

Dimensions of Attention:

Typical development/ When to be concerned

What about ADHD

What parents can do

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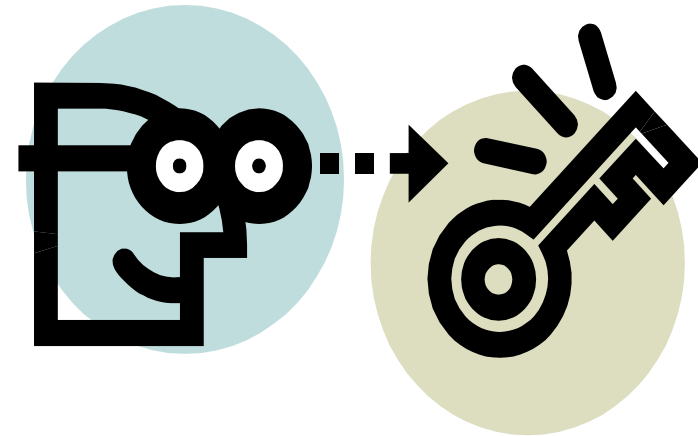
Developmental and Behavioral Pediatrician

Chesapeake Center- Bethesda

Tucker Medical- Singapore

Key Understandings

- No child is intentionally bad at their own development.
- Unexpected challenges in meeting typical life demands should be met with attempts to understand. These attempts not only illuminate challenges, they also define strengths.



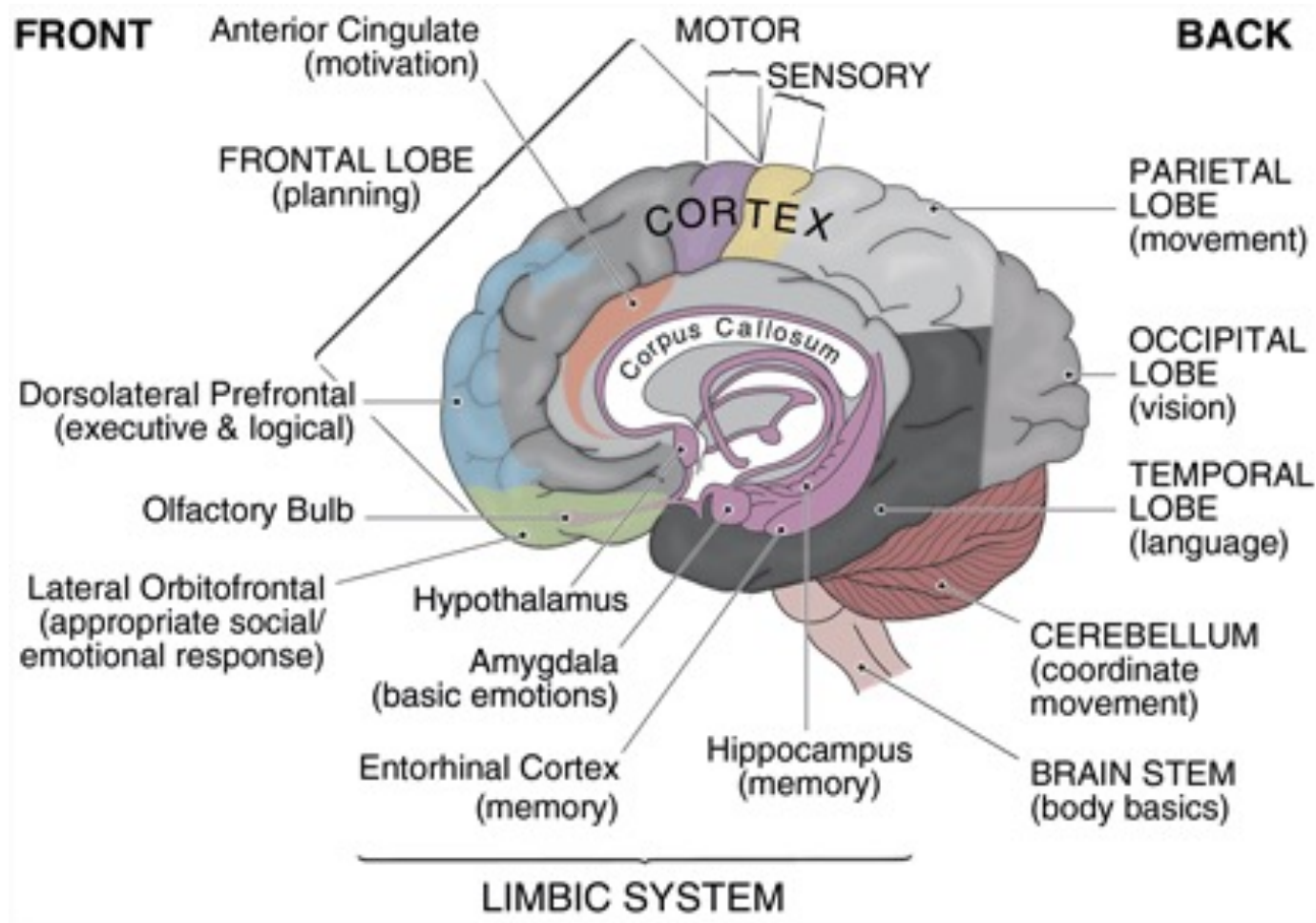
RED FLAG or RED HERRING



IS IT 'TYPICAL'

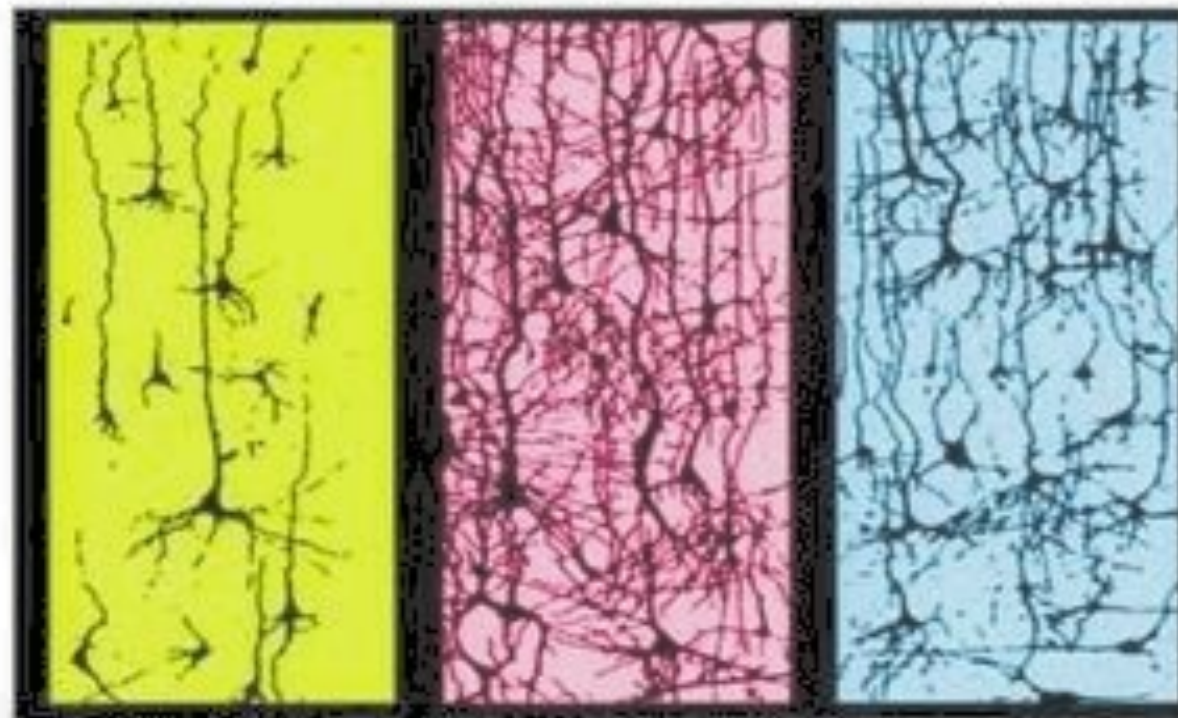
- **Variation**
- **Delay**
- **Deviation**

Some Neurology



Experience Shapes Brain Architecture by Over-Production Followed by Pruning

Center on the Developing Child  HARVARD UNIVERSITY



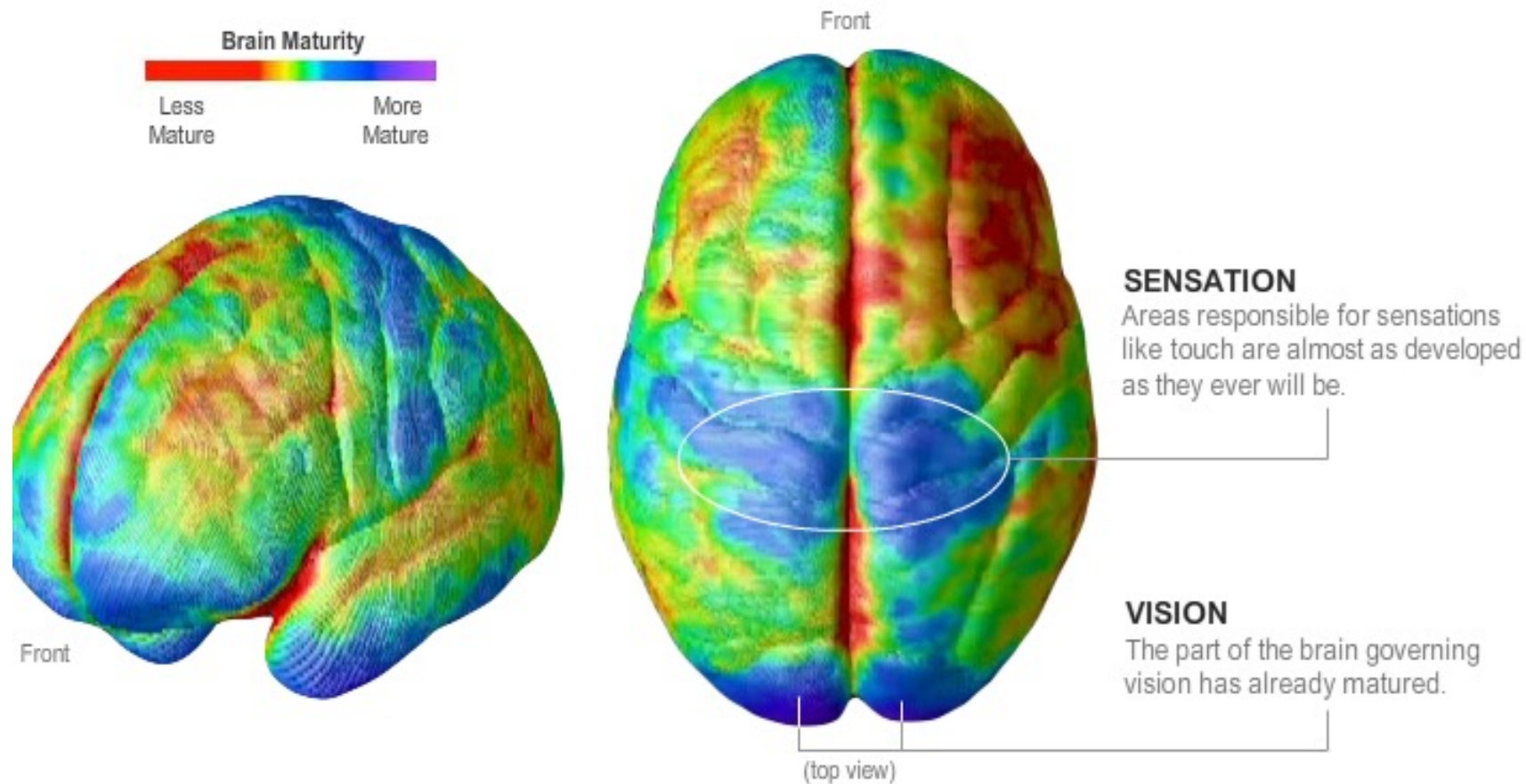
birth

6 years

14 years

Neural Connections

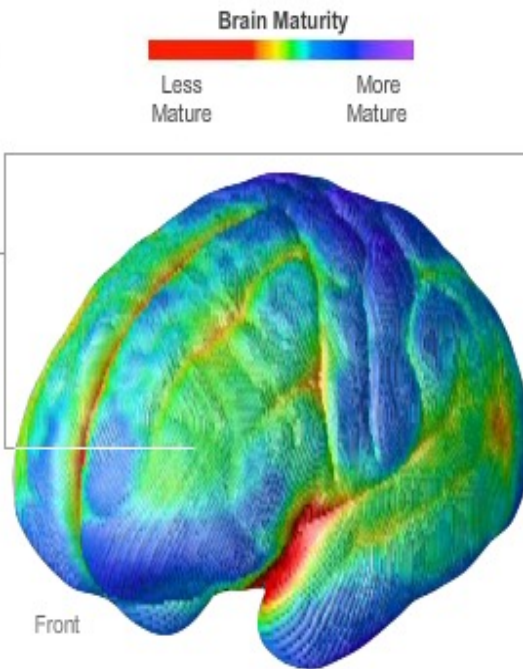
Source: Shonkoff, J. P. (2008) **



4 years old

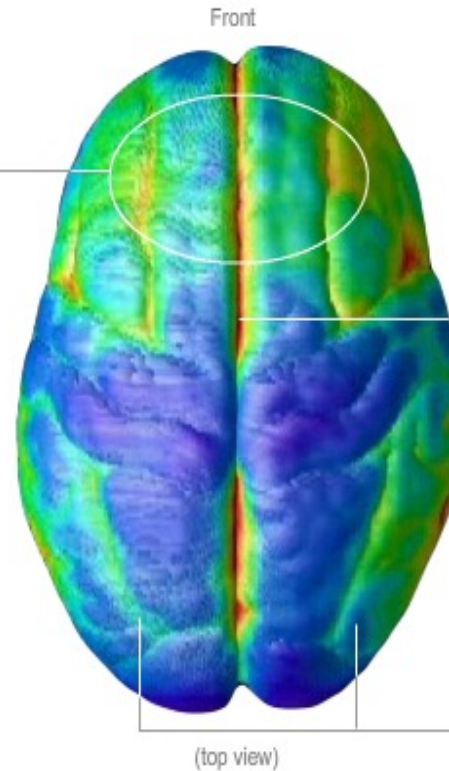
JUDGMENT

The prefrontal cortex is among the last areas to mature. Until it does, children lack the ability to adequately judge risk or make long-term plans. Ask kids at this age what they want to be when they grow up, and the answer is likely to change often.



EMOTION

Deep in the limbic system, a capacity for creating emotion increases. As yet, this capacity is unrestrained by the prefrontal cortex, which lags behind. That's why some teens can seem emotionally out of control.



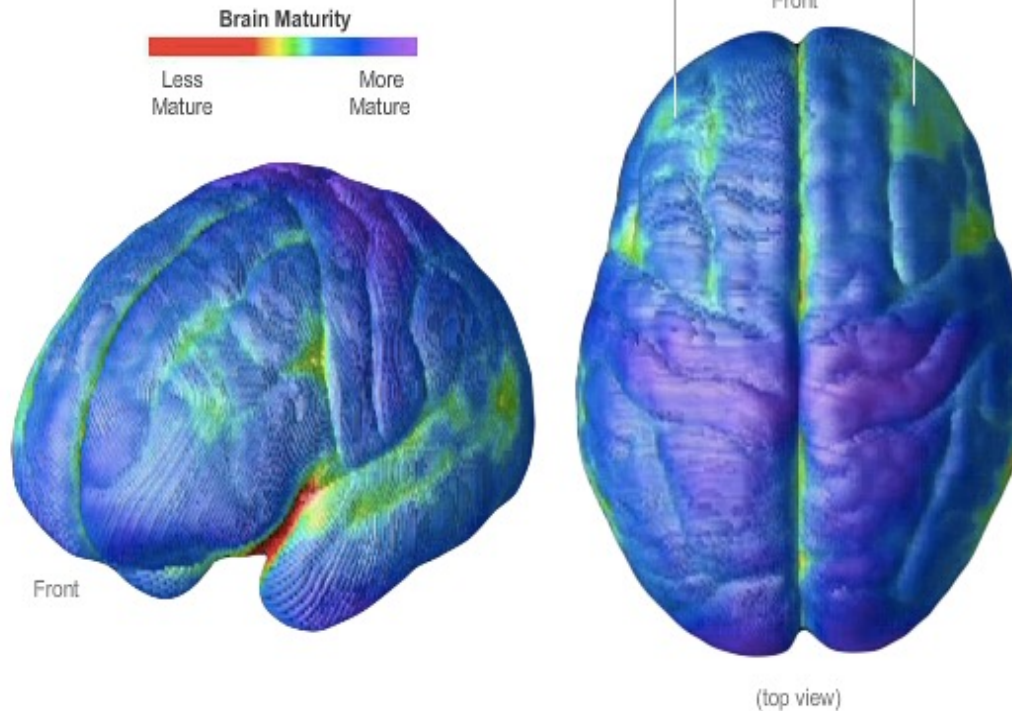
LOGIC

The parietal lobes are developing rapidly at this age, as shown here in blue. The child's intelligence and analytical abilities are expanding.

13 years old

EXECUTIVE FUNCTIONS

Although the brain appeared to be almost fully developed by the teen years, the deepening blue and purple areas here show that tremendous gains in emotional maturity, impulse control and decision-making continue to occur into early adulthood.

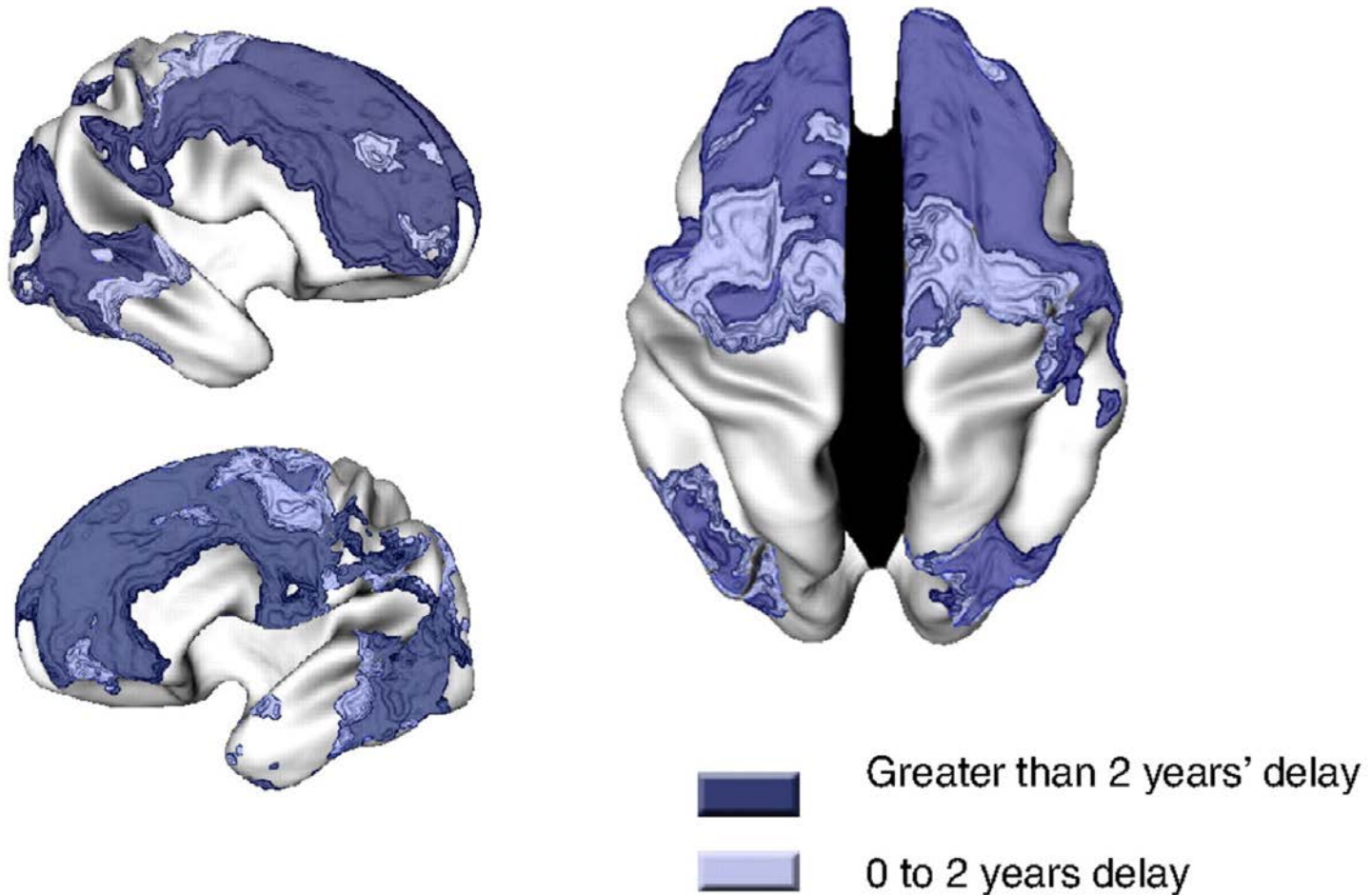


MATURATION

The 21-year-old brain is mostly mature, but the areas of green show that even at the threshold of legal adulthood, there is still room for increases in emotional maturity and decision-making skills, which will come in the next few years.

19 years old

Neuro-Biological Differences in ADHD

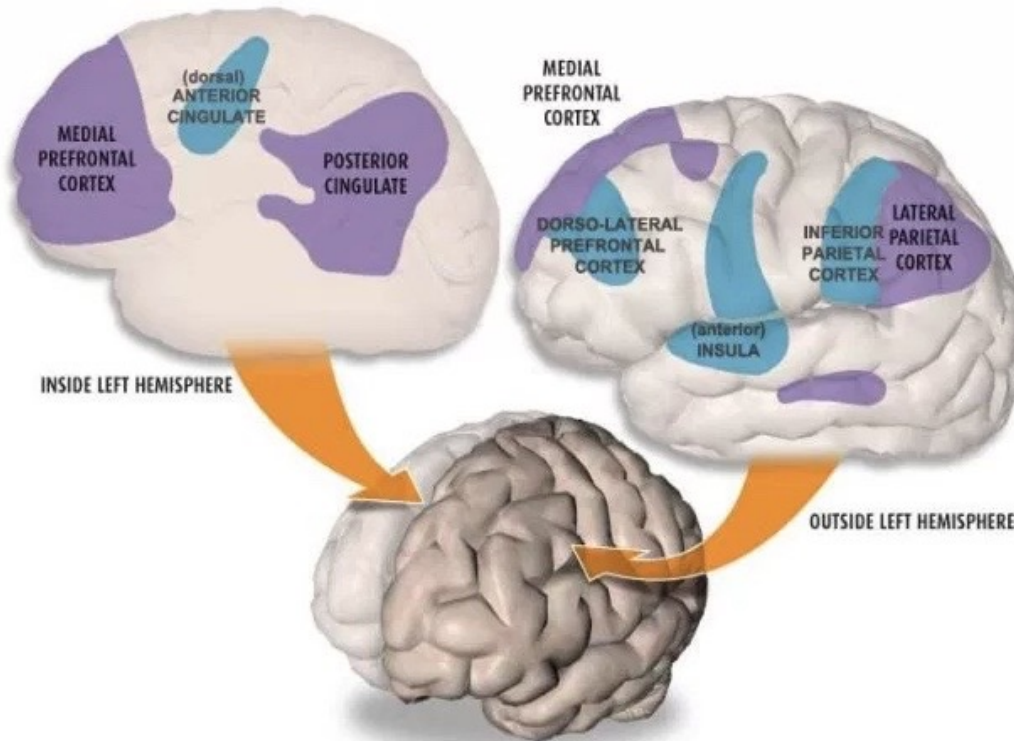


Pathways of Attention: 'Default' and 'Focused'

When you switch off, a distinctive network of brain areas not involved in focused attention bursts into action

● Default network

● Areas involved in focused visual attention



Focus and Mind Wandering Networks

- Those with ADHD do NOT deactivate their default pathway, and even less so with difficult tasks
- Mind wandering, technology and the default pathway— in all children

11% of all American Children are Diagnosed with ADHD CDC 2018

DSM II: HYPERKINETIC IMPULSIVE DISORDER

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graph TD; A[DSM II: HYPERKINETIC IMPULSIVE DISORDER] --> B[DSM III: ATTENTION DEFICIT DISORDER]; B --> C[DSM IIIR: ATTENTION DEFICIT/ HYPERACTIVITY DISORDER]; C --> D[DSM IV: ADHD WITH 3 SUBTYPES: INATTENTIVE, HYPERACTIVE IMPULSIVE, COMBINED TYPE]; D --> E[DSM5: ADHD – 3 SUBTYPES; PRESENT BY AGE 12; ADULT VERSION];
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DSM III: ATTENTION DEFICIT DISORDER

DSM IIIR: ATTENTION DEFICIT/ HYPERACTIVITY
DISORDER

DSM IV: ADHD WITH 3 SUBTYPES: INATTENTIVE,
HYPERACTIVE IMPULSIVE, COMBINED TYPE

DSM5: ADHD – 3 SUBTYPES; PRESENT BY
AGE 12; ADULT VERSION

DSM-5 Criterion for 'Inattention'

- Fails to give close attention/makes mistakes
- Difficulty sustaining attention
- Does not listen when spoken to directly
- Does not follow through on instructions, does not finish tasks
- Difficulty organizing tasks and activities
- Avoids, or is reluctant to engage tasks which require sustained mental effort
- Loses things
- Easily distracted
- Forgetful
- **6/9 OFTEN OR VERY OFTEN**

Impulsivity/Hyperactivity

- Fidgets, taps, squirms in seat
- Leaves seat when expected to be seated
- Runs and climbs in inappropriate situations
- Unable to play or engage in leisure activities quietly
- 'On the go' acts as if 'driven by a motor'
- Talks excessively
- Blurts out answers before question completed
- Has difficulty waiting turn
- Intrudes on or interrupts others
- 6/9 OFTEN OR VERY OFTEN

What Matters at What Age

PS/KG	Developmental Issues; Adaptability; Delay Gratification; Oral Language; Social Skills; Attachment; COVID
1st- 3rd	Persistence; Physical Self Regulation; Oral Language; Automaticity; Motor Efficacy
4- 5th	Initiation; Flexibility; Creativity; Grit; Working Memory: Output!
Middle School	Emotional Regulation; Social Efficacy; Affinities; Adaptability; Who Am I?
High School	Processing Speed; Language Skills; Affinity Development; Social Efficacy; Broader E.F. Skills
Uni	Executive Function Skills; Planning; Goal Setting; Healthy Risk Taking; Sense of Self
Parents	Modeling of Self Regulation and core Executive Functions!

WHAT DO YOU SEE OR HEAR

- Preschoolers:

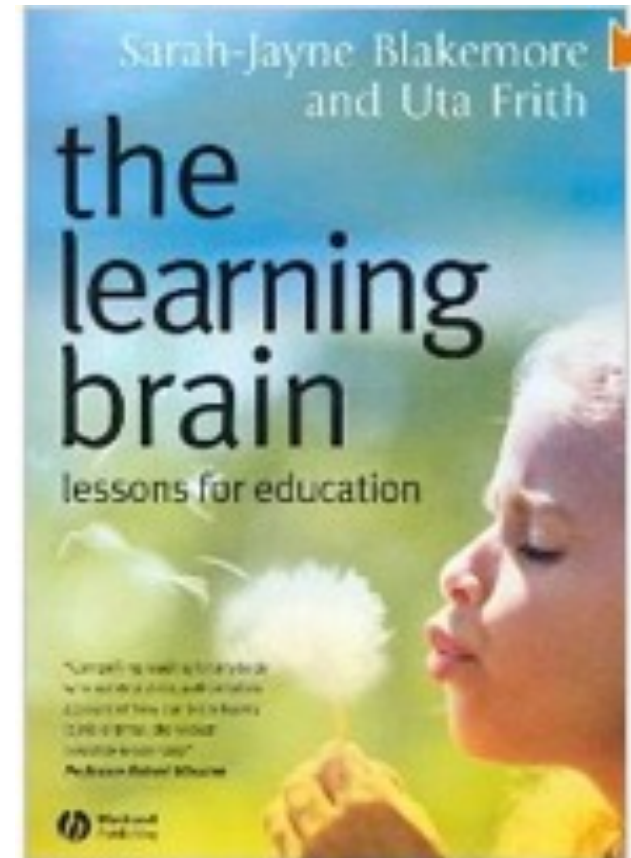
- Prenatal patterns
- Early gross motor
- Purposeless activity
- Oppositional patterns
- Sleep issues
- Poor fine motor skills
- 'Aggressive'
- Language delays
- Poor adaptability to routine
- RISK FACTORS: FAMILY HISTORY, MEDICAL

- School Aged:

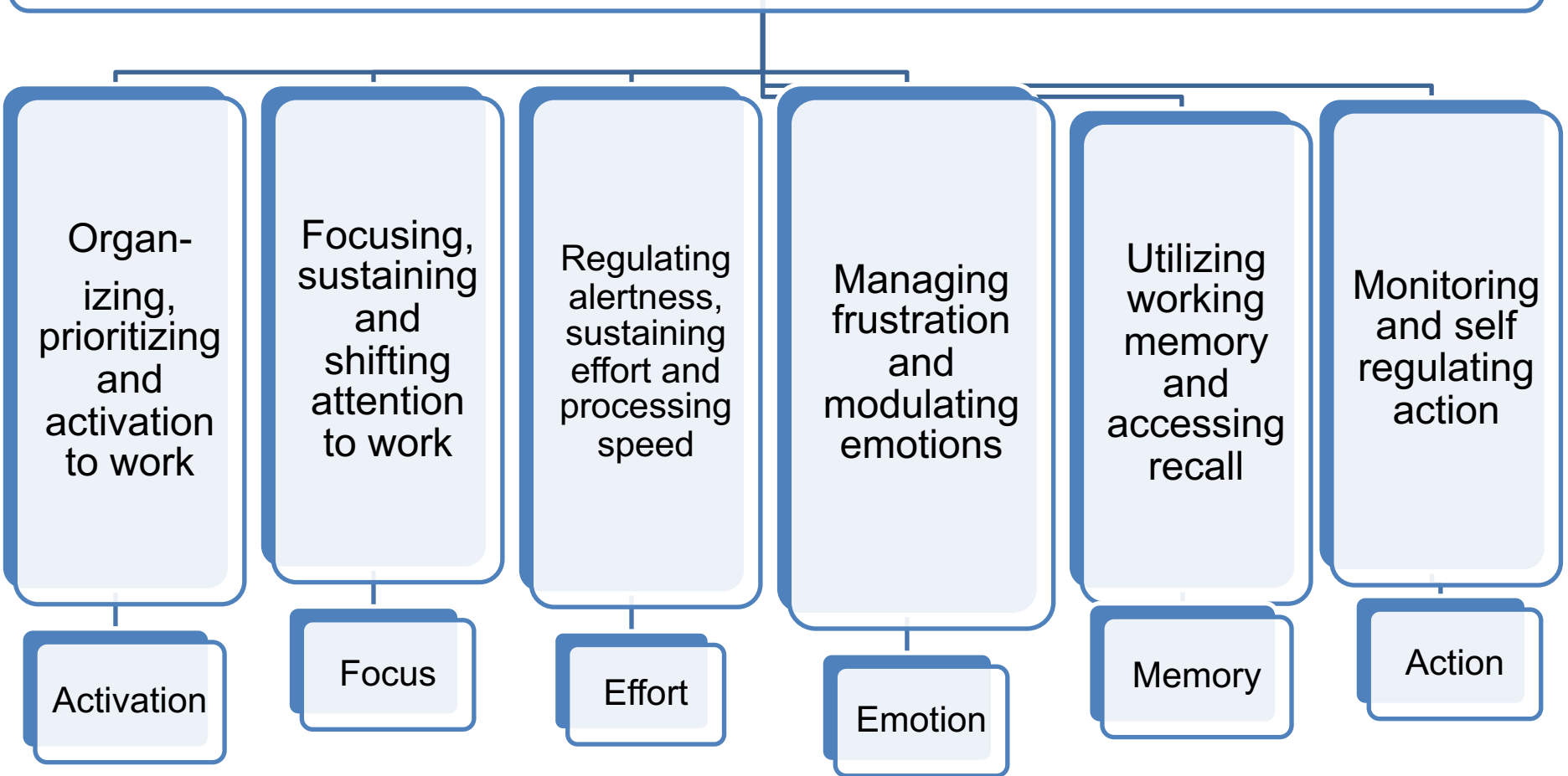
- Early parent notification
- Difficulty during unstructured time
- Social difficulties
- Handwriting difficulties
- Delayed acquisition of skills
- Messy, does the minimum
- Short term and working memory difficulties
- Dreamy /non productive
- Inconsistent

Executive Functioning

Tapping your ability to use what you already know- to be creative with it, to problem solve with it and to regulate your thinking and emotions so that you can allow this to take place....



Executive Functions Impaired in ADHD syndrome(T.E. Brown)



Those With Intact EF Can:

Demonstrate purposeful, goal directed activity

Display an active problem-solving approach

Exert self control- self regulate emotionally

Demonstrate maximal independence

Exhibit reliable and consistent behavior and thinking

Demonstrate positive self efficacy

Exhibit an internal locus of control

**ACCURATE,
THOROUGH
ASSESSMENT ALLOWS
YOU TO:**

**UNDERSTAND STRENGTHS
AND CHALLENGES**

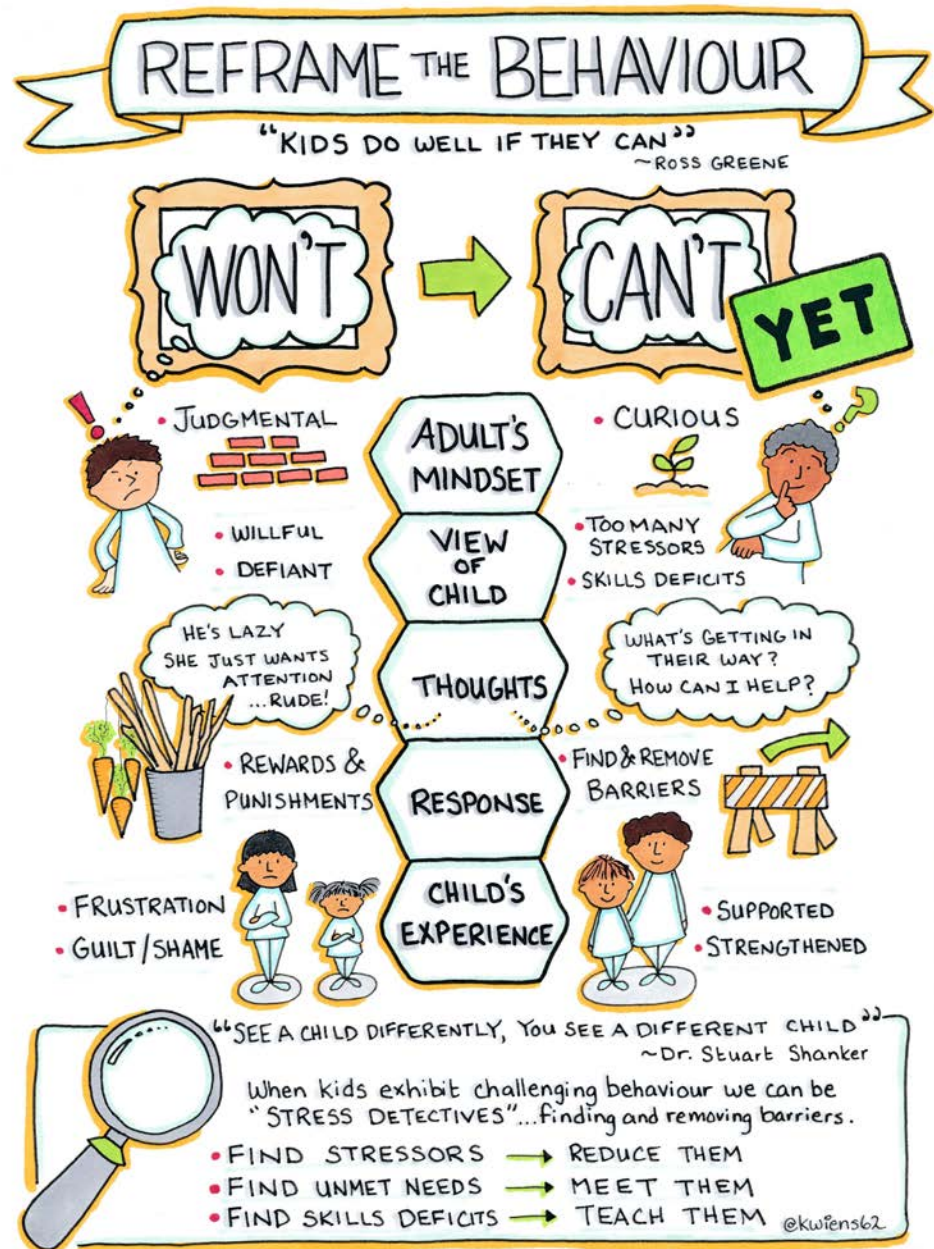
CONSIDER TEMPERAMENT

**IDENTIFY CO-EXISTING
DIAGNOSES**

**USE EFFECTIVE AND
SPECIFIC APPROACHES**

**UNDERSTAND THE
CONSISTENT
INCONSISTENCIES!!**

**MANAGE ADULT
EXPECTATIONS!**



PHYSIOLOGICAL THINGS THAT HELP

SLEEP

QUALITY

QUANTITY

EXERCISE

1 HOUR PER DAY

NUTRITION

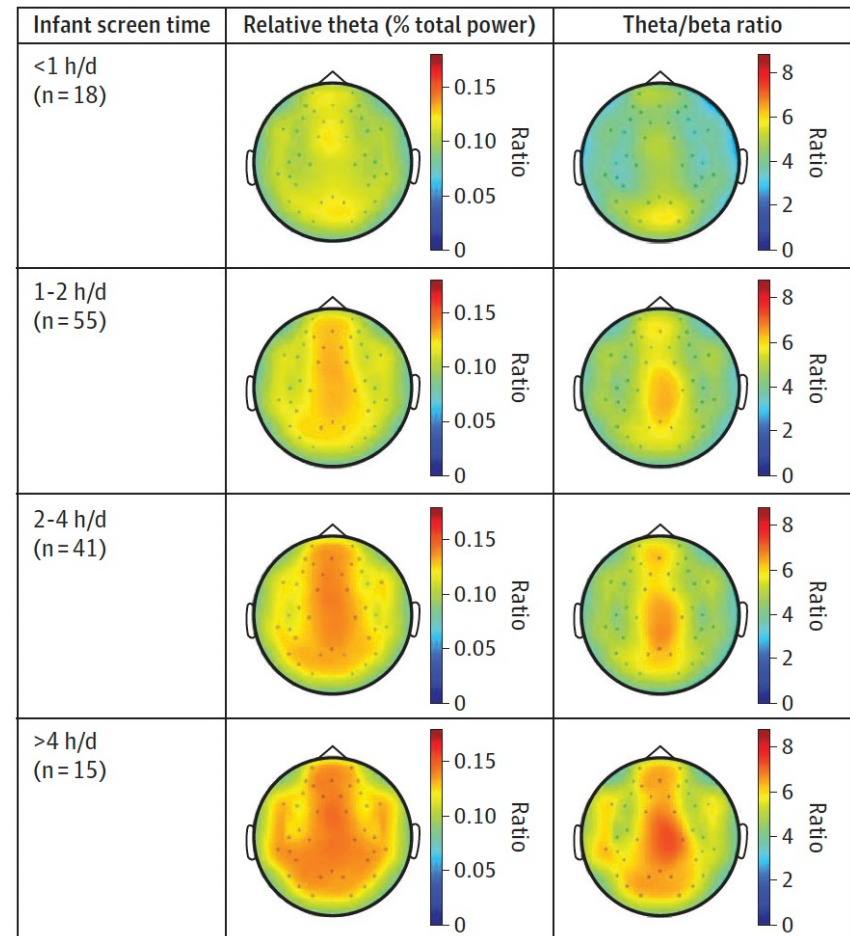
IRON, ZINC

VITAMIN D,
LIPIDS

Screen Time in Infancy

- *JAMA Pediatr.*
2023;177(3):311-318.
[doi:10.1001/jamapediatrics.2022.5674](https://doi.org/10.1001/jamapediatrics.2022.5674)
- Screen use at 1 year of age associated with EEG changes at 18 months and executive function challenges at 8 years of age
- Higher Theta/Beta ratio = RISK

Figure 1. Brain Topographic Maps of Postulated Neural Correlates Based on Infant Screen Time per Day



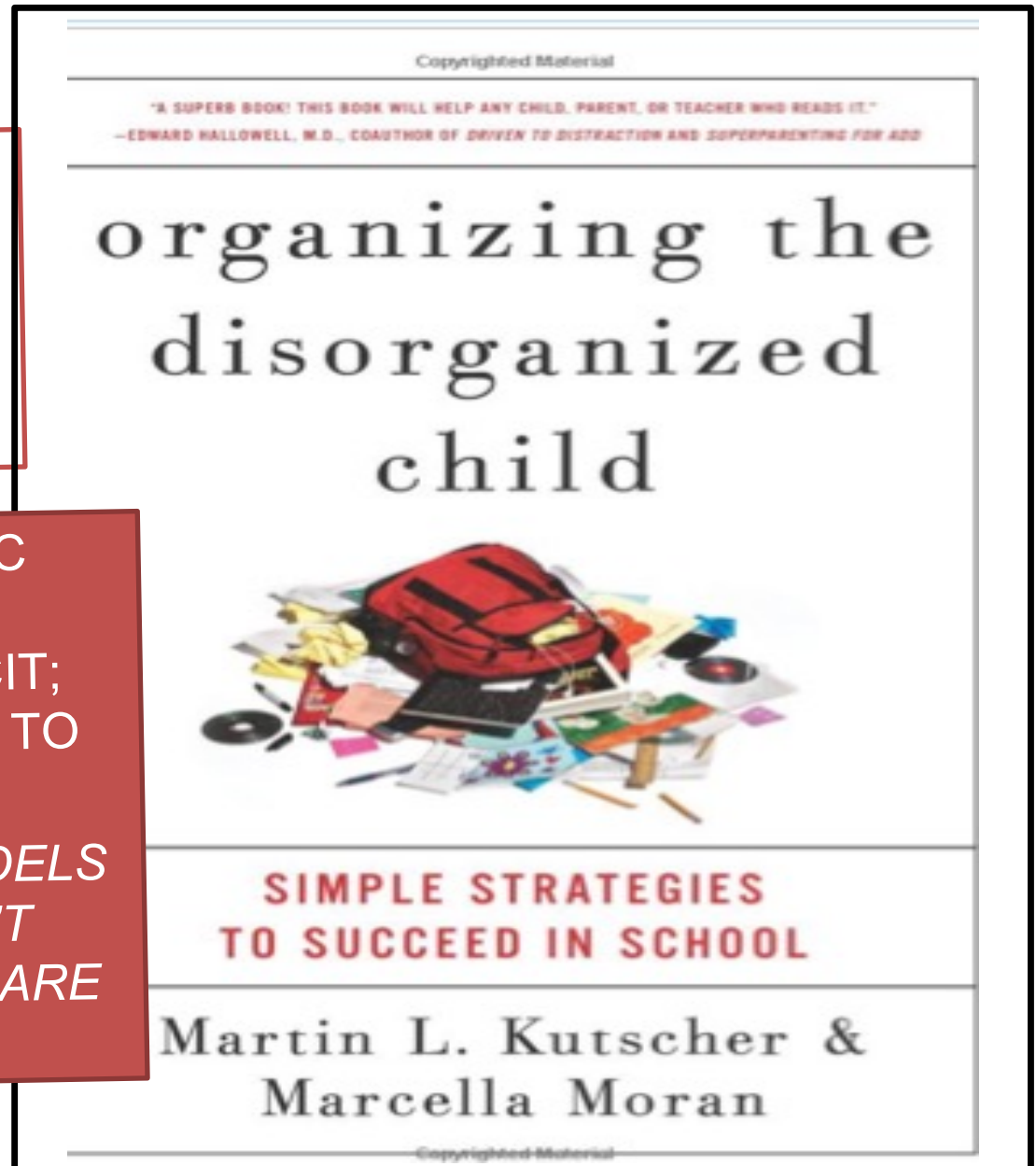
ORGANIZATIONAL THINGS ARE KEY.....

YENTA THEATRE PRESENTS: WAITING FOR GODOT



Until they are fully developed parents and teachers act as “surrogate” frontal lobes.

ADOPT A DIDACTIC MODEL: THIS IS A SKILLS SET DEFICIT; THE SKILLS NEED TO BE TAUGHT
BEHAVIORAL MODELS GENERALLY DON'T WORK AS SKILLS ARE NOT TAUGHT



Incentives?

- Use incentives to augment instruction.
- Incentives make both the effort of learning a skill and the effort of performing a task less aversive.
- Furthermore, putting an incentive after a task teaches delayed gratification.



Modify Tasks & Environment



- Make the task shorter or chunk the work
- Models
- Create a schedule
- Build in variety or choice into how tasks are done
- Facilitate focus
- **AVOID AVOIDANCE**

SELF REGULATION/ EMOTIONS

- 'Living in the moment' and intensity
- Understanding cumulative factors
- Modeling 'talk aloud' and self talk!
- Mindfulness and The Mightier



Working Memory and Listening



- Convey expectations:
 - Nearby
 - Brief !!!
 - Positively phrased
 - With gestures, examples
 - Expect you will need to repeat, have them paraphrase

Keep it Positive

- Enjoy the Child-catch them being good
 - laugh with the child, give them jobs that matter, help them strengthen strengths and become experts
- Use Positive Reinforcement whenever possible (Barkley, Greene)
 - reward and acknowledge the appropriate behavior
 - **describe exactly what they are doing right**
 - target only behaviors that are worth changing
 - target only behaviors the child can control
 - use reinforcers that are logical and likely to work AND a plan that can be applied consistently
 - 3-4:1

In Daily Life:

- Help your child understand we all have challenges and strengths
- Amplify their strengths
- Cultivate tenacity
- Remediate basic skills
- Help your child become their own advocate
- SHOULD & MUSTS
- Consider your own EF challenges!

