Executive Function Activities for 3- to 5-year-olds

Children's executive function and self-regulation skills grow at a fast pace during this period, so it is important to adapt activities to match the skills of each child. Younger children need a lot of support in learning rules and structures, while older children can be more independent. Ultimately, the goal is to shift children away from relying on adult regulation, so when the child seems ready, try to reduce the support you provide.

Imaginary play

During intentional imaginary play, children develop rules to guide their actions in playing roles. They also hold complex ideas in mind and shape their actions to follow these rules, inhibiting impulses or actions that don't fit the "role." Players often take ideas from their own lives, such as going to the doctor's office. They might act "sick," be examined by the doctor, and receive a shot. The "doctor" talks and acts like a doctor (calm and reassuring), the "sick child" talks and acts like a sick child (sad and scared), and the child in the role of "parent" talks and acts like a concerned parent (worried and caring). While younger children tend to play alone or in parallel, children in this age range are learning to play cooperatively and often regulate each other's behavior—an important step in developing self-regulation.

Ways to support high-level imaginary play:

■ **Read books, go on field trips, and use videos** to make sure that children know enough about the scenario and roles to support pretend play.

■ **Provide a varied set of props and toys** to encourage this type of play. Younger preschoolers may need more realistic props to get the play started (e.g., toy medical kits), while older children can re-purpose other things to turn them into play props (e.g., paper towel tube that is used as a cast for a "broken arm"). Reusing familiar objects in a new way also practices cognitive flexibility.

■ **Allow children to make their own play props.** Children must determine what is needed, hold this information in mind, and then follow through without getting distracted. They also exercise selective attention, working memory, and planning. If the original plans don't work out, children need to adjust their ideas and try again, challenging their cognitive flexibility.

■ **Play plans can be a good way to organize play,** as shown by one early education program designed to build self-regulation, Tools of the Mind. Children decide who they are going to be and what they are going to do before they start playing, and then draw their plan on paper. Planning means that children think first and then act, thus practicing inhibitory control. Planning play in a group also encourages children to plan together, hold these plans in mind, and apply them during the activity. It encourages social problem solving, as well as oral language.

Storytelling

Children love to tell stories. Their early stories tend to be a series of events, each one related to the one before, but lacking any larger structure. With practice, children develop more complex and organized plots. As the complexity of the storytelling grows, children practice holding and manipulating information in working memory.

Ways to support children's storytelling:

■ **Encourage children to tell you stories,** and write them down to read with the child. Children can also make pictures and create their own books. Revisiting the story, either by reviewing pictures or words, supports more intentional organization and greater elaboration.

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■ **Tell group stories.** One child starts the story, and each person in the group adds something to it. Children need to pay attention to each other, reflect on possible plot twists, and tailor their additions to fit the plot, thereby challenging their attention, working memory, and self-control.

■ **Have children act out stories** they have written. The story provides a structure that guides children's actions and requires them to attend to the story and follow it, while inhibiting their impulse to create a new plot.

■ **Bilingual families can tell stories in their home language.** Research indicates that bilingualism can benefit a variety of executive function skills in children of all ages, so fostering fluency in a second language is valuable.

Movement challenges: songs and games

The demands of songs and movement games support executive function because children have to move to a specific rhythm and synchronize words to actions and the music. All of these tasks contribute to inhibitory control and working memory. It is important that these songs and games become increasingly complex to interest and challenge children as they develop more self-regulation skills.

■ **Provide many opportunities** for children to test themselves physically through access to materials such as climbing structures, balance beams, seesaws, etc. Setting challenges for children—such as obstacle courses and games that encourage complex motions (skipping, balancing, etc.)—can also be fun. When children are trying new and difficult activities, they need to focus attention, monitor and adjust their actions, and persist to achieve a goal.

■ **Encourage attention control through quieter activities** that require children to reduce stimulation and focus attention—such as using a balance beam or yoga poses that include slow breathing.

■ **Play some music** and have children dance really fast, then really slowly. *Freeze dance* is also fun, and it can be made more difficult by asking children to freeze in particular positions. (Tools of the Mind uses stick-figure pictures to direct children.) When the music stops, children must inhibit action and shift their attention to the picture to imitate the shape depicted.

■ **Songs that repeat and add on** to earlier sections (either through words or motions) are a great challenge to working memory, such as the motions to *She'll Be Coming 'Round the Mountain,* the words to *Bought Me a Cat,* and backward-counting songs, such as *Five Green and Speckled Frogs* and songs repeating a long list (the *Alphabet Song*).

■ **Traditional song games,** like *Circle 'Round the Zero* are also fun. Complex actions, including finding partners, must be accomplished without becoming distracted.

Quiet games and other activities

■ **Matching and sorting activities** are still fun, but now children can be asked to sort by different rules, promoting cognitive flexibility. Children can first sort or match by one rule (such as by color), and then immediately switch to a new rule (such as by shape). For a more challenging version, play a matching game, but change the rule for each pair. *Quirkle* and *S'Match* are commercially available games that challenge cognitive flexibility in this way. Or play a bingo or lotto game, in which children have to mark a card with the opposite of what is called out by the leader (e.g., for "day," putting a chip on a nighttime picture). Children have to inhibit the tendency to mark the picture that matches, while also remembering the game's rule.

■ **Increasingly complicated puzzles** can engage children this age, exercising their visual working memory and planning skills.

■ **Cooking is also a lot of fun** for young children. They practice inhibition when waiting for instructions, working memory while holding complicated directions in mind, and focused attention when measuring and counting.

Resources

Pretend play suggestions
■ *www.mindinthemaking.org/wp-content/uploads/2014/10/PFL-4-year-old-independent-play.pdf*

Montessori activities – Walking on the line
■ *www.infomontessori.com/practical-life/control-of-movement-walking-on-the-line.htm*

Songs
■ *kids.niehs.nih.gov/games/songs/childrens/index.htm*