Essential Questions

• How do I plan lessons that move students from rote and recall response to higher level thinking skills that result in deep understanding and long term retention?

Essential Questions

• How do I expand my repertoire of quality questioning strategies to advance thinking, learning and achievement; to engage all students; to make connections; and to teach students to be question generators?
Essential Questions

• How do I incorporate Habits of Mind and Visible Thinking Tools in my daily repertoire?

Essential Questions

• What instructional strategies might I consider to foster inquiry, problem-based learning and higher-level thinking?

An Even Bigger Essential Question

• What habits of mind do I want to be consciously modeling and promoting for my students as they embrace deep conceptual understanding?
Paradigm Shift

- Metacognition
- Higher Level Thinking
- Deeper Understanding of Content
- Transfer of Knowledge
- Making Meaning and Conceptual Understanding

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Research

- David Perkins
- Jay McTighe & Grant Wiggins
- Heidi Hayes Jacobs
- Bena Kallick and Arthur Costa
- Robert Marzano
- Jackie Walsh & Beth Sattes

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Strategies

- Visible Thinking
- Questioning Strategies, e.g.,
  - S.P.A.C.E
  - Reciprocal Teaching
  - S.C.A.M.P.E.R.
  - Metacognitive Anchoring
  - Pair Problem Solving
  - Question/Question

Strategies

Comprehension
Knowledge
Application
Analysis
Synthesis
Evaluation
Higher Level Thinking
No "Right" Answers
85%-95% classroom time
5%-15% classroom time
Bloom's Taxonomy of Educational Objectives

© 2008 Knowledge Comprehension Application Analysis Synthesis Evaluation Higher Level Thinking No "Right" Answers 85%-95% classroom time 5%-15% classroom time Bloom's Taxonomy of Educational Objectives © 2008
Summary of Structural Changes to Bloom's Original Model


Evaluation
Synthesis
Analysis
Application
Comprehension
Knowledge
Create Evaluate Analyze Apply Understand Remember
Separate Dimension Knowledge

Recall, Use, Create: A Visual Depiction

ADAPTED FROM: Skylight Professional Development by Arthur Costa.
Recall, Use, Create: A Visual Depiction

THINKING VERBS FOUND IN STANDARDS

- Analyze
- Apply
- Classify
- Compare
- Connect
- Contrast
- Describe
- Discuss
- Elaborate
- Explore
- Diagram
- Identify
- Interpret
- Judge
- Observe
- Organize
- Paraphrase
- Predict
- Respond
- Support
- Represent
- Visualize
- Reason
- Verify
- Solve
- Summarize
- Simplify

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Theory to Practice

Now we need some strategies for putting theory to work in the classroom.

In what ways does this situation remind you of the way your students and your organization deals with problem solving?

<table>
<thead>
<tr>
<th>TONY WAGNER’S SEVEN SKILLS THAT STUDENTS DESPERATELY NEED</th>
<th>16 HABITS OF MIND</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Problem-solving and critical thinking;</td>
<td>Persisting; gathering data through all senses; questioning and problem posing</td>
</tr>
<tr>
<td>2. Collaboration across networks and leading by influence;</td>
<td>Thinking interdependently; managing impulsivity; finding humor</td>
</tr>
<tr>
<td>3. Agility and adaptability;</td>
<td>Thinking flexibly; remaining open to continuous learning</td>
</tr>
<tr>
<td>4. Initiative and entrepreneurship;</td>
<td>Taking responsible risks; thinking about thinking (metacognition)</td>
</tr>
<tr>
<td>5. Effective written and oral communication;</td>
<td>Communicating with clarity and precision; listening with understanding and empathy</td>
</tr>
<tr>
<td>6. Accessing and analyzing information;</td>
<td>Applying past knowledge to new situations; striving for accuracy</td>
</tr>
<tr>
<td>7. Curiosity and imagination.</td>
<td>Creating, imagining, imagining; responding with enthusiasm and alacrity</td>
</tr>
</tbody>
</table>

*Wagner, Tony, The Global Achievement Gap: Why Even Our Best Schools Don’t Teach the New Survival Skills Our Children Need—and What We Can do About It*
Visible Thinking Tools

David N. Perkins, Harvard Graduate School of Education

Evidence of Thinking

Do students know how to perform the thinking skills?
Can students describe the steps in the thinking process?
Can they correctly label the skills when they use them?
Do they apply the skills spontaneously when solving problems?
Reciprocal Teaching

- Predicting
- Questioning
- Clarifying
- Summarizing

Silence
Paraphrasing
Accepting nonjudgmentally
Clarifying
Extending

Substitute
Combine
Adapt, adopt
Modify, maximize, minimize
Put to other uses
Eliminate
Reverse order
Reflection

• I am currently fostering deep conceptual understanding when I . . .

Reflection

• Some additional ways I can foster deep conceptual understanding include . . .

Notes, Ideas, Reactions, and Pictures
Fran Prolman, Ed.D
President
Senior Consultant
Phone: 703.759.1059
FAX: 703.759.1060
P.O. Box 563, Great Falls, VA 22066
fran@trueeducator.com