



Insights from GED® Test-taker Performance: High Impact Indicators and Focus Skills for Instruction

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Objectives

- Describe ongoing analysis of test-taker performance
- Unpack the GED® Assessment Targets to facilitate greater understanding
- Present insights about key skills to help test-takers improve scores
- Provide examples of what to look for in student work
- Examine insights from test-taker performance at scores of 140-149
- Offer relevant instructional strategies to employ in teaching these skills

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GED Testing Service is data-driven!

- As a test provider, we use data to make all of our decisions, for example ...
 - Test question development and field testing
 - Test form construction
 - Performance standard setting
 - Instructional guidance
 - Program efficacy

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Selected research projects underway

- Data match of sample of 10,000 GED® graduates with National Student Clearinghouse
- Cognitive lab “think alouds” with test-takers on the Extended Response item
- Longitudinal research with group of 3,000 GED® grads
 - Phase 1 pilot study and cognitive labs with 500 GED® grads launched November 9
- Working directly with large national employers and preparing a large-scale employer survey for 2016

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Preliminary results – NSC match

- For 2014 GED® grads nationally, 34% had enrolled in PSE by 6 months after year end
- For Illinois the enrollment percentage was 44.1
- This compares with the
 - 2003 cohort, 25.6% of whom enrolled by 12 months after year end
 - 2004 cohort, 24.5% of whom enrolled by 12 months after year end
- 68% of GED® grads Enroll in public, 2-year institutions
- 28% attend full-time
- Those enrolling have slightly higher mean scaled scores on the test (e.g., math 158 vs. 156 for non-enrollees)
- Those enrolling have higher mean scores on the ER items, ~4 points vs. ~2 points
- 23% enroll prior to completing the GED® test

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Preliminary results – ER cognitive lab

- Students have learned the “buzzwords” of the expectations – but are less able to demonstrate the writing skills needed
- Students are still off-put by the ER interface
 - Have not done the computer skills tutorial
 - Don't understand that the response must be much longer than the “box” seems to indicate
- As a result, we will be making changes to the interface in 2016, increasing the size of the box and making the tutorial more visible on the MyGED® portal

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Results of data analysis to date

- Independent data review by ACE CREDIT®
 - Resulted in recommendation placement of GED® with Honors students in credit-bearing courses/exemption from placement testing
- Students who pass with HSE tend to score at the High Adult Secondary Education EFL
- Student writing and analysis skills need to and can be improved
- Student higher-order thinking skills need to and can be improved

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**Higher Order Thinking Skills
Students Need:
High Impact Indicators**

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What Makes Indicators High Impact?

- Important skills that are widely applicable
- May currently receive light coverage during GED® test preparation
- Lend themselves to straightforward instruction
- Many skills apply across contents
 - Gives teachers a “bigger bang for your buck”

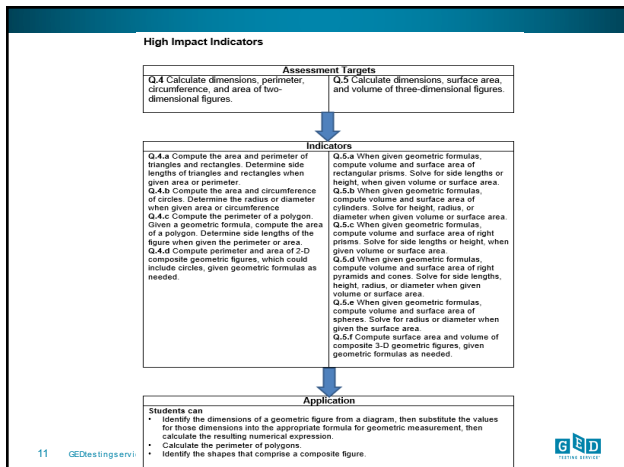
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Targets → Indicators → Application

- **Assessment targets** describe the general concepts that are assessed on the GED® test
- **Indicators** are more fine-grained descriptions of individual skills contained within an assessment target
- **Application** describes what to look for in student work

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Example Math High Impact Indicators

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Assessment Target—Q.1

- Q.1 Apply number sense concepts, including ordering rational numbers, absolute value, multiples, factors, and exponents

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Q.1 Indicators

- Q.1.a Order fractions and decimals, including on a number line.
- Q.1.b Apply number properties involving multiples and factors, such as using the least common multiple, greatest common factor, or distributive property to rewrite numeric expressions.
- Q.1.c Apply rules of exponents in numerical expressions with rational exponents to write equivalent expressions with rational exponents.
- Q.1.d Identify absolute value of a rational number as its distance from 0 on the number line and determine the distance between two rational numbers on the number line, including using the absolute value of their difference.

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What to look for in student work (Q.1)

The student has

- converted fractions to decimals or vice versa in order to compare them, and listed the original numbers in ascending order.
- identified common factors and calculated the greatest common factor by multiplying common factors, and has also identified common multiples, including least common multiples.
- selected the appropriate rule(s) of exponents to apply to exponential expressions, and simplified exponential expressions using one or more rules of exponents.
- identified the location of a rational number on the number line, created absolute value expressions to represent distances on the number line, and simplified absolute value expressions.

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Sample Science High Impact Indicators

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Indicator SP.4.a

Evaluate whether a conclusion or theory is supported or challenged by particular data or evidence.

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What to look for in your students' work (SP.4.a)

The student can

- identify and explain why the evidence supports the proposed claim or solution.
- identify and explain which piece of data supports or contradicts the given hypothesis.
- identify multiple reasons a piece of evidence supports a theory or hypothesis and compare those reasons to one another.
- identify which scientific model would be weakened or strengthened by particular evidence.
- fully explain why given evidence supports a scientific theory.
- fully explain why given evidence challenges a scientific theory.

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Sample RLA High Impact Indicators

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Indicator R.8.3

Evaluate the relevance and sufficiency of evidence offered in support of a claim.

**Primarily measured with informational texts.*

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What to look for in student work (R.8.3)

The student can

- explain how a particular piece of evidence is relevant to a point an author is making.
- explain how a particular piece or pieces of evidence are sufficient to justify an author's singular point or overall message.
- distinguish between irrelevant and relevant evidence.
- distinguish between an idea that has sufficient evidence to support it and one that does not.

(con'ton nextslide)

What to look for in student work (R.8.3)

The student can

- distinguish between explanation and evidence.
- distinguish between reasoning and evidence.
- make judgments on either the relevance or sufficiency (or both) of single and multiple pieces of evidence.

Example Social Studies High Impact Indicators

High Impact Indicator – SSP.2.a

Determine the central ideas or information of a primary or secondary source, corroborating or challenging conclusions with evidence.

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High Impact Indicator – SSP.2.a

Determine the central ideas or information of a primary or secondary source, corroborating or challenging conclusions with evidence.

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What to look for in student work (SSP.2.a)

The student has

- differentiated between the concepts of topic and main idea.
- identified the topic and/or main idea of a piece of text.
- identified supporting details for a given main idea.
- summarized a piece of text.
- fully explained relevant details in the text that support the main idea.

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What to look for in student work (SSP.2.a)

The student has

- located a single piece of evidence in the text.
- located multiple pieces of evidence in a text.
- differentiated between relevant and irrelevant evidence.
- used evidence to support or challenge an author's conclusion.

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New Tool: High Impact Indicators Crosswalk

- In each content area, shows the text of each High Impact Indicator crosswalk
- Cross-references those indicators to each of the content areas
 - Showing related indicators, both High Impact and others
 - Can be used to help maximize the efficiency and effectiveness of your instruction

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Just Out of the Money: Lessons Learned about Test-Takers Scoring 140 - 149

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Test-takers scoring 140 – 149

- Not a monolithic group
- There are differences in performance between
 - Those in the low 140s
 - Those in the mid-140s
 - Those in the high 140s

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Test-takers scoring 140 – 149

- However, the differences in performance
 - Are generally based on **“somewhat” different** skills in each performance group, but more often
 - Are typically based on a test-taker’s consistency in demonstrating skills, or
 - May be based on the level of complexity of materials that a test-taker can handle
 - Lower-performing students may be
 - Successful with simpler materials and
 - Less successful with those that are more complex

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Test-takers scoring 140 – 149

- Test-takers in the low 140s
 - Tend to be quite inconsistent in the application of the skills targeted for High School Equivalency (HSE)
- Test-takers in the mid-140s
 - Tend to perform HSE skills about 50% of the time
- Test-takers in the high 140s
 - Tend to perform HSE skills about 70% of the time

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First, what skills are we talking about?

- The skills required for high school equivalency are detailed in the “Performance Level Descriptors – Level 2”
- These are found on the GEDTS web site at <http://www.gedtesting.com/educators/pld>

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An Example From Mathematical Reasoning

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Let's look at some examples ...

- In the math PLDs for level 2 the following <selected> algebraic skills appear on the PLDs:
 - **Algebraic problem solving with expressions and equations**
 - Evaluate linear and polynomial expressions.
 - Write linear, polynomial, and rational expressions, and linear and quadratic equations given written descriptions, at a satisfactory level.
 - Compute with linear and rational expressions, at a satisfactory level.
 - Solve real-world problems involving linear equations at a satisfactory level.
 - Solve algebraic and real-world problems involving a system of two linear equations.
 - Solve real-world problems involving inequalities and graph solutions on a number line at a satisfactory level.
 - Solve quadratic equations in one variable with real solutions at a satisfactory level.

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Let's look at some examples ...

- **Algebraic problem solving with expressions and equations**
 - Evaluate linear and polynomial expressions.
 - Write linear equations, given written descriptions, at an introductory level.

- Solve linear and quadratic equations at an introductory level.

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Let's look at some examples ...

- So, the following skills are demonstrated at a scaled score of ~145:
 - **Algebraic problem solving with expressions and equations**
 - Evaluate polynomial and rational expressions.
 - Write linear equations, at an introductory level, when given written descriptions.
 - Solve linear and quadratic equations at an introductory level.

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What are some of the key differences in algebraic reasoning skills between 145 and 150?

- Students scoring at 145:
 - Have a smaller skill repertoire, e.g.,
 - Tend to be able to work with equalities but not inequalities
 - Tend to have weaker graphing skills
 - Are less able to apply math skills to real world situations or to interpret real world skills mathematically
 - Are less consistent in their performance (lack "fluency" in their skills)

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Let's look again at PLD 2, HSE...

- In the math PLDs for level 2 the following <selected> algebraic skills appear on the PLDs:
 - **Algebraic problem solving with expressions and equations**
 - Evaluate linear and polynomial expressions.
 - Write linear, polynomial, and rational expressions, and linear and quadratic equations given written descriptions, at a satisfactory level.
 - Compute with linear and rational expressions, at a satisfactory level.
 - Solve real-world problems involving linear equations at a satisfactory level.
 - Solve algebraic and real-world problems involving a system of two linear equations.
 - Solve real-world problems involving inequalities and graph solutions on a number line at a satisfactory level.
 - Solve quadratic equations in one variable with real solutions at a satisfactory level.

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What differences are there between 150 and 140?

- Algebraic problem solving with expressions and equations
 - Evaluate linear expressions.
 - Write linear expressions and equations given written descriptions, at a limited level.
 - Solve algebraic problems involving linear equations at a limited level.
 - Solve problems involving inequalities at a limited level.

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What, then, are some of the key differences in algebraic reasoning skills between 140 and 150?

- Students scoring at 140:
 - Have a much smaller skill repertoire, e.g.,
 - Tend to be able to work with equalities but not inequalities
 - Tend to have very weak graphing skills
 - Are far less able to apply math skills to real world situations or to interpret real world skills mathematically
 - Are far less consistent in their performance (performance is likely "hit or miss")

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Another Math Example

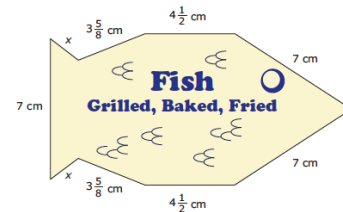
- GEDTS has shared examples of items at the HSE cut with the field
- One of those items measures one of the "high impact indicators" – Q4 –
 - Calculate dimensions, perimeter, circumference, and area of two-dimensional figures
- This item/skill is representative of HSE, but not of performance below that

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Math - 2

A painter uses the outline of a fish on a restaurant sign. The perimeter of the outline is $40\frac{3}{4}$ centimeters (cm).



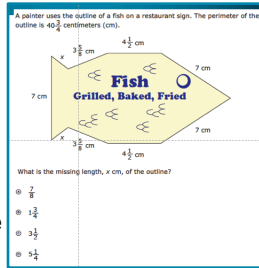
What is the missing length, x cm, of the outline?

- Ⓐ $\frac{7}{8}$
- Ⓑ $1\frac{3}{4}$
- Ⓒ $3\frac{1}{2}$
- Ⓓ $5\frac{1}{4}$

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What skills is this item measuring?

- Understanding of the definition of perimeter
- Using reasoning skills to determine the value of x
 - Including estimation skills



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An Example From Social Studies

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Let's look at some examples ...

- In the SS PLDs for level 2 the following skills appear on the PLDs:
 - Analyzing and creating text features in a social studies context
 - Determine the details of what is explicitly stated in primary and secondary sources and make logical inferences or valid claims based on evidence, at a satisfactory level.
 - Determine the central ideas or information of a primary or secondary source document, corroborating or challenging conclusions with evidence.
 - Determine the meaning of words and phrases used in a social studies context.
 - Identify aspects of a historical document that reveal an author's point of view or purpose.
 - Distinguish among fact, opinion, and reasoned judgment in a primary or secondary source document, at a satisfactory level.
 - Analyze how a historical context shapes an author's point of view.
 - Evaluate the credibility of an author in historical and contemporary political discourse.
 - Distinguish between unsupported claims and informed hypotheses grounded in social studies evidence, at a satisfactory level.
 - Compare treatments of the same social studies topic in various primary and secondary sources, noting discrepancies between and among the sources.

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Let's look at some examples ...

- In the SS PLDs for level 2 the following skills appear on the PLDs:
 - Analyzing and creating text features in a social studies context
 - Determine the details of what is explicitly stated in primary and secondary sources and make logical inferences or valid claims based on evidence, at an introductory level.
 - Distinguish among fact, opinion, and reasoned judgment in a primary or secondary source document, at a satisfactory level.

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What skills are evidenced at a scaled score of ~145?

- **Analyzing and creating text features in a social studies context**
 - Determine the details of what is explicitly stated in primary and secondary sources and make logical inferences or valid claims based on evidence at an introductory level.
 - Distinguish between fact and opinion in a primary or secondary source document at an introductory level.

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What, then, are selected key differences between performance of 145 and 150 in Social Studies?

- Smaller skill repertoire at 145 than 150
 - Lower skill level in dealing with evidence to corroborate or challenge conclusions
 - Less facility with being able to understand how historical context shapes point of view
 - Less facility in noting discrepancies among sources
- Less consistency in performance
- Less “fluency” in performance

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Again, let's go back to PL 2 (HSE)...

- In the SS PLDs for Level 2 the following skills appear on the PLDs:
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Again, let's go back to PL 2 (HSE)...

- In the SS PLDs for Level 2 the following skills appear on the PLDs:
 - Analyzing and creating text features in a social studies context
 - Determine the details of what is explicitly stated in primary and secondary sources and make logical inferences or valid claims based on evidence, at a limited or inconsistent level.
 - Distinguish among fact, opinion, and reasoned judgment in a primary or secondary source document, at a satisfactory level.

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What SS skills are demonstrated at a scaled score of ~140?

- Analyzing and creating text features in a social studies context
 - Determine the details of what is explicitly stated in primary and secondary sources and make logical inferences or valid claims based on evidence at a limited and/or inconsistent level.
 - Distinguish between fact and opinion in a primary or secondary source document at a limited and/or inconsistent level.

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What, then, are selected key differences between performance of 140 and 150 in Social Studies?

- Much smaller skill repertoire at 140 than 150
 - Much lower skill level in dealing with evidence to corroborate or challenge conclusions
 - Much less facility with being able to understand how historical context shapes point of view
 - Much less facility in noting discrepancies among sources
- Much less consistency in performance
- Much less “fluency” in performance

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Another Social Studies Example

- One of the HSE items measures a “high impact indicator” – SSP 3c –
 - Analyze cause-and-effect relationships and multiple causation
- This item/skill is representative of HSE, but not of performance below that

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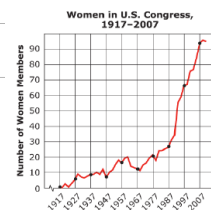


Social Studies – Example Item 2

This passage describes the 19th Amendment, ratified in 1920.

Since the nineteenth century, many people have worked to achieve equal rights for women. Much of this effort focused on suffrage, or the right to vote. One of the greatest victories for advocates of women's rights was ratification of the 19th Amendment to the U.S. Constitution in 1920. The 19th Amendment stated that “The right of citizens of the United States to vote shall not be denied or abridged by the United States or by any State on account of sex.” However, the struggle for equality in other areas of society continued even after the 19th Amendment granted suffrage to women.

The graph contains data from the U.S. House of Representatives.



Which conclusion is best supported by the information in the passage and the graph?

- A. U.S. voters were reluctant to elect women to federal positions for many years after the 19th Amendment was ratified.
- B. U.S. women were united as a single voting bloc in federal elections after the 19th Amendment was ratified.
- C. Ratification of the 19th Amendment meant that women had achieved social and economic equality.
- D. Ratification of the 19th Amendment resulted in equal political representation for women.

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What skills is this item measuring?

- Analyze info from 2 sources
- Integrate the info
- Apply it to determine effect of the 19th Amendment on congressional Representation

Which conclusion is best supported by the information in the passage and the graph?

A U.S. voters were reluctant to elect women to federal positions for many years after the 19th Amendment was ratified.

B U.S. women were called on a single voting day in federal elections after the 19th Amendment was ratified.

C Ratification of the 19th Amendment meant that women had a direct voice in federal and economic matters.

D Ratification of the 19th Amendment resulted in equal political representation for women.

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Strategies for the Classroom

Using Modeling & Scaffolding

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Objective

Consider how two classroom strategies...

- **Modeling** (making thinking processes visible)
- **Scaffolding** (meeting students where they are and taking them where they need to go)

can support your work with your students and HIIIs

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Back to the Future

The curriculum must expand to include information and activities that explicitly support students in learning to think well. The emphasis is less on the mastery of information measured by a recall-based assessment and more on how to use one's mind well, to synthesize and analyze skillfully.

— Alvermann and Phelps (1998)

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Why Focus Here?

- Helping students learn *how to learn* is critical to aiding the development of higher-order thinking skills
- **Modeling** is one way to teach students how to learn
- **Scaffolding** allows students to practice with diminishing support—to build confidence and competence

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Compare & Contrast

- | <u>Lower Order</u> | <u>Higher Order</u> |
|---|---|
| • Memorizing a formula | • Explaining the why & how |
| • Memorizing a definition | • Defining from context |
| • Memorizing multiplication tables | • Understanding multiplication tables (shortcut for addition) |
| • Memorizing events & dates from a history text | • Drawing inferences from historical documents |

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The Payoff for Students

- When higher-order thinking skills are used
 - Students carry the knowledge longer
 - Knowledge is more easily transferrable
 - Knowledge becomes accessible for use for solving new problems and in other areas

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Higher-Order Thinking at Work

- Visualize a problem by diagramming it
- Separate relevant from irrelevant information in a word problem
- Seek reasons and causes
- Justify solutions
- See more than one side of a problem
- Weigh sources of information based on their credibility
- Reveal assumptions in reasoning
- Identify bias or logical inconsistencies

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Making Thinking Processes Visible (MTPV)

1. Select a skill to teach
2. Select an activity that requires successful application of the skill
3. Work out the exact steps needed to complete the task
4. Plan your script—you will play the struggling student

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During Modeling...

1. Focus on explaining the “why”
2. YOU are in the learner role
3. Be sure that your process is visible
4. Provide time to debrief
5. Record and post the steps for future reference
6. Provide opportunities for students to practice
7. Engage students: Ask/discuss: Where else can you use this process?

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Scaffolding

- Instructor modeling
- Student volunteer assisted by the class with instructor facilitation
- Small group work
- Individual practice

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Now it's your turn!

- In groups, select one of the High Impact Indicators, based on
 - your interest,
 - expertise, or
 - those that are most challenging for you and/or your students
- Create a lesson plan that addresses that HII as well as other related indicators from the handout
- Consider using Modeling, MTPV, Scaffolding, or other techniques
- Take 20 minutes
- Use flipchart and prepare to share your lesson with the large group

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The End Goals

- Practice that reduces dependence on instructor assistance
- Independent practice
- Internalization
- Mastery

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Connecting the dots

- For HIIIs, pay close attention to the observed behaviors indicated
- Track those back to the PLDs
- Continue to make thinking processes visible to students (with all the pitfalls, challenges, and redirects)
- Observe and re-teach if or when necessary

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