

# Executive Functioning

Understanding executive functioning & strategies to help support students' EF skills.

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# What are Executive Functions (EF)?

Executive functions involve everything that you do every day to manage your own behavior (self-management).



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# Development of EF

Progress in executive functioning is developmental and develops gradually at different rates for different people.

Executive functioning skills start forming at 2 years and are fully-formed around 30 years.



# Areas of Executive Functions

- ☐ Organization
- ☐ Planning/Prioritizing
- ☐ Task Initiation/ Task Completion
- ☐ Working Memory
- ☐ Self-Monitoring/Self-Checking
- ☐ Flexibility/Shifting
- ☐ Emotional Control/ Self-Regulation
- ☐ Impulse Control/ Inhibition



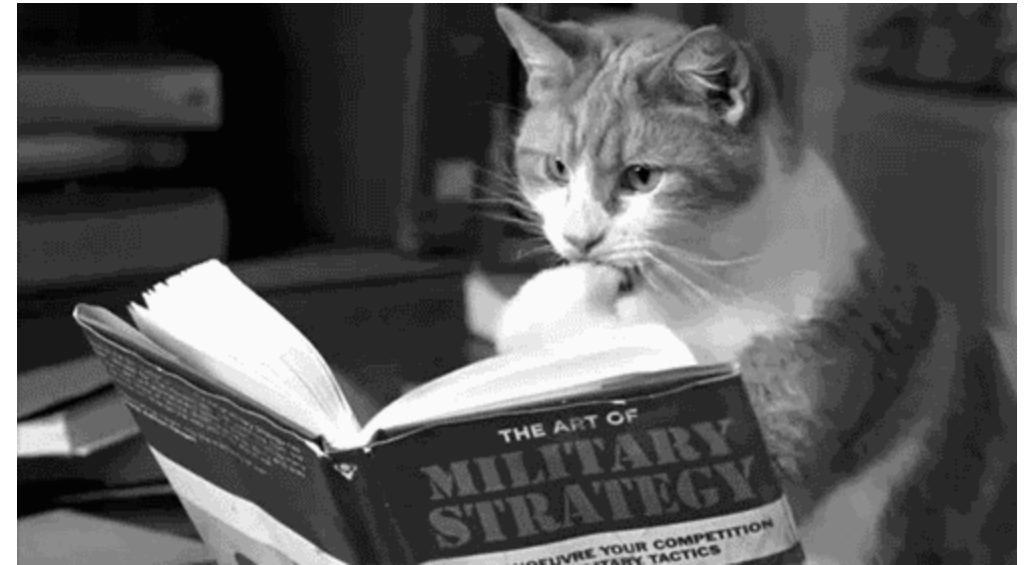
# Organization

- ❑ The ability to keep track of information or materials.
- ❑ Tied to planning.
- ❑ Tied to setting priorities and task initiation.
- ❑ Creating and keeping deadlines.
- ❑ Making schedules and appointments.
- ❑ May understand the value of organization but are unable to learn how to keep track of things.
- ❑ Organization skills look different for different individuals.



# Planning/Prioritizing

- ❑ Planning/Prioritizing the ability to create steps to reach a goal
- ❑ Prioritizing which tasks should be done immediately or which can wait
- ❑ Individuals who have difficulty planning and setting priorities are easily overwhelmed by complicated, multi-part tasks.
- ❑ Struggle to impose structure and order on ideas.
- ❑ They tend to underestimate a project's complexity and time requirements.



# Task Initiation/ Task Completion



- ☐ The ability to recognize when it is time to get started on something and begin without procrastinating
- ☐ Put off projects until the last minute.
- ☐ They're sometimes seen as lazy or unmotivated;
- ☐ May procrastinate because they really don't know how to start.
- ☐ Difficulty beginning a task, maintaining a task, generating ideas, responses
- ☐ Difficulty problem solving
- ☐ So overwhelmed=doing nothing at all.



# Working Memory

- ❑ The ability to **hold information** in mind, *remember* it, *manipulate* it and *use it* to complete a task.
- ❑ Working memory or **short-term memory** is like a temporary sticky note in our brain. It holds new information in place so the brain can work with it briefly and perhaps connect it with other information

## Deficits:

- ❑ Unable to remember and apply crucial information in order to move to the next step of a task.
- ❑ Multi-step direction or tasks are difficult.
- ❑ They falter when a task requires that they remember a series of directions, generate ideas in response to the directions and then express their ideas.
- ❑ Information just doesn't "stick" for them.





# Working Memory



# Self-Monitoring



- ❑ Self -Monitoring the ability to monitor and evaluate your own performance
- ❑ People use self-monitoring to help with all kinds of activities, from boiling an egg to solving a math problem.

Low self-monitoring:

- ❑ May not notice that they're not following directions until someone points this out.
- ❑ Individuals with weak self-monitoring skills can benefit from using checklists and other supports for learning.



# Flexibility- Shifting



- ❑ The ability to move freely from one situation, activity, aspect, problem to another as circumstances demand.
- ❑ The ability to change strategies or revise plans when conditions change
- Inflexibility:
  - ❑ Does not react well to changes in plan or routines.
  - ❑ Does not react well or takes a while to warm up to new situations.
  - ❑ Wants things done in a specific way and becomes upset if they are changed.
  - ❑ Perseverates on topics and activities.
  - ❑ Has difficulty interacting in unfamiliar social situations.
  - ❑ Does not want to try new things.
  - ❑ Has particularly limited varieties in food or toy preferences.
  - ❑ Dictates to others how they are "supposed" to do things.

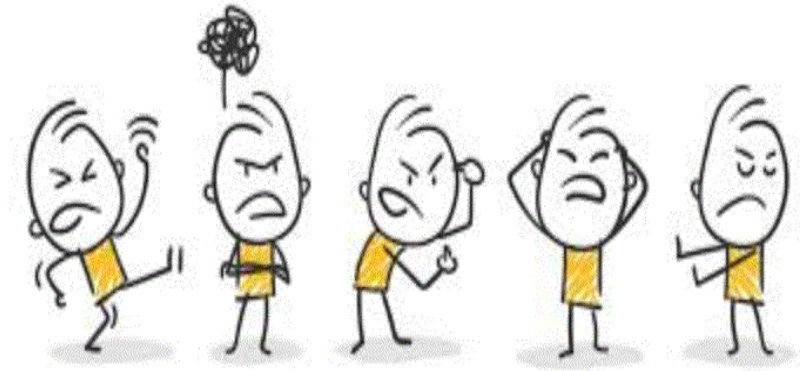
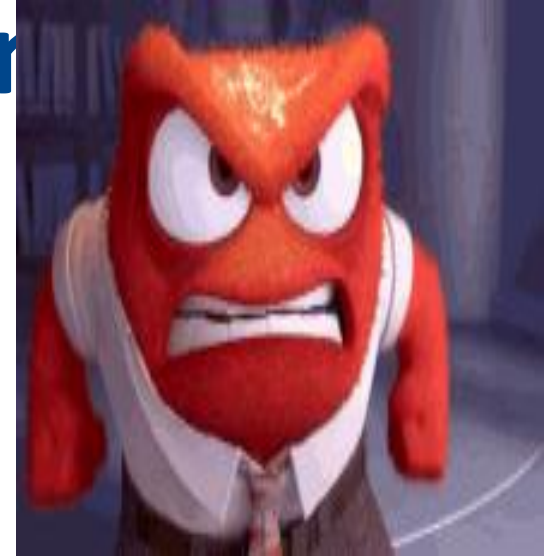


# Emotional Control/Self-Regulation

The ability to behave effectively and adaptively, even when engaged in situations that are disappointing, annoying, frustrating, stressful, anxiety-provoking and so on.

Low Emotional Control:

- ☐ They have trouble accepting constructive criticism.
- ☐ Can't keep eyes on the goal when unexpected things happen.
- ☐ They are quick to call the situation as unfair.
- ☐ They overreact to losing a game or being called in in class.
- ☐ They have difficulty sticking with school- work when distressed.
- ☐ Tends to overreact to situations when compared to same-age peers.
- ☐ Remains upset about a situation for longer than same-age peers.
- ☐ Is short tempered and has emotional outbursts.
- ☐ Has mood swings
- ☐ Reacts to small problems as though they are major problems.





# Impulse Control/Inhibit



Impulse Control the ability to stop and think before acting. To inhibit, resist, or not act on impulse.

Low Impulse Control:

- ❑ They often say or do things without using a cushion of time to reflect.
- ❑ NO FILTER
- ❑ Do whatever without considering their obligations or commitments.
- ❑ Often speed through schoolwork, sacrificing accuracy and completeness along the way.



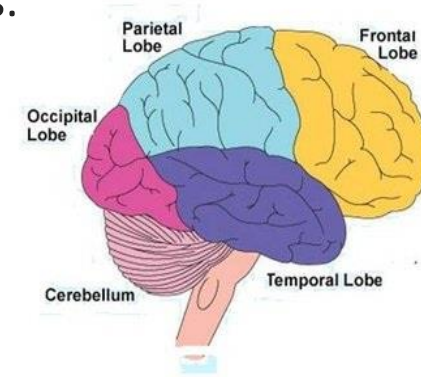
# Factors affecting quality of EF

- ❑ Children who have learning and attention issues complicates the development of EF.

For example, approximately, 90% of child with **ADHD** and **Dyslexia** struggle with executive functioning skills. Accommodations are required in these situations.

- ❑ **Lack of sleep**
- ❑ **Medications**
- ❑ **Traumatic brain injury, other neurological disorders.**
- ❑ **History of trauma**
- ❑ **Stress**
- ❑ **Differences in brain development.** Researchers have looked at executive function in the brain. They've found that certain areas of the brain develop more slowly in people who struggle with executive skills. These areas are responsible for working memory and emotional control.
- ❑ **Differences in Brain Chemicals.** The brains of people with executive functioning issues may not use norepinephrine effectively. Norepinephrine and dopamine are the main chemicals that help the brain maintain focus and [control impulses](#).
- ❑ **Genes and heredity.** People who have trouble with executive function often have family members who do, too.

## Executive Functioning



Frontal lobe is responsible for much of the executive functioning of the brain.

These functions include:

- Attention
- Working memory
- Planning, organizing
- Forethought
- Impulse control



# Diagnosis and Treating EF

There's **no diagnosis called executive function disorder**. But there are **specific tests** that look at a wide range of executive skills. These skills include:

- ☐ Attention
- ☐ Inhibitory control
- ☐ Working memory
- ☐ Organization and planning
- ☐ Set shifting (the ability to shift from one task to another)
- ☐ Word and idea generation
- ☐ Testing should be done as part of a full evaluation that looks at many areas of **learning and thinking**. These evaluations, which schools do for free, are often done by psychologists. (Resource :Understand.org)



# SCENARIOS

EXECUTIVE FUNCTIONING AROUND THE CLOCK

<https://www.understood.org/~media/040bfb1894284d019bf78ac01a5f1513.pdf>

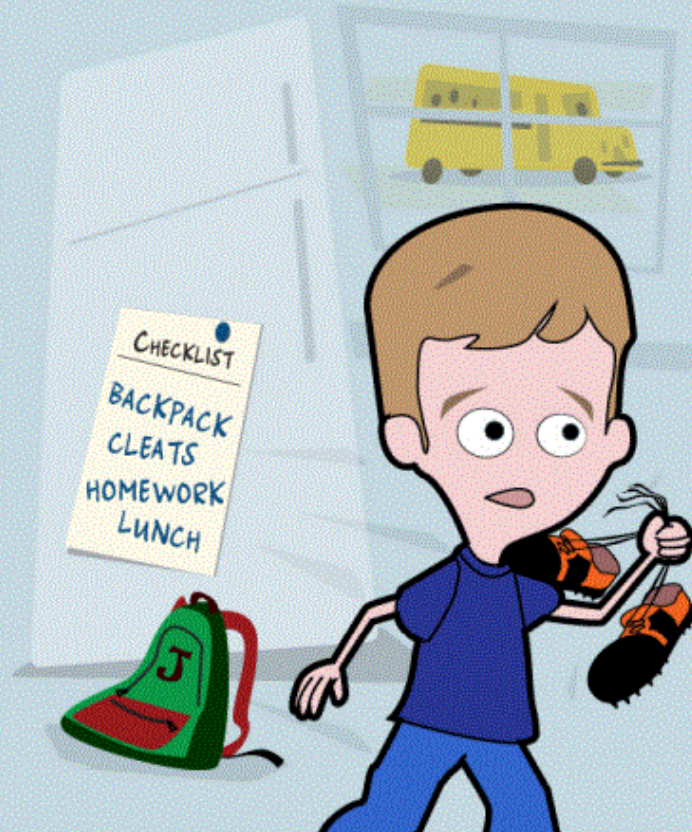




# EXECUTIVE FUNCTION AROUND THE CLOCK



Meet Josh, a sixth grader who struggles with executive function.  
This is a day in his life.



**7 A.M.**

*Argh!* Josh knows that he has forgotten something. Ah, that's it—his cleats for today's game. He sprints back inside the house to get them ... and leaves his backpack in the kitchen. He walks right past the checklist his mom made to help him remember what he needs for school. But it's too late: The bus is here and about to pull away! He's going to miss it again.

**EF Area: ORGANIZATION**





11 A.M.

Josh's English teacher stands at the blackboard and asks: "Tell me how last night's reading relates to the words on the board." Every hand in the class goes up...except for Josh's. His heart sinks thinking about all the steps answering this question takes.



I don't know...  
I wasn't thinking about those  
words when I read last night.  
I'm so overwhelmed.

?

EF Area: WORKING MEMORY





Last night I was playing my video games and it was AMAZING!!! There were like eighty-five CRAZY MONSTERS and I GOT ALL OF THEM, POW-POW-POW-POW-POW-POW!!!

Sooooo weird.

He never lets anyone else talk!



1 P.M.

It's the best part of the school day...lunch! At a table with his friends, Josh shouts at a mile a minute and jumps in and out of his seat. He doesn't even notice that the lunch monitor is glaring at him and that his friends look annoyed.

EF Area: SELF-MONITORING, IMPULSE CONTROL

3 P.M.

Time for soccer! A teammate kicks the ball toward Josh. He knows that in soccer, you do one thing—you kick that ball as hard as you can! But where? He can't exactly remember, so he just kicks. *Wham! Uh-oh.* He's sent the ball right into his own team's net. Anger brews on his teammates' faces as Josh's heart sinks yet again.



EF Area: FLEXIBILITY, WORKING MEMORY



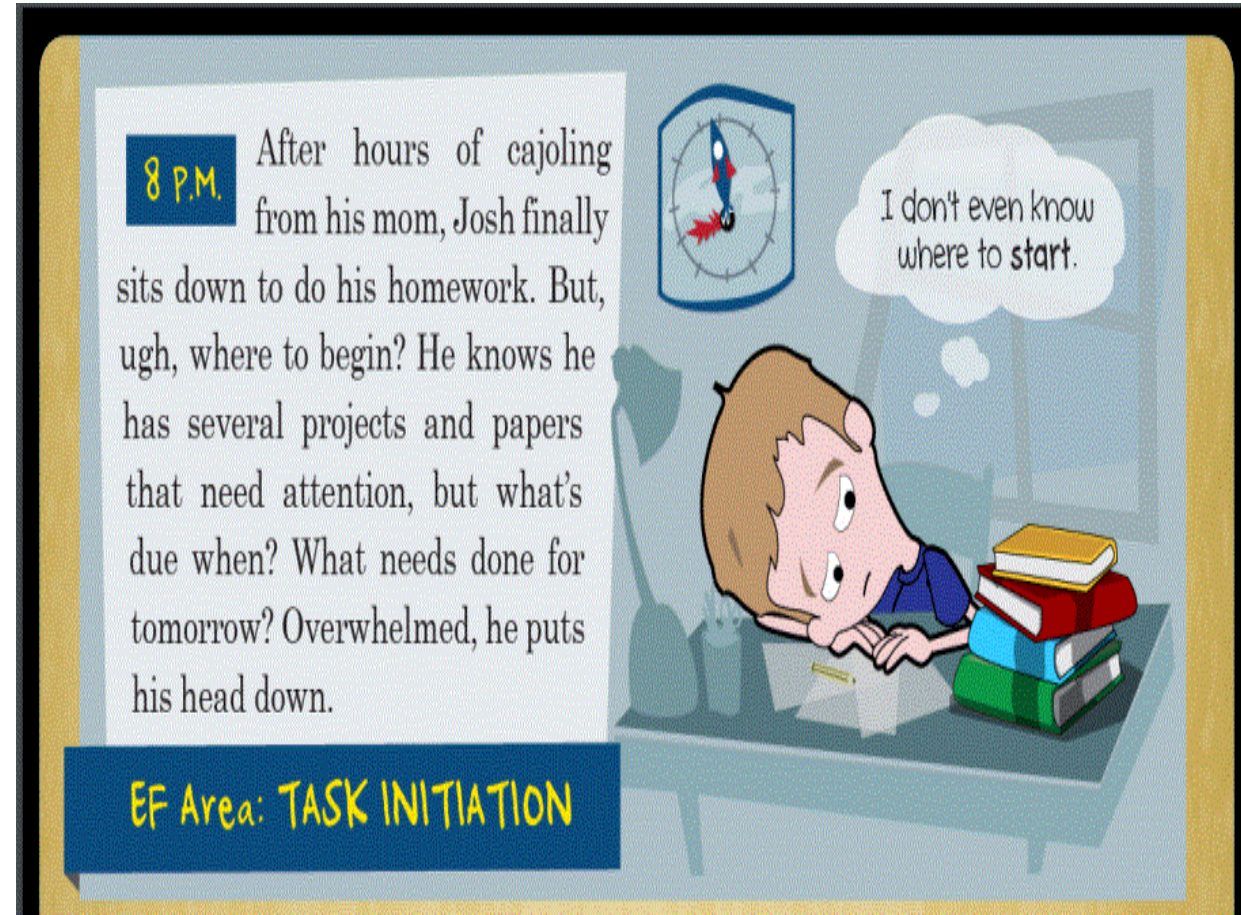




A cartoon illustration of a dining room. A girl with red pigtails and a blue dress is pointing her finger at a boy with brown hair and a blue shirt who is standing at a table. The table is set with plates, cups, and napkins. A clock on the wall shows 6:00. A speech bubble from the girl says, "Moooo-ooooom. Josh didn't put the cups on the table AGAIN!".

**6 P.M.** It is time for dinner — but first, Josh has to set the table. *Hmm.* Josh scratches his head and tries to remember exactly what goes at each place setting. He thinks he has got it right this time, but his little sister reminds him that he doesn't. *How dare she!* He blows up screaming at her.

**EF Area: ORGANIZATION, EMOTIONAL CONTROL**



A cartoon illustration of a boy with brown hair and a blue shirt sitting at a desk, looking overwhelmed. He is surrounded by stacks of books and papers. A clock on the wall shows 8:00. A speech bubble from the boy says, "I don't even know where to start."

**8 P.M.** After hours of cajoling from his mom, Josh finally sits down to do his homework. But, ugh, where to begin? He knows he has several projects and papers that need attention, but what's due when? What needs done for tomorrow? Overwhelmed, he puts his head down.

**EF Area: TASK INITIATION**





**12 A.M.** Delays and procrastination mean that Josh is burning the midnight oil. He is exhausted, but his history paper is due tomorrow. But he just can't figure out a structure for his paper and the steps he needs to take to get it done.

**EF Area: PLANNING & SETTING PRIORITIES**

**3 A.M.** Finally, the paper is done and Josh can catch a few hours of Z's. But he can't seem to drift off to sleep—he's worried that he didn't do the paper right. And then there's the problem he'll discover tomorrow morning: His disorganization has gotten the best of him, and he forgot to put the finished paper in his backpack.



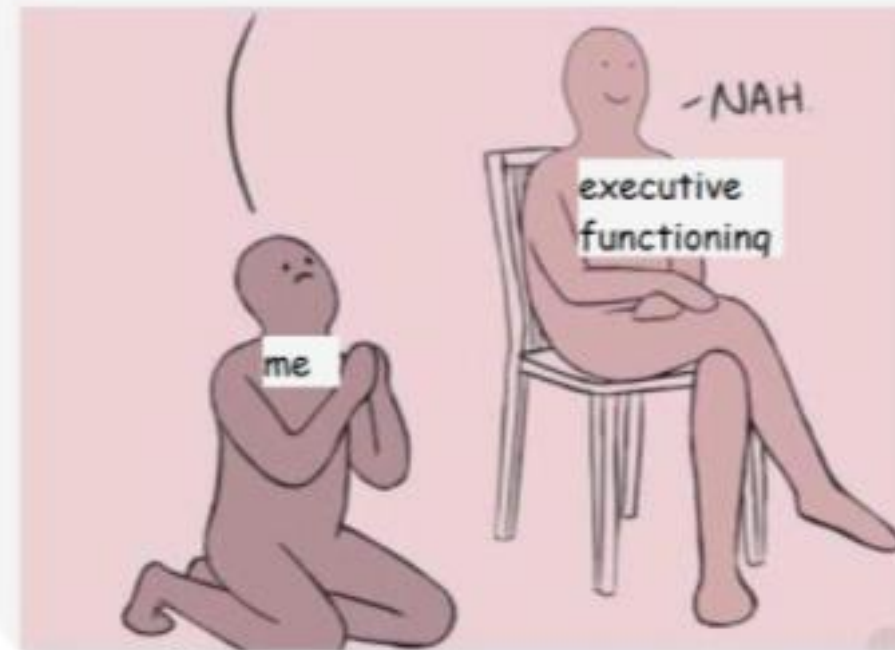
**EF Area: SELF MONITORING, ORGANIZATION**





# Strategies to Support Executive Functioning

"If you start your work now you'll have plenty of time and you won't be stressing out at the last minute"



# Use your EF skills! Areas of EF include...



ORGANIZATION



PLANNING/PRIORITIZING



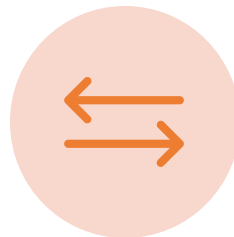
TASK INITIATION/ TASK  
COMPLETION



WORKING MEMORY



SELF-MONITORING/SELF-  
CHECKING



FLEXIBILITY/SHIFTING



EMOTIONAL CONTROL/  
SELF-REGULATION



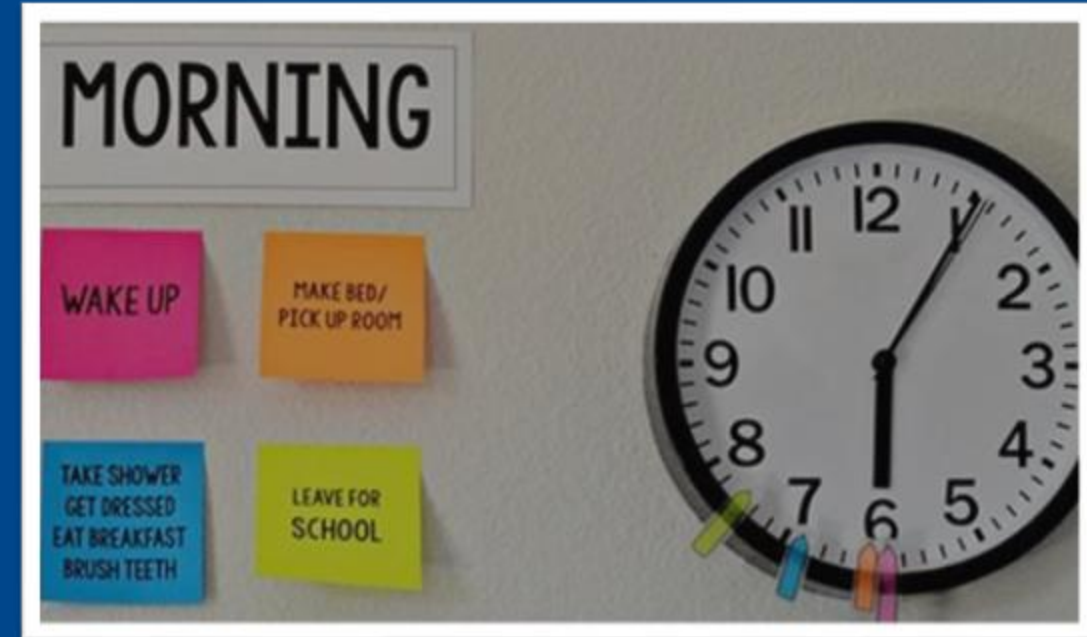
IMPULSE CONTROL/  
INHIBITION



# Organization and Planning

## Visuals

- Labels
- Color Coding
- Visual Reminders
- Placeholders





# Organization and Planning

## Schedules/Routine

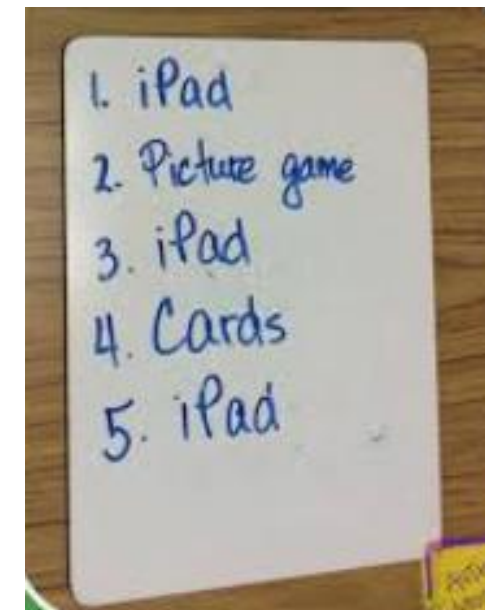
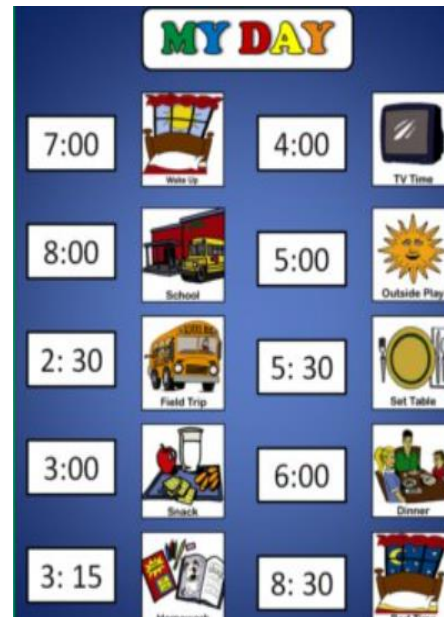
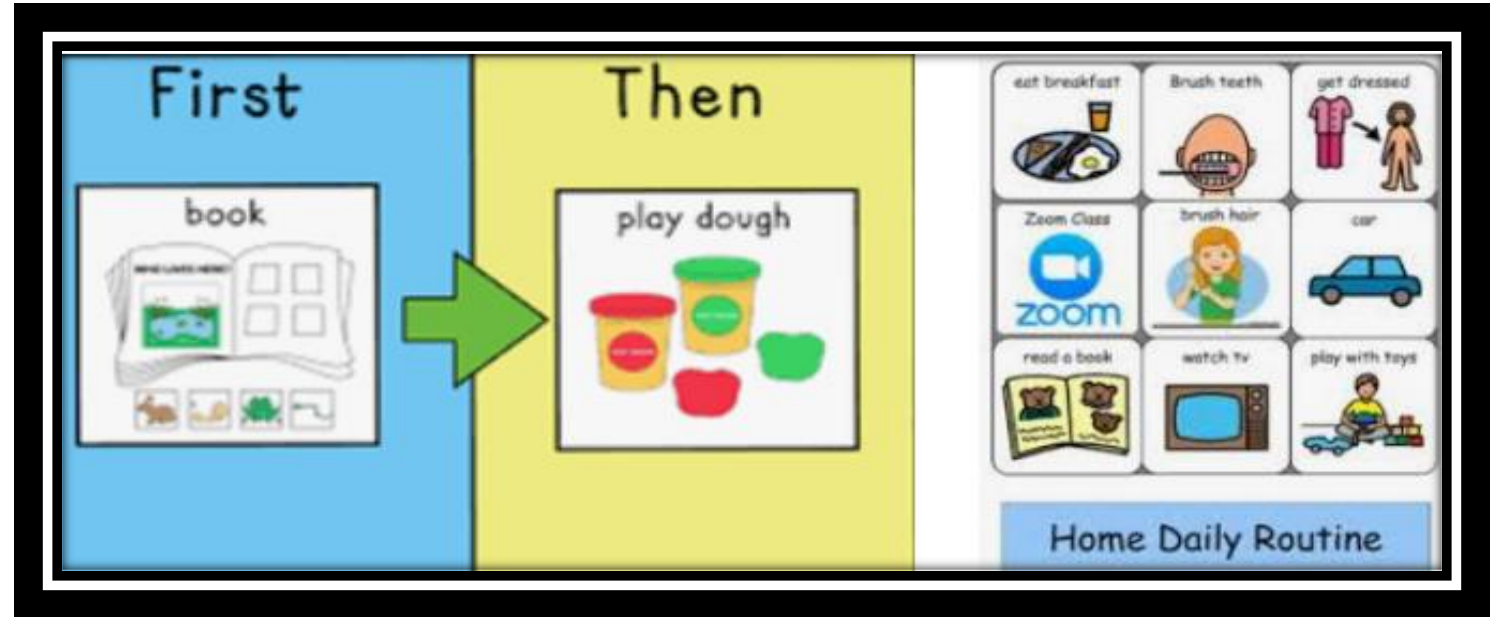
- Keep a semi-consistent routine
- Practice/Plan for changes
- Use visual schedules, scheduling applications and planners



# Visual Schedules Can Look Like....

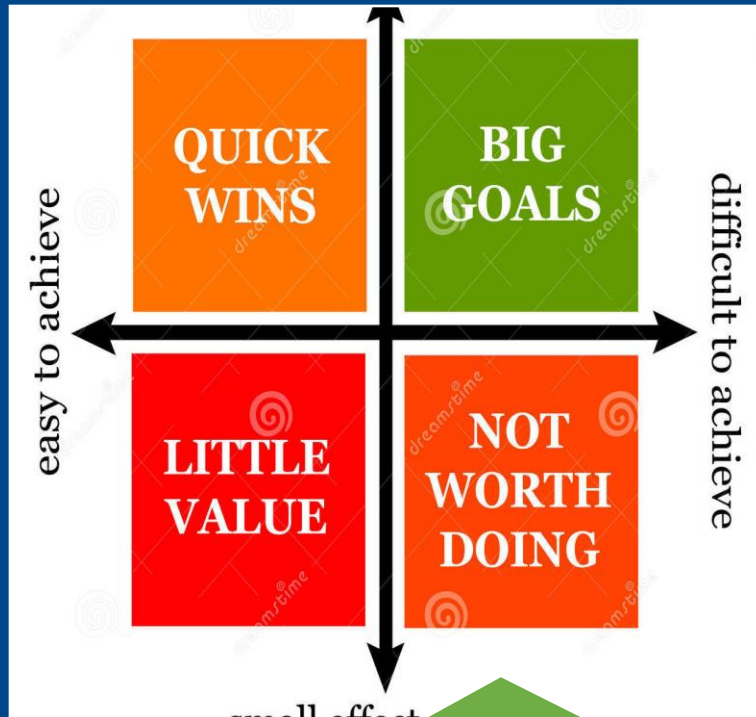
© Jessica McHale Photography

Before 9:00am	Wake up	Eat breakfast, make your bed, get dressed, put PJ's in laundry
9:00-10:00	Morning walk	Family walk with the dog Yoga if it's raining
10:00-11:00	Academic time	NO ELECTRONICS Sudoku books, flash cards, study guide, Journal
11:00-12:00	Creative time	Legos, magnatiles, drawing, crafting, play music, cook or bake, etc
12:00	Lunch	
12:30PM	Chore time	A - wipe all kitchen table and chairs. B - wipe all door handles, light switches, and desk tops C - Wipe both bathrooms - sinks and toilets
1:00-2:30	Quiet time	Reading, puzzles, nap
2:30-4:00	Academic time	ELECTRONICS OK Ipad games, Prodigy, Educational show
4:00-5:00	Afternoon fresh air	Bikes, Walk the dog, play outside
5:00-6:00	Dinner	
6:00-8:00	Free TV time	Kid showers x3
8:00	Bedtime	All kids
9:00PM	Bedtime	All kids who follow the daily schedule & don't fight





# Planning and Prioritizing



Discuss priorities. Why are they important? How do they affect the day? Make sure they are achievable.

	Water on
	Hands wet
	Rub hands with soap
	Rub hands Twinkle Star
	Rinse
	Water off

Review steps of a task. What must be completed first before moving on to the next step?



Rank tasks together. Make a "to do" list & have student # tasks in order of importance/choose a few that are most important.

# Starting and Completing Tasks

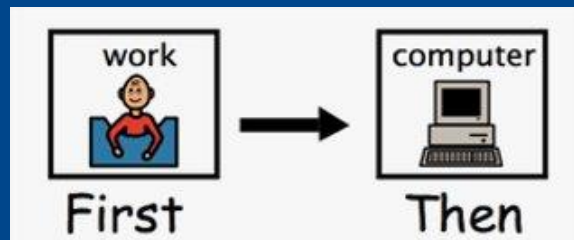
Break large tasks into smaller one and use a step by step visual.

Use First/Then Language

Use timers, countdowns or other visual support to show when a task or activity should be completed

Use work momentum (i.e. Behavior Momentum) to help a student get a confident start!

1. get bowl and fork	
2. add 2/3 cup water	
3. add macaroni	
4. microwave for 3:30	
5. add cheese sauce	
6. mix with spoon	
7. eat	



# Behavior Momentum

- Start with activities or tasks that are easier for the student and then present more difficult tasks

## STEP 1

Give an instruction that your child is highly likely to follow, like "touch your nose".  
Quickly provide praise.

## STEP 2

Quickly give a second instruction that your child is highly likely to follow, like "jump on one foot".  
Quickly provide praise..

## BEHAVIORAL MOMENTUM

**A STRATEGY TO HELP CHILDREN LEARN TO COOPERATE WITH ADULT REQUESTS. JUST LIKE THE ROCK ROLLING DOWN A HILL, GET A CHILD HEADING IN THE RIGHT DIRECTION, behaviorally speaking, AND ITS UNLIKELY THEY'LL REVERSE THEMSELVES!**

## STEP 3




Give a third instruction that your child is highly likely to follow, like "give me a high-five".  
Quickly provide praise.

## STEP 4

Finish by quickly, giving the instruction that you want the child to follow, like "put your pjs in the laundry basket".  
Quickly let your child know what an awesome cooperater he is!



Ready!  
Do!  
Done!

 <b>READY</b>	 <b>DO</b>	<b>DONE</b> 
I need....	Steps I need to do....	Done looks like....

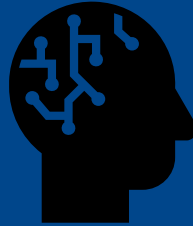


# Working Memory: POP QUIZ!

Are you  
ready?



# Working Memory



Ask students to repeat instructions, expectations, directions for clarification



Repeated practice and purposeful review

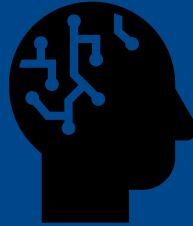


Stick to routines and specific procedures with visual aid





# Working Memory



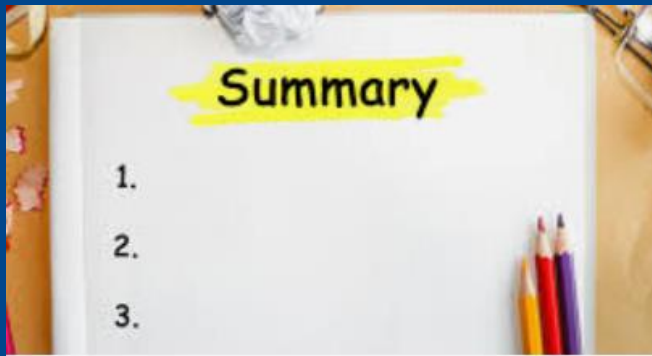
Pause, Paraphrase  
and Summarize.  
Draw it out.



Discuss and  
Highlight key  
words/ideas.



Get active!  
Physically engage  
with material. Games  
& songs work great  
for this!



MOVIE QUOTES	WORLD LITERATURE	CLASSIC TV	POETRY	THE PLANET EARTH	THE '80'S
\$200	\$200	\$200	\$200	\$200	\$200
\$400	\$400	\$400	\$400	\$400	\$400
\$600	\$600	\$600	\$600	\$600	\$600
\$800	\$800	\$800	\$800	\$800	\$800
\$1000	\$1000	\$1000	\$1000	\$1000	\$1000



# Self-Monitoring

## Self-monitoring

Goal setting

Journaling

Role-Play

## Self-assessment

Checklists

Communication  
Sheets

Reflective Journaling

2

I'm proud of myself  
when \_\_\_\_\_.

3

To be a friend you  
must \_\_\_\_\_.

DAILY LOG

MY DAY TODAY WAS

AMAZING GOOD SO-SO DIFFICULT

SERVICES/SPECIAL ACTIVITIES

THU FRI SAT SUN MON TUE WED

THINGS I DID  
WHEN I WAS  
HANGRY



# Self-Monitoring/Self-Checking Examples

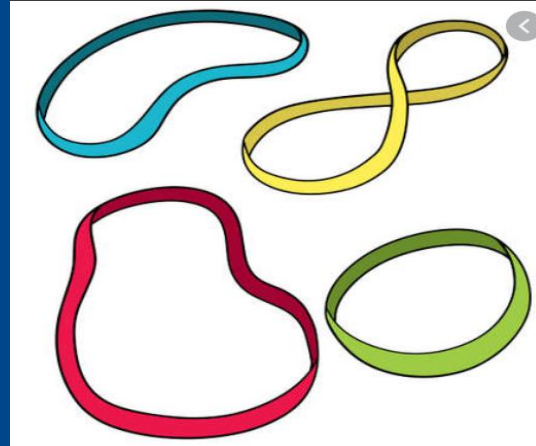


Bedtime Checklist			
	Put away toys and other things.		Shower, bathe, or wash up.
	Put finished homework in homework folder.		Dry off.
	Put homework folder in backpack.		Put on pajamas.
	Check calendar for other items to pack (library books, gym clothes, etc.).		Brush teeth.
	Check lunch menu to see if you need a packed lunch/snack.		Lay out clothes for tomorrow morning.
	Choose and lay out pajamas.		Use bathroom.
	Pick a bedtime story.		Double-check or set a wake-up alarm.



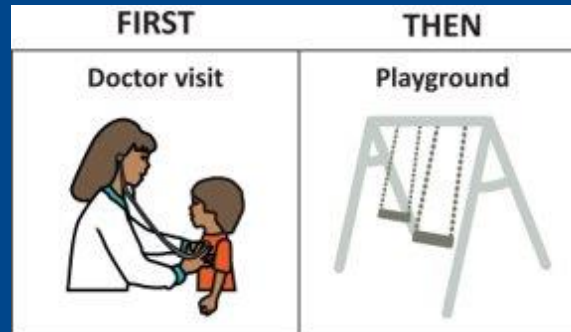
# Flexibility/Shifting

Have a semi-consistent routine but also practice changes



When possible, prepare students ahead of time for these changes and give specific and clear expectations

Provide positive reinforcement when a student adapts to a change



Provide student with choices when possible





**Table 8.1 Examples of Rigid Versus Flexible Behavior in Situations**

Situations	Rigid	Flexible
Mom drives a different route	Scream and cry; make mom upset with me	Let it be; take deep breaths; I can still get there
Change in schedule/routine	Refuse to participate; running late	Let it be; think of happy place; find another time to do the thing I wanted to do
How a game is played	Refuse to play the game; play alone	Compromise; get to use some of each of our ideas for rules
Friend wants to play a different game	Act mad; refuse to have fun	Compromise; get to play a little of both games; flip a coin to see whose game goes first
Lost a piece of a game	Refuse to play the game; have nothing to do; friends don't want to play with me	Back-up plan; use a piece from another game; still get to play and have fun
Forgot favorite sweater	Have to go home; refuse to participate	Back-up plan; borrow a sweater
Substitute teacher	Refuse to stay at school; have a tantrum in class	Back-up plan; get a moment to calm down in another room, and then go back to class
Friend comes over unexpectedly when about to leave to do something fun	Yell at friend for coming and send them away	Back-up plan; ask friend to join in what was planned for that afternoon



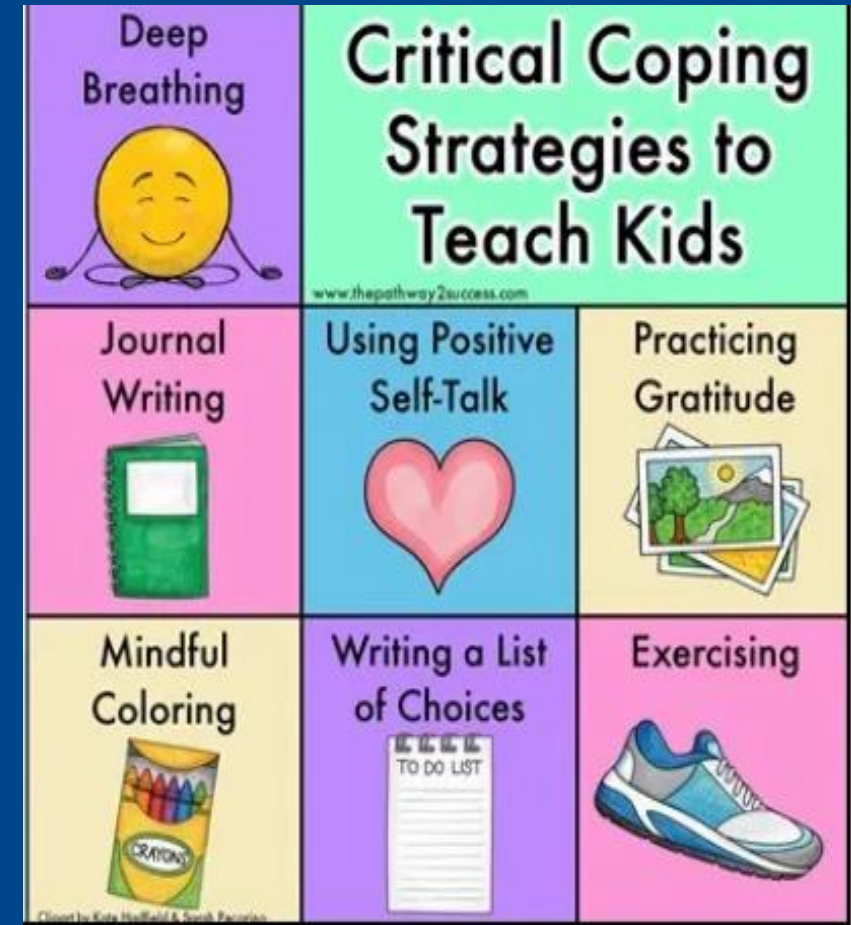
# Emotional Control/Self-Regulation

Functional Communication-what does that look like in the moment?




Teach/offer coping strategies


Keep a positive environment and be a good role model





# Emotional Control/Self-Regulation


## Monitor your students' attention during homework/chore


1. Math problems 1-3 

2. Brain Break 

3. Math problems 4-8 

4. Walk the dog 

5. Math problems 8-15 

6. Lunch 






- Allow for breaks every 10-15 minutes
- Quick yoga poses
- Quick brain break
- Break work into chunks
- Make a schedule
- Have dedicated work-space

Roll a Task: Brain Break

	20 Jumping Jacks 
	15 Sit-Ups 
	Hop on one foot 
	10 Push-Ups 
	Touch your toes (hold 15 seconds) 
	Run in place 

# Emotional Self-Regulation Strategies

- ❑ Wait for a good mood / teaching moment.
- ❑ Emotional levels chart- create a visual aid starting with Feeling good. Learner helps with deciding levels.
- ❑ Teaching emotion levels related to the situation  
Is it a big deal or not a big deal.
- ❑ Coping strategies: Provide hypothetical situations and role-play of coping strategies (e.g., positive self-talk, talking To a safe person, letting it go)
- ❑ Contrive opportunities to practice.
- ❑ Opportunities to practice in the natural environment.
- ❑ Positive reinforcement.

Emotional Level	I feel this way when...
 feeling good	
 a little upset	Should be here: I can't wear my favorite shirt.
 upset	I can't figure out an answer on my homework.
 very upset	I can't wear my favorite shirt. 







# Impulse Control

- Write out or draw plans
- Journaling/Self-reflection/Self-evaluations
- Use of visual reminders
- Set goals and remind student of them often
- Keep students accountable and follow through on consequences/rewards for behavior

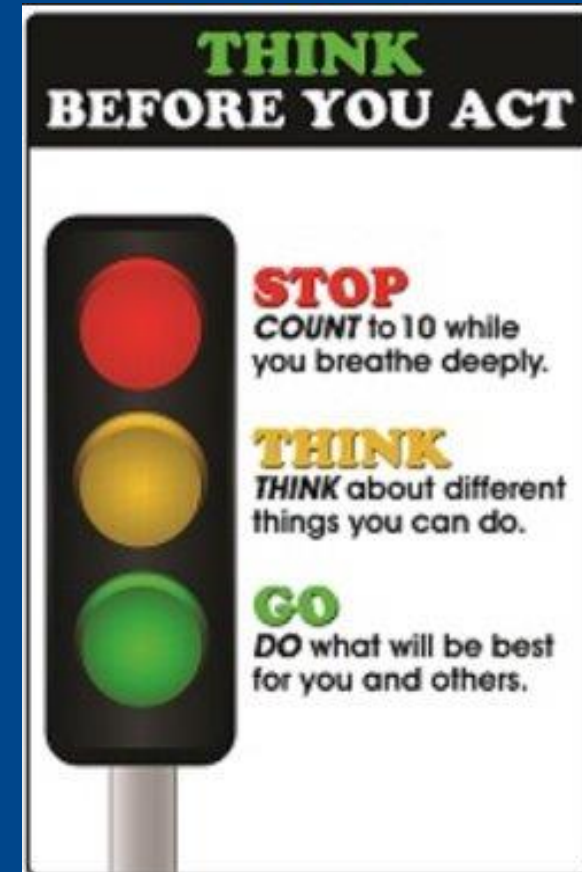


FIRST	THEN
Parent Series Virtual Training	Candy
	



# Impulse Control

Purposeful teaching/discussion of plans. Includes games, "Stop, Think, Do", journaling, etc.



# Behavior Support for Impulse control

STOP

When I see or feel red tape on my pencils or my watchband (or other reminders), I will STOP and

THINK

THINK 'Concentrate' or 'Control myself' or  
What will happen if I keep doing this? Then I will

DO

DO the following concentrating/behavioural things (chose which)  
stop fiddling, wriggling, rocking, talking, daydreaming, calling out, fighting

•

listen to or look at my teacher

•

get on with my work

•

tell my friends I will speak to them at lunch

•

go to another place in the yard to get away from trouble

If I forget my plan, my teacher could remind me. I'll change my reminders regularly  
to keep them novel until I remember myself.

# Asking for Help and Seeking Support

- Parent groups
- Help from educational team
- Home support services
- Seek help from professionals in the field
- Communicate with your DCBDD or FCBDD case manager or intake department



# Questions, Comments and Resources

- <https://fcbdd.org/>



- <https://www.dcbdd.org/>



Delaware County Board of  
Developmental Disabilities



- <https://www.nationwidechildrens.org/specialties/behavioral-health>







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THANK YOU

## References:

Najdowski, A.C. (2017). **Flexible and Focused: Teaching Executive Function Skills to Individuals with Autism and Attention Disorders**

## Websites:

[What is Executive Functioning](#)

[Executive Functioning 101](#)

[Executive Functioning at Different Ages](#)

Understood.org

## Resources:

[https://www.understood.org/en/school-learning/learning-at-home/games-skillbuilders/8-fun-games-that-can-improve-your-childs-executive-functioning-skills?\\_ul=1\\*2sd8kl\\*domain\\_userid\\*YW1wLVhNYWxWOWZrTU9nSEVFUIVTdS1mMVE](https://www.understood.org/en/school-learning/learning-at-home/games-skillbuilders/8-fun-games-that-can-improve-your-childs-executive-functioning-skills?_ul=1*2sd8kl*domain_userid*YW1wLVhNYWxWOWZrTU9nSEVFUIVTdS1mMVE)

<https://www.edutopia.org/article/how-teach-self-regulation>

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