Cooking: a tasty way to count, measure, and compare!

Cooking is a real-life, every day way to learn about sequencing, estimation, time, unit conversions, problem solving, fractions and so much more. There's a lot for children to learn and do in the kitchen!

Tips to make the most of cooking explorations with young chefs.

- Involve your child in meal planning, recipe selection, shopping for, and preparing meals. Encourage them to decide what they'd like to cook.
- Start simple. Plan your kitchen adventures so they're safe and appropriate for your child's interest and readiness.
- Give your child time to explore kitchen utensils and ingredients before you begin.
- Talk about kitchen safety before you begin. Talk about how tools and appliances should be used to avoid cuts or burns.
- Practice good kitchen hygiene, washing hands, cleaning up, and wiping down surfaces frequently.
- Read through recipes before you begin. Discuss the steps. Discuss how cooking order makes a difference to the outcome. Check that you have all the necessary ingredients.
- Set your child up for success. Place ingredients and tools in locations where your child can reach them comfortably.
- Teach your child how to measure ingredients accurately.
- Allow plenty of time and anticipate that young chefs may need more time than you think.
- Anticipate and be prepared for spills and messiness.
- Clean up together as you go. Put things away so they'll be ready for next time.
- Consider planting a garden with your child and cook the foods that you grow.
- When something doesn't go as expected, talk about why. Consider whether ingredients were measured accurately. Were all of the recipe steps followed? Did the steps happen in the order described in the recipe? Did the food cook for the right amount of time? Be good detectives, figure out what went wrong and treat it as a learning experience.

Cooking and Young Kids are a Recipe for Math (and Science) Success and Fun!

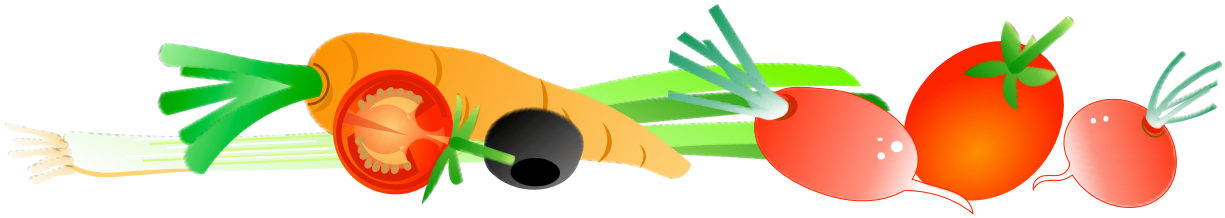
These ideas are general guidelines. Please consider what is developmentally appropriate for your child. Your knowledge of your child is key to their success and safety in the kitchen.

Toddlers often love to help in the kitchen. Support toddlers' success with simple recipes that don't take too long or require too many steps or ingredients. You can reinforce math concepts by **counting** ingredients together. Use **sequencing words** while following the steps in the recipe - words like "first," "second," "next," and "last" to describe what you're doing together. Tasks that may be appropriate for toddlers include stirring, squeezing, pouring, whisking, sprinkling, decorating, brushing, mashing, kneading, tearing, leveling a cup of flour, and washing ingredients. Toddlers may enjoy adding ingredients to the food you're making or using cookie cutters to cut shapes from dough.

In addition to all of the skills above, **Preschoolers and Transitional Kindergarteners** may be ready to roll dough, use measuring spoons and cups with more precision, mix ingredients, cut or chop (with child safe tools), gather ingredients, **sort** ingredients, and **divide** food into equal portions. Include preschoolers in the cooking process by discussing what to make together. At the grocery store, encourage children to use scales to weigh produce. **Compare and contrast** the foods you see in the store. Notice together, their color, size, and shape. Ask your child to tell you how they think a strawberry and apple are similar. How do they think they are different?

Kindergarteners may be ready to peel, chop, cut, and grate with more precision depending on their fine motor skills. Spark their interest in cooking by including them in meal planning decisions. Encourage them to figure out what ingredients are needed and then shop for the ingredients together.

Elementary schoolers may be ready to cook with a heat source and use electric kitchen appliances with adult supervision. They may have the fine motor skills to peel, slice, and chop food. They may also enjoy experimenting with recipes, finding out what happens when ingredients are substituted, and modifying recipes by doubling, tripling, or halving the ingredients. At the grocery store, **compare** prices and **estimate** the cost of the items in your shopping basket. Elementary schoolers may enjoy the challenge of creating a meal within a certain budget or planning a meal to take advantage of produce that's in season.



So Many Reasons to Cook with Children

Many children love to cook and spend time preparing meals. There's something satisfying about preparing a tasty meal. Cooking often encourages children to try foods they might not eat otherwise. Learning to cook is a process that takes time and involves some errors along the way. Children learn a great deal from mistakes and when a mistake is embraced as a learning opportunity, children gain a much deeper understanding of what they are doing. Learning about math and science may not be the first things that come to mind when you think about cooking with your child, but there are so many foundational math and science concepts that are supported by cooking together. It's easy, it's fun, and it's an important life skill that you can use to explore math and science together.

You know your child best. Whenever possible let them take the lead when cooking together. Encourage them to do the measuring, mixing, and counting. Use your knowledge of what's developmentally appropriate for your child to ensure their safety, success, and enjoyment in the kitchen.

Math and Science Concepts Supported by Cooking

Try these things with your child:

Comparison

- Talk about how ingredients are alike and different. How is salt like sugar? How is it different?
- Describe how ingredients look, taste, feel, and sound. What does batter sound like when dropped on a hot surface? What else sounds like this? How does uncooked batter look different than cooked batter? How does flour feel different than sugar? How does it taste different?
- Use different sized cookie cutters to cut out a snack, then talk about the shapes and how they are similar and different.
- Compare the sizes of measuring spoons and cups.
- Talk about the size of pans and mixing bowls you will need. Consider which pans and bowls are the right size to hold your ingredients

- Explore what a pound and an ounce feel like when lifted. Which is heavier? Compare 1 cup, 1/2 cup, 1/3 cup, and 1/4 cup. Which is the largest quantity? Which is the smallest?

Counting

- Count! If a recipe calls for 6 cups of water, encourage your child to count the cups as they add them to the recipe.
- Count the total number of ingredients needed for a recipe.
- Notice that the last ingredient counted is also the total number of ingredients.
- Count the number of muffins you bake.
- Notice which ingredient you need most of.
- Count the raisins that will fit in a 1/4 cup.
- Find out whether more raisins or more popcorn will fit in a 1/4 cup.

Estimating

- Practice estimating. Discuss whether you have about a 1/4 cup or 1/2 cup of flour. Then find out.
- Estimate how many people can be served with the food you made.
- Estimate how many tablespoons will fill a half cup. Then test to see if the estimate was close.

Fractions

- Cut an apple in half. Cut one of the halves in half again. What do you notice about the size of the pieces?
- Compare the amount of water in one cup, 1/2 cup, 1/3 cup, and 1/4 cup. Notice how these amounts relate to each other. How many 1/4 cups in a 1/2 cup? How many 1/4 cups in 1 cup? How many 1/3 cups in 1 cup?
- Double or halve a recipe.

Measuring

- Explore standard measurements used in cooking.
- Show your child how to use measuring spoons and cups.
- Give your child time to practice using measuring spoons and cups. Encourage them to look at the amount that each of these measuring tools will hold.

- Encourage precision when using cups, tablespoons, and teaspoons.
- Find out how many 1/2 cups, 1/3 cups, & 1/4 cups fit into 1 cup.
- Explore the relationship among cups, pints, quarts, and gallons together.
- Use a scale to measure the weight of ingredients.

Money and Budgeting

- Figure out how much it will cost to make a meal together.
- At the cash register, encourage young chefs to estimate the cost of groceries in the shopping basket. Let them pay for the items purchased, counting paper money and coins.

Problem Solving

- Plan a meal that you can prepare with the money and ingredients you have available.
- Determine what to do when you're missing an ingredient. Can you make a substitution?
- Figure out how to increase a recipe if you need to feed more people or how to decrease a recipe if you want to feed fewer people.
- Look at ways together that you can feed more people economically by stretching your food budget with lower cost and seasonally available ingredients.
- Not everyone will or can eat the same foods. Plan a meal made with foods that can be enjoyed by everyone you plan to serve.

Ratios

- A ratio is a comparison of quantities, for example, two carrots for every three zucchinis. If you need one cup of water for every two cups of flour, how many cups of water do you need for ten cups of flour?
- Explore ratios together. One pizza for six people, how many pizzas for 12 people? Two teaspoons of garlic for one batch of pizza sauce, how many teaspoons of garlic for 8 batches of pizza sauce?

Science (Math's Best Friend)

- Predict how a recipe will turn out. How will it taste? How will it look?
- Explore how food changes when its mixed, heated, and/or frozen.

- Notice physical (like freezing and melting) and chemical changes (like fermentation and caramelization).
- Learn about yeast and baking powder and how they make some foods rise.

Sequencing

- Use words that explain the order in which something is done like “first,” “second,” “third,” “then,” “next,” “last,” “before,” and “after,” while cooking together.
- Organize ingredients in the order they will be used.
- Explore what happens when a recipe’s steps are done in a different order. Is the outcome the same?
- Look at the sizes of a group of bowls that need to be put away. Stack them so smaller bowls nest insider larger bowls. Which bowl is on the bottom? In the middle? On the top?

Sorting

- Group food together by type. Which foods belong in the cupboard, the refrigerator, the freezer, the vegetable drawer?
- Sort ingredients by how they are prepared. Which ingredients are poured, chopped, measured, heated, etc.?
- Sort ingredients by type: liquids, dry ingredients, spices, etc.
- Sort cans by size, weight, or color.
- Sort boxes of food according to size.
- Sort bowls and cooking utensils by shape, size, and/or function.

Spatial Awareness

- Explore how measuring cups will nest inside each other.
- Talk about where foods and utensils are located in the kitchen. What’s **in** the cupboard? Where are the pans? The pans are **on top of** the refrigerator. What’s **on** the shelf? Can you find the mixer **below** the counter? The salt is **next to** the pepper.

Temperature

- Learn to read a thermometer. Talk about how many foods need to be cooked to a certain temperature in order for them to be safe to eat.
- Notice that temperature is measured with different scales: Fahrenheit and Celsius are common scales.
- Notice the temperature settings and temperature ranges of your cooking appliances. Talk about which settings are appropriate for the foods you are cooking. Some foods are cooked at low temperatures for a long time. Others are cooked more quickly at higher temperatures.
- Learn cooking vocabulary that indicates how food should be cooked, words like sauté, braise, bake, stir-fry, blanche, parboil, sear, broil, etc.
- Explore how temperature affects cook time.
- Talk about kitchen safety around heat sources.

Time

- Consider how long it will take to prepare a meal. Consider prep time, cooking time, and serving time.
- Pay attention to how long foods need to be cooked and use a clock or timer so foods are cooked for the right amount of time.
- Figure out when you should begin cooking so the food is ready by mealtime.
- If your food needs 45 minutes in the oven, figure out (without a timer) when you need to remove the food so it’s properly cooked.

Unit Conversions

- Learn common unit conversions, for example, there are 8 ounces in a cup, 2 cups in a pint, 4 cups in a quart, and 16 cups in a gallon.
- Explore the relationship between standard units of measurement by pouring water from one container to another. How many quarts are in a gallon?