

Growing Up in Stages

COGNITIVE DEVELOPMENT OF THREE- AND FOUR-YEAR-OLDS



Susan A. Miller, EdD

Growing Up in Stages

**COGNITIVE
DEVELOPMENT
OF THREE- AND
FOUR-YEAR-OLDS**

Susan A. Miller, EdD


Gryphon House
www.gryphonhouse.com

Copyright ©2017 Susan A. Miller

Published by Gryphon House, Inc.

P. O. Box 10, Lewisville, NC 27023

800.638.0928; 877.638.7576 (fax)

Visit us on the web at www.gryphonhouse.com.

All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or technical, including photocopy, recording, or any information storage or retrieval system, without prior written permission of the publisher. Printed in the United States. Every effort has been made to locate copyright and permission information.

Cover image used under license from iStock.com. Interior images used under license from Shutterstock.com.

Bulk Purchase

Gryphon House books are available for special premiums and sales promotions as well as for fund-raising use. Special editions or book excerpts also can be created to specifications. For details, call 800.638.0928.

Disclaimer

Gryphon House, Inc., cannot be held responsible for damage, mishap, or injury incurred during the use of or because of activities in this book. Appropriate and reasonable caution and adult supervision of children involved in activities and corresponding to the age and capability of each child involved are recommended at all times. Do not leave children unattended at any time. Observe safety and caution at all times.

Library of Congress Cataloging-in-Publication Data

The Cataloging-in-Publication Data is registered with the Library of Congress for ISBN 978-0-87659-725-5.

DEDICATION

To Gregg, my brilliant and caring son who was my original inspiration for writing about preschool development so many years ago.

To Peter, my husband and best friend for fifty years. With the greatest appreciation for his always being my champion and serving as the most amazing mentor for students of all ages.



PRAISE FOR SUSAN A. MILLER'S BOOKS IN THE GROWING UP IN STAGES SERIES

SHARON MACDONALD,
author and educator

Susan has been a personal friend and a resource for me since my classroom days teaching four-year-olds in San Antonio, Texas, and on through my years on the road speaking to teachers about the ages and stages of early childhood development. I always sought out her opinions and insights. Now I do not have to call her: I have her books!

Her understanding of social, cognitive, and emotional development in young children is unrivaled. She explains ages and stages in her unique way—clean, simple, honest. She is a gifted writer with real empathy and understanding for her subjects—children.

Susan Miller's books belong in the personal library of any early childhood teacher. Buy them.

DEBBIE VERA
PhD, associate professor and chair of the Department of Educator and Leadership Preparation, Texas A&M University

While reading the scenarios, I could easily see how all three domains in this series—emotional, social, and cognitive development—are interdependent. This series provides a holistic view of the child and really helps the reader to understand the overlap of development into each domain.

The writing style is personal and engaging for teachers.

CONTENTS

Acknowledgments	vi
Introduction	1
1. Believing in Magical Thinking	7
2. Demonstrating a Sense of Curiosity	13
3. Understanding Time Concepts	21
4. Developing Spatial Awareness	28
5. Developing Problem-Solving Skills	36
6. Exploring Creativity through Art	45
7. Developing Mathematical Thinking	53
8. Investigating Science	63
9. Exploring the Writing Process	73
10. Developing Emergent Reading Skills	81
11. Milestones in Cognitive Development	92
Index	95

ACKNOWLEDGMENTS

My family, Peter, Gregg, Owen, and Adam, for their support and patience.

My typist of many years, Karen Epting, for her professionalism and sense of humor.

Librarian Julie Daigle, for her invaluable assistance with researching children's books.

Diane Ohanesian, for encouraging me to write this series.

Gryphon House staff members Stephanie Roselli, for answering my many questions; Terrey Hatcher, for her thorough and very thoughtful editing; and Anna Wilmoth, for her assistance with details and publicity.

INTRODUCTION

After almost forty years in the field of early childhood education as a teacher, director, college professor, and supervisor of student teachers, I never cease to marvel at the many ways young children use their creativity and critical thinking to solve problems or design something unique. As an educator, I feel it is so very important to tune into children's interests and give them sufficient space and materials, as well as adequate time to experiment and explore.

One of my favorite memories of three- and four-year-olds being challenged as they developed their cognitive skills was at the Kutztown University of Pennsylvania Early Learning Center when a father brought in a gigantic box of hundreds of natural-wood circles about the size of 1-inch-thick poker chips. After we dumped out the box, many of the preschoolers eagerly burrowed through the huge pile of intriguing wooden circles with squeals of delight, while a few others watched in amazement. Some gathered them up in their hands and then let them trickle through their fingers. A few began to stack the circles, while others made long parades or created numerous rows. Each day, wonderful new things occurred. Children tried to count how many circles were in their piles or rows. They made graphs of how high they could build. A group circled the room with a chain of circular chips and then dictated a story about it. Some four-year-olds made the letters in their names by connecting the wooden circles. Groups of builders worked cooperatively as they planned, designed, and engineered flat and three-dimensional forms, such as castles, amusement parks, and more! But the highlight of the circle creations occurred when the fifth-grade reading buddies worked with them to construct an enormous circular beehive. The children sent out

invitations so they could share the elaborate structure that the team of three-, four-, and ten-year-olds had built with great enthusiasm. The whole school admired the structure during an informative question-and-answer session.

Each day, the children were engaged with what they called the “circle box.” They buried gold-painted discs in sand as pirates’ treasure and placed colored discs in plastic bottles, which they turned into festive maracas that they shook with enthusiasm. These natural learning materials helped challenge and expand the preschoolers’ cognitive skills in various developmental stages. It was astonishing how such creative pleasure erupted from simple pieces of discarded wood.

WHAT YOU WILL NOTICE

Young children’s cognitive skills develop very quickly during their first few years of life. Their curiosity stimulates their thinking skills and creativity as they rapidly become budding scientists, engineers, artists, readers, and writers. Three- and four-year-olds turn into amazing problem solvers when faced with challenging situations, such as what to do when their wagon becomes mired in the mud.

But, of course, they are not always using their brains for practical matters. Preschoolers’ magical thinking can be very powerful when they wish for something to happen, even though it may be illogical. For example, the wished-for snow at bedtime as a child thinks about trying out his new red sled becomes simply magical when he wakes up to find wonderful white snow covering the ground.

You will find that four-year-olds are often noisy and messy, as their curiosity inspires them to jump right in to see what is going on. They love to use tools to investigate while they take things apart to see how they work. On the other hand, three-year-olds may hold back a bit to see what others are doing. If something seems a little scary, they might ask lots of questions and might want the teacher to explore with them. Nevertheless, preschoolers are intrigued when they are challenged with novel situations.



A key challenge for three- and four-year-olds is learning about time. Because time is invisible, it is a confusing and abstract concept for preschoolers. They need to have lots of experience with temporal concepts in personal ways, such as birthdays, bedtime, and story time. Inclined to be egocentric, preschoolers find the time they are in at the moment, the present, most important.

Besides time, preschoolers are also exploring space. Their knowledge of spatial awareness is related to their own bodies. Over time, spatial concepts are enhanced through involvement with concrete experiences and situations with objects and people. For example, constructing with blocks with friends can provide amazing experiences to explore the concept of spatial awareness as preschoolers arrange and rearrange items. These interactions also can help children grasp an understanding of locational prepositions, such as *in*, *under*, *behind*, and *down*.

Faced with daily problems to solve, preschoolers use their imaginations and thinking skills to come up with fascinating solutions. Three-year-olds might use a trial-and-error approach and may center on a single phenomenon. Four-year-olds are busy learning to use a problem-solving approach as they brainstorm solutions and then try out some of the suggestions before selecting a workable idea. The problem-solving process commonly involves their critical-thinking and creative-thinking skills.

For preschoolers, expressing themselves creatively with paint, crayons, colored markers, clay, and collage materials is exciting and a whole lot of fun. As young children experiment with color, shapes, textures, and design, they discover new and different ways to creatively express their feelings. They pass through many fascinating stages on their creative journey, from drawing unrecognizable forms, to creating with intention, to painting things that are more realistic.

Preschoolers are also working to develop their mathematical thinking. This intriguing process is infused throughout the day as preschoolers learn about patterns and notice sequences of shapes, colors, movements, or sounds that repeat themselves. This awareness can help preschoolers see relationships among various aspects of their environment. Ordering and seriating can happen rather spontaneously in the block area as children build tall structures or lay out a city. Many hands-on explorations are related to numbers, as three- and four-year-olds learn about one-to-one correspondence and measurement.

You will see that preschoolers are only too happy to participate in scientific investigations. These might be floating and sinking discoveries or physics experiments with gravity applications as marbles roll down a wooden ramp. Four-year-olds, in particular, love to use a scientific-inquiry approach. They may need to go through many illogical thinking processes before they can even begin to make some sense of concepts. But that's half the fun of it!

As young children explore their capabilities, learning to write can bring them such satisfaction. Handwriting is more than just holding pencil to paper. To develop the pincer grasp, a child might practice threading large beads to strengthen the coordination of the finger muscles and thinking skills. By providing many wonderful examples of print and writing instruments, teachers can create an environment conducive to introducing preschoolers to the writing process. Young children move at their own rates from a controlled-scribbling stage to writing mock letters in word-like strings. Then children revel in an exciting achievement—they can write their own names! This development is followed by more writing with invented or phonetic spellings as they explore writing word groupings. These accomplishments fuel such empowerment for emergent writers.



More than simply learning to decode words, emergent readers should be enveloped by a print-rich environment, where they can be immersed in hands-on involvement with print-related activities and conversations. Reading aloud to young children is an extremely important activity for literacy. Using alphabet, rhyming, and predictable books can be a wonderful springboard to enhance preschoolers' potential to become lifelong readers.

This book is designed to help you understand the range of cognitive abilities of three- and four-year-olds and learn useful strategies for encouraging the growth of preschoolers in your care.

AS YOU READ THIS BOOK

As you start each chapter, you will find a definition for the chapter's theme. As you read on, you may wish to think about and add your own definition on a sticky note.

Next are some highlights of developmental milestones of three- and four-year-olds. These will help you understand the stage of cognitive development that a preschooler is functioning in during a specific time.

Then I will share some scenarios related to the chapter topic. These snapshot views are taken from events that happened with the children in my various classrooms (names changed, of course), from observations that I have been fortunate enough to make in preschool programs around the United States and abroad, and from special memories of my grandsons at particular three- and four-year-old stages. Related to the different scenarios are explanations of the stages to help you understand why a behavior or action is or is not occurring at that specific time. As we are all aware, individual preschool children may develop at different rates—some a little slowly, and others more rapidly.

Although I would like very much to have a face-to-face conversation with each reader, that of course is not possible. So what I have tried to do, as the author and a teacher, is to write in a conversational tone discussing the stages that young children go through. Rather than burdening you with heavy research and theoretical references, I have attempted to keep the flow of observation and application light and practical.

Next, you will discover guidance specifically for you, the teacher or caregiver. The section called What You Can Do is designed to serve as a springboard by providing exciting curriculum activities or helpful teaching strategies for you to try with the children in your care. Feel free to build on these ideas and write on sticky notes to make this section your own.

The Other Aspects to Consider—Alerts section deals with circumstances that you might have questions about, such as when young children are not quite in step with the cognitive-development milestones for their age. This may indicate that you or a child's parents should consider seeking professional assistance for answers.

The ideas offered in the Activities for Parents to Try at Home portion are fun, easy-to-accomplish adventures appropriate for parents to explore with their children. You may wish to share these ideas with parents during conferences, online, in your newsletter, or by posting on a bulletin board. If you like, ask parents to share their own ideas on the topic and to provide photos of the activities for everyone to enjoy afterward.

Finally, a special section suggests fascinating books to read with children. All of the literature is related to the chapter topic and just begs you and the children to look at the

enticing pictures, talk about the words, and enter into a dialogue about what is happening on the pages. Research shows that reading to young children is the most important way to stimulate their desire to become readers.

As you read this book, I hope you enjoy your adventures observing young children and learning how various cognitive-development milestones affect the different stages of the lives of three- and four-year-olds.

1

BELIEVING IN MAGICAL THINKING

Magical thinking—a rather irrational belief that by just wishing for or thinking about something you have the power to cause it to happen

When you're aware of some of the tendencies toward magical thinking among three- and four-year-olds, you can better support the challenges that might occur as they develop their cognitive skills. Although not all children develop at the same rate or achieve specific milestones at the same time, the following snapshots highlight some of the behaviors you might see as preschoolers' magical thinking evolves:

- Three-year-olds tend to feel responsible if something upsetting happens because they tend to perceive things that occur as relating to themselves.
- Three-year-olds may be influenced by their magical thinking when an adult tries to convince them to do something.
- Because of three-year-olds' lack of experience, certain aspects of their thinking sometimes appears almost magical.

- Four-year-olds frequently take things that others say literally, such as “I’m so tired my feet are going to fall off.”
- Four-year-olds often attribute lifelike characteristics to inanimate objects.
- Magical and animistic thinking can easily affect four-year-olds’ reasoning.

Now, let’s consider some scenarios of how magical thinking might affect the interactions and behaviors of children in your classroom.

At the imaginary sidewalk café, three-and-a-half-year-old Amy and four-year-old Tessa serve tea and honey cakes to their stuffed bears. Ashley, an uninvited guest, keeps trying to join the two best friends’ party. She finally picks up a teacup, then attempts to eat some cakes. Very annoyed with Ashley’s unwanted actions, the girls tell her, “Get away from our party. Don’t ever come back!” When Ashley does not come to school for the next few days, the girls are initially happy she is not interrupting their play. However, they begin to worry that Ashley isn’t at school because they told her to leave. They think that maybe they should let their teacher know what they did in case Ashley doesn’t show up soon.

Egocentric thinking, or the tendency for preschoolers to perceive things that occur as they relate to themselves rather than from another’s point of view, can cause young children like Amy and Tessa to feel responsible when something bad or upsetting happens. Children may decide to use their magical thinking if they really want something to happen, such as making Ashley go away. Then when it occurs, they believe they are the ones who caused it to happen through their actions. When Ashley developed stomach flu and did

not come to school, the girls believed her disappearance was their fault because they were angry that Ashley ruined their party and they wished she would leave.

As preschoolers use their imaginations, they enjoy participating in pretend play. It gives them exciting opportunities to try out various identities and attempt to understand how others think. Magical thinking frequently intersects with imaginative play. This type of play can reinforce preschoolers’ amazing beliefs about what they think might or might not happen. Between two and seven years of age, while in Piaget’s preoperational stage of cognitive development, preschoolers often become confused about what is real



and not real. They are not always sure if what they are thinking in their heads is really occurring in the everyday world.

Adults frequently tap into magical thinking to convince young children to try something. For example, a parent might say, "Eat all of your spinach so you will have strong muscles like Popeye!" Along similar lines, the teacher observes Carla holding her sick baby doll in the dramatic play area. Following her mother's modeling, Carla says, "Eat your chicken soup. Then your cold will be all better."

When preschoolers use magical thinking, they can't always objectively determine causes and effects. Their desires often skew their perceptions of events. For example, several four-year-old boys are convinced that the comic-book characters called the Teenage Mutant Ninja Turtles are coming to join them on the playground. They are sure that if they yell down through the holes in the sewer cover each day, they can encourage the characters to climb out of the sewer. Imagine their delight when one morning they notice the cover has been turned over and echoing sounds are coming from the underground sewer. Thrilled, they inform their teacher that the Ninja Turtles must have arrived overnight. Their wish came true! It doesn't matter that there was a huge thunderstorm that created a loud rushing flood of water that required removal of the cover by the town's water system workers.

Preschoolers frequently interpret interactions literally because they lack experience. Bryan looks at his older brother in amazement and backs up a little when his brother says, "My stomach is so full it is going to explode!" When Rita's father shows her teacher his new car, the teacher announces, "I'm turning green with envy." Puzzled, Rita carefully checks out her teacher for signs of a color change.

Preschoolers frequently attribute lifelike characteristics to inanimate objects. Their magical and animistic thinking can easily affect their reasoning. Very excited, three-year-old Charles tells his teacher, "You know, my shadow follows me. It knows how to run and jump, too!" He associates life with forms of movement. Preschoolers frequently illogically attribute the causes of common occurrences.



And, of course, the mystical, magical influence of Santa Claus is a big deal for many preschoolers! The whole tale is quite believable to them as they see a real-looking Santa at the mall and during holiday events. Adults ask children to make lists for Santa or tell Santa what they wish for. When they wake up with presents under the tree, it is not hard for young children to believe that their magical thinking has, indeed, made wishes come true!

As children grow up, their dreams help mold them into who they become. A while ago, a delightful little boy named George spread his pretend wings and flitted freely around my preschool classroom. Each day, he generously shared information about the kind of butterfly he was and described the different colorful patterns on his wings. We fondly called him “butterfly boy.” Today, this once-intriguing magical young thinker is a celebrated artist known for his beautifully detailed butterfly paintings!

WHAT YOU CAN DO

- **Note cause and effect.** Ask, “Now what do you think happens?” Or question the child about his view of why things took place the way they did. Try to avoid using leading questions, such as “Are you afraid the dog might bite you?”
- **Provide interesting art supplies.** Offer fingerpaints, colorful markers, and different sizes of paintbrushes for young children to use to artistically depict their magical thinking. Expressing themselves through drawing and painting provides another venue of communication for preschoolers who may be unable to verbalize their magical thoughts.
- **Encourage children to act out situations.** Dramatizing various roles from books, such as *Jack and the Beanstalk*, can help preschoolers feel empowered during pretend scary moments. It is important for young children to have experiences with make-believe and real scenarios to clarify situations and events in their magical thinking.
- **Set out a sensory box.** Include items that will appeal to children’s various senses. For sight, you might supply sparkly fabrics and rainbow-colored ribbons. For sound, you might set out giant seashells for holding up to their ears and seeds for shaking in tiny canisters. For smell, you could stock pine needles and herbal tea bags. For touch, you might supply rough pine cones and soft cotton balls. Change the sensory items every few days to trigger new creative thoughts and experiences.
- **Ask children to think about what they would like to be.** During circle time or with a small group of preschoolers, ask each one to make a magical wish and tell what he would like to

be—a unicorn, a farmer, a wizard. Encourage fun descriptions, such as “I want a pointy green horn” or “I need a twirly purple cape.” Provide a box of accessories—containing items such as fabric, shoes, hats, feathers, and tape—to help bring their magical wishes to life.



OTHER ASPECTS TO CONSIDER—ALERTS

- **Be aware of your responses.** To be reassuring, explain things in simple, concrete terms. For example, a preschooler may wish to play with the class guinea pig that has recently died. It is confusing and possibly a little frightening if you use abstract concepts to tell the child she is not able to because the class pet has “gone to sleep” or “is resting up in heaven.” These comments are difficult for her to understand because to her these physical actions are really about a temporary loss. The magical thinking preschooler might easily believe that the animal will come back when it wakes up if she wishes for that to happen.
- **Be reassuring.** When a preschooler wishes something bad to happen to someone, and then it does, you may need to reassure him that his thinking did not cause the event and he is not responsible. For example, because he does not want to follow his teacher’s rules, he tells her, “I want you to go far away to China!” Then she is transferred to another class. When he feels sad and misses her, you may need to comfort the child. You could explain that she is now the toddler teacher because the center has added a new program, but they will always have a special connection because she was his teacher. Help him try to understand that he will not be able to reverse her assignment, even if he wishes very hard.
- **Go with the flow.** Magical thinking is quite normal for preschoolers and will disappear as they grow a little older. For example, young children are showered with advertisements on TV and in stores that use characters in costumes. A clown, a life-size costumed character from a book or TV show in the mall, or a colorful costumed team mascot looks huge to young children. To preschoolers with animistic thoughts, these make-believe characters seem alive with lifelike qualities, and children expect certain actions from the characters. Because preschoolers are egocentric, they are inclined to believe that everyone shares their perspective. Try not to be judgmental. It won’t help to argue that the imagined activity won’t really happen, so you might just want to join in the fun or at least be a good listener.

ACTIVITIES FOR PARENTS TO TRY AT HOME

- **Collect props.** Gather interesting items such as scarves, bags, junk jewelry, and towels. Encourage your child to play freely with these props to enhance her imagination as she becomes interesting characters, such as a princess, a ballerina, a superhero, or a circus performer. Take lots of magical photos. Then enlarge them to display like whimsical posters.
- **Listen to a variety of fun music.** Together, twirl and dance the jitterbug to jazz and exotic beats. Move fast like cheetahs or hop like kangaroos. Turn your living room into a magical ballroom! Maybe you can add an old rotating reflective disco ball from a flea market.
- **Tune into holiday magic.** Make wishes come true! Provide glue, tape, colored paper, scissors, crayons, glitter, and ribbons so your child can design whimsical presents, cards, and decorations for others. For birthdays and holidays, preschoolers like to create lists of gifts they are hoping for.
- **Design a magical wand.** Create this special accessory with your child to turn ordinary things and events into something uniquely magical. Together, make up a funny rhyme, such as “razzle-dazzle-roo,” to use with the wand.
- **Create a family wish book.** Draw pictures, cut out magazine images, and take photos with a camera. Glue these in a scrapbook. Share dreams about vacation plans and real or make-believe activities. Infuse your family’s storybook with magical thinking—the sky is the limit!!



RELATED BOOKS TO READ WITH CHILDREN

- Hoffman, Mary. 1991. *Amazing Grace*. New York: Dial Books for Young Readers.
- Joose, Barbara M. 1991. *Mama, Do You Love Me?* San Francisco: Chronicle Books.
- Ringgold, Faith. 1991. *Tar Beach*. New York: Crown.
- Williams, Margery. 2014. *The Velveteen Rabbit*. Kennebunkport, ME: Applesauce.
- Zolotow, Charlotte. 1972. *William’s Doll*. New York: Harper & Row.

2

DEMONSTRATING A SENSE OF CURIOSITY

Curiosity—being inquisitive to learn about something or somebody

Preschoolers want to know how things work, what happens if they try some new activity, where things come from, and so on. Their curiosity steers them in interesting directions. Although all children develop at different rates, you are likely to see some of the following characteristics among the three- and four-year-olds in your care as their curiosity leads them to explore their world:

- Three-year-olds ask lots of questions of adults to help satisfy their curiosity.
- Three-year-olds often fixate on their curiosity and may focus for as long as ten minutes without being distracted.
- Three-year-olds are curious and maybe a little frightened about scary things, so they may need adult reassurance.
- Four-year-olds enjoy curious surprises and observing changes take place right in front of them.

- Four-year-olds are fascinated by the mysteries of nature and may use special tools (such as a trowel or magnifying glass) to help them investigate.
- Because four-year-olds are curious about how things work, they will take them apart and figure out how to put them back together again.

Now let's consider some anecdotes that illustrate how children in your classroom might follow their curiosity and make new discoveries.

Because of a heavy rainfall, Ms. Beverley's preschoolers could not go out to play in the morning. Now that the sun is shining, they eagerly run out on the playground. Three-year-old Cora points to a huge puddle and asks, "What is that big water?" Ms. Beverley responds, "A puddle." Cora questions, "Where did it come from?" She observes four-year-old Binh throw a small stone into the puddle. Sharing this novel event with his friends, he exclaims, "Look! My stone made rings on the water!" Several others enthusiastically try this, too.



Maggie, a four-year-old, throws in the head of a yellow dandelion. She tells the gathering crowd of preschoolers, "Hey! The flower is floating." Wearing boots, four-year-old Cooper stomps through the puddle while loudly yelling, "Boom! Boom!" Water sprays everywhere as the children giggle.

Everyone knows that if a puddle is nearby, a young child is sure to find it. Why are preschoolers so curious about their surroundings? When they notice changes or that something is different, they automatically become intrigued. However, they may react to this interest in different ways. For instance, when three-year-old Cora noticed something

strange on the playground, she asked her teacher several questions so she could get answers to satisfy her curiosity. Three-year-olds, like Cora, are also apt to observe others' investigations from a safe distance until they feel comfortable exploring. Four-year-olds, like Binh and Maggie, are more confident and love to jump right in to experiment. They enjoy having others become involved as they share their ideas.

As preschoolers explore the world around them, their senses help to enhance their curiosity. Typical of a four-year-old boy, Cooper makes bold loud noises with his voice and his feet as he stomps in the water to see what will happen. Adventurous, four-year-olds often go over the top with their zestfulness to explore their curiosity, as evidenced by Cooper splashing everyone. Acting on curiosity can frequently be messy! All along, Cooper was making good use of his senses of hearing, sight, and touch to help him investigate his interactions with the water-filled puddle.

Although a change in the environment or a behavior may be one thing that attracts a preschooler to a situation or a particular item and arouses his curiosity, novelty is a surefire way to create interest. For example, four-year-old Luna finds something she had never seen before in a cup in the art area. Six sticks of black charcoal poke out of a container. Curious as to what to do with them, thinking they are sort of like little pencils or maybe black crayons, Luna grabs some paper to see if the charcoal creates marks when she draws. She makes small, skinny, black lines. Then she tries drawing with a stick on its side. Fascinated, she shouts to her friends, "Surprise! Big black clouds. And look at my messy black hands." Curious four-year-olds, like Luna, often find it helpful to clarify their thinking by looking at or considering items' similarities or differences (such as charcoal sticks, pencils, and black crayons) to help them create a meaningful classification (in this case, drawing instruments). Three- and four-year-olds often show a curiosity about open-ended art media (such as chalk and playdough), as evidenced by Luna's delight with how spontaneous she is able to be with the charcoal.

In order to keep preschoolers' interest, it is necessary to find challenging ways to keep their curiosity alive. This is especially important for three-year-olds, who have short attention spans. Knowing this, before her class left the playground Ms. Beverley drew a big line with sidewalk chalk all around the puddle on the dry part of the blacktop. With heightened curiosity, the boys and girls wanted to know what she was doing. To stimulate their interest, she slyly said, "We'll need to investigate tomorrow!" Imagine their surprise when the puddle wasn't near the chalk outline anymore. They wondered, "Did the puddle shrink?" Maggie checked to see if her flower was still floating. Many questions were asked, and enthusiastic suggestions were given to unravel the mysteries!

Have you ever observed a young child who has discovered something special that piques his curiosity? He feels empowered to bring his friends, one or two at a time, to very quietly observe this curious attraction. One afternoon, Mrs. Adams noticed two of the four-year-old boys following Evan on tiptoe to the forsythia bush, where they shared the excitement of secretly peeking at three



tiny eggs in a bird's nest. For a few days, the boys continued to carefully observe the nest until the eggs finally hatched. They created nests of their own out of twigs and dried grass. Captivated by the wonders of nature, four-year-olds are able to look at things from different perspectives. And they love the surprise of watching change occur right before their very eyes.

At times four-year-olds, especially boys, like to live on the edge. They are curious about behaviors as well as items or events. Sometimes their curiosity can be risky. They wonder who can jump the farthest off the jungle gym or ride a tricycle the fastest. This fascination frequently makes them feel rather important, like a big kid or a superhero. And certain things that capture their interest can be downright dangerous, such as sticking a finger in a broken clock to see how the hands move or cracking open raw acorns and then trying to eat them, unaware that the nuts might make them sick.

When big, dark thunder clouds and lightning appeared outside the classroom window, three-year-old Betsy was both fascinated and frightened. While she watched through the window, Betsy heard a loud boom, and the power went off. She ran to Mrs. Molina and hid under her arm. Because three-year-olds are still in the process of determining if something is real or not, they often need reassurance or encouragement to explore a situation that has aroused their curiosity. For example, later when Betsy wonders if the scary thing on the wall is a shadow or a monster, she and Mrs. Molina investigate and experiment with hand shadow puppets together to see what Betsy thinks.

Preschoolers enjoy exhibiting a healthy curiosity about how things work. Three-year-olds, who may focus for as long as ten minutes without becoming disinterested, often fixate on the target of their curiosity. Sebastian watches the gears go around as he turns the handle on the egg beater in the soapy water tub. He stares at the bubbles the whirling blades create. Curious to investigate further what else the egg beater's blades might do, he places them on top of a huge ball of playdough and turns the handle. From the look on Sebastian's face, he is surprised when they get stuck in the dough!

Four-year-olds, however, love to take things apart and put them back together. This no doubt accounts for their fascination with big-piece jigsaw puzzles. Cole and Yoshrar try to connect their wooden block skyscrapers, but the structures keep toppling over. Curious to figure out why, they pull the block structures apart and discuss their strategy as they build again. Cole suggests, "Let's put only big blocks on the bottom." After a few false starts, the boys engage in an engineering process. Solving their problems as they test their solutions, these curious boys finally align the two block skyscrapers so the bridge connects them successfully.

Related to their egocentricity, three-year-olds are keenly curious about themselves and their bodies. My grandson Owen keeps wondering what his leg looks like under the stick-on bandage. Intrigued, he removes the bandage to discover a scab over his spider bite. Still curious and a little squeamish, he picks at the scab until it begins to bleed. His curiosity satisfied, Owen asks for a replacement bandage so the bite won't look so "yucky."

Three-year-old Aubree is sitting next to the class's foster grandmother. Aubree notices that their arms look different, and she has many questions. For example, why is Mrs. Metzgar's skin wobbly and wrinkly? And why is Aubree's own skin smooth?



Able to look more outside of themselves, four-year-olds are quite

curious about what adults are doing and why. When several children notice the piano tuner, they bombard her with questions: "Why are you opening the piano top? Can we look inside? What is that metal thing?" She explains that it is a tuning fork. When she finishes, they want to know, "Will you play the piano? We will sing!" Asking questions like these is a huge help as preschoolers try to make sense of their curiosity.

WHAT YOU CAN DO

- **Create a novelty center.** Gather intriguing collections, such as stones, seashells, magnets, and pinecones. Keep them in see-through boxes for easy identification and access by the children. Place a collection of curiosities on a table for the children to explore for a while. When their interest wanes, put out a new collection to challenge their curiosity. Encourage preschoolers to add their own interesting items to the table to share with others.
- **Add little surprises to other centers.** You can arouse the preschoolers' curiosity to think of new ways to use established areas. For example, at the art easel, add different variations of brushes, such as toothbrushes, baby bottle brushes, pine needles, or feathers. In the block center, hang motivational posters of a castle, skyscraper, bridge, and Stonehenge to suggest new building styles. Add different equipment, such as a whisk, chopsticks, or a Bundt pan, to the home area on a rotational basis to spark interest as the children experiment with the items.
- **Offer the unexpected.** A Ganado, Texas, preschool teacher calls this activity "Sabotage." She provides blindfolds to use with sand play. The curious children try to guess what they are playing with buried in the sand and then share their ideas. Preschoolers start with clear plastic cups of water and add different things, such as dirt, salt, liquid soap, and ice cubes. Then, they stir to stimulate their curiosity about what occurs. After fingerpainting at the art center, a teacher introduces shaving cream, pudding, or mud to the children so they can actively explore and describe their curious new tactile experience.
- **Change stories to build curiosity.** Change the ending or middle of some of the preschoolers' favorite stories. With a different twist, engage their curiosity to create suggestions or new endings. What if Cinderella didn't lose her shoe? Or Goldilocks didn't run away? To create more interest, add a novel character such as a dinosaur to Little Red Riding Hood's escape.
- **Invite a mystery guest.** For a few days before, build up the children's curiosity about their guest's impending visit. Encourage their questions. Your guest might arrive in a uniform (possibly a firefighter, soldier, police officer, or mail carrier) or a costume (maybe a clown or ballet dancer). Ask your mystery visitor to bring along any special equipment, such as a toolbox or a beekeeper's protective gear, to arouse the children's interest. Let the children ask questions and appropriately explore any related materials. Provide resource books with lots of pictures. Use technology to provide an exciting website for the children to extend their interest and continue to find out more about the person's job or life.

OTHER ASPECTS TO CONSIDER—ALERTS

- **Be aware of dangerous situations.** When young children are excited about exploring and experimenting with interesting items, they might place themselves in dangerous situations, such as poking a wiggly snake with a stick. They like to observe adults and enjoy copying adults' actions. For example, after their teacher places the prongs of a plug into the wall outlet, Tracy considers pushing her barrette closure into the outlet to see what will happen. The teacher notices Tracy's focus on the outlet, makes sure it has a safety cover, and explains the danger. Because accidents can easily happen, make sure that children always have proper supervision so that they can explore their curiosity safely.
- **Don't show your distaste for their curiosity.** As children explore novel materials, their curiosity can be very messy! Try to set up the environment so it can be easily cleaned up, rather than discouraging the children's experiences by always telling them, "Don't make a mess. Keep your clothes clean." Preschoolers quickly pick up on an adult's disapproval or disgust concerning a mess, which may curb their future curiosity.
- **Some children appear anxious.** Because of their temperaments, learning styles, or possibly frightening past experiences, certain young children are reluctant to attempt new activities or explore objects. Fearful children may not wish to touch unusual materials, such as shaving cream or wet sand. If that is the case, you can provide tongs or gloves to help them experiment comfortably. Others might be too shy to participate in a novel activity, such as placing a hand in a sensory box. They will need lots of time to observe others' explorations. They will also require patience and reassurance from teachers and parents.



ACTIVITIES FOR PARENTS TO TRY AT HOME

- **Create a surprise bag.** Tap into your child's senses. Raise his level of curiosity by urging him to shake the bag and listen, reach in and feel the item, or sniff to guess what it might be. For instance, if it is a cotton ball, he might say, "It feels soft." You could add, "It is white." He might

reply, "It feels round. Like a little ball." If he can't guess, allow him to look or reach in. Continue this banter with comments while he explores his exciting discovery. Encourage him to find a curious item for the surprise bag for you to investigate.

- **Design an investigation box.** Young children love to explore outdoors. They will find an endless supply of items to discover when they are immersed in the natural world. To make their investigations twice as much fun, prepare tools to support their explorations. Create a box with a shovel, trowel, sifter, butterfly net, plastic jar with a lid, plastic magnifier, small paper bags, and so on. When your curious young explorer wants to dig for worms, collect leaves, or look at tiny bugs, the supplies will be ready.
- **Take a wonder walk.** Preschoolers are filled with wonder. Be sure to stop frequently and to avoid rushing on your walk. Your child might enjoy some binoculars to enhance her sightings. My grandmother used to keep bird and flower guides in her pocket to help us identify wildlife. Look high to observe a bird's nest or look down on the ground to spot an anthill. Bring a bag with handles for carrying ease to collect curiosities (such as colored leaves or dandelion fluff) to reexamine and share later at home. Follow a sound to see where it is coming from; you might find a squeaky swing on the playground or a duck honking on a pond in the park.
- **Take a neighborhood tour.** Your child will find lots of places of interest. If you drive, you can go through the car wash with scrubbing brushes on the windows or the post office to buy stamps and mail letters. You might walk around the farmers' market, where your child can use all of his senses. Stop by the bakery to take in the inviting smells, eat samples, and watch the strange machinery. Take advantage of an exciting holiday parade with various sounds and fascinating costumes. Encourage questions and colorful responses.

RELATED BOOKS TO READ WITH CHILDREN

Brown, Peter. 2009. *The Curious Garden*. New York: Little, Brown Books for Young Readers.

Hopgood, Tim. 2009. *Wow! Said the Owl*. New York: Farrar, Straus, and Giroux.

Keats, Ezra Jack. 1961. *The Snowy Day*. New York: Viking.

Knowles, Sheena. 1998. *Edward the Emu*. New York: HarperCollins.

Wiesner, David. 2006. *Flotsam*. New York: Clarion Books.

Wood, Audrey, and Don Wood. 1984. *The Little Mouse, the Red Ripe Strawberry, and the Big Hungry Bear*. Auburn, ME: Child's Play.