Learning to Grow
MAKING A DIFFERENCE TOGETHER

F.O.U.R. Ways to Help Your Child Think Like a Coder

Our world is increasingly influenced by technology, and expanding quickly. Many jobs in the future will be technology-based and most likely require skills in coding -- whatever career path a child may take. According to researchers from Tufts University, children today should be learning to code, just like they learn reading and math.

In short, coding (also known as programming) is creating step-by-step instructions to tell a computer how to complete a task. Learning to code develops the higher order thinking skills children will need to thrive in our 21st century workplace. These include creative problem solving and logical reasoning (the ability to analyze information, think in a sequenced order, plan carefully, pay attention to details, and make decisions).

How does this relate to young children? This does not mean you should go out and buy a computer for your young child! Instead, you can give him opportunities to learn the concepts of coding -- these are foundational thinking skills that will help him easily learn and apply coding later in life. Here are F.O.U.R. (4) ways you can help a young child think like a coder. Give him opportunities to:

- ❤ **F – Follow directions.** Coding is all about writing directions.
- ❤ **O – Order events.** This refers to knowing what comes first, next, last and so on.
- ❤ **U – Understand conditional statements.** These are "if/then" type of statements such as, "**If** the weather is nice, **then** I will wash the car."
- ❤ **R – Recognize patterns.** Children who have experience in pattern recognition will be better able to identify patterns and better predict what comes next in a specific situation.

In this newsletter, we will further discuss these four ways to help a child think like a coder, and present fun and engaging activities you can do with children at each age level -- infants, toddlers and preschoolers -- to help them gain these important foundational thinking skills.

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

The foundation for thinking skills begins in infancy. This begins by developing a child's receptive language skills (the ability to hear what is being said, and the ability to understand spoken language). Infancy is a critical stage for developing receptive language. Infants who are surrounded by language through a parent or caregiver who engages in conversations, reads, sings, and interacts with them -- are more likely to develop strong receptive language skills.

Here are F.O.U.R. additional ways you can help an infant think like a coder:

- ❤ **F - Follow directions.** Point out sounds he hears (e.g., a dog barking, airplane, etc). When you move an infant, use directional language. For example, as you raise an infant up and down, say the words "up" and "down." Sing songs and fingerplays that use directional language such as *Itsy Bitsy Spider.*"

- ❤ **O - Order events.** Babies learn an order of events through consistent daily routines. Use the words "now" and "next" when describing your activities. For example, say, "*Now* I am changing your diaper. *Next*, we will go outside."

- ❤ **U - Understand conditional statements.** An infant's first experience with cause and effect is when he learns that a caregiver comes when he cries. Additionally, point out cause and effect in his environment. For example, place your infant's hand on the light switch as you say, "When I flip the switch up the light goes on; when I flip it down, the light goes off."

- ❤ **R - Recognize patterns.** Highlight patterns by clapping along to the beat of favorite songs, reading stories with repetitive lyrics such as, "*Brown Bear, Brown Bear What Do You See?*", or reciting repetitive finger plays such as "*Five Little Ducks*."

Activity for Infants: *Picture Gallery*

What You Need:
    Pictures or posters to hang on your wall (e.g., photos of family members, photos of animals, nature, etc.)
    Tape

What to Do:
1. Tape pictures or posters on a wall where your infant can see them.
2. Point to each picture and talk about them. For example, say, "Look, it's Papa. He is laughing --he looks happy," or "Look at the rainbow in this picture. There are so many colors. I see red, yellow, and blue." Talking about each picture increases his receptive language skills.
3. Change the pictures every now and then so he has different things to look at

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

Toddlers

Toddlers are developing new skills in many areas, including language, thinking and reasoning. They start to understand instructions and the idea that things are ordered. Toddlers naturally develop thinking skills as they follow familiar routines such as first eat breakfast, then brush teeth, next play outside. Understanding the order in which events happen is foundational for developing the ability to plan and act on steps to reach a goal – an important thinking skill.

Here are F.O.U.R. additional ways you can help a toddler think like a coder:

❤ **F - Follow directions.** Your toddler may be able to follow simple commands such as, "Give your ball to Mommy." As he masters one-step directions, give him two-step directions to follow such as, "Pick up your cup and put it on the table."

❤ **O - Order events.** Use the words *first*, *next*, and *then*. For example, when talking about your day you might say, "*First*, we played ball, *next*, we did a puzzle, *then*, we read a book. Try also drawing or taking pictures of his toys (e.g., a ball, a puzzle a book), then give your toddler the opportunity to put the pictures in the order of how he wants to do the activities. Repeat the order out loud to him, then do the activities in that order.

❤ **U - Understand conditional statements.** Play the "freeze game" with your child. He will learn, "*If/when* the music plays, *then* I dance; and *if/when* the music stops, *then* I freeze." Even if he doesn't freeze when the music stops, keep doing it. As he watches you dance and freeze to the music, in time he will learn to do the same.

❤ **R - Recognize patterns.** With toddlers, start by pointing out things that are same and things that are different. You can say for example, "These are the same because they are all red. This one is different because it is blue."

## Activity for Toddlers: *This is the Way We Brush Our Teeth*

What You Need:
> Photos of the steps in brushing your child's teeth. (Keep the steps simple at first, for example, a photo of squeezing toothpaste onto his toothbrush, a photo of him/a parent brushing his teeth, a photo of him rinsing his mouth).
> Construction paper or other paper long enough to fit the photos
> Tape or glue, marker

What to Do:
1. Glue or tape the photos onto the piece of paper in the order that the activity is performed.
2. Below each photo, write the step. For example, "1. Put toothpaste on the toothbrush."
3. Post the photos at your child's eye level near where he brushes his teeth.
4. Point to the first photo and read the step out loud before your child completes the action. For example, say, "First, put toothpaste on the toothbrush." Then, point to the second photo, read the step, (e.g., "Next, we…") and have your child complete the action. Do this for all of the photos/steps.

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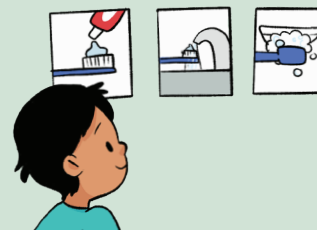
Preschoolers

As children enter the preschool years, their reasoning and problem-solving skills increase. This is a good time to give your preschooler opportunities to solve problems with multiple solutions, thereby strengthening his understanding of conditional situations (i.e., if/then statements). For example, if he runs out of glue while working on a project, ask him to think about all the ways he can complete his project without glue.

Here are F.O.U.R. additional ways you can help a preschooler think like a coder:

- ❤ **F - Follow directions.** Give opportunities to learn about and follow maps. Start by drawing a simple map of your home, then show the map to your child as you walk through your house together. Ask your child if he would like to draw a map of your home as well (or his bedroom).

- ❤ **O - Order events.** Create a simple treasure hunt by hiding a toy and directing your child to find it. For example, say, "*First*, take 3 big steps forward; *Next*, take 4 bunny hops to the right; *Then*, take 2 small steps forward."
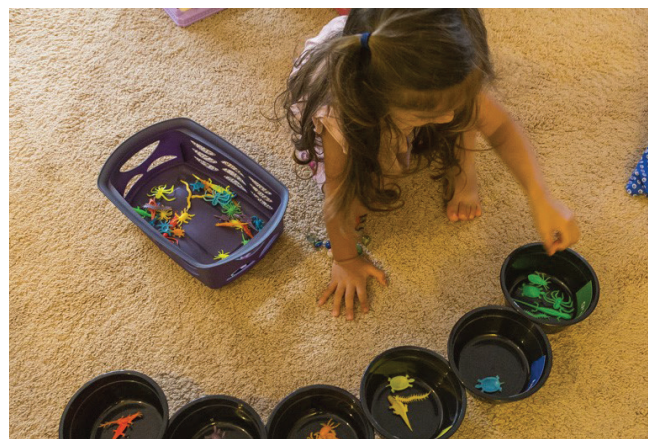
- ❤ **U - Understand conditional statements.** Play *Simon Says* with a twist! For example, say, "Simon says, *if* I touch my head, *then* you touch your nose," or "Simon says, *if* I clap my hands, *then* stamp your feet."

- ❤ **R - Recognize patterns.** Give hands-on opportunities to create patterns. For example, use 2 colors of any colored materials/toys your child has. Start by building the beginning of a pattern for your child (e.g., red-blue-red-blue), then ask your child to continue the pattern. . Next, move on to more challenging AAB (e.g., red-red-blue) or ABC (e.g., red-blue-yellow) patterns.

Activity for Preschoolers: *If/Then Sorting Game*

What You Need:
    A large basket for collecting your child's toys
    3 or 4 empty boxes -- large enough to hold some of your child's toys
    3 or 4 different colors of construction paper (e.g., red, blue, yellow)
    Tape or glue, scissors
What to Do:

1. Help your child attach a different colored construction paper to the front of the box. (You may need to cut the construction paper to fit the box).
2. Ask your child to pick up his toys and put them in the large basket.
3. Then instruct your child to put the toys in the colored boxes by giving him "if/then" instructions, such as:
   - *If it has wheels, then put it in the yellow box*
   - *If it has pages, then put it in the red box*
   - *If it is fluffy or soft, then put it in the blue box*
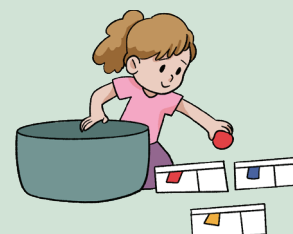
(See page 5 for information on how doing these kinds of activities with your child helps his development and school readiness.)

How This Helps

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

Physical Development

- ❤ Learn through his senses: seeing, hearing, smelling, tasting, and touching
- ❤ Develop eye-hand coordination

Social and Emotional Development

- ❤ Feel important and good about himself
- ❤ Develop his unique identity

Language and Literacy Development

- ❤ Increase his observation, listening and understanding skills and his attention span
- ❤ Connect words and sounds he hears with what he experiences

Cognitive Development

- ❤ Develop his thinking and problem-solving skills
- ❤ Recognize math concepts (sequencing, patterning)

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 him how to handle items safely and allow him to do as much as he is capable of. Praise his efforts, and ask questions throughout the process to encourage his thinking skills. Most of all, have fun!

## Simple Grilled Cheese Sandwich

Adapted from allrecipes.com

Ingredients:

  2 slices of bread of your choice (e.g., white, wheat, etc.)
  Butter, 1 slice of cheddar cheese

Directions:

1. Preheat a nonstick skillet over medium heat.
2. Have your child butter one side of a slice of bed. Say, "First, butter the bread."
3. Place the bread butter-side down in the hot skillet.
4. Place cheese on top of bread. Say, "Next, I put the cheese on the bread."
5. Have your child butter the second slice of bread on one side and say, "Then butter the other bread." Place butter-side up on top of cheese.
6. Cook until lightly browned on one side.
7. Flip over and continue cooking until cheese is melted

*As you make this recipe together, be sure to point out the order of the steps by using words such as "first," "second," "third," "next," "last," etc.
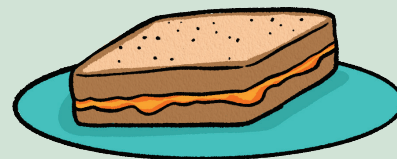
Resources

Creating Coding Stories and Games, National Association for the Education of Young Children

https://www.naeyc.org/resources/pubs/tyc/feb2017/ creating-coding-stories-and-games

In this NAEYC article, Deanna Pecaski McLennan defines coding, describes what children need to know in order to code, and explains the skills that are strengthened through coding.

Freeze Dance Activity by First5California

https://www.first5california.com/en-us/activities/ This parenting website has lots of activity ideas. Search for "Freeze Dance" to learn how dancing and music combine to create a fun game that helps your child develop and practice those listening skills!

Suggested Books

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

Infants and Toddlers

Barnyard Dance by Sandra Boynton

Join twirling pigs, prancing horses, and other unforgettable animals in their barnyard dance! With rhythmic text and sounds, this book will help the youngest child build receptive language, while spinning, swinging, and prancing!

Three Bears by Byron Barton

This classic fairytale of the three bears and a little girl named Goldilocks is told in rhythmic text with simple bold and vibrant colored pictures. The repetitive narrative and clear sequence of events of this story is perfect for helping young children think like a coder.
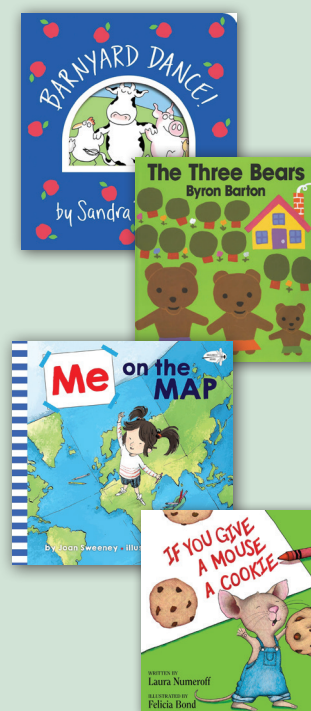
Preschoolersv

Me on the Map by Joan Sweeney

This playful introduction to maps shows children how easy it is to find where they live and how they fit in to the larger world. Filled with fun and adorable illustrations this story will show readers how easy it is to find the places they know with help from a map, and encourage them to draw a map of their own!

If You Give a Mouse a Cookie by Laura Joffe Numeroff

The progression of this story is logical yet hysterical all at once- ensuring your child will stay engaged while also sharpening his skills for story sequencing. It's also the perfect choice for talking about cause and effect.