INCREASING RIGOR IN THE CLASSROOM

COACHES' ACADEMY 2011

"The mind is not a vessel to be filled but a fire to be kindled."

—*On Listening to Lectures (Plutarch)*

Education Transformation Office

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  Differentiated Accountability

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Objectives

- **Have a clear definition for rigor.**

- **Identify and create questions based on the levels of complexity using Webb's Depth of Knowledge (DOK).**

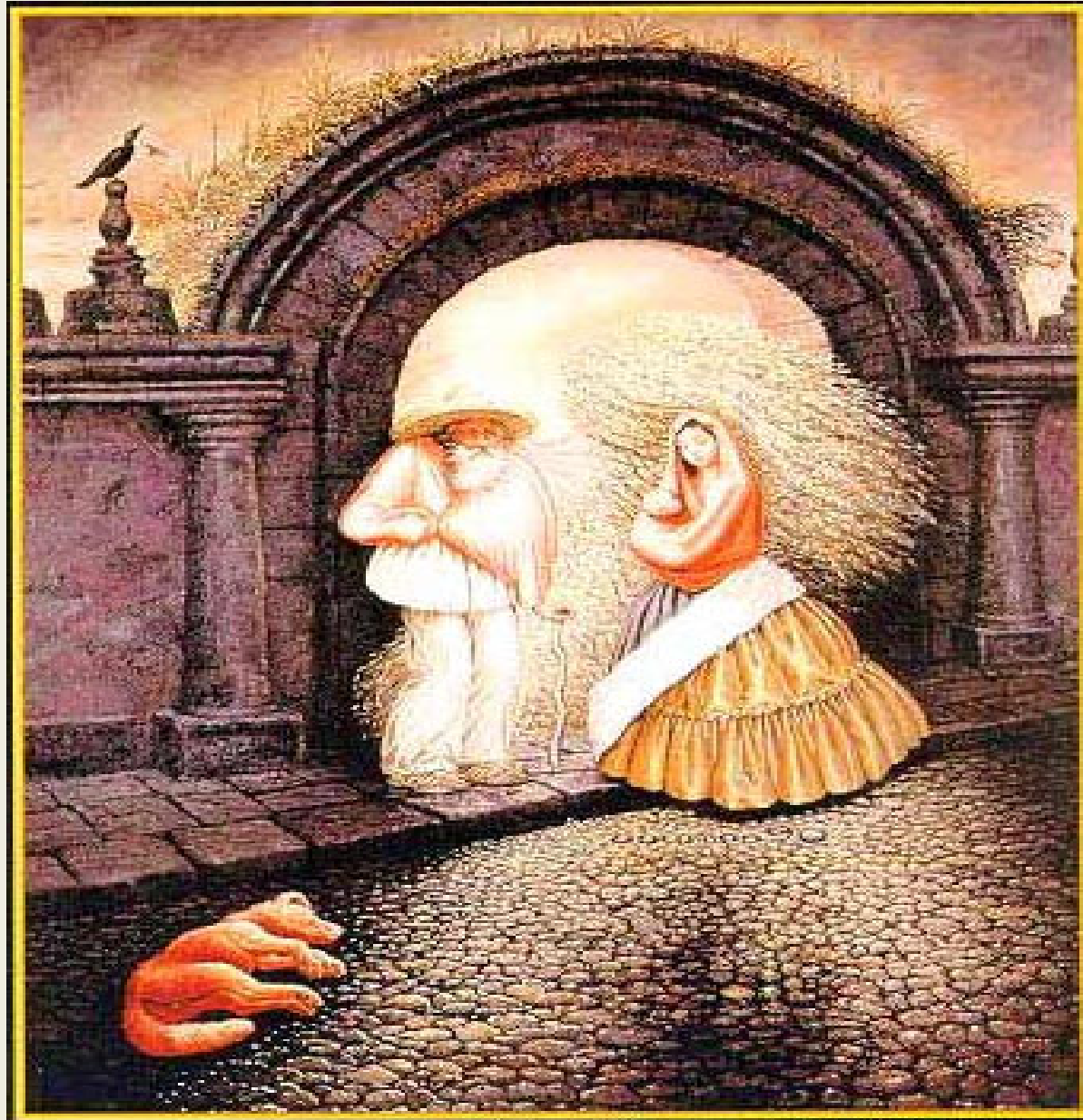- **Incorporate active questioning and response strategies into a reading classroom**
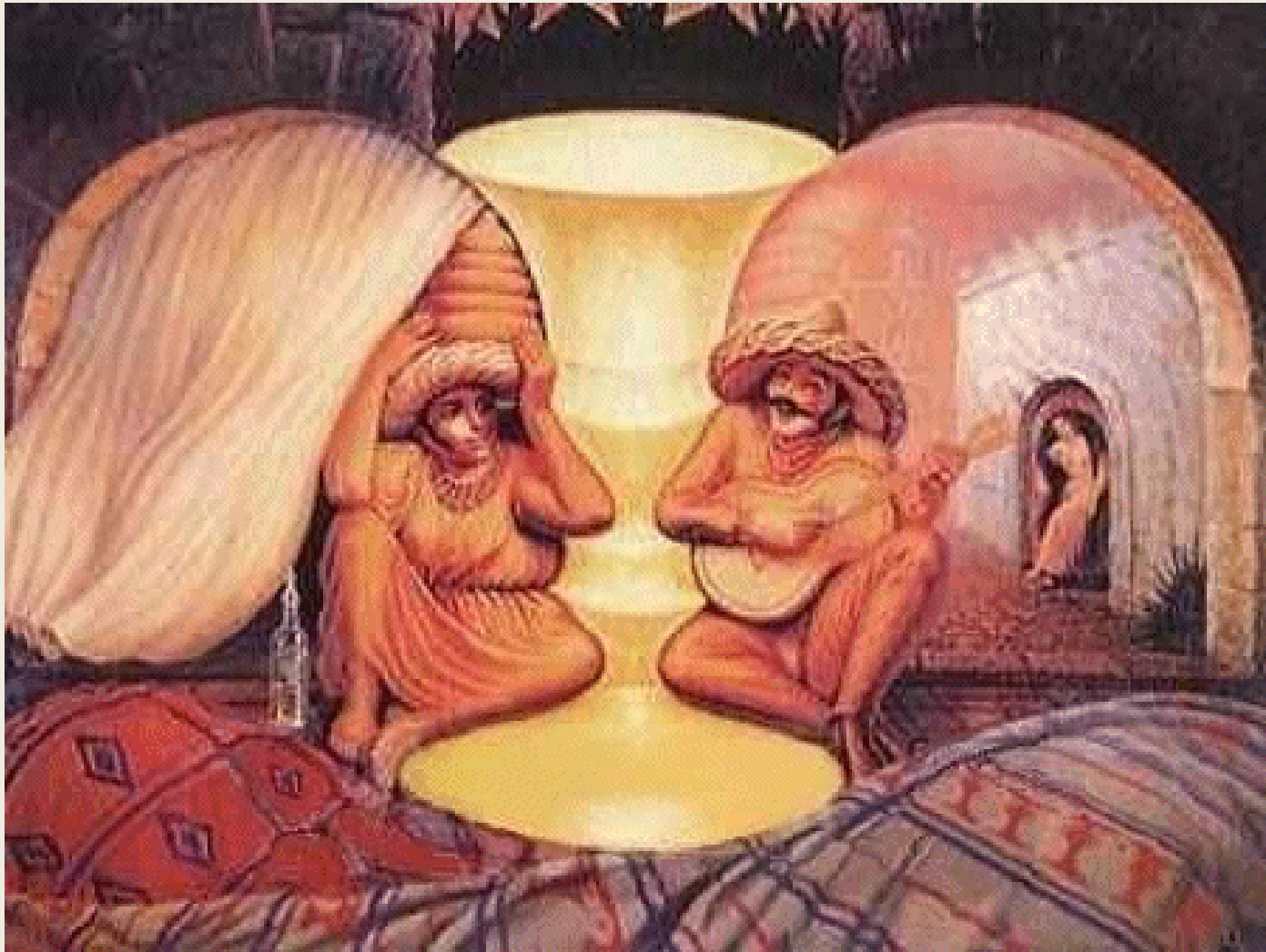
Essential Question

- How can rigor be increased in the classroom?

- How can you use Webb's Depth of Knowledge to scaffold instruction?

- How do questioning and response strategies extend students' thinking?
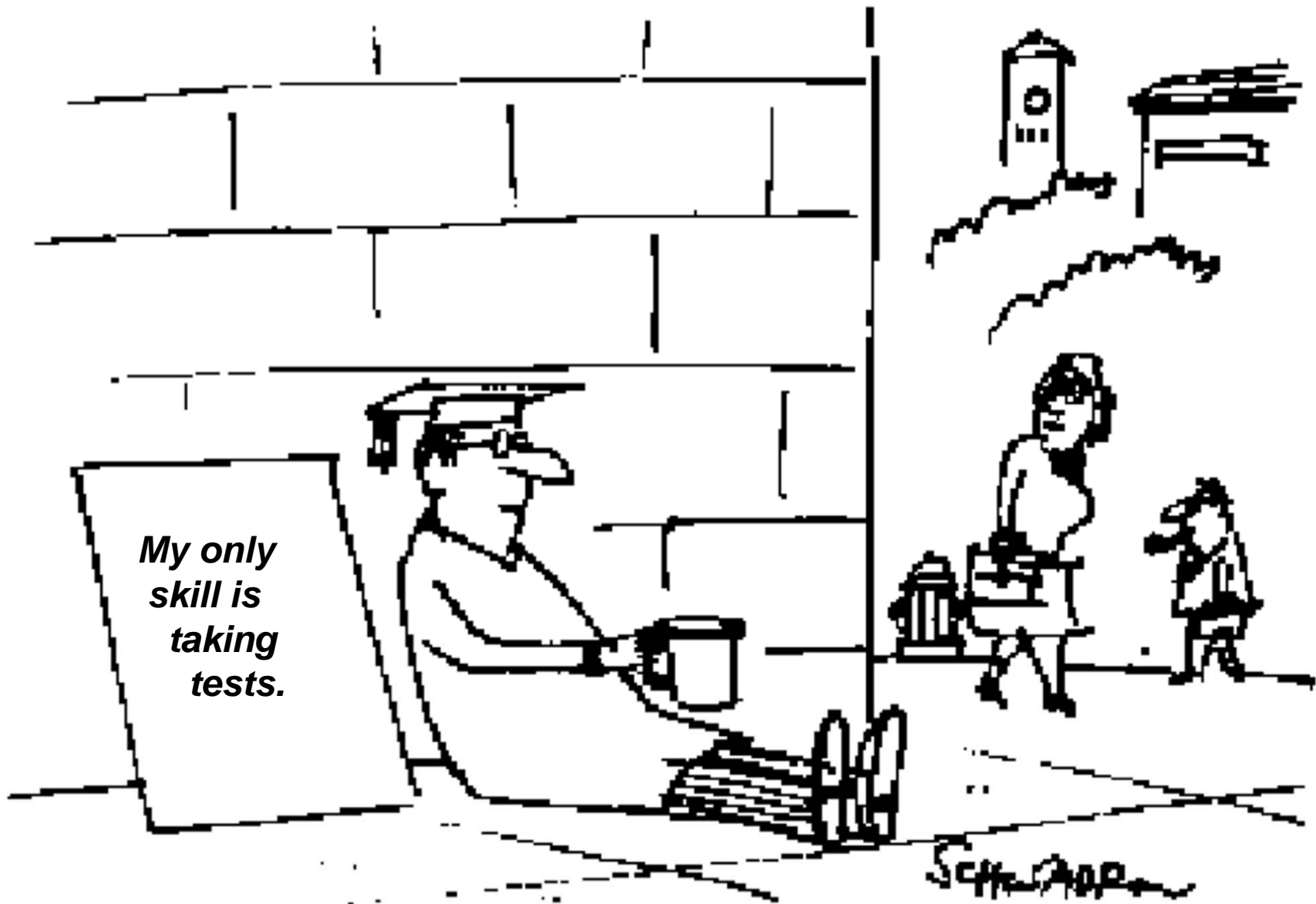
What do you see?

What do you see?

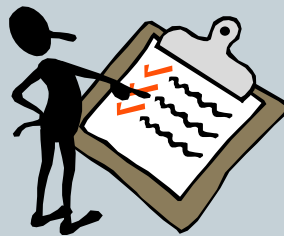If you always do what you always did, you will always get what you always got.
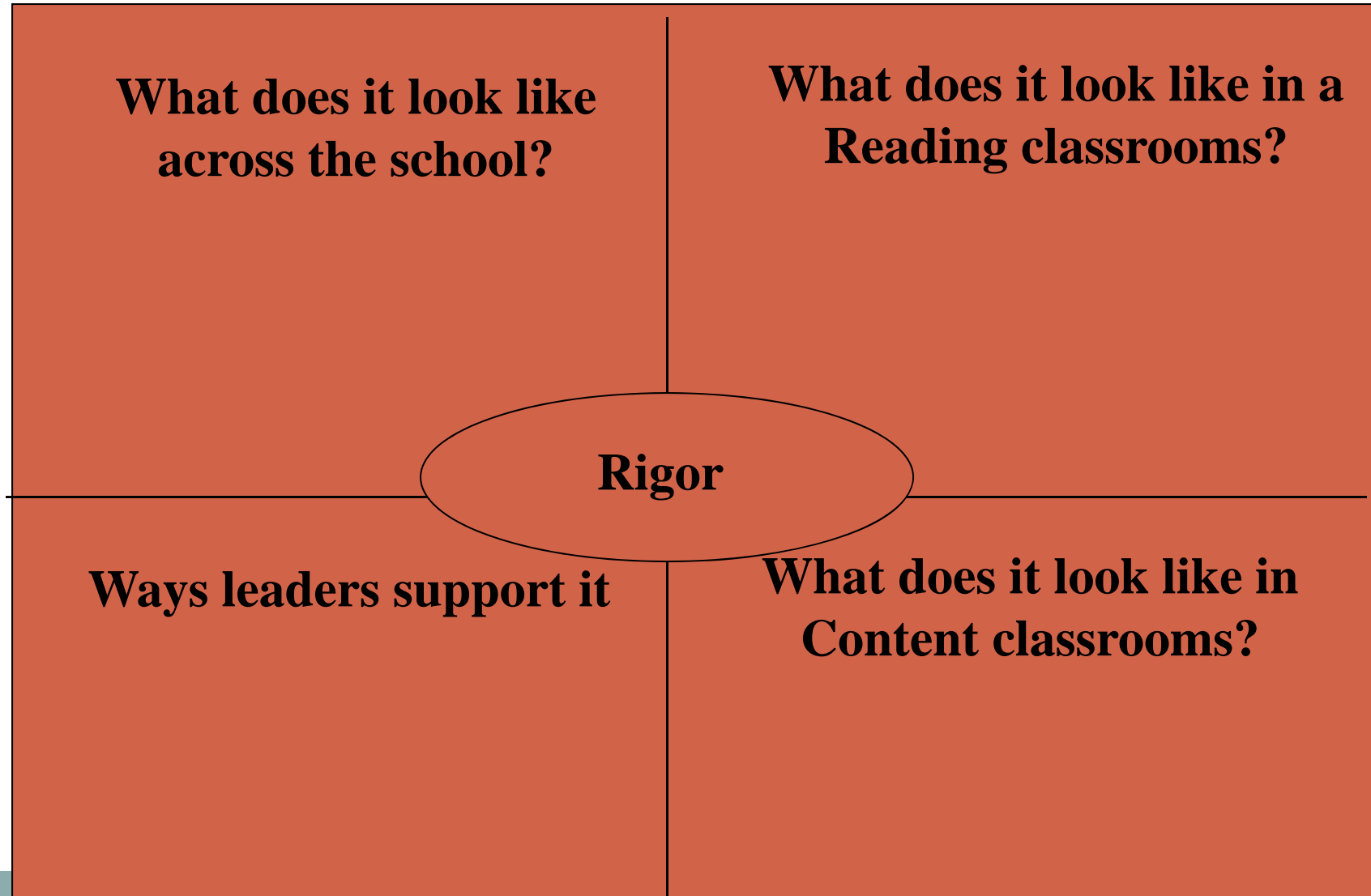
J. "Moms" Mabley

Defining Rigor

Rigor poses a challenge because it is difficult to define and measure

Frayer Model
RIGOR

What does it look like across the school?

What does it look like in a Reading classrooms?

Rigor

Ways leaders support it

What does it look like in Content classrooms?

HSTW Frayer

What Does It Look Like Across the School

- Clear Expectations for Academic Achievement/Redo
- Common Themes/Syllabi/Exams

What Does It Look Like in ReadingClassrooms

- High level questions
- Redoing work
- Literacy Focus
- Units aligned to standards

Rigor

Ways Leaders Support It

- Time for teachers to work together
- Using walkthroughs to collect instructional data

What Does It Look Like in Content Classrooms

- Concentrations, not courses
- Anchor Projects
- Work-based Learning

A Definition of Rigor

Rigor is the expectation that students will be able to perform at levels of cognitive complexity necessary for proficiency at each grade level.

Rigorous Classroom

Only by creating a culture of high expectations and providing support so students can truly succeed do you have a rigorous classroom.

Barbara Blackburn 2008

Rigorous Classroom
Standards-based teaching

Look for Lots of high level activity- - -

- High Levels of Questioning
- Reflecting
- Analyzing
- Doing experiments
- Discussing
- Writing
- Working in groups

And a Scoring Guide available to all students for all major assignments

ACT Report on Increasing Rigor

The following strategies should be promoted to increase course rigor and student achievement:

Instruction that

- Is Bell-to-bell
- Is Connected to prior learning
- Is Relevant to real world
- Incorporates probing questions, group work,
  and higher level reasoning

Act report cont'd

- Utilizes essential questions
- Shares objectives and goals with students
- Uses research-based strategies
- Uses frequent formative assessment methods of reporting progress to students and parents
- Establishes a personal commitment to each and every student

Why Rigor?

Have you seen the FCAT?
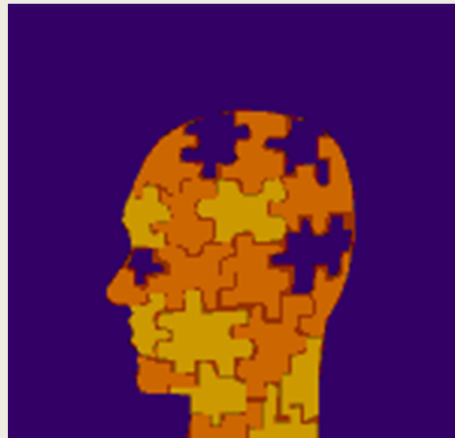
What are the Instructional Implications?

- What issues will this passage pose for students?

- Will all students be up to this task?

- Why or Why not?

- This is a science based article, so can the students read their science and social studies textbook?

Reading

Table 8: Percentage of Points by Cognitive Complexity Level for FCAT Reading

Grades	Low	Moderate	High
3	25–35	50–70	5–15
4*	20–30	50–70	10–20
5-7	15–25	50–70	15–25
8*	10–20	50–70	20–30
9	10–20	50–70	20–30
10*	10–20	45–65	25–35

*These tests include performance tasks, typically moderate to high complexity items.

Essential Question

How can you use Webb's Depth of Knowledge to scaffold Instruction and increase higher order level thinking?

BLOOM'S TAXONOMY

KNOWLEDGE / REMEMBERING
"The recall of specifics and universals, involving little more than bringing to mind the appropriate material"

COMPREHENSION / UNDERSTANDING
"Ability to process knowledge on a low level such that the knowledge can be reproduced or communicated without a verbatim repetition."

APPLICATION / APPLYING
"Using information in another familiar situation."

ANALYSIS / ANALYSING
"Breaking information into parts to explore understandings and relationships."

SYNTHESIS and EVALUATION / EVALUATING and CREATING
"Putting together elements & parts to form a whole, then making value judgments about the method."

WEBB'S DOK

RECALL
Recall of a fact, information, or procedure (e.g., What are 3 critical skill cues for the overhand throw?)

SKILL/CONCEPT
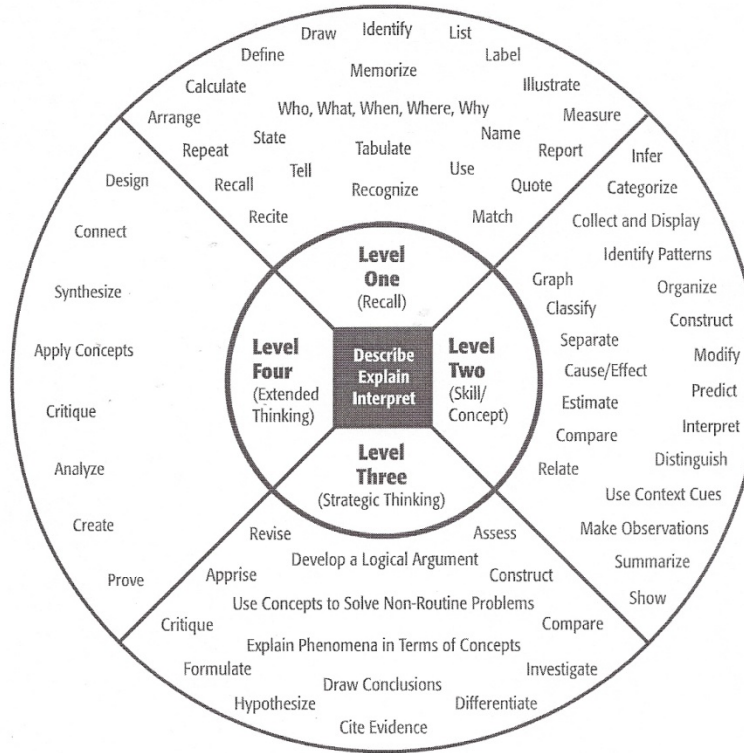Use of information, conceptual knowledge, procedures, two or more steps, etc.

STRATEGIC THINKING
Requires reasoning, developing a plan or sequence of steps; has some complexity; more than one possible answer

EXTENDED THINKING
Requires an investigation; time to think and process multiple conditions of the problem or task.

Depth of Knowledge (DOK) Levels

Draw Identify List
Define Label
Memorize
Calculate Illustrate
Who, What, When, Where, Why Measure
Arrange
State Name
Repeat Tabulate Report Infer
Design Tell Use
Recall Quote Categorize
Recite Recognize Collect and Display
Connect Match Identify Patterns
Level One (Recall) Graph Organize
Synthesize Classify Construct
Separate
Apply Concepts **Level Four (Extended Thinking)** **Describe Explain Interpret** **Level Two (Skill/Concept)** Cause/Effect Modify
Critique Estimate Predict
Compare Interpret
Analyze Relate Distinguish
Level Three (Strategic Thinking) Use Context Cues
Create Make Observations
Revise Assess
Prove Develop a Logical Argument Summarize
Apprise Construct Show
Use Concepts to Solve Non-Routine Problems
Critique Compare
Explain Phenomena in Terms of Concepts
Formulate Investigate
Draw Conclusions
Hypothesize Differentiate
Cite Evidence

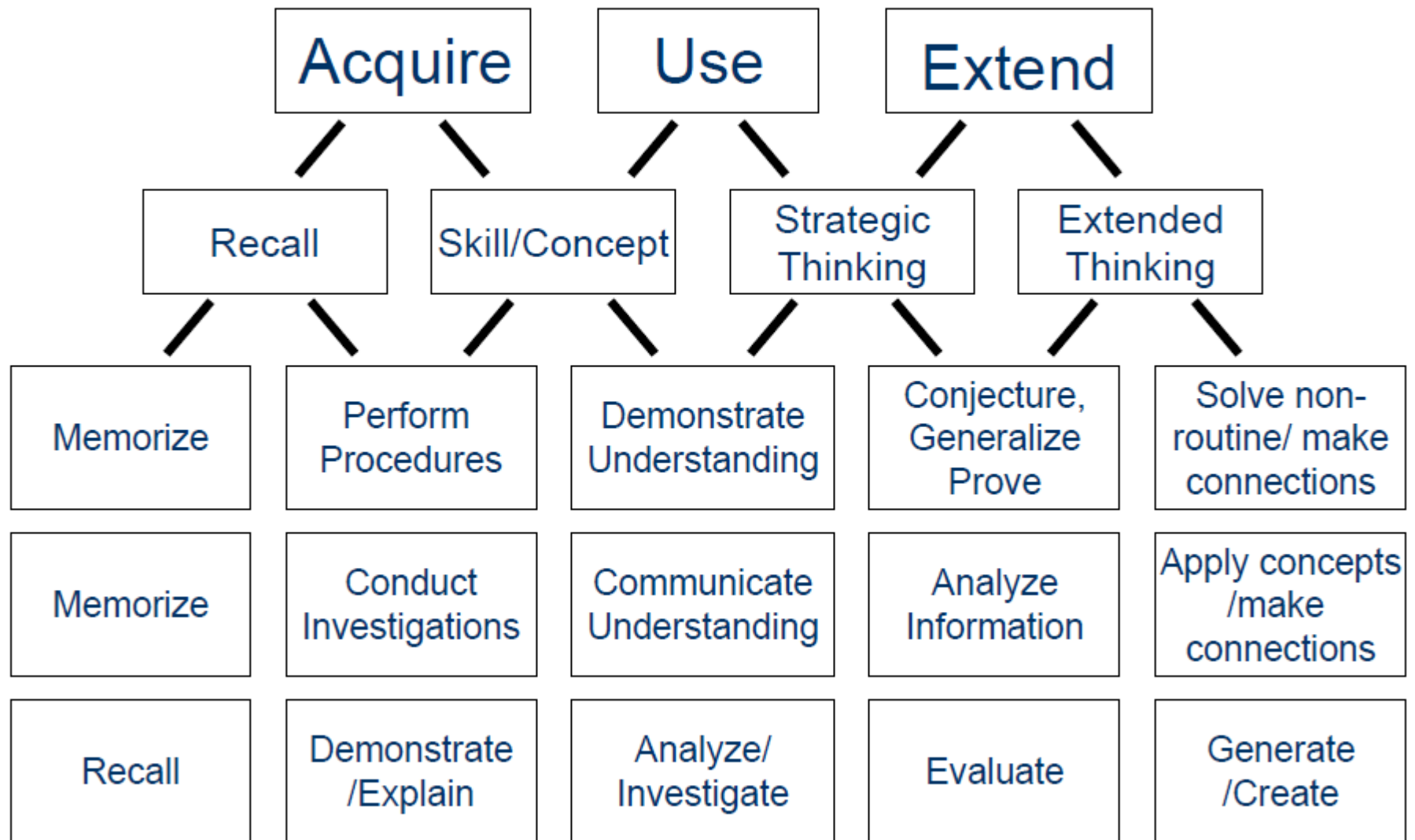| Level One Activities	Level Two Activities	Level Three Activities	Level Four Activities
Recall elements and details of story structure, such as sequence of events, character, plot and setting.	Identify and summarize the major events in a narrative.	Support ideas with details and examples.	Conduct a project that requires specifying a problem, designing and conducting an experiment, analyzing its data, and reporting results/ solutions.
Conduct basic mathematical calculations.	Use context cues to identify the meaning of unfamiliar words.	Use voice appropriate to the purpose and audience.	Apply mathematical model to illuminate a problem or situation.
Label locations on a map.	Solve routine multiple-step problems.	Identify research questions and design investigations for a scientific problem.	
Represent in words or diagrams a scientific concept or relationship.	Describe the cause/effect of a particular event.	Develop a scientific model for a complex situation.	Analyze and synthesize information from multiple sources.
Perform routine procedures like measuring length or using punctuation marks correctly.	Identify patterns in events or behavior.	Determine the author's purpose and describe how it affects the interpretation of a reading selection.	Describe and illustrate how common themes are found across texts from different cultures.
Describe the features of a place or people.	Formulate a routine problem given data and conditions.		Design a mathematical model to inform and solve a practical or abstract situation.
	Organize, represent and interpret data.	Apply a concept in other contexts.	

Webb, Norman L. and others. "Web Alignment Tool" 24 July 2005. Wisconsin Center of Educational Research. University of Wisconsin-Madison. 2 Feb. 2006. <http://www.wcer.wisc.edu/WAT/index.aspx>

It's the question NOT the verb

- **The Depth of Knowledge is NOT determined by the verb, but the context in which the verb is used and the depth of thinking required.**

  - DOK3 – DESCRIBE a model that you might use to represent the relationships that exist in the water cycle. **(Requires understanding of the water cycle and a determination of how to best represent it)**

  - DOK2 – DESCRIBE the difference between metamorphic and igneous rocks **(Requires cognitive processing to determine the differences between to rock types)**

  - DOK1 – DESCRIBE three characteristics of mammals **(Simple recall)**

Expectations for Student Performance

Acquire		Use		Extend	
Recall	**Skill/Concept**	**Strategic Thinking**		**Extended Thinking**	
Memorize	Perform Procedures	Demonstrate Understanding	Conjecture, Generalize Prove	Solve non-routine/ make connections
Memorize	Conduct Investigations	Communicate Understanding	Analyze Information	Apply concepts /make connections
Recall	Demonstrate /Explain	Analyze/ Investigate	Evaluate	Generate /Create

Cognitive Level of Complexity– FCAT Reading Test Item Specifications

Sample Item 41   Relevant Details

The sample item below is based on "Learning to Sing" on page H–12.

Which is a way to improve your breathing for singing?

    A. Take the air in quickly.
    B. Bring the air in noisily.
★ C. Let the air come out slowly.
    D. Push the air out powerfully.

Level of Complexity - Low

Cognitive Level of Complexity– FCAT Reading Test Item Specifications

Sample Item 16   **Cause and Effect**

The sample item below is based on "Swim, Baby, Swim!" on page H–2.

Why does the little bird fall in the pond?

★ **A.** He slips off a thin branch.
  B. He is learning how to swim.
  C. His wings get tired from flying.
  D. His wing tips dip too low in the water.

Level of Complexity - Moderate

Your Turn.....

- Sort the tasks by low, moderate and high

Levels of Complexity-LOW

COMPETENCE	SKILLS DEMONSTRATED	QUESTION CUES
• Low		
• Level 1 Knowledge Comprehension	• Make observations • Recall information • Recognize formulas, properties, processes • Know vocabulary, definitions • Know basic concepts • Perform one-step processes • Interpret facts • Compare or contrast simple • Translate from one representation • Identify relationships	• Tell what…when…where • Find • List • Define • Identify; labels; name • Choose; select • Compute; estimate • Compare; contrast • Express as • Read from data displays • Order

Levels of Complexity MODERATE

- Level 2 Application Analysis

- Apply learned information to abstract and real life situations
- Use methods, concepts, theories in abstract and real life situations
- Perform multi-step processes
- Solve problems using required skills or knowledge (requires more than habitual response)
- Make a decision about how to proceed
- Identify and organize components of a whole
- Extend patterns
- Identify/describe cause and effect
- Recognize unstated assumptions, make inferences

- Apply
- Calculate; solve
- Complete
- Describe
- Explain how; demonstrate
- Construct data displays
- Construct; draw
- Analyze
- Extend
- Connect
- Classify
- Arrange

Levels of Complexity-HIGH

- Level 3
  Synthesis
  Evaluation

- Solve an open-ended problem with more than one correct answer
- Create a pattern
- Generalize from given facts
- Relate knowledge from several source
- Draw conclusions
- Make predictions
- Translate knowledge into new context
- Compare and discriminate between ideas
- Assess value of methods, concepts, theories, processes, formulas
- Make choices based on reasoned argument
- Verify the value of evidence, information, number, data

- Plan; prepare
- Predict
- Create; design
- Ask "what if?" questions
- Generalize
- Justify; explain why; support; convince
- Assess
- Rank; grade
- Test; judge
- Recommend
- Select
- Conclude

The Art of Questioning
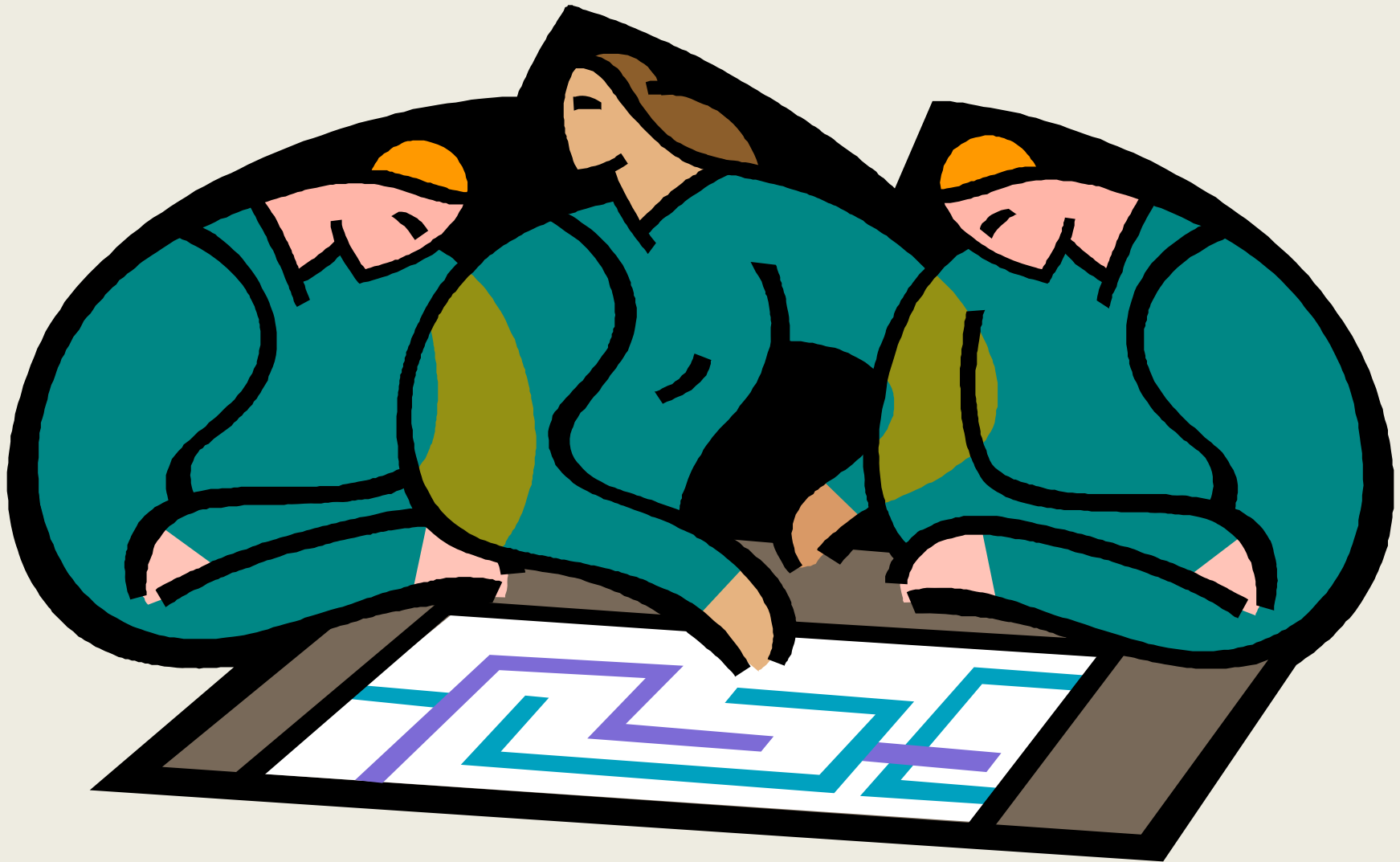
QUESTIONING FOR QUALITY THINKING

- **Recalling**
- Who, what, when, where, how
- **Comparing**
- How is_____similar to/different from_____?
- **Identifying Attributes and Components**
- What are the characteristics/parts of_____?
- **Classifying**
- How might we organize_____into categories?
- **Ordering**
- Arrange_____into sequence according to_____.
- **Identifying Relationships and Patterns**
- Develop an outline/diagram/web of _____.
- **Representing**
- In what other ways might we show/illustrate_____?
- **Identifying Main Ideas**
- What is the key concept/issue in_____?
  Retell the main idea of_____? in your own words.
- **Identifying Errors**
- What is wrong with_____?

QUESTIONING FOR QUALITY THINKING

- **Inferring**
- What might we infer from_____?
  What conclusions might be drawn from_____?
- **Predicting**
- What might happen if_____?
- **Elaborating**
- What ideas/details can you add to_____?
- Give an example of _____?
- **Summarizing**
- Can you summarize_____?
- **Establishing Criteria**
- What criteria would you use to judge/evaluate_____?
- **Verifying**
- What evidence supports_____?
  How might we prove/confirm_____?
-

- Question Task Cards are written at different complexity levels.
- The task cards are a valuable classroom tool.
- Make a laminated class set, hook together with metal rings.

FCAT Task Cards

MAIN IDEA
(LA.3-5.1.7.3)

➤ What is the MAIN IDEA of this story/passage/article?

➤ What is the most important lesson _____ learns in the story/passage?

➤ Why do you think this story/article has the title "_____"?

➤ What would be another good title for this story?

➤ Which sentence best tells what the passage is about?

➤ What is the essential message in the story/article?

➤ What is the primary topic of the article?

➤ Which sentence gives the best summary?

➤ Which accomplishment/idea is the most valuable?

➤ Which statement best describes the lesson/moral of this story?

CHRONOLOGICAL ORDER
(LA.3-5.1.7.3)

➤ What happened just BEFORE/AFTER _____?

➤ What happened first, last, etc. …?

➤ What happens AFTER _____ but BEFORE _____?

➤ What happened between _____ and _____?

➤ What is the first step in _____ ?

➤ Retell the events leading up to/following _____.

➤ Explain the steps for _____ and the reasons why. Use details and information from the article to support your answer.

➤ According to the article, what happened first?

ACTIVITY: USING FCAT TASK CARDS

- Your Turn

- Choose an FCAT Task Card

- Identify the Cognitive Level of Complexity for the questions on that card

Stretch their thinking

Questioning and Response Strategies

Questioning and Response Strategies

- ✓ Remember to ask one question at a time, require students to raise their hands, and to call on one student at a time, provide "wait time", listen to the response, and then provide feedback on the response.
- ✓ Provide at least five seconds of thinking time after a question and after a response.
- ✓ Use probing and prompting to get students to respond, don't let them off the hook, come back to them if necessary.
- ✓ Use a seating chart to record the rigor level of questions asked. Have a peer, student, or coach do this for teachers. Analyze and discuss the data.
- ✓ Use response boards-Sheet Protectors with card stock inside/dry erase markers (make a response board)
- ✓ Put student names on a tongue depressor with a red, yellow, green dot (representing levels of complexity) to call on students.
- ✓ Ask "follow-ups". E.g., "Why? How do you know? Do you agree? Will you give an example? Can you tell me more?
- ✓ Cue responses to "open ended" questions. E.g., "There is not a single correct answer to this question. I want you to consider alternatives."
- ✓ Use "think-pair-share"
- ✓ Allow individual thinking time, discussion with a partner, and then open up for class discussion.
- ✓ Call on students randomly. Avoid the pattern of only calling on those students with raised hands. Say you are going to wait until you see 5, 10, 15 hands, etc....
- ✓ Ask students to "unpack their thinking". E.g., 'Describe how you arrived at your answer."
- ✓ Ask for summary to promote active listening. E.g., "Could you please summarize our discussion thus far?"
- ✓ Play devil's advocate
- ✓ Require students to defend their reasoning against different points of view.
- ✓ Survey the class. E.g., "How many people agree with the author's point of view?" (thumbs up, thumbs down)
- ✓ Allow for student calling on other students. E.g., "Richard, will you please call on someone to respond?"
- ✓ Encourage student questioning
- ✓ Provide opportunities for students to generate their own questions. Use task cards. This must be modeled!

STRATEGIES TO EXTEND THINKING

- **Remember "wait time I and II"**
- Provide at least five seconds of thinking time after a question **and** after a response.
- **Ask "follow-ups'**
- E.g., "Why? How do you know? Do you agree? Will you give an example? Can you tell me more?
- **Cue responses to "open ended" questions**
- E.g., "There is not a single correct answer to this question. I want you to consider alternatives.

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The BEST teachers are the ones who are able to relate the subjects they teach to the real world for their students.

Can we fix this lesson ?
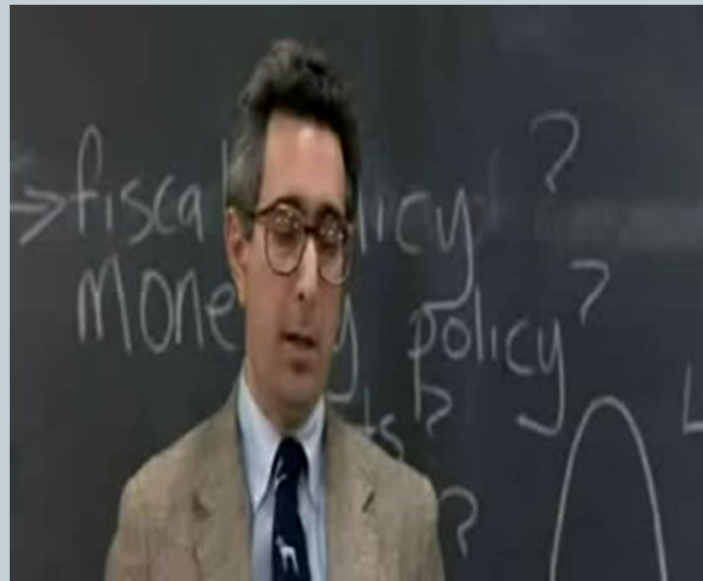
Wrap Up
Looking Through the Lens

- **White-Just the Facts on Rigor**

- **Yellow-The up side of infusing Rigor**

- **Purple-The down side of Rigor**

Tips for Planning

- Planning for Rigor and relevance takes more than "Parking Lot Planning."

- Use sticky notes or write questions of different complexity levels in the teacher's editions based on the cognitive level required on the FCAT.

- Use the task cards item stems with your content.

- (Remember only 20-25% of FCAT questions are at the knowledge, recall level, therefore 75-80% of the questions you ask should be at the moderate and high levels)

Tips for Planning

- Use probing and prompting to get students to respond don't let them off the hook, come back to them if necessary.

- Use a seating chart to record questions levels asked. Analyze this-Action Research

- Use response boards

- Have students generate their own questions with your content using the task cards. (make a class set)

- Always find ways to make connections, plan this ahead of time.

Plan a Lesson

- Develop activities that stretch the concept taught from Level 1 to Level 4 of Webbs.

- Develop ten questions for the lesson.
- 2 Low complexity
- 3 High complexity
- 5 Moderate complexity

Evaluation/EXIT SLIP

- Please complete the evaluation and on the back complete the following questions..

- Three things you learned.....

- Two things you will incorporate into your instruction.....

- One question or comment you have.....

Professor McWit, crushed by an avalanche
of Philosophy 101 texts, proving again that
a little knowledge is a dangerous thing.

Essential Question

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