



**CONSOLIDATED
SCHOOL DISTRICT
— OF —
NEW BRITAIN**

DEVELOPING EXECUTIVE FUNCTIONING SKILLS IN YOUNG LEARNERS

EA Aschenbrenner, EastCONN | Nancy Sarra, Superintendent, New Britain

Elizabeth Gaffney, Primary Instructional Coach, New Britain | Michele Kushman, Primary Instructional Coach, New Britain

OUR URGENCY





IGNITERMEDIA.COM

IMPORTANCE OF EXECUTIVE FUNCTION

Executive Functions Deficits in Kindergarten Predict Repeated Academic Difficulties Across Elementary School

Regardless of race, income and early childhood academic abilities, the researchers found that kids who had executive function problems were more likely to struggle academically in subsequent years. This study saw stronger causal links between executive function and academic performance than previous studies had.

*11,000 kindergarten students from 2010 onward through third grade
Paul Morgan, co-author Penn State*



IMPORTANCE OF EXECUTIVE FUNCTION

When children have had the opportunities to develop executive function and self-regulation skills successfully, both individuals and society experience lifelong benefits.

In Brief, Executive Function: Skills for Life and Learning, Center on the Developing Child, Harvard University

- **School Achievement**

- Remember & follow directions
- Adjust when rules change
- Persist at problem solving

- **Positive Behaviors**

- Develop teamwork skills, leadership & critical thinking
- Working toward goals
- Decision making

- **Good Health**

- Coping skills to respond to stress and reduce anxiety

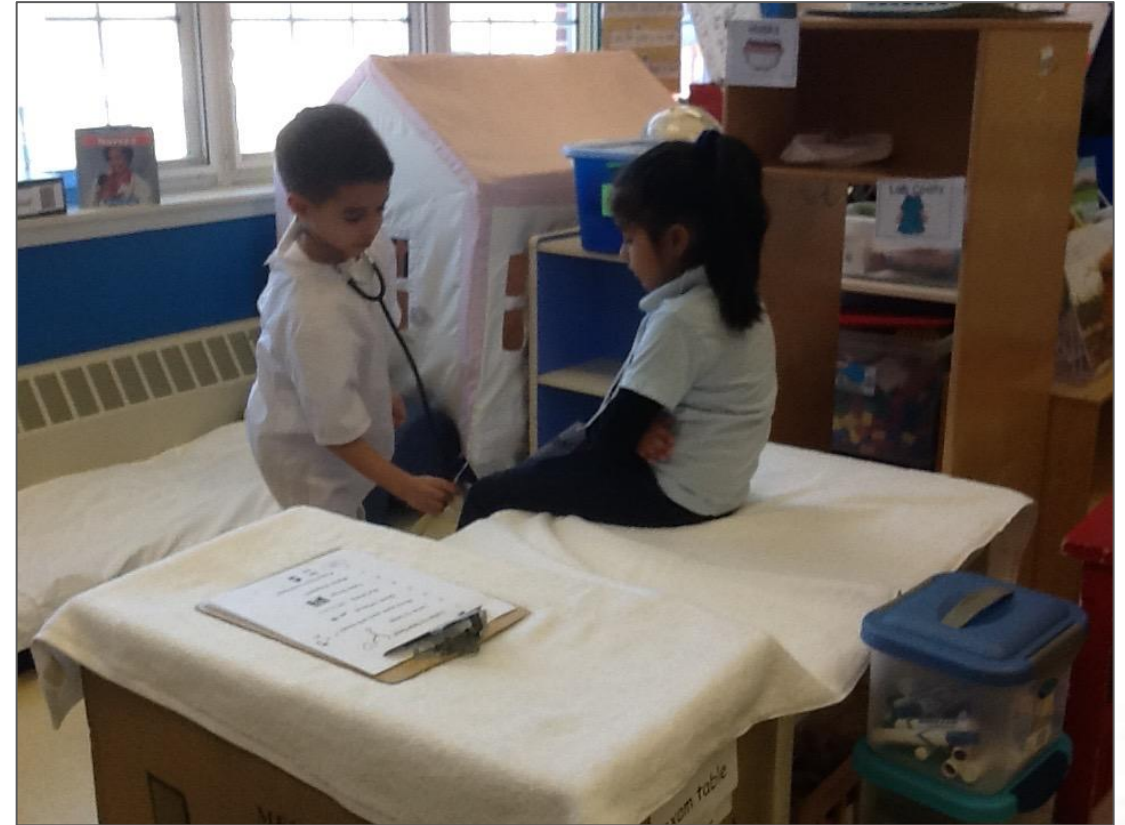
- **Successful Work**

- Better organized
- Solve problems that require planning
- Adjust to changing circumstances



SHARING OUR JOURNEY

- Where we were with practice
- What we are doing
- What's different for children
- What's different for teachers
- Where we are headed



CSDNB MISSION STATEMENT

In partnership with family and community, the Consolidated School District of New Britain works to provide the best personalized and comprehensive whole-child education so our students will be prepared for, and positively contribute to, a profoundly different future.



OUR PATH

- Board Member Advocacy and Networking
- Parent Voice
- Whole Child Development & Whole Child Wellness
 - From NCLB to ESSA
 - SLOs
 - Report Cards
 - Domain 1 & 3 CCT rubric
 - Student Engagement – Staff Engagement – Family Engagement
 - Coherence Board, Superintendent, Cabinet, Administrators, Teachers, Families, Students



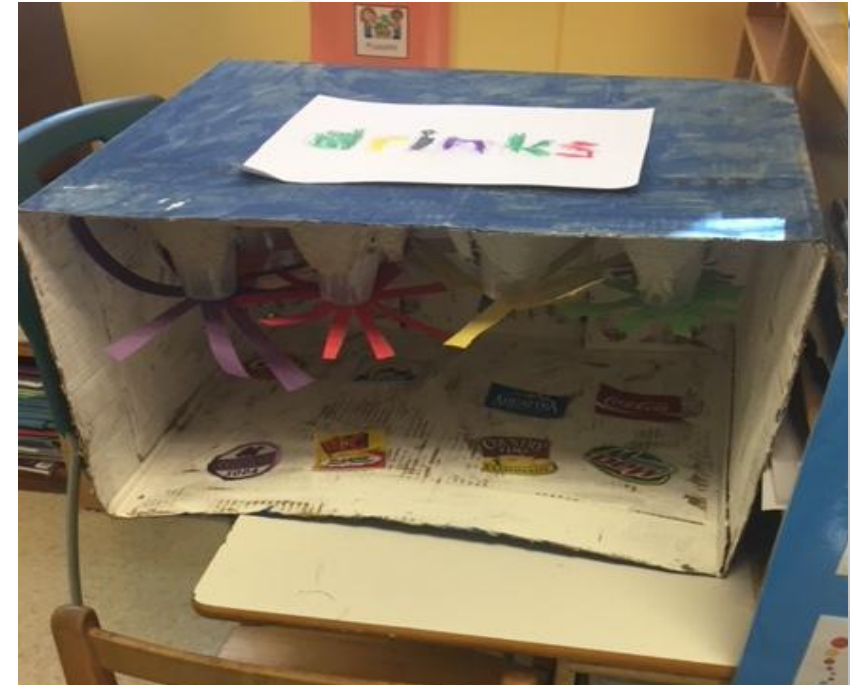
PROFILE OF A CSDNB GRADUATE

- Flexibility and Adaptability
- Metacognition
- Resilience and Perseverance
- Collaboration & Teamwork
- Critical Thinking and Problem Solving
- Communication
- Empathy and Perspective Taking
- Creativity & Innovation



21ST CENTURY SKILLS

- Collaboration
- Communication
- Critical Thinking & Problem Solving
- Creativity

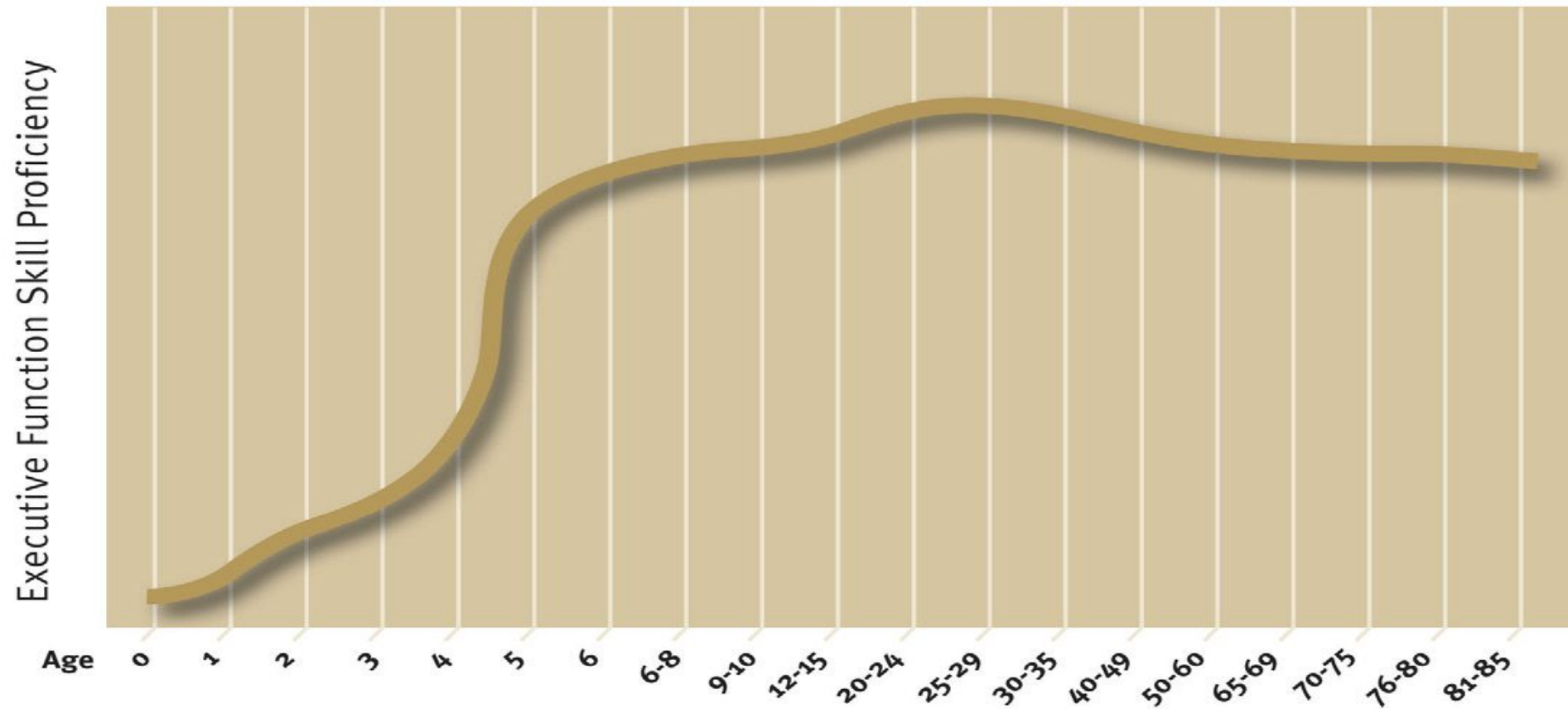


CORE EXECUTIVE FUNCTIONS

- **Inhibitory control of actions and attention**
 - self-control or discipline
 - selective or sustained attention
- **Working memory**
 - holding information in mind & working with it
- **Cognitive flexibility**
 - thinking “outside the box”
 - adapt to different rules

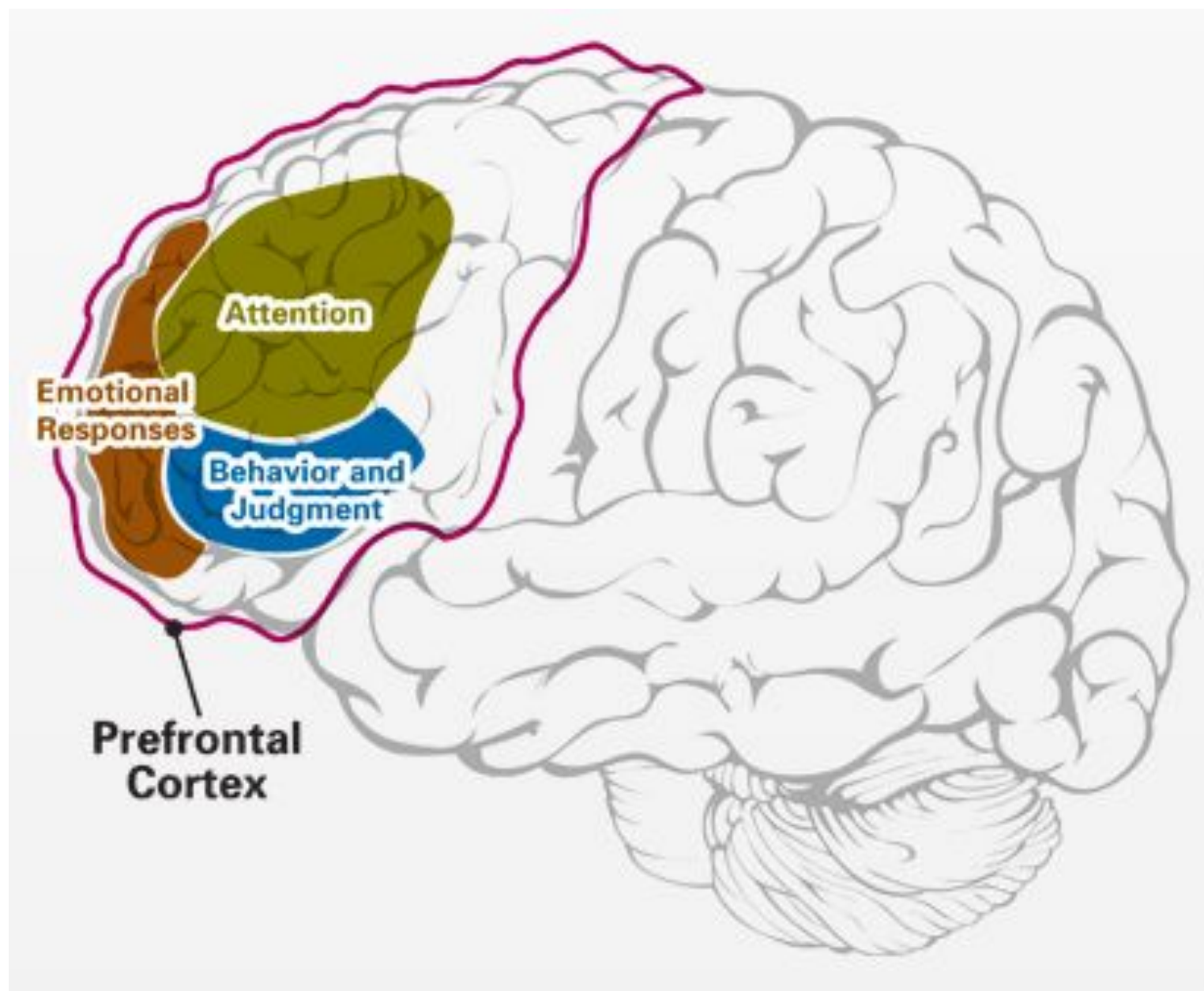


Executive Function Skills Build Into the Early Adult Years



Source: Weintraub et al. (Submitted for Publication)

Building the Brain's Air Traffic Control System, How Early Experience Shape Executive Functioning, Working Paper 11, Harvard University, Center on the Developing Child, 2011.



Attention

Emotional Responses

Behavior and Judgment

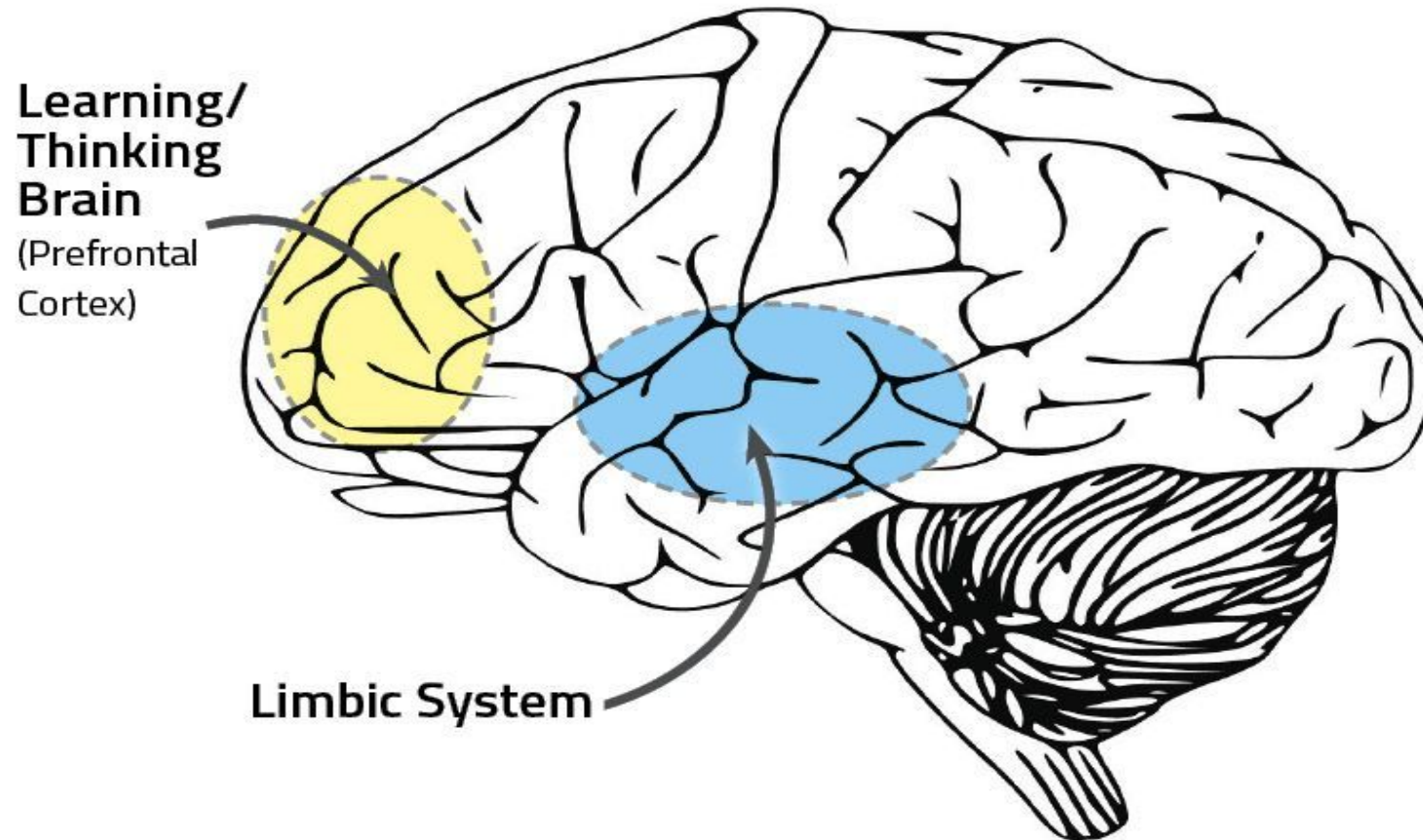
Prefrontal Cortex

IMPACT OF STRESS ON LEARNING

- Toxic stress
- Negative stress
- Positive stress

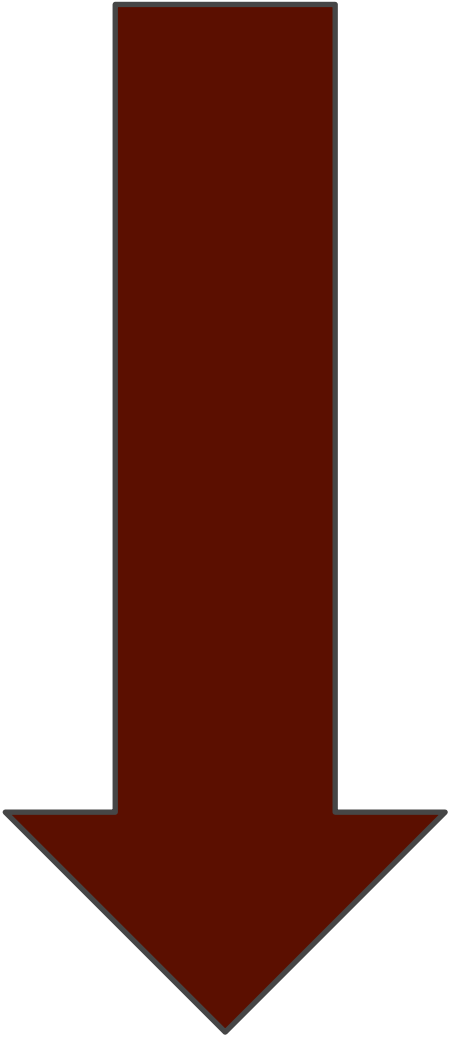
Survival Mode: Flight/Fight/Freeze

Frontal lobe (Prefrontal cortex) goes offline
Limbic system / mind and lower brain functions take over



GUIDING PRINCIPLES

- Consider the whole child and all domains of development
- Have high, realistic expectations for all children
- Use standards to guide curriculum and instruction
- Engage in evidence-based practices that are hands-on and developmentally appropriate
- Promote higher order thinking and cognitive rigor
- Be accountable for all children's progress over the long term and emphasize progress over time

- 
- Adult regulation
Co-regulation
 - Other regulation
 - Self-regulation

Use of Mediators



ORGANIZING THE CLASSROOM

The Role of Visual Mediators and Visual Distractions

- Daily Schedule – posted with each activity and reviewed
- Use of small group and learning centers
- Classroom environment; use of bulletin boards
- Classroom rules that are concrete - actionable
- Center arrangement and management
- Who chooses first
- Linear Calendar



SUSTAINING ATTENTION AND ENGAGEMENT

- Choice
- Novelty (pattern change) correlates with attention
- Curiosity
- Prediction
- Personal relevance
- Appropriate risk or challenge
- Instruction planned with inquiry and discovery can stand alone to captivate and sustain attention
- **Dopamine (enjoyment with risk-taking) release sustains interest and perseverance**

Judy Willis 2017

COGNITIVE RIGOR

. . . is the goal of helping **ALL** students develop the capacity to understand content that is *complex, ambiguous, provocative, and personally or emotionally challenging*.

The DOK level should reflect **the complexity of the cognitive processes** demanded by the task outlined by the objective, rather than its *difficulty*.

Ultimately the DOK level describes the kind of thinking required by a task, not whether or not the task is “difficult.”

- Karin Hess



WEBB'S DEPTH OF KNOWLEDGE

- Level 1** Recall and Reproduction
- Level 2** Skills and Concepts
- Level 3** Strategic Thinking/Reasoning
- Level 4** Extended Thinking



Purposeful Play

- Kindergarten
 - 5 times a week for 60 minutes/day
 - Play planning & reflection
 - Learning scenarios 3x/yr
 - Prompts or provocations



Purposeful Play

- Grade 1
 - 3 times a week for 45 minutes/day
 - Play planning & reflection
 - Inquiry Centers with prompts/provocations
 - Connected to standards
 - Project-based learning



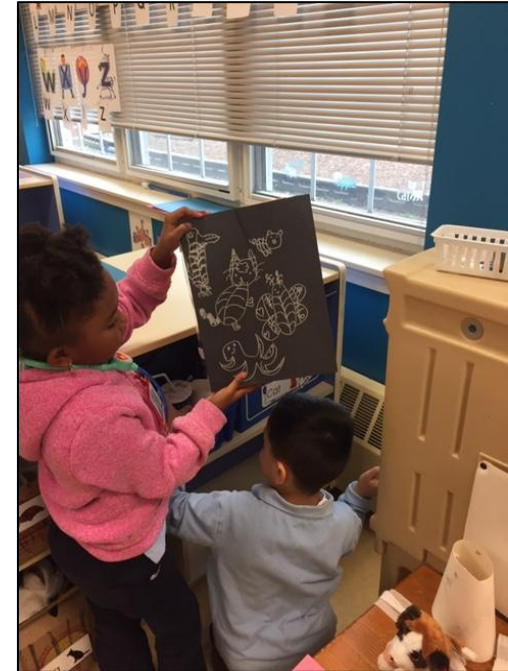
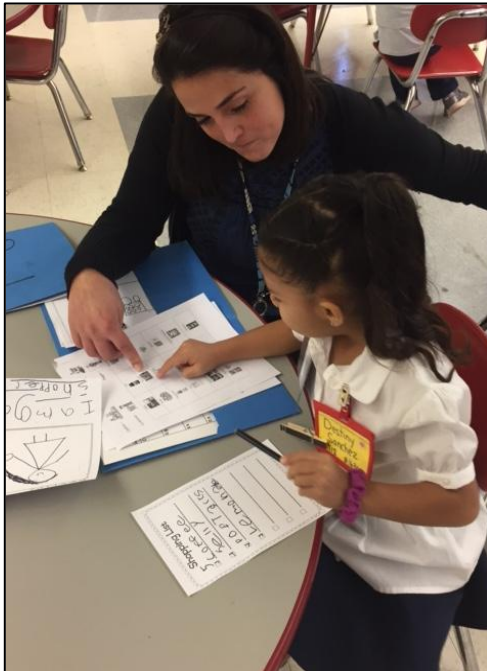
LEARNING SCENARIO

- Starts with a big idea
- Draws from what children know and what questions that they have
- Tied to standards and curriculum
- Builds background knowledge and context
- Builds social interaction and cooperative work



DESIGNING A LEARNING SCENARIO

- 6 - 8 Week Process
- Building Background Knowledge
- Developing Roles
- Creating Props
- Play Plan, Do and Review
- Engagement



WHAT ARE CHILDREN LEARNING?

You are studying community helpers, specifically the hospital.

Given the area of the hospital that your group is assigned, talk about the roles, tools or equipment that are needed.

With the materials that you have, create the tools or equipment that you will need to use.

WHAT STANDARDS ARE ADDRESSED IN THE PROCESS?

Math?

ELA?

Science ?

Social studies?

Executive function?

Social skills?

21st Century skills

Creativity? Critical thinking? Collaboration? Communication?

PROVOCATIONS / PROBLEMS TO SOLVE

Challenges or problems to solve that help to guide the exploration

- Count out 130 LEGO bricks by tens
- Draw a design for a house or a tool/piece of equipment in the house that will make it easier for a person in a wheelchair to live there
- Build the house or tool and be ready to explain your reasons for the design



WHAT DO OUR CLASSROOMS LOOK LIKE?



*“Our students are able to **COLLABORATE** with each other and share materials to complete a task as a team.”*

WHAT DO OUR CLASSROOMS LOOK LIKE?



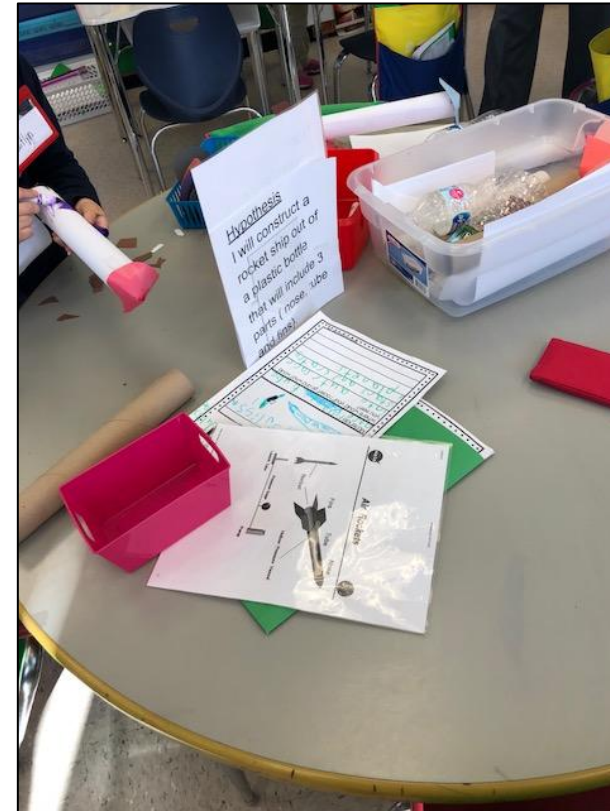
*“Students who wouldn’t necessarily work together are now getting together, **COMMUNICATING** and having fun during imagineering time.”*

“...students have the opportunity to engage in meaningful conversations.”

“use of level 2 and level 3 vocabulary has increased..”



WHAT DO OUR CLASSROOMS LOOK LIKE?



*“Students ability to **PROBLEM SOLVE** has increased. Students are taking more responsibility in their learning by **THINKING CRITICALLY.**”*

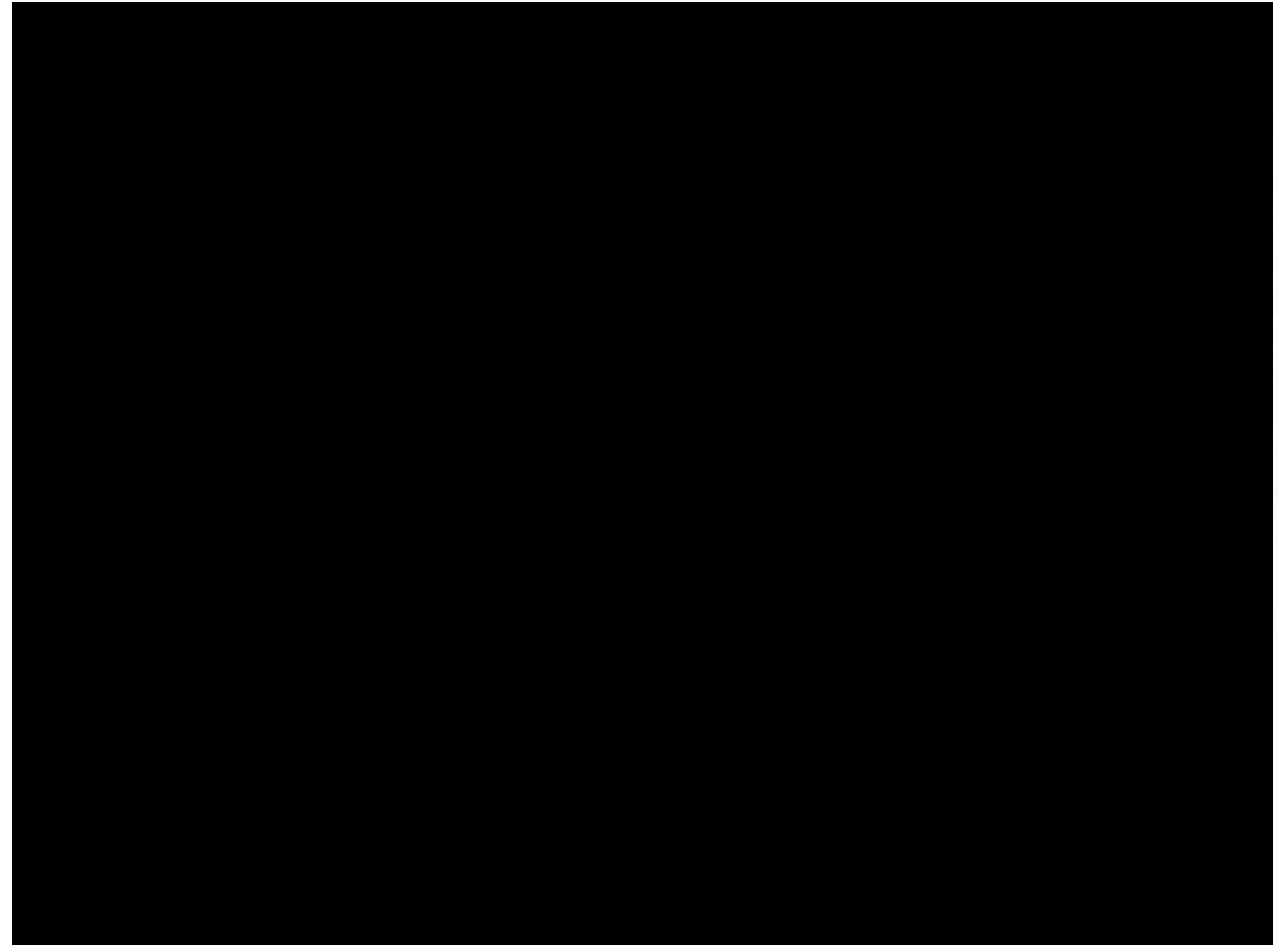
WHAT DO OUR CLASSROOMS LOOK LIKE?



*“Teachers and students have more ownership and **CREATIVITY** utilizing this delivery and inquiry model.”*

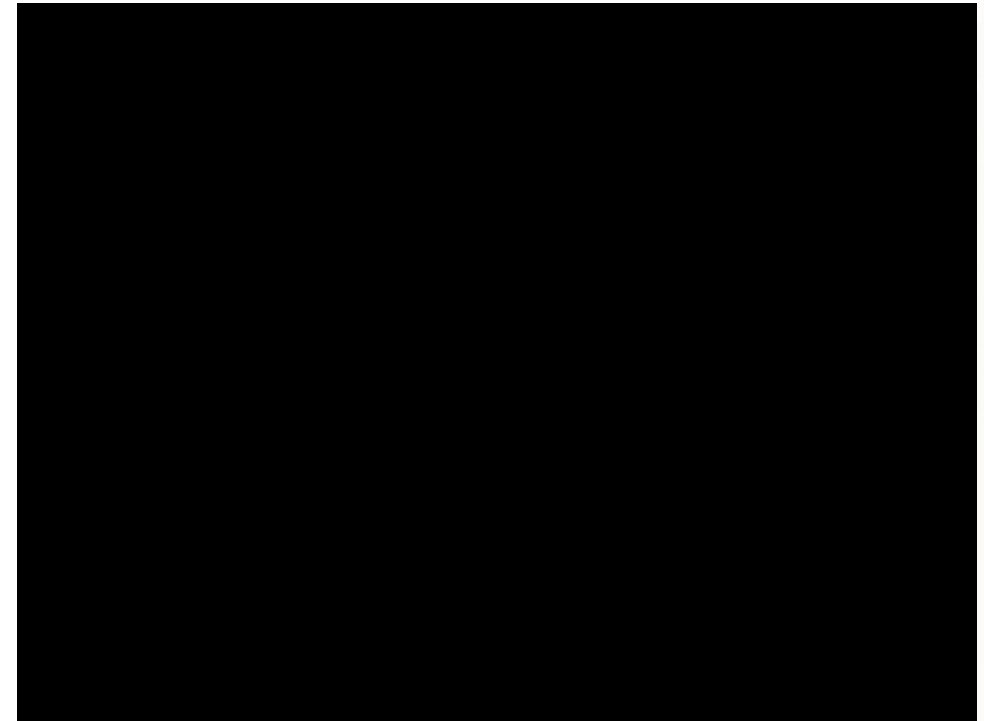
IMPACT ON RELATIONSHIPS

- Increase frequency of meaningful conversations
 - building oral language
 - building vocabulary
- Fostering positive relationships
 - teacher → teacher
 - teacher → child
 - child → child
 - family → school
 - school → community



WHAT'S DIFFERENT FOR TEACHERS?

- Importance of building knowledge, field trips, and reinforcing concepts about the roles they are playing
- Making connections to previous learning from scenarios & inquiry centers
- More open-ended higher order questioning
- Better able to address the whole child
- Take risks
- Opportunity to plan and integrate across the curriculum



WHAT'S DIFFERENT FOR CHILDREN?

- Active engagement in learning
- More engaging and relevant instructional strategies
- Students taking more responsibility in their own learning
- Transferring inquiry into all content areas
- Less stress
- Activities that engage children in high level thinking
 - Planning, reflection and revision
 - Increased oral language, vocabulary & social interaction
 - Increased collaboration and problem solving



QUESTIONS WE ARE ASKING

- Are students more actively engaged in learning?
- What is different for children over time?
- Are we impacting children's executive function skills?
- How are teachers purposely planning for increased rigor?



MAKING IT POSSIBLE

- Central Office support and commitment
- Materials / Resources
- Real-time on-site coaching
- Professional Development
 - Teachers | Administrators | Walk Throughs
- Scheduling Priority



NEXT STEPS FOR CSDNB

- Continue EF strategies and play-based learning
- Increase cognitive rigor during play-based learning
- Provocations / Inquiry Tasks (tied to CC/NGSS standards)
- Focus on intense professional learning for all staff K-12, including administrators and instructional coaches
- Monitor progress
 - Benchmarks -Play plans and EF scale
 - Performance tasks - grade 1



L

...Let's focus on creating engaging, fun, developmentally appropriate learning experiences for all ... acknowledging the importance of embedding enriching language and numeracy experiences within those environments.

It will certainly require effort, support, and flexibility, but it is an attainable goal with the potential for a powerful payoff.

Daphna Bassok, Amy Claessens, and Mimi Engel

QUESTIONS?



ADVENTURE
.....*Awaits!*

RESOURCES FOR EXECUTIVE FUNCTION

Harvard Center for the Developing Child

<http://developingchild.harvard.edu/science/key-concepts/executive-function/>

National Center for Learning Disabilities

<https://www.understood.org/en/learning-attention-issues/child-learning-disabilities/executive-functioning-issues/understanding-executive-functioning-issues?gclid=CPPMosPE3dACFYWKswodRMwFGg>

Toxic Stress and Self-Regulation

https://www.acf.hhs.gov/sites/default/files/opre/acf_report_2_rev_022415_final_508.pdf

EF and Play

<http://www.npr.org/templates/story/story.php?storyId=19212514>