

10. COOKING

Children at Play: Cooking and Learning About Food

Food is essential to our very being. We eat to nourish our bodies and sustain our energy. However, to most people, food is much more than sustenance. It carries memories or reminders of special moments and people. The smell of fresh bread conjures a picture of grandmother, in her apron, taking steaming loaves of bread from the oven, to be cut and spread with sweet butter and honey. A fragrant pork roast might remind us of holiday dinners with aunts, uncles, and cousins sitting around the dining table sharing family stories. Food carries cultural meaning, identity, and pride.

Through food experiences, children can learn about other people and other lands. Teachers can introduce a favorite regional food, such as dumplings, and let the children make it for lunch or snack. Using books and stories, the teacher can explain that dumplings are made by families all over the world, although they have different names, slightly different ingredients, and may look a little different. For example, in Italy they are called *ravioli*, in Israel *kreplach*, in China *won tons*, in India *samosas*. The children can make many different kinds of dumplings and discuss the countries they come from.

For families who struggle to find ample food for their children or who have lived through famine, food is precious. Parents may worry that their children are malnourished, and spend hours standing in line to buy whatever food is available. Children living in such circumstances may learn to never waste food, and eat everything that is offered to them.

When given the opportunity, all children enjoy helping with simple cooking chores. Even two- and three-year-olds can mash potatoes, spread jam on bread, or help knead dough, and feel a sense of accomplishment as they do real work.

Diverse experiences with a variety of nutritious foods help children establish lifelong eating habits. They learn that certain foods contribute to health and growth, while others may cause health problems. Children must be taught to make healthy food choices by learning about what the body needs.

Teachers can use beans, grains, vegetables, fruits, seeds, and nuts to help children learn the fundamentals of food origins and preparation. It is exciting for children to sprout wheat seeds, plant and watch stalks of wheat grow, or feel the silky tassels of the wheat on the stalk. They can grind their own flour, make dough and take bread from the oven, enjoying the yeasty aroma and tasting the crunchy crust and soft center.

In the classroom, children can help make snacks, cook part of breakfast or lunch, or prepare a special food for a holiday celebration. Recipes that are appropriate for children range from simple ones, with only two or three ingredients, to more complex concoctions, with many ingredients that require greater skill. To promote maximum learning about food experiences, cooking and other activities related to foods can be integrated into other activity centers.

Cooking is an activity that promotes development and learning in all developmental domains.

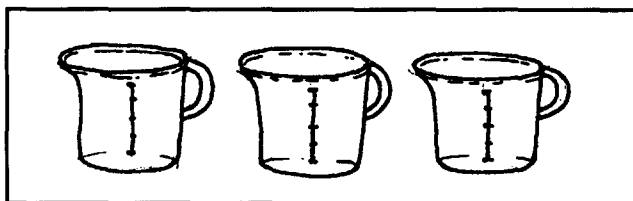
Impact on Developmental Areas

Literacy

As children learn to decode recipes with words and pictures, they begin to scan from left to right and translate symbolic characters to concrete actions. They enjoy “reading” and some may enjoy copying the recipe in front of them. They practice sequencing as they proceed step by step through a cooking activity. Asking children to describe the cooking activity at a later time reinforces the sequence of the process and provides a rich language experience. They have the opportunity to build vocabulary, using words like *sift*, *knead*, and *blend*. As children perform the tasks, words like *squeeze* the lemon, *dissolve* the gelatin, and *melt* the butter become part of their vocabularies.

Mathematical Thinking

Children learn about quantities and measuring when they pour one cup of juice or two spoonfuls of sugar into a mixing bowl. They explore the meaning of numbers as they count three eggs, five spoonfuls of vanilla, and



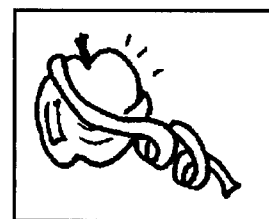
one-fourth cup of milk. Children grapple with the concept of fractions as they cut a cake into fifteen portions or fill a measuring cup half way with flour. They begin to develop a sense of time as they bake a cake for one hour or boil pudding for ten minutes.

Scientific Knowledge

Cooking is based on the sciences of chemistry and physics. As children observe yeast proofing and bread rising, they pose hypotheses about what is happening and why. They watch as heat thickens gravy or melts chocolate. Children learn to compare and contrast by tasting and describing foods like lemons and oranges, or eating carrots prepared in a variety of ways — raw, cooked, or baked in a cake. They learn about the origins of food as they plant seeds, water the seedlings and young plants, and finally cut lettuce for a salad. Children can discuss where eggs come from, thereby perceiving the relationship between chicken and egg as part of the life cycle.

Physical Development

Scooping, peeling, sifting, beating, and pouring build motor coordination and increase small-muscle control. As children pour salt into a measuring spoon, and then add it to a mixture, they must coordinate their eye and hand movements. Kneading bread and mixing batters requires strength in arms, shoulders, and backs.



Social Skills and Cultural Knowledge

Children learn to take turns as they pass a jar filled with cream around a circle and shake it until it turns to butter. They learn to share a finished product, making sure that everyone has a portion. They work together to create a snack. They realize that people are different as they discover that one child loves the taste and texture of coconut, while another finds it distasteful. Children learn about different foods that families eat and cultural differences in food choices.

Emotional Development

People often turn to food for comfort, and children may have foods that they prefer when they are sad or when they are celebrating a special occasion. Following a recipe and sharing the result with friends is very rewarding. A child's self-concept is enhanced by creating something real. On the other hand, it is disappointing to put a lot of time into baking bread that does not rise. In this case, children can profit from their mistakes by analyzing why a recipe did not work.

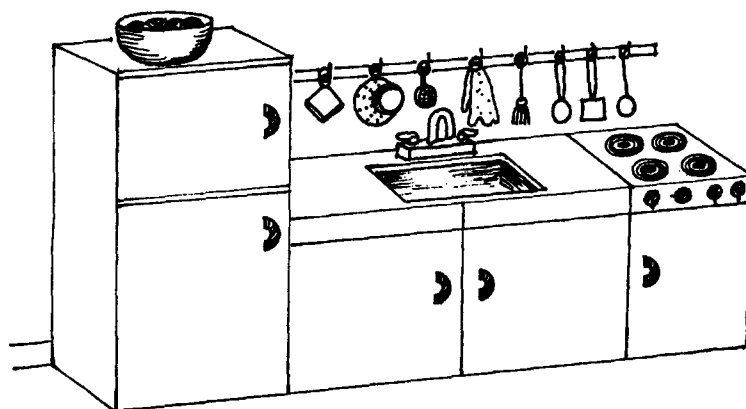
Concept Development

Colors are introduced as children make orange juice, red beet soup, or green salads. Shapes become meaningful when children roll dough into a cylinder, make triangular dumplings or cut carrots into circles. All senses — taste, smell, hearing, touch, and sight — are active as children participate in a cooking activity.

Setting Up for Cooking

Many centers do not have actual kitchens. Any classroom with electricity, however, can accommodate a temporary cooking area. If you are lucky enough to have access to a kitchen, an adult can supervise a small group of children in the kitchen. Also, children can prepare foods in the classroom, using the kitchen only for cooking. The refrigerator can be used to store foods and the sink used during clean-up. The goal is to create an atmosphere that encourages children to explore foods, and experience the pleasures and challenges of cooking.

When setting up a portable cooking area, keep it near a sink, if possible. The art area often has a table and a sink that can be used on a temporary basis. If the classroom does not have a sink, you can set up the cooking activity any place in the classroom that has an electric outlet nearby. In order to organize the equipment needed, it is a good idea to keep things together on a cart or stored in several boxes that are easily accessible. If a refrigerator is unavailable, an ice chest filled with ice can provide temporary cold storage.

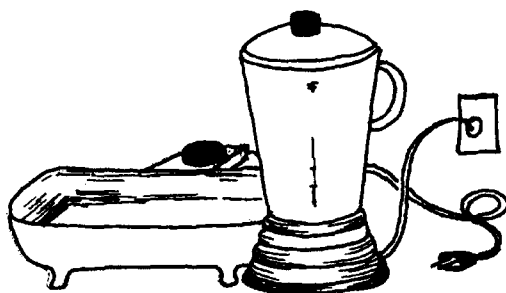


Basic Cooking Materials

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| Bread pans | Sauce pans with lids (small and large) |
| Cake and cookie pans | Scales for weighing ingredients |
| Can opener | Scissors |
| Cookie cutters | Sharp, small knives |
| Cutting boards | Sieves and sifters |
| Frying pan | Smocks, old shirts or aprons |
| Funnel | Soup ladle |
| Graters | Spatula |
| Juicers | Timer |
| Measuring cups | Vegetable peelers |
| Measuring spoons | Whisks |
| Mixing bowls | Wooden spoons |
| Mixing spoons | |
| Potato masher | |
| Rolling pin | |
| Rotary beater | |

Electrical Equipment

- Oven (use a toaster oven if a stove is unavailable)
- Stove top (a hot plate can be used instead)
- Electric frying pan
- Blender



The cooking area should be separate from other activities, easy for an adult to supervise and safe for a small group to work in. The surface of the table should be easy for children to clean with sponges and soapy water. The floor should also be easy to clean or covered with newspapers. Expect spills and messes — they are part of the learning process.

Cooking activities should be part of the program's budget. The budget should include funds for utensils, storage containers, and food supplies. Families can be asked to provide special ingredients needed for a specific recipe. An outdoor compost pile (for fruit and vegetable waste) and small garden can complement the cooking area, and reinforce children's understanding of where our foods come from.

The Teaching Team's Role

The more opportunities children have to cook, the more confident they will be about their cooking skills. Children should be introduced to cooking techniques individually or in small groups of five or six. They should always be supervised by an adult.

Parents and other family members are valuable resources. They can help by supervising the children, planning the cooking activity itself, organizing the ingredients, sharing a special recipe, working in the garden, and contributing homemade foods. The teaching team should inform any adult helper of important cooking techniques and safety requirements. Cooking should be fun for children. Adult helpers should be aware that the process and experience of cooking are more important than the finished product. The activity's goal should be to promote the children's sense of competency, independence, and experimentation. The children should do the work, while the adult watches and guides!

Planning the Cooking Activity

Make sure you have all the ingredients and utensils available and well organized before the children start the activity.

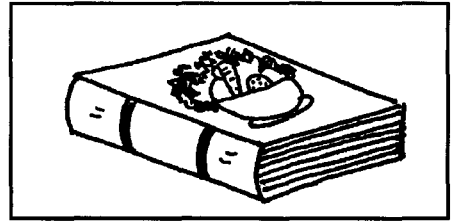
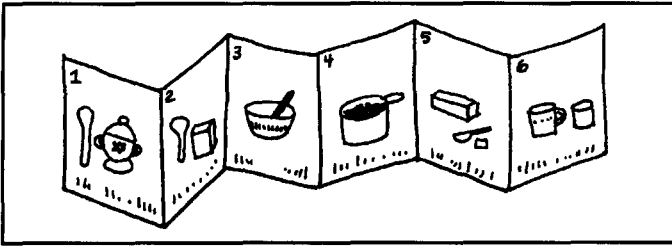
Start with simple projects: peel and slice a banana, pop corn, spread honey on bread, take peas out of pods. Over time, the recipes can include more steps and become more complex. Describe the tasks that the children are doing so they begin to learn the vocabulary of cooking: "You are peeling the apple, rolling the dough, squeezing the lemons, cracking and whisking the eggs."

Be receptive to the children's ideas about what they would like to make. Try to accommodate their choices.

Build on the ideas that emerge during other classroom activities and that promote food experience ideas. For example, children who have read a story about apple trees may begin to talk about their favorite apple foods. The teacher can build on this interest by organizing a cooking session using apples: apple pancakes, applesauce, apple pie, baked apples, or sliced apples in honey. Use foods for science and math activities as well. Be alert and take advantage of spontaneous opportunities!

Post the recipe where children can see it clearly. Use pictures and words to illustrate the utensils needed as well as the measurement of ingredients. Any one of several formats can be used to present the recipe sequentially and visually.

The most appropriate format for the youngest children is to post each step of the recipe on a separate piece of paper or card and display them in proper sequence along the back of the cooking table. Other useful formats include a paper folded accordion-style, with each fold having a step of the recipe, or an easel or flannel board to hold large-sized paper with the recipe printed in magic marker. For the older or more experienced children, use a loose-leaf notebook with a separate page for each recipe. Keep the "cookbook" handy so the children can look at it whenever they want. Older children may also want to draw and write or dictate their own recipes.



Cooking Tips

- Remind the children to wash their hands and to put on a smock or shirt. Post a sign with hands being washed as a visual reminder.
- Make sure that the work surface is clean or have the children wash the surface before they begin.
- Review the recipe with the children, pointing out the names of the utensils and the ingredients that will be used.
- Demonstrate the proper use of utensils, and let everyone have a turn.
- Have as many children as possible in the small group participate in the activity at the same time. Some recipes allow for all children in the group to work at the same time (making cheese sandwiches for lunch), while others can accommodate only one or two children at a time (baking a cake).
- Keep a bowl of soapy water and a sponge nearby for quick clean-ups.

Safety Is Most Important

- Show children the safe way to handle and use sharp utensils. Let children use sharp utensils only while an adult is watching.
- Point out the hazards of cooking — the danger of burns from hot objects, the need to keep flammable materials away from heat, the importance of turning appliances off, and the need to turn all pot handles away from the front of the table or stove.
- Show children how to use appliances. The youngest children may need to watch the adult do the actual cooking, such as stirring a boiling soup or frying dough, while the older children may be able to do this themselves. Make sure you know a child's individual skills and abilities before you let him undertake a cooking task that might be dangerous.
- Teach children to use pot holders and how to place hot foods on a trivet or heat-proof surface.
- Find out if any children have food allergies, and make sure that all adult helpers know that these children must avoid certain foods. Have another food choice available for children with allergies.
- Make sure that children wash their hands with soap and water before handling food. Clean and disinfect your work surfaces.
- Have adequate adult supervision during the entire time children are cooking.
- Use electrical appliances with care. Make sure that children understand "hot" and that they are very careful around ovens, stoves, blenders, hot plates, electric pots and pans. Do not permit children to crowd around appliances that are being used.
- Plug appliances into outlets that are out of the way of traffic so children do not trip. Keep appliances unplugged when not in use.
- Make sure that cooking containers are unbreakable.
- Ask children to sit when using knives, peelers, graters, and other sharp utensils.
- Require teachers to be trained in first aid and able to respond appropriately to cuts, choking, and burns.

(Adapted from: "Setting Up for Cooking" October 1994.)

The Cooking Activity

Children should be able to see, feel, smell and, whenever appropriate, taste the separate ingredients before they begin to combine them.

Encourage children to observe and talk about the ingredients — their shape, texture, color, size, similarities, and differences. Ask children questions to stimulate discussion: “How does this taste, sweet or sour? Does the yogurt feel the same as or different from the jam? Which taste do you prefer, the strawberry or the rhubarb? Why?”

Talk with the children about the chemistry and physics of their cooking. What happens when ingredients are combined? For example, what happens when yeast is dissolved in sugar and water? What happens when the food is heated or chilled? As children are cooking, explain that water is a liquid, that when it boils it becomes a vapor called steam, and that when it is frozen it becomes a solid called ice. Make frozen ice pops and have the children guess what will happen if they are heated. Record their ideas and the results of the experiment. Have them reinforce their accomplishments by reviewing the cooking experience at the end of the day.

Use complete sentences to describe the process of cooking as you comment on a child’s work. “You have added all of the liquid ingredients to the dry ingredients. What are you are going to do with the rolling pin? How has the texture of the potatoes changed now that you have added milk?” Accept the language that the children use to describe their observations.

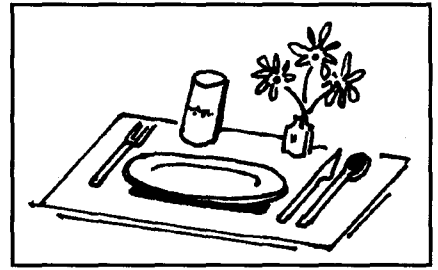
Allow enough time to complete the cooking activity. All children who want to participate should have an opportunity to rotate in and out of the cooking area. Post a waiting list for children to sign their names if they want a turn; then children will not be waiting by the table for others to finish. Remember to call on the children who have signed up before letting others join. If there are not enough ingredients or time for all interested children to have a turn, repeat the same or a similar cooking activity the next day or soon thereafter. Allow each child an opportunity to taste what he has cooked. If possible, make enough for the whole class to enjoy.

Everyone who cooked should have a clean-up responsibility. Have basins of water and sponges available. Have a broom and mop nearby. Supervise the cleaning of utensils. Put aside the dangerous utensils or pots that need to be soaked; an adult can finish the job later. Remember that children may not clean as well as an adult can. Do not criticize their efforts; instead praise and encourage their help.

(Adapted from Goodwin and Pollen, 1974.)

Activities and Projects

Food Experiences That Do Not Require Cooking



- Using cooking tools (cups, bowls, beaters and whisks) with water
- Measuring and pouring dry ingredients (rice, flour, corn meal)
- Tasting and comparing fresh fruits and vegetables (green and red peppers)
- Tearing, breaking, and snapping (lettuce, beans, and peas)
- Pouring liquids (Mark the cup with a rubber band to show the child when to stop pouring.)
- Stirring and measuring (cocoa in milk, jam in yogurt)
- Spreading with knives (butter, honey, peanut butter)
- Rolling with both hands (cheese balls)
- Juicing with a manual juicer (lemons, oranges)
- Peeling with fingers (cooked eggs, banana, orange)
- Cutting with a knife (progressing from soft foods—a banana—to hard foods like an apple)
- Peeling with a scraper (potatoes, carrots)
- Grating with a hand grater (cheese, potatoes)
- Using the blender (fruit, milk and yogurt drinks)

(Adapted from *Cooking In the Head Start Classroom — An Everyday Affair*, 1974.)

Theme: Exploring Vegetables

If you ask children whether they like to eat seeds, roots, stems or leaves, they probably will say “No!” But ask if they like peanuts or potatoes or celery, or lettuce, and they will probably say “Yes!” They often are not aware of the many varieties and parts of vegetables. A theme-based project like growing a garden can be an excellent opportunity for children to learn about plants and to taste new foods.

Begin by reading stories about plants, discuss how they are grown, what they are composed of, and where roots, stems, leaves, flowers, fruits, and seeds are located on different plants.

Have children cut out pictures of plants and draw their favorite plants.

Let the children plant some fast-growing seeds such as radishes and water them and watch them grow.

Guide the children as they investigate the different parts of plants: roots, stems, leaves, flowers, and fruits.

Roots

Bring in different root vegetables, such as beets, carrots, potatoes, or radishes. After they have cleaned and cut the vegetables, let the children taste them raw. (The teacher may need to cut these hard vegetables for young children.) Ask them to describe the differences in shape, color, and taste.

Demonstrate how to make potato prints by cutting a design in relief, dipping it in paint, and printing onto rolls of paper. After children have made their prints, show examples of woodcuts in art books and point out that they, too, are artists.

Cook the vegetables and ask the children how they have changed. Make boiled potatoes and baked sweet potatoes. How do they differ? Ask the children to describe the differences between raw carrots and carrots grated and baked into muffins.

Stems

Bring in celery, rhubarb, or asparagus. Show children the whole plant with the leaves, explaining that it is the stem that we eat. Rhubarb leaves are toxic, so be sure the children do not taste them. Help them observe how the stem connects the roots with the leaves.

Have children soak celery stalks in water colored with vegetable dye and observe how the water is carried up the stalk to the leaves.

Ask the children to guess how many “celery stalks tall” they are. Next, line up the stalks end to end on a piece of paper and ask the children to take turns measuring themselves. Make a graph showing how many celery stalks tall each child is.

Cook rhubarb with the children. Have them taste it before and after it is sweetened with sugar or honey. Ask them to describe the different flavors.

Let the children stuff celery stalks with soft cheese for a snack.

Ask them to watch what happens to the color of celery and asparagus as it steams in a little water in an electric frying pan.

Leaves

Take the children to a garden to pick a variety of fresh leaves, such as cabbage, lettuce, chard, spinach, kale, and parsley. If this is not possible, buy some leafy vegetables at the store, or take the children on a trip to the farmers’ market or grocery store to purchase the produce.

Have the children identify how the leaves are different from and similar to one another. Record their ideas.

Have the children grate cabbage to make a slaw, stir-fry the spinach, and wrap lettuce leaves around a piece of meat to make a lettuce roll-up.

Flowers

Children are often surprised to discover that broccoli, cauliflower, and brussel sprouts are flowers. Let the children examine the vegetable under a magnifying glass to see how each floret is a bud waiting to bloom. If possible, show them a stalk of broccoli that has flowered into yellow blooms.

Have the children taste the raw vegetable and compare it with the cooked version. Let the children puree broccoli in a blender with a little milk and cheese for a completely different taste and texture.

Fruit

A tomato is actually a fruit, as are squash and pumpkins. Cut the stem and top off a pumpkin, so that the children can use spoons or their hands to scoop out

the stringy insides. Wash the seeds, then salt and bake them in the oven. Some children like the messy texture of the pumpkin's insides, while others do not. Carve a face on the pumpkin and talk about the U.S. tradition of Halloween. Food is often a wonderful way for children to learn about foreign customs and holidays.

Let the children taste tomatoes raw, make tomato sauce to put on rice or pasta, or make tomato juice.

Celebrate the vegetable theme by reading a children's story about a garden or making soup. *Stone Soup* is a favorite folk tale. Have each child bring a vegetable from home. Invite the parents to come for a vegetable lunch. Serve vegetables in all forms: raw stems, roots, leaves, flowers, and fruits. Cut them into small pieces for salads or for eating with dips. Let the children make vegetable soup. Some of these foods can be prepared several days ahead and stored, covered, in the refrigerator. Ask the children to share their drawings, plants, and new knowledge about vegetables with their parents as they eat together.

(Adapted from Church, 1994.)

Breakfast for Fathers

It's often difficult for preschool programs to involve fathers in the classroom. To solve this dilemma, one program invited fathers or other important male relatives for breakfast the first Friday of each month. The children planned the menu, prepared the food, made decorations for the tables, and enjoyed sharing their culinary efforts with their fathers. It was a great success. This idea can be adapted for any family members.

Recipes

Most recipes can be adapted for use with children. Try to keep them simple. Remember that the children should do the cooking. The availability of foods may vary, depending upon the season. Try to be creative and use whatever is available. Recipes can be changed and ingredients can be substituted.

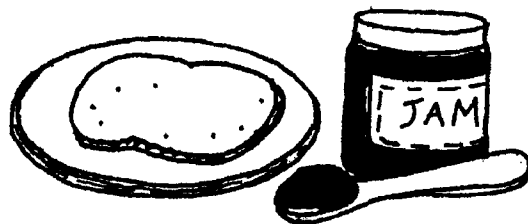
The following recipes can easily be prepared in the classroom.

Single Portion Recipes

These can be made by one child at a time or by a group of children working individually.

French Toast

- = 1 egg
- = 2 tablespoons (30 milliliters) milk or juice
- = Dash cinnamon
- = 1 slice bread
- = 1 tablespoon (15 milliliters) butter or oil



Beat egg in plastic bowl with milk or juice and cinnamon. Soak bread in the mixture, turning it over until all the liquid is absorbed. Melt butter or oil in frying pan. Cook toast on one side. When brown turn over and cook other side. Remove from pan. Serve with jam or honey.

Lettuce Roll-Ups

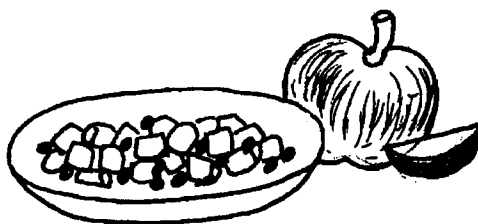
- = 1 lettuce leaf
- = 1 teaspoon (5 milliliters) mayonnaise
- = 1 slice ham



Wash lettuce leaf. Spread with mayonnaise. Top with ham slice and roll up.

Apple Salad

- = 1 apple
- = 1 slice celery
- = 2 walnuts
- = 10 raisins
- = 1 tablespoon (15 milliliters) yogurt



Wash apple and celery. Slice apple and remove core and seeds. Chop apple. Slice and chop celery. Chop nuts. Put chopped ingredients in bowl and add yogurt. Mix well.

Meatballs

- = 2 oz. (56 grams) ground meat
- = 1 egg
- = 1 slice stale bread
- = 2 tablespoons (30 milliliters) milk
- = salt and pepper
- = 1 tablespoon (15 milliliters) oil for frying pan



Crumble meat into bowl. Crumble stale bread into bowl. Crack open egg and add to bowl with milk. Mash and mix with finger or wooden spoon. Add dash salt and pepper. On plate or brown paper, roll into ball. Cook in medium-high oven or in frying pan until brown, turning once.

Group Cooking Recipes

These can be prepared by children working in small groups.

Split Pea Soup

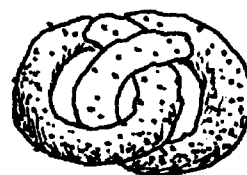
- = 2 cups dried split peas
- = 9 cups water
- = 1 onion
- = 4 stalks celery
- = 3 carrots
- = 3 potatoes
- = 1 teaspoon (5 milliliters) salt
- = 3/4 teaspoon (3 milliliters) pepper
- = 1 bay leaf



Have children cover the peas with water and soak them overnight. Drain peas. Wash and chop onion, celery, potatoes, and carrots. Add chopped vegetables, peas, and nine cups (2.14 liters) water to a large pot. Add salt, pepper, and bay leaf and simmer, partially covered for three hours. Add more water if soup is too thick.

Soft Pretzels

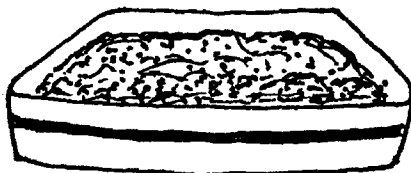
- = 1 cup flour
- = 1/4 cup water
- = 2 teaspoon (10 milliliters) yeast
- = 1 teaspoon (5 milliliters) sugar
- = 1/2 teaspoon (2.5 milliliters) salt
- = 1 egg



Mix flour, water, yeast, sugar, and salt in a large bowl. Knead dough with hands until smooth. Break off small piece of dough. Roll into any shape. Beat egg in bowl and brush pretzels with egg. Bake in hot oven twelve to fourteen minutes.

Apple Crisp

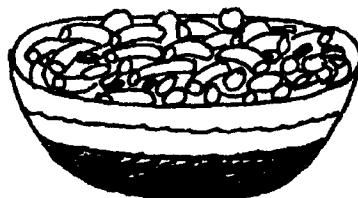
- = 6 apples
- = 1 lemon
- = 1 cup rolled oats
- = 1/4 cup flour
- = 1/4 cup sugar
- = 1 teaspoon (5 milliliters) cinnamon
- = 1/4 cup butter



Wash and slice apples. Put in buttered baking pan. Cut lemon in half and squeeze juice over apples. Melt butter, cool slightly. Combine flour, oats, cinnamon, and sugar in bowl. Add melted butter. Mix with fingers until crumbly. Sprinkle over top of apples. Bake in medium-hot oven for twenty to thirty minutes or until apples are tender.

Pasta Salad

- = 3 cups noodles or macaroni
- = 9 cups water
- = 2 cucumbers
- = 3 carrots
- = 4 stalks celery
- = 8 eggs
- = 1/2 cup yogurt
- = 1/2 cup mayonnaise
- = 1 lemon
- = salt and pepper



Boil noodles in water until soft. Drain and chill. Cook the eggs until hard. Wash all vegetables. Chop celery and cucumbers. Grate carrots. Peel and slice eggs. Squeeze lemon. Combine in bowl with noodles. Add yogurt, mayonnaise and lemon juice. Season with salt and pepper.