

Using Brain Science to Enhance Engagement

NH 21st Century Community Learning Centers Conference

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A Few Foundational Strategies

- *Cueing Behavior (without using your voice)*
- *Teach “Time Orientation”*
- *Fun “Starts” to Grab Attention and Build Skills*

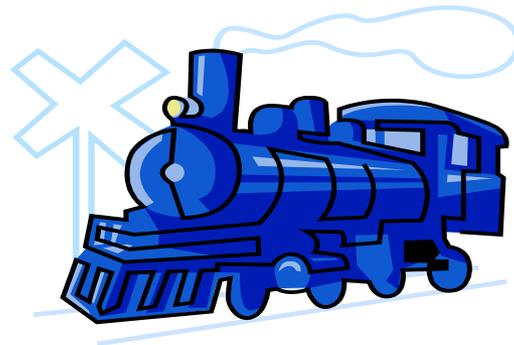
Cueing Behavior

- *Music*
- *Chimes*
- *Train Whistle*



Cueing Behavior

- Music= *“You Should be Moving”*
- Chimes= *“Stop and Listen”*
- Train Whistle= *“Important!”*



Teach Time Orientation



Fun “Starts” to Grab Attention and Build Skills

- 1. Joke of the Day*
- 2. Daily Brain Test*
- 3. Brain Quiz*



Joke of the Day

What do you call a
Tyrannosaurus under
stress?

Joke of the Day

What do you call a
Tyrannosaurus under
stress?

A nervous Rex

Starting With a Smile

(Real Answers from Real Students)

Q: If you had 3 apples and 4 oranges in one hand and 4 apples and 3 oranges in the other hand, what would you have?

Starting With a Smile

Q: If you had 3 apples and 4 oranges in one hand and 4 apples and 3 oranges in the other hand, what would you have?

A: Very large hands.

Starting With a Smile

Q: In which battle did Napoleon die?

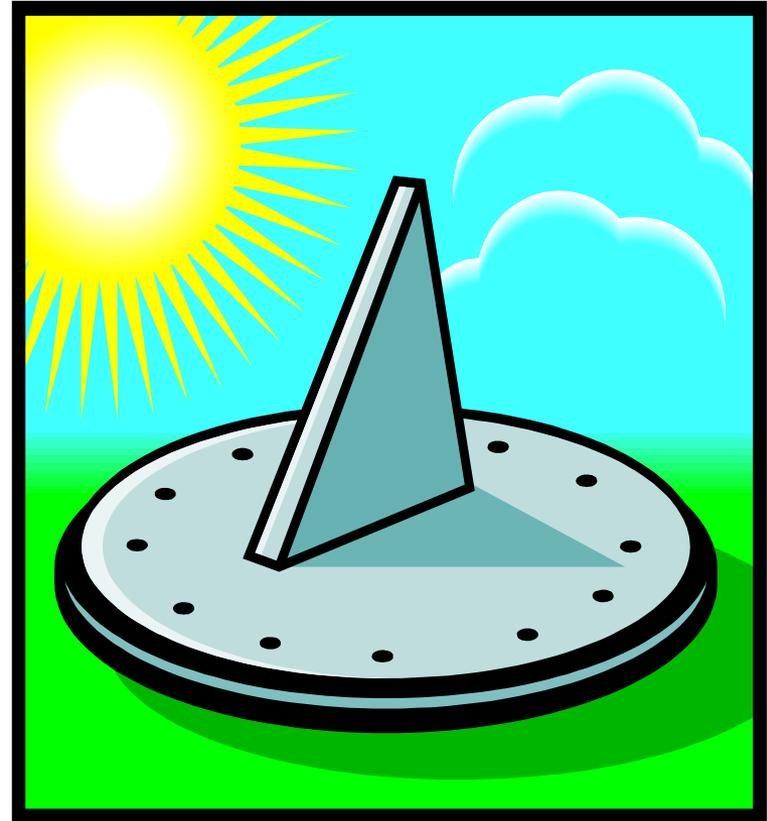
A: His last battle.

Daily Brain Test!



Daily Brain Test

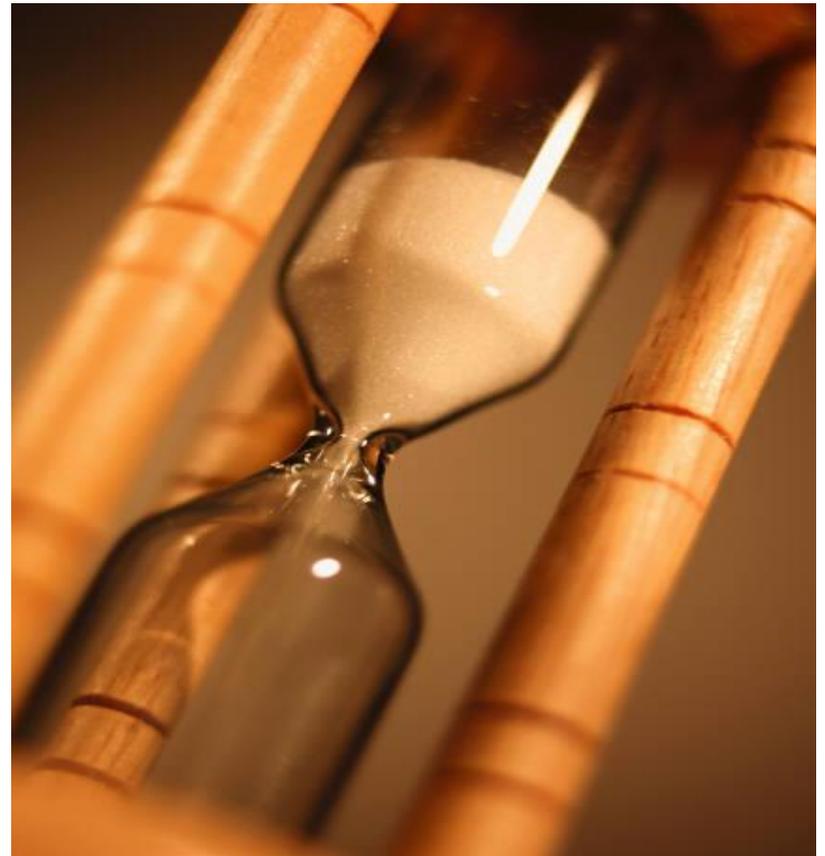
A sundial is the timepiece with the fewest moving parts. What type of timepiece has the most moving parts?



Daily Brain Test

A sundial is the timepiece with the fewest moving parts. What type of timepiece has the most moving parts?

**The
hourglass**



The Power of Prediction

“After curiosity has been provoked, students will sustain attention if they are asked to predict...it is important that all students make predictions and “bet” on their predictions.”

Judy Willis

Learning & the Brain Summer Institute (2014)



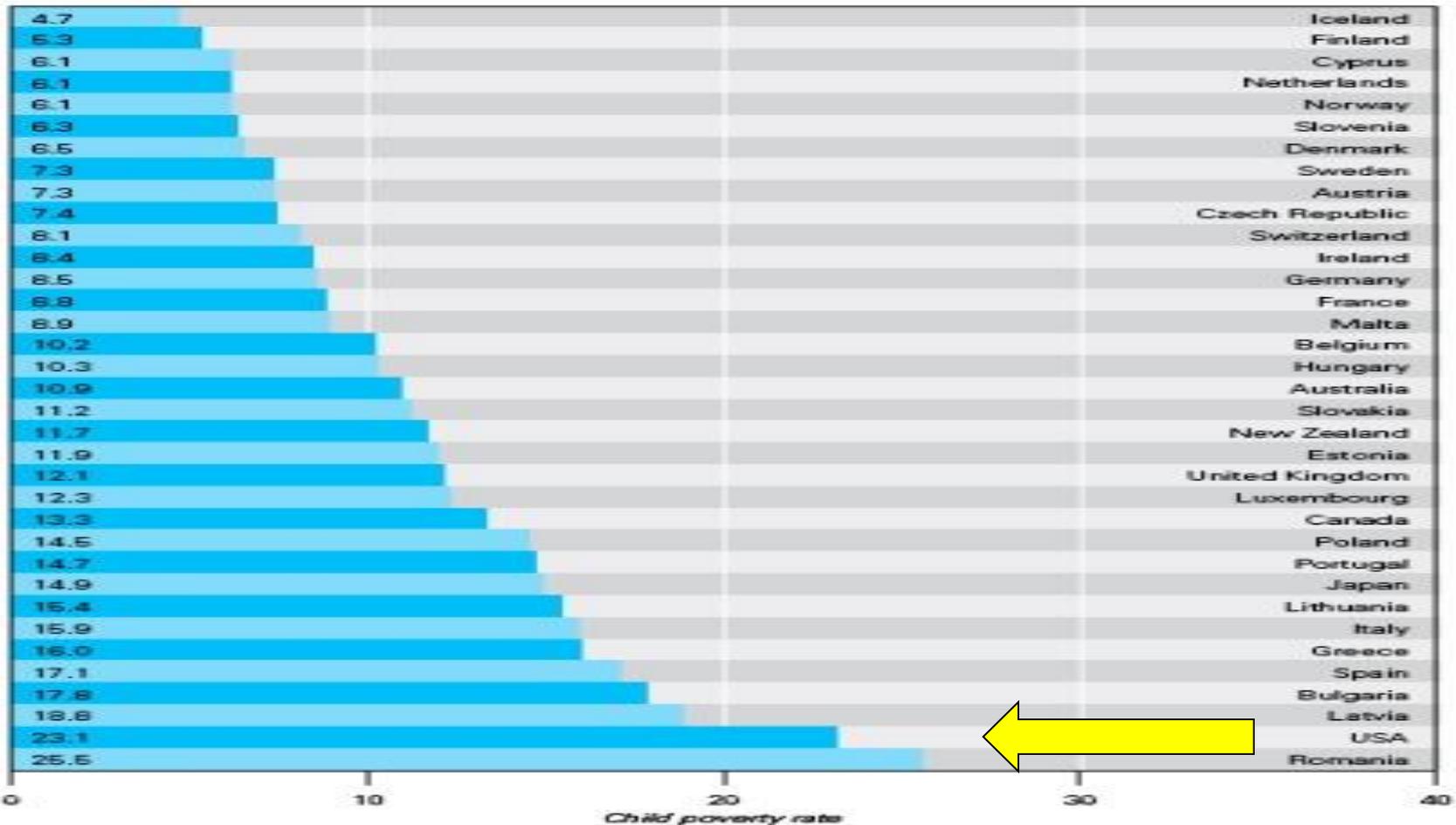
**App for student responses at
www.nearpod.com**

You Predict...



Among the top 35 developed nations of the world, where does the US rank in child poverty rate?

World Child Poverty Rate



What is Engagement?

The degree of attention, curiosity, interest, optimism, and passion that students show when they are learning or being taught, which extends to the level of motivation they have to learn and progress in their education.

Engagement is the Essence of Education

- “Educate” originates from the latin word “educō” which means to induce (induce) or bring out in others.
- To “induce” excitement in learning, you have to get excited yourself!



*The opposite of Engagement
is Boredom.*

How Engaged are You?



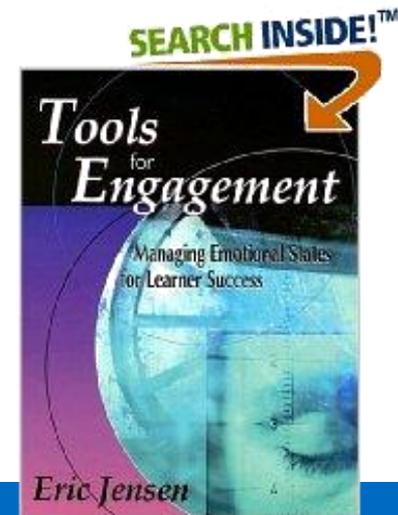
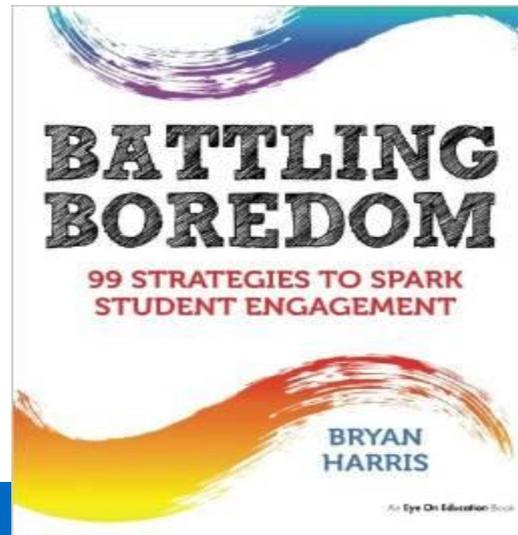
Whaddya Doin' Here?

- *Left Handshake*
- *Name?*
- *Where From?*
- *What Do You Do?*
- *Whaddya Doin' Here?*



Engagement (Anti-Boredom)

- There are hundreds of engagement activities.
- You can use engagement in the beginning, the middle, and the end of a session.
- Two of my favorite engagement activity resources are *Tools for Engagement* by Eric Jensen and *Battling Boredom* by Brian Harris!



Let's Organize Our Neighborhoods!



Is Boredom Really a Problem?



Predict the Outcome!

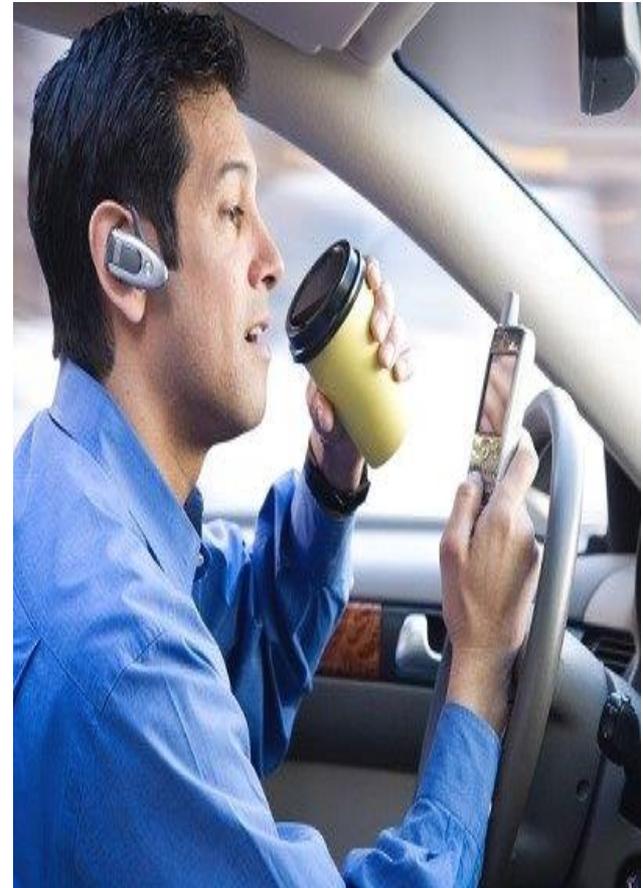
- College students in room by themselves.
- 6-15 minutes, no electronic devices.
- Given choices of how to use time:
 1. Be alone with his/her thoughts or;
 2. Self-stimulate using electric shock.

What percentage of subjects (male and female) utilized electric shock?

You Would Rather Endure Electric Shocks Than Sit Alone With Your Thoughts!

- *Many—particularly the men—chose electric shock over no external sensory stimuli.*
- *67% of males shocked themselves.*
- *33% of females shocked themselves.*

Wilson, et.al., Science, 4 July 2014, vol. 345, No. 6192, pp. 75-77.



Is Student Boredom Really a Problem?

Students who are bored or inattentive or who put little effort to schoolwork are unlikely to benefit from better standards, curriculum, and instruction unless schools, teachers, and parents take steps to address their lack of motivation.

On the other hand, students who are motivated to learn have higher achievement, show better understanding of the concepts they are taught, are more satisfied with school, and have lower dropout rates.

***“40% of American High School Students Chronically Disengaged from School,”
Forbes, (March 2013) citing study papers by the Center for Educational Policy at
George Washington University***

Strategy: Boost Engagement with the “Trumps”



Please Note!

The term “Trump” is used as in the winning hand in many popular card games. It is not used to refer to the current presumptive Republican nominee for President.

The 6 Trumps of Engagement

1. Movement Trumps Sitting

1. Movement Trumps Sitting

- “Even the mildest exercise boosts brain power.” John Medina, Brain Rules (2008)
- Sitting for extended periods of time makes thinking and learning more difficult.
- Guideline: Move your students every 10-20 minutes (1 minute x age is ideal).

1. Movement Trumps Sitting

- Standing and Stretching
- *“Whip Around!”*
- Bending and Writing
- Wiggling Arms and Legs
- Rolling Heads and Shoulders
- “Dominant Eye”
- “The Cerebellum Challenge”

Would You Like to Learn...

A tool to introduce and/or review content that will:

1. Increase student engagement;
 2. Enhance memory;
 3. Improve focus
- and be **FUN** all at the same time?



A Great Review Tool: Let's Play "Whip Around"



Whip Around Rules

- You'll need a partner (look for someone who looks really smart!)
- Stand back-to-back so you can see screen
- "True" is a "T" and "False" is crossed wrists
- Then (wait for it) "Whip Around"



Whip Around Rules

- Quickly (but without hurrying), explain to your partner the “Whip Around” Rules.
- ***Any questions?***



Facts and Myths About Kids and Learning

1. The frontal lobes are the last part of the brain to fully develop, in most adolescents this occurs between ages 24 and 26.

Facts and Myths About Kids and Learning

1. *The frontal lobes are the last part of the brain to fully develop, in most adolescents this occurs between ages 24 and 26.*

TRUE! Brain imaging technology demonstrates most brains reach maturity about age 25!

Facts and Myths

About Kids and Learning

2. *The hypothalamus—the brain region of relevance—matures between the 4th and 5th grades causing students to ask: “Why do I have to learn this?”*

Facts and Myths

About Kids and Learning

2. *The hypothalamus—the brain region of relevance—matures between the 4th and 5th grades causing students to ask: “Why do I have to learn this?”*

TRUE. The hypothalamus comes fully “on-line” about age 10 and relevance becomes very important to the brain—but future orientation is still a ways away...

Facts and Myths

About Kids and Learning

3. *Educational neuroscientists recommend more vigorous physical exercise for 14-18 year olds than for any other age group.*

Facts and Myths

About Kids and Learning

3. *Educational neuroscientists recommend more vigorous physical exercise for 14-18 year olds than for any other age group.*

TRUE. Jay Geid at the NIH and John Ratey (Spark) both emphasize that teens need vigorous physical exercise for optimal brain development and function but are getting less of it both in and out of school.

Facts and Myths About Kids and Learning

4. *Distress (too much cortisol) may kill neurons in the hippocampus where memory is made.*

Facts and Myths

About Kids and Learning

4. *Distress (too much cortisol) may kill neurons in the hippocampus where memory is made..*

True! Excess cortisol attacks the Hippocampus, the brain's memory maker resulting in significant problems in both learning and retrieval.

Facts and Myths

About Kids and Learning

5. *Although it makes up only 2% of body weight, the brain uses up to 20% of the body's energy.*

Facts and Myths

About Kids and Learning

5. *Although it makes up only 2% of body weight, the brain uses up to 20% of the body's energy.*

True! The brain uses energy constantly but also needs “downtime” (sleep) to work optimally.

The 6 Trumps of Engagement

1. Movement Trumps Sitting
2. Talking Trumps Listening

Talking Trumps Listening

- “Learning is social. We learn from, by, and with other people.” *Jay Cross, Informal Learning (2007)*
- Talking about content gives students 3 times the processing: 1) by listening to it; 2) by thinking about it; and 3) by restating it in their own words.

2. Talking Trumps Listening

- Insert short, frequent learner discussions throughout your lesson.
- Learner discussions can include pairs, triads, table groups or whole group conversations.
- Discussions can be as short as 1-minute or as long as time allows.

3 Stages of the Stress Response

(Amygdala Driven)

Amygdala compels you to:

1. *Solve the problem causing threat.*
2. *Escape from the threat.*
3. *Cope with the threat.*
4. *Defend yourself the best you can.*
5. *At any cost, survive.*

Alert!

Stress Response

Distress!

Cortisol

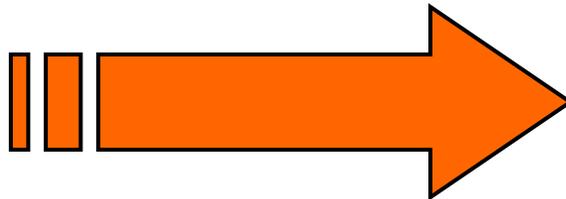
Cortisol x 2
Adrenaline

DANGER!

Your Amygdala is Like...

The Palace Guard

(Highly attuned to Trouble;
Watches; Worries; Acts
When Concerned)



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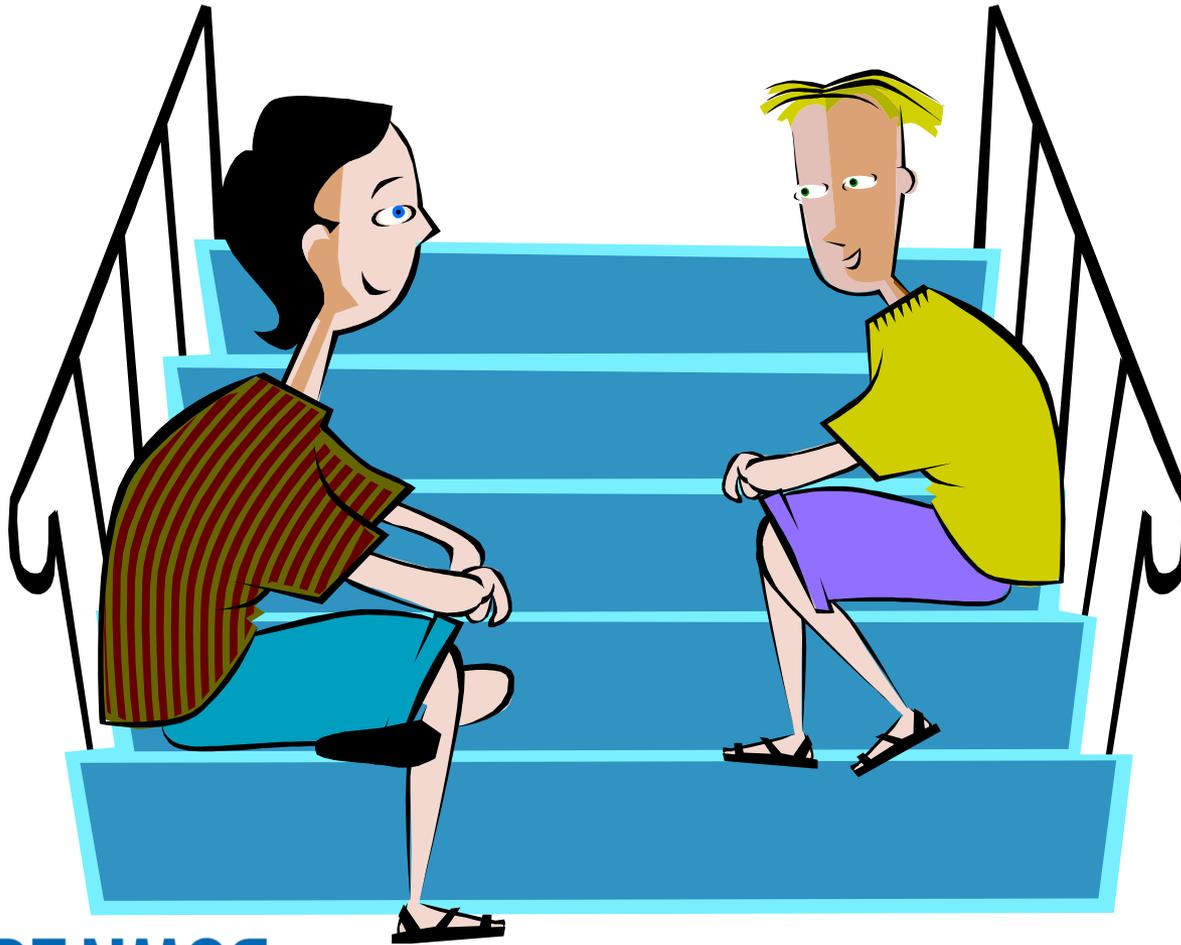
Cortisol x 2
Adrenaline

DANGER!

2. Talking Trumps Listening

- *“Turn to the person sitting next to you and tell her/him one fact you know now that you didn’t know before.”*
- “Tell two people near you three facts you just learned about the topic.”
- “Take two minutes and discuss how you might use this information.”
- “Ask someone seated near you a quiz question about the content. Give her/him a thumbs up if the answer is correct.”

Nudge a Neighbor Time!



Explain the Stress System to Your Neighbors!

3 Stages of the Stress Response (Amygdala Driven)

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Alert!

Stress
Response

Distress!

Cortisol

DANGER!

Cortisol x 2
Adrenaline

The 6 Trumps of Engagement

1. Movement Trumps Sitting
2. Talking Trumps Listening
3. Images Trump Words



Images Trump Words

“The brain’s capacity for long-term memory of pictures seems almost unlimited.”

— Pat Wolfe, *Brain Matters* (2001)



Images Trump Words

“Images” include:

- Drawings
- Photos
- Stories
- Metaphors

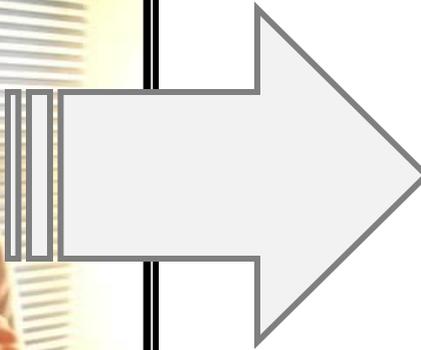
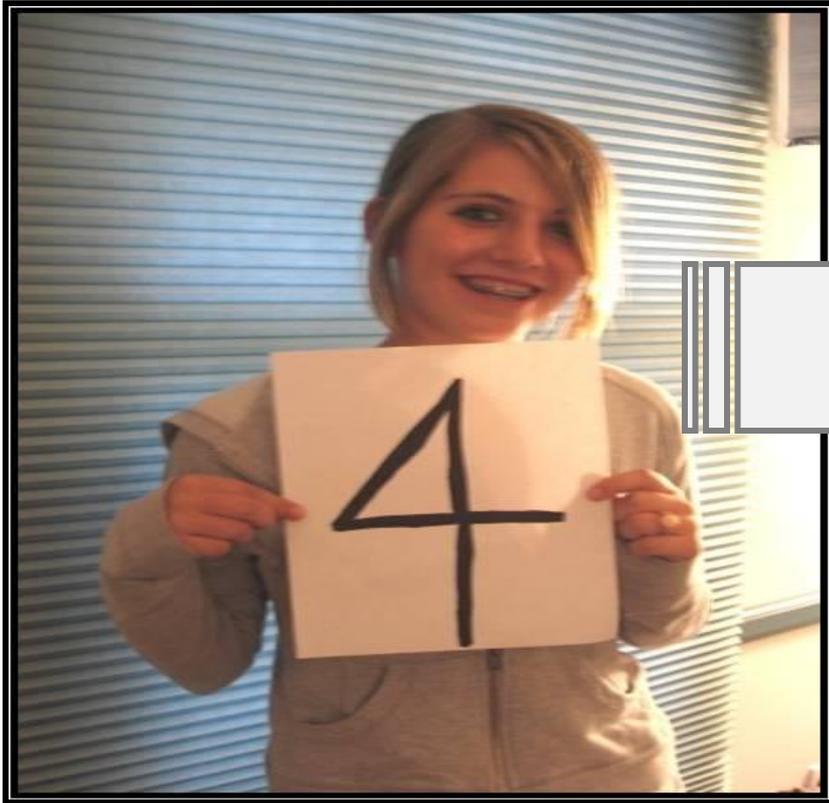


3. Images Trump Words

Examples of Image Tools:

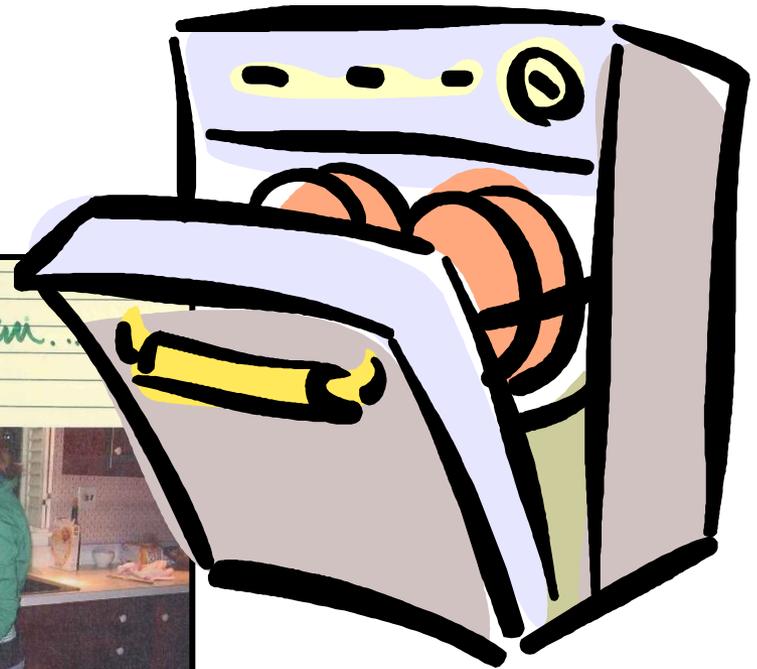
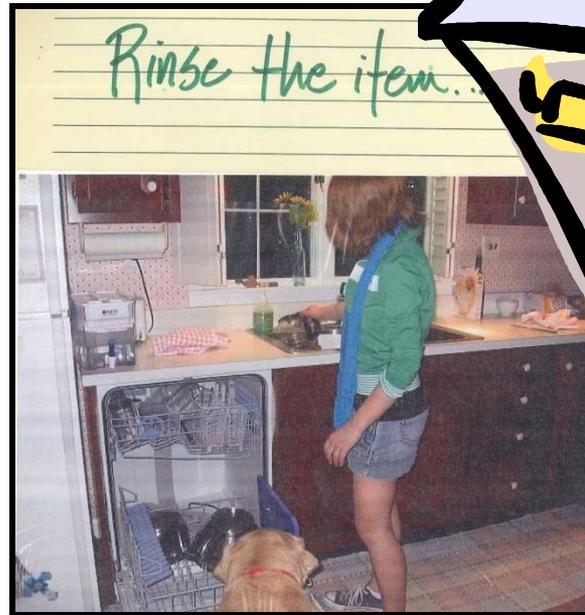
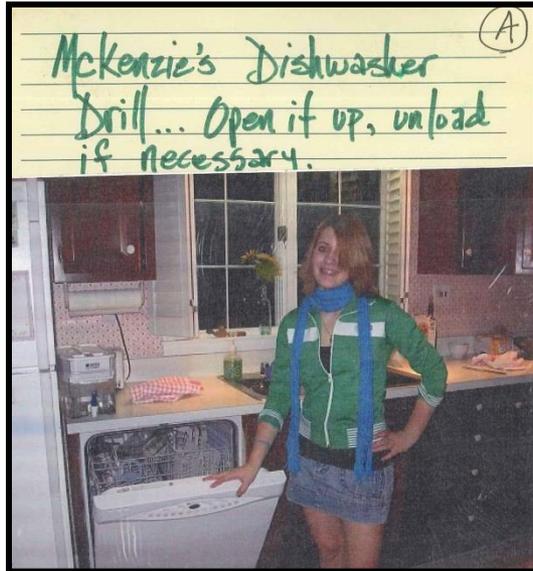
- Mind Maps
- ***Photo Strips***
 - Logos
- What's Different?
- Case Studies
- Kinesthetic Vocabulary

Creating Photo Strips: Smile and Say Cheese!

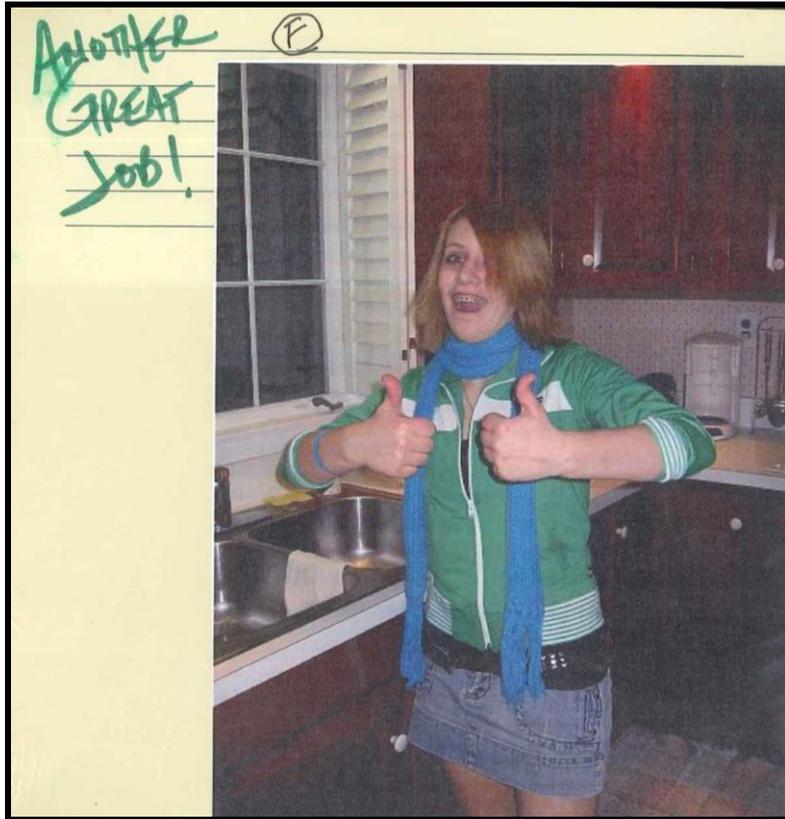


- Make routine processes visual
- Students are good at creating these!

McKenzie and the Dishwasher



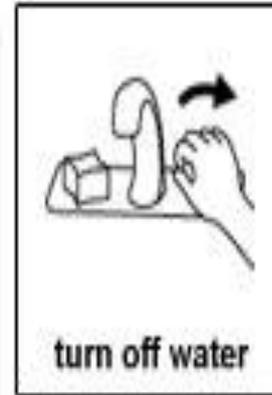
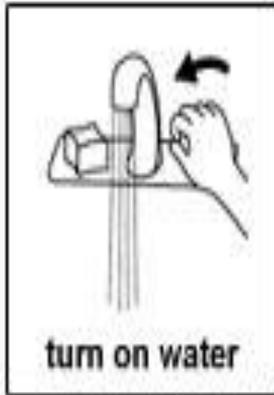
McKenzie and the Dishwasher



- “Negative Loop” around dishwasher chore.
- Oral Recipe repeatedly failed.
- Photo Book provided the “surrogate frontal lobe” she needed.



More Photo Strip Ideas



The 6 Trumps of Engagement

1. Movement Trumps Sitting
2. Talking Trumps Listening
3. Images Trump Words
4. Writing Trumps Reading



4. Writing Trumps Reading

- Writing is a whole brain task. It is almost impossible to write about one thing and think about something else at the same time.
- Writing is also multi-sensory, in that it is kinesthetic, visual-spatial and tactile.
- Students cognitively process information a second time when they write it after hearing it.

4. Writing Trumps Reading

“Most learners will remember content that they write longer than the content they hear, or the content they read. Thus, taking notes of some kind is a valuable form of processing information...known to increase the likelihood of understanding and remembering material.”

Jay Cross, Informal Learning (2007)

4. Writing Trumps Reading

Remember to stop talking and give learners a minute or so to write (or draw):

- *a short summary of what they learned*
- *three facts about the content*
- *a question they still have*
- *an opinion*
- *a quiz question*
- *a mind map*

4. Writing Trumps Reading

- Index Cards
- Post-It Notes
- Wrapping Paper Charts
 - Placemats
 - Whiteboards
- Electronic Devices
- *Think, Write, Pair, Share*

Think, Write, Pair, Share

*Is technology overuse
weakening our student's
social skills?*

The 6 Trumps of Engagement

1. Movement Trumps Sitting
2. Talking Trumps Listening
3. Images Trump Words
4. Writing Trumps Reading
5. Shorter Trumps Longer



5. Shorter Trumps Longer

The human brain learns best when content is divided into smaller “chunks” or segments of information (think phone numbers—a chunk of 3, another chunk of 3 and a chunk of 4)

5. Shorter Trumps Longer

“The way to make long-term memory more reliable is to incorporate new information gradually and *repeat it in timed intervals.*”

John Medina, Brain Rules (2013)

5. Shorter Trumps Longer

Asked by his teacher to summarize the life of Socrates in four sentences, the student said:

“Socrates lived a long time ago.

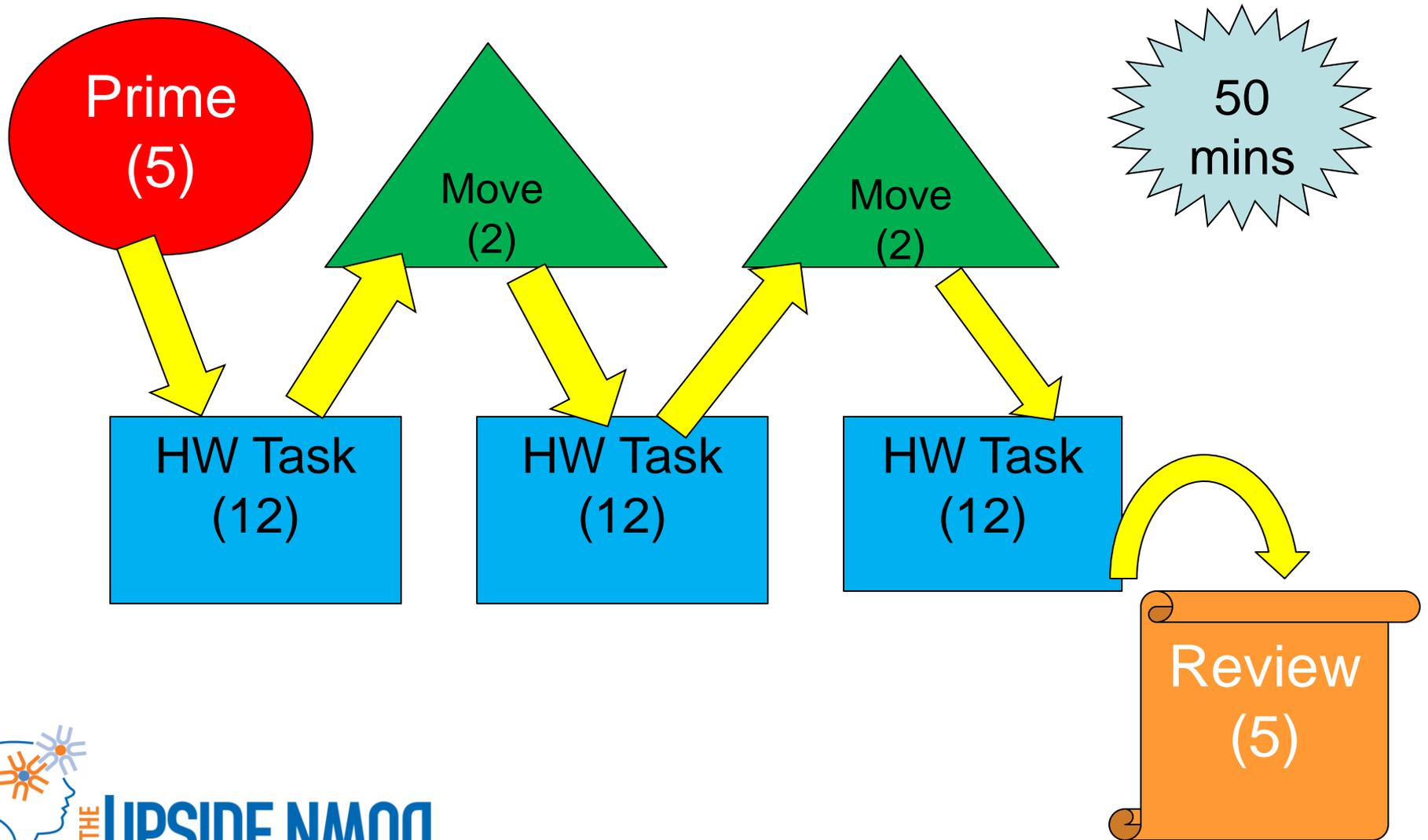
He was very intelligent.

Socrates gave long speeches.

His listeners poisoned him.”

--Anonymous

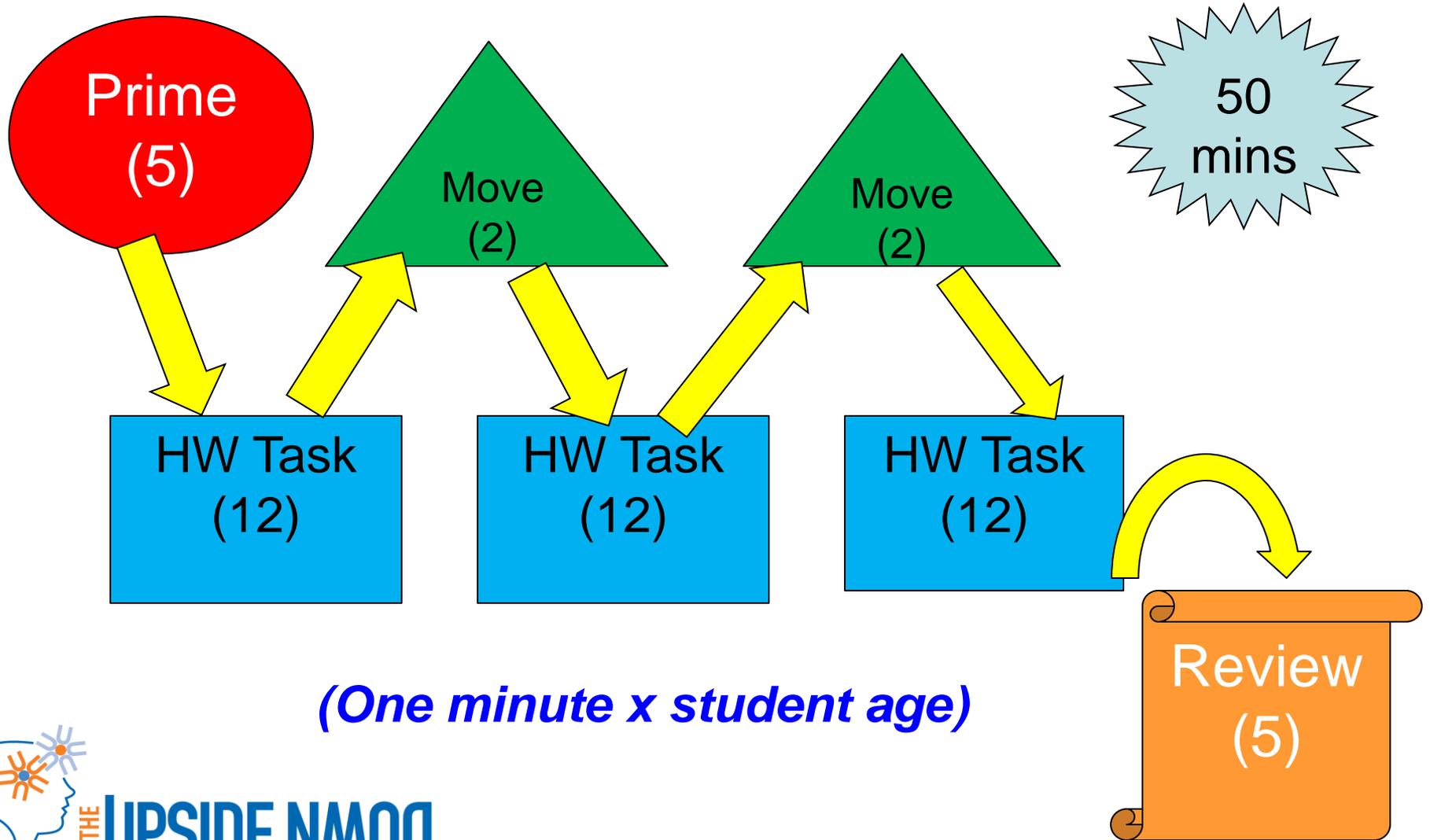
5. Shorter Trumps Longer



U-Draw-It!



Draw for you're A/S Time and Age



The 6 Trumps of Engagement

1. Movement Trumps Sitting
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3. Images Trump Words
4. Writing Trumps Reading
5. Shorter Trumps Longer
6. Different Trumps Same



6. Different Trumps Same

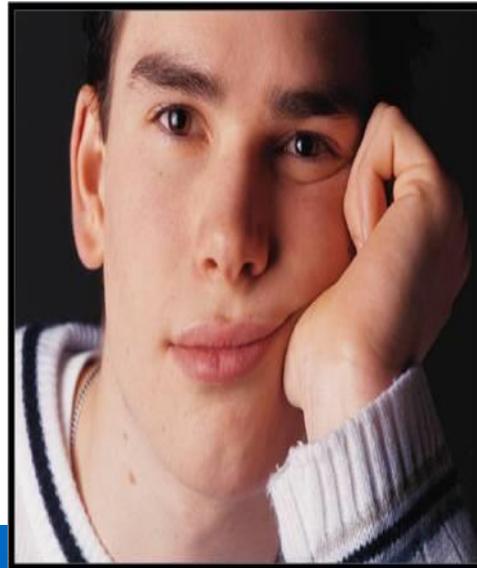
“Any stimuli introduced into our immediate environment, which is either new (novel) or of sufficiently strong emotional intensity (high contrast), will immediately gain our attention.”

Eric Jensen, Fierce Teaching (2010)

6. Different Trumps Same

Implication:

The brain will eventually ignore anything that is routine, repetitive, predictable, irrelevant or boring.



6. Different Trumps Same

- Change things regularly: your instructional methods, learner activities and the environment.
- Keep moving...
- Dress up!
- Simulations and role plays
- *Take Five*

E-Newsletter

- “Brain Waves”
- Monthly
- FREE!
- Better Brain Tip
- Workshops, Seminars, Downloads!
- Cool Tools!
- www.upsidedownorganization.org



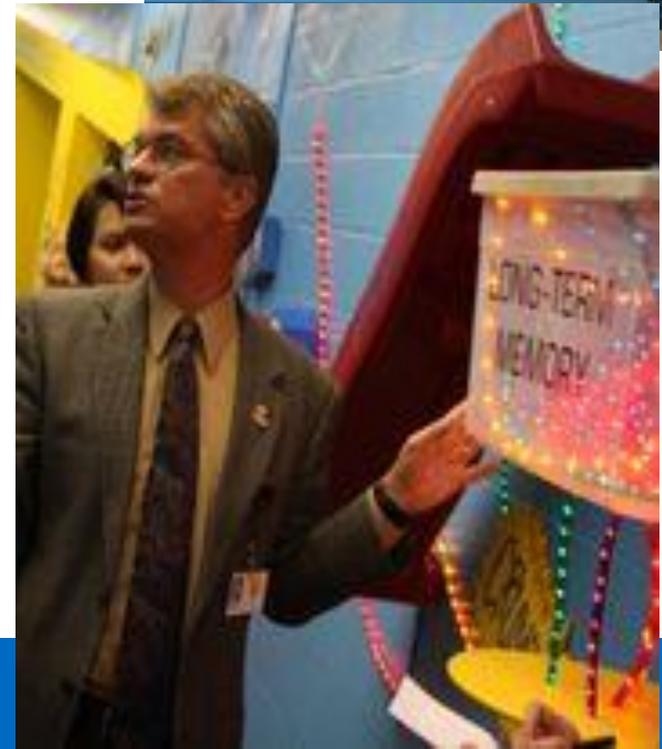
Plan to Attend!

- 2017 National At-Risk Education Conference
- Theme: ***“Stocking Your Toolbox: A Skill-Building Extravaganza”***
- The 2017 Conference will focus on providing a smorgasbord of skills for educators, counselors and support professionals to use with at-risk students from a wide-variety of contexts.

Walk the Brain Path!

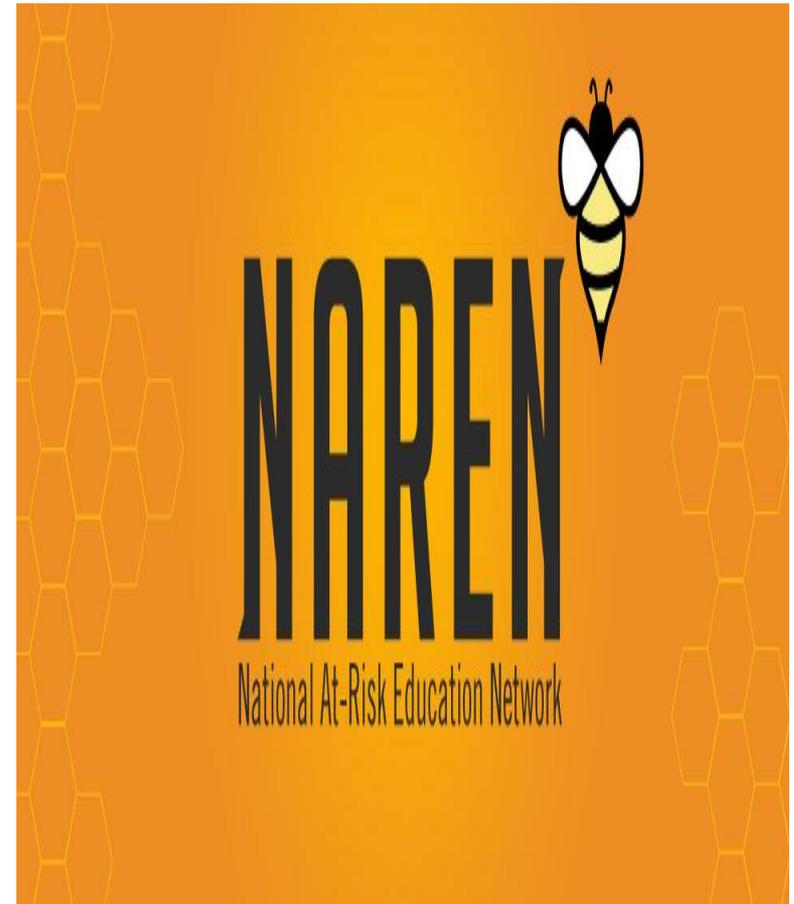
- Take a guided tour through your brain and learn the “pathway” information follows as it moves through your mind
- Designed as the most experiential conference you will ever attend, the 14th NAREN Conference will include a “Poverty Simulation.”

• **NAREN Conference**
April 3-4, 2017



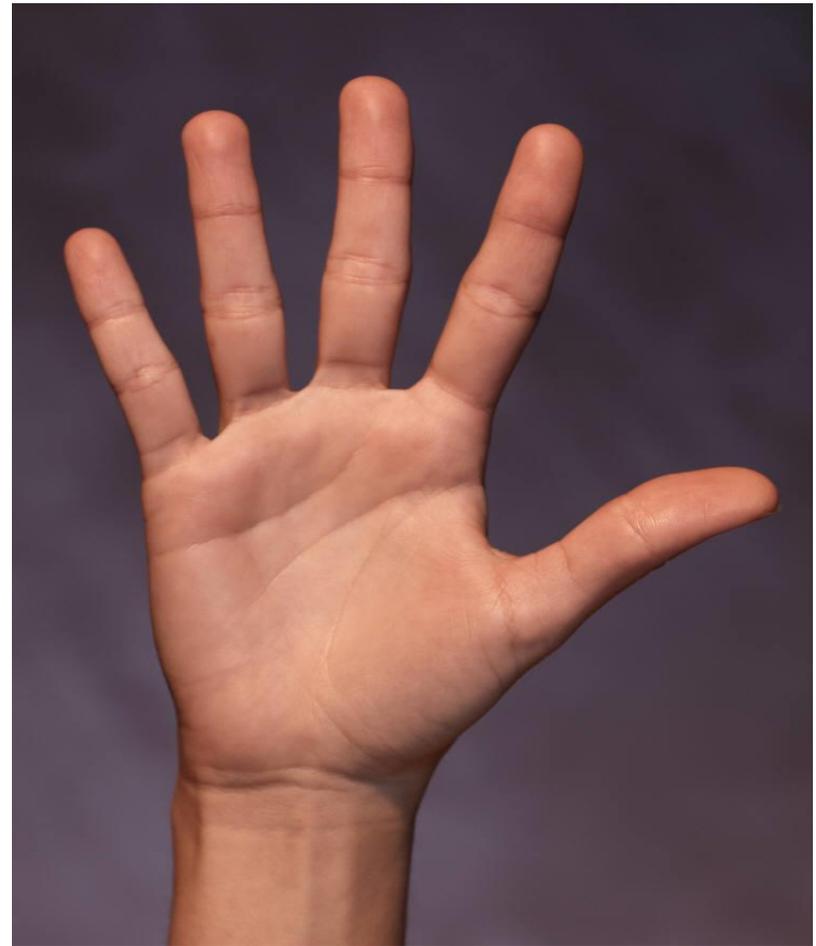
14th Annual NAREN Conference

- *Save the Date—
April 3-5, 2017!*
- *Because the
conference is
experiential, seats
are purposely
limited!*



Novel Teaching of EF Skills

The “Take 5” Approach



Short-Term Memory: Add On!



Building a Culture of Empathy and Positive Relationships

You Feel _____

Because _____



This Empathy card is courtesy of:
The Upside Down Organization ▣ 443-829-6155 ▣
www.upsidedownorganization.org

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for “Adults
Helping Kids”***



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