



Early

Learning & Education PROGRAMS

Preschool Math Development

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Four year old Frankie is in the housekeeping area. He is looking at a recipe card for burritos. He has just poured dry beans from a box into a measuring cup. Now Frankie sets a pot on the stove and pours in the dry beans. He stirs them with a wooden spoon. After a couple of minutes, Frankie turns the dial on the stove and moves the pot to the back burner. Then Frankie sets a plate with a fork next to it in front of each chair, places a cup at the top of each plate, and sets a pitcher in the center of the table. Frankie calls out, "Ready!" and three other children come to the table.

Alexa asks, "What is it?" and Frankie says, "Burritos y leche (milk)." Then Frankie dishes two spoonfuls of beans onto each plate saying, "One, two for you" to each child.

He places the pot in the center after everyone has been served. Alexa asks, "Tortillas?" and Frankie places a dish of pretend tortillas next to the pitcher in the center of the table. The children pretend to eat, passing the pitcher of milk and tortillas to each other.



In this story, the children are learning to count, identify numbers in recipes, practice one-to-one correspondence (one pot per burner), follow patterns (table settings), perform tasks in sequence (recipe), measure and identify quantities (dividing food between each other equally) and use mathematical reasoning (identifying that the tortillas, which are needed to make burritos, were missing from the table).

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CREATIVE LEARNING SPACES

Quality environments inspire children to explore and learn. The books listed below provide ideas that caregivers can use to construct creative indoor and outdoor learning spaces.

- *A Study of Early Childhood Program Environments* by Deb Curtis and Margie Carter
- *Inspiring Spaces for Young Children* by Jessica DeViney, Sandra Duncan, Sara Harris, Mary Ann Rody, and Lois Rosenberry
- *Designs for Living and Learning: Transforming Early Childhood Environments* by Deb Curtis and Margie Carter
- *Natural Playscapes* by Rusty Keeler
- *Family Child Care Homes: Creative Spaces for Children to Learn* by Linda J. Armstrong
- *Seasons of Play: Natural Environments of Wonder* by Rusty Keeler





Conversations Build Relationships

Sharing ideas with children and watching their curiosity and enthusiasm for learning bloom is part of what makes teaching so rewarding. Consider how often a child's insights have made you laugh or cry. How often has a child's imagination and ingenuity left you feeling in awe or amazed? Conversations are opportunities to create special moments of shared ideas and emotions that build understanding and strengthen our relationships. The following are ideas for starting conversations with children:

- Allow for spontaneous conversation.** Participate in conversations initiated by children when they are playing or during mealtimes. Play with children and allow them to be the leaders in the conversation.
- Let the environment create discussions.** Each day, ask the children to look around the room and yard. Ask them to tell you something about what they see. This is a great way to build memory and recall skills as they talk about the art projects on the wall or games they played the day before.
- Ask open-ended questions.** Avoid questions that elicit one-word answers, and instead choose questions that require children to think about their answer and respond with complete sentences. For example, "How did you create that?"
- Let your language be intentional.** Use language with purpose. Language can comfort, label, describe, explain, connect to prior knowledge, compare, hypothesize, offer an opinion, or evaluate. Use language to expand children's thinking about their interests and activities.
- Encourage oral storytelling.** Tell children stories and listen to theirs. Remember that stories can be real events or imaginative tales.
- Engage in active empathetic listening.** Listen to children respectfully and without judgment. Let them know it is safe for them to express their feelings and ideas.
- Model social cues.** Guide children in taking turns listening and talking, choosing respectful language, appropriate body language, tone of voice, expressing emotions, and asking for clarification ("Let me make sure I understand what you said.").

Source: *Young Children*, "The Nature of Teacher Talk during Small Group Activities" by Julie Dangel and Tonia Durden (NAEYC, January 2010).



Practicing Self-Care

As an early childhood educator, you take care of children, parents, and your own family. But how much time do you spend taking care of yourself? There is a lot to be gained by investing in your own physical, mental, and emotional well-being. Your body will be healthier, you will feel more energized, be better equipped to handle stress, and find it easier to maintain a calm and positive attitude.

Take care of your physical health by eating nutritious meals, getting enough sleep, and staying active. Prevent illnesses by keeping the environment clean and modeling healthy hygiene habits for children. Plan daily exercise or movement activities like yoga, stretching, dancing, or sports games for the children and join in on the fun. Physical activity promotes fitness, feelings of happiness, and more restful sleep.

Practice activities to release stress throughout the day. These activities will help you stay positive, calm, and

focused when you encounter challenges. Practice deep breathing during peaceful moments and invite children to join you. Each day when the children are napping, take fifteen minutes to do something you enjoy like reading a magazine, calling a friend, working on a craft, meditating, or listening to your favorite music.

Talk to children about self-care and encourage them to exercise, try nutritious foods, and learn techniques for managing stress. Have discussions about what it means to be healthy and model strategies for coping with stress. For example, "Let's pause to take some deep breaths together and then try working on this again." If you are looking for more inspiration, the book *Heart-Centered Teaching Inspired by Nature* by Nancy Rosenow offers insight about how taking care of yourself enhances your ability to nurture and teach others.



Preschool Math Development



The opportunity to use math in practical ways communicates that there is value in learning number sense, quantity, classification, patterning, measurement, shapes, spatial awareness, and mathematical reasoning. When young children play, they learn about numbers and quantity; they sort items based on their characteristics or purposes; group things that are similar or dissimilar; recognize and create patterns; measure, identify, and manipulate shapes; explore the space around objects; and solve problems in logical ways.

Support math development by designing an environment that encourages children to explore math concepts at their own pace. Activities such as puzzles, stringing beads, matching games, blocks, and items for sorting can be placed in baskets near a table. Add math tools such as measuring tapes, scales, and blocks to other areas of the room. Invent math-based games children can play. For example, cut large shapes out of paper and place them on the ground. Ask children to choose a shape and jump on it as they say its name.

Music such as the album *Movin' to Math* by Jack Hartmann can be used to introduce and practice mathematical concepts. Songs can help children practice counting, patterning, and sequencing. For example, Greg and Steve's "The Hand Jive" or Dr. Jean's "Tooty Ta" songs ask children to follow directions and act out a pattern or sequence of actions. Read the article *Exploring Math with Books* to see how books can build math literacy. By providing children with opportunities to inquire, explore, estimate, and problem solve throughout the day, we build their knowledge of mathematics and foster their natural curiosity for learning.

Source: *California Preschool Curriculum Framework, Volume 1*, by the California Department of Education (Sacramento, 2010).

NUMBER SENSE

Children develop their understanding of numbers and counting throughout the day as they engage in play and various activities. Adults can encourage the exploration and practice of number sense by verbally counting materials or snack items, adding math tools like calculators or rulers to different areas of the room, cooking with children, and by narrating their own thought processes ("I have eight apple slices and four children. That means everyone can have two slices.").

Think about the daily activities and routines in your program. How can you add number sense experiences or conversations to activities? What real-life scenarios can you use in dramatic play and other activities in the environment to offer children an opportunity to explore numbers naturally and see how they are used in daily life? When children practice using numbers in daily activities, they can see the value of, and gain familiarity with, learning math.

Source: *California Preschool Curriculum Framework, Volume 1*, by the California Department of Education (Sacramento, 2010).



Texas Caviar and Corn Chips

Children can help prepare this snack that is loaded with protein and vegetables. Remember to talk about how each vegetable looks, feels, and tastes!

Texas Caviar

- 1 can black beans
- 1 can corn
- 4 medium plum tomatoes
- 1 stalk green onion
- 1 medium green bell pepper
- 1 medium red bell pepper
- 1/4 cup low-fat Italian dressing
- 1 medium lime
- 1/4 cup cilantro

Drain and rinse the black beans and corn. Chop tomatoes, green onion, and bell peppers. Stir chopped ingredients together in a bowl with Italian dressing, juice from the lime, and chopped cilantro. Serve cold with corn chips for scooping.

Corn Chips

- 1 cup yellow corn flour
- 2/3 cup water
- 1/8 teaspoon salt
- Olive oil

Mix the flour with water and salt until the dough forms. Break the dough into small balls about the size of a tablespoon and press each ball flat with a rolling pin. Transfer them to a baking sheet, slice them into strips, brush olive oil liberally, and sprinkle with salt. Bake at 425° F for 10 minutes, and then flip them over to cook the back for an additional 2 minutes.



Source: Recipes adapted from the website <https://www.superhealthykids.com/recipes> in December 2019.

Exploring Math with Books

Books build math literacy and introduce concepts such as counting, sequencing, patterning, logic, and more! The following are ways to support math development in children through books.

Title: *Look, Look Outside* by Peter Linenthal

Age group: Infants

What you need: The book, infant rattles, balls, or other toys that contain shapes seen in the book.

What you do: Hold the infant in your lap with the book in front of you. On each page, draw the infant's attention to different shapes by tracing them with your finger tip as you name them. Read slowly, giving the infant time to examine the page and watching him for cues that he is ready to move on. Allow infants to touch the book and trace images with their own fingers. After reading the book, introduce the infant to the toys with similar shapes ("Look, here is a rattle with black and white circles on it.").

What they learn: Infants are introduced to print and math concepts. The simple high-contrast pictures allow infants to notice the details of images as you introduce them to the names of shapes.

Title: *Freight Train* by Donald Crews

Age group: Toddlers

What you need: The book, colored rectangle or square blocks, and black masking tape.

What you do: Read the book several times. Use black masking tape to create train tracks on carpet or cement, and set out the colored blocks along with the *Freight Train* book. Invite children to make trains with blocks. Another option is to make train tracks in tape colors that match the blocks, so children can group them to make a blue train, red train, etc.

What they learn: Toddlers often enjoy placing items in a line. This activity encourages children to group, count, and identify the colors of blocks they line up. They can also form patterns or follow the sequence of colors in the book.

Title: *Shapes, Shapes, Shapes* by Tana Hoban

Age group: Preschool

What you need: The book and white index cards with one of the following shapes cut from black or colored paper glued on each card: an arc, a circle, a heart, a hexagon, an oval, a diamond, a rectangle, a square, a star, a trapezoid, and a triangle. Print the name of each shape on the back of the card.

What you do: Read the book with children, asking them to find the hidden shapes. Now place the cards on the floor in front of you with the shapes showing. Read the book a second time, asking children to identify the cards that have the shapes they see. Then invite children to choose a card and hunt for that shape, counting how many times they see it. Place the cards in a basket with the book so children can revisit the activity during play.

What they learn: Children practice counting and identifying shapes. They have an opportunity to connect shapes to real objects they may see every day and learn that shapes can be manipulated and combined to create something new.



Exploring Math with Books

Title: *Each Orange Had 8 Slices* by Paul Giganti Jr.

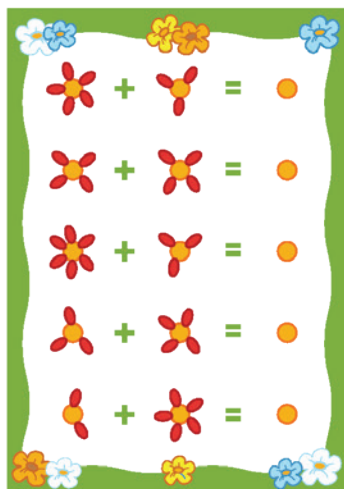
Age group: School Age

What you need: The book, paper and pencils, and a variety of objects that contain pieces such as cars (wheels), forks (tines), dolls (arms, legs, heads, etc.), flowers (petals), or a puzzle (pieces).

What you do: Read the book to children slowly, inviting them to count objects on the pages with you and answer the questions. Ask them how they know they arrived at their answer and discuss if there are other ways to solve the problem. Draw their attention to the whole image (flowers) and how they can be broken into pieces (petals, leaves). Explain that another word for pieces is fractions. Now ask children to make a list of the things in the room that can be broken down into pieces (such as the items you prepared). Ask each child to choose one item on their list and develop a

math question similar to those in the book. Children can then take turns solving each other's word problems.

What they learn: Children practice mathematical reasoning as they are introduced to word problems and fractions. They learn that whole objects are comprised of parts that can be broken apart, counted, and put back together.



ABOUT CHS

For over 129 years, Children's Home Society of California (CHS) has adapted to the changing needs of children and families. Since 1891, CHS has worked diligently to protect our community's children and strengthen their families through diverse programs and services.

At CHS, we view a child not in isolation, but in the context of each family's health, stability, and resources. We believe that families are fundamentally strong and resilient. The mission of CHS is to reach out to children and families at risk with a range of services to ensure every child the opportunity to develop within a safe, healthy, and secure environment.

Therefore, CHS provides a variety of services to children and families in California and nationwide, working to improve their quality of life by offering vital information, education and resource services, and child care assistance.

CHS also serves as an expert resource for childcare providers, other social service agencies, and government agencies at the local, state, and national level. To learn more about CHS and resources available to you, please visit our website at www.chs-ca.org.

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