into other forms, by physical or chemical means; examples include food that has been enriched, frozen, or freeze-dried.

Rehydrate: To soak dehydrated (dried) foods to restore the water lost during drying.

Roll out: To flatten and spread dough with a rolling pin.

Sauté: To cook briefly in a small amount of fat in a skillet until soft and glossy.

Seasonal fruits and vegetables: Fruits and vegetables that are abundant at certain times of the year and generally lower in cost at that time.

Sensory evaluation: Evaluating a food by means of a taste panel to rate how a food looks, smells, taste, and feels in a tester's mouth.

Soluble: Can be dissolved in a liquid.

Starter culture: Fresh, plain whole milk yogurt containing live, active cultures of bacteria.

Sterilize: To clean (something) by destroying germs or bacteria.

Thaw: Defrost.

Unit price: The price of a food based on a unit of measure, such as ounces, pounds, quarts, or liters; the product's price divided by its unit of measure.

Year 1 Record Sheet

- List three new things you learned in this project. _____

- What was the most surprising thing you learned about yourself while completing this project?

- Did you give an interactive demonstration? No Yes Title _____
- How did you help your family with their meals while doing this project? _____

- List the foods you prepared or preserved this year, and how many times you prepared or preserved them.

Food Prepared	Number of Times

Food Prepared	Number of Times

- Write the number of times you did these other things:

Activity	Number of Times
Set table with centerpiece	
Cleaned up kitchen	
Collected recipes	
Helped serve family meals	
Planned and cooked entire meal	
Shopped for groceries	

I have reviewed this record and made comments about the individual's progress and project completion.

Signature of Project Helper _____ Date _____

Year 2 Record Sheet

1. What three new skills did you develop in this project? _____

2. What did you learn about buying food? _____

3. What are some things you learned about careers in the food industry? _____

4. Did you give an interactive demonstration? No Yes Title _____

5. List the foods you prepared or preserved this year, and how many times you prepared or preserved them.

Food Prepared	Number of Times


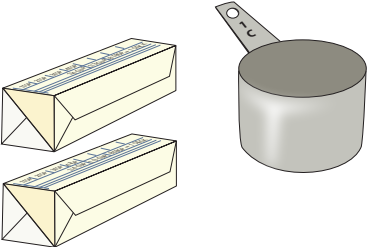

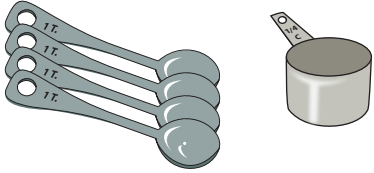
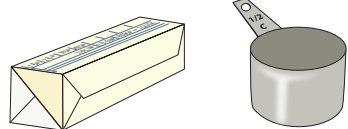
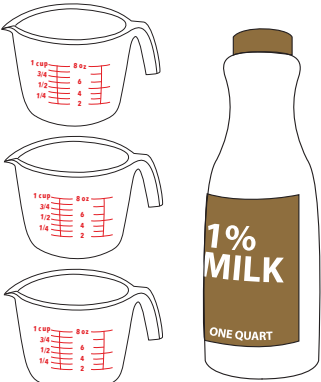
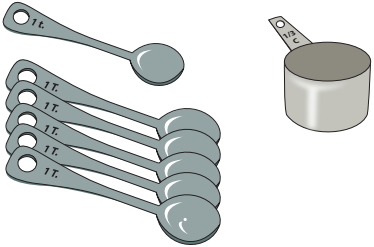
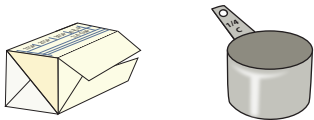

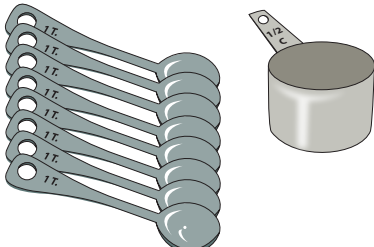
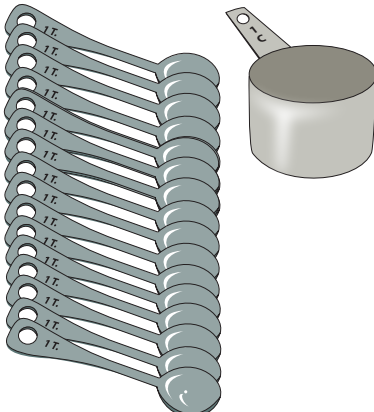
Food Prepared	Number of Times

6. Write the number of times you did these other things:

Activity	Number of Times
Set table with centerpiece	
Cleaned up kitchen	
Collected recipes	
Helped serve family meals	
Planned and cooked entire meal	
Shopped for groceries	

I have reviewed this record and made comments about the individual's progress and project completion.
Signature of Project Helper _____ Date _____

Measuring Math

For dry and liquid Ingredients	For margarine or butter	For liquids
<p>3 t = 1 T</p> 	<p>2 sticks = 1 cup</p> 	<p>2 c = 1 pint</p> 
<p>4 T = 1/4 c</p> 	<p>1 stick = 1/2 cup</p> 	<p>4 c = 1 quart</p> 
<p>1 t + 5 T = 1/3 c</p> 	<p>1/2 stick = 1/4 cup</p> 	<p>2 quarts = 1/2 gallon</p> 
<p>8 T = 1/2 c</p> 	<p>16 T = 1 c</p> 	



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