



Cooke

School and Institute



INDEPENDENCE THROUGH EDUCATION

www.cookeschool.org

“We’re not *just* playing games” Improving Curricular Accessibility

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 @BSullivanTeach

Previous Iterations

“Let me Learn”

Making ELA and Humanities/Social Studies
Content Accessible to Students with Special Needs

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“The Hidden Demands”
Literacy Development and
Executive Functions

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“We’re not *just* playing games”
Literacy Development and
Executive Functions

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Topics We Will Cover:

Identify all the demands in your lessons. Use games to increase curricular accessibility while targeting content objectives, literacy-based skills, and components of executive functioning.

1. What does it mean to have an accessible curriculum?
 2. What are planned and hidden demands in your lessons?
 3. What's the connection between Executive Functions and Literacy Skills?
 4. What are teacher practices and instructional routines designed to enhance student learning?
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Cooke's Mission

We are a Kindergarten through 21 Program

- 29% Autism Spectrum Disorder (ASD)
- 18% Intellectual Disability (ID)
- 23% Speech and Language Impairment (SLI)
- 13% Other Health Impairments (OHI)
- 11% Learning Disability
- 5% Multiple Disabilities

The Common Elements:

- Learning Needs
- Adaptive Skills
- Social Emotional Needs
- Sensory/Motor Needs

Cooke School and Institute envisions a world in which all people with special needs are included as valued members of their communities, leading independent and purposeful lives.

INDEPENDENCE THROUGH EDUCATION

14 years of classroom teaching experience:

- 3rd & 4th grade public school teacher, general education inclusion classroom
- 11 & 12th grade ELA and Social Studies private school, Special Education
- Math, Science, Literature Summer School Teacher, Massachusetts Department of Youth Services
- Adjunct Professor, Columbia University
- Adjunct Professor, New York University

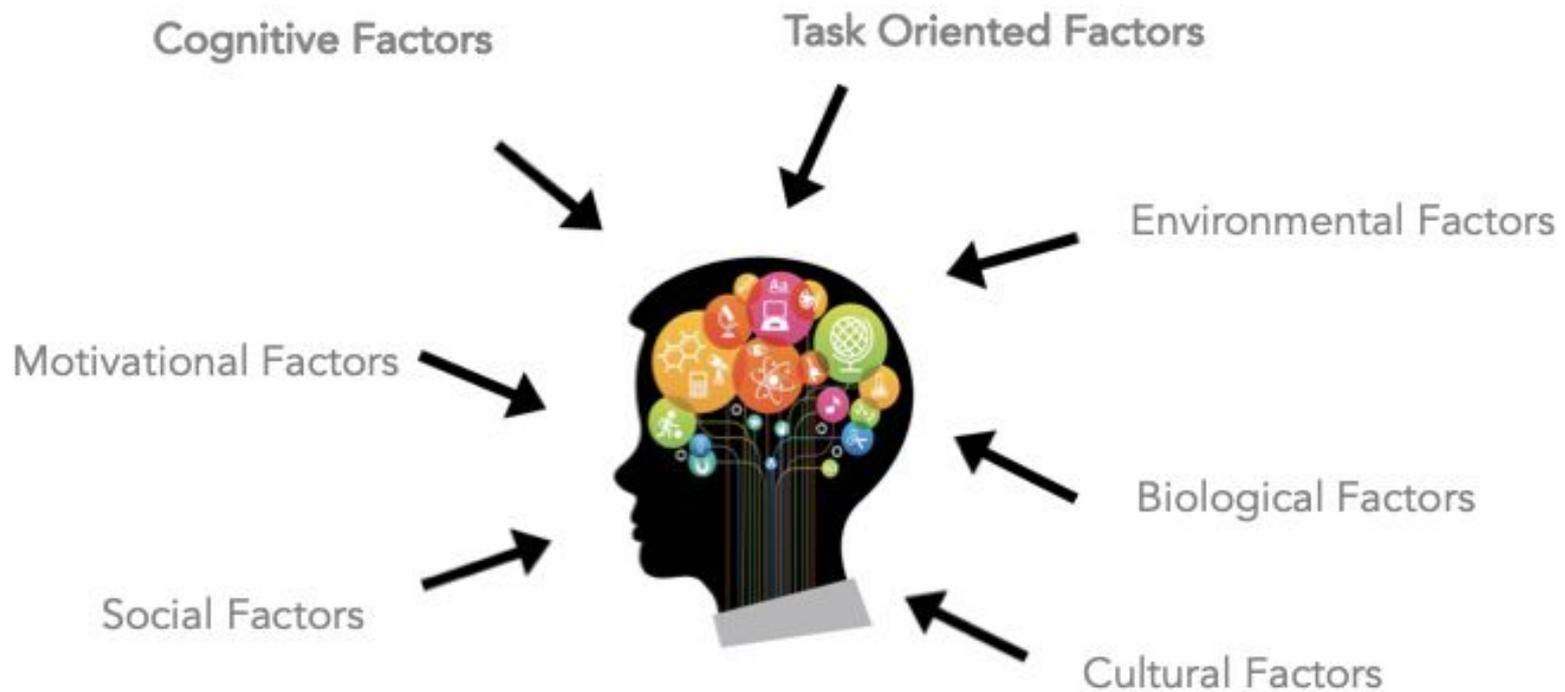
Licensed Reading Specialist (Birth-Adult)

- Teachers College, Columbia University

Licensed Elementary Teacher (K-6)

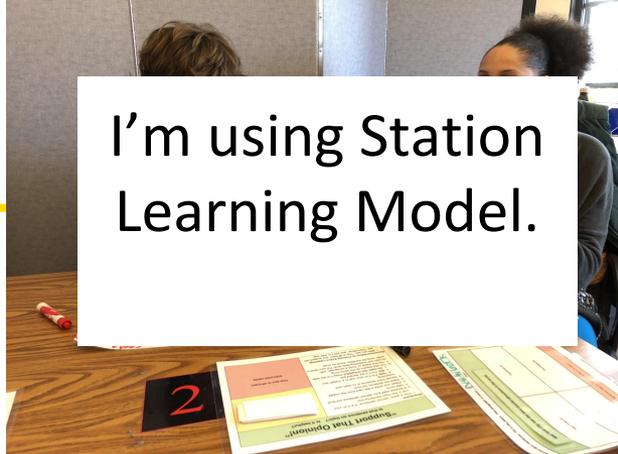
- Boston College
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1. What does it mean to have an accessible curriculum?

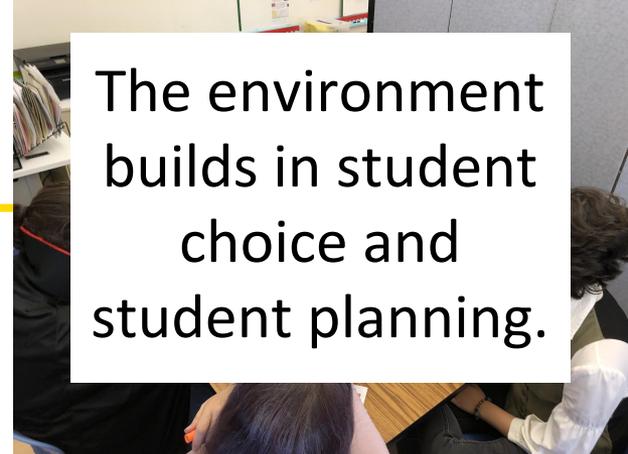




The various activities allow for diverse responses from students.



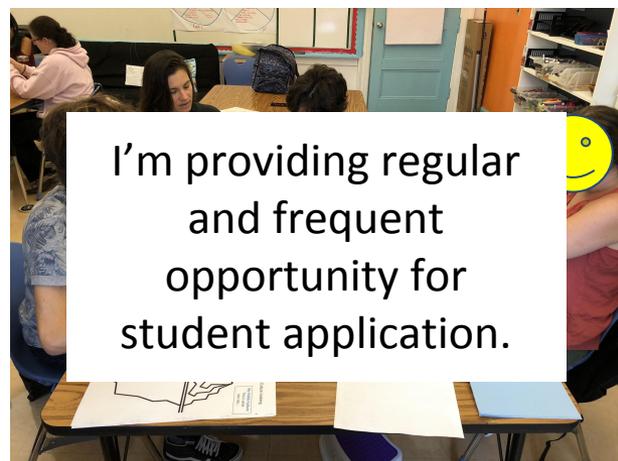
I'm using Station Learning Model.



The environment builds in student choice and student planning.

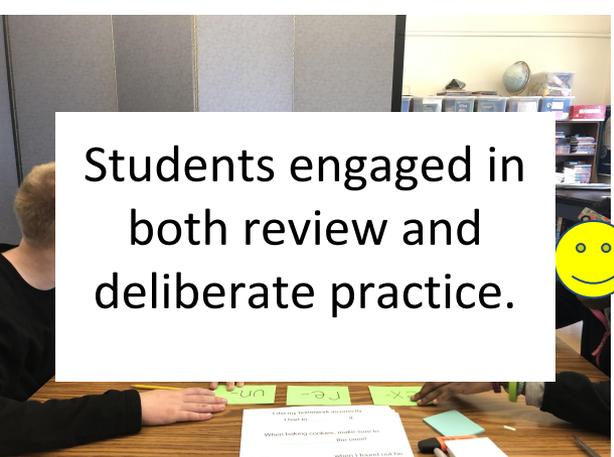
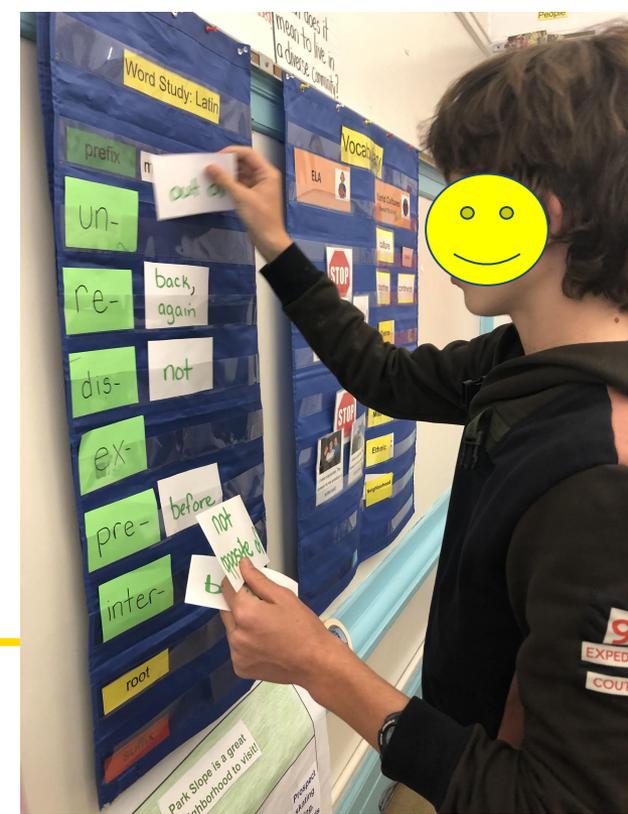


I'm using multisensory approach.

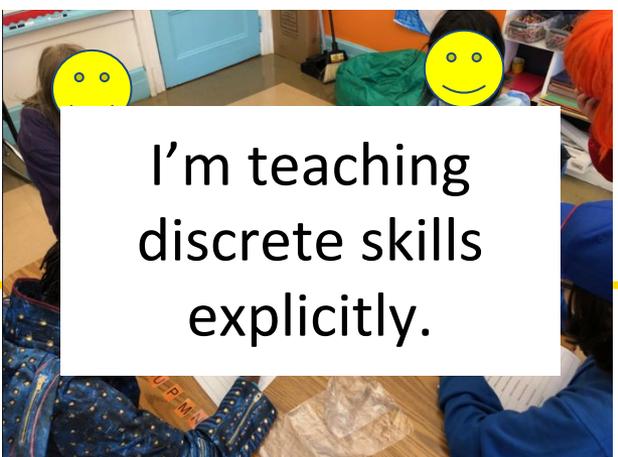


I'm providing regular and frequent opportunity for student application.

We're not just playing games!



Students engaged in both review and deliberate practice.



I'm teaching discrete skills explicitly.

2. What are planned and hidden demands in your lessons?

Resistance vs Struggle

“I don’t want to do it.”

What are reasons a student wouldn’t want to do something?

“I can’t do it.”

What are reasons a student wouldn’t be able to do something?

Demands We Place on Students

Planned Demands

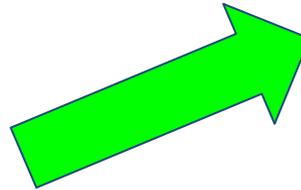
The intentional part of the curriculum that contains planned goals, desired objectives, and the necessary content.

Hidden Demands

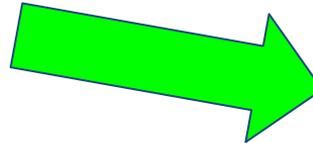
The demands of the curriculum, lesson, or activity that are unplanned but will impact a student's ability to demonstrate the planned demands.

Hidden Demands

The demands of the curriculum, lesson, or activity that are unplanned but will impact a student's ability to demonstrate the planned demands.



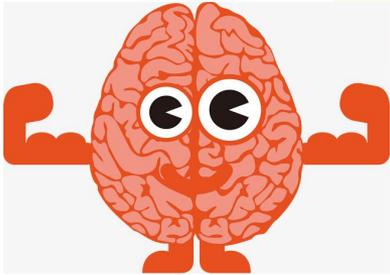
Executive Functions



Prerequisite Skills

3. What's the connection between Executive Functions and Literacy Skills?

What is literacy?



Struggling Writers Often:

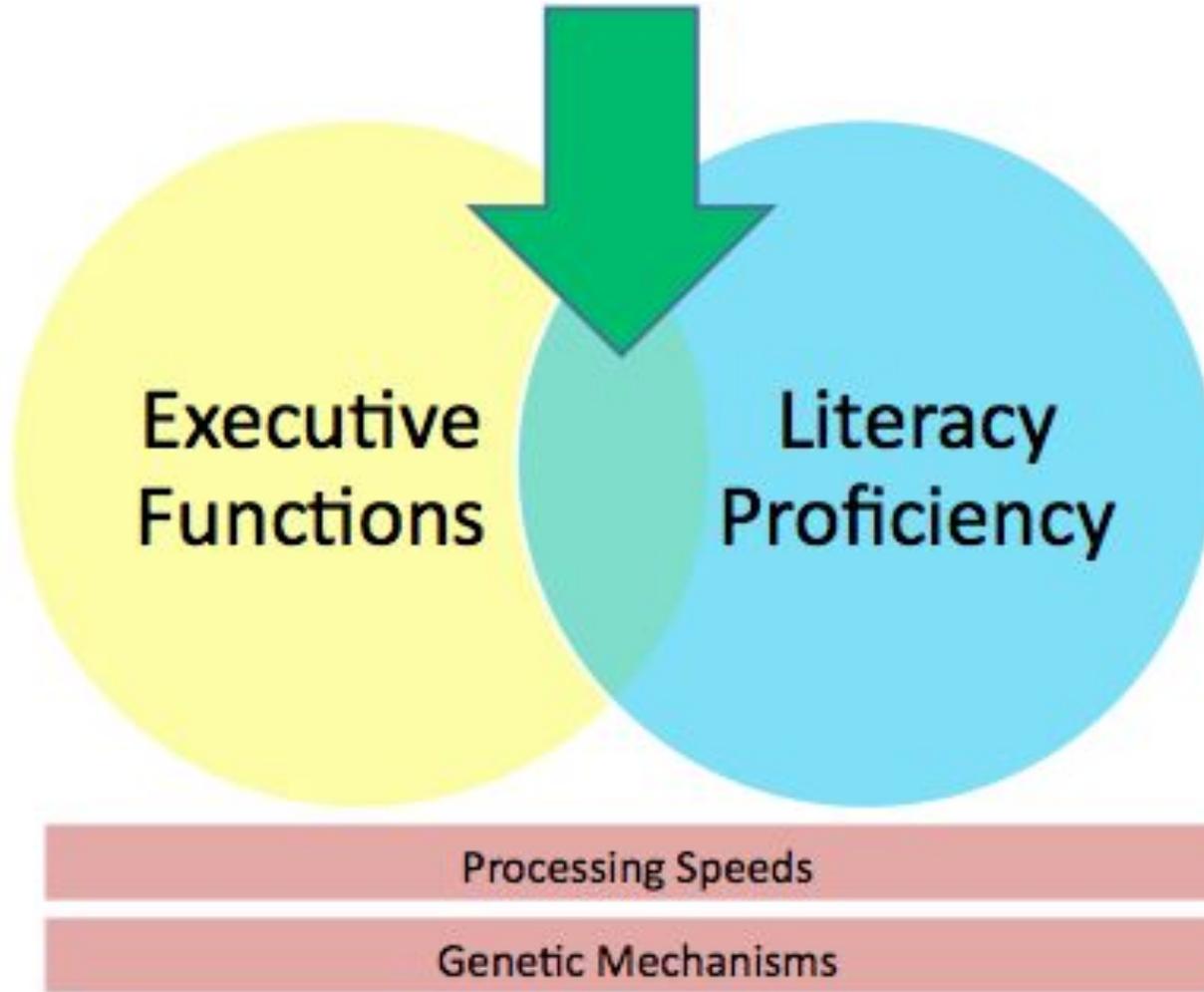
- (a) have limited knowledge of what constitutes good writing,
- (b) utilize an ineffective writing approach,
- (c) do not engage in advance planning,
- (d) have difficulty generating content,
- (e) rarely make meaningful revisions,
- (f) struggle with transcription (handwriting + spelling),
- (g) evidence minimal persistence, and
- (h) have an unrealistic sense of self-efficacy

(Graham & Harris, 2005a; Harris & Graham, 1996).

Struggling Readers Often:

- (a) Have difficulty decoding / lack fluency or reading rate
 - (b) Do not readily access or apply prior knowledge
 - (c) Struggle with prioritizing information
 - (d) Lack vocabulary to support comprehension
 - (e) Unable to self-monitor or recognize when confused
 - (f) Less likely to employ comprehension clarification strategies
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Our Focus



What are executive functions?

**Cognitive
processes needed
to facilitate:**

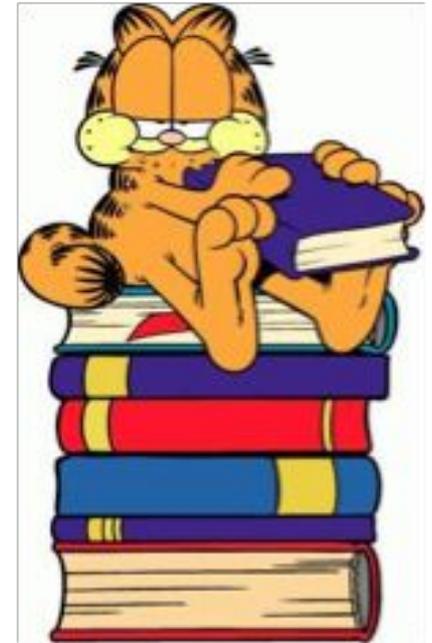


EF is meaningless alone...

Executive functions must interact with other cognitive domains

For example,

- ❑ Dinner \neq pile of ingredients on the table
- ❑ Dinner \neq a recipe in a book
- ❑ Dinner = ingredients (what) plus a recipe (how)



“...certain executive functioning difficulties can emerge as early as kindergarten and they dramatically increase the likelihood of serious academic problems in the first half of elementary school.”

Barshay, Jill. *Does a lack of executive function explain why some kids fall way behind in school?* The Hechinger Report. (2018)

“Even beyond childhood, the ability to exert self-control in the early years, for which EFs are essential, predicts achievement, health, wealth, and quality of life in adulthood.”

Wood, L., Roach, A. T., Kearney, M. A., & Zabek, F. (2018). Enhancing executive function skills in preschoolers through a mindfulness-based intervention: A randomized, controlled pilot study. *Psychology In The Schools*, 55(6), 644-660.
doi:10.1002/pits.22136

“Children with learning disabilities have a difficult time performing actions that rely on executive functioning and therefore cannot reach the level expected of their peers in areas such as language...”

Bishara, S., & Kaplan, S. (2016). Executive Functioning and Figurative Language Comprehension in Learning Disabilities. *World Journal Of Education*, 6(2), 20-32.

“Executive function skills were advanced as children communicated and negotiated with each other the components of their games during guided play. The engaging play motivated these students to practice self-regulation...”

Cavanaugh, D. M., Clemence, K. J., Teale, M. M., & Montgomery, S. E. (2017). Kindergarten Scores, Storytelling, Executive Function, and Motivation Improved through Literacy-Rich Guided Play. *Early Childhood Education Journal*, 45(6), 831-843.

“...both attention shifting and inhibitory control demonstrated unique direct associations with reading comprehension [in 4th graders].”

Kieffer, M. J., Vukovic, R. K., & Berry, D. (2013). Roles of Attention Shifting and Inhibitory Control in Fourth-Grade Reading Comprehension. *Reading Research Quarterly*, 48(4), 333-348.

What do we know about EF?



What are executive functions?

Working Memory

The ability to store, manipulate, and sustain new information in the mind.

Cognitive Flexibility

The ability to switch tasks or shift our attention between information.

Inhibitory Control

One's level of distractedness or ability to resist impulses or urges.

Enhancing and Practicing Executive Function Skills with Children from Infancy to Adolescence



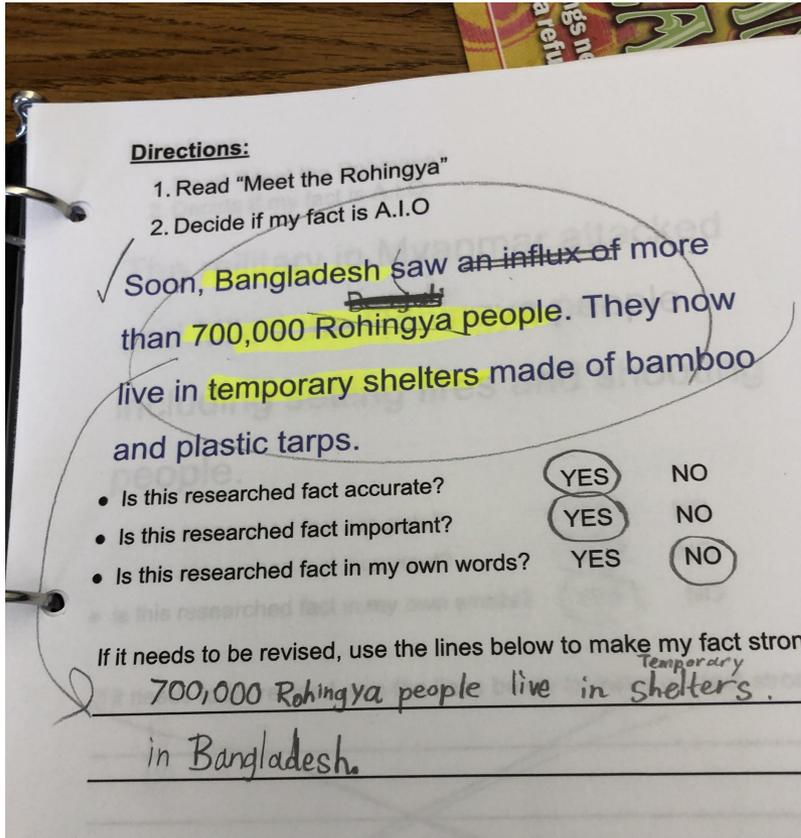
Center on the Developing Child  HARVARD UNIVERSITY



Executive Functions & Literacy

Ages:	Ideas to Support and Strengthen EF			
3-5 Years Old	Imaginary Play <ul style="list-style-type: none"> • create “roles” with behaviors that must be sustained • inhibit behaviors or responses that don’t follow “roles” or developed “rules” of play 	PLAN a play: <ul style="list-style-type: none"> • planning requires thinking first, then acting = inhibitory control 	Group Storytelling: <ul style="list-style-type: none"> • requires flexibility and self-control to adjust additions to the plot 	BINGO <ul style="list-style-type: none"> • Promotes inhibitory responses when the rule states to cover the opposite of what the leader calls (e.g. put a chip on day when “nighttime” is called) • Promotes working memory while holding directions in mind
5-7 Years Old	Games Requiring Students to Remember Locations or Match: <ul style="list-style-type: none"> • Promotes Working Memory and Cognitive Flexibility • Think of your classroom; How can a game of memory be used? (e.g. Can you create your own version of <i>Go Fish</i>, <i>Crazy Eights</i>, <i>Uno</i> using vocabulary, content, strategies?) 		Matching and Sorting <ul style="list-style-type: none"> • Promotes cognitive flexibility when rules are changed, (e.g. sort by matching letters, sort letters by color now) <p>Introduce conflict resolution or negotiating strategies (e.g. flipping a coin)</p>	
7-12 Years Old	<p>Games increase in complexity</p> <ul style="list-style-type: none"> • Promote increased self-regulation • Music, Singing, and Dancing continue to promote working memory, self-monitoring, selective attention 		<ul style="list-style-type: none"> • Create songs “to the tune of” using classroom vocabulary or content • Crossword puzzles • promotes working memory, cognitive flexibility 	

Promoting Self-Monitoring



How are you teaching students to self-monitor?

Executive Functioning Adolescents

"During adolescence, executive function skills are not yet at adult levels, but the demands placed on these skills often are."

developingchild.harvard.edu

Goal Setting:

- Teach students HOW to set goals and reach them
- Short term vs long term goals
- Require writing a personal journal (self-reflection and planning)



Curricular Implications:

- Model how to break down projects into manageable pieces
- Create timelines *with* students
 - (e.g. provide rationale for time between essay drafts)
- Use timers in the classroom to promote self-monitoring
 - (e.g. if you're confused, lost, uncertain of what to do, what needs to happen next?)
- Sabotage experiences
 - (e.g. require students to multitask and then reflect on how that impeded learning)
- Require students to maintain lists of what they have learned when it comes to their process of learning
 - (e.g. "While working on this project, I learned __. Next time I will__.")

Working Memory

**What cognitive
process is
involved:**

Cognitive Flexibility

*Please write down
the sentence I am
about to say: "..."*

Inhibitory Control

Working Memory

What cognitive process is involved:

Cognitive Flexibility

You have asked your students to sort words by initial sounds and then by rhyming patterns.

Inhibitory Control

bat

cat

boy

coy

sat

soy

Working Memory

What cognitive process is involved:

Cognitive Flexibility

Generate as many meanings as you can for the word 'wave.'

Inhibitory Control

Working Memory

What cognitive process is involved:

Cognitive Flexibility

What color is each word written in?

Inhibitory Control

- **Blue**
 - **Green**
 - **Yellow**
-

What are executive functions?

Working Memory

Cognitive Flexibility

Inhibitory Control

**How are EF utilized
in the classroom?**

- Student planning
 - Student organization
 - Student work completion
 - Switching tasks
 - Student goal setting/reaching goals
 - Making decisions
 - Remembering/Recalling
 - Using/applying strategies
 - Timeliness
 - What else?
-

Working Memory

Letter
recognition
and word
reading

Comprehension
of increasingly
longer/more
complex texts

Spelling,
handwriting,
and written
expression

retain text ideas,
make note of causal
links between them,
and update
understanding as he
or she encounters
new ideas in text

Working Memory & Fluency

This is harder for
you to comprehend
because there is greater
space and therefore time
between each
word. Your
lack of fluency
makes it harder
to construct and
retain meaning.

Cognitive Flexibility

Readers shift attention between textual elements and goal-driven skills like rereading, skimming, finding a specific answer

Metacognition
(monitoring comprehension)

Multiple Uses:
Multiple meaning words; figurative language; etc.

Shift between letter sounds and word meaning.

Take on multiple perspectives (fictional and argumentative texts)

Figurative Language and EF

Metaphors	
BORING He is fast	EXCITING! Whoa! didn't he say that
He is Tall	Conrad is the tallest person in class
He is Awful	He is a great person before it seems to be scary
HE IS SLOW	Who is the most slow to work
He is Fast	Don't ask your teachers to write
He is Awful	We have the most who to be scared of in school
It is silly	On April Fools Day I was a clown
You are Stunning	You are the OX of my School
He is Slow	It was a great contest for the school
ten He is scared easily	Please don't be a scaredy cat
John is Slow	She is a Slur machine
He is Fast	He is the best person from letters class



Inhibitory Control

Allows
readers to
make
accurate
inferences

Synthesize
information
across
prepositions

Suppress
irrelevant
information

Determining Significance

Introduce
abstract
concepts as
concretely
as possible.

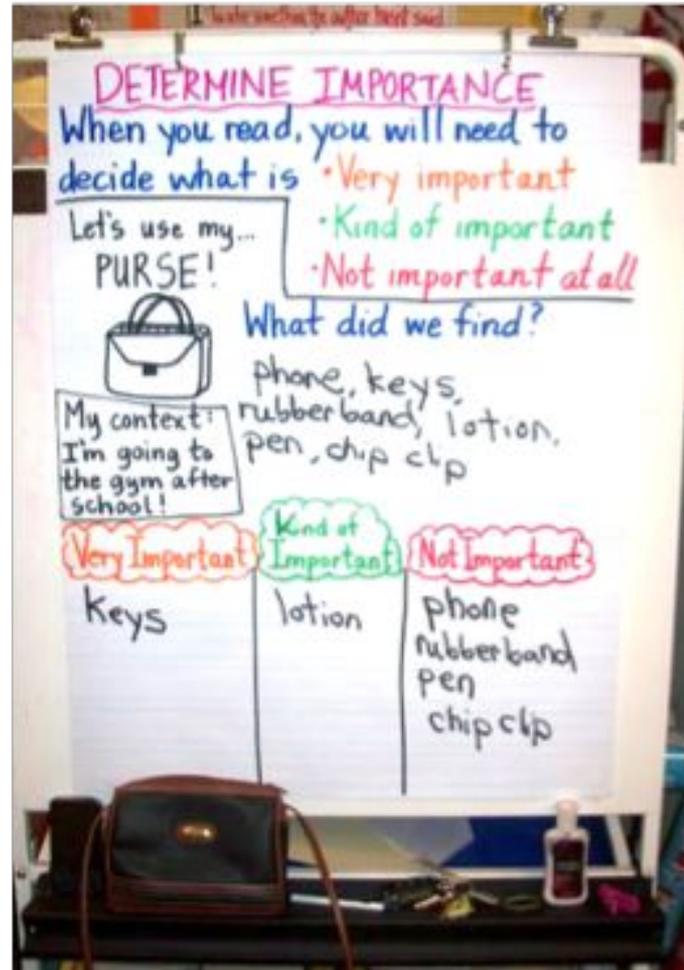


Image Source:

<http://lifein4b.blogspot.com/>

Access points are the most concrete:

To Support Perspective Taking

Concrete

Abstract

Personal:

Identify personal culture

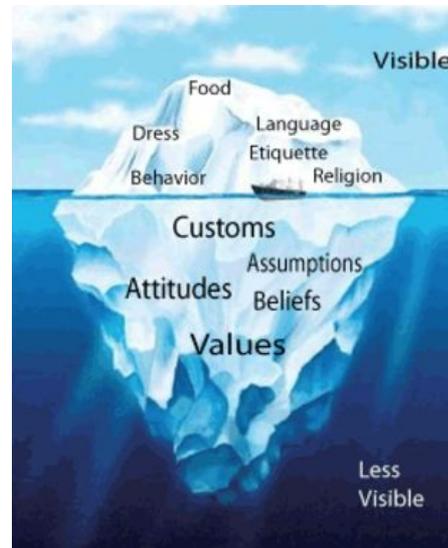
Sentence Scramble

Directions:

1. Take all the cards that are the same color.
2. Create a **real** question.
3. Find the same question on your worksheet.
4. Answer the question in your worksheet.
5. Put the cards back. Take a new color.

Complex:

Visible and Invisible Culture

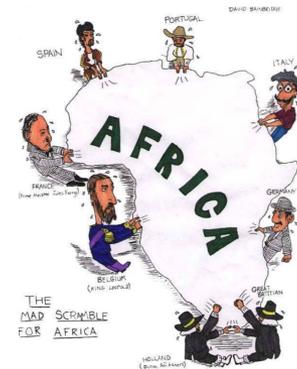


Historical:

Political Cartoons



'GOLD DIGGERS'



4) What are teacher practices and instructional routines designed to enhance student learning?

During Planning:

If a student exhibits weaknesses with:

Cognitive Flexibility

Working Memory

Inhibitory Control

what supports/strategies can you use to make
[insert objective] more accessible and universally
designed?

UDL Creates Expert LEARNERS who are:

- a) strategic, skillful and goal directed;
- b) knowledgeable, and
- c) purposeful and motivated to learn more.



Source: <http://www.udlcenter.org/>

Universal Design for Learning



Recognition Networks

The "what" of learning



How we gather facts and categorize what we see, hear, and read. Identifying letters, words, or an author's style are recognition tasks.

Strategic Networks

The "how" of learning



Planning and performing tasks. How we organize and express our ideas. Writing an essay or solving a math problem are strategic tasks.

Affective Networks

The "why" of learning



How learners get engaged and stay motivated. How they are challenged, excited, or interested. These are affective dimensions.

Universal Design for Learning Guidelines

I. Provide Multiple Means of Representation

1: Provide options for perception

- 1.1 Offer ways of customizing the display of information
- 1.2 Offer alternatives for visual representations
- 1.3 Offer alternatives for auditory representations

2: Provide options for language, expressions, and symbols

- 2.1 Clarify vocabulary and symbols
- 2.2 Clarify syntax and structure
- 2.3 Support decoding of text and symbols
- 2.4 Promote understanding of language
- 2.5 Illustrate through multiple representations

3: Provide options for comprehension

- 3.1 Activate or supply background knowledge
- 3.2 Highlight patterns, critical features, big ideas, and relationships
- 3.3 Guide information processing, visualization, and manipulation
- 3.4 Maximize transfer and generalization

II. Provide Multiple Means of Action and Expression

4: Provide options for physical action

- 4.1 Vary the methods for response and navigation

6: Provide options for executive functions

- 6.1 Guide appropriate goal-setting
- 6.2 Support planning and strategy development
- 6.3 Facilitate managing information and resources
- 6.4 Enhance capacity for monitoring progress

III. Provide Multiple Means of Engagement

7: Provide options for recruiting interest

- 7.1 Optimize individual choice and autonomy

9: Provide options for self-regulation

- 9.1 Promote expectations and beliefs that optimize motivation
- 9.2 Facilitate personal coping skills and strategies
- 9.3 Develop self-assessment and reflection

Resourceful, knowledgeable learners

Strategic, goal-directed learners

Purposeful, motivated learners

Provide Options for Executive Functions

6.1 Guide appropriate goal-setting

6.2 Support planning and strategy development

6.3 Facilitate managing information and resources

6.4 Enhancing capacity for monitoring progress

Backwards Design's 3 Stages

Identified Desired Results
(Big Ideas and Skills)

Determine Acceptable Evidence
(Assessments)

Plan Learning Experiences and Instruction
(Learning Events)

Desired Results		
<p>Standards:</p> <ul style="list-style-type: none"> • Prioritize Standards • Unpack Standards • Prioritize and Identify Content Skills • Skills 	<p>Essential Questions:</p> <ul style="list-style-type: none"> • How will the students understand, and be able to do? 	
Assessment Evidence		
<p>Assessment Tasks:</p> <ul style="list-style-type: none"> • Observable • Measurable • Varied 	<ul style="list-style-type: none"> • How will you have students demonstrate a skill? • How will you have students demonstrate content? 	
Learning Plan		
Sequential	Multisensory	Support Executive Function
Build in review and repetition		Bloom's Taxonomy

Avoids great individual lessons that don't connect to the bigger goal.
"But it will be reeeeeeally fun!"

2 ways to look at this:

Intentional planning to simultaneously target EF and objectives:

- In addition to my literacy/content skills, this game is intentionally targeting turn-taking, active listening, cognitive flexibility, and organization of writing

Reflect on the hidden and intentional demands you're placing on your students:

- I made this game about building paragraphs and it was hard. I didn't realize how much cognitive flexibility was required to engage meaningfully.
-

These stages can be reordered, combined, modified, and repeated, based on students' needs.

- 1. Develop background knowledge**
 2. Discuss it
 3. Model it
 4. Memorize it
 5. Support it
 6. Independent performance
-

SRSD's 6 steps have:

Goal Setting → with support students set personal writing goals

Self-instruction → memorize mnemonics

Self-monitoring → activating prior knowledge to build schema knowledge and and compare prior knowledge to what is being written

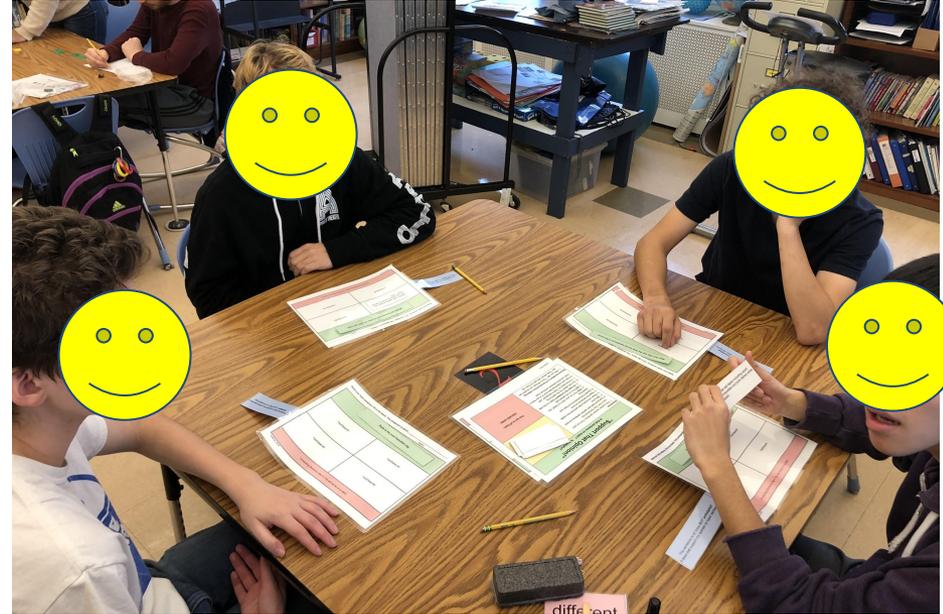
Self-reinforcement → teacher models how to use strategy, writing strategy often includes self-statements ("I"), independent practice



It's not *just* a game...

	Activity A	Activity B	Activity C	Activity D
<u>Planned Demands:</u> <ul style="list-style-type: none"> • What content is being reviewed? • What are the Literacy Objectives? 				
<u>Hidden Demands:</u> <ul style="list-style-type: none"> • What Executive Functions are utilized? • What prerequisite skills are necessary? 				

Activity A: Build a Paragraph



Literacy Skills:

- Introduce a topic clearly and group related information in paragraphs
- Recognize when irrelevant evidence is introduced

“Build That Paragraph Game” Directions:

1. Pull a topic card.
2. You must build a paragraph about that topic.
3. Take turns. Player 1 pulls a sentence and reads it out loud.
4. Decide if that sentence is on- or off-topic.
 - a. On-topic? Place the sentence on your mat
 - b. Off-topic? Place it in the discard pile.
5. Other players: You can steal the sentence if it supports your topic before it goes in the discard pile.

Activity B: Current Event Smackdown

Who is this about?


Where did this happen?


When did it happen?


What happened?


Why is this important to know?

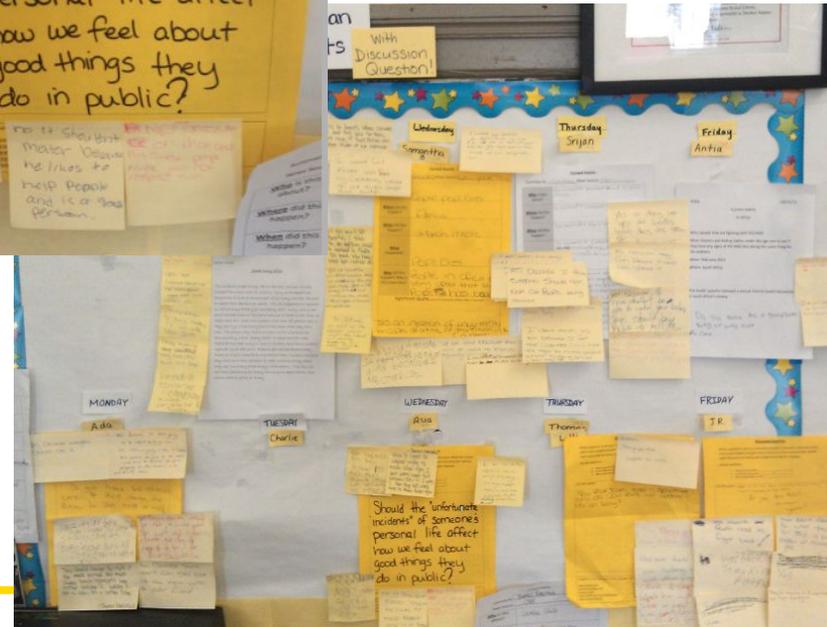
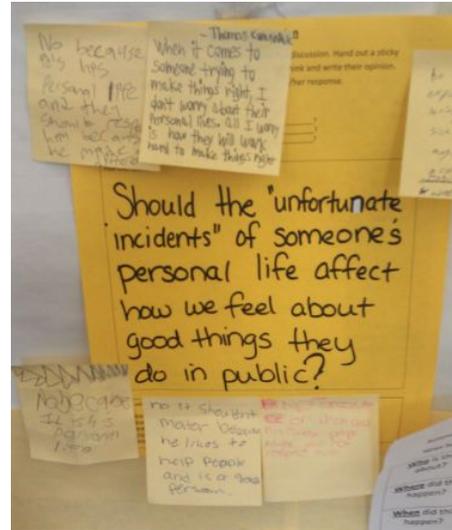

Literacy Target Skills:

- Identify main ideas of nonfiction text
- Summarize nonfiction text



Smackdown Game Directions:

1. Teacher prepares 5W cards face up in the middle of the table.
2. Teacher prepares detail cards from actual current event.
3. In a small group, students listen as a detail from the article is read aloud.
4. Students SMACK the 5W in the middle it answers.



Activity C: Figurative Language

- Matching
- Sorting
- Memory
- BINGO
- Silly Sentences



- Literacy Target Skills of Memory Game:**
- Identify figurative language expression with its literal meaning

Activity D: MEGAWords*

Literacy Target Skills:

- decode and spell multisyllabic words
- self-monitor for meaning and accuracy



*The *Megawords* series consists of eight Student Books and accompanying Teacher's Guides that provide a systematic approach to decoding, spelling, and understanding the multisyllabic words encountered from the fourth grade on.

<http://eps.schoolspecialty.com/products/literacy/phonics-word-study/megawords-2nd-edition/about-the-program>

If a teacher says:

“Well, I tried [insert skill or content objective] and it didn’t work. What do I do now?”

Step 1: Make a list of the demands...ALL the demands.

Step 2: Walk through potential hurdles:

QUESTION	Did you provide written directions?	Did you isolate the new skill being taught?	Did you carefully scan the text for prerequisite skills?
RESPONSE	NO? → You hijacked their working memory before the activity even began	NO? → His challenges with inhibition put him at a disadvantage because he had to manage excessive extraneous information	NO? → Her comprehension may have been compromised by the requirement to use cognitive flexibility on figurative language, multiple perspectives, or multiple meaning words
SOLUTION			

Recommendations

1. Know the literacy demands of your discipline
2. Actually DO everything you ask your students to do in advance:
 - a. Complete analyse for all literacy and EF demands



3. Use your analysis to make hidden demands visible or intentional and supported
4. Find your access point: What is the most concrete way to begin?
5. Build in opportunities for students to work together

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Kieffer, M. J., Vukovic, R. K., & Berry, D. (2013). Roles of Attention Shifting and Inhibitory Control in Fourth-Grade Reading Comprehension. *Reading Research Quarterly*, 48(4), 333-348.

Santangelo, T., Harris, K.R., & Graham, S. (2008). Using Self-Regulated Strategy Development to Support Students Who Have "Trubol Giting Thangs Into Werds. *The Reading Teacher*.

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