



Language, Literacy & Math Powered by Science

Explore.
Question. Experiment.
Integrate.

Tools in the Kitchen



OVERVIEW

This lesson introduces children to a systematic exploration of how simple machines are used to make work easier. They will explore common tools used for cooking and baking. As they do this, they will identify the simple machine that is a part of each tool. Additionally, the following learning goals will be met as the children participate in these **LiteraSci** activities:

Science

- Using simple machines makes work easier
- Identifying levers, wheel and axles, inclined planes and wedges found as parts of common cooking and baking tools
- Using simple machines in many ways, everyday

Literacy

- Encouraging conversations and responses to questions
- Using language to describe what is being done or what is happening
- Relating books to hands-on science activities
- Listening for and identifying rhyming words
- Alphabet letter: K/k

Mathematics

- Using tools to measure for a recipe
- Sequencing steps in a process using *first*, *next*, and *last*

LiteraSci

Tools in the Kitchen

by

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LITERASCI

Language, Literacy & Math Powered by Science

DEVELOPED BY  **SCIENCESTART!**
Opening Young Minds



Teaching Science with LiteraSci

Language, literacy and mathematics flow naturally from hands-on science, which is the activity of learning about the everyday world. Learning about the everyday world is as fundamental to the early childhood years as learning to walk, talk, and interact with others. With **LiteraSci**, children build a rich knowledge-base that supports further learning and higher-order skills like classification and drawing inferences. Language, literacy, and mathematics are basic tools for learning that develop as children engage in **LiteraSci** inquiry activities and share their questions and observations with others.

Preschool children have the abilities to do science.

In fact, “doing science” fits the ways children learn: by exploring, repeating and communicating hands-on, multi-sensory activities. It is crucial that children carry out the activities themselves and that they have opportunities to repeat and vary the activities and to talk about what they are doing and finding out. The goals of science learning in early childhood are to explore, build concepts, and build vocabulary to communicate these concepts. There is an emphasis on trial and error rather than on “right answers” and so teachers do not need to “know all the answers.” Teachers do need to help children ask questions and discover for themselves.

A 4-Step Science Cycle supports systematic guided inquiry, helping children “learn to learn.”

Because learning and doing science relies on children’s firsthand experience, it is always meaningful and provides a motivating context for learning language, literacy, and mathematics.

Hands-on inquiry science fosters a classroom community that easily includes all children.

Because **LiteraSci** activities can be done in many ways, they engage children who have different learning styles and are at different developmental levels. As teachers observe children doing science activities, they can respond to individuals’ strengths and needs. Because inquiry science emphasizes exploration and trial and error as important ways to learn, children focus on learning rather than on avoiding mistakes.

An experienced teacher, observing her students as they mixed primary colored shaving cream to see what new color might emerge, noted how the excitement of doing science motivated other learning:

I'm not sure which child at my table figured out that he could write letters in the shaving cream once it had flattened out. And then everyone was trying it. This class is very exciting. The parent conferences that I've had so far this week, everyone is saying, "What are you doing with them? They just want to write." A dad told me that last night his son went to sleep with his pencil box in the bed.

-Sue Stowe, teacher

The Science Cycle is a powerful teaching tool.

This cycle supports active learning by organizing inquiry. Its four phases bring the scientific method into **LiteraSci** classrooms. All **LiteraSci** lessons use the Science Cycle.

Reflect & Ask begins the cycle. Teachers should talk with children and ask them to think and share their knowledge about a topic. The teacher can introduce new vocabulary and read fiction or nonfiction books to help children think and talk about the topic. Recalling previous science activities helps children reflect on what they know and ask new questions. The teacher and other adults in the classroom can model asking questions using phrases such as: “What do you think will happen if we ...?”

Plan & Predict is next. The teacher should help children plan what to do in the science activity that will get information to help answer their question. They may discuss what materials they need and where to do the activity. The teacher should encourage children to make predictions about the outcome of the activity, accepting all answers. They then move forward with: “Let’s see what happens!”

Act & Observe is the phase during which children carry out the science activity. Teachers may model the activity to help children understand what to do, but it is essential that each child does the science activity. Teachers should expect children to vary the activity as there is no one “right” way to do it. The teacher should talk with children about what they are doing and support conversation among the children. In some cases, this phase is best carried out in small groups.

Report & Reflect is the final phase of the science cycle. Children should talk about what they observed and what new ideas and questions they have. There are many ways for children to represent what they have learned. Reports can be graphs, class-made books, a poster with photographs, a journal entry, a drawing or a conversation.

The **LiteraSci** Curriculum was developed at the University of Rochester by Dr. Lucia French, a specialist in language and literacy development and Kathleen Conezio, an expert on early literacy and science who also serves as a science advisor to Sesame Street. For 15 years, we have collaborated with hundreds of teachers to continually improve **LiteraSci**.

Development of **LiteraSci** has been supported by more than \$5,000,000 in grants from the National Science Foundation and the United States Department of Education.

LiteraSci is easy to use with English Language Learners and children with special needs. Research shows that children at all socioeconomic levels make substantial gains in language, literacy, and science knowledge when their teachers use **LiteraSci**.

Center-Based Play Materials & Activities to Support Today's Science Learning



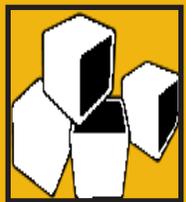
Dramatic Play

- A woodworking shop with a workbench, tools, work apron, measuring tapes, Styrofoam blocks and golf tees for hammering, and so forth



Art Center

- Make prints with rolling pins and paint.
- Cut paper and glue the pieces to create collages.



Block Area

- Use wooden blocks and block people to create different types of buildings.



Manipulatives

- Playdough, rolling pins, knives, and pizza cutters
- Scissors and paper
- Sewing cards



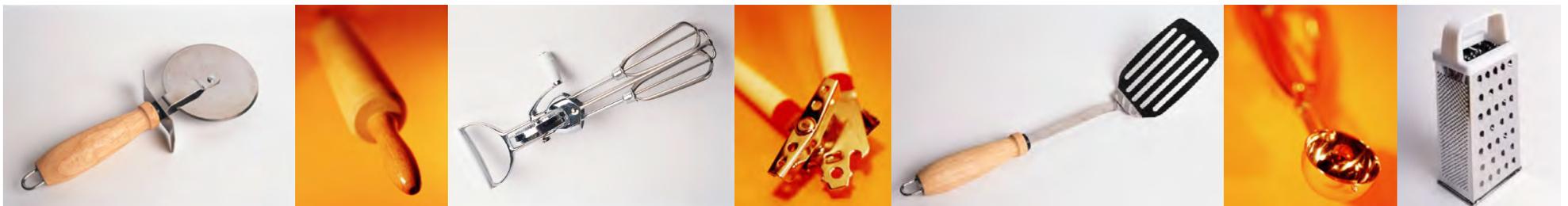
Large Motor Play

- Bicycles and tricycles to ride
- Wagons
- Wheelbarrows
- Doll strollers



Science Table

- Real woodworking tools
- Kitchen tools
- Sewing tools
- Gardening tools





Tools in the Kitchen

Concepts:

Tools are very helpful for cooking. Simple machines are a part of many tools used in the kitchen.

Learning Goals:

Children will use kitchen tools to make a snack. They will identify the simple machines that are a part of these tools.

Vocabulary:

recipe	egg beater
ingredients	pizza cutter
spatula	fork
can opener	spoon
knife	rolling pin

Materials:

kitchen tools – spatula, can opener, knife, egg beater, pizza cutter, fork, spoon, rolling pin, measuring cups and measuring spoons
an assortment of fruit for children to cut - bananas, grapes, berries, etc.
instant pudding mix (number of packages determined by the number of students)
milk (amount determined by directions on pudding mix packages)

Read and Talk About:

Tools by Ann Morris



Things to Talk About:

What are some tools that we use for cooking? What simple machines are being used?

What tools do we use when we eat food? Are these simple machines?

Which kitchen tools are levers?

What are the safety rules for using kitchen tools? Why do we need these rules?

Speaking & Listening	<p>Ask children about times they helped with cooking at home. What did they do? What tools did they use or see other family members using? Ask if any of these tools were simple machines – which ones? How did they help with the cooking?</p>
Reading Comprehension	<p>Today's book is a simple photo book that shows a variety of tools that people use all over the world for making things. As you read the book, spend time looking at the pictures, naming the tools, and talking about their uses. When you finish reading, ask children to recall some of the tools that they had never seen before. What were these tools being used for?</p>
Alphabet Awareness	<p>Introduce K/k for <i>kitchen</i>. Demonstrate how to make these letters. If the children are having trouble making these letters, have them glue strips of paper to make them. Talk about the diagonal lines.</p>
Phonological Awareness	<p>Teach the following nursery rhyme and ask children to identify the rhyming words. Following the rhythm of the song, either clap or walk around the room. (Or both!)</p> <p><i>Sing a song of sixpence, a pocket full of rye; Four and twenty blackbirds baked in a pie. When the pie was opened, the birds began to sing; Now wasn't that a dainty dish to set before the King?</i></p>
Print Awareness	<p>Write today's recipe on chart paper so the children can follow along as you cook together. Explain that a recipe is written in a certain way to help with cooking. Point out where the ingredients are written and where the steps you need to follow are written. Read the recipe together as you cook.</p>



Tools in the Kitchen



Mathematics:

As you show the children today's recipe during the Plan and Predict and Act and Observe phases, use the words *first, next, last* to describe the steps you need to take to make the recipe. Talk about how to measure the ingredients and have the children use the measuring tools.

Science Inquiry Cycle:

Reflect and Ask

Talk about the different kinds of simple machines – wheel and axle, lever, pulley, and an inclined plane. Ask if the children can think of any of these machines that can be used in a kitchen. Talk about their experiences helping to cook – do they ever use simple machines as part of this? Show the children the kitchen tools that you have brought and talk about what they do and how they are used. Ask the children which ones they think would be helpful in making today's snack recipe.

Plan and Predict

Show the children the recipe. Together, plan how to use this recipe and talk about which kitchen tools you will need to use.

Act and Observe

Set up different stations for the children to explore using the kitchen tools. They can use the plastic knives and pizza cutters with playdough. Use the milk and instant pudding to make pudding using the egg beater. Slice the fruit using plastic knives. Set up dishpans of soapy water so the children have more time to use the egg beaters.

Report and Reflect

Talk about the cooking you did – how did the tools help you to do the job? How were the tools that you used today like the tools that builders use? How were they different? What other kinds of kitchen tools do the people who cook at your house use?

Fruit Parfaits

(Materials listed are per small group of 4 children - adjust recipe to meet the size of your classroom)

Cooking tools:

cutting boards plastic knives mixing bowls
egg beaters liquid measuring cup 4 clear plastic cups

Ingredients:

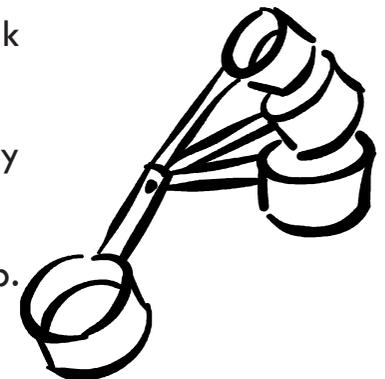
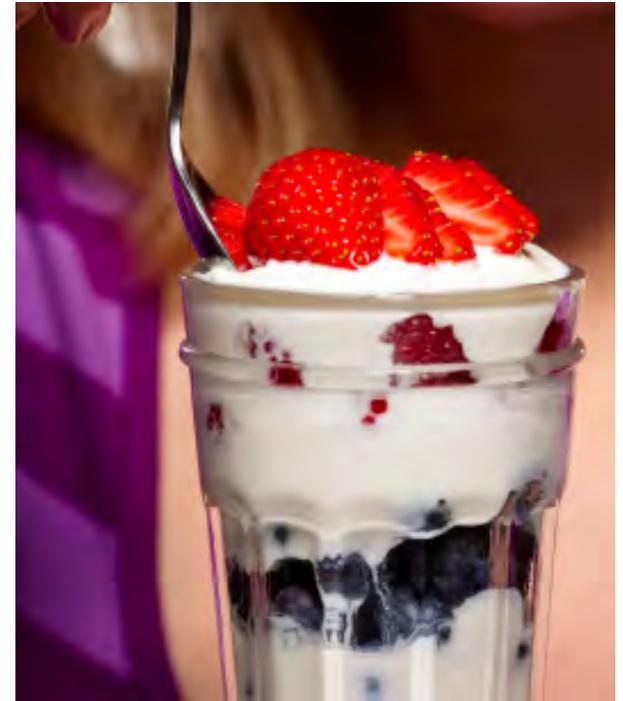
1 box of vanilla instant pudding mix

Milk

Fresh fruit to cut, for example grapes, bananas, berries and so forth

Directions:

1. Invite children to wash their hands.
2. Work together to read the directions on the pudding box and measure the appropriate amount of milk. Pour the mix and the milk into a large mixing bowl.
3. Within the group, have each child take a turn using the egg beater to mix the milk with the pudding mix.
4. Show children the fruit provided, and invite each child select a few pieces they would like to eat and use a plastic knife to help cut it up into smaller pieces.
5. Help children create a parfait by layering fruit and pudding in a clear plastic cup.
6. Eat and enjoy!



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Thank you for using LiteraSci's *Tools in the Kitchen* Daily Lesson.

We hope you enjoyed your experience. If you liked this lesson, you may consider purchasing the *Making Things with Simple Machines Week* or *Simple Machines Month* from which this came.

Your feedback is important to us.
Please contact us with your comments and suggestions at
www.literasci.com.

