



Learning to Grow

MAKING A DIFFERENCE TOGETHER

Building Brains with Repetitive Play

Have you ever wondered why young children repeat certain behaviors in their play? Perhaps you've seen a child repeatedly dump toys and materials out of containers, or scatter toys. These types of repetitive behaviors can be challenging for parents and care providers, but studies have found that there are good reasons why children engage in repetitive play activities. They are engaging in something called **schema play** and it is actually very good for their developing brain!

Early childhood theorists such as Jean Piaget and Chris Athey describe a **schema** as *a thread of thought or behavior, and a system for comprehending new information*. When we stop and look closely at children as they play, we can readily see their thread of thought in their repetitive play. These repeated play activities help children understand and organize the world around them. They also grow and reinforce neural pathways in their brain. The more a pathway is used, the stronger it becomes, *which directly impacts the child's ability to learn* -- and lays the foundation for her future cognitive abilities.

Researchers have identified up to 12 schemas that are common in young children. In this newsletter, we will focus on the **trajectory (movement path)** and **scattering** schemas and children's understanding of:

- ♥ How objects move
- ♥ Concepts such as direction, force, and speed
- ♥ Spatial awareness

Their repeated play includes activities such as throwing and dropping (trajectory schema), and spreading things out and dumping (scattering schema). Knowing about this is important because when we recognize and understand children's schemas and their vital significance to brain



development, it can calm our concerns and help us better support children's development and learning. *By encouraging a child's repeated play activities and providing additional play activities related to her current schema, you grow her brain!*

In this newsletter, we will further discuss the trajectory and scattering schemas and provide tips and suggested play activities for infants, toddlers, and preschoolers.

This newsletter includes:

- ♥ **Age-specific information and suggestions** about activities to do with your infant, toddler, or preschooler,
- ♥ **Featured activities** for each age group,
- ♥ **How This Helps:** a summary of your child's development by doing these activities together,
- ♥ **Resources:** for more information, and
- ♥ **Suggested Books:** a list of books to read with your child.

Infants

From the moment they are born, infants have a drive to understand their surroundings. By observing your infant, you will see examples of how she makes sense of her world through repetitive behaviors. Take a moment and watch your infant as she interacts with objects. Does your infant:

- ♥ Repeatedly drop objects or food from a high chair?
- ♥ Seem to enjoy watching objects fall, being thrown, or rolled?
- ♥ Like watching the flow of water from a faucet?

These behaviors are examples of the *trajectory schema* and she's doing these things to understand and discover the movement of objects. As she explores, label the actions that you see to deepen her understanding and learning. For example, "You are holding the blue scarf. The wind is blowing! Look! The scarf is going up, up, up!"

Here are some activities that you can do with your infant:

- ♥ Give her a variety of safe objects to throw, roll, and explore the path of objects as they move



towards and away from her. Vary the sizes and weights of the balls she plays with to see the difference in how fast they roll or if they bounce.

- ♥ Provide opportunities to splash and pour water (or watch as you pour a stream of water from a pitcher) so she gains an understanding of the downward motion of water.
- ♥ Give her push toys so she can understand the forward motion of an object when it is pushed.
- ♥ Sing and do the motions to songs that include horizontal (sideways) or vertical (up and down) movement, such as the *Itsy, Bitsy Spider*, to explore these motions with her body.

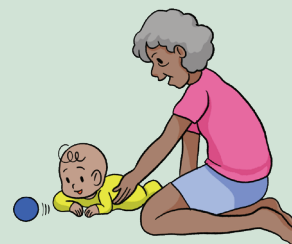
Activity for Infants: *Move with Baby While Introducing New Vocabulary Words*

What You Need:

None

What to Do:

1. Get down on the floor with your infant. Hold her hands in your own and gently raise her arms up above her head. Then bring them back down. As you move her arms, say, "up, down, reach up, reach down, touch the sky, touch your toes."
2. Stand up and as you carry your infant, move around in different directions and use words that describe your movement: For example, "Forward," "backward," (e.g., like a choo-choo train!) "left," "right," "slide," "glide," "tiptoe."
3. Roll a ball with your infant and use words to describe the ball's movement: "Fast," "slow," "bounce," "straight," "high," "low."



(See page 5 for information on how doing these kinds of activities with your child helps her development and school readiness.)

Toddlers

Toddlers are eager to explore their surroundings and are very curious about how things work. The *trajectory schema* and *scattering schema* are common at this age. Your toddler is still learning about how objects move, but you may see increased interest in dumping and spreading things out. Take a moment and watch your toddler as she interacts with objects. Does your toddler:

- ♥ Empty containers or baskets onto the floor?
- ♥ Repeatedly fill baskets or bags with toys then dump them out?
- ♥ Enjoy the physical action of scattering things such as small toys, leaves, or sand?

The following activities help support her increasing understanding of the physical world and its effect on how objects scatter. As she engages in these activities, ask open-ended questions to encourage exploration then comment as your toddler tries things out. By connecting children's physical explorations with language, we can significantly deepen their understanding and learning.

- ♥ Create a boundary for scattering her toys and materials by laying a large blanket or sheet on the floor for your toddler to sit on while playing



with her toys. Let her know that she can dump or spread her toys anywhere on the blanket or sheet.

- ♥ Give her opportunities to chase bubbles so she can explore the force of the wind and how it affects the movement of the bubbles.
- ♥ Have her put on rain boots and jump in puddles so she can discover that the amount of force used when jumping in water affects how high the water scatters.

Activity for Toddlers: *Turkey Baster (or Spray Bottle) Art*

What You Need:

- Old white or light-colored bedsheet
- 1-3 cups or containers of washable paint mixed with water (to thin the paint)
- Turkey baster or spray bottle

What to Do:

1. With a turkey baster: if using a turkey baster, show your keiki how to dip the turkey baster into the paint, suck some up, and then "fire it" at the bedsheet.
2. With a spray bottle: if using a spray bottle, show her how to aim at the sheet and squeeze the trigger to spray the paint onto the sheet.
3. As your child engages in this activity, ask questions about what she sees happening. Use words such as: near, far, close, squirt, spray, squeeze, trigger, above, below, left, right, center, high, low.



(See page 5 for information on how doing these kinds of activities with your child helps her development and school readiness.)

Preschoolers

As children get older, they begin to think in complex ways; therefore, the way they explore schemas also becomes more complex. Children exploring the *trajectory schema* find various ways to propel themselves and objects. Take a moment and watch your preschooler as she interacts with objects. Does your preschooler:

- ♥ Climb up furniture or equipment and jump off?
- ♥ Zoom cars across the floor?
- ♥ Like to run fast, jump, slide down slides, and swing on ropes or swings?

The following types of activities help support her fascination to investigate and understand the linear movement of objects. As she engages in these activities, ask "I wonder" questions, such as, "I wonder what will happen if we change the angle of the ramp?" Then, ask, "What happened?" By connecting children's physical explorations with language, we can significantly deepen their understanding and learning.

- ♥ Show your child how to make a paper airplane and fly it so she can explore the concept of movement through the air and the path the airplane takes as it moves through space.



- ♥ Dip some marbles in paint and have her spoon them onto a paper placed in an empty tray or box. As she tilts the box in various directions, point out the marbles' trajectory or path, helping her to discover how the angle of the box affects this.
- ♥ Use sidewalk chalk to draw connected squares on the pavement to create a straight jumping path for your child, giving her a clear visual path for her body to follow and help her further explore the concepts of trajectory (optional: draw arrows in squares to change the direction of the path.)

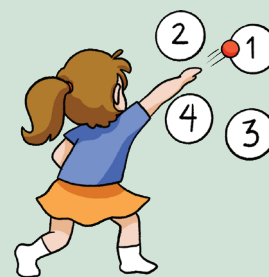
Activity for Preschoolers: *Hit the Letter/Number*

What You Need:

- Paper plates or paper cut into large circles
- Tape
- Ball (or beanbag, or socks folded into a ball shape)

What to Do:

1. Write letters or numbers on the paper plates or circular paper (one letter or number on each plate).
2. Tape them to a wall. These will be the targets.
3. Give your keiki a ball or beanbag and let her practice throwing it at the target. Call out the letter or number for keiki to practice aiming for a specific target.
4. Next, have her stand in place and give her directions to turn her body "diagonally to the left," "diagonally to the right," or "straight ahead" to hit the target.



(See page 5 for information on how doing these kinds of activities with your child helps her development and school readiness.)

How This Helps

The activities suggested in this newsletter help promote many different aspects of development:

Physical Development

- ♥ Use and strengthen large muscles like neck, arms, and legs
- ♥ Develop eye-hand coordination

Social and Emotional Development

- ♥ Feel important and good about herself
- ♥ Develop her unique identity

Language and Literacy Development

- ♥ Increase her observation, listening and understanding skills, and her attention span
- ♥ Build verbal skills and vocabulary



Cognitive Development

- ♥ Develop her curiosity about how things work
- ♥ Develop her thinking and problem-solving skills

Kids in the Kitchen

Cooking teaches valuable lessons such as math (quantities, measurement), science (how matter changes), fine motor (stirring, pouring), and literacy (print awareness). As you make this recipe with your child, talk about kitchen safety. Show her how to handle items safely and allow her to do as much as she is capable of. Praise her efforts, and ask questions throughout the process to encourage her thinking skills. Most of all, have fun!

Cinnamon Sugar Chips

Adapted from WIC 50th Anniversary Cookbook, Recipes for Hawai'i's Families

Note: While making this recipe with your keiki, pay particular attention to the bolded actions in the directions below, which a child exploring the trajectory schema may enjoy doing.

Ingredients:

- 1 teaspoon cinnamon mixed with ¼ cup sugar
- 5 whole wheat tortillas
- Avocado oil cooking spray



Directions:

1. Preheat oven to 350F.
2. Show keiki how to spray the tortilla with avocado oil, then brush to spread the oil.
3. Have keiki sprinkle the cinnamon sugar mixture on top of each tortilla.
4. Together with keiki, roll a pizza cutter to cut the tortilla into triangles. (Recommended to cut them into sixths.)
5. Arrange the tortillas in a single layer on a cookie sheet lined with parchment paper.
6. Bake for 9-11 minutes or until tortillas are crispy. Allow to cool for 10 minutes. Enjoy!

Resources

Jaboneta, N. and Curtis, D. (2019). *Children's Lively Minds: Schema Theory Made Visible*. Red Leaf Press.

This book details 8 schemas common in early childhood. The authors present stories of real children exploring schemas, followed by reflection and questions about what children might be learning.

Jaboneta, N. and Curtis, D. (2017). *Is There Math in Frustrating Behaviors? Thinking about Schemas. Teaching Young Children, 11 (1), 24-26.*

In this NAEYC article, the authors share the important connections they've discovered between schema play and the math knowledge that children will need.



https://www.uwyo.edu/wind/_files/docs/echo/ec-resources/session-materials---is-there-math-in-frustrating-behaviors1.pdf

Suggested Books

Discover these books and more at the **Hawai'i State Public Library**
www.librarieshawaii.org.

Infants and Toddlers

***Spot Goes to the Park* by Eric Hill**

It's a lovely day and Spot is excited to take his ball to the park and play with his friends! Young children are sure to enjoy this fun lift-the-flap book and adventurous story.

***The Ants Go Marching* by Priscilla Burris**

Young children will delight as you march along to this fun, repetitious rhyme of the ants marching one by one, two by two, and all the way up to five by five -- toward a surprising ending!

Preschoolers

***Ride, Roll, Run Time for Fun* by Valerie Bolling**

Preschoolers exploring the trajectory schema will enjoy this energetic picture book with lyrical text that follows children as they glide, whoosh, pedal, pump, swing, etc. and have fun in their neighborhood.

***The Wind Blew* by Pat Hutchins**

The wind blew, and blew, and blew and took everything with it! But just as the wind was about to carry everything out to sea, it changed its mind. Young children will be captivated by the rhyming text and movement in this blustery story.



Learning to Grow is a project of the University of Hawai'i, Windward Community College, with funding from the Hawai'i Department of Human Services. Visit our website at www.learningtogrowhawaii.org or visit us on Facebook at www.facebook.com/learningtogrowhawaii and Instagram @uhlearningtogrow