

EXPLORE



Texas 4-H Foods & Nutrition

Cooking in the Kitchen



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The members of Texas A&M AgriLife will provide equal opportunities in programs and activities, education, and employment to all persons regardless of race, color, sex, religion, national origin, age, disability, genetic information, veteran status, sexual orientation or gender identity and will strive to achieve full and equal employment opportunity throughout Texas A&M AgriLife.



EXPLORE

TEXAS 4-H FOODS & NUTRITION



Description

The Texas 4-H Explore series allows 4-H volunteers, educators, members, and youth who may be interested in learning more about 4-H to try some fun and hands-on learning experiences in a particular project or activity area. Each guide features information about important aspects of the 4-H program, and its goal of teaching young people life skills through hands-on experiences. Additionally, each guide contains at least six learning experiences, which can be used as a project guide, or as activities for six different 4-H meetings.

Purpose

Texas 4-H is designed to develop the youth of our state into productive adult citizens. The 4-H Program uses a non-formal educational process of engaging youth in a "learning by doing" process. This includes hands-on opportunities, participation in workshops and clinics conducted by volunteer leaders or professionals, as well as competitive experiences which allow 4-H members to demonstrate the knowledge they have gained. Through this entire process, the youth are learning key life skills such as working with others, teamwork, cooperation, and goal setting. Through all experiences, youth get to interact with adult volunteers and county Extension agents.

What is 4-H?

4-H members across the nation are responding to challenges every day in their communities and their world.

As the youth development program of the Cooperative Extension System of land-grant universities, 4-H is the nation's largest youth development organization, empowering six million young people throughout the United States. Cooperative Extension of 1862 and 1890 land-grant universities provide leadership to engage young people in 4-H in all 3,007 counties of the United States. The impact of the Cooperative Extension partnership is profound, bringing together National Institute of Food and Agriculture of USDA, land grant universities and county government to resource learning opportunities for youth.

Through America's 110 land-grant universities and its Cooperative Extension System, 4-H reaches every corner of our nation—from urban

neighborhoods to suburban schoolyards to rural farming communities. With a network of more than 6 million youth, 600,000 volunteers, 3,500 professionals, and more than 25 million alumni, 4-H helps shape youth to move our country and the world forward in ways that no other youth organization can.

Texas 4-H

Texas 4-H is like a club for kids and teens ages 5-18, and it's BIG! It's the largest youth development program in Texas with more than 550,000 youth involved each year. No matter where you live or what you like to do, Texas 4-H has something that lets you be a better you!

You may think 4-H is only for your friends with animals, but it's so much more! You can do activities like shooting sports, food science, healthy living, robotics, fashion, and photography.

Look for 4-H clubs at your school, an after-school program, a community center, or even on a military base or through the reserves for military families.

Texas 4-H is part of the Texas A&M AgriLife Extension Service and the Texas A&M System. Founded in 1908, 4-H is the largest youth development program in Texas, reaching more than 550,000 youth each year.

The 4-H Motto and Pledge

"To Make the Best Better!"

I pledge: My HEAD to clearer thinking, My HEART to greater loyalty, My HANDS to larger service and My HEALTH to better living, For my Club, my Community, my Country, and my world.

Participating in 4-H

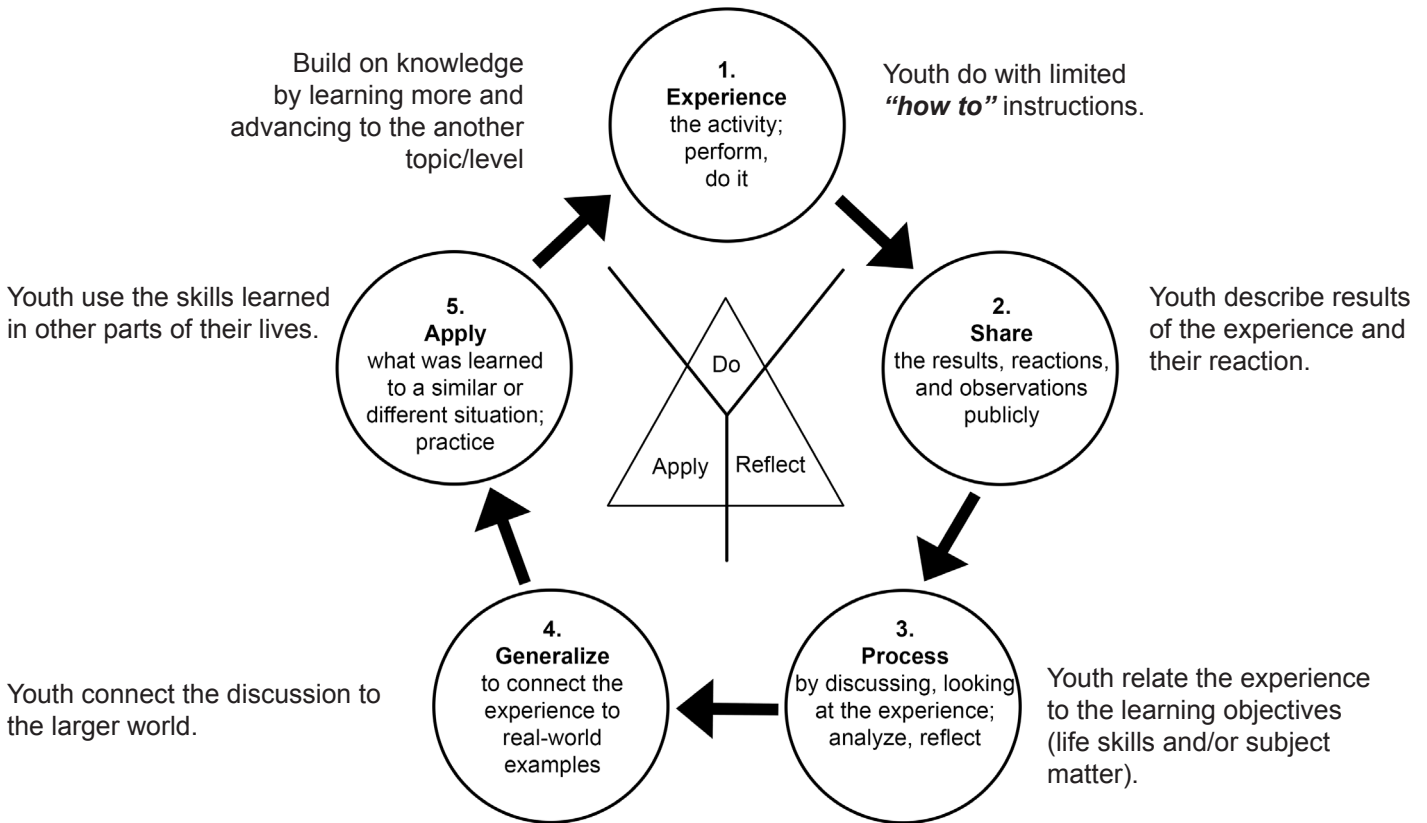
4-H is a great program because it provides options for young people to participate. From a 4-H club located in your community, a SPIN club that focuses on one particular project area, or participating in 4-H through your classroom at school, 4-H allows youth to learn in many different environments. If you are interested in joining 4-H, contact your County Extension Office and ask for a list of the 4-H clubs in your area. If you are a school teacher/educator and would like to use 4-H curriculum or these project guides in your classroom, contact your Extension Office as well for assistance.



4-H “Learning by Doing” Learning Approach

The Do, Reflect, Apply learning approach allows youth to experience the learning process with minimal guidance from adults. This allows for discovery by youth that may not take place with exact instructions.

EXPLORE THE CONTENT Introduction of the topic, overview and exploration of content, and review of objectives





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Hidden Mysteries



EXPLORE THE CONTENT:

Reducing the spread of germs and practicing good hygiene in order to prevent germs from spreading is critical on a daily basis, and when cooking in the kitchen. To protect yourself and others, it is important to understand common germs and how they spread, as well as healthy hygiene practices.

What types of germs are there?

Bacteria are tiny, one-celled creatures that get nutrients from their environments in order to live. In some cases that environment is a human body. Bacteria can reproduce outside of the body or within the body as they cause infections. Some infections that bacteria can cause include ear infections, sore throats (tonsillitis or strep throat), cavities, and pneumonia.

Not all bacteria are bad. Some bacteria are good for our bodies — they help keep things in balance. Good bacteria live in our intestines and help us use the nutrients in the food we eat and make waste from what's left over. We couldn't make the most of a healthy meal without these important helper germs! Some bacteria are also used by scientists in labs to produce medicines and vaccines.

Viruses need to be inside living cells to grow and reproduce. Most viruses can't survive very long if they're not inside a living thing like a plant, animal, or person. Whatever a virus lives in is called its host. When viruses get inside people's bodies, they can spread and make people sick. Viruses cause chickenpox, measles, flu, and many other diseases. Because some viruses can also live for a short time on something like a doorknob or countertop, be sure to wash your hands regularly!

Fungi are multi-celled (made of many cells), plant-like organisms. Unlike other plants, fungi cannot make their own food from soil, water, and air. Instead, fungi get their nutrition from plants, people, and animals. They love to live in damp, warm places, and many fungi are not dangerous in healthy people. An example of something caused by fungi is athlete's foot, an itchy rash that teens and adults sometimes get between their toes.

Protozoa are one-cell organisms that love moisture and often spread diseases through water. Some protozoa cause intestinal infections that lead to diarrhea, nausea, and belly pain.

What do germs do?

Once germs invade our bodies, they snuggle in for a long stay. They gobble up nutrients and energy, and can produce toxins, which

TIME:

20 to 30 minutes

MATERIALS NEEDED:

- Washable Paint(s)
- Good Habit/Bad Habit Cards (provided)

OBJECTIVES:

The 4-H member will:

- Learn about different kinds of germs.
- Learn healthy habits to prevent the spread of germs.
- Learn healthy hygiene practices that can also prevent the spread of germs.



are proteins that are actually like poisons. Those toxins can cause symptoms of common infections, like fevers, sniffles, rashes, coughing, vomiting, and diarrhea.

How can you protect yourself from germs?

Most germs are spread through the air in sneezes, coughs, or even breaths. Germs can also spread in sweat, saliva, and blood. Some pass from person to person by touching something that is contaminated, like shaking hands with someone who has a cold and then touching your nose.

Steering clear of the things that can spread germs is the best way to protect yourself. Below are healthy habits to prevent germs from spreading.

- **Handle and prepare food safely.** Food can carry germs. Wash hands, utensils, and surfaces often when preparing any food, especially raw meat. Always wash fruits and vegetables. Cook and keep foods at proper temperatures. Don't leave food out – refrigerate promptly! For more information on food safety practices, see the food safety lesson in the “Exploring the Food Challenge” book.
- **Wash your hands often.** This is the easiest and best way to protect yourself from germs. Wash your hands every time you cough or sneeze, before you eat or prepare foods, and after you use the bathroom, touch animals and pets, play outside, or visit a sick relative or friend. If soap and water are not available, use an alcohol-based hand sanitizer that contains at least 60% alcohol. Alcohol-based hand sanitizers can quickly reduce the number of germs on hands in some situations, but sanitizers do not eliminate all types of germs and might not remove harmful chemicals. Using hand sanitizers are not as effective as hand washing when hands are visibly dirty or greasy.
- **Clean and disinfect commonly used surfaces.** Germs can live on surfaces. Cleaning with soap and water is usually enough. However, you should disinfect your bathroom and kitchen regularly. You can use a certified disinfectant or bleach solution.
- **Cough and sneeze into your sleeve.** Cover your nose and mouth when you sneeze and cover your mouth when you cough to keep from spreading germs. It is best to cough or sneeze into your elbow so you do not contaminate your hands. Using tissues for your sneezes and sniffles is another great weapon against germs. But don't just set aside the used tissues to pick up later. Toss them in the trash and, again, wash your hands!
- **Don't share personal items.** Items that cannot be disinfected, such as toothbrushes and razors, or sharing towels between washes, is not recommended.
- **Get vaccinated.** No one likes to get shots but these help keep your immune system strong and prepared to battle germs.
- **Stay home when you are sick.** Going to school or work, or even a friend's house, while you are sick will only spread your germs to others.

Healthy Hygiene

Hygiene is a practice that helps keep people healthy and prevent diseases from spreading. Because germs are everywhere, it is important to practice good hygiene in order to help not only your health but the health of people around you. While hand washing is a key step in practicing good hygiene, there are others that everyone should practice, whether or not you are around food or spend time cooking in the kitchen.

- **Shower daily.** In addition to washing one's body, it is also important to wash under the fingernails, too. Good body washing practices can prevent the spread of hygiene-related diseases, such as athlete's foot, body lice, head lice, and chronic diarrhea.
- **Wash hair often.** While some prefer to skip days to prevent hair from drying out, others may want to wash it daily – especially if they have oily hair.
- **Practice nail hygiene.** Diligently cleaning and trimming fingernails is important because they can harbor dirt and germs and contribute to the spread of some infections. Fingernails should be kept short, and the undersides should be cleaned frequently with soap and water. Longer fingernails can harbor more dirt and **bacteria than short nails, thus** potentially contributing to the spread of infection.
- **Use deodorant or antiperspirant.** Foul smells from sweat or body odor are not appealing, and you might sweat more





than you think!

- **Change clothes.** Wearing clean clothes each day is a part of good hygiene. Some fabrics absorb sweat better than other materials.
- **Maintain good oral health.** Dental hygiene and oral health are often taken for granted but are essential parts of our everyday lives. Brushing and flossing daily are crucial. Bad oral hygiene not only leads to bad breath but can also lead to tooth decay and periodontal (gum) disease.

DO:

Have fun with this topic and select one of the games below to play!

Germ Transfer: Pretend to sneeze, and when you do, cover your hands in a washable paint. Then go about your business, touching things around the room (or kitchen to show how the germs spread to food). The participants will see the transfer of germs. After the exercise, have the youth find and tally all the surfaces where germs now live from your transferring them around the room.

Good Habit, Bad Habit: On pieces of paper, write 10 or more good hygiene habits, such as flossing each night, washing for 20 seconds or covering your mouth when you cough. On 10 more pieces of paper, write down the bad habits. Fold all the pieces of paper and place them in a hat. The participants can draw out one at a time and decide whether it's a good hygiene habit or a bad hygiene habit.

Hygiene Charades: One child picks an action for hygiene, such as brushing teeth, coughing into a sleeve or taking a shower. Then the child acts out the hygiene habit without using any words. The others guess what action is being portrayed and then you talk about the proper way to do each hygiene habit.

REFLECT:

- Have you ever gotten an infection and you know how you got it? (For example, you were around someone that was sick and the germs spread to you).
- Name three ways you can prevent germs from spreading.

APPLY:

- Why is hygiene important, even for someone who may be preparing food?
- How do healthy hygiene practices apply to those in the foodservice industry?

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Good Habit, Bad Habit Hygiene Examples

Cut and use these cards to play to Good Habit, Bad Habit game, or come up with your own examples. Fold all the pieces of paper and place them in a hat or bowl. The participants can draw out one at a time and decide whether it's a good or bad hygiene habit.

Floss teeth each night	Share towels
Wash hands often and for 20 seconds each time	Cough into hand
Leave food dropped on counter or floor	Wash hands only after using bathroom
Cough into sleeve	Sneeze into hand
Sneeze into sleeve	Clean bathroom regularly

Stay home when sick	Refrigerate food promptly
Go to school even if sick to get perfect attendance	Leave food out to cool before refrigerating
Shower daily	Floss teeth only when needed
Keep fingernails clean and trimmed	Re-wear clothes before washing
Wear clean clothes	Use deodorant only as needed
Shower when you start to smell	Don't wash hands after petting an animal
Don't share towels or razors	Use deodorant/antiperspirant

Tools of the Trade



EXPLORE THE CONTENT:

Successful cooking largely depends upon the selection of materials and proper cooking methods; however, the use and importance of utensils should not be overlooked.

What is a kitchen utensil?

A utensil is a simple and useful device that is used for doing tasks in a person's home and especially in the kitchen. Each cooking utensil is made for a particular purpose, and using the wrong one may not bring about the intended result when cooking.

The size of some utensils is often determined by the number of people for whom food is being cooked. The amount of food being prepared indicates whether a large or a small utensil should be selected.

The materials used to make cooking utensils, as well as their shape and size, also have an effect on the success of cooking. When selecting utensils, it is important to think about the use of the utensil, and then select the utensil that is made of durable material, can be easily cleaned, and will not affect the food that is being cooked.

Kitchen Utensils, Cookware and Nutrition

Cooking utensils can also have an effect on one's nutrition and health. Pots, pans, and other tools used in cooking often do more than just hold the food. The material that they are made from can leach into the food that is being cooked. Common materials used in cookware and utensils are:

- **Aluminum:** Aluminum cookware is very popular, with nonstick, scratch-resistant anodized aluminum cookware being a good choice since the hard surface is easy to clean, and being sealed, the aluminum cannot get into food.
- **Copper:** While popular due to their even heating, large amounts of copper from unlined cookware can cause nausea, vomiting, and diarrhea. Even if coated, these coatings can break down over time and allow copper to dissolve in food.
- **Iron:** This can be a good choice since cooking with cast iron pots and pans may actually increase the amount of iron in the diet.
- **Lead:** Lead is often found in ceramic cookware, including items bought in another country or considered to be a craft, antique, or collectable. Such items should not be used to hold food. Children should be protected from ceramic cookware containing lead.
- **Stainless Steel:** This is a good choice since stainless steel cookware is often low in cost and can be used at a high heat. Its

TIME:

20 to 25 minutes

MATERIALS NEEDED:

Different cooking utensils or cookware (10-15, or more depending on number of youth).

**Refer to list of utensils and cookware in lessons for supplies needed.*

OBJECTIVES:

The 4-H member will:

- Identify the different kitchen tools (utensils and cookware) that are used when cooking in the kitchen.
- Identify the purpose of each cooking tool.
- Know the importance of using specific cooking tools to successfully prepare a recipe.



sturdy cookware surface does not wear down easily.

- **Teflon.** While this is a popular choice for many looking for a non-stick cooking surface, cookware with a Teflon coating should be used only at low or medium heat and should never be left unattended at high heat. Doing so can cause the release of fumes that can irritate humans and household pets.
- It is best to use cookware and bakeware that can be easily cleaned. Keep watch for cracks and rough edges, which can trap or hold food or bacteria.

It's also important to avoid using metal or hard plastic utensils on cookware. These utensils can scratch surfaces and cause pots and pans to wear out faster. Instead, use wood, bamboo or silicone. Never use cookware if the coating has started to peel or wear away.

Cutting boards are another popular tool used when cooking. Cutting boards made from plastic, marble, glass or pyroceramic are easier to clean than wood. If you prefer wood, select a bamboo cutting board, which is harder and less porous than hardwoods and absorbs very little moisture and resists scarring from knives, making it more resistant to bacteria. It's also important to avoid contaminating vegetables with meat bacteria. Try using one cutting board for fresh produce and bread, and use a separate one for raw meat, poultry, and seafood. This will prevent any bacteria on a cutting board from getting into raw foods. It's also important to properly clean and sanitize cutting boards, and replace them when they are worn or have deep grooves.

Different Types of Cooking Tools

For the different types of cooking tools, refer to the following pages attached to this lesson plan.

DO:

Separate the youth into two equal teams. Once the students are in their teams, pick two students, one from each team, to go up to the front of the room. You, as the instructor, will have a few pictures of the utensils that were reviewed in the educational lesson. Real utensils may also be used if available.

When the two students at the board are ready, flash them one of the pictures and the first one to raise their hand and answer correctly will earn a point for their team. You can also change it up and ask them to give you the definition of what the utensil does.

Continue this process until all the students have had their turn or when you run out of pictures.

Another option is to gather up 10-15 utensils (listed in the handout) for the students to identify on their own. Once they are done, go through them as a group and see if they identified them correctly and talk about how each utensil would be used.

REFLECT:

- What kitchen tools do you most often use when cooking?
- What are some kitchen tools you learned about that you have not used before?
- What cooking tools do you use most often?

APPLY:

- Name at least 3 cooking tools and how they are used.
- Why is it important to have specific tools and utensils for certain foods?
- Why is it important to know what your materials are in your cooking tools?



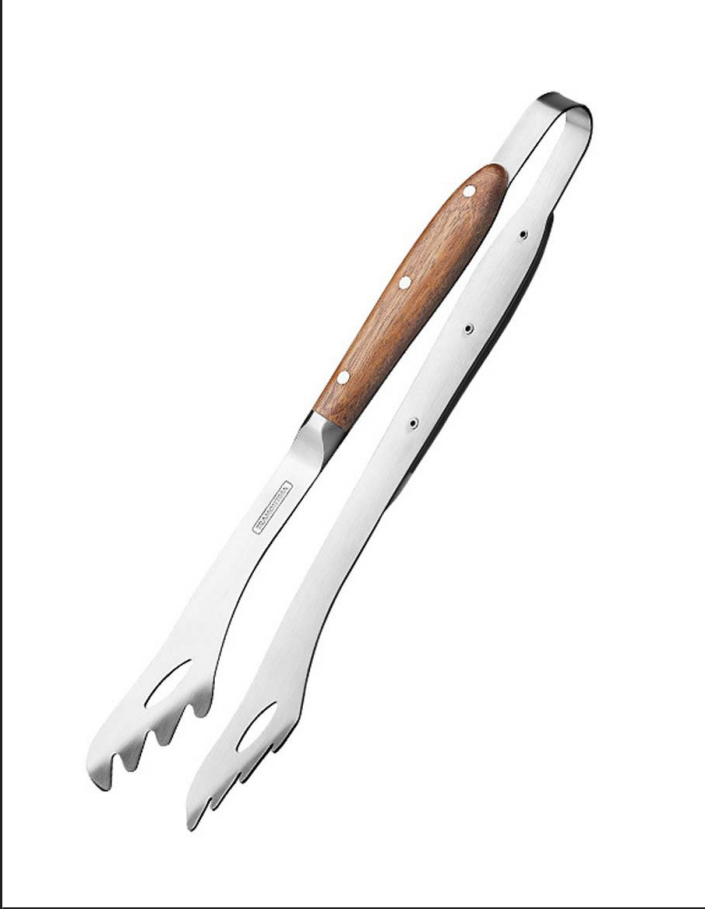


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TOOLS OF THE TRADE: UTENSILS



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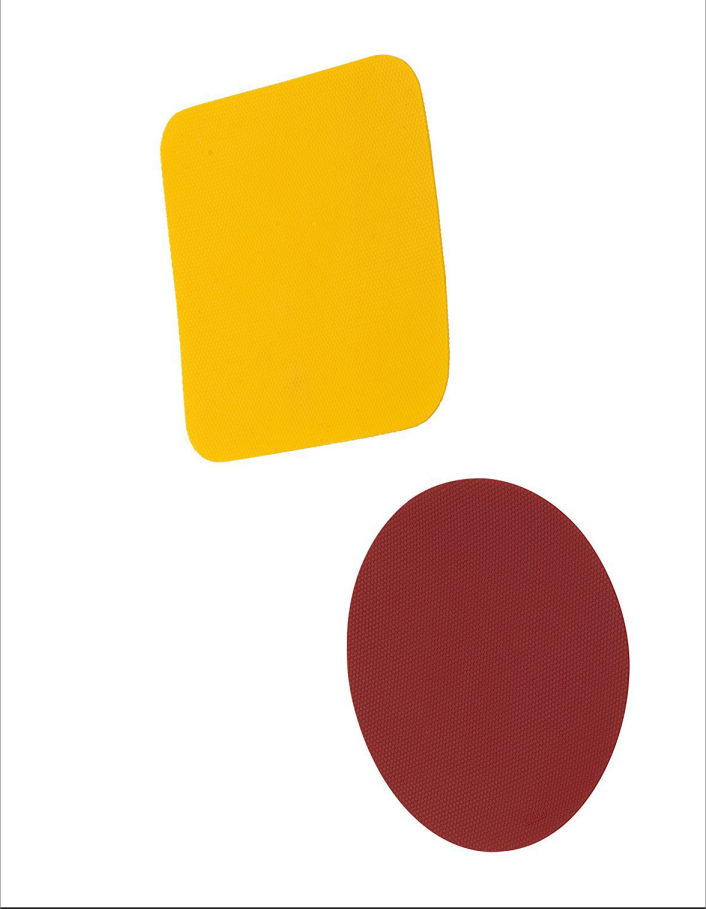
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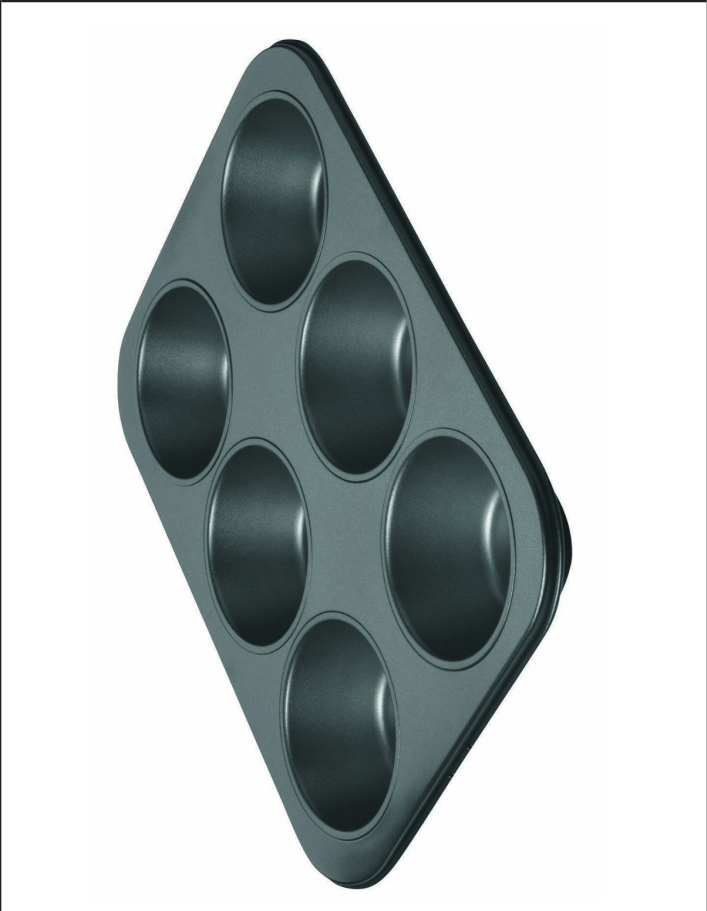
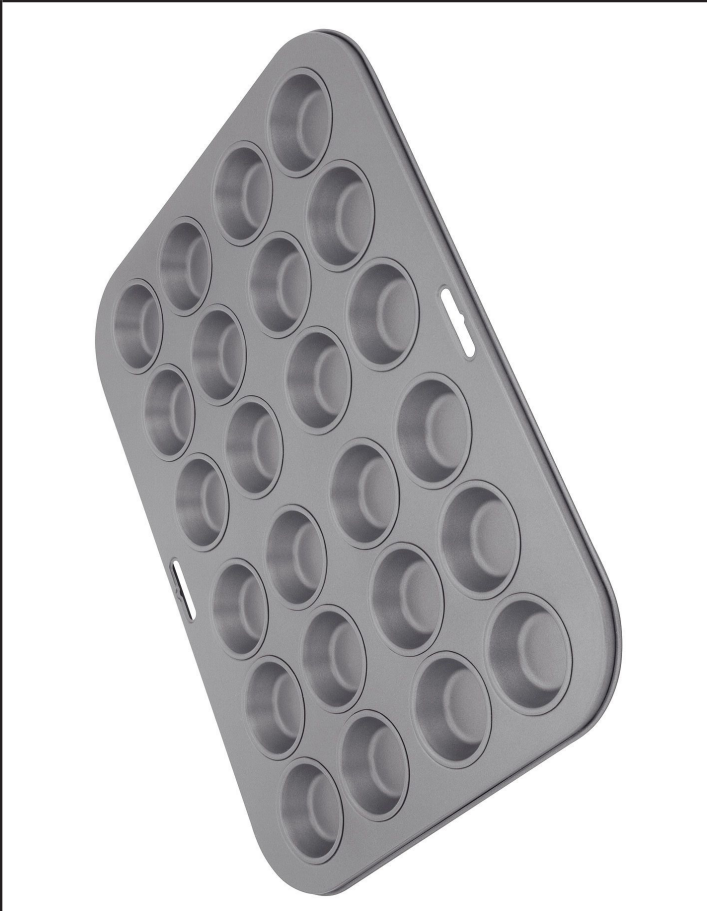
TOOLS OF THE TRADE: UTENSILS



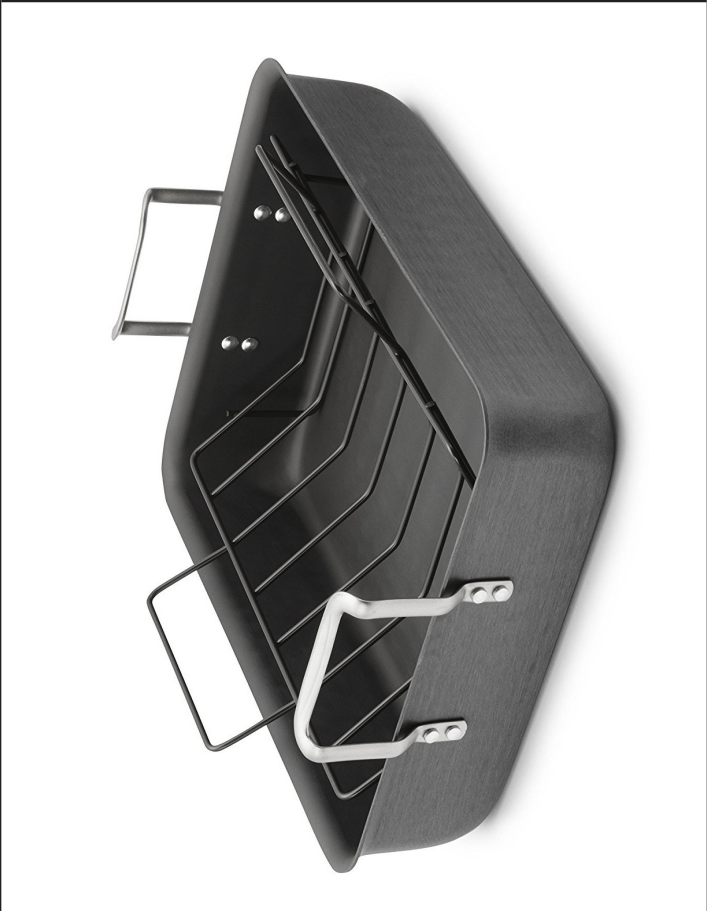
TOOLS OF THE TRADE: COOKWARE



TOOLS OF THE TRADE: COOKWARE



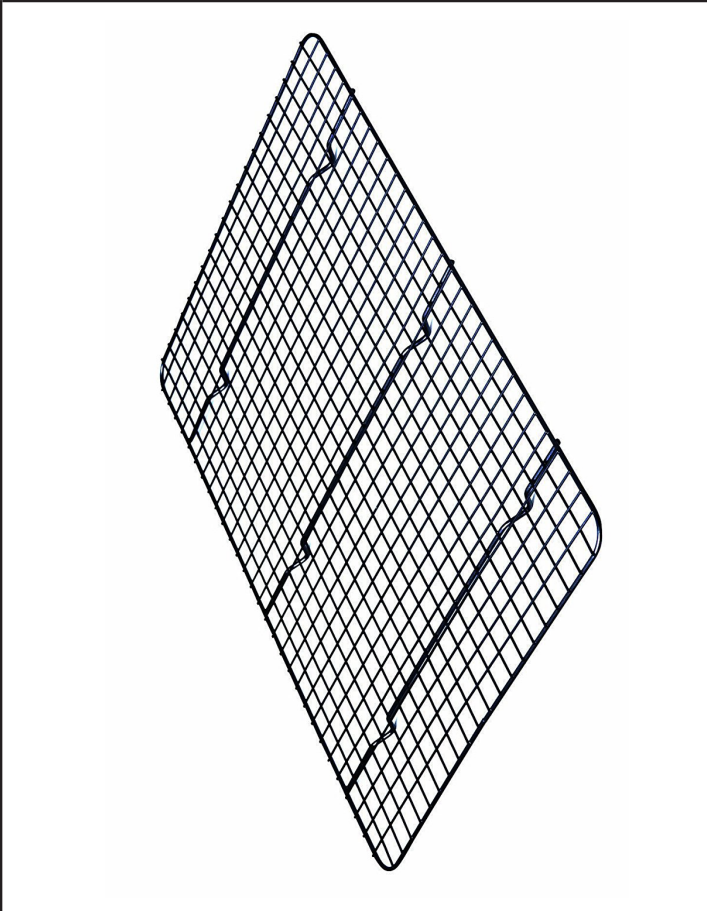
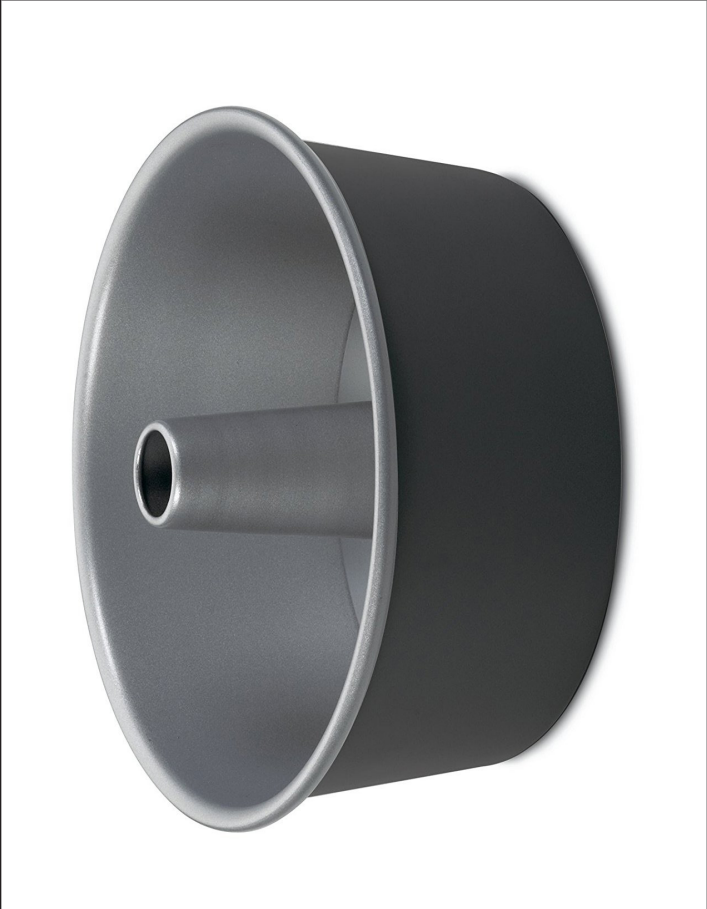
TOOLS OF THE TRADE: COOKWARE



TOOLS OF THE TRADE: COOKWARE



TOOLS OF THE TRADE: COOKWARE



ANSWERS: TOOLS OF THE TRADE-UTENSILS



Apple Corer

This tool has a circular cutting edge that is forced down into the apple, allowing the apple to remain whole so it can then be easily sliced into sections for eating it out of hand or baking it whole with the outer skin. A tool used to extract the core from the apple without cutting the apple into sections and then individually cutting out each part of the core.



Apple Slicer

This professional-quality tool is pressed down over the apple to make eight uniform slices and remove the core.



BBQ Tongs

a utensil with long handles used to grip and turn food while cooking.



BBQ Spatula

A utensil with long handle and flat bottom used to turn food while cooking.



Can Opener

A hand held device used for cutting cans open.



Butter Knife

A blunt knife used for cutting or spreading butter or other similar spreads



Chef's Knife

A large knife with a wide blade, generally considered all-purpose knives that are used for cutting and dicing.



Chopper

A utensil used to cut food into smaller pieces.



Chopsticks

A pair of slender sticks made especially of wood or ivory, held between the thumb and fingers and used as an eating utensil in Asian countries and in restaurants serving Asian food.



Cookie Cutters

A shaped template with a sharp edge used to cut cookies or biscuits from rolled dough

ANSWERS: TOOLS OF THE TRADE-UTENSILS



Decorative Slicer, Ripple

A utensil used to cut food that leaves a rippled edge.



Decorative Slicer, Vee

A utensil used to cut food that leaves a vee shape.



Egg Separator

A spoon shaped utensil, which has a hole in the bottom and is used to separate the white from the yolk of the egg.



Egg Slicer

A kitchen tool with a slatted, egg-shaped hollow on the bottom and a hinged top consisting of 10 fine steel wires. When the upper portion is brought down onto a hard-cooked egg sitting in the base, it cuts the egg into even slices.



Egg Timer

A small hourglass or clockwork timing device used to time the boiling of an egg, usually capable of timing intervals of three to five minutes.



Flour Sifter

A utensil used to incorporate air into flour and other dry ingredients.



Garlic Press

A press used for extracting juice from garlic.



Grater

A device with sharp edged holes against which something is rubbed to reduce it to shreds. Used to grate such things as cheese.



Grill Brush

A Brush with a long handle on the end that is used to clean a grill.



Gripper

Small rubbery circle used for opening jars.

ANSWERS: TOOLS OF THE TRADE-UTENSILS



Ice Cream Scoop

A utensil used to remove ice cream from a carton or other container while forming the ice cream into a ball or oval shape. Ice-cream scoops come in several styles and sizes. Scoops come in many sizes, from tiny to large (about 1 to almost 3 inches in diameter).



Kitchen Fork

A utensil used to lift or turn small food.



Liquid Measuring Cup

Cups that come in clear plastic or glass with a 1/4" headspace so liquid can be carried without spilling and a pouring spout.



Measuring Cups

Cups that are used to measure dry and solid ingredients. They usually come in a set of four nesting cups: 1/4 cup, 1/3 cup, 1/2 cup, and 1 cup.



Measuring Spoons

Spoons that are used to measure small amounts of dry or liquid ingredients.



Meat Tenderizer

Hammer or paddle type utensil that comes in metal or wood and in a plethora of sizes and shapes. They can be large or small, have horizontal or vertical handles and be round-, square-, or mallet-shaped. Some have smooth surfaces while others are ridged.



Melon Baller

A small bowl-shaped tool used to cut round- or oval-shaped pieces of melon. The best melon ballers are rigidly constructed with wood or metal handles and sharp-edged, stainless steel bowls, which come in several sizes, from about 1/4" to 1"



Mixing Bowl

A large bowl made of pottery, glass, metal, or plastic and are used to mix ingredients and come in a variety of sizes.



Nut Chopper

A device with blades that chops nuts into small.



Pairing Knife

A knife that is smaller and shorter with fairly narrow blades, generally used for delicate jobs.

ANSWERS: TOOLS OF THE TRADE-UTENSILS



Pasta Measurer A utensil used to measure pasta.



Pasta Server A utensil used to serve pasta.



Pastry Blender A mixing utensil used to cut flour and shortening when making pastry.



Pastry Brush A small type brush used to spread butter or spices over food.



Pie/Cake Server A utensil, which has a triangular, shaped bottom with handle and is used to serve cake or pie.



Pizza Cutter A utensil consisting of a wheel with a sharpened blade used to cut pizza.



Potato Masher A tool used to crush food, usually after cooking it, so that it forms a soft mass.



Rolling Pin A cylinder that may or may not have small handles at either end used to roll dough for pie crusts, biscuits, or cookies.



Rubber Spatula A flexible utensil used to remove food from spoons, side of bowls, and pans.



Scraper A plastic utensil used to scrape food from bowls, etc.

ANSWERS: TOOLS OF THE TRADE-UTENSILS



Serving Fork

A large type fork used to serve food.



Serving Spoon

A large type spoon used to serve food.



Slicing Knife

A knife with long narrow flexible blades that may or may not be serrated.



Soup Spoon

A spoon with a rounded bowl for eating soup.



Strainer

A bowl type item with holes in it that is used to separate liquids from solid food.



Tart Press

Any type of press used to shape or mold pastry.



**Thermometer,
Candy**

A candy thermometer, also known as a sugar thermometer, is a thermometer used to measure the temperature and therefore the stage of a cooking sugar solution.



Meat Thermometer

A thermometer used to measure the internal temperature of meat, especially roasts and steaks, and other cooked foods. The degree of "doneness" of meat correlates closely with the internal temperature, so that a thermometer reading indicates when it is cooked as desired.



Tongs

An instrument with two movable arms that are joined at one end, used for picking up and holding things.



Turner

Is a kitchen utensil with a long handle and a broad flat edge, used for lifting and turning fried foods, biscuits or cookies.

ANSWERS: TOOLS OF THE TRADE-UTENSILS



Utility Knife

A knife that has a long and narrow blade that is generally used for cutting.



Vegetable Peeler

A utensil used to peel the skin from vegetables.



Wire Whisk

A utensil used to beat and blend ingredients or food, especially egg.

ANSWERS: TOOLS OF THE TRADE-COOKWARE



Baking Pan

A pan with sides that vary in deepness and are used to bake such things as cakes.



Baking Sheet

A flat, shiny metal tray used for cooking such things as biscuits and cookies.



Broiler Pan

A metal tray used to hold food while broiling under a grill.



Colander

A bowl-shaped kitchen utensil with perforations for draining off liquids and rinsing food.



Double Boiler

A pair of cooking pots, one fitting on top of and partly inside the other. Food cooks gently in the upper pot while water simmers in lower pot.



Dutch Oven

An iron container with lid used for cooking stews or casseroles.

ANSWERS: TOOLS OF THE TRADE-COOKWARE



Frying Pan

A pan used for frying foods with a single long side handle, measured in inches and may have either straight or sloped sides.



Mini Muffin Tin

A muffin tin with smaller holes used to make mini muffins.



Muffin Tin

A tin consisting of holes in which batter is placed to make muffins.



Pastry Press

Any type of press used to shape or mold cookies.



Pie Plate

A plate used to serve pie.



Pot Holder

A pad used to protect hands when working with hot pans.



Roaster Pan

A pan with deep sides used to cook roast.



Sauce Pan

A pan used to cook sauces on the stovetop with a long side handle and straight sides measured in quarts.



Sauce Pot

A short and wide pot with two handles and close fitting lid.



Steamer Basket

Metal basket that inserts into a pan. Used for steaming vegetables.

ANSWERS: TOOLS OF THE TRADE-COOKWARE



Stock Pot

A pot with two handles and are tall and narrow.



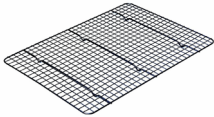
Trivet

An object placed between a serving dish or bowl and a dining table, usually to protect the table from heat damage. A metal stand with short feet, used under a hot dish on a table.



Tube Pan

A round pan with a hollow projection in the middle, used for baking or molding foods in the shape of a ring.



**Wire Cooling
Rack**

A rack used to hold hot foods such as cakes, breads, and cookies for cooling.

Measuring Dry Ingredients



EXPLORE THE CONTENT:

Measuring accurately is probably the most important cooking skill in the kitchen. To begin, make sure that you have actual commercial measuring utensils. Dry measuring cups are often used for larger amounts of dry ingredients, such as sugar and flour. Measuring spoons are used for small amounts of powders and spices.

Below are instructions on how to properly measure some common dry ingredients used when cooking and/or baking.

Flour: Stir flour in the storage container or bag. Using a large spoon, lightly spoon flour from the container into the measuring cup. Do not shake the cup and do not pack the flour. Use the back of a knife or flat blade spatula to level off the flour even with the top edge of the measuring cup. Don't use the measuring cup to scoop the flour out of the container. You can end up with 150% of the correct measurement if you do this!

TIME:

30 minutes

MATERIALS NEEDED:

- Various dry ingredients, such as:
 - Flour
 - Salt
 - Sugar: white, brown, powder
 - Baking powder
 - Baking soda
 - Various spices
 - Peanut butter
 - Sour cream or yogurt
 - Rice or dry beans
 - Butter sticks
- Measuring cups (One cup for every 1-2 youth. You can have youth bring their own!)
- Measuring spoons (One cup for every 1-2 youth. You can have youth bring their own!)
- Bowls (one for each measuring station)
- Measuring instruction cards (attached)
- Note: To cut down on personal expenses that may be associated with this lesson, ask each youth to bring an item for measuring practice, as well as a set of measuring cups or spoons. Pre-assigning them an ingredient will prevent you from having duplicate items for the lesson.
- Muffin Ingredients (see recipe for optional activity)

OBJECTIVES:

The 4-H member will:

- Learn how to correctly measure dry ingredients.
- Identify each dry measuring cup by name.
- Identify each measuring spoon by name.
- Begin to comprehend measuring equivalents (if applicable – more appropriate for older youth).



Dry Ingredients in Spoons such as Baking Powder & Baking Soda:

Stir in the container. Using the measuring spoon, lightly scoop out of the container. Use the back of a knife to level off even with the top edge of the measuring spoon. Accurate amounts of ingredients like baking soda and powder are critical to the success of any baked product.





Sugar is measured by scooping the cup or measuring spoon into the container or bag until it is overflowing, then leveling off with the back of a knife (see flour picture above for example).



Brown Sugar: This sugar needs to be packed into the measuring cup. The sugar should retain the shape of the cup when it is dropped into the other ingredients. To measure brown sugar, fill the measuring cup and pack it down as you go, patting it with the back of a spoon. Once the sugar is level and even with the top edge of the measuring cup, you can add it to your other ingredients as directed in your recipe.

Powdered Sugar: This usually needs to be sifted to remove small lumps. It is measured by spooning the sugar into the measuring cup from the container, then leveling off with the back of a knife (see flour picture above for example).

Chopped Ingredients: Pay close attention to whether an ingredient is to be chopped, diced or minced, and whether it is measured before or after being chopped. Then place the food in a measuring cup so the top is level with the surface.



Semi-Liquid Ingredients: Ingredients like sour cream, peanut butter, and yogurt are measured using dry measuring cups because they are too thick to be accurately measured in the liquid cups. Level off sour cream and peanut butter with the back of a knife to ensure an accurate measurement.



Shortening and Solid Fats: Butter and margarine, as well as shortening sticks, have measuring amounts marked on the sides of the wrapping. Typically, a stick of butter is one-quarter (1/4) pound and equals one-half (1/2) cup. Solid shortening that is in a container can be measured by packing it into a cup so there are no air spaces, then leveling off with the knife. To

easily remove fats from baking cups, spray them with a nonstick cooking spray before measuring. Read the packaging carefully as some "soft" butters and margarines are not suitable for baked goods.



When you bake cookies, cakes, breads, pie crusts, and candies, measuring accurately is really critical to the success of the recipe. When you are cooking casseroles, soups, stir fries, and meats, you can vary amounts more and the end result will still be good.

DO:

Point out to youth the various sizes of measuring cups and spoons available. Measuring cups are typically made in 1/4 cup, 1/3 cup, 1/2 cup, and 1 cup sizes. Measuring spoons usually range from 1/8 teaspoon, 1/4 teaspoon, 1/2 teaspoon, 1 teaspoon, and 1 tablespoon. Point out to the youth the way to distinguish between a teaspoon and tablespoon (teaspoon is often referenced as "t" or "tsp," while a tablespoon is often referenced as "T" or "Tbsp"). Call out a measurement and have them find and hold up the corresponding cup or spoon.



Demonstrate to the youth how to measure various dry ingredients using measuring cups and spoons. Then, let them practice individually or in pairs.

Set up measuring stations, each including: a set of measuring spoons, measuring cups, a mixing bowl, a dry ingredient and a measuring instruction card (attached to this lesson).

Have each youth/pair practice measuring that ingredient using a measuring cup and/or spoon and pour it into the bowl. Then, have them rotate to the next station and practice measuring that ingredient using a measuring cup and/or spoon. Repeat this process until all the youth/pairs have been to each measuring station.

Throughout this process, it is important to be available for youth to provide feedback and tips on how to correctly measure the ingredients.

For additional practice, have the youth complete the attached worksheet and/or make the muffin recipe attached to practice measuring ingredients.

A handout on measuring equivalents is also attached for you to review with the youth if they are ready.

REFLECT:

- What do you often have to do when measuring dry ingredients?
 - (Answer: Make sure it's level with top of cup or spoon)
- Why is it important to have exact measurements?
- How do you identify when a recipe calls for a teaspoon or tablespoon?

APPLY:

- What measuring cups and spoons do you use most often when cooking or baking?
- Have you ever tried to make something and used the wrong measuring cup or spoon? If so, what happened?
- Do you feel confident to make your own recipe now that you are familiar with measuring?

REFERENCES:

- University of Minnesota Extension (2011). Retrieved on June 24, 2016, from <http://www.extension.umn.edu/family/health-and-nutrition/toolkits-and-resources/great-trays/docs/measuring-liquid-and-dry-ingredients-correctly.pdf>
- USDA (2009). Measurement Conversion Tables. Retrieved on June 24, 2016, from <http://www.ars.usda.gov/News/docs.htm?docid=9617>
- USDA (2013). Dig In! Grades 5-6, Kitchen Measurements Lesson 7, Handout 1. Retrieved on June 24, 2016 from http://www.fns.usda.gov/sites/default/files/digin_l7h1.pdf
- For a video on measuring ingredients, visit: <https://www.pinterest.com/pin/2885187236673434/> (Video by allrecipes.com)

Measuring Instruction Cards

Use these cards to provide instructions to youth on what measurements of each ingredient they should practice at each station. Cards with measurements, but no ingredients, are also provided so you can use with other ingredients you might select for the activity.

½ cup flour	1 Tbsp flour
1 tsp baking powder	½ tsp baking soda
1 cup sugar	1 Tbsp sugar
¼ cup brown sugar	1 Tbsp brown sugar
1/3 cup powder sugar	¼ cup peanut butter
½ sour cream	1 cup rice

1 tsp cinnamon	1/3 cup butter
1/2 tsp salt	1 cup
1/8 tsp	1/4 tsp
1/2 tsp	1 tsp
1 Tbsp	1/3 cup
1/2 cup	1/4 cup

Flourless Peanut Butter Muffins

Supplies:

- Food processor or blender
- Dry measuring cups
- Measuring spoons
- Spatula
- Muffin pan
- Muffin liners

Ingredients:

- 1 cup old-fashioned oats
- ¼ cup creamy peanut butter
- 1 medium banana
- 1 egg
- ¼ cup non-fat Greek yogurt
- 3 Tablespoons packed brown sugar
- ½ teaspoon vanilla extract
- ¾ teaspoon baking powder
- ¼ teaspoon baking soda
- ¼ teaspoon salt

Optional Ingredients:

- ¼ cup mini chocolate chips
- ¼ cup shredded coconut
- ¼ cup chopped nuts (walnut or pecans)

Instructions:

1. Line a regular size or mini muffin pan with liners.
2. Preheat oven to 375 degrees.
3. Place all ingredients in food processor or blender. Process for 20 seconds, until the ingredients start to come together.
4. Scrape sides of food processor.
5. Blend 20 to 25 seconds more until the batter is smooth (it will still look a bit grainy from the oats).
6. If desired, stir in chocolate chips or other optional ingredients.
7. Scoop batter into prepared pan.
8. Bake muffins for 15-18 minutes or until the tops are domed and golden.
9. Cool muffins in pan for 10 minutes.
10. Transfer onto cooling rack to cool completely.

Yields 6-8 regular size muffins or 24 mini muffins.



Measurement Equivalents

When it comes to measuring something, the required materials that you need in order to complete that task are not always available. That's where measurement equivalence comes in. For example, if you need 1 tablespoon (Tbsp) of flour, but you cannot find the correct measuring spoon, you can measure 3 teaspoons of flour, which is the same amount. Listed below are some more examples that may be beneficial for you to know, or simply keep this as a handy reference.

Teaspoons (tsp)	Tablespoons (Tbsp)	Cups	Fluid Ounces (fl oz)
3 tsp	1 Tbsp	1/16 cup	1/2 fl oz
6 tsp	2 Tbsp	1/8 cup	1 fl oz
12 tsp	4 Tbsp	1/4 cup	2 fl oz
16 tsp	5 Tbsp plus 1 tsp	1/3 cup	
24 tsp	8 Tbsp	1/2 cup	3 fl oz
30 tsp	10 Tbsp	1/2 cup plus 2 Tbsp	5 fl oz
32 tsp	10 Tbsp plus 2 tsp	2/3 cup	
36 tsp	12 Tbsp	3/4 cup	6 fl oz
42 tsp	14 Tbsp	1 cup minus 2 Tbsp	7 fl oz
48 tsp	16 Tbsp	1 cup	8 fl oz

Practice!

- 2/3 cup of flour is being used in a recipe. How many tablespoons is that? _____
- A bottle of oil has 32 Tbsp in it. How many cups is that? _____
- If you need 2 Tbsp of brown sugar, but you cannot find your tablespoon to measure, how many teaspoons can you measure out to get the same amount? _____
- If a serving of flour is 1/4 cup, but you want to measure it in tablespoons, how many Tbsp would it be?

Answer Sheet - Measurement Equivalents

When it comes to measuring something, the required materials that you need in order to complete that task are not always available. That's where measurement equivalence comes in. For example, if you need 1 tablespoon (Tbsp) of flour, but you cannot find the correct measuring spoon, you can measure 3 teaspoons of flour, which is the same amount. Listed below are some more examples that may be beneficial for you to know, or simply keep this as a handy reference.

Teaspoons (tsp)	Tablespoons (Tbsp)	Cups	Fluid Ounces (fl oz)
3 tsp	1 Tbsp	1/16 cup	½ fl oz
6 tsp	2 Tbsp	1/8 cup	1 fl oz
12 tsp	4 Tbsp	¼ cup	2 fl oz
16 tsp	5 Tbsp plus 1 tsp	1/3 cup	
24 tsp	8 Tbsp	½ cup	3 fl oz
30 tsp	10 Tbsp	½ cup plus 2 Tbsp	5 fl oz
32 tsp	10 Tbsp plus 2 tsp	2/3 cup	
36 tsp	12 Tbsp	¾ cup	6 fl oz
42 tsp	14 Tbsp	1 cup minus 2 Tbsp	7 fl oz
48 tsp	16 Tbsp	1 cup	8 fl oz

Practice!

- 2/3 cup of flour is being used in a recipe. How many tablespoons is that? **Answer: 10 Tbsp + 2 tsp**
- A bottle of oil has 32 Tbsp in it. How many cups is that? **Answer: 2 cups**
- If you need 2 Tbsp of brown sugar, but you cannot find your tablespoon to measure, how many teaspoons can you measure out to get the same amount? **Answer: 6 tsp**
- If a serving of flour is ¼ cup, but you want to measure it in tablespoons, how many Tbsp would it be? **Answer: 4 Tbsp**

Measuring Liquid Ingredients

**TIME:**

30 minutes

MATERIALS NEEDED:

- Liquid measuring cups (One cup for every 1-2 youth. You can have youth bring their own!)
- Set of measuring spoons (One for every 1-2 youth. You can have youth bring their own!)
- Large bowls (one for every 1-2 youth)
- Water
- Food coloring (any color)

OBJECTIVES:

The 4-H member will:

- Learn how to correctly measure liquid ingredients.
- Identify a liquid measuring cup and what types of ingredients are measured in it.
- Identify each measuring spoon by name.
- Begin to comprehend measuring equivalents (if applicable - more appropriate for older youth).

EXPLORE THE CONTENT:

There are certain measuring cups used to measure liquids, which are different than the ones used to measure dry ingredients. If you want it to turn out successfully, it is important to use the correct measuring cup when following a recipe. Measuring spoons are also sometimes used for liquids. These are the same measuring spoons used for dry ingredients.

When measuring, be sure to have your liquid measuring cup on a flat surface or you might accidentally add too much, or too little, to your recipe. When checking to see if the ingredient is at the desired level, have the measuring cup sitting on a flat, level surface and bend down to view the measurement at eye level. Do not hold the cup up to eye level because you might actually tilt the cup when viewing, which can result in an inaccurate reading. Some liquid measuring cups are now angled that allow you to read measurement markings by looking straight down into the cup. However, the cup still needs to be on a flat, level surface to ensure an accurate reading.

When measuring liquids with a measuring spoon, you want to make sure the liquid is level with the top of the measuring spoon. Also, be sure that you don't measure liquid ingredients over the mixing bowl. It's just too easy to spill, and you don't want 2 teaspoons of almond extract when the recipe only calls for 1 teaspoon!

When talking about measuring, it is also important to be familiar with measurement abbreviations. Some popular ones are below.

- fl oz = fluid ounce
- gal = gallon
- tsp = teaspoon
- Tbsp = tablespoon
- qt = quart
- pt = pint
- mL = milliliter
- L = liter

DO:

Give each youth (or pair of youth) a liquid measuring cup. Talk about how the measurements are noted on the measuring cup in ounces and cups. Have them identify on the cup the fill line for various measurements as you call them out (1 cup, 6 oz, 4 oz, ½ cup, etc.).

Give each youth a set of measuring spoons. Measuring spoons usually range from 1/8 teaspoon, 1/4 teaspoon, 1/2 teaspoon, 1 teaspoon, and 1 tablespoon. Point out to the youth the way to





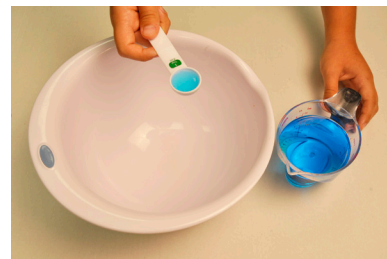
distinguish between a teaspoon and tablespoon (teaspoon is often referenced as “t” or “tsp,” while a tablespoon is often referenced as “T” or “Tbsp”). Call out a measurement and have them find and hold up the corresponding cup or spoon.

Before the activity, add food coloring to the water. This will allow the youth to easily see the water when measuring it in the cup. Give each youth (or pair of youth) colored water, liquid measuring cup, a set of measuring spoons and a bowl.

Have youth work individually or in pairs to practice measuring liquids (colored water) using a measuring cup and measuring spoons. Throughout this process, it is important to be available for youth to provide feedback and tips on how to correctly measure liquid ingredients.

For additional practice, have the youth complete the attached worksheet and/or make the Honey-Citrus Iced Tea recipe attached to practice measuring ingredients.

A handout on measuring equivalents is also attached for you to review with the youth if they are ready.



REFLECT:

- What do you always need to do when measuring liquid ingredients?
 - Answer: Make sure cup is on a flat, level surface.
 - Answer: Make sure you do not measure over the bowl you are using.
- Why is it important to have exact measurements?
- What type of ingredients should be measured in a liquid measuring cup?

APPLY:

- Have you ever tried to make something and used the wrong measuring cup or spoon? If so, what happened?
- Do you feel confident to make your own recipe now that you are familiar with measuring liquid ingredients?

REFERENCES:

- USDA (2009). Measurement Conversion Tables. Retrieved on June 24, 2016, from <http://www.ars.usda.gov/News/docs.htm?docid=9617>
- USDA (2013). Dig In! Grades 5-6, Kitchen Measurements Lesson 7, Handout 1. Retrieved on June 24, 2016 from http://www.fns.usda.gov/sites/default/files/digin_l7h1.pdf
- <http://www.education.com/worksheets/measuring+cups/>
- For a video on measuring ingredients, visit: <https://www.pinterest.com/pin/2885187236673434/> (Video by allrecipes.com)
- Support Materials/Graphics (please attach all support materials, handouts, high resolution graphics that should be included or attached at the end of lesson)
- Measuring Worksheet – would be best if can fit all on one page with answers on a separate page or upside down at the bottom of the page.

Measuring Worksheet

Based on the three types of kitchen measuring instruments below, which one would you use for the following products?



A. Dry Measuring Cups



B. Measuring Spoons



C. Liquid Measuring Cups



Answers - Measuring Worksheet

Based on the three types of kitchen measuring instruments below, which one would you use for the following products?



A. Dry Measuring Cups



B. Measuring Spoons



C. Liquid Measuring Cups



Answer:
A



Answer:
B



Answer:
C



Answer:
C



Answer:
A



Answer:
A



Answer:
B



Answer:
A OR B



Answer:
C



Answer:
C



Answer:
C



Answer:
A



Answer:
A



Answer:
B



Answer:
B

Measurement Equivalents

When it comes to measuring something, the required materials that you need in order to complete that task are not always available. That's where measurement equivalence comes in. For example, if you need 1 tablespoon (Tbsp) of flour, but you cannot find the correct measuring spoon, you can measure 3 teaspoons of flour, which is the same amount. Listed below are some more examples that may be beneficial for you to know, or simply keep this as a handy reference.

Teaspoons (tsp)	Tablespoons (Tbsp)	Cups	Fluid Ounces (fl oz)
3 tsp	1 Tbsp	1/16 cup	1/2 fl oz
6 tsp	2 Tbsp	1/8 cup	1 fl oz
12 tsp	4 Tbsp	1/4 cup	2 fl oz
16 tsp	5 Tbsp plus 1 tsp	1/3 cup	
24 tsp	8 Tbsp	1/2 cup	3 fl oz
30 tsp	10 Tbsp	1/2 cup plus 2 Tbsp	5 fl oz
32 tsp	10 Tbsp plus 2 tsp	2/3 cup	
36 tsp	12 Tbsp	3/4 cup	6 fl oz
42 tsp	14 Tbsp	1 cup minus 2 Tbsp	7 fl oz
48 tsp	16 Tbsp	1 cup	8 fl oz
		2 cups	1 pt

Practice!

1. A recipe calls for 6 fl oz of oil, but you just broke your liquid measuring cup. How many tablespoons of oil would you need to measure to get 6 fluid ounces? _____
2. For your recipe, you need 2 pints of chicken broth? How many cups of chicken broth do you need to measure out? _____
3. You need to measure 4 Tbsp of water. If using a liquid measuring cup, how many cups of water would you measure to get 4 Tbsp? _____
4. If there are 24 teaspoons of vanilla extract in a bottle, how much is that in cups?

Answers - Measurement Equivalents

When it comes to measuring something, the required materials that you need in order to complete that task are not always available. That's where measurement equivalence comes in. For example, if you need 1 tablespoon (Tbsp) of flour, but you cannot find the correct measuring spoon, you can measure 3 teaspoons of flour, which is the same amount. Listed below are some more examples that may be beneficial for you to know, or simply keep this as a handy reference.

Teaspoons (tsp)	Tablespoons (Tbsp)	Cups	Fluid Ounces (fl oz)
3 tsp	1 Tbsp	1/16 cup	½ fl oz
6 tsp	2 Tbsp	1/8 cup	1 fl oz
12 tsp	4 Tbsp	¼ cup	2 fl oz
16 tsp	5 Tbsp plus 1 tsp	1/3 cup	
24 tsp	8 Tbsp	½ cup	3 fl oz
30 tsp	10 Tbsp	½ cup plus 2 Tbsp	5 fl oz
32 tsp	10 Tbsp plus 2 tsp	2/3 cup	
36 tsp	12 Tbsp	¾ cup	6 fl oz
42 tsp	14 Tbsp	1 cup minus 2 Tbsp	7 fl oz
48 tsp	16 Tbsp	1 cup	8 fl oz
		2 cups	1 pt

Practice!

1. A recipe calls for 6 fl oz of oil, but you just broke your liquid measuring cup. How many tablespoons of oil would you need to measure to get 6 fluid ounces? **Answer: 12 Tbsp**
2. For your recipe, you need 2 pints of chicken broth? How many cups of chicken broth do you need to measure out? **Answer: 4 cups**
3. You need to measure 4 Tbsp of water. If using a liquid measuring cup, how many cups of water would you measure to get 4 Tbsp? **Answer: 1/4 cup**
4. If there are 24 teaspoons of vanilla extract in a bottle, how much is that in cups?
Answer: 1/2 cup

Honey-Citrus Iced Tea

Supplies:

Tea kettle or pot
Large pitcher or bowl
Stirring spoon

Ingredients:

8 cups water
4 tea bags
1/3 cup honey
8 ounces fresh lemon juice
8 ounces fresh lime juice
Cold water
Ice
Lemon and lime slices, for garnish



Instructions:

1. Bring the 8 cups of water to a boil in a tea kettle or pot.
2. Remove the kettle from heat.
3. Place the 4 tea bags in the large pitcher or bowl. Pour the hot water over the tea bags.
4. Let steep for about 5 minutes.
5. Discard the tea bags.
6. While the tea is still very warm, stir in the honey until it is completely dissolved. Taste for sweetness and add more honey if desired.
7. Set the tea aside to cool to room temperature. You can speed the process by placing it in the refrigerator.
8. Meanwhile, combine the lemon juice and lime juice in a small pitcher.
9. To make each serving, pour 4 ounces of tea in a glass and add 1 ounce of lemon-lime juice. Add 3 ounces of cold water and ice to fill the glass. Serve with lemon and lime slices.

Recipe courtesy of Fruits & Veggies More Matters.

Knives and Chopping



TIME:

20 to 30 minutes, 60-90 minutes if preparing recipes.

MATERIALS NEEDED:

- 4 knives: 1 each of chef knife, utility knife, serrated slicing knife, and a paring knife
- 4 cutting boards
- Kitchen shears
- Potatoes and onions (one per person)
- Note: To keep costs down, assign each youth to bring produce and/or knives and cutting boards.
- Recipe ingredients and supplies (if preparing salsa and vegetable soup recipe - see recipe cards)

OBJECTIVES:

The 4-H member will:

- Learn to safely hold, carry, and use a knife.
- Practice chopping with a knife.
- Learn to identify different types of knives.

EXPLORE THE CONTENT:

The benefit of good knife skills is to keep all of our fingers and limbs in place!

Cooking often includes lots of cutting. There are specific tools to complete specific cutting jobs. It's important to know that sharp knives, when used correctly, are safer than dull knives. Besides a sharp knife, one of the most important tools is a sturdy, nonporous cutting board. It's important to always use a cutting board rather than cutting directly on your counter top.

There are many different knives for various cutting tasks. Knife blades can be smooth or serrated (saw-toothed). The knife handle should fit comfortably in your hand, and the highest quality knives have hardwood handles. The most popular knives are a chef knife (also called a French Knife), utility knife, slicing knife, and paring knife.

The **chef knife** is a large knife that is used to cut, chop, and dice fruits and vegetables.

Blade: Broad

Tip: Pointed

Length: 3-12 inches (8 inches is standard)



A **utility knife** is used primarily for slicing. They work well with delicate foods such as fruit and vegetables and small roasts or poultry.

Blade: Narrow

Tip: Pointed

Length: 5-8 inches





A **serrated (slicing) knife** is designed for slicing breads and cakes. They are also used to cut meat, poultry, bread, and soft vegetables such as tomatoes.

Blade: Narrow

Tip: Rounded

Length: 8-12 inches



A **paring knife** is the smallest knife, and is mostly used to peel fruits and vegetables and works well to slice small soft foods.

Blade: Narrow

Tip: Pointed

Length: 2-4 inches



Another very handy cutting tool is a pair of **kitchen shears**. They can be used to snip herbs, trim vegetables, and cut meat and/or dough.



What do you think is safer – a sharp knife or a dull knife? A sharp knife is definitely safer than a dull one. Sharp knives glide evenly, and almost effortlessly, through food. This means you have control of the blade at all times. Dull knives tug so it is necessary to apply more force – meaning you have momentarily lost control of the blade. That leads to nicks, cuts, or worse. Keeping a sharp edge on your knife is key to knife safety!

Knives are one of the most versatile tools used in the kitchen, but it's important to know how to properly use them. Fancy knife skills are only developed after years of practice!





Rules for Knife Safety:

- Securely hold your knife
- Anchor cutting boards
- Fingertips curled back
- Eyes on the knife
- Take your time
- Yield to falling knives

How to Hold a Knife:

The most secure way to grip a knife is by gripping the top of the blade firmly between your thumb and forefinger. Place your middle finger just behind the heel. This grip may take some getting used to, but it gives you maximum control over your knife and allows you to pivot from the wrist when chopping.



It is also acceptable to grip the knife handle with all four fingers, with your forefinger just behind the heel of the blade. Your thumb should still rest on the face of the blade to maintain better control and allow you to pivot from the wrist.



Please note, placing your thumb on the spine of the blade pushes your wrist upward into an awkward position. You do not have as much control over the angle of the blade, so it is more likely to slip during use.

Never hold a knife only by the handle. Instead of pivoting from the wrist, the heel of the knife becomes the pivot point. This motion is very difficult to control and is more likely to result in injuries.



Cutting Boards:

Cutting boards come in many shapes and sizes. There are plastic (also called poly or PE) cutting boards, plastic chopping mats, as well as acrylic and wood cutting boards. Choosing the correct cutting board is just as important as choosing the correct knife! There are three important characteristics you should look for when selecting a cutting board.

1. It should be easy to clean and sanitize.
2. It should protect the edge of your knife from becoming dull too quickly.
3. It should be rough enough to keep your food from moving around as you chop.

It is also important to prevent the cutting board from moving around during use. Some cutting boards come with rubber feet to help grip the countertop. While these are useful, they limit you to using only one side of the board. Other cutting boards have grippers in the corners so both sides can be used. Cutting board non-slip mats are also available to secure any cutting board. If you do not have any of these available, a good substitute is a damp (not wet!) dish cloth. Place it under the cutting board, then try to slide the board around before you start cutting. If the cutting board slides, re-dampen the cloth.

Food cut to specific sizes and shapes can be very useful in cooking. Consistently sized pieces cook evenly and at the same rate, eliminating uneven textures.





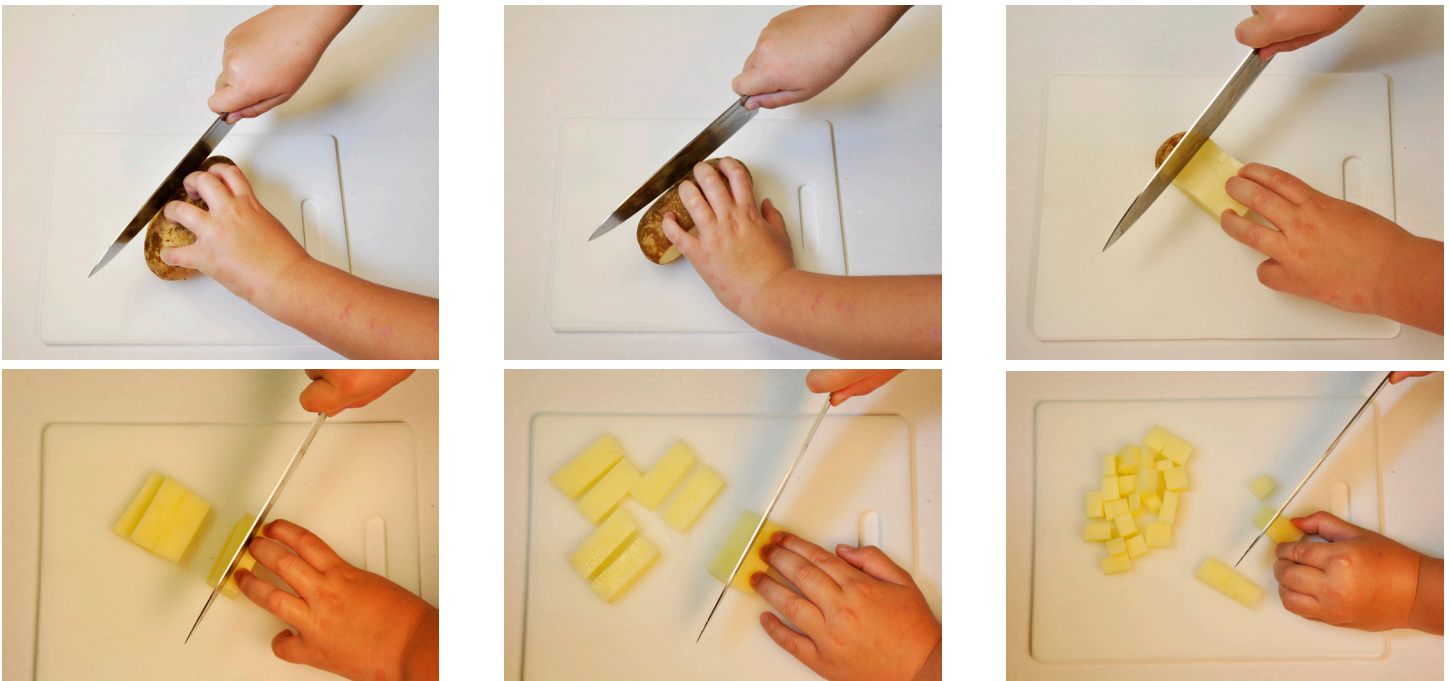
DO:

Knife Skills Lab

To practice knife skills, use potatoes. They are softer, less slippery, and cheaper than many other vegetables. Cut potatoes can be held in the refrigerator in salted water overnight, then boiled and mashed.

Squaring off is a cutting technique that is helpful for most types of food. Holding with your fingers curled back, make straight cuts to create a flat surface on all four sides. This also eliminates the need for peeling vegetables before cutting them.

Practice with Potatoes: Once the potato has been squared off, make a series of slices straight down through the food. These slices can be stacked or cut individually into sticks. The sticks can then be cut into cubes. Cuts should be made by lifting the heel end of the knife off the cutting board, then slicing forward and down in a single smooth motion. (We will have pictures to accompany these instructions.)



Practice with Onions: Onions can be difficult to cut into evenly sized pieces. The following steps can be used to make this process a little faster and a lot easier. (We will have pictures to accompany these instructions.)

Start by cutting off the stem end, leaving the hairy roots.

- Place the onion on the newly-cut flat side and slice straight down through the middle of the root end to cut the onion in half.
- Working close to the edge of the counter or work table, make a series of horizontal slices through each onion half, working from the bottom up (depending on the size of the onion, you should be able to make three or four cuts).
- Make a series of vertical cuts through the fattest part of the onion. DO NOT cut all the way through the root end. This is holding everything together to make the next step easier.
- To finish dicing the onion, make a second series of vertical cuts starting at the stem end (where you made the very first cut), and continue back toward the root end (that is holding everything together). If the root end becomes too small to hold onto securely, stop cutting. Only cut back as far as you feel comfortable.



Take it a Step Further

For older youth, and if time permits, have the youth divide into groups and each prepare a recipe. One will prepare a vegetable soup while the other will make Pico de Gallo. Recipes are attached.

REFLECT:

- What are the six rules for knife safety?
- Why is a dull knife more dangerous than a sharp knife?
- When cutting the potatoes and onions with the instructions provided, how was this different than how you do it at home (or have seen someone do it at home)?

APPLY:

- What type of knife do you feel most comfortable with when cooking at home?
- Have you ever tried to use a knife to cut something and it didn't work well? Why?
- How will this lesson and practice benefit you in your food & nutrition project?

REFERENCES:

- A great video on basic knife skills is available at: <http://allrecipes.com/video/38/how-to-master-basic-knife-skills/>
- Allen, K. & Smith, J. Tips for Teaching Knife Skills. Utah State University Cooperative Extension.

Recipes that Help Your Cutting and Knife Skills

Pico de Gallo

Supplies:

1 medium size bowl
2 cutting boards
2 knives
Measuring cups
Measuring spoons

Ingredients:

2-3 tomatoes, small dice	Salt, as needed (optional)
½ red onion, small dice	Pepper, as needed (optional)
2 cloves garlic, minced	Sugar, as needed (optional)
1 jalapeno, seeded and finely chopped	Cumin, as needed (optional)
½ cup chopped cilantro	Dried oregano, as needed (optional)
Juice of one lime	
Optional ingredients:	

Instructions:

1. Mix all ingredients together and adjust seasoning as needed by adding optional ingredients.
2. Let sit at room temperature for up to one hour. Can be refrigerated for 1-2 days but is best if served fresh.

Hearty Veggie Soup

Supplies:

1 large pot with lid	2-3 cutting boards	Dry measuring cups
1 can opener	1 large stirring spoon	Measuring spoons
1 colander	1 ladle	
2-3 knives	1 liquid measuring cup	

Ingredients:

1 (14.5 oz.) can low sodium chicken broth	2 stalks celery, small dice
1 (8 oz) can tomato paste	1 (14.5 oz) can diced tomatoes with green chilies
1 cup water	1 cup frozen green beans
3 small red potatoes, small dice	1 cup frozen corn kernels
2 carrots, small dice	1 teaspoon Creole seasoning
1 can black beans (drained and rinsed)	Salt and pepper to taste
1 small onion, small dice	

Instructions:

1. In a large stock pot, combine broth, tomato paste, water, potatoes, carrots, celery, onion, beans, undrained diced tomatoes, green beans, and corn.
2. Season with Creole seasoning, salt and pepper.
3. Bring to a boil, then reduce to a simmer for 30 minutes or until all vegetables are tender.

Cooking in the Kitchen



TIME:

20 to 30 minutes

MATERIALS NEEDED:

- Copies of the Kitchen Safety Checklist (one per person)
- Writing utensils (one per person)
- Kitchen area set up for cooking with safe and unsafe examples
- Various cooking tools (pots, pans, potholders, bowls, knives, etc.)

OBJECTIVES:

The 4-H member will:

- Learn the basic principles to stay safe in the kitchen.
- Learn ways to prevent cooking fires.
- Learn what to do if a cooking fire occurs.

EXPLORE THE CONTENT:

Cooking is often a relaxing and fun task that brings family and friends together, and sometimes brings on some friendly competition. It's also a great way to showcase your creativity and love of good food. However, it is important to practice safety while in the kitchen to prevent injury and fire. Here are some simple rules for kitchen safety.

• **Attire:**

- Wear an apron to keep your clothes clean.
- Never cook in loose clothes and keep long hair tied back. You don't want anything accidentally catching fire or have hair end up in your food. Baggy sleeves can also get caught in mixer beaters or other equipment.
- Avoid wearing dangling jewelry. Bracelets and long necklaces can get tangled around pot handles.

• **Knives:**

- Store knives in a wooden block or in a drawer. Make sure the knives are out of the reach of children.
- Always pick up a knife by its handle, not its blade.
- When cutting with a knife or using a peeler, always cut and peel away from yourself.

• **Potholders:**

- Keep potholders nearby and use them when handling pots, pans and baking trays, whether they are in the oven or microwave oven or on the stovetop!
- Avoid keeping potholders, as well as dish towels, recipe cards, and curtains too close to the stovetop or an open flame to avoid them catching fire.
- Always use a dry potholder or oven mitt when handling pots and pans. Wet potholders won't keep the heat from burning your fingers.
- Replace worn out or torn potholders and wash them frequently.

• **Stovetop Cooking:**

- Use the back burners when you cook, if possible. Turn handles of pots and pans inward – away from the front of the stove. This will prevent you from knocking them off or children grabbing them, which can result in a spill or someone getting burned.
- Put foods gently into boiling water and grease so it will not splash on you.
- Lift lids from hot pots with the opening away from you.
- Do not put hot grease into water or water into hot grease. It will splatter and might burn you.

• **Microwave Safety:**

- Open heated food containers slowly, away from the face to



avoid steam burns. Hot steam escaping from the container or food can cause burns.

- Only use microwave-safe cookware in the microwave. The FDA recommends using glass, ceramic, and plastic containers labeled for microwave oven use.
- Never put aluminum foil and anything metal, such as metal pans, in the microwave. The microwaves reflect off them, causing food to cook unevenly and can possibly damage the oven.
- Some plastic containers should not be used in microwaves because heated food can cause them to melt.
- Avoid super-heated water in the microwave oven. "Super-heated" means water is heated beyond its boiling temperature, without signs of boiling. If you use a microwave oven to heat water in a clean cup beyond the boiling temperature, a slight disturbance or movement may cause the water to violently explode out of the cup, which can cause skin burns and scalding injuries.
- **Cleaning:**
 - Wipe up spills immediately. Keeping the floor dry will prevent slips and falls.
 - When you are finished cooking, always make sure all oven and stove dials are turned off.
- **Food Safety:**
 - Practice the four simple steps of food safety: clean, cook, chill, and separate. More information about food safety can be found in the Explore Project Book – Exploring the Food Challenge.
- Keep an all-purpose fire extinguisher in your kitchen. This is one that can be used on grease and electrical fires. While you should do your best to prevent a fire, they sometimes happen, and it's best to be prepared.

Cooking fires are the number one cause of home fires and home injuries. Being mindful when you cook can go a long way to helping prevent these fires. The leading cause of fires in the kitchen is unattended cooking. It's important to be alert to prevent cooking fires.

What you should know:

- Be on alert! If you are sleepy, don't use the stove or stovetop.
- Stay in the kitchen while you are frying, grilling, boiling or broiling food.
- Check food regularly. Remain in the kitchen while food is cooking, and use a timer to remind you that you are cooking.
- Keep anything that can catch fire – oven mitts, wooden utensils, food packaging, towels or curtains – away from your stovetop.

If you have a cooking fire:

- Get out! When you leave, close the door behind you to help contain the fire.
- Call 9-1-1 or the local emergency number after you leave.
- If you try to fight the fire, be sure others are getting out and you have a clear way out.
- Keep a lid nearby when you are cooking to smother small grease fires. Smother the fire by sliding the lid over the pan and turn off the stovetop. Leave the pan covered until it is completely cooled.
- For an oven fire, turn off the heat and keep the door closed.

Safety considerations for cooking with oil:

- Oil is a key ingredient found in the majority of today's kitchens. Whether a recipe calls for frying or sautéing, oil is included in all of our daily cooking. When using any of the many oils to prepare your meals – like olive, canola, corn or soybean – consider the following safety tips when cooking.
 - Always stay in the kitchen when frying on the stovetop.
 - Keep an eye on what you fry. If you see wisps of smoke or the oil smells, immediately turn off the burner and/or carefully remove the pan from the burner. Smoke is a danger sign that the oil is too hot.
 - Heat the oil slowly to the temperature you need for frying or sautéing.
 - Add food gently to the pot or pan so the oil does not splatter.
 - Always cook with a lid beside your pan. If you have a fire, slide the lid over the pan and turn off the burner. Do not remove the cover because the fire could start again. Let the pan cool for a long time. Never throw water or use a





fire extinguisher on the fire.

- If the fire does not go out of you don't feel comfortable sliding a lid over the pan, get everyone out of your home. Call the fire department from outside.

DO:

Spot the safety! Set up a kitchen as if one is in the middle of cooking a meal. You can do this with cooking supplies and utensils and no food. For example, place a metal bowl in the microwave, or have a potholder laying on the stovetop. See if the youth can identify that these are not safe practices in the kitchen. Be sure to set up examples of safety and others that are not safe.

If youth need a checklist to follow, provide each with a kitchen safety checklist. (Note: Not all safety tips will apply if no one is actually cooking in the kitchen.) Have them identify what kitchen safety practices are being followed and which ones are not being followed. Once each youth completes the assessment, talk through what they saw that was safe and unsafe.

REFLECT:

- Why is it important to practice safety in the kitchen?
- Was there a specific kitchen safety rules that you were surprised by?
- Was it easy to spot the safe and unsafe practices set up in the kitchen?

APPLY:

- Is there a specific kitchen safety practice that you do not see being followed at home?
- Are there any other safety practices one should follow if small children are in the home?
- How is this information important to people that work in food service, cafeterias or restaurants?

REFERENCES:

- National Fire Protection Association. Safety Messages About Cooking. Retrieved on 6/27/2017 from <http://www.nfpa.org/public-education/by-topic/top-causes-of-fire/cooking/safety-messages-about-cooking>
- <http://www.nfpa.org/cooking>
- U.S. Fire Administration. Fire Prevention & Public Education. Burn and Scald Prevention. Retrieved on 6/27/2017 from https://www.usfa.fema.gov/prevention/outreach/burn_prevention.html
- Kids Health. Being Safe in the Kitchen. Retrieved on 6/27/2017 from <http://kidshealth.org/en/kids/safe-in-kitchen.html#>
- U.S. Food & Drug Administration. 5 Tips for Using Your Microwave Oven Safely. Retrieved on 6/27/2017 from: <https://www.fda.gov/ForConsumers/ConsumerUpdates/ucm048953.htm>
- Support Materials/Graphics (please attach all support materials, handouts, high resolution graphics that should be included or attached at the end of lesson)
- Smoke Alarms and Cooking Appliances Infographic – available at <http://www.nfpa.org/public-education/by-topic/top-causes-of-fire/cooking/safety-with-cooking-equipment> - Online, says to download and place wherever you want to use it. Just link to the cooking safety information page at www.nfpa.org/cooking.
- Cooking Fire Safety Infographic – available at: <http://www.nfpa.org/~media/images/infographics/cookingsafetyinfographic2016.png?as=1&iar=1&la=en>

Kitchen Safety Checklist

Next time someone is cooking, take a look at their surroundings and use this checklist to make sure they are practicing the common kitchen safety tips.

Attire:	Yes	No	Does not Apply	Notes on what you saw
Apron is being worn				
Hair is tied back				
Loose clothing (such as long or baggy sleeves) is not being worn				
No long or dangling jewelry being worn				
Knives:				
Knives stored in block or drawer				
Knife picked up by handle (not blade)				
Cut away from oneself				
Potholders:				
Potholders are nearby to cooking area for easy access				
Potholders are dry				
Potholders are not worn out or torn				
Stovetop Cooking:				
Back burners are being used				
Handles of pots and pans are turned inward				
Lids of pots and pans are lifted with opening away from face				
Foods are gently placed into boiling water/hot grease				
Hot grease and water are not being mixed				
Remains attentive to what is being cooked				
Microwave Oven Cooking:				
Microwave-safe cookware is being used				
Heated containers are being opened slowly				
Heated containers are being opened away from the face				
No metal is placed in the microwave				
Cleaning:				
Spills are cleaned up immediately				
All oven and stove dials are turned off after cooking is complete				
Fire Safety:				
Potholders, dish towels, recipe cards and curtains are not too close to the stovetop				
All-purpose fire extinguisher is stored in the kitchen				
Cook remains in kitchen while food is cooking				
A timer is being used				

**This checklist can also be used as a tool to assess food challenge teams' kitchen safety practices.*



MARKING INSTRUCTIONS

CORRECT: ● INCORRECT: ✗ ⊗ ⊖ ⊕

4-H Explore
Project Book Evaluation
Food & Nutrition #2 - Cooking in the Kitchen

1. Please read the statement in the left column of the table below. Bubble in the circles that describe your level of understanding **BEFORE** attending this program. In the section on the far right, bubble in the circles that describe your level of understanding **AFTER** attending this program. You will have two bubbles per row.

LEVEL OF UNDERSTANDING: 1 = Poor, 2 = Average, 3 = Good, 4 = Excellent	BEFORE				AFTER			
As a result of participating in the Food & Nutrition project lessons and activities...	1	2	3	4	1	2	3	4
I understand what I can do to prevent the spread of germs.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can identify different kitchen tools and their uses.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I understand the importance of proper measuring when cooking or baking.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I understand the different types of knives and their uses.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I understand the basic principles to stay safe in the kitchen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I understand what to do to prevent a cooking fire and what to do if one occurs.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. For each statement below, fill in the bubble that best describes you.

INTENTIONS TO ADOPT: As a result of participating in the Food & Nutrition Project lessons and activities...	Yes	No	Unsure
I plan to practice healthy habits to prevent the spread of germs.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can correctly measure dry ingredients.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can correctly measure liquid ingredients.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I will practice safety when holding, carrying and using a knife.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I will practice safety in the kitchen to prevent accidents and fires.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3. For each statement below, fill in the bubble that best describes your level of agreement with the following statements.

BEHAVIOR CHANGES: As a result of participating in the Food & Nutrition Project lessons and activities...	Strongly Disagree	Disagree	Agree	Strongly Agree
I am more comfortable working in a team.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am more willing to listen to others.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am more comfortable speaking with others.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am more confident in my abilities as a leader.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



MARKING INSTRUCTIONS

CORRECT: ● INCORRECT: ✗ ⊗ ☐ ○

3. What is the most significant thing you learned in the Food & Nutrition project?

Please tell us about yourself.

Gender: Female Male

I consider myself to be: African American White
 Asian American Other
 Native American

I consider myself to be: Hispanic Non-Hispanic

Grade: 3rd 5th 7th 9th 11th
 4th 6th 8th 10th 12th

Most of the time, you live . . .

<input type="radio"/> Farm or ranch	<input type="radio"/> Suburb of city between 50,000
<input type="radio"/> Town less than 10,000	<input type="radio"/> Central city/urban center with more than 50,000
<input type="radio"/> City between 10,000 - 50,000	

Please provide any additional comments below.

