



Language, Literacy & Math Powered by Science

*Explore.
Question. Experiment.
Integrate.*

Examining Worms



OVERVIEW

Today, children will focus on animal life in their neighborhood at the smallest level. They will investigate worms and how their needs are met within their habitat. Additionally, the following learning goals can be achieved as the children participate in these **LiteraSci** activities:

Science

- Using new vocabulary as part of science activities
- Observing habitats of certain animals to determine how their needs are met
- Becoming familiar with the characteristics of certain animals and comparing one animal with another
- Treating all living things with respect

Literacy

- Using letters to make words
- Writing group stories
- Making and using Venn diagrams
- Alphabet letter: W/w

Mathematics

- Measuring length in a variety of ways
- Sorting animals by their characteristics

LiteraSci Examining Worms Day

by

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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



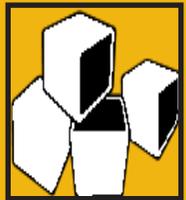
Dramatic Play

- Fishing center – plastic fishing poles, pretend pond, toy fish



Art Center

- Clothespin butterflies
- Egg carton bugs
- Paper plate ladybugs
- Make spider webs with yarn.



Block Area

- Build homes for plastic bugs.
- Make a worm tunnel with tubes and blocks.



Manipulatives

- Bug stamps and stamp pads
- Playdough worms
- Bug puzzles
- Cootie game



Large Motor Play

- Dance like bees.
- Have worm races.
- Flutter like butterflies.



Science Table

- Honeycomb
- Empty beehive
- Magnifying glasses
- Ant farm
- Plastic bugs
- Worm farm
- Photos of insects and worms



Examining Worms

Concepts:

Worms are living things and have certain needs that their environment provides. Worms have certain characteristics that we can observe.

Learning Goals:

Children will observe how a worm moves, how it looks, and how long it is. They will use their observations to create a model of a worm.

Vocabulary:

castings

clitellum

underground

worm

characteristics

segment

wiggle

Materials:

earthworms (one per child)

paper towels

magnifying glasses

paper plates

spray bottle with water

plastic rulers

Read and Talk About:

Wonderful Worms by Linda Glaser



Things to Talk About:

How does an earthworm feel when you hold it in your hand?

How do earthworms move?

Why do worms have to be kept damp?

Where do earthworms live? Why do they live there?

What do you notice when you look closely at an earthworm?

Examining Worms - Language and Literacy

<p>Speaking & Listening</p>	<p>During today’s science lesson, encourage the children to use ‘describing words’ to talk about their earthworm. What do they see? Smell? Feel? Introduce the three new vocabulary words that refer to worm body parts – <i>segment</i>, <i>setae</i>, and <i>clitellum</i> and explain what these words mean. Have the children locate each of these body parts on their worms.</p>
<p>Reading Comprehension</p>	<p>Recall with the children that yesterday’s book was called <i>Yucky Worms</i>. Make comparisons between that title and the title of today’s book – <i>Wonderful Worms</i>. As you read today’s book, ask the children to listen for details the author gives about worms. What kinds of things does she write that make you think worms are wonderful?</p>
<p>Alphabet Awareness</p>	<p>Review W/w for <i>worm</i>. Have the children practice making the letter in the air with their pointer finger as they say the words, “down, up, down, up” to direct their finger.</p>
<p>Phonological Awareness</p>	<p>Encourage the children to think of names for their worm that begin with W/w. What activities could their worms do or pretend to do that begin with W/w. For example, could <i>Willie the worm whistle a wonderful song</i>?</p>
<p>Print Awareness</p>	<p>Have the children look at the front cover of today’s book and find W in the title. How many times does it occur? Show them the title page and find the letters again. Point out that when we write words we use the same letters – in the same order - each time – <i>worm</i> is always spelled w-o-r-m.</p>



Examining Worms



Mathematics:

Have the children use a plastic ruler to measure the length of their worm. Explain how to use the ruler to measure and how to read the numbers. Have the child lay the worm next to the ruler to determine its length. Record how long each worm is and make comparisons. Which worm is longest? Shortest?

Science Inquiry Cycle:

Reflect and Ask

Begin by reading today's book and talking about the information in it. Ask the children what they have learned so far about earthworms. Tell them that today they will be taking a closer look at worms to find out more about them. Ask what they would like to know.

Plan and Predict

Talk about how to handle the earthworms gently so they won't get hurt. Remind the children they must keep the worms moist and demonstrate how to use the spray bottle to do this. Introduce and explain the new vocabulary words – *segment*, *setae*, and *clitellum* and ask the children where they think they will find these on the earthworm.

Act and Observe

In small groups, provide each child with a worm, a paper plate, a spray bottle, a ruler, and a magnifying glass. Measure the worms and record the information. Encourage the children to carefully examine their worms to find out more about them. Ask questions to stimulate their thinking. (What color is your worm? Which end is the head? How does the worm move?) Encourage them to use many describing words when reporting their observations.

Report and Reflect

Talk with the children about what they learned by examining the worms. Use playdough to create models of the worms. Encourage the children to put many details in their model – lines for segments, the setae and clitellum, and the mouth. When the playdough is dry, have the children paint their worms.

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Thank you for using LiteraSci's Examining Worms Daily Lesson.

We hope you enjoyed your experience. If you liked this lesson, you may consider purchasing the *Worms, Insects and Bugs Week* or *Animals in the Neighborhood Month* from which this came.

Your feedback is important to us.

Please contact us with your comments and suggestions at
www.literasci.com.

