Quality ChildCare
For Registered Home-Based Providers

LEARNING TO GROW ★ WINDWARD COMMUNITY COLLEGE Vol. IX, No. 4

10 Hallmarks of Quality Child Care

- ★ Build trusting relationships
- ★ Provide consistent care
- ★ Support children's health
- ★ Provide a safe environment
- ★ Provide positive guidance
- ★ Provide a language-rich environment
- ★ **Foster curiosity and development through play**
- ★ Individualize care and learning activities
- ★ Partner with parents
- ★ Pursue personal and professional growth

This Month's Hallmark of Quality Child Care
Foster Curiosity and Development through Play

STEM Activities for Young Children

STEM education, a term initiated by the National Science Foundation, is an educational approach which focuses on one or more of the four disciplines of science, technology, engineering, and math. According to the National Association for the Education of Young Children, research has shown that giving children exposure to quality, hands-on STEM learning opportunities is a key predictor of children's school success.

For young children, STEM learning occurs through offering many opportunities for them to use their minds and hands to play, explore, and learn. You can add to this learning by asking "5 W" questions (who, what, where, when, why). Here are some examples of what STEM learning looks like for young children:

- **S**cience involves observing, experimenting, asking questions, wondering how things work, making predictions, and sharing findings.
- **T**echnology encourages invention and trying different tools to make things work. Tools may include crayons, scissors, magnifying glass, rulers, and for older children electronics.
- **E**ngineering involves identifying a problem and then thinking about different solutions to test. This may include building ramps, stacking cups, and creating structures with blocks.
- **M**ath includes counting, sorting, comparing and working with different shapes and patterns.

We encourage you to introduce STEM learning by starting with items that are familiar to the children and then add onto their learning. This newsletter will highlight STEM learning through water activities – something familiar and accessible for infants, toddlers and preschoolers.

Tips to Incorporate STEM Learning

For many adults, STEM can be intimidating, especially if they didn't have much exposure to math or science as a child or found it difficult in school. STEM is about exploring the world around us and asking questions about how or why something works.

You can make STEM part of children's intentional play activities. Here are some tips adapted from "Let's Talk, Read and Sing about STEM" by the U.S. Departments of Education and Health and Human Services:

- Use math concepts to talk with children. Count the number of cups that you'll need for snack time or sort between items that would sink or float during a water play activity.
- Look at the world! Observing is important in science. Talk throughout the day about what you see, feel, smell, taste or hear and ask the children to describe the world as they observe it: "Do you have your jacket and umbrella today? How does the umbrella protect you from getting wet?"
- Ask open-ended questions. Ask children to wonder about the world around them using phrases like "What would happen if…" Or "I wonder…?" For example, "I wonder if the pumpkin will float in the water."

- Follow the child's lead. Observe children closely and see what they are looking at, pointing to or seem curious about. STEM is about exploration, and when children make their own discoveries, they are making guesses or hypotheses while learning to make sense of the world around them.
- Narrate for the children by making comments based on what you are noticing the children doing. For example, "I see you are adding more water to the paint." This will prompt further exploration and empower the children to continue this type of exploration.
- Learn along with children! You don't have to have all the right answers to help children learn about STEM. You can respond by saying, "That's a great question. How could we find out together?" It's also okay if the children give answers that aren't correct. Ask them to explain their thinking and you might find a really interesting explanation. Communicating and trying to make sense of the world – even if you don't have all the correct answers – are important STEM skills!
- Use books. Incorporate books about animals, nature and science. You can use STEM words during reading time to build vocabulary.
- Sing! Songs with repetitive patterns like "There's a Hole in the Bottom of the Sea" teach children about patterns and other STEM concepts.

Using Water to Incorporate STEM

Children's first learning experiences with water usually include all kinds of pouring. These simple water play experiences are ones that the children may want to do repeatedly. This type of activity helps develop fine motor skills, which leads to more precise or complex activities with other tools, as well as discovery of the various properties of water (how it moves, density, different states – frozen and liquid).

Here are some ideas for how to use water activities and materials with young children:

- For infants, embed learning during routines throughout the day. For example, during water play encourage the infant to pour and fill, experiment with cause and effect (what happens to the water when I splash my hands in the pan), and explore the properties of objects such as sinking and floating.
- Choose materials that are small enough to grasp, safe, unbreakable, and sturdy, such as plastic funnels, measuring cups and small containers (e.g., margarine tubs, yogurt cups).
- Ask open-ended questions or make "I wonder" statements such as "I wonder what will happen if we use the washcloth to clean the boat." "What happens if we put the red boat on the water?" Even if he doesn't respond, narrating the process and talking about what you are doing helps him learn.

- As children get older, introduce new materials such as eye droppers or pipettes, spray bottles, sponges, food coloring, and paint brushes. Use these with activities such as water painting and color mixing.
- Provide books to learn more about how things work. Start with a question such as "Why does it rain?" and choose both fiction and non-fiction books about this topic that are age-appropriate, have pictures, and present new ideas for the child to consider. As you read the book together, ask questions and see what the child is interested in which can lead to further explorations.
- Encourage documentation of the child's observations by having him draw, paint, or record voices to describe what he notices (for example, talking about the weather or charting the growth of the tomato plant.) You can use a composition book, crayons, and other tools such as rulers or binoculars to help in the child's documentation process.

Training Opportunity

Move and Learn Together for STEM by Sesame Street in Communities

In this webinar, you'll learn some unique ways to use everyday materials and activities to explore STEM concepts.

https://sesamestreetincommunities.org/professional-development/webinars/page/2/?training=move-learn-together-stem

Featured Activity
Walking Water

Adapted from: *https://taminglittlemonsters.com/walking-water-stem-activity-for-kids/*

What you need:

- 6 Plastic containers
- 6 paper towels
- Food coloring
- Water

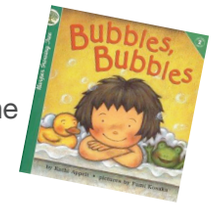
What to Do:

1. Set up all the containers in a circle.
2. Pour water into every alternate container about halfway up.
3. In the containers with water in them, add a few drops of food coloring – yellow in one, red in another container, and blue in the last container.
4. Fold a paper towel in half lengthwise and hang it between two of the containers so that one end of the paper towel is inside the container with the food coloring and the other sits inside the empty container. Repeat this until you use all 6 paper towels, creating a "bridge" between each of the containers to connect the circle.
5. Ask the children to make a prediction for what will happen. Observe together as the colored water travels up the paper towels and create pools in the empty container. As the two colors drain into the same container, you'll see the colors mix. You can talk about topics such as colors mixing and water being absorbed into the paper towel.

Suggested Books

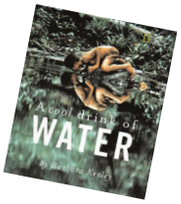
Discover these books and more at the Hawai'i State Public Library **www.librarieshawaii.org**

Bubbles, Bubbles
by Kathi Appelt



Read along with the rhyming text of the book which show the fun a child can have in soapy, bubble-filled bath water.

A Cool Drink of Water
by Barbara Kerley

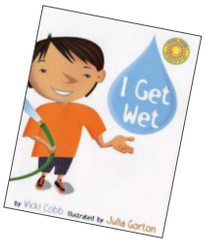


Color photographs show people around the world gathering, drinking, and sharing water.

Who Sank the Boat
by Pamela Allen

Five friends decide to take a boat out in the bay. Watch the boat get fuller and fuller and make predictions about which animal will sink the boat.

I Get Wet
by Vicki Cobb



This book encourages children to make discoveries. Follow along as a young boy asks questions and suggests easy experiments to demonstrate the properties of water.

Citations

National Association for the Education of Young Children (2017). Growing in STEM: STEM resources and materials for engaging learning experiences. https://www.naeyc.org/resources/pubs/yc/mar2017/stem-materials-experiences

Florida Museum of Natural History (2009). Investigating water.. https://www.floridamuseum.ufl.edu/wp-content/uploads/sites/16/2017/03/MESS-Water-Guide.pdf

U.S. Departments of Education and Health and Human Services (2016). Let's Talk, Read and Sing about Stem. https://www.acf.hhs.gov/ecd/learning-about-stem

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