

# EXECUTIVE FUNCTION AKA HOW YOU DO WHAT YOU DO

# WHAT ARE EXECUTIVE FUNCTION SKILLS

**Mental processes used  
to plan, organize, initiate  
and complete tasks  
while managing time,  
attention and emotions.**

# EXECUTIVE FUNCTION SKILLS

## Thinking:

- **Meta-cognition**
- **Visualizing the future**
- **Plan backwards**
- **Breaking tasks into parts**
- **Anticipate obstacles / troubleshooting**
- **Flexibility / shifting**
- **Working memory – verbal & non-verbal**
- **Impulse control / delay gratification**
- **Attending to details**
- **Decision making**

## Doing:

- **Initiating**
- **Planning & Organizing**
- **Using time**
- **Managing emotions**
- **Transitioning**
- **Execute forwards**

# EXECUTIVE FUNCTION FULL SCALE



## ATTENTION

Measures how well a youth can avoid distractions, concentrate on tasks and sustain attention

## INHIBITORY CONTROL

Reflects a youth's control over behavior or impulses

## PLANNING

Reflects how well a youth develops and implements strategies to accomplish tasks

## EMOTION REGULATION

Measures a youth's control and management of emotions

## INITIATION

Describes a youth's ability to begin tasks or projects without being prompted

## SELF-MONITORING

Describes a youth's self-evaluation of his / her performance or behavior

## FLEXIBILITY

Describes how well a youth can adapt to circumstances including problem solving ability

## ORGANIZATION

Describes how well a youth manages personal effects, work or multiple tasks

## WORKING MEMORY

Reflects how well a child / youth can keep information in mind that is important to knowing what to do and how to do it, including remember important things, instructions & steps

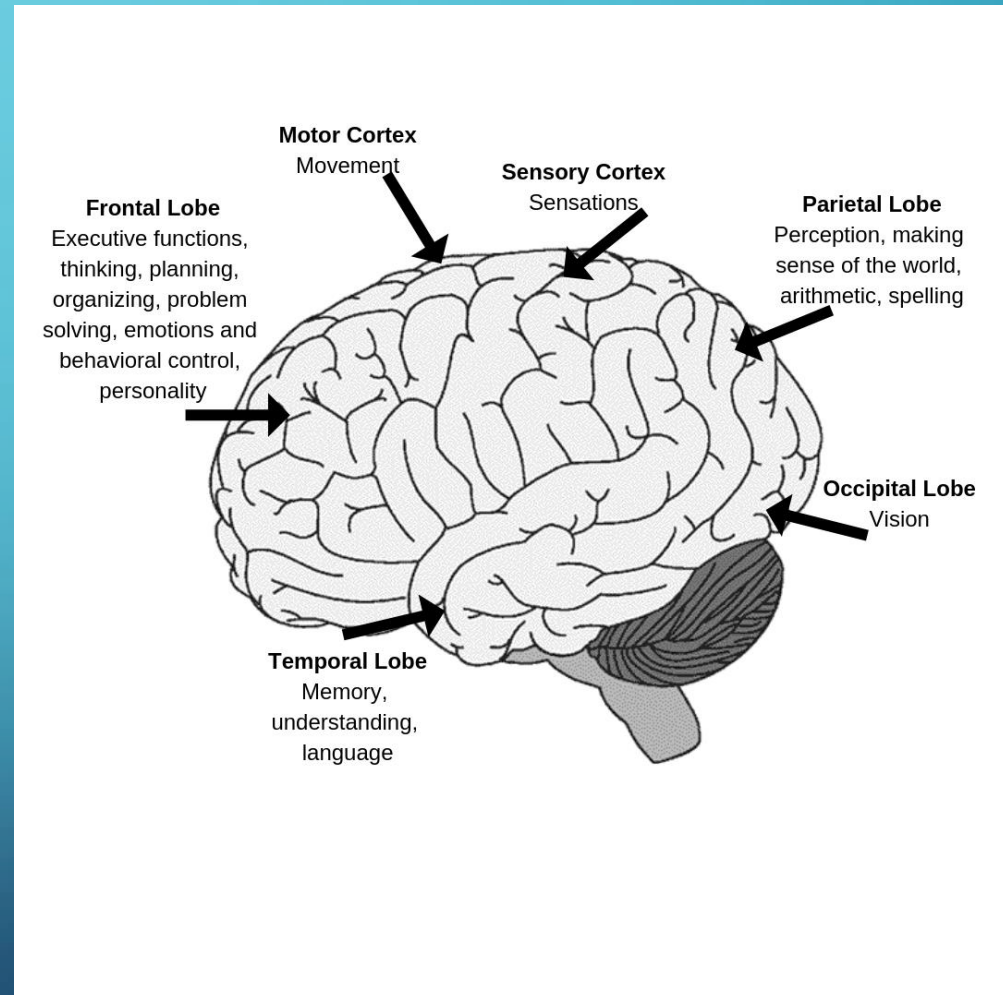
# DORSOLATERAL PREFRONTAL CORTEX (DLPFC)

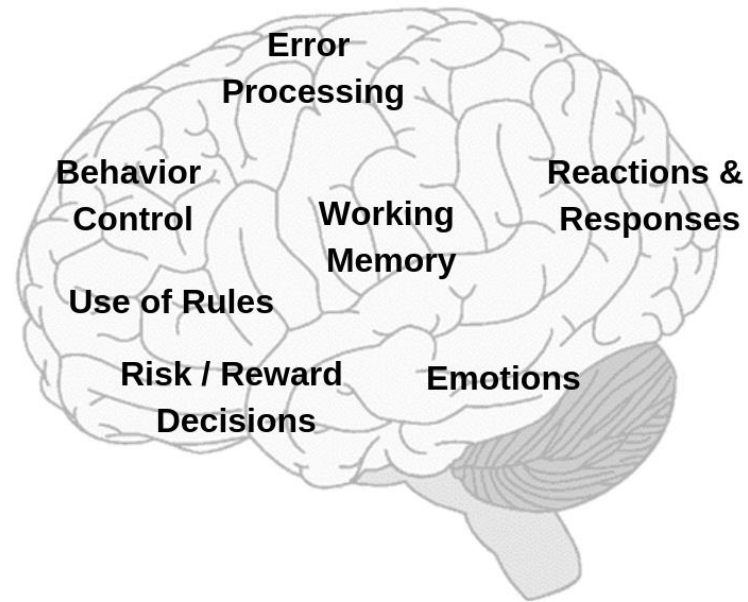
Connects to many other parts of the brain (orbitofrontal cortex, thalamus, basal ganglia, hippocampus, neocortex, dorsal pathway – which affects interactions with stimuli

**Executive functions – working memory, cognitive flexibility, planning, inhibition, attention, abstract reasoning, as well as motor planning, organization and emotional regulation.**

**DLPFC is not exclusively responsible for the executive functions. Complex mental activity requires the additional cortical, subcortical and brain stem connects with which the DLPFC is involved.**

**Note: The Prefrontal Lobe continues to develop into the mid-20's**





Adapted from [www.understood.org](http://www.understood.org) Executive Function video – Sylvia Bunge, Ph.D.  
University of California at Berkley

# TYPICAL DEVELOPMENT OF EXECUTIVE FUNCTION SKILLS

## AGES 3-4

- Complete one-step errands
- Clean and put items away with minimal assistance
- Perform simple chores and self-care tasks with reminders and physical assistance if needed; clear dishes from table, brush teeth, get dressed
- Inhibit unsafe or inappropriate behaviors; don't touch a hot stove; don't run into the street

## AGES 5-7

- Complete 2-3 step errands
- Tidy bedroom or playroom independently
- Initiate and perform simple chores and self-help tasks, but may need reminders; making the bed
- Bring papers to and from school
- Complete homework assignments (20-minutes maximum). Decide how to spend their money
- Inhibit behaviors; follow safety rules, use appropriate language (e.g. not swearing or using potty talk when not appropriate), raise hand before speaking in class, and keep hands to self

From [www.efpractice.com](http://www.efpractice.com) – Sarah Ward, CCC-SLP \*Adapted from: Dawson, P. and Guar, R. *Executive Skills in Children and Adolescents*, New York: The Guilford, 2004

# TYPICAL DEVELOPMENT OF EXECUTIVE FUNCTION SKILLS

## AGES 8-11

- Run errands, including those involving a time delay, such as remembering to bring something home from school without reminders
- Perform chores that take 10-30 minutes: setting the table, dusting
- Bring books, papers, assignments to and from school
- Keep track of belongings when away from home
- Complete the majority of homework assignments without assistance (1 hour minimum)
- Plan simple school projects such as book reports: select book, read book, write report
- Remember changes in daily schedule including different after school activities
- Save money for desired objects and plan how to earn money
- Inhibit / Self-regulate behaviors; maintain composure when teacher is out of the classroom; inhibit temper tantrums and bad manners

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# TYPICAL DEVELOPMENT OF EXECUTIVE FUNCTION SKILLS

## AGES 12-14

- Help out with chores around the house, including both daily responsibilities and occasional tasks that may take 60-90 minutes to complete: emptying dishwasher, raking leaves, etc.
- Able to safely babysit younger siblings
- Appropriately use a system for organizing school work
- Independently follow complex school schedule involving multiple transitions with teachers and classrooms
- Plan and carry out long-term projects including tasks to be accomplished and a reasonable timeline to follow
- Plan time effectively including after school activities, homework, family responsibilities
- Inhibit rule breaking in the absence of visible authority

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# TYPICAL DEVELOPMENT OF EXECUTIVE FUNCTION SKILLS

## HIGH SCHOOL

- Manage schoolwork effectively on a day-to-day basis including completing and handing in assignments on time, studying for tests and creating and following timelines for long-term projects
- Establish and refine a long-term goal and make plans for meeting that goal; collegiate or other vocational goals
- Independently organize leisure time activities including obtaining employment or pursuing recreational activities during the summer
- Avoid reckless or risky behaviors (e.g. use of illegal substances, sexual acting out or vandalism)

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# AREAS IMPACTED BY EF DEFICITS: SOCIAL-EMOTIONAL, BEHAVIOR

- Self monitoring (awareness of behavior and how it affects others)
- Transitions / changes to routine
- Overwhelmed / overstimulated in larger groups
- Problem solving
- Emotional regulation
- Overreacts to small problems
- Lack of flexibility
- Gets “stuck” in disappointment / anger
- Outburst for little reason
- Appear unmotivated
- Peer interactions

# AREAS IMPACTED BY EF DEFICITS: LANGUAGE AND LEARNING

- Time management
- Following directions
- Disorganization
- Difficulty following routines
- Last to start / last to finish
- Cause / effect
- Learn from past mistakes
- Overwhelmed with academic work
- Unprepared for class
- Scattered conversations
- Short attention span

# AREAS IMPACTED BY EF DEFICITS: ACADEMICS

- Decoding (working memory)
- Comprehension (working memory)
- Multiple meaning words
- Idioms and generalizations
- Brainstorming
- Identifying mistakes
- Skip over directions
- Miss math signs
- Only one approach to problem solving
- Not recognizing multiple representations of same material
- Multi-step problems