

Preparing Students to Become Critical/Deep Thinkers for Common Core Assessments:



*Mindsets Plus Skill Sets
Equal Results*

*Presented by
Kathleen Kryza
www.kathleenkryza.com*

STAND AND SHARE: Who's Here Today?

Please Stand if...

- You are an elementary teacher
- A middle or high school teacher.
- Educational administrator
- Affiliated with a college or university
- Psychologist, therapist or other counseling specialist.
- Parent
- Other



My Teaching Journey



Secondary
and
Elementary
Classroom
Teacher



Special
Education



Talent
Development



Multicultural
Learners



Juvenile
Delinquents



Teacher of Teachers
Teacher Researcher

My Intention:

To open the heart, nourish the mind,
and inspire the spirits of learners and teachers.

Become Teacher Researchers

- Teacher research is inquiry that is intentional, systematic, public, voluntary, ethical, and contextual.

What Do Teacher Researchers Do?

- Develop questions based on their own curiosity about their students' learning and their teaching
- Investigate their questions with their students systematically documenting what happens
- Collect and analyze data from their classes including their own observations and reflections
- Examine their assumptions and beliefs
- Articulate their theories
- Discuss their research with their colleagues for support as "critical friends" to validate their findings and interpretations of their data
- Present findings to others
- Talk to their students
- Give presentations (talk to teacher in room next door, go to conferences)
- Write about their research (school-wide publication, national), participate in teacher research web sites, online forums, and e-mail communications



Walking on the Shoulders of Giants and Alongside Colleagues

Science of Teaching

- Dr. Jack Naglieri
- Dr. Sam Goldstein
- Dr. Carol Dweck
- National Research Council
– How People Learn
- Dr. Judy Willis
- Dr. Jon Kabatt-Zinn



Art of Teaching

- Alicia Duncan
- Joy Stephens
- MaryAnn Brittingham
- The wonderful schools and teachers I have the honor work with around the globe

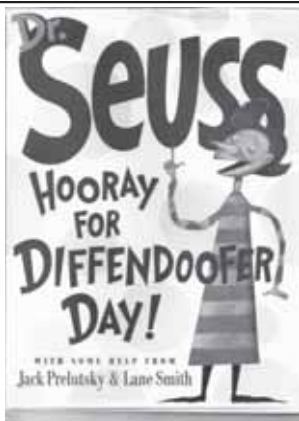


Learning Goals for This Session

- Learn researched-based, doable strategies for teaching students to become critical, deep thinkers.
- Walk away with tools you can use right away as teacher researchers.



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Dr. Seuss, before he died,
Wrote a story that implied,
Teaching to tests was not the key,
To helping students think *thoughtfully!*

Poor Mr. Lowe, the principal.

If they fail the test...





Miss Bonkers Knows Better!
(We must trust ourselves)



Miss Bonkers rose. "Don't fret!" she said.
"You've learned the things you need
To pass that test and many more—
I'm certain you'll succeed.
We've taught you that the earth is round,
That red and white make pink,
And something else that matters more—
We've taught you how to think."

Think Like Successful Test Takers!

The MESSAGE:
Don't let test prep
get you down!
(Like Poor Mr.
Lowe.)

Tests are gatekeepers...

Do we really want to stop here?

Assessment Continuum



Pg. 2





This is a Risk-taking,
Mistake Making
Classroom

Routines & Procedures

- Sound of Coming Together
- Double Entry Journal
 - Core Groups
 - Norms
- Chat Chums
- Clock Partners

Inspiring Learners Strategies



ILS Alert/ Big Ideas	Why Use Them/ Why Important
 	<ul style="list-style-type: none"> •Engaging •All Participating •Rigorous •Honor All Types of Learners



Core Groups

- Groups of 4 to 5
- Establish roles:
 - Coach
 - Organizer/Time Keeper
 - Recorder
 - Energizer



Norms for Today



- Respect Others
- Stay engaged and involved
- Professional Use of Technology
- Practice forming new habits of the mind that challenge the limits of your potential.



Talk about it...

...

- In the 21st century, teaching kids **HOW** to learn is as important (or more important?) than teaching them **WHAT** to learn. Agree or Disagree? Why?



19

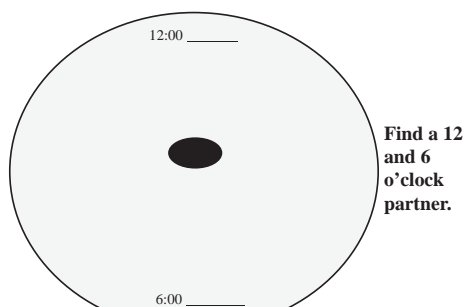
Knowing what to teach is essential to good teaching,

But knowing **WHO** you are teaching and **HOW** to reach them is what distinguishes good teachers from mere content experts.

(Gunter, Estes and Schwab)

Content Expert? Or **TEACHER**?



Find **Two** Clock Partners

Template Pg. 50

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Let's chat...

...

• WHEN IT'S TIME TO TALK WITH YOUR CHAT CHUM:

- Sit Knee to Knee, Eye to Eye
- Decide who is Chat Chum A and Chat Chum B
- Let's practice with 10 X 2



22

10 x 2 *A routine for noticing details, listening and generating ideas.*

1. Look at pages 5-6 for 1 minute.
List 8 words or phrases that stand out about the expectations for thinking with the CCSS. 1 minute
 2. Listen to your chat chums list of words/phrases
Look at pages 5-6 again
 3. Repeat steps 1 and 2 for 1 minute each
Look at the pages again and try to list 5 more words or phrases to your list.
- WHAT ARE SOME COMMON IDEAS YOU GENERATED ABOUT CCSS EXPECTATIONS?**

10 X 2**Common Core Connections**

- Think about things from multiple perspectives
- Use logic and knowledge to formulate opinions
- Articulate and defend their positions
- Read and write at high levels with purpose and clarity
- Apply what they know to solve authentic problems
- Work collaboratively with others for a common purpose

The Core Curriculum Deep Thinking Procedural Knowledge

Procedural knowledge is related to the procedure to carry an action out. For example, a method to balance a checkbook would be considered procedural knowledge. Knowledge about "*how*" to do something is procedural knowledge. **Procedural knowledge is instruction-oriented.** It focuses on how to obtain a result.

- Math Core
 - conceptual understanding
 - **procedural fluency**
 - problem solving
- ELA Core
 - conceptual understanding
 - **metacognitive processing**
 - analytical reasoning



Teaching Kids to THINK Can Change Schools

- 1/3 of the students entering Buckhorn HS were reading at or below the 7th grade level.
- "Those numbers completely changed my professional life. I couldn't eat. I couldn't sleep. Each of those numbers had a face and that face went to bed with me at night"
- *Buckhorn Staff immersed themselves in learning how to boost literacy.*
- Now a national model and has exceeded state averages on Alabama's 10th grade writing test.



Winning Formula for Success in You and Your Students

Mindset plus **Skill Sets** equals **RESULTS!**



The Brain and Intelligence as PASS

PASS: A neuropsychological approach to intelligence based on three Functional Units described by A. R. Luria (1972)



Pg. 7, 8

IQ defined by BRAIN function

- **PASS** theory is a modern way to define 'ability' (AKA – intelligence)
- **P**lanning = THINKING ABOUT THINKING
- **A**ttention = BEING ALERT
- **S**imultaneous = GETTING THE BIG PICTURE
- **S**uccessive = FOLLOWING A SEQUENCE

29

A Theory of Learning

28 Cognitive Assessment System: Redefining Intelligence From a Neuropsychological Perspective

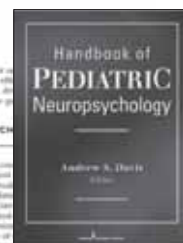
Jack A. Naglieri and Julia M. Ottens

INTRODUCTION

Modern neuropsychology has become an important field for understanding and treating developmental, psychiatric, and learning disorders. By addressing both brain function and environment factors, scientists can help to better understand children with a variety of learning, psychiatric, and developmental disorders. Brain function research is investigated by neuropsychologists by considering several aspects of an individual's cognitive, language, emotional, social, and motor behavior. Standardized assessments are used by neuropsychologists to collect information and derive scores on these tests. Modern neuropsychology is a field that combines these tests with modern technology, such as computerized neuropsychological testing (CNS), functional MRI (fMRI), positron emission tomography (PET), and other imaging techniques, to better understand brain function and behavior. This book provides a comprehensive overview of the field of neuropsychology and its applications to understanding and treating developmental, psychiatric, and learning disorders.

FROM NEUROSCIENCE TO ASSESSMENT

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PASS For Teachers



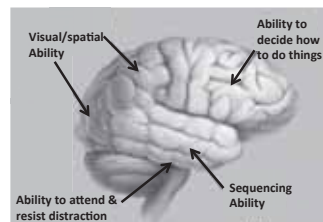
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We Will Focus on

Planning and Attention Today

- Good Frontal Lobe thinking leads to good decision making and better decisions about how to get things done.

➤ Poor Frontal Lobe thinking leads to problems with deciding how to think, act and relate to others



Make Thinking Visible



Pg. 10

What is Visible Thinking?

Using thinking routines
and visual documentation
to deepen
students' understanding.



Intentional & Transparent

Want Students to OWN their Learning?
BIG IDEA

Pg. 14-17

Intentional and Transparent

- Intentional: YOU Know why your doing what your doing.
- Transparent - THEY know why you're doing what your doing.



Litmus Test of Transparency

- If someone came into your class and asked your students *what they are learning and why it's important to learn*, could most of them give a clear and specific answer
 - We are doing a KWL because good readers predict and ask questions
 - We are making graphic organizers to connect our thoughts and ideas
 - We are singing a song to help us see how pioneers in the past had to live and entertain themselves.
 - I am using a mentor text as I write the lead for my piece because I learn from my favorite authors
 - I am helping to put things away because it's my responsibility to keep our community clean.

Pg. 16

Or...

- Would they simply tell what they are doing?
 - We are doing a KWL.
 - I am writing a story about my dad's birthday?
 - I am drawing a picture of girl from Japan.
 - We are making a graphic organizer for our project? (Why? Cause Ms. K likes them)
 - We are doing the worksheets (Why? What kind of thinking is required?)

LET'S TAKE A BRAIN BREAK!



The brain needs time to
process!

- **Stretch**
- **Cross Laterals**
- Walk and Talk
- Energizers
- Mindful Moment



The Brain and Learning

In the classroom, the more ways the materials in the are introduced to the brain and reviewed, the more dendritic pathways of access will be created. There will be more cell-to-cell bridges and these pathways will be used more often, become stronger and remain safe from pruning.



-- Dr. Judy Willis, Neurologist, 2006 www.1000teachers.com

Teaching for Transfer: See “How People Learn”

If we want
learning to
stick, we have
to make it
sticky.



ILS Make Learning Stick!

Make Metacognition Visible

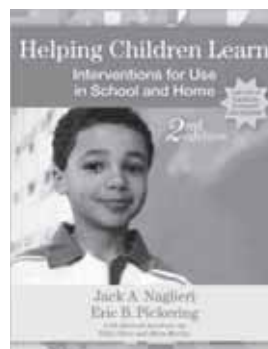


Metacognition

- On a scale of 1-5 fingers, how well do you think you know and apply the concept of metacognition in your classroom/school?



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Achievement went up when students were given direct instruction and strategies on *how to THINK SMART like a math learner* vs. group that had more math instruction

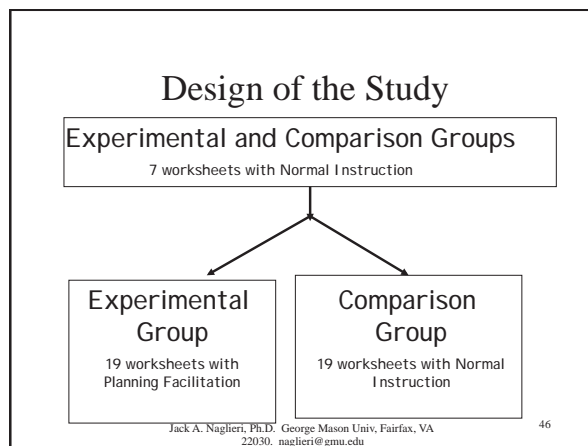
University of Virginia
Center for Learning Disabilities
Journal of Learning Disabilities
45(2) 166-176

A Cognitive Strategy Instruction to Improve Math Calculation for Children With ADHD and LD: A Randomized Controlled Study

Jackie S. Iseman¹ and Jack A. Naglieri²



Abstract
The authors examined the effectiveness of cognitive strategy instruction based on PAIS (Planning, Attention, Simultaneous, Successive) given by special education teachers to students with ADHD randomly assigned by classroom. Students in the experimental group were exposed to a brief cognitive strategy instruction for 10 days, which was designed to encourage development and application of effective planning for mathematical computation, whereas the comparison group received standard math instruction. Standardized tests of cognitive processes and math achievement were given at pretest. All students completed math worksheets throughout the experimental phase. Standardized achievement tests (Woodcock-Johnson Tests of Achievement, Third Edition, Math Fluency and Wordwide Individualized Achievement Test, Second Edition, Numerical Operations) were administered pre- and postintervention, and Math Fluency was also administered at 1 year follow-up. Large pre-post effect sizes were found for students in the experimental group but not the comparison group on math worksheets (0.85 and 0.16), Math Fluency (1.17 and 0.09), and Numerical Operations (0.40 and -0.14, respectively). At 1 year follow-up, the experimental group continued to outperform the comparison group. These findings suggest that students with ADHD exhibited greater improvement in math worksheets, for transfer to standardized tests of math (which measured the skill of generalizing learned strategies to other similar tasks), and continued advantage 1 year later when provided the PAIS-based cognitive strategy instruction.



Planning (Metacognitive) Strategy Instruction

- ▶ Teachers *facilitated* discussions to help students become more self-reflective about use of strategies
- ▶ Teachers asked questions like:
 - What was your goal?
 - Where did you start the worksheet?
 - What strategies did you use?
 - How did the strategy help you reach your goal?
 - What will you do again next time?
 - What other strategies will you use next time?

47

Student Plans

- “My goal was to do all of the easy problems on every page first, then do the others.”
- “I do the problems I know, then I check my work.”
- “I do them (the algebra) by figuring out what I can put in for X to make the problem work.”
- “I did all the problems in the brain-dead zone first.”
- “I try not to fall asleep.”

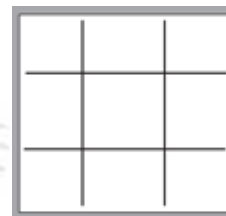
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Results

- The experimental group did better than the control on math taken from the curriculum on standardized math tests
- A year later the experimental group still outperformed the control group.
- ***Mindsets Plus Skill Sets Equals Results!***

Teach Intentionally About Metacognition

Metacognition is thinking about your thinking, having a plan of action for what to do when you don't know.



RESTATE: Now restate the term in your own words.

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&



Draw a picture that represents your idea of metacognition. Share.

STOP AND DRAW: Non-linguistic representations helps cement learning

www.inspiringlearners.com 2012



REVIEW: More on Metacognition (Read “How People Learn” for more...)

- **METACOGNITION** consists of three basic elements:
 - *Developing a plan of action*
 - *Maintaining/monitoring the plan*
 - *Evaluating the plan*
- The more students are aware of their thinking processes as they learn, the more they can control such matters as goals, dispositions, and attention. Self-awareness promotes self-regulation



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Pg. 18

Talk About It!

- Turn and talk to your Chat Chums.
- Based on what you just learned, describe how you are metacognitive about exercising or eating right.
- Here's my example...



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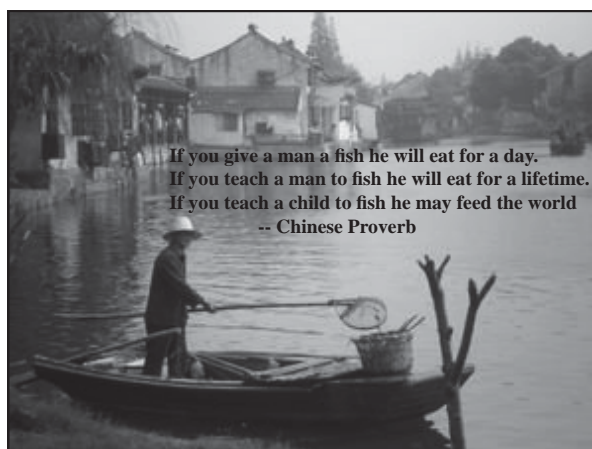
- Meet with Your 12:00 Partner
- What do you currently do to teach students to be metacognitive? How can you deepen your work to *intentionally and transparently* teach them to be metacognitive?

Learners retain 50% of what they learn through talk
Movement helps cement memory



ILS: Walk and Talk *Done Intentionally and Transparently*

- Walk and find a partner. (Same/ opposite eye, hair, clothes)
- Talk for 2 minutes about a prompt
- Teachers float and listen for *quality* talk
- Whole group share



If you give a man a fish he will eat for a day.
If you teach a man to fish he will eat for a lifetime.
If you teach a child to fish he may feed the world
-- Chinese Proverb

Assumicide

-Kelly Gallagher

- Assuming that someone else has taught students the skills they need to learn effectively in your classroom.
- Assuming that students will transfer skills they learned in someone else's class into your classroom without helping them transfer the skills.



Sit up

Lean forward

Activate your thinking

Name key information

Track the talker



Pg. 36

Talk About It!

- What did you hear me say and see me do as I taught this strategy to you?
- Why do you think I did these things?
- Share.



Apprenticeship Learning

Gradual Release of Responsibility

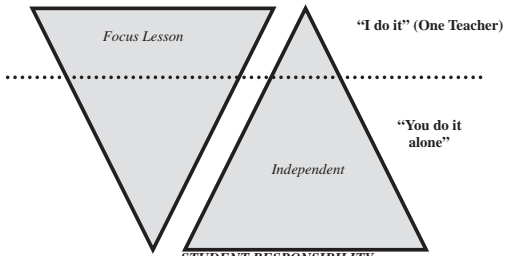
“I do - We do – Two Do-You do”

- Explicit Instruction and Modeling
- Guided Practice
- Independent Practice
- ↓ Application

Pg. 11

In some co-taught classrooms ...

TEACHER RESPONSIBILITY

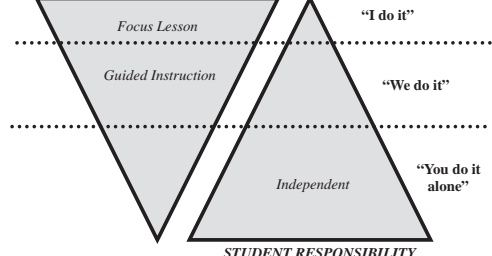


STUDENT RESPONSIBILITY

Fisher, D., & Frey, N. (2008). *Better learning through structured teaching: A framework for the gradual release of responsibility*. Alexandria, VA: Association for Supervision and Curriculum Development.

The “Good Enough” Classroom

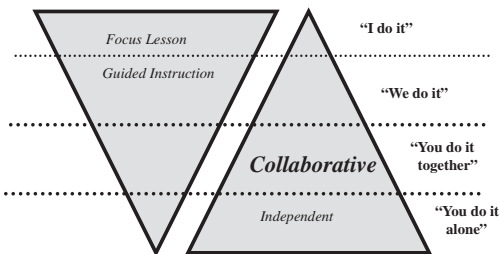
TEACHER RESPONSIBILITY



STUDENT RESPONSIBILITY

Fisher, D., & Frey, N. (2008). *Better learning through structured teaching: A framework for the gradual release of responsibility*. Alexandria, VA: Association for Supervision and Curriculum Development.

TEACHER RESPONSIBILITY



STUDENT RESPONSIBILITY

A Model for Success for All Students

Fisher, D., & Frey, N. (2008). *Better learning through structured teaching: A framework for the gradual release of responsibility*. Alexandria, VA: Association for Supervision and Curriculum Development.

Scaffolding a Bike Ride

Get on this bike and ride it.

No Explicit instruction
No Scaffolding



This is how you ride a bike, watch me. Now you do it.

Explicit instruction
No Scaffolding






This is how you ride a bike. Watch me do it. Now, I'm going to have you try it on this bike that has training wheels.

Explicit instruction
Scaffolding



Do you model and scaffold thinking skills?
Intentional and Transparent

Talk, process and think deeply.	Watch me talk, think and process deeply.	This is why it's important to be able to talk, think and process deeply in school and in life. I will show you ways that work for me and others. You will share your ways, too. Together, we will build skills to do this all year. Explicit instruction Scaffolding
No Explicit instruction No Scaffolding	Explicit instruction No Scaffolding	
	 	

What IS Our Goal...

• **EMPOWER**

NOT **ENABLE**






If Researched-Based Strategies aren't working...

- **I and T** = Be intentional and transparent. Tell students **WHY** these strategies work for the learning brain.
- **R and P** = Have clear and focused routines and procedures
- **Model and Scaffold** = Breaking the task into smaller steps and modeling
- **P3** = Practice, Practice, Practice
- Collaborative Partners can remind each other to check for these issues when trying new strategies

Make Thinking Visible
THINK ALOUDS



Strategies for Helping Students Develop Internal Control

❖ We need be transparent, model and practice the use of internalized “self-talk” as a means of increasing awareness of self-regulation strategies and when and how to use them

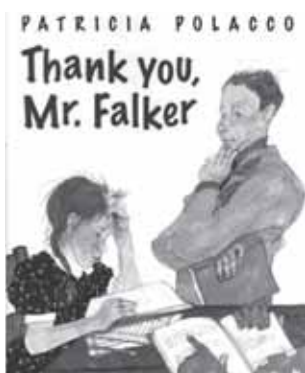
❖ George McCloskey

Think Alouds

- Teachers model aloud their own metacognitive processes for struggling with learning and getting unstuck.
- When modeling your thinking about learning, be sure to talk through how you monitor and adjust your thinking.
- As students catch on to the idea of thinking aloud, have them talk through and share their own learning processing.
- Mental modeling helps students see how good learners comprehend reading, develop writing ideas, problem solve

CONVENTIONALLY and TRANSPARENTLY,
Make Thinking Visible

Pg. 13-14



Think Alouds



- THINK ALOUDS ARE IN FIRST PERSON
- Look at Page 14. What strategies do you students need to think deeply?
- Exit Cards: Have students self assess their use of strategies.

EXIT CARD: Comprehension Self Assessment

DATE _____

NAME: _____

HIGH

LOW

- | | | | | | |
|---|---|---|---|---|---|
| 1. I primed my brain for learning new information | 1 | 2 | 3 | 4 | 5 |
| 2. I understood today's reading | 1 | 2 | 3 | 4 | 5 |
| 3. I was in charge of my own learning today | 1 | 2 | 3 | 4 | 5 |

I need help or have questions about the following:

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Self-assessment is essential for progress as a learner



Three Finger Self-Assessment

How much do you have students involved in self-assessing in your classroom?

Pgs. 31-37



We must constantly remind ourselves that the ultimate purpose of evaluation is to have students become self evaluating. If students graduate from our schools still dependent upon others to tell them when they are adequate, then we've missed the whole point of what education is about.

-- Costa and Kallick, 1992

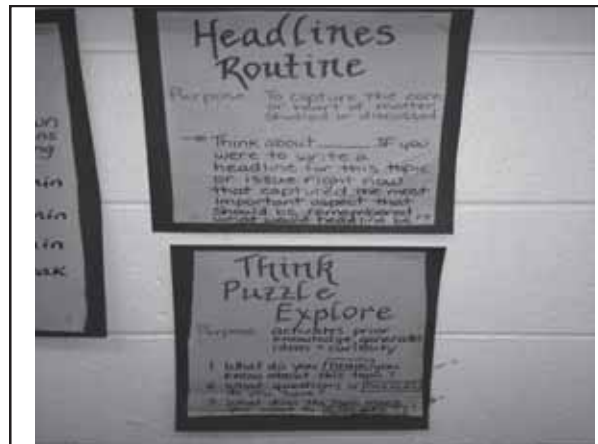
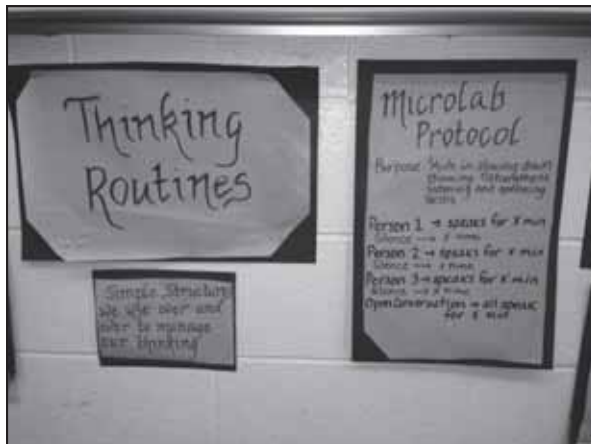
Make Thinking Visible Anchor Charts

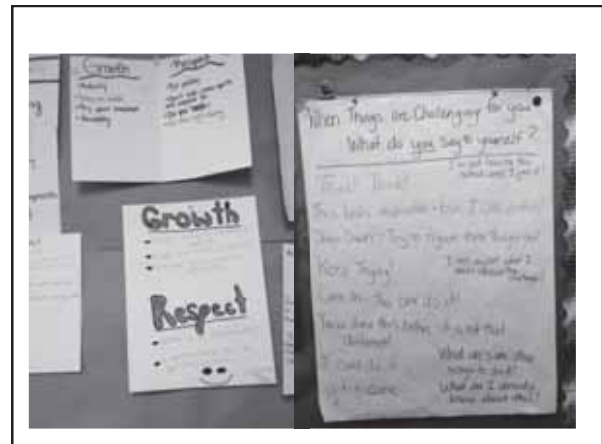
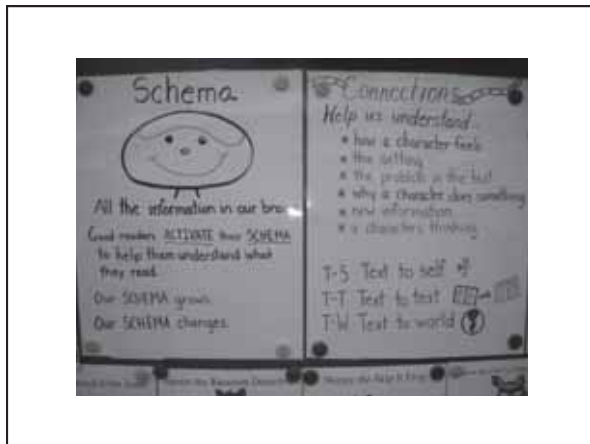
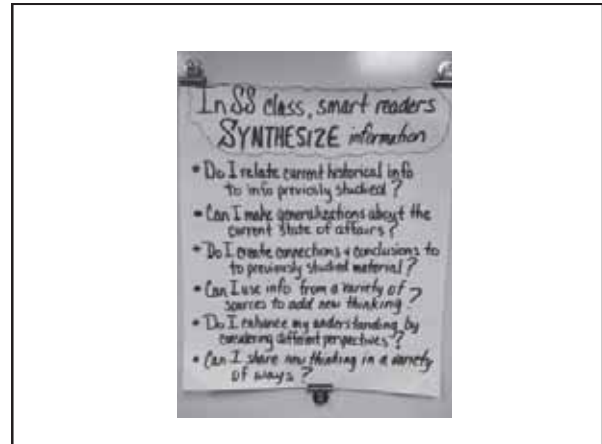
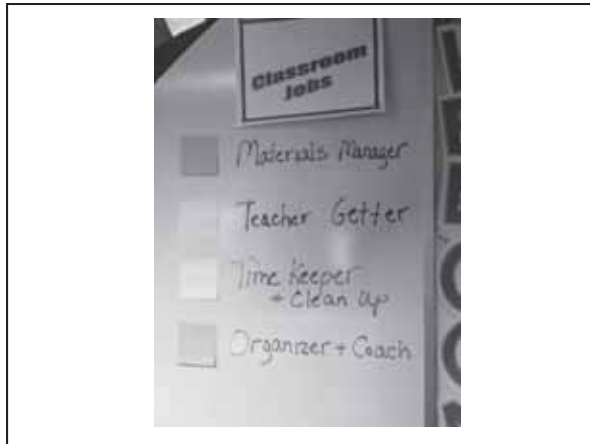


Pg. 10

Anchor Charts

- The purpose of anchor charts is for students to have ownership over their learning and to "anchor" unknown topics to their own own experiences. They are created as a teacher presents a mini-lesson and then referred back to over a lesson, unit or even year.

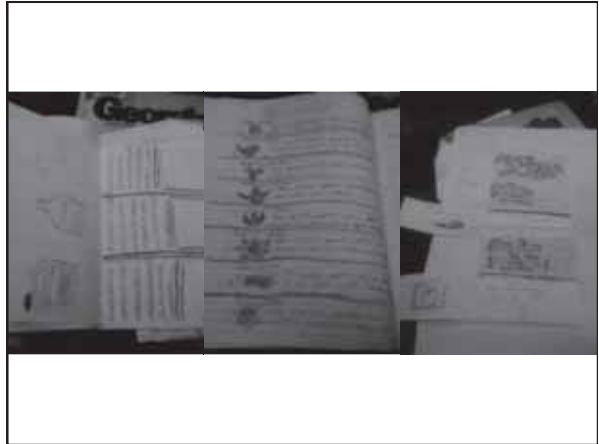




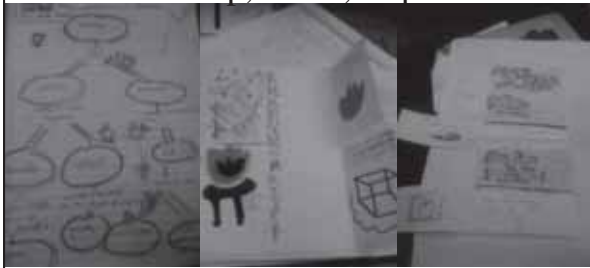
Make Thinking Visible Learning Logs



Pg. 10



Map, Draw, Flip



Chat Chums

Knee to Knee
Eye to Eye

Two Minutes: How do
you or will you make
thinking more visible
in your classroom?

- *Modeling and
Scaffolding
- *Think Alouds
- *Anchor Charts
- *Learning Logs



Take a ____ Minute
Stretch Break



Mindsets



Make Thinking Visible
Growth Mindsets



Pg. 24-26

Our Goal...

• **EMPOWER**



NOT



Carol Dweck, Stanford University



www.inspiringlearners.com 2011

Dweck's findings: Two Mindsets



Fixed mindset:

- ❖ Intelligence and talent - fixed
- ❖ Innate talent creates success
- ❖ Effort will not make a difference
- ❖ You either get it or you don't
- ❖ **LOOK GOOD AT ALL COSTS**



Growth mindset:

- ❖ Intelligence can be developed
- ❖ Brains and talent are just the starting point
- ❖ Enjoy effort and process of learning
- ❖ You can always grow and learn
- ❖ **LEARN AT ALL COSTS**

Dweck's Research Shows...

- 7th Graders Struggling
 - Group One Intervention: Study Skills Training
 - No statistically significant change
 - Group Two Intervention: Mindset Discussion and, then, Study Skills
 - Group Two Grew!
- If we want to grow their *skill set*, we must also shape their *mindset!*



Winning Formula for Success in You and Your Students

Mindsets plus **Skill Sets** equals **RESULTS**



If you are going to develop growth mindset learners...

- **Intentionally and transparently teach students about growth mindsets and how the brain works**
- Share lots of examples of Growth Mindsets in Action. (See Kathleen's You Tube Channel)
- Make growth mindset talk visible with Anchor Charts
- Talk the talk ALL the time, EVERYONE! Make Growth Mindset Thinking Visible

Pg. 26

Teach Kids About Their Amazing Brains!

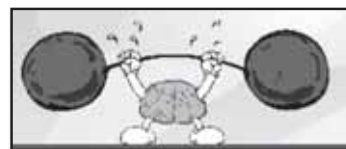


Teach About Mindsets

- Fixed mindset – ability cannot change
- Growth mindset – ability can change (grow) with effort



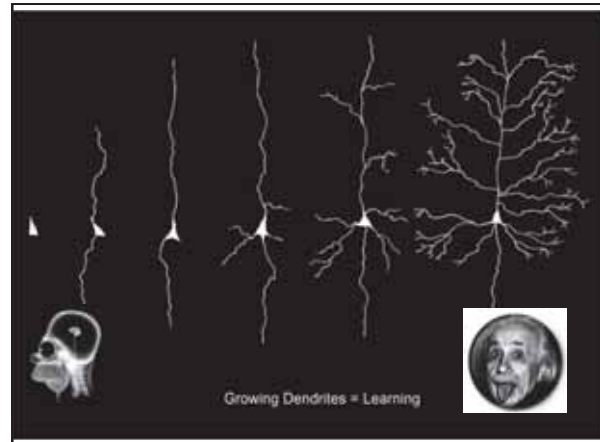
Carol S. Dweck, Stanford University
www.brainology.us



“The growth mindset confirms the new research which reveals *that intelligence can be developed*, and expertise can be built by means of deliberate practice.”

www.inspiringlearners.com 2011

Practice, Practice, Practice!



From neuroscience we know that...

**Neurons that fire together
Wire together!**



www.inspiringlearners.com

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- **Share lots of examples of Growth Mindsets in Action.** (See Kathleen's You Tube Channel)
- Make growth mindset talk visible with Anchor Charts
- Talk the talk ALL the time, EVERYONE!

Examples of Growth Mindsets

(See Kathleen Kryza's You Tube Channel for more...



Growth Mindset Man

- Michael Jordan quote, "I've missed more than 9,000 shots in my career. I've lost almost 300 games. 26 times, I've been trusted to take the game winning shot and missed. I've failed over and over and over again in my life. And that is why I succeed."



Growth Mindset

- "I can rest only for a moment, for with freedom come responsibilities, and I dare not linger, for my long walk is not yet ended." (From *Long Walk to Freedom*, 1995)
- "If you want to make peace with your enemy, you have to work with your enemy. Then he becomes your partner." (From *Long Walk to Freedom*, 1995)



If you are going to develop growth mindset learners...

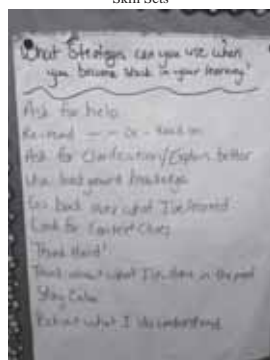
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- **Share lots of examples of Growth Mindsets in Action.** (See Kathleen's You Tube Channel)
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Anchor Charts: Making Thinking Visible

Mindsets



Skill Sets



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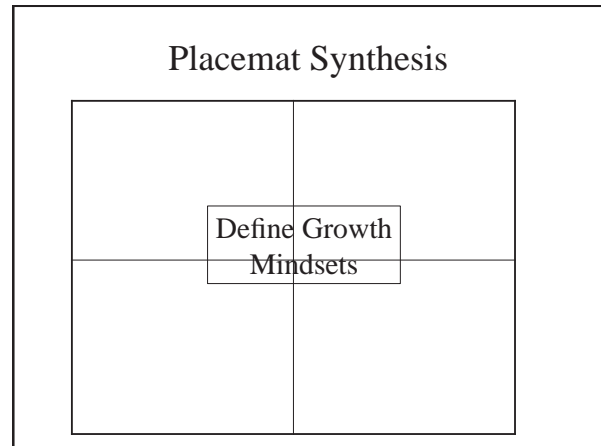
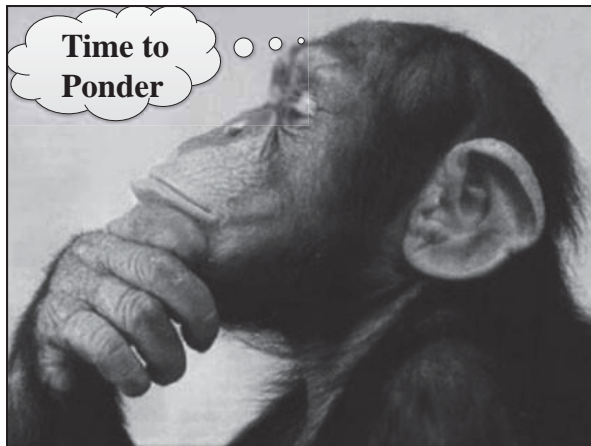
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Praise for Specific Effort

- Effective coaches don't praise for winning the game or meet, they praise the specific behavior that the athlete developed that improved his/her game.
- We need to teach ourselves to praise students for specific behaviors that improved their learning


 Self –Assess on Mindsets:
Kids need to internalize that Mindsets Plus Skill Sets Equal Results

A - EFFORT RUBRIC		
4 (Growth Mindset)		I worked on the task until they are finished. I saw difficulties as opportunities to strengthen my understanding.
3 (Fairly Growth)		I worked on the tasks until they are finished. I tried even when it was difficult.
2 (Somewhat Fixed)		I put some effort into tasks, but I stopped working when it became difficult.
1 (Fixed Mindset)		I did not try.



**Placemats
Common Core Connections**

- Think about things from multiple perspectives
- Use logic and knowledge to formulate opinions
- Articulate and defend their positions
- Read and write at high levels with purpose and clarity
- Apply what they know to solve authentic problems
- Work collaboratively with others for a common purpose

**Let's Unpack Thinking Routines
Used Today**

Skill Sets = Strategy Instruction

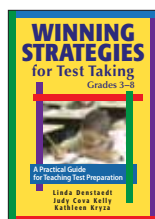
- Chunking and Chewing: For every ten minutes you teach something new, the brain needs one or two minutes to chew.
- Helping Children Learn: PASS Strategies
- SIMS
- Visible Thinking
- KRISS
- Reading Apprenticeship

Pgs. 36, 43, 44

VISIBLE THINKING

Thinking Routines
Project Zero/Harvard

Teach Them To THINK Then Teach Test Taking as a Genre



Teaching Students How to Think: Test Sense

The way to grow students who have test-sense, is to explicitly teach them the skills, procedures, strategies and processes that good test takers use. Only through explicit instruction will students own and be able to transfer necessary skills to the test taking situation. Denstaedt, Kelly, Kryza, 2008



Winning Formula for Success in You and Your Students

Mindset plus **Skill Sets** equals **RESULTS**

S



When we teach students how to think, we save them (and ourselves!) from a life of dreary drill and kill cramming. We empower them to know what to do when they don't know!



Let's use the CCSS to grow learners who are..

- Empowered
- Test Ready
- Deep Thinkers
- Life Long Learners
- Miss Bonkers was RIGHT!





One More Version...

"Teach a man to fish and you feed him for a lifetime.

Unless he doesn't like sushi—then you also have to teach him to cook."

—Auren Hoffman, Herald
Philosopher

