

Differentiation Strategies for High-End Learners:
A Response to Instruction

QUESTIONING & OPEN-ENDED ASSIGNMENTS

Questioning: Pre-assessment

1. What is an open-ended question?

An open-ended question invites divergent thinking, making more than one correct answer, and encourages higher order thinking.



Questioning: Pre-assessment

2. What is an open-ended assignment?

- Open-ended assignments start with open-ended questions and may allow students to explore a process and/or product in order to gain and share their



Questioning: Pre-assessment

3. When working with high-end learners, from what levels of Bloom's Taxonomy should most questions be posed?

- A. Knowledge
- B. Comprehension
- C. Application
- D. Analysis
- E. Synthesis
- F. Evaluation



Questioning: Pre-assessment

5. Teachers should never ask a question to which they do not know the answer.

A. *True*

B. *False*

C. *Don't Know*



Questioning: Pre-assessment

5. Teachers should ask as many questions as possible in a short time in order to maximize learning.

A.

B.

C.





Questioning

- Why is open-ended questioning important?
 - Keeps students engaged
 - Probes to find out what students know or don't know
 - Gives teacher insight into how students have interpreted lesson or other material presented
 - Helps students understand that some questions can have more than one correct answer.
 - Forces students to be more metacognitive

2 Types of Questions

- Information seeking (Closed)
 - Example: What is the answer to the following problem: 45×5
 - What are five facts about the life of Martin Luther King?
- Questions for information processing (Open-ended)
 - Example: Why might you choose to find the answer to the problem above using multiplication rather than addition?
 - Choose one important event in Martin Luther King's life. How did that event bring change to the lives of African Americans and/or to the nation as a whole?

Questioning: Open or closed?

- AFTER reading a unit on the Civil War
 - What were the causes of the Civil War?
 - Why did General Lee finally surrender to the Union at Appomattox?
 - How were the economies of the North and the South similar and different before the Civil War?

CLOSED

- Same questions, only BEFORE reading the unit?

OPEN

Questioning: Open or closed?

- Name the events of the story in proper sequence.

CLOSED

- How did the protagonist in the story demonstrate kindness?

OPEN

- What does it mean to be determined?

CLOSED

- Based on the actions of the protagonist, which trait do you think the author values more- courage or patriotism? Why did you answer as you did? (Give evidence from the story.)

OPEN

Strategies for Asking Open-ended Questions



- Phrase questions carefully
- Wait time 1
 - Pause for up to 5 seconds after asking a question.
- Wait time 2
 - Pause again after the student answers
- Listen carefully to the student's answer
- Ask probing or follow-up questions as needed.


Strategies for Asking Open-ended Questions

- Phrase questions carefully
 - Set the context
 - Use a sentence stem that implies analyzing, evaluating, or synthesizing information previously known.
 - State the question clearly.
 - Do not ask “double dose” questions.





Wait Time

- Gives students opportunities to think carefully about their answers
 - Gives students who are slow to answer a chance to respond
 - Impulsive students learn self-control and the importance of listening
 - Forces students to practice metacognition
 - Teaches students to be “active” listeners
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Follow-up and Probing Questions

- Tell me more about...
- How were you thinking when you said...?
- Can you give an example of what you just said?
- Can you state your answer another way?
- What if...? Would you still answer in the same way?

Question Answering Strategies for Students

- Listen carefully to the question.
- Make sure you understand it thoroughly.
- Think through your answer during “wait time 1”.
- Think more about your answer during “wait time 2.”
- Be able to justify with evidence.



Question Answering Strategies for Students



- If someone else answers before you do, listen carefully to what they say.
- After “wait time 2,” be ready to respond with a follow up or probing question;

OR

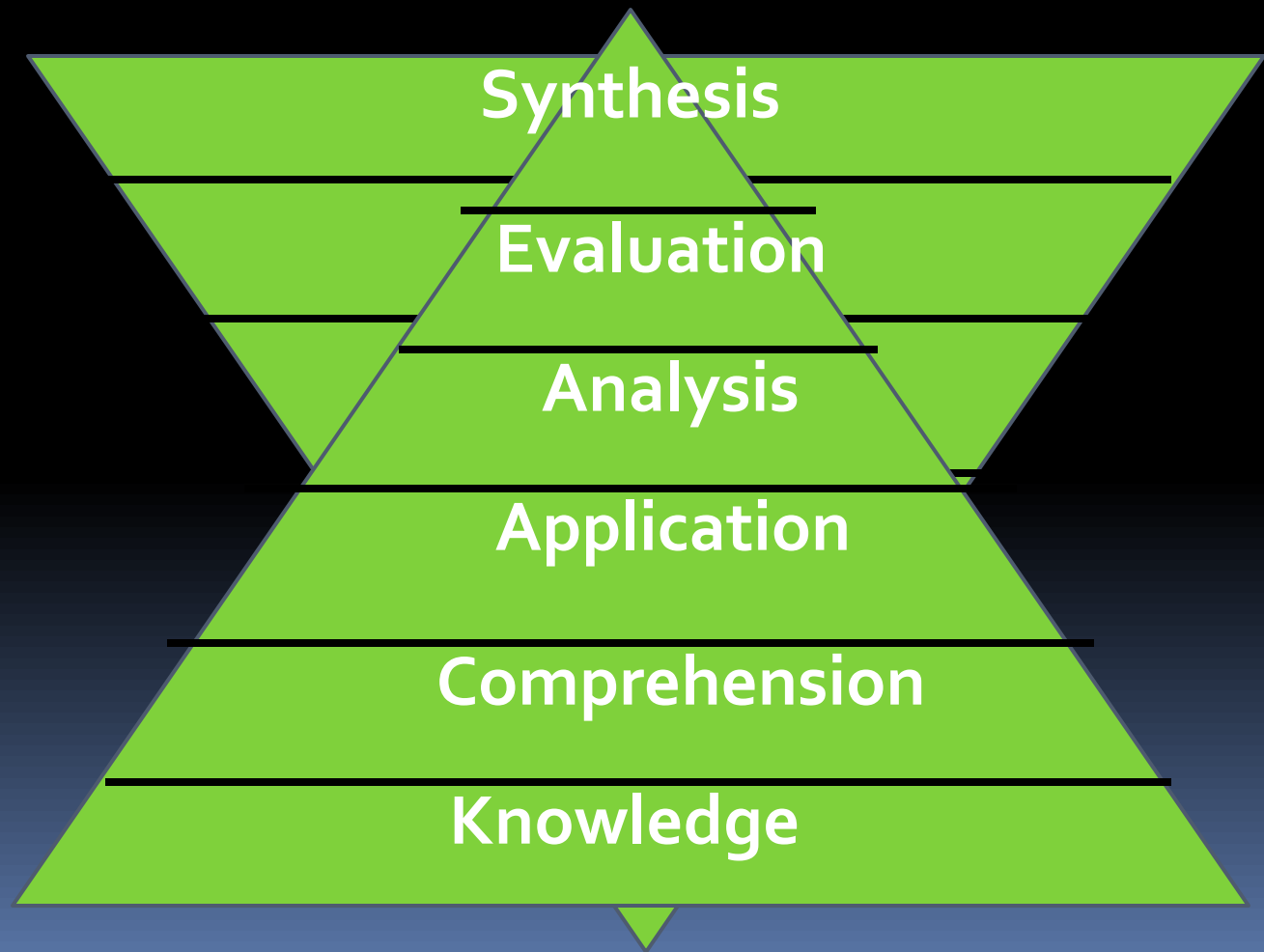
- Disagree politely and give your answer.
- Be ready to back up your answer with “evidence.”



Question Asking Strategies for Students

- Encourage students to recognize and then compose questions at different levels.
- Teach students the language of questioning
 - *Bloom's Taxonomy*
 - *Walsh and Satte's Taxonomy*
 - *Marzano's Taxonomy*

Questioning with Bloom's Taxonomy



Bloom's Questioning Verbs

□ Analysis

- Analyze
- Separate, Divide, Connect
- Order, Arrange
- Compare
- Select
- Explain
- Infer

Bloom's Questioning Verbs

- Evaluation
 - Assess, Judge, Discriminate
 - Decide, Conclude
 - Rank
 - Test
 - Measure
 - Recommend, convince, support
 - Select

Bloom's Questioning Verbs

- Synthesis
 - combine, integrate
 - modify, rearrange, substitute
 - plan
 - create, design, invent
 - what if?
 - compose, formulate
 - prepare, generalize
 - rewrite

Questioning Strategies

- Walsh & Satte's Taxonomy
 - 1st Level- Recall
 - Remember, Recognize, Identify, Retrieve



Walsh & Satte's Questioning Strategy

- 2nd Level -Use



- Understand, Interpret, Exemplify, Classify, Summarize, Infer, Compare, Explain, Apply, Execute, Implement, Analyze, Differentiate, Organize, Attribute

Questioning- Walsh & Satte's

- 3rd Level- Create
 - Evaluate, Check, Coordinate, Detect, Monitor, Test, Critique, Judge, Generate, Plan, Produce, Hypothesize, Design, Construct




Marzano's Taxonomy

- Recitation Questions
 - Retrieve information previously learned
 - Egs. What factors contributed to the economic crash of 1929?
- Construction Questions
 - Require students to construct new knowledge not previously learned.
 - Egs. How does the crash of 1929 compare to the current economic recession?



Open-ended Assignments

- Open Ended assignments may vary
 - Content
 - Process
 - Product
 - Allow students to make text to self or text to world connections
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Assignment- Open or Closed?

- Make a Power Point presentation on a famous inventor. Include at least 5 facts about his/her life and the name of the invention.
- Make a Power Point presentation about a famous inventor.
 - Tell the name of the invention, why it was important, and how it affected or changed the lives of people, the society, or the world.
 - Include some of the personal traits of the inventor and explain how these traits enabled him/her to accomplish the task.
 - Do you share some of these traits? In what ways do they make your life easier or more difficult? How might you make these traits work for you in the future?

Open-ended Assignments

- Math

- One correct answer, vary the process

- Example 1: Explore different ways to find the correct answer to a problem.

- Example 2: How many different names can you find for the number "25"?

- $5 + 20$

- $125/5$

- $25 = \frac{(-5)2 + X - 125}{-4 + 29}$

- 5×5

- $12.5/.5$

- $-4 + 29$

- 5^2

- $(10^2) - (5 \cdot 15)$

- $100 - 5^2$

- Square root of 625

- Example 3: How many different ways can you measure or weigh a given item?

- Example 4: Given an equation, make up a word problem to illustrate.

Open-ended Assignments

- Math- One correct answer, vary the product
 - Create a board game, write a rap, make an “operations manual” that teaches the order of operations in an equation.
 - Design a poster, make up a rap/song, write a “recipe” to illustrate the process of long division.
 - Draw a picture or diagram to illustrate the relationship between addition and multiplication.
 - Make a set of manipulatives to show operations in different bases (binary, base 3, base 5, etc.)

Open-ended Assignments

- Science
 - Environmental Science- Look at an example of a number of open-ended assignments using Kaplan's Depth and Complexity chart.
 - Biology & Chemistry – Compare and contrast the two sciences. Create a Power Point presentation or a directory about careers that require a knowledge of chemistry and / or biology.
 - Physical Science- Create a series of experiments that demonstrate how energy changes forms. Why is it important to know this?

Assignment- Open or Closed?

- Solve the equation:
 - $5X + 4 = 3X - 15$ Show all steps to receive full credit.
 - Solve the equation above using the method used in the text or one of your own choosing. Extra points will be given if you can explain how you arrived at your answer.
 - What professionals might use these types of mathematical equations?

Open-ended Assignments

- Social Studies
 - Create a web quest about a given country or society. (www.webquest.org)
 - Take your classmates on a virtual tour of an ancient civilization. You decide the highlights of the trip based on the big ideas, themes, and lessons to be learned from the civilization.
 - Students list important concepts from a Social Studies unit and formulate a mind map.
 - Students make up questions for a social studies test. They must include questions from all levels of Bloom's Taxonomy.



Open-ended Assignments

- Language Arts
 - Write an alternate ending to a story.
 - Given a setting, protagonist, problem, and solution, write a creative story or poem.
 - Write a recipe for good writing.
 - Make up a rap or song about the parts of speech.
 - Make up signals or movements that represent or demonstrate different punctuation marks and use them as you read a story or paragraph aloud.
 - Create a skit about the meanings of homonyms, homophones, antonyms, idioms, etc.
 - Given the moral or theme of a story, write another that illustrates the same moral or theme.

Open-ended Questions and Assignments

- Non-negotiables
 - Replace the “regular” assignment
 - Teacher must be open to more than one correct answer

Special Needs of Gifted Students

- Open ended questions and assignments appeal to the special needs of gifted students.
- Depth
- Complexity
- Opportunities to express creativity
In their areas of giftedness



What are YOUR ideas for how to include curriculum compacting in your classroom?



Curriculum Compacting

- Upload your lesson plan to the Moodle Class website.
- Elementary : <http://atim.cc/course/view.php?id=377>
- Secondary : <http://atim.cc/course/view.php?id=378>
- Teach the lesson
- Follow-Up:
 - Webinar to discuss the effectiveness of the lesson and how to continue improvement **Date:**
 - WIKI to write a minimum of four paragraphs reflecting on the effectiveness of the lesson and how to continue improvement. In addition, post feedback to two other teacher postings.



Bibliography

- Diehn, G. (1998). *Making Books that Fly, Fold, Wrap, Hide, Pop Up, Twist & Turn*. Lark Books, NY.
- Johnson-Farris, N. (1990). *Questioning Makes the Difference*. Pieces of Learning.
<http://www.piecesoflearning.com>.
- Kingore, B. (2004). *Differentiation: Simplified, Realistic, and Effective*. Professional Associates Publishing.
- Northey, S. (2005). *Handbook on Differentiated Instruction for Middle and High Schools*. Eye on Education, Inc.



Bibliography

- Heacox, D. (2002). *Differentiating instruction in the regular classroom*. Free Spirit Publishing, Minneapolis, MN.
 - Lewis, B. (1998). *The Kid's Guide to Social Action*. Free Spirit Publishing, Minneapolis, MN.
 - Walsh, J.A. (2005) *Quality Questioning: Research-based Practice to Engage Every Learner*. Corwin Press, Thousand Oaks, CA.
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