Thanksgiving Table
Homeschool Lesson Plan

Overview

Raddish is designed by a dedicated team of teachers and chefs who believe the kitchen classroom is the tastiest place to learn. We love watching learning come alive when kids mix math, stir science, and taste culture!

Paired with the materials found in your THANKSGIVING TABLE box, this lesson plan divides your box into three 45-90 minute lessons. You can use these lessons for students from pre-K – middle school and adapt them to suit your needs. Depending on your timeframe, child's age, and their engagement, these lessons can be taught together or separated.

Please refer to the curriculum provided in your box: recipe guides, activity card, and introduction card.

Happy cooking! Happy learning!

Lesson #1: TURKEY NOODLE SOUP
& FLAVOR BASES AROUND THE GLOBE
Activity Time: 45 minutes

LEARNING OUTCOMES

- Students will **learn** the purpose of flavor bases.
- Students will **learn** and **use** the terms *French mirepoix, Italian sofrito, Spanish sofrito, Cajun trinity, and Thai curry pastes.*
- Students will be **introduced** to the components of flavor bases: aromatics, fats, and supplementary ingredients.
- Students will **learn** the difference between *sautéing and sweating.*
- Students will **explore** maps, infographics, and tables to interpret and share information.
- Students will **hunt** through recipes to discover the widespread use of flavor bases in cooking.
- Students will **experiment** with cooking one dish in two or more ways to discover how flavor bases change the finished dish.
- Students will **create** their own favorite flavor base and **name** it.
- Students will **read** and **practice** with **Featured Culinary Skill** - How to Roast.
- Students will **make** and **share** Turkey Noodle Soup.

FLAVOR BASES AROUND THE GLOBE

Teacher Prep:

- Collect Materials:
  - Recipe guide, tools, and ingredients listed
  - Atlas, world map, or google maps
  - Print out these resources to be used throughout the lesson:
    - "Aromatic Flavor Bases from Around the World" (included – see page 23)
    - "Flavors from around the World Map" (included – see page 24)
    - "Guide to Aromatics" (included – see page 25)
  - Flavor Base Swap Out
    - Ingredients for chosen recipes
  - Flavor Base Recipe Hunt
    - a variety of recipes from magazines, cookbooks, the internet, and of course Raddish recipe guides
  - Create your Own Flavor Base
    - materials to record (art supplies, paper pencil, computer access)
- Read
  - Optional books for background understanding:
    - The Flavor Bible: The Essential Guide to Culinary Creativity by Karen Page
    - Salt, Fat, Acid, Heat: Mastering the Elements of Good Cooking by Samin Nosrat

Lesson: FLAVOR BASES AROUND THE GLOBE

- Introduction: Favorite Cuisine Flavors
  - Ask:
    - What is your favorite international cuisine?
      - What are the main flavors you taste in that food?
        - Sour, spicy, zesty…
        - Garlic, ginger, pepper
    - Why do you think that these flavors are used in that kind of cuisine?
      - That's where these ingredients grow (use an atlas!)
      - Spicy food helps you sweat and cool down in hot climates
  - Read the "Flavor Bases" Fun Bite from the Turkey Noodle Soup Recipe Guide
  - Ask:
    - Have you ever heard the term *aromatic* before? What do you understand it to mean?
      - Comes from the word aroma. Shows how much of a role smell plays in the taste of foods.
    - What fats can you think of?

- Olive oil, butter, vegetable oil, lard, bacon fat, etc.
    - How would you pronounce the word *mirepoix*? (meer-pwah)
- **Tell** the students that today they are going to **learn** more about the elements that make up flavor bases around the world, **discuss** why flavor bases change from region to region, and learn how to **make** their own flavor base.

- Information: What is a Flavor Base?
    - **Share** the following information:
        - Basic Information
            - In most European-influenced cuisines, classic flavor bases are made up of a mixture of three or four aromatic vegetables, sometimes herbs, and occasionally a small bit of meat.
            - Asian cuisines often add freshly ground spices to their own combinations of aromatic vegetables and herbs. Aromatic vegetables, which give off deep, well-rounded flavors and pleasing aromas when cooked, are the core of flavor bases.

        - What size pieces should I cut?
            - The size you cut the individual components of a flavor mixture depends on how long the mixture will cook and if it will be puréed.
                - For a quick-cooking dish:
                    - Cut mirepoix into small pieces so they will release their flavor more quickly during the short cooking time.
                - For a pot of long-simmering stock:
                    - Cut mirepoix into very large pieces (onions cut in half, whole celery ribs, and carrots in chunks)
                - How to Cut Vegetable Mirepoix- Mirepoix Ratios (3:13) https://www.youtube.com/watch?v=vz0k-SIQPNk

        - How a flavor base is cooked varies by region:
            - A flavor base is usually added to a dish at the very beginning of cooking.
            - It is cooked in fat until the flavors are released, but differences in cooking methods can change how a flavor base affects a dish.
                - *Sweating*, cooking over low heat, is designed to get the vegetables to release their flavor so that it ends up in the surrounding liquid (soup or sauce).
                    - Spanish Traditional Cooking Techniques: Sofrito (2:14) https://www.youtube.com/watch?v=C06j9PXKZ_I

- *Sautéing*, high heat and fast cooking, is designed to seal the flavor of the vegetables within them.

- What kind of fat?
  - The type of fat used to cook the base influences the final flavor and sometimes even the texture of a dish.
  - The French generally cook mirepoix in butter, but country cooks may improvise according to their own traditions.
    - A Provençal cook, for example, will probably use olive oil (and add garlic to the ingredients).
    - A cook in Gascony might use duck or goose fat.
    - An Alsatian cook may use lard.
  - Asian cooks might use coconut or peanut oil.
  - Indian cooks are known for their flavorful ghee (toasted clarified butter).
  - Italians also use whatever fat is most abundant in their region (butter, olive oil, lard, or even the rendered fat from a prosciutto or pancetta rind).
  - Mexican cooks often don't use any fat at all. Instead they dry-roast garlic, onions, and chiles on a comal, a kind of flat, heavy roasting pan. The comal gives the vegetables a distinctive and delicious toasted flavor.
- Math in Flavor Bases
  - Most flavor bases are ruled by ratios.
    - A ratio is a relationship between two numbers indicating how many times the first number contains the second or third.
      - For example, a vegetable drawer has 6 carrots, 4 tomatoes, and 2 red peppers in it. The ratio of carrots to tomatoes to peppers is 6:4:2, which is equivalent to the ratio 3:2:1.
    - Mirepoix Ratio
      - 2:1:1 – 2 parts onion, 1part carrot, 1 part celery
        - Professional chefs do this ratio by weight but at home you can just use your eyeballs!
        - How to Cut Vegetable Mirepoix- Mirepoix Ratios (3:13) https://www.youtube.com/watch?v=vz0k-SlQPNk
    - The Holy Trinity or Cajun Trinity
      - 2:1:1 – 2 parts onion, 1 part celery, 1 part green bell pepper

- The Trinity: Mastering the foundation of Cajun Cooking (1:16) https://www.youtube.com/watch?v=IaBjamTThS0

- **Provide** students three different ways to learn about flavor bases from around the world:
  - "Aromatic Flavor Bases from Around the World" (included – see page 23)
  - "Flavors from around the World Map" (included – see page 24)
  - "Guide to Aromatics" (included – see page 25)

- Instructions for Activities: Flavor Bases are Everywhere and Change our Experiences
  Choose one or all of the following activities.
  - Flavor Base Swap Out
    - **Challenge** students to cook one dish three ways.
    - **Provide** students with the three included information sheets
    - Over the course of a couple of weeks **cook** the same protein or vegetable the same way.
    - Finish cooking it in a sauce made with three different flavor bases. For example:
      - Chicken Pot Pie (mirepoix - onion, carrot, celery)
      - Chicken Tikka Masala (Indian flavor base - onion, garlic, chilies, ginger)
      - Chicken with Charred Tomato Sauce (Mexican - tomato, chili, onion garlic; charred in a cast iron pan)
      - Chicken Stir-fry (Chinese/Cantonese - ginger, green onion, and garlic)
    - **Ask** your family and friends for their feedback about which dishes they like the best.

  - Flavor Base Recipe Hunt
    - **Collect** a variety of recipes from magazines, cookbooks, the internet, and of course Raddish recipe guides.
    - **Provide** students with the three included information sheets
    - **Challenge** them to **seek out** and **mark** the different flavor bases they find.
    - **Discuss** whether they found any patterns in ingredients by the region in which they originated?

  - Create your Own Flavor Base
    - **Challenge** students to come up with their own flavor base.
    - **Remind** them that it must contain aromatics, potentially a fat source, and have supplemental flavors.
    - **Provide** students with the three included information sheets
    - Optionally, this book and others like it could be very helpful:

- The Flavor Bible: The Essential Guide to Culinary Creativity by Karen Page

- **Support** students in **recording** their very own flavor base:
  - in a table
  - on a map
  - in an infographic
  - or another way
- Have students **name** their flavor base. For example, *texantaste*, or *Maria's Marvel*, etc.

Extension:

- **Discuss** what delivery system of information (maps, infographics and tables) works best for them and why.
- **Create** a video to **teach** others how to make their favorite or their very own flavor base.
  - How to Cut Vegetable Mirepoix- Mirepoix Ratios (3:13) https://www.youtube.com/watch?v=vz0k-SIQPNk

COOKING TURKEY NOODLE SOUP

Kitchen Prep

- Read the **Turkey Noodle Soup** recipe card together.
- Identify and gather ingredients.
- Gather tools.
- Read the **Featured Culinary Skill - How to Roast.**
- Discuss kitchen safety. Specifically, KNIFE safety (Visit Raddishkids.com/pages/safety).

Prepare **Turkey Noodle Soup**

- Ask children to read or describe each step.
- Together, follow the steps in the recipe.
- Give each child a turn to dice, mince, and chop.
- When the **Turkey Noodle Soup** is ready, eat, taste and share!
- While your friends and family are eating, challenge them to identify the flavors they taste in the Turkey Noodle Soup. Share with them the ingredients, ratios, and knife cutting skills required to make the mirepoix flavor base.

RESOURCES

- Books
  - The Flavor Bible: The Essential Guide to Culinary Creativity by Karen Page
  - Salt, Fat, Acid, Heat: Mastering the Elements of Good Cooking by Samin Nosrat
  - The Flavor Matrix by James Briscione
  - Flavor Math: Understanding and creating delicious flavor combinations by Jean-Marie Leufkens
- Websites
  - https://theculinarycook.com/the-best-way-to-make-mirepoix/
  - https://tim.blog/2013/03/17/a-world-map-of-flavors-36-regions-36-herb-and-spice-combinations/
  - https://www.finedininglovers.com/article/infographic-flavor-bases-8-world-cuisines
  - https://www.seriouseats.com/2014/05/all-about-mirepoix.html
  - https://tastytufts.wordpress.com/2014/10/08/aromatic-bases-around-the-world/
- Videos
  - The Trinity: Mastering the foundation of Cajun Cooking (1:16) https://www.youtube.com/watch?v=IaBjamTThS0
  - How to Cut Vegetable Mirepoix- Mirepoix Ratios (3:13) https://www.youtube.com/watch?v=vz0k-SIQPNk
  - Spanish Traditional Cooking Techniques: Sofrito (2:14) https://www.youtube.com/watch?v=C06j9PXKZ_I

Lesson #2: CORN MUFFINS WITH STUFFING BUTTER
& HUNGRY TO HELP / WHAT IS PHILANTHROPY
Activity Time: 60-90 minutes

LEARNING OUTCOMES

- Younger students will **listen** to a story and **discuss** what it means to be hungry.
- Younger students will **discuss the concepts** of kindness, helpfulness, friendship, caring, and sharing.
- Younger students will **learn** the term *food insecure.*
- Younger students will **brainstorm** ways to assist people in their community who are in need of food.
- Younger students will **meet** with, go on a **fieldtrip** to, or **learn** about organizations that help people who are hungry in their community.
- Younger students will **plan and carry out** an action to help others.
- Younger students will **create writings and drawings** to **share** their feelings about the project.
- Older students will **read or listen** to a story that highlights the concept of philanthropy.
- Older students will **define** philanthropy as sharing time, talent, or treasure (money, things) for the common good.
- Older students will **reflect** on the difference between wants and needs and the freedom of volunteers to choose how they share their time, talent, or treasure (money, goods).
- Older students will **recognize** that philanthropy provides benefits to the giver and receiver.
- Older students will **investigate** their own ideas of benefits and opportunity cost of volunteering.
- Older students **write** a response, or **draw** a comic strip, or **record** a video log on the idea of volunteering.
- Students will **read** and **practice** with **Featured Culinary Skill** - Cutting Herbs.
- Students will **make** and **share Corn Muffins with Stuffing Butter.**

YOUNGER STUDENTS

HUNGRY TO HELP

Notes for the Teacher:

- To make this activity more powerful, research organizations in your community and invite someone from a local nonprofit that addresses the issue of hunger in the community to speak to your students about the issue and their needs. Alternatively, organize a fieldtrip to a food bank or soup kitchen.
- Partial list of charities that fight hunger worldwide:
    - https://www.thespruceeats.com/charities-that-fight-hunger-1666012
- Why teach kindness?
    - Patty O'Grady, PhD, an expert in neuroscience, emotional learning, and positive psychology who specializes in education, reports:
        - Kindness changes the brain by the experience of kindness. Children and adolescents do not learn kindness by only thinking about it and talking about it. Kindness is best learned by feeling it so that they can reproduce it.
    - The good feelings that are experienced when being kind are produced by endorphins. These endorphins activate the areas of the brain that are associated with social connection, pleasure, and trust.
    - These feelings of joyfulness are proven to be contagious, encouraging more kind behavior (also known as *altruism*) by both the giver and the receiver.
- Increased Feelings of Gratitude
    - When children are part of activities that help others less fortunate than themselves, it provides them with a real sense of perspective. Being generous helps them appreciate what they have, makes them feel useful, and fosters empathy.
- Today's lesson plan is from Learning to Give www.learningtogive.org.

Teacher Prep:

- Collect Materials:
    - Recipe guide, tools, and ingredients listed
    - The Very Hungry Caterpillar by Eric Carl
    - Cut up fruit for tasting: apples, pears, plums, strawberries, and/or oranges
    - Chart paper for brainstorming
    - Act to Help Hungry People
        - Optional drawing and poster/flyer making supplies
        - Announcements at church, school, public libraries, etc.
- Read
    - A Kid's Guide to Hunger and Homelessness: How to Take Action! by Tracy Apple Howard with Sage Howard

Lesson: HUNGRY TO HELP

- Introduction: What it Means to be Hungry
  - **Prepare** cut up fruit.
  - **Distribute** the fruit to the students and tell them that today that are going to be reading a story about a caterpillar that is very hungry and wants to look for some food.
  - **Ask:**
    - Do you think the caterpillar would like to eat any of the fruits we are having now?
    - What do you think will happen if he doesn't find something good to eat?
  - **Read** aloud The Very Hungry Caterpillar by Eric Carl.
    - **Invite discussion** and **predictions** focusing on kindness, friendship, caring/sharing, helpfulness and feelings.
    - **Ask:**
      - How do you think the caterpillar felt at the beginning of the story?
      - Have you ever felt hungry?
      - What is it like to feel hungry and there is no food available?
      - How do you think the caterpillar felt at the end of the story?
  - **Tell** the students that today they will **learn** about people in their community who feel hungry because they do not always have enough to eat. They will **brainstorm** ideas on how to **help** people who are sometimes hungry. Finally, they will be supported in **creating a project** to help those people in their community.

- Information: Organizations That Help People Who Are Hungry
  - **Collect** materials for brainstorming.
  - **Ask:**
    - Why do you think people in your community might be hungry?
      - **Explain** that there are a number of reasons that people/families in their community may not always have enough food to eat. Make your examples age appropriate.
        - Loss of a job by a person in the family.
        - Jobs that don't pay enough to buy enough groceries to last for the whole week.
        - Illness that keeps people from being able to work or bills from hospital cost a lot of money to pay back.
        - Many elderly people and others living on small fixed incomes.
  - **Teach** the term for people that can't always get enough food for themselves and their families is called *food insecure*.
  - **Brainstorm:**
    - On the top of the chart paper write "We can help people who are hungry."

        - **Write** down ALL of their ideas and encourage creativity (even if the ideas are not realistic.)
        - **Tell** students that when they can give their time (playing with kids), talent (making signs), or treasure (donating food) to help someone else, they are acting as philanthropists.
        - Continue the **brainstorm** by encouraging students to think of ways they can share their time and talents.
        - **Post** the brainstorm list and continue to add to it over time.
    - **Invite** a guest speaker, or **research** nonprofit organizations in your community that do work related to community hunger.
    - After the above experience, **review** the brainstorm list of ideas and **choose** as a group what to do about the issue of hunger in their community.
        - **Guide** the students to a project that is age-appropriate and feasible for the timeframe that you have available.

- Instructions for Activity: Act to Help Hungry People
    - **Support** students as necessary to hone and plan their project.
        - For example, plan a food drive.
            - Which organization will they collect for? Why?
            - What will they collect?
            - How will they keep their donations?
            - How will they get the donations to the recipient?
            - Will they track the kinds of food they receive?
    - **Help** students get the word out about what they are doing.
        - Announcements at school.
        - Flyers and posters in churches, community centers etc.
    - **Track the progress** made daily and the impact they are making.
    - **Reflect** on progress and **adjust** responsibilities, as needed.
    - **Take** a field trip to the site for the donation of time, talent, or treasure. For example, visit the food bank and deliver the collected items.
    - **Discuss** the outcome of the project.
        - How did you feel about helping people who are in need of food?
        - What difference do you think you make?
        - What did you like about this project?
        - Is there something you think we could have done differently?
    - **Have** students **record** their individual reflection in a **drawing and/or writing**.

WHAT IS PHILANTHROPY

OLDER STUDENTS

Notes for the Teacher:

- It is important to overtly and directly teach kindness, helpfulness, caring and sharing.
- Patty O'Grady, PhD, an expert in neuroscience, emotional learning, and positive psychology who specializes in education, reports:
    - Kindness changes the brain by the experience of kindness. Children and adolescents do not learn kindness by only thinking about it and talking about it. Kindness is best learned by feeling it so that they can reproduce it.
- Increased Peer Acceptance
    - Research on prosocial behavior among adolescents determined that being kind increases popularity and our ability to form meaningful connections with other people.
    - Being well-liked is an important factor in the happiness of children and it has been demonstrated that greater peer acceptance can be achieved through good deeds.
    - Better than average mental health is reported in learning environments that practice more inclusive behavior due to an even distribution of popularity.
- Increased Feelings of Gratitude
    - When children are part of activities that help others less fortunate than themselves, it provides them with a real sense of perspective. Being generous helps them appreciate what they have, makes them feel useful, and fosters empathy.
- Today's lesson plan is from Learning to Give www.learningtogive.org

Teacher Prep:

- Collect Materials:
    - Recipe Guide, tools and ingredients listed
    - Uncle Willie and the Soup Kitchen by Ryan DiSalvo
        - (12:32) https://www.youtube.com/watch?v=ITk55VqWGuY
    - Chart paper for recording ideas
    - Activity – tools dependent on method of reflecting
        - Journal and pen
        - Art supplies for drawing
        - Recording device for video
- Read
    - Uncle Willie and the Soup Kitchen by Ryan DiSalvo (12:32) https://www.youtube.com/watch?v=ITk55VqWGuY

Lesson: WHAT IS PHILANTHROPY

- Introduction: What Does it Mean Volunteer?
    - Read or watch the read aloud of Uncle Willie and the Soup Kitchen by Ryan DiSalvo (12:32)
        - https://www.youtube.com/watch?v=ITk55VqWGuY

- **Tell** a personal story of a time when you volunteered.
- **Ask** students to **share** their experiences with giving and volunteering.
- **Discuss** Uncle Willie and the Soup Kitchen by Ryan DiSalvo:
  - **Ask**:
    - What are some examples of philanthropy in the story?
    - Why did each person in the story share their time, talent, or treasure?
    - What would you like about being the giver in these situations?
- A soup kitchen provides food for people who are in need.
  - **Ask and chart** answers, "What are the differences between wants and needs?
    - Wants are things that we desire that are non-essential for life (toys, vacations, brand name clothes).
    - Needs are things essential to life. (food, water, shelter, and clothes).
- **Tell** the students that today they will be defining what philanthropy and volunteerism are. They will **investigate** the ideas of selflessness and selfishness. Finally, they will **create** a reflective piece to integrate this new learning.

- Information: Philanthropy Explored and Defined
  - **Define** philanthropy as the sharing of time, talent, or treasure (money, things) intended for the common good.
  - **Discuss** whether volunteering is always associated with needs rather than wants.
  - **Talk about** how volunteering involves choice. People often give their time, talent, and treasure in areas of their personal interest.
    - Uncle Willie loves helping people in the soup kitchen to give people what they need.
    - Other people like to volunteer to provide young people with the opportunities to enrich their lives with non-essentials (like tutoring them in math or paying for a trip to Disneyland).
  - **Discuss** the difference between selfishness (something done for ourselves) and selflessness (done purely for others).
  - **Ask** students to **identify** examples of selfishness and selflessness, from: Uncle Willie and the Soup Kitchen, from their own interactions, or in other media.
  - **Discuss** the difference between paid labor and volunteering.
    - Do you think Uncle Willie is paid for what he does?
    - Do you think volunteering is a selfless act? Why or why not?

- Instructions for Activity: Journal/ Draw/ Video Log
  - **Tell** the students that they have tackled some really big conceptual ideas today.
    - Selfless vs. selfish
    - Paid vs. unpaid work
    - Volunteering involves choice

        - Philanthropy can be sharing time, talent, or treasure
    - **Inform** the students that this is their opportunity to **reflect** on what they have learned.
    - First, students will **choose** a sentence starter:
        - If I helped in a soup kitchen. I would….
        - If I could do any kind of volunteer work it would be…
        - I think I have these talents or treasures to share….
        - The most selfless thing I have ever done is….
        - (Or create your own)
    - Second, students will **choose** how to reflect:
        - Write a 2 plus paragraph journal entry.
        - Draw a picture or comic strip
        - Record a video log
        - (Or create your own)
    - **Encourage** students to **share** their reflections with one another.

Extension:

- **Encourage** students to investigate the idea of being an active citizen in their community.
    - Have them share their ideas and choose one to pursue.
- **Challenge** students to campaign (bring a need to the public's attention or persuade governments to change laws to help a certain group of people or for the good of everyone) about something they are passionate about.
    - Greta Thunberg on climate change
    - Sonita Alizadeh on forced marriage
    - Sophie Cruz on immigration
    - Melati and Isabel Wijsen against plastic bags

COOKING CORN MUFFINS WITH STUFFING BUTTER

Kitchen Prep

- Read the **Corn Muffins with Stuffing Butter** recipe card together.
- Identify and gather ingredients.
- Gather tools.
- Read the **Featured Culinary Skill - Cutting Herbs.**
- Discuss kitchen safety. Specifically, Oven safety (Visit Raddishkids.com/pages/safety).

Prepare Corn Muffins with Stuffing Butter

- Ask children to read or describe each step.
- Together, follow the steps in the recipe.
- Give each child a turn to crack, scoop, and cut herbs.
- When the Corn Muffins with Stuffing Butter are ready, eat, taste and share!
- While your friends and family are eating, younger students can share their volunteer action projects or ideas, older students can share their reflections about what philanthropy entails.

RESOURCES

- Books
    - About Hunger
        - The Very Hungry Caterpillar by Eric Carl
        - Uncle Willie and the Soup Kitchen by Ryan DiSalvo
        - Faith the Cow by Susan Bame Hoover
        - Beatrice's Goat by Page McBrier and Lori Lohstoeter
        - One Potato, Two Potato by Cynthia DeFelice
        - Tight Times by Trina Schart Hyman
        - Sam and the Lucky Money by Karen Chinn, Cornelius Van Wright, and Ying-Hwa Hu
        - A Kid's Guide to Hunger and Homelessness: How to Take Action! By Tracy Apple Howard with Sage Howard
        - The Good Garden: How One Family Went from Hunger to Having Enough by Katie Smith Milway
        - For Adults
            - Material World: A Global Family Portrait by Peter Menzel and Charles C. Man
            - Hungry Planet: What the World Eats by Peter Menzel and Faith D'Alusio
    - About Philanthropy
        - The Giving Tree by Shel Silverstein
        - The Lorax by Dr. Seuss

- Doing Good Together: 101 Easy, Meaningful Service Projects for Families, Schools, and Communities by Jenny Friedman and Jolene Roehlkepartain
- A Kid's Guide to Giving by Freddi Zeiler
- The Power of Half: One Family's Decision to Stop Taking and Start Giving Back by Kevin and Hannah Salwen

- Websites
  - www.edutopia.org
  - www.learningtogove.org
  - https://www.moneyinstructor.com/lesson/activecitizenship.asp
  - https://www.edutopia.org/blog/teaching-kindness-essential-reduce-bullying-lisa-currie
  - https://www.thespruceeats.com/charities-that-fight-hunger-1666012

- Videos
  - Uncle Willie and the Soup Kitchen (12:32) https://www.youtube.com/watch?v=ITk55VqWGuY

Lesson #3: APPLE CRUMB PIE
& PIE CRUST SCIENCE
Activity Time: 45 minutes

LEARNING OUTCOMES

- Students will **learn** the science and vocabulary behind making tender and flaky pastry and teach others the terms as well.
- Students will **learn** the terms *independent, dependent, and control variable*.
- Students will **become** food scientists and **create** two different pie crusts in order to **test** an independent variable and **determine the effect** on the dependent variable (a delicious crust).
- Students will **draw conclusions** as to how the variable in the pie crust changed the final product.
- Students will **use** a combination of **drawing, dictating, and writing** to **share** the findings of their Pie Crust Test.
- Students will **read** and **practice** with **Featured Culinary Skill** - Preparing Pie Crust.
- Students will **make** and **share** Apple Crumb Pie.

PIE CRUST SCIENCE

Notes for the Teacher:

- **Review** the scientific terms *independent, dependent, and control variable*. See description in the body of the lesson

Teacher Prep:

- **Collect Materials:**
  - Recipe guide, tools, and ingredients listed
  - Introduction
    - Books about Pie (see list in resources below)
  - Food Scientist Experiment
    - Paper and pencil for recording observations and conclusions
    - Optional:
      - Pastry cutter
      - Invitations to come and eat pie!
- **Read**
  - How Alcohol Makes a Flakier Pie Crust: The "Proof" Is In The Pie https://blogs.scientificamerican.com/food-matters/how-alcohol-makes-a-flakier-pie-crust-the-proof-is-in-the-pie/
- **Watch**
  - Make the best pie ever using science (2:48) https://www.youtube.com/watch?v=1RdSSJThXvU
  - Learn to cook: How to Construct the Perfect Pie Crust (3:29) https://www.youtube.com/watch?v=5ba2pCTozAw

Lesson: PIE CRUST SCIENCE

- Introduction: Do You Love Pie?
  - **Read** a book about pie. See list in resources below. For Example:
    - Enemy Pie by Derek Munson
      - Kid's Book Read Aloud: Enemy Pie (12:02) https://www.youtube.com/watch?v=FTM8Cccl1xs
  - **Discuss** the roll that pie had in the story.
  - **Ask:**
    - What do you like about pie? (help focus on the parts of the pie – filling, and crust)
    - Have you ever made pie before?
      - What was the occasion?
      - What kind of pie?
      - Who did you make it with?
      - How did it turn out?

- **Tell** students that today they are going to **learn** about the ingredients that make up pie crust and what makes pies good. **Inform** them that they will then get to be food scientists and **experiment** with independent variables to create the best crust that they can!

- Information: Components of a Great Pie Crust
  - **Share** that there are many different opinions about how to make the perfect pie crust, however, there are some ingredients that every crust must have.
    - **Flour** – makes up the crust
    - **Fat** – creates flavor and flake
    - **Salt** – provides a boost to flavor
    - **Sugar** – adds flavor, helps brown the crust
    - **Liquid** – binds the ingredients together; absorbs into the flour and creates gluten
  - **Explain** that most people define a successful pie crust by two main characteristics:
    - *Tenderness*
      - Tenderness comes from managing the gluten, which develops from the proteins in the flour. In a pie crust you want just enough gluten so that the dough holds together. You can control the gluten by the flour you use. All-purpose and pastry flour have moderate protein content. You can also use as little liquid as possible. Finally knead your dough very gently so as not to develop the gluten strands.
    - *Flakiness*
      - Flakiness comes from the solid fat that is used to make the dough. The fat is mixed into the flour so that you still have some pieces that you can see and feel. During baking, the fat, which is made up of fat and water, both melts and releases steam. This change of state results in a slightly risen crust of layers separated by air pockets – also known as flaky crust. The size of the fat pieces in the raw dough results in the size of the flakes.
  - **Read** the Featured Culinary Skill "Preparing Pie Crust" to learn some techniques to prepare professional looking pie crust.
  - **Watch** the Videos:
    - Make the best pie ever using science (2:48) https://www.youtube.com/watch?v=1RdSSJThXvU
    - Learn to cook: How to Construct the Perfect Pie Crust (3:29) https://www.youtube.com/watch?v=5ba2pCTozAw

- Instructions for Experiment: Pie Crust Test Kitchen
  - **Inform** the students that today they are going to become food scientists.
  - **Explain** that they will have the opportunity to make two different pie crusts. The trick is that they can only change one thing (one *variable*) between the two crusts.

- **Teach** that in science a variable is any item, factor, or condition that can be controlled or changed.
    - There are three types of variables in scientific experiments:
        - *Independent Variable* - the thing that is changed or manipulated by the scientist
        - *Dependent Variable* - the thing that is observed or measured in the experiment
        - *Control or Constant Variable* - the thing or things that the scientist wants to remain the same
- **Ask**:
    - Why do you think you should only change one thing?
        - So you can learn that whatever differences in the pie crust are due to that one variable (as opposed to a combination).
- **Read** the Raddish Recipe Guide "Apple Crumb Pie."
- **Remind** the students that their job as food scientists is to create the best ever pie crust.
- Ask students to determine what could be the independent (ideas listed below), dependent (the perfection of the crust), and control variables (everything else) from the recipe.
    - Ideas for the independent variable:
        - the type of flour (pastry, all-purpose, whole wheat)
        - the type of fat (butter, shortening, lard)
        - the tools that you use to mix the dough (hands, pastry cutter, knife)
- **Caution** students to make sure they follow the recipe exactly the same way twice (to ensure the control variables don't change) except for the one independent variable, so that they can measure the dependent variable (the perfect crust).
- **Encourage** the food scientists to bake, experiment, and have fun.
- Have students **invite** their friends and family to be part of a Pie Experiment.
- **Tell** students that every food scientist must **make conclusions** and **record** their findings.
- **Challenge** students to **draw and label** a drawing or picture of their two pies, and **write conclusions** as to how the independent variable changed the final product.

Extension:

- **Challenge** students to be a food scientist with other recipes.
- **Research** the history of Apple Pie in America.
    - https://whatscookingamerica.net/History/PieHistory/ApplePie.htm

COOKING APPLE CRUMB PIE

Kitchen Prep

- Read the Apple Crumb Pie recipe card together.
- Identify and gather ingredients.
- Gather tools.
- Read the **Featured Culinary Skill - Preparing Pie Crust.**
- Discuss kitchen safety. Specifically, Handwashing safety (Visit Raddishkids.com/pages/safety).

Prepare Apple Crumb Pie

- Ask children to read or describe each step.
- Together, follow the steps in the recipe.
- Give each child a turn to rub, form, and roll dough.
- When the Apple Crumb Pie is ready, eat, taste and share!
- While your friends and family are eating, teach them about the terms tenderness and flakiness then have them eat the pie and ask them to provide feedback on the crust. Which independent variable made the best crust?

RESOURCES

- Books
  - Enemy Pie by Derek Munson
    - Kid's Book Read Aloud: Enemy Pie (12:02) https://www.youtube.com/watch?v=FTM8Cccl1xs
  - Amelia Bedelia's First Apple Pie by Herman Parish
  - An Apple Pie for Dinner by Susan VanHecke
  - The Apple Pie Tree by Zoe Hall
  - The Apple Pie That Papa Baked by Lauren Thompson
- Websites
  - https://study.com/academy/lesson/what-are-variables-in-science-definition-types-examples.html
  - https://whatscookingamerica.net/History/PieHistory/ApplePie.htm
  - https://blogs.scientificamerican.com/food-matters/how-alcohol-makes-a-flakier-pie-crust-the-proof-is-in-the-pie/
  -
- Videos
  - Make the best pie ever using science (2:48) https://www.youtube.com/watch?v=1RdSSJThXvU
  - Learn to cook: How to Construct the perfect Pie Crust (3:29) https://www.youtube.com/watch?v=5ba2pCTozAw
  - Kid's Book Read Aloud: Enemy Pie (12:02) https://www.youtube.com/watch?v=FTM8Cccl1xs

Aromatic Flavor Bases From Around the World

Country	Name of flavor base	Cooking fat	Typical vegetables & aromatics	Meats	Herbs, spices, and other flavorings
France (classic)	*mirepoix*	butter	onions, carrots, celery	20th century -- none; 9th century -- ham and veal	sometimes thyme and bay leaf
France (Gascony)	*mirepoix*	duck or goose fat, pork fat	onions, carrots, celery	confit of duck or goose, Bayonne ham	thyme, bay leaf
France (Provence)	*mirepoix*	olive oil	onions, leeks, fennel, garlic, tomatoes	usually none	thyme, bay leaf, orange zest, saffron
India		*ghee* (toasted clarified butter), vegetable oil, mustard oil, coconut oil	onions, garlic, chiles, ginger	none	ginger, cardamom, cumin, cloves, asafetida, cinnamon, fenugreek, curry leaves, curry mix, masala
Indonesia	*bumbu*	coconut oil onions,	garlic, chiles	none	shrimp paste, ginger, *kemiri* (candlenuts), galangal, *salam* leaves
Italy	*soffritto*	olive oil, butter, rendered prosciutto or pancetta fat	onions, garlic, fennel	prosciutto, pancetta, veal	parsley, bay leaf, sage
Mexico		none (vegetables roasted on a *comal*), vegetable oil	fresh and dried chiles, onions, garlic, tomatoes	none	dried chile powders, cinnamon, aniseed, sesame seeds, almonds, pumpkin seeds, thyme, *epazote*, oregano
Morocco		*smen* (clarified and caramelized butter), vegetable oil	onions, scallions, garlic, raisins, tomatoes	none	ginger, saffron, turmeric, cinnamon
Portugal	*refogado*	lard, olive oil	onions, garlic, tomatoes, sweet peppers, hot chiles, pimento	bacon, pork	saffron, oregano, paprika
Puerto Rico	*sofrito*	lard, olive oil	onions, garlic, cherry peppers	smoked ham, chorizo, sausage, bacon	cilantro, ginger, annatto, cumin, saffron
Spain (Castilian)	*sofrito*	olive oil, lard, rendered ham fat	onions, garlic	ham, bacon	dried chiles, parsley, bay leaves, saffron, paprika
Spain (Catalan)	*sofregit*	olive oil	onions, tomatoes	sometimes cured ham, usually none	parsley, thyme, saffron
Thailand	curry pastes	vegetable oil or coconut oil	shallots, garlic, chiles	none	galangal, kaffir lime leaves, lemongrass

Recipes from each region featuring these flavors can be found at https://tim.blog/2013/03/17/a-world-map-of-flavors-36-regions-36-herb-and-spice-combinations/

COOKSMARTS GUIDE TO AROMATICS

Fire up these simple aromatic bases and create delicious flavor foundations for a variety of meals, like curries, soups, rice dishes, and sautes (just to name a few)!

Aromatics are combinations of vegetables and herbs (and sometimes even meats) that are heated in some fat at the beginning of a dish. The heated fat helps these ingredients release addictive aromas and impart deep flavors into the dish that's being cooked.

Our infographic shows you some of the most common combinations. The first row shows the 'traditional' combo of aromatics and fats used. The second row shows other ingredients that can also be used to create delicious new variations.

FOR FATS If more than 1 is listed, choose 1 or use a combo.

CAJUN THE HOLY TRINITY

AROMATICS & FATS

SUPPLEMENT WITH

Garlic, Parsley, Shallots, Paprika

CHINESE

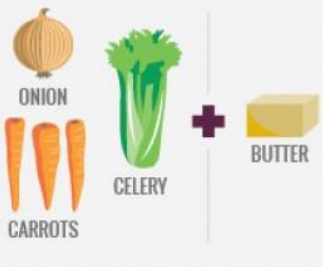
AROMATICS & FATS

SUPPLEMENT WITH

Chilies, Shallots, Chives, Cilantro, Chinese Five Spice, Atar Anise

FRENCH MIREPOIX

AROMATICS & FATS



SUPPLEMENT WITH

Chilies, Shallots, Chives, Cilantro, Chinese Five Spice, Atar Anise

THAI

AROMATICS & FATS

SUPPLEMENT WITH

Galangal, Kaffir Lime, Lemongrass, Coconut Milk

MIDDLE EASTERN

AROMATICS & FATS

SUPPLEMENT WITH

Ginger, Saffron, Turmeric, Cinnamon

ITALIAN SOFFRITTO

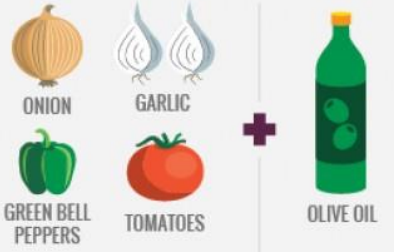
AROMATICS & FATS

SUPPLEMENT WITH

Garlic, Fennel, Bay Leaves, Parsley, Sage, Prosciutto, Pancetta, Wine

LATIN SOFRITO

AROMATICS & FATS



SUPPLEMENT WITH

Garlic, Fennel, Bay Leaves, Parsley, Sage, Prosciutto, Pancetta, Wine

INDIAN

AROMATICS & FATS

SUPPLEMENT WITH

Tomatoes, Cardamom, Cumin, Cumin Seeds, Curry Powder (or Leaves, Paste), Cloves, Fenugreek, Garam Masala, Turmeric