



Language, Literacy & Math Powered by Science

*Explore.
Question. Experiment.
Integrate.*

Making Playdough



OVERVIEW

During this cooking activity, children will use a variety of measurement tools to make playdough. Through this hands-on science experience, children will begin to understand the importance of using accurate measurement in daily activities. Additionally, the following learning goals can be achieved as the children participate in this **LiteraSci** activity:

Science

- Using standard and non-standard measuring tools to answer questions
- Becoming familiar with the 4-step science cycle as a daily approach to investigate the everyday environment

Literacy

- Having conversations and responding to questions
- Using descriptive language to talk about experiences
- Beginning to use recipes as a specific genre of reading and writing

Mathematics

- Beginning to understand the concept of measurement using standard and non-standard measuring tools

LiteraSci Making Playdough Day

by

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LITERASCI

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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



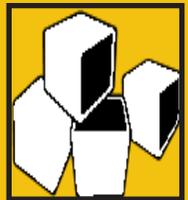
Dramatic Play

- Dishes, pots & pans, pretend food, measuring cups and spoons
- Cookbooks with pictures
- Aprons and chef hats



Art Center

- Apple prints
- Making chef hats
- Painting still life portraits of produce
- Decorating aprons



Block Area

- Wooden unit blocks and measuring tapes
- Yardsticks and rulers



Manipulatives

- Fruit and vegetable stamps and stamp pads
- Using tongs to fill a container
- Playdough and cookie cutters
- Beads to string



Large Motor Play

- *Jack Be Nimble, Jack Be Quick, Jack Jump Over the Pumpkin!*
- Measuring how far a ball rolls



Science Table

- Pumpkins, squash, gourds, apples
- Measuring cups and spoons
- Cookbooks
- Containers of various sizes





Making Playdough

Concepts:

Scientists need to measure the volume of materials when they are mixing them. People who cook need to measure ingredients.

Learning Goals:

Children measure the volume of ingredients as they follow a recipe to make play dough.

Vocabulary:

ingredient

measure

measuring cups

measuring spoons

recipe

volume

Materials:

measuring cups

salt

flour

measuring spoons

cream of tartar

cooking oil

mixing bowl

hot plate

pan

water

Read and Talk About:

Mmm, Cookies! by Robert Munsch



Things to Talk About:

What do we need to use when we want to cook something? How do we know what to do and what materials to use?

What ingredients do we use to make playdough? What other things can we make using those ingredients?

What do you like to do with playdough?

What might happen if we did not use measuring cups when we make playdough?

Speaking & Listening	Talk about cooking and the use of recipes. Ask <i>Who cooks at home?</i> and <i>What do they like to make?</i> Explain what a recipe is. Tell children that you are going to use a recipe to make play dough. Make a list of the ingredients needed to make play dough.
Reading Comprehension	Show children the front cover of the book and read the title. Ask them to look closely at the cover illustration – what do they notice about the people’s faces? Explain that there is something about the cookies in this story that makes people say “yuck.” Have the children listen closely to find out what that is. When you finish reading, talk about the ending of the story.
Alphabet Awareness	Introduce P/p for <i>playdough</i> and demonstrate how to make it using playdough snakes. Have the children make various alphabet letters, like the first letter in their name, with the playdough.
Phonological Awareness	Print out the words for the nursery rhyme <i>Pat-A-Cake, Pat-A-Cake, Baker’s Man</i> on large chart paper and say it with the children. Ask them to identify the words that rhyme. Have them act out the rhyme as they say it.
Print Awareness	Show children a recipe and talk about how it differs from a story or book. Explain how cooks use recipes—by collecting the ingredients listed at the top first and then following the steps in the directions written below.



Making Playdough



Mathematics:

Children measure ingredients to make play dough and count as each ingredient is added to the bowl.

Talk about how the different measures relate to each other (3 teaspoons fill a tablespoon; 2 half-cups fill a whole cup).

Science Inquiry Cycle:

Reflect and Ask

Ask if anyone has cooked things at home, and if they have seen their families use recipes. Talk about what kinds of things they have cooked. Look at the recipe card for playdough and ask if anyone has ever made playdough before.

Plan and Predict

Read the recipe card. Make a list of ingredients and tools needed to make the playdough. Invite children to help you find these items in the classroom. Check them off the list as they are found. Talk about the recipe card in terms of measuring. How do we know how much of each ingredient to put in? How will we measure it? What kinds of measuring tools will we need to use? What might happen if we don't measure the ingredients?

Act and Observe

Follow the recipe directions to make the playdough. As you measure ingredients, talk about relative amounts (We need 2 whole cups of flour—a lot of flour—and 2 tablespoons of oil, only a little oil. It takes a lot of tablespoons to fill a cup). Count as you add ingredients. Talk about what to do with the playdough when you are done playing with it. *What happens to play dough if it is left out of its container?*

Report and Reflect

Review the process by sequencing the steps. Ask the children what they think would have happened if they had not measured the ingredients or followed the recipe. Copy the recipe for them to take home.

Playdough Recipe

Ingredients:



2 cups flour



1 cup salt



2 Tablespoons cream of tartar



2 cups water colored with food coloring (any color you like)



1 Tablespoons cooking oil

Directions:

1. Mix all the dry ingredients together in a large bowl.
2. Heat the colored water for 2 minutes in a microwave or boil on the stove.
3. Add boiling water and oil all at once to the dry ingredients and stir until it is all mixed together.
4. Let playdough cool until it can be handled.
5. Knead the dough until it is the consistency of playdough.
6. Store in an airtight container. Playdough should last about one month.



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Thank you for using LiteraSci's *Making Playdough Day.*

We hope you enjoyed your experience.
If you liked this lesson, you may consider purchasing the
Measuring to Cook Week from which this came.

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

