Cooking Education In Primary Schools And Its Impact On Food Choice

Tonya Curry

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doi: https://doi.org/10.57709/24097257

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COOKING EDUCATION IN PRIMARY SCHOOLS

AND ITS IMPACT ON FOOD CHOICE

By

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MBA, Illinois State University, 2003

A Master’s Project Submitted to the Graduate Committee

in the Department of Nutrition at Georgia State University in Partial Fulfillment

of the

Requirements for the Degree

MASTER OF SCIENCE

ATLANTA, GEORGIA

2021
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Introduction

Childhood obesity rates have risen significantly over the past 30 years leading to concerns about long-term health effects, including increased risk of chronic diseases.\textsuperscript{1,2} There is an association between an increased risk for cardiovascular disease, asthma, psychological problems during childhood and childhood obesity.\textsuperscript{3} According to the CDC, 14.4 million (19.3\%) children and adolescents aged 2-19 years old in 2017-2018 were affected by obesity. Obesity prevalence was 13.4\% among 2- to 5-year-olds, 20.3\% among 6- to 11-year-olds, and 21.2\% among 12- to 19-year-olds.\textsuperscript{4} These statistics won’t change until there is a clear understanding of eating behaviors and a strategy to influence them.

Statistics show that from an early age, dietary patterns are not aligned with the Dietary Guidelines. According to the Dietary Guidelines of Americans (DGA) 2020-2025, the Healthy Eating Index (HEI) score is 61 out of 100 for children ages 2 through 4, which indicates that the overall diet quality of the age group needs improvement.\textsuperscript{5} Furthermore, HEI Scores decrease throughout childhood and adolescence, with scores for those aged 14-18, 10 points lower than those aged 2-4.\textsuperscript{5} Specifically, the variance between recommended and actual intakes of fruit and vegetables widens as children age. Table 1 indicates the recommended vegetable intake ranges, according to DGA. By late adolescence, the average consumption of fruits and vegetables is nearly half of the recommended intake range.\textsuperscript{5}
Table 1. Recommended Intake of Vegetables by Gender and Age Group

<table>
<thead>
<tr>
<th>Age Group (years)</th>
<th>Cup equivalent/day</th>
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<tbody>
<tr>
<td>2 through 4</td>
<td>1-2</td>
</tr>
<tr>
<td>5 through 8</td>
<td>1.5-2.5</td>
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<td>9 through 13</td>
<td>2-3.5</td>
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<tr>
<td>14 through 18</td>
<td>2.5-4</td>
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<tr>
<td>Males</td>
<td></td>
</tr>
<tr>
<td>1 through 4</td>
<td>1-1.5</td>
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<tr>
<td>5 through 8</td>
<td>1.5-2.5</td>
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<td>9 through 13</td>
<td>1.5-3</td>
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<tr>
<td>14 through 18</td>
<td>2.5-3</td>
</tr>
<tr>
<td>Females</td>
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</tbody>
</table>

Due to the insufficient consumption of fruit and vegetables, children are missing key nutrients needed for good health, including vitamins A, C, E, magnesium, zinc, phosphorous and folic acid. Studies suggest that proper nutrition education can increase intake. The objective of this literature review is to provide evidence supporting cooking education in primary schools and its positive effect on children/adolescent food choices, specifically increasing fruit and vegetable consumption. The review will include the current state of fruit and vegetable intake among children, how eating behaviors are changed, direct results of cooking interventions, areas of consideration in developing a cooking program, and tools to create such programs.

Literature Review

Since the 1980s, Americans have continuously decreased the time preparing and enjoying meals at home due to an increased percentage of parents, specifically mothers, in the workforce, food availability, and time limitations from working longer hours. Additionally, a shortage of fundamental cooking skills and healthful eating knowledge, may impact families and, subsequently, children, causing them to increase their consumption of foods outside of the home. Unfortunately, this behavior creates long-term problems because restaurant meals and fast food often provide insufficient amounts of fruits and vegetables. These meals are usually calorie-dense and not
nutrient-dense, leading to poor diet quality and adverse health outcomes, such as obesity, if eaten consistently.\textsuperscript{10}

*Development of Cooking Skills*

Developing culinary skills early in life increases the likelihood of home-prepared meals, which leads to less dependence on outside foods.\textsuperscript{11} Assisting with meal preparation is a realistically changeable action that could significantly affect fruit and vegetable intake and overall dietary quality.\textsuperscript{11} But, where does the responsibility of teaching children to cook lie?

According to a mixed-methods study, including data from focus groups and a nationally representative survey, almost all Americans believe parents and family members are responsible for teaching children to cook.\textsuperscript{8} However, two-thirds of the public support school requirements to teach cooking skills, in either health education or stand-alone home economics classes. Experts have echoed this sentiment in recent years to invest in culinary education in schools for children.\textsuperscript{8} Additional education at school could influence whether a family eats out or prepares food at home, which significantly impacts fruit and vegetable consumption. Perhaps this is true because increased skills and confidence in cooking ability leads to a greater willingness to cook at home, incorporating more fruits and vegetables.

Consuming fruits and vegetables are essential elements of a healthy dietary pattern and are linked to many positive health outcomes for children. Children who eat more fruit and vegetables have lower blood pressure compared to those who do not.\textsuperscript{12} Kaschalk-Woods et al. found that increased consumption of whole fruits and vegetables
as young adults was linked to better cognitive performance in midlife. Furthermore, consistently high flavonoid intake from fruits and vegetables during adolescence was associated with a lower risk of type 2 diabetes in early adulthood. Regardless of the health benefits, most US children do not meet the national fruit and vegetable recommendations.

The less-than-optimal eating habits of children have set the stage for various approaches to improve fruit and vegetable intake. With the shift away from food preparation at home, researchers are studying cooking programs as an alternative that could positively affect children’s food-related preferences, attitudes, and behaviors. Recently, there has been an increased focus on children’s eating behaviors and how to shift those behaviors in a more desirable and healthful direction.

The environment and food-related experiences are vital components to the growth of a child’s eating behavior. Understanding food preferences, the main predictor of food intake in children, and how it influences consumption is critical in increasing acceptance of healthy options, such as fruits and vegetables. In addition, preferences developed early in life usually continue into adulthood. Understanding how food experiences shape food preferences is vital to affect a child’s current and future eating habits positively. Public health interventions have generally concentrated on nutrition education, guidelines, and legislation regarding food served at schools to increase fruit and vegetables intake and discourage energy-dense foods high in sugar and fat. For example, the Healthy Hunger Free Kids Act (HHFKA) mandated adjustments to the breakfast and lunch programs to make meals healthier. The HHFKA sought to expand the accessibility of fruits, vegetables, whole grains, fat-free and low-fat milk while
reducing the levels of sodium, saturated fat and trans-fat in school provided meals.\textsuperscript{15} On the home front, parental tactics used to influence a child’s food intake usually include prompting to eat, restriction/portion control, pressure to eat, reasoning, rewards, or punishments, such as withholding desired food or play privileges.\textsuperscript{1} However, creating positive food-related experiences may lead to greater vegetable intake. Research indicates that positive parental feeding practices, including encouragement, parent modeling of vegetable consumption, and structure at mealtimes are associated with increased consumption of vegetables by young children.\textsuperscript{16} On the other hand, negative experiences produce the opposite effect.\textsuperscript{16}

\textit{Experiential Learning Theory and Cooking Interventions}

The Experiential Learning Theory (ELT) is a continuous process of learning that comes from experiences during all stages of life. The idea is to gain newfound skills and knowledge that can be used over time, not the buildup of factual data.\textsuperscript{17} Based on the ELT, hands-on cooking classes, instead of demonstrations, are more advantageous in positively affecting behavior change, cooking attitude and self-efficacy in young adults.\textsuperscript{17}

DeCosta et al. conducted a literature review on ways to influence children’s eating behavior and included data from 120 experimental studies reviewing 11 strategies to change children’s behavior, including cooking programs.\textsuperscript{1} The authors found that hands-on cooking programs may promote greater vegetable intake and have a more significant effect than nutrition education.\textsuperscript{1} In another study, the vegetable consumption of 86 students ages 9-11, who received two hands-on cooking sessions with a professional chef, was compared to a control group of 89 students.\textsuperscript{18} The study
found an increase in vegetable consumption after the intervention but did not find an increase in the control group.\textsuperscript{18}

Similarly, a meta-analysis conducted by Dudley et al. compared 49 school-based nutrition education programs using 8 dominant teaching strategies with pre-determined areas of healthy eating: good consumption/energy intake, fruit and vegetable consumption or preference, sugar consumption or preference, and nutritional knowledge.\textsuperscript{19} Experiential learning, such as school gardens and cooking and food preparation activities, was one of the eight strategies that addressed fruit and vegetable consumption or preference. The hands-on learning methods significantly impacted increasing nutritional knowledge and had a moderate effect on fruit and vegetable preferences or consumption.\textsuperscript{19}

Repetition has also fostered positive results. Ehrenberg et al. discovered that applying repeated exposure techniques via hands-on cooking can increase children’s acceptance of fruits and vegetables.\textsuperscript{13} The number of exposures varies, but studies using this approach see increases in target food acceptance after 2-9 exposures.\textsuperscript{13} The success of hands-on techniques has also been attributed to the sense of ownership generated by experiential learning and can assist in reducing neophobia, the fear of new foods.\textsuperscript{20}

Cooking interventions produce positive results when implemented in schools with diverse socioeconomic backgrounds. In a low-income setting of 17 elementary and 1 middle school, Jarpe-Ratner et al. examined the effects a 10-week chef instructor-led program had on nutrition knowledge, cooking self-efficacy, and vegetable consumption.\textsuperscript{21} The study included 271 students that were 65\% female, 44\% Hispanic,
32% African American and 94% of all students were eligible for free or reduced-price lunch in grades 3-8.\(^2\) Students completed pre- and post- surveys to assess vegetable consumption and willingness to try new foods, based on a scale of 1-4.\(^2\) Each semester, the 10-week intervention included 30 minutes of lecture and discussion of nutrition principles and cultural awareness, 75 minutes of instruction in culinary skills and hands-on meal preparation, and 15 minutes of meal sharing and conversation.\(^2\) Vegetable and fruit consumption scores increased from 2.2 to 2.4 (P < .005) and 2.3 to 2.5 (P < .001), respectively. In addition, the cooking self-efficacy score increased from 3.2 to 3.6 (P < .001).\(^2\) The results indicated that cooking self-efficacy and vegetable and fruit consumption increased after a 10-week chef instructor-led program.

Additionally, the parents completed a survey that assessed their perceptions of how the program affected their child’s knowledge, attitudes and behaviors related to nutrition and cooking. Parents reported in a phone survey 6 months after the intervention, that their children had retained confidence in their cooking skills, a continued interest in healthy eating, and had more involvement in food preparation at home than before the program.\(^2\)

Cooking with Kids (CWK) is a food education program originally designed in schools with a low-income, predominantly Hispanic population. The original intervention had only minimal effects on fruit and vegetable preference, cooking attitudes and self-efficacy among fourth graders.\(^6\) In a randomized, controlled study of the Cooking with Kids program, Cunningham-Sabo et al. sought to determine the program’s effect with a different study sample, mostly white non-Hispanic participants.\(^9\) The study included students in 12 classes from 4 elementary schools with 137 students in the intervention
group and 120 students in the control group. The program incorporated a one-hour introductory lesson, three 2-hour cooking classes, and three 1-hour fruit and vegetable tasting sessions led by trained food educators over one semester. A 35-item survey assessed fruit preference, vegetable preference, cooking attitudes, and self-efficacy before and after the 10-week intervention. Vegetable preferences, cooking attitudes and self-efficacy scores increased significantly in the CWK group by 2.94 ($P = .007$), 1.11 ($P = .029$), and 3.62 ($P < .001$), respectively. This study suggests that a school-based cooking program can be implemented among different populations and can positively influence cognitive factors related to food choice and consumption.

Not only can cooking programs affect preferences and attitudes, but they can impact anthropometric measures, including BMI z-scores and waist circumference. In a randomized controlled trial of 4 elementary schools, Gatto et al. examined the impact of a 12-week gardening, nutrition, and cooking intervention on obesity markers, dietary consumption, and metabolic disease risk in low-income children in Los Angeles. The study included 172 3rd-5th graders in the intervention group and 147 3rd-5th graders in the control group. Fifty percent of the participants were overweight (BMI 85th percentile) and over 33% were obese with a BMI in the 95th percentile. Investigators gathered information on dietary intake, BMI, waist circumference, body fat and fasting blood samples pre- and post-intervention. The 12-week intervention included a 45-minute interactive cooking/nutrition lesson and a 45-minute gardening lesson. The intervention group compared to the control group had significantly greater reductions in BMI z-scores ($P = 0.01$) and waist circumference ($P < 0.001$). Dietary fiber intake increased in the intervention group 3.4% versus a decrease of 16.5% in the control
group (P=0.04). Vegetable intake decreased in both groups: -3.7% intervention versus -26.1% control (P=.04). Fewer participants had metabolic syndrome after the intervention than before, decreasing from 7 participants to 1. After interactive classes, obesity markers, and metabolic disease risk decreased while dietary fiber increased, and vegetable intake decreased but to a lesser degree compared to the control group after a 12-week intervention.

While some studies have seen decreases in BMI z-scores and waist circumference, other studies suggest that culinary interventions do not significantly reduce obesity markers. According to Davis et al, “Texas Sprouts,” a school-based gardening, nutrition and cooking intervention did not reduce obesity markers, such as BMI and waist circumference. However, study results saw an increase in vegetable intake. Texas Sprouts was a 9-month cluster randomized controlled trial that included 16 schools with 1,412 students in the intervention group and 1,723 students in the control group. The program’s logistics were different, but the curriculum was adapted from the smaller LA Sprouts study with fewer participants. The intervention did not affect BMI z-scores or waist circumference when compared to the control. Vegetable consumption increased significantly in the intervention (+0.48 frequency/day) compared to the control (+0.04 frequency/day) (P = 0.02). The results of this study indicated BMI z-scores and waist circumference did not decrease after a 9-month intervention.

**Cooking Interventions for older children**

The approach to nutrition and cooking interventions must be age-appropriate for each audience. The previously discussed studies focused on younger, elementary-aged children, but the concept can engage kindergarteners through high school seniors. In a
study of 35 high schools, Kaschalk-Woods et al. examined the effects of a semester-long nutrition curriculum on nutrition knowledge, fruit and vegetable attitudes, and willingness to try new fruit and vegetables.\textsuperscript{12} The study included 1,104 students from 9\textsuperscript{th} through 12\textsuperscript{th} grade taking a Family and Consumer Sciences class. There were 310 students in the intervention group and 794 in the control group. Students completed pre- and post- surveys to assess dietary behavior, perceptions of fruits and vegetables, and knowledge of nutrition concepts from the 2015-2020 Dietary Guidelines for Americans.\textsuperscript{12} The semester-long curriculum was divided into 3 sections: MyPlate and food labels, food policy, and factors affecting fruit and vegetable consumption. This program included hands-on learning where students cooked and prepared fruits and vegetables in various ways.\textsuperscript{12} The intervention students tried more fruits (P=0.009) and vegetables (P=0.002) than the control group. Additionally, the intervention group had a higher frequency of trying new fruits (P=0.027) and vegetables (P=0.022) than the control students.\textsuperscript{12} Adolescents' willingness to try new fruits and vegetables increased after a semester-long nutrition curriculum. Introductions to new fruits and vegetables as an adolescent is essential as it could influence the willingness to try new foods repeatedly and have a lasting effect on overall health.

Repeated exposure can alter preferences and increase the consumption of fruits and vegetables in children and adolescents.\textsuperscript{12} Although multiple studies with cooking interventions have shown positive results such as increased fruit and vegetable consumption, self-efficacy, and increased willingness to try new foods, it is difficult to determine best practices as measurements vary across studies. Additional research is needed to determine the long-term effects of an intervention, how parental engagement
influences results, and optimal program length. Furthermore, some aspects should be considered when designing a program that includes participants’ ethnicity, determining the theory that best promotes cooking skills, stakeholder involvement and who teaches the intervention and level of training needed. An intervention with a diverse population should make every effort to reflect cultural awareness to increase perceived significance. While considering these components, schools must balance conflicting academic obligations with limited instruction time, budgets, equipment, and facilities for teaching cooking.

Tools and Models to improve dietary behavior

Using proven and effective tools for improving dietary behavior is a good place to start when developing a cooking intervention. The PRECEDE-PROCEED model, developed in the 1970s, incorporates behavior change theories appropriate for specific audiences and offers a solid cooking education model to improve dietary behavior. The eight-staged Cook-ED model is an approach that was developed using parts of the PRECEDE-PROCEED model. The Cook-ED model illustrates step by step how to move through the process of creating a program. Throughout the 8 stages, the developer should maintain stakeholder engagement, consider predisposing, reinforcing, and enabling factors, and determine the cooking program’s health outcomes. The 8 stages of the Cook-ED model are as follows:

Stage 1: Define the cooking-related need or problem
Stage 2: Consider behavior change factors
Stage 3: Capacity Assessment
Stage 4: Develop program content and facilitation guides
Stage 5: Pilot or feasibility or efficacy or effectiveness study
Stage 6: Process evaluation
Stage 7: Impact evaluation
Stage 8: Outcome evaluation
Table 2: Model for planning, Implement and evaluating programs

<table>
<thead>
<tr>
<th>Predisposing, Reinforcing and Enabling Factors</th>
<th>Cooking Program Health Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Genetics &amp; dietary restrictions</td>
<td>Dietary intake, food choices, diet quality</td>
</tr>
<tr>
<td>Socio-demographic</td>
<td>Chronic disease risk</td>
</tr>
<tr>
<td>Motor, process &amp; social interaction skills</td>
<td>Health and wellbeing</td>
</tr>
<tr>
<td>Sensory appeal &amp; preferences</td>
<td>Quality of life</td>
</tr>
<tr>
<td>Nutrition knowledge</td>
<td>Environmental impact</td>
</tr>
<tr>
<td>Cooking skill confidence</td>
<td>Societal impact</td>
</tr>
<tr>
<td>Food skill confidence</td>
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<tr>
<td>Food literacy</td>
<td></td>
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<tr>
<td>Availability of resources</td>
<td></td>
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<tr>
<td>Home cooking environment</td>
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<tr>
<td>Community food environment</td>
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</tbody>
</table>

With the steady rise of childhood obesity rates and the inadequacy of fruit and vegetable consumption based on the 2020-2025 DGA, new approaches to address healthy eating and reducing childhood obesity are needed. For multiple reasons, time spent preparing/eating meals at home has decreased over the last 40 years, leading children to eat more calorically dense and nutrient deficient food. The home food environment ultimately predicts the diet quality of children. Nutrition education programs attempt to increase a child’s preference for and consumption of fruits and vegetables, increase cooking at home and communicate to the family about healthy eating, all which improve the home food environment. Additionally, hands-on nutrition and education programs, teach children how to recognize and select healthy foods and provide opportunities to cook and taste new foods.

Conclusion

Jarpe-Ratner et al. concluded that cooking self-efficacy and vegetable and fruit consumption increased after a 10-week chef instructor-led program. Cunningham-
Sabo et al. found that vegetable preferences, cooking attitude, and self-efficacy increased significantly after a 10-week food education program for 4th-grade students.\textsuperscript{9} Gatto et al. determined that obesity markers and metabolic disease risk decreased while dietary fiber and vegetable intake improved after a 12-week intervention.\textsuperscript{3} On the other hand, in Davis et al. results indicated that BMI z-score and waist circumference were not affected after a 9-month intervention, although vegetable consumption increased.\textsuperscript{22} Kaschalk-Woods et al. concluded that willingness to try new fruits and vegetables increased after a semester-long nutrition curriculum.\textsuperscript{12} The evidence supports that cooking education in primary schools positively affects children and adolescent food choices, specifically increasing fruit and vegetable consumption.
Outcome Project Description

To promote cooking among children, the outcome of this project is a children’s cookbook titled “I Can Cook Too!” that includes 4 recipes for each of the following age groups: 4-6, 7-9, 10-12, and 13+. The recipes encourage independence in the kitchen, with minimal adult help to prepare the food, though caregivers may have more involvement with younger children. The recipes focus on fruits, vegetables, and whole grains to increase consumption and align with the 2020-2025 Dietary Guidelines for Americans. Using the cookbook on a regular basis and mastering the recipes supports the (ELT). Children will create a solid cooking foundation based on hands on instruction, not just demonstration. The cookbook provides step-by-step instructions in preparing healthy and easy-to-make meals. The simple techniques used for each recipe will expand culinary skills that can be used for years to come. As a child's comfort level increases, their skills will be further developed and challenged with additional recipes. With repeated use and success with the recipes, self-efficacy will increase.

The cookbook may expose children to foods or a combination of foods they are not familiar with and allow them to experiment with something new. The goal is for these recipes to spark an interest in cooking that will increase fruit and vegetable consumption and encourage a desire to eat more nutrient-dense meals at home. A child's interest in cooking can positively affect other family members, which could lead to other family members being more involved in preparing healthier meals in the home.

Many cooking websites, cookbooks and blogs were researched when selecting and developing the included recipes. Some are classics, such as ants on the log and
others are family favorites like the tomato and avocado sandwich or the strawberry cheesecake crackers. Over three weeks, all the recipes were made and tested by the author’s 5- and 13-year-old daughters. Their input was very valuable, and they were the models in all the photographs.

Canva was the platform used to construct the book. A simple, yet colorful design was selected that would appeal to children. The cookbook includes an introduction to the readers about what to expect in the book and its intended use. Next, a fun game helps children identify common kitchen tools referenced throughout the book. The game intends to familiarize children with the tools that will help them create the recipes throughout their cooking journey. Essential kitchen tips were provided regarding safety, asking for help when needed, being creative, having a willingness to try new things, and ultimately having fun in the kitchen. Page 4 identifies various cutting techniques and the common cutting tools that are necessary in every kitchen. The table of contents divides the recipes by age group. (See Appendix A)

Two pages were devoted to each recipe. The recipe information includes a picture of the finished product, the ingredients, the tools needed to prepare the recipe and the cooking directions. The recipes for the younger age groups often include notes and tips so that parents can help their children succeed. Each recipe includes pictures of the steps used in preparing each meal, which may be most helpful for younger users who are learning to read. According to Microsoft Word, the Flesch Reading Ease Level is 73.3 and the Flesch-Kincaid Grade Level is 3.9 for all verbiage in the cookbook.
References


Appendix A: Cookbook

I CAN COOK TOO!
KID RECIPES FOR EVERY AGE

TONYA CURRY
Who Loves to Cook?

If you didn't raise your hand, you will by the time you get to the end of this cookbook. It's filled with tasty and super easy recipes that you will enjoy preparing. Even little hands can join in on the fun.

This book was designed with you in mind and for you to do most of the cooking all by yourself. With some recipes, you'll need help from a grown up or older sibling. The recipes are divided up by age groups but feel free to sample them all, no matter your age. Just ask for help when you need it.

I started cooking at a young age and developed a love of food along the way. I hope these recipes spark something in you!
Do you know what this is?

Kitchen tools can be pretty cool. Let's see how many you can guess correctly? Don't peek at those answers too soon.
Kitchen Tips

Safety First
Be focused and mindful of what you're doing when cooking in the kitchen. Being cautious can reduce accidents.

Ask for Help
Learning to cook is a process, so take your time. If you find it difficult to do something or unsure what to do next, ask an adult for help.

Try Something New
Show your creativity and don't be afraid to experiment.

Do it Together
These recipes were made with you in mind, but sharing the experience with family and friends works too!

Have Fun
Nothing more needs to be said there!
What's that Cut?

Learning different cutting techniques and knowing the proper tools to use will be helpful as you grow as a chef.

Chef’s Knife
Paring Knife

Sliced

Chopped

Minced
Julienne

Diced
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Veggie-tastic Bagel

Serves 1 to 2

Ingredients

1 whole wheat bagel
2 tablespoons cream cheese
2 tablespoons shredded carrots
2 tablespoons cucumber rounds (cut in half)

Tools You’ll Need

Small plate
Small kid’s knife
Measuring spoons

Parents: You can purchase shredded carrots or shred them at home using a box grater. These can be used in various ways like adding to salads or sandwiches. Keep sliced cucumbers in a container in your refrigerator for an easy snack. The key to self made recipes is having tools and ingredients readily available.
Directions

1. Spread 1 tablespoon of cream cheese on each piece of bagel.
2. Add 1 tablespoon of cucumber to each piece.
3. Add 1 tablespoon of shredded carrots to each piece.
Berrylicious Parfait

Serves 2

Ingredients

1 cup plain Greek yogurt
1/2 cup granola
1 tablespoon honey
1 cup berries (blueberries, raspberries)

Tools You'll Need

Small bowl
Whisk
8 oz Plastic cups
Measuring spoons
Measuring cups (1/4, 1/2 and 1)

Parents: Help your child rinse berries under cool water in a colander.
**Directions**

1. In a small bowl, whisk yogurt and honey together until smooth.
2. Spoon 1/4 cup of yogurt-honey mixture into plastic cup.
3. Top yogurt with 1/4 cup of berries.
4. Top berries with 2 tablespoons of granola.
5. Repeat layering with the remaining yogurt, berries and granola.
Ants on a Log

Serves 2

Ingredients

3 celery stalks
1/4 cup peanut butter
36 raisins

Tools You'll Need

1/4 cup measuring cup
Measuring spoons
Spoon
Small plate

Parents: Cut celery stalks into 6 equal sized pieces. Help child wash celery under cool water and dry.
Directions

1. Add peanut butter evenly to each piece of celery.
2. For each celery stick, push 6 raisins down into the peanut butter to represent "ants".
Strawberry Cheesecake Crackers

Serves 1-2

Ingredients

2 graham cracker sheets
1/4 cup strawberries, sliced
2 tablespoons plain cream cheese

Tools You'll Need

1/4 cup measuring cup
Measuring spoons
Child size butter knife
Small plate

Parents: Help your child rinse strawberries under cool water in a colander.
Directions

1. Slice strawberries using knife.
2. Break each graham cracker sheet in half, creating 4 squares.
3. Spread one tablespoon of cream cheese on each graham cracker square.
4. Top with sliced strawberries evenly.
Serves 1

**Ingredients**

2 slices whole wheat bread
1 tablespoon mayonnaise
2 slices of tomato
1 leaf of lettuce
1/2 ripe avocado

**Tools You'll Need**

Toaster
Small plate
Measuring spoons
Fork
Spoon
Butter knife
Paring knife

*Parents: This is a good age to teach knife skills. Assist child in cutting tomato.*
Directions

1. Slice tomato.
2. Toast bread in toaster.
3. Add mayonnaise evenly to each slice of bread.
4. Use butter knife to cut avocado in half lengthwise around the pit. Twist both halves in opposite directions to separate.
5. Use spoon to scoop out half of avocado without the pit and smash onto toast using a fork. (Save the other half for later use.)
6. Top avocado with sliced tomato.
7. Add lettuce leaf.
8. Top with slice of toast.
Salad on a Stick

Serves 2

**Ingredients**

- 6 small leaves of green leaf lettuce
- 6 carrot chips
- 8 grape or cherry tomatoes
- 8 cucumber chunks
- Salad dressing

**Tools You'll Need**

- 2 Wooden skewers
- Chef's knife

*Parents: This is a good age to teach knife skills. Assist child in cutting cucumber. If you don't have carrot chips, cut whole carrots into medium thick slices. Remind child to use caution when using skewers with a sharp tip.*
**Directions**

1. Rinse all vegetables under cool water in a colander. Make sure all are dry before continuing.
2. Cut cucumber into medium slices, then cut slice in half.
3. Push 1 tomato down the skewer, leave enough room for you to hold the stick.
4. Tightly fold 1 piece of lettuce and add to the skewer.
5. Add 1 carrot chip, 1 cucumber slice and 1 grape tomato.
6. Repeat pattern until the skewer is full.
7. Cover sharp point of skewer with grape tomato.
8. Serve with your favorite dressing.
Fruity Peanut Butter Pita

Serves 1-2

Ingredients

2 tablespoons peanut butter
1/8 teaspoon each ground allspice, cinnamon and nutmeg
1 whole wheat pita pocket, cut in half
1/2 medium apple, thinly sliced
1/2 firm banana, sliced

Tools You'll Need

Small bowl
Spoon
Butter knife
Measuring spoons
Paring knife

Parents: This is a good age to teach knife skills. Assist child in cutting the apple.
Directions

1. In a small bowl, blend the peanut butter, allspice, cinnamon and nutmeg.
2. Cut pita in half, creating two pockets.
3. Cut apple with paring knife and banana with butter knife into thin slices.
4. Use the back of a spoon to spread mixture evenly inside of each pita pocket.
5. Fill each pita with apple and banana slices, evenly.
Asian Chicken Lettuce Cup

Serves 2

**Ingredients**

4 leaves of lettuce
1 cup of cooked chicken, shredded
1/2 cup shredded carrots
4 tablespoons crushed peanuts (optional)
1 tablespoon low sodium soy sauce
1 tablespoon rice wine vinegar
1 tablespoon honey
1/8 teaspoon sriracha (increase for spicier flavor)
1/8 teaspoon ground ginger
cilantro

**Tools You'll Need**

Small bowl
Measuring spoons
Measuring cups (1/2, 1)
Whisk

*Parents: Leftover baked chicken or store bought rotisserie chicken works great for this recipe.*
Directions

1. In a small bowl, mix together soy sauce, rice wine vinegar, honey, ground ginger and siracha.
2. Use fingers to pull apart chicken.
3. Add chicken to mixture, stir until well coated and set aside.
4. Wash lettuce leaves and cilantro and dry completely.
5. Add even amounts of chicken to each lettuce leaf.
6. Top each leaf evenly with shredded carrots.
7. Add 1 tablespoon of crushed peanuts to each leaf.
8. If you don't have crushed peanuts, add whole peanuts to a Ziplock bag, cover with large dish towel and "hammer" with measuring cup.
9. Add a few cilantro leaves to each lettuce cup.
Presto Pesto Pizza

Serves 1

Ingredients

1 whole wheat pita
1 teaspoon olive oil
2 tablespoons pesto sauce
1/3 cup mozzarella cheese
Mushrooms, 6 slices
Roma tomato, 4 thin slices
1/2 teaspoon Italian seasoning

Tools You'll Need

Rimmed baking sheet
Spoon
1/3 measuring cup
Oven mitts
Cooling rack or pot holder
Cutting board
Pizza cutter or chef's knife
Spatula
Measuring spoons

Parents: You may need to assist child when removing the hot pan from the oven.
Directions

1. Preheat over to 400 degrees.
2. Use your fingers to spread oil into a circle in the center of a rimmed baking sheet.
3. Slice tomatoes.
4. Place pita on rimmed baking sheet.
5. Spread pesto sauce over pita leaving 1/2 inch border around the edge.
6. Sprinkle with cheese.
7. Add sliced tomatoes and mushrooms.
8. Sprinkle with Italian seasoning.
9. Place baking sheet in oven and bake until cheese is melted, about 8 minutes.
10. Use oven mitts to remove baking sheet from oven and place on cooking rack or pot holder.
11. Use spatula to transfer pizza to cutting board and slice into desired pieces.
Serves 1

**Ingredients**

1 cup frozen mixed berries  
1/2 medium banana  
1/2 cup frozen spinach  
3 tablespoons Greek yogurt  
1/4 cup almond milk  

Toppings:  
Granola  
Fresh blueberries, raspberries and blackberries  
Banana slices

**Tools You'll Need**

Blender  
Rubber spatula  
Bowl  
Spoon  
Measuring cups (1/2, 1)  
Liquid measuring cup  
Measuring spoons
Directions

1. Add almond milk, yogurt and banana to blender.
2. Add frozen fruit and spinach.
3. Blend until smooth.
4. Pour smoothie into bowl using rubber spatula.
5. Add toppings.
Chicken Avocado Pita

Serves 1 to 2

**Ingredients**

1 whole-wheat pita, cut in half  
4 leaves of lettuce  
1/4 cup shredded carrots  
2 tablespoons ranch dressing  
1/2 ripe avocado, sliced into 4 pieces  
1/2 cup diced cooked chicken

**Tools You'll Need**

Measuring spoons  
Butter knife  
Chef's knife  
Measuring cups (1/2 and 1/4)  
Small plate

*Parents: Store bought rotisserie chicken or refrigerated grilled chicken breast strips work great!*
Directions

1. Cut pita in half to make 2 pockets.
2. Line 1 pita half with 2 lettuce leaves.
3. Add 1 tablespoon of shredded carrots.
4. Top with 1/2 tablespoon of ranch dressing.
5. Add 2 slices of avocado then half of the chicken. See page 16 for avocado cutting instructions.
6. Top with 1/2 tablespoon of ranch dressing and 1 tablespoon of carrots.
7. Repeat steps with remaining pita half.
Veggie Hummus Wrap

Serves 1

Ingredients

2 teaspoons olive oil
2 teaspoons lemon juice
2 tablespoons shredded carrots
1/4 avocado
2 tablespoons hummus of your choice
1 whole wheat tortilla
2 slices of Roma tomato, then halved
1/4 cup baby spinach
Pinch of salt
Pinch of pepper

Tools You’ll Need

Small bowl
Whisk
Chef’s knife
Butter knife
Small spoon
Cutting board
1/4 cup measuring cup
Measuring spoons
Directions

1. In small bowl, whisk oil, lemon juice, salt and pepper together.
2. Add shredded carrots to bowl and stir to coat.
3. Place flat side down of avocado on cutting board and chop with butter knife. See page 16 for avocado cutting instructions.
4. Place tortilla on counter. Use back of spoon to spread hummus, leaving a 1/2 inch border around the edge.
5. Top with carrot mixture, avocado, tomatoes and spinach.
6. Fold up bottom of tortilla over filling. Fold sides of tortilla over filling, then roll tightly into log.
7. Cut wrap in half.
Serves 1

**Ingredients**

1 large egg  
1 whole wheat tortilla  
2 tablespoons low sodium black beans, canned  
2 tablespoons cheddar cheese  
1 tablespoons salsa  
2 avocado slices  
2 teaspoons olive oil  
1/4 teaspoon turmeric  
Pinch of salt  
Pinch of pepper

**Tools You'll Need**

Nonstick skillet  
Spatula  
Small bowl  
Measuring spoons  
Whisk  
Chef's knife
Directions
1. In small bowl, whisk egg, salt, pepper and turmeric.
2. Warm 2 teaspoons of oil in non-skillet on medium heat for about 1 minute.
3. Scramble egg for 2 minutes.
4. When cooked, remove from heat and set aside.
5. Place tortilla on cutting board and add cheese, leaving 1/2 inch rim.
6. Warm black beans in the microwave for 15 seconds.
7. Layer beans on top of eggs.
8. Add avocado and salsa.
9. Fold up bottom of tortilla over filling. Fold sides of tortilla over filling, then roll tightly.
Optional: Warm non-skillet and add burrito for 1-2 minutes on each side to toast.
9. Cut burrito in half.
Crispy Chick'n Burger

Serves 2

**Ingredients**
1 (15-ounce) can chickpeas
1 large egg
2 tablespoons plain Greek yogurt
2 teaspoons plus 2 teaspoons olive oil
1/2 teaspoon curry powder
1/8 teaspoon salt
Pinch of pepper
1/3 cup panko bread crumbs
3 scallions, chopped
2 lettuce leaves
tomato slices
2 hamburger buns

**Tools You'll Need**
Colander
Can opener
1/3 cup measuring cup
Medium bowl
Whisk
Food Processor
Rubber spatula
Nonstick skillet
Spatula
Directions
1. Set colander in sink. Open can of chickpeas and pour into colander. Rinse chickpeas with cold water and shake to drain.
2. Measure out 3/4 cup chickpeas, reserve remaining chickpeas for later use. (Use 1/4 measuring cup 3 times)
3. In medium bowl, whisk egg, yogurt, 2 teaspoons oil, curry powder, salt, and pepper until well combined.
4. Place 3/4 cup chickpeas, panko, and scallions in a food processor. Lock lid in place. Hold down pulse button for 1 second, then release.
5. Repeat until ingredients are roughly chopped with large pieces remaining, 5 to 8 pulses. (Don’t over process or the burgers will be mushy).
6. Unplug food processor, remove lid and carefully remove food from processor blade (ask an adult for help).
7. Transfer chickpea mixture to bowl with egg mixture. Use rubber spatula to gently stir ingredients until just combined.
8. Use your hands to divide chickpea mixture into 2 lightly packed balls. Gently flatten each into circles.
9. Add 2 teaspoons of oil to a nonstick skillet and swirl skillet to coat evenly with oil. Turn heat to medium and let oil warm for 1 minute. Place patties in skillet and cook over medium heat until browned on first side, 4 to 6 minutes.
10. To keep patties from falling apart, wait until they are well browned on the first side before attempting to flip over.
11. Use spatula to gently flip patties. Cook until well browned on second side, 4 to 5 minutes. Turn off heat.
12. Put 1 lettuce leaf inside each bun. Use spatula to slide burgers onto buns. Serve with more yogurt or condiments of your choice.
Tomato & Peach Salad

Serves 4 to 6

**Ingredients**

3 ripe tomatoes
2 small ripe peaches
3 tablespoons olive oil
1 tablespoon minced shallot
1 tablespoon lemon juice, squeezed from 1 lemon
1/4 cup mint leaves
Salt and pepper

**Tools You'll Need**

Cutting board
Paring knife
Colander
Medium bowl
Whisk
Rubber spatula
Measuring spoons
Directions
1. Use paring knife to cut each tomato in half (through the stem end), then remove and discard core. Cut tomatoes in 1/2 inch thick wedges. Cut each wedge in half.
2. In colander, combine tomatoes and 1/2 teaspoon salt and gently toss to combine. Place colander in sink and let tomatoes drain for 15 minutes.
3. While tomatoes drain, cut each peach away from pit, then discard pit. Slice peaches in 1/2 inch thick wedges. Cut wedges in half.
4. In medium bowl, whisk together oil, shallot, lemon juice, and 1/8 teaspoon pepper.
5. Add drained tomatoes and peaches to bowl with dressing and use rubber spatula to gently stir to combine.
6. With your fingers, tear mint leaves into pieces. Sprinkle over salad.
Rockin' Ramen

Serves 1-2

**Ingredients**

2 cups low sodium broth (Vegetable or Chicken)
1/2 teaspoon sesame seed oil
1 tablespoon low sodium soy sauce
1 teaspoon ground ginger
1/2 teaspoon garlic powder
1 package ramen noodles (any flavor, noodles only)
2 scallions chopped
1/2 cup sliced mushrooms

**Toppings:**
Shredded carrots
Sriracha

**Tools You'll Need**

Medium pot
Kitchen scissors
Measuring spoons
Paring knife
Spaghetti spoon
1/2 cup measuring cup
Liquid measuring cup
Directions
1. Use kitchen scissors to "chop" scallions.
2. Slice mushrooms thinly.
3. In a medium pot, add broth, mushrooms, sesame seed oil, soy sauce, ground ginger, and garlic powder.
4. Wisk mixture and bring to a boil on medium to high heat.
5. Open the package of noodles and throw away the seasoning packet.
6. Add noodles and green onions to boiling broth and cook for 3 minutes.
7. When the time is up, use spaghetti spoon to evenly divide noodles into bowls.
8. Use pot holders to pour broth evenly into each bowl.
9. Top with shredded carrots and a drizzle of sriracha.