Georgia Center for Assessment

State Charter Schools Commission Academic Summit

#bettertoolsbetterevidenceGCA

Presented by

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The University of Georgia

SESSION 1: FOCUS ON DATA ANALYSIS

Multiple Measures

Read Bernhardt's (1998) *Multiple Measures*.

Discussion questions:

- What is Bernhardt's thesis?
- Why is student achievement data not enough?

Apply

Consider the data set (provided by GCA).

Guiding questions:

- What is the purpose of the assessment, and what are the appropriate uses of the scores?
- How are our students doing?
- What do we know from student achievement data?
- What do we NOT know?
- What additional evidence do we have?
- What evidence do we need?

Apply

Bernhardt gives concrete examples of key questions related to multiple measures.

Come up with 1-2 key questions that you feel your school would need to answer if these sample data came from your school. What measures are involved?

SESSION 2: UNDERSTANDING THE GEORGIA STANDARDS OF EXCELLENCE (GSE)

To Cover

- Why are the Georgia Standards of Excellence (GSE) important?
- What are the consequences of knowing, or not knowing, the standards well?
- What are some practical exercises I can engage in to understand the standards well?
- How do standards inform classroom assessment development and instructional decisions?

LEARNING TARGETS

Learning Targets

What is required for mastery of a standard or indicator?

- Learning target = **Know**, **do**, and/or **understand**
- Learning target ≠ **Assessment method or instructional activity**

Content Knowledge	Reasoning and Problem Solving	Performance Skills	Product Development
• Factual information • Procedural knowledge • Conceptual understanding	• Application of conceptual understanding • Thought processes beyond recall	• Requires a demonstration or physical skill-based performance to measure mastery • Focus is on quality of performance or process	• Requires creation of a tangible product • Focus is on the quality of the product itself

LEARNING TARGETS ACTIVITY

Activity

- You will be presented with 7 standards/indicators.
- For each, identify the learning target that represents the ultimate target for mastery – what the student must ultimately do to show mastery.
- Knowledge, reasoning/problem solving, real-time performance, or product development?

Writes an argumentative essay

a) Content knowledge

b) Reasoning and problem solving

c) Performance skill

d) Product development

Measures cardiorespiratory fitness with accuracy

a) Content knowledge

b) Reasoning and problem solving

c) Performance skill

d) Product development

Knows that plants and animals need certain resources for energy and growth

a) Content knowledge

b) Reasoning and problem solving

c) Performance skill

d) Product development

Pronounces words correctly in Spanish

a) Content knowledge

b) Reasoning and problem solving

c) Performance skill

d) Product development

Uses statistical methods to describe, analyze, evaluate, and make decisions

a) Content knowledge

b) Reasoning and problem solving

c) Performance skill

d) Product development

Constructs a physical model of a familiar object

a) Content knowledge

b) Reasoning and problem solving

c) Performance skill

d) Product development

Recognizes a brush technique used by a visual artist

a) Content knowledge

b) Reasoning and problem solving

c) Performance skill

d) Product development

DEPTH OF KNOWLEDGE (DOK)

DOK 1: Recall and Reproduction

DOK 4: Extended Thinking

Examples of DOK 1

- Recall elements and details of a story, such as character and setting.
- Conduct basic mathematical calculations.
- Label locations on a map.
- Recall the features of a place or people.

Examples of DOK 4

- Synthesize information across multiple sources or texts.
- Writing and/or research tasks that involve formulating and testing hypotheses over time.
- Design a mathematical model to inform and solve a practical or abstract situation.
- Conduct a project that specifies a problem, identifies solution paths, solves the problem, and reports results.

DOK 2: Applying Knowledge

DOK 3: Strategic Thinking

Examples of DOK 2

- Apply understanding of facts and concepts.
- Describe the cause/effect of a particular event.
- Identify patterns in events or behavior.
- Formulate a problem given data and conditions.
- Organize, represent, and interpret data.

Examples of DOK 3

- Apply understanding of facts and concepts in other contexts.
- Evaluate how/why an applied understanding "works" in a particular context (i.e., more metacognition).
- Evaluate the thinking presented in a scenario, then defend or refute by identifying flaws in thinking presented.

RELATIONSHIP BETWEEN LEARNING TARGETS AND DOK

Standard → Learning Targets

Content Knowledge	Reasoning and Problem Solving	Performance Skills	Product Development
Recall Understand	Apply Compare/Contrast Cause/Effect Infer Decide Judge Evaluate Interpret	Combination of Content Knowledge and Reasoning or Problem Solving in order to give a live demonstration of a skill; focus is on quality of live demo	Combination of Content Knowledge and Reasoning and/or Problem Solving in order to create a tangible product; focus is on quality of product
DOK 1 DOK 2	DOK 2 DOK 3	DOK varies	DOK varies

Depth of Knowledge (DOK) → Assessment Item

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Process for Deconstructing the Standards

Step 1: Choose a standard/indicator.

Step 2: Circle verbs to identify key skills required by the student and underline nouns and noun phrases to identify key concepts.

Process for Deconstructing the Standards

Step 3: Identify the Learning Targets in the standard by asking these questions:

1. What **product development** (if any) is required of students?
2. What **performance/process skills** (if any) do students need?
3. What **reasoning or problem/solving** proficiencies (if any) do students need?
4. What **content knowledge** do students need?

Step 4: Think about the **academic language** the student needs to understand. Include this language in your learning targets.

Step 5: Identify which type of learning target: knowledge, reasoning, performance or process skill, or product best aligns with the level of rigor included the standard.

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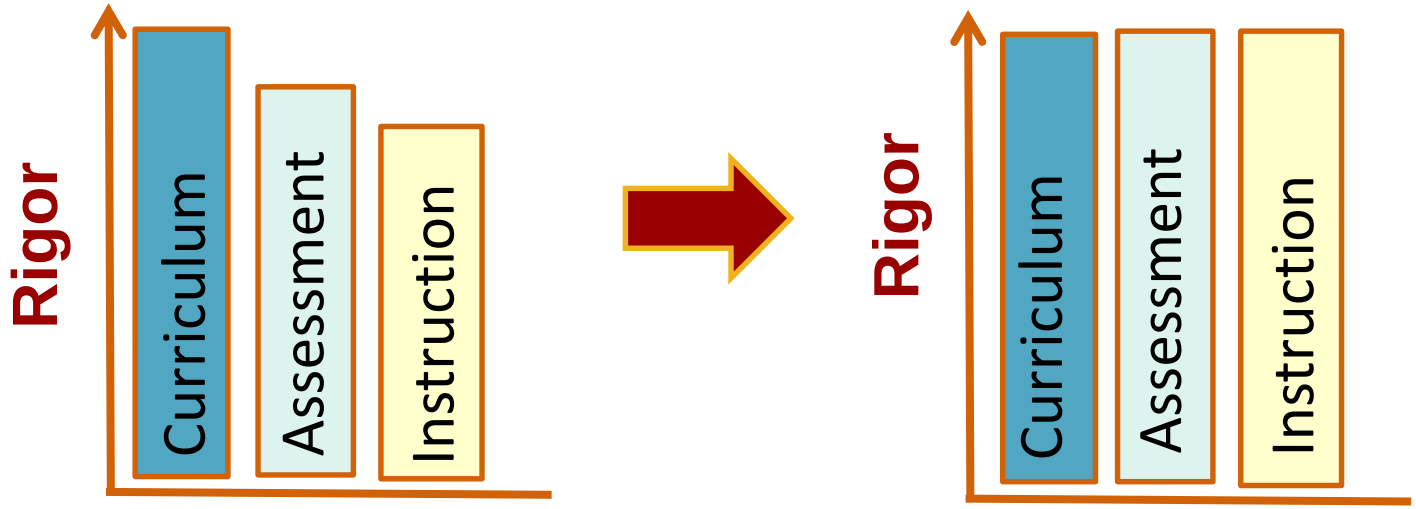
Alignment is Key

Deconstructing the standards helps to align and maintain high levels of rigor throughout curriculum, assessment, and instruction.



Apply

- Model: deconstructing a grade 7 Science standard
- Collaborate: deconstructing an Algebra standard
- Independent work: deconstructing a Grade 5 Reading standard

GRADE 7 SCIENCE EXAMPLE

7th Grade Science

S7L4a. Construct an explanation for the patterns of interactions observed in different ecosystems in terms of the relationships among and between organisms and abiotic components of the ecosystem.

Knowledge	Reasoning	Performance/ Process	Product
What is an ecosystem? What kinds of interactions are observed in different ecosystems (e.g., predator/prey relationships, symbiotic relationships, etc.)? What are abiotic components of an ecosystem?	Reason about patterns of interactions among and between organisms in an ecosystem, including the role of abiotic components.		

What academic language do students need to know? See Knowledge category; any additional academic language required?

Which type of learning target best represents the level of rigor required by the Standard?

Knowledge Reasoning Performance Skill Product

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ALGEBRA EXAMPLE

Algebra

MGSE9-12.S.ID.7 Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.

Knowledge	Reasoning	Performance/ Process	Product
What is slope? What is the intercept? What is a linear model?	Interpret slope and intercept in the context of real data.	X	X

What academic language do students need to know? See Knowledge category. Anything else?

Which type of learning target best represents the level of rigor required by the Standard?

Knowledge Reasoning Performance Skill Product

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GRADE 5 ELA EXAMPLE

Grade 5 ELA

ELAGSE5RL2: Determine a theme of a story, drama, or poem from details in the text, including how characters in a story or drama respond to challenges or how the speaker in a poem reflects upon a topic; summarize the text.

Knowledge	Reasoning	Performance/ Process	Product
Know theme. Know what a text is. Know how theme can be determined (e.g., by studying how characters respond to challenges; how speakers of poems reflect on a topic). Know summary.	Determine a theme of a text. Determine which details can be used to determine a theme of a text. Summarize a text.	X	X

What academic language do students need to know? See Knowledge category. Anything else?

Which type of learning target best represents the level of rigor required by the Standard?

Knowledge Reasoning Performance Skill Product

Reflection

- How do standards inform classroom assessment development and instructional decisions?

SESSION 3: FOCUS ON ASSESSMENT

To Cover

What is a balanced assessment system?

What is the difference between summative and formative assessment?

How does formative assessment impact teaching, learning and achievement?

To Consider

Aligning formative and summative assessments to our standards.

We will review some questions from summative assessments.

Question: what kinds of questions should we be asking our students in formative contexts so that students are well-prepared for the questions on our summative assessments (and ultimately moving toward mastery of the Georgia Standards of Excellence)?

Alignment is Key

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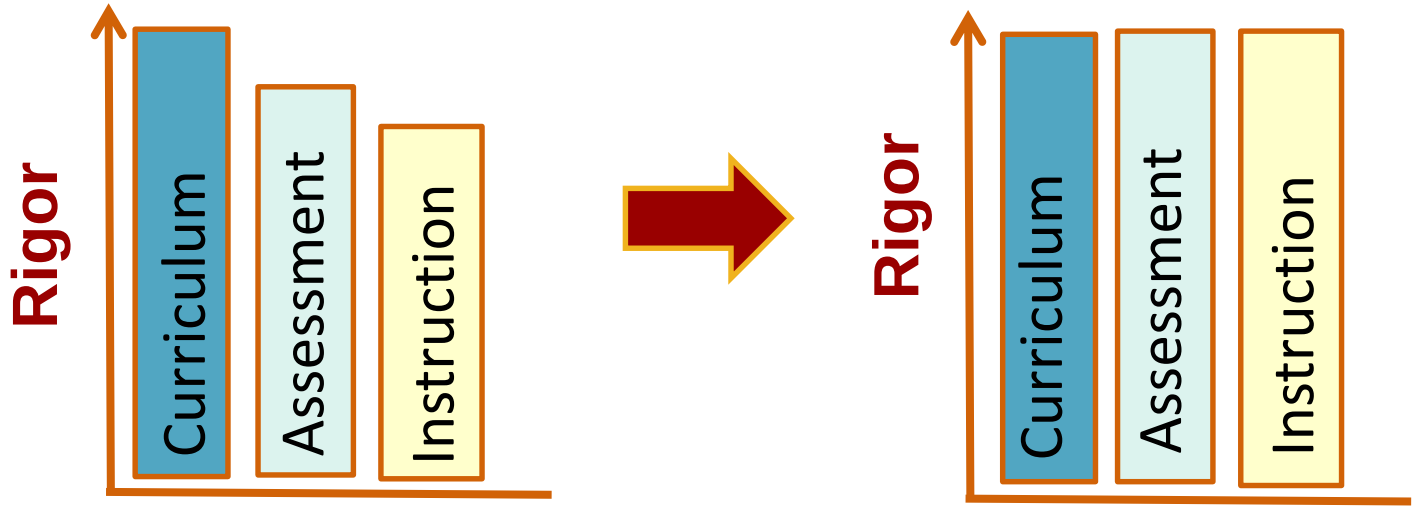

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Item 1 – Aligned with a Knowledge Target

What is the definition of theme?

A. the main idea of the paragraph
B. the main claim that introduces a piece of writing
C. the main idea or underlying message of a piece of writing*
D. the way an author expresses his or her opinion about the content

Item 2 – Aligned with A Reasoning Target

Which theme is BEST represented in the text "A Bad Move"?

A. It's best not to make some decisions too quickly.*
B. Wearing unusual clothing will get you noticed.
C. Getting good news is always a relief.
D. Moving is exciting.

Item 3 – Aligned with A Reasoning Target

Which detail from "A Bad Move" provides the BEST support for this theme?

A. This time, she would try to be memorable.
B. On Wednesday, she wore a Hulu skirt over a pair of jeans.
C. "Lin will be so excited that we are staying," her mother said.
D. Lin thought about what her mom would think when she saw her.*

7th Grade Science

S7L4a. Construct an explanation for the patterns of interactions observed in different ecosystems in terms of the relationships among and between organisms and abiotic components of the ecosystem.

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Knowledge Reasoning Performance Skill Product

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Item 1 – Aligned with a Knowledge Target

Which is an abiotic component of an ecosystem?

A. animals
B. fungi
C. plants
D. water*

What do you think the DOK level is for this item?

Item 2 – Aligned with a Reasoning Target

Bees carry pollen from flower to flower, which is necessary for the flower's reproduction. Bees gather nectar from flowers, which the bees turn into food.

What type of symbiotic relationship do bees and flowers have?

A. mutualism because the bee benefits and the flower benefit*
B. mutualism because the bee benefits but the flower is harmed
C. parasitism because the flower benefits but the bee is harmed
D. commensalism because the flower benefits but the bee is not harmed

What do you think the DOK level is for this item?

Item 3 – Aligned with a Reasoning Target

The honey fungus is parasitic. It feeds upon some species of plants and trees, eventually killing them.

If the honey fungus were to become more common in a large forest ecosystem, what would be the **MOST LIKELY** effect on this ecosystem?

A. There will be an increase in CO_2 levels in the air because of a reduction in producers.*
B. There will be a reduction in secondary consumers because of a reduction in primary consumers.
C. There will be a reduction is apex predators because of a reduction in secondary consumers.
D. There will be an increase in precipitation rates because the air temperature of the ecosystem will likely increase.

What do you think the DOK level is for this item?

ALGEBRA EXAMPLE

Algebra

MGSE9-12.S.ID.7 Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.

Knowledge	Reasoning	Performance/ Process	Product
What is slope? What is the intercept? What is a linear model?	Interpret slope and intercept in the context of real data.	X	X

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Knowledge Reasoning Performance Skill Product

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Item 1 – Aligned with a Knowledge Target

What is the definition of **slope**?

A. the change in the dependent variable with each unit change in the independent variable*
B. the value of the dependent variable when the independent variable has a value of zero.
C. a quadratic trend in the data
D. a linear trend in the data

What do you think the DOK level is for this item?

Item 2 – Aligned with a Reasoning Target

Table 1 includes information about cell phone plans from Verizon, AT&T, and Sprint. All 3 plans have a monthly base cost which includes unlimited talk, text, and 3 GB of data per month. For each additional GB of data used each month, customers are charged an additional fee. The total monthly cost for each plan includes the base cost plus the cost for each additional GB of data used. This total cost can be represented using the linear equation $y = mx + b$.

Table 1	Verizon	AT&T	Sprint
Monthly base cost for plan	$50.00	$45.00	$35.00
Cost for each additional GB of data used	$10.00	$15.00	$25.00

In the linear equation representing the total monthly cost for the AT&T plan, what would the slope be?

a. $15.00*
b. $25.00
c. $45.00
d. $60.00

Item 3 – Aligned with a Reasoning Target

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Table 1	Verizon	AT&T	Sprint
Monthly base cost for plan	$50.00	$45.00	$35.00
Cost for each additional GB of data used	$10.00	$15.00	$25.00

How many GB of data must someone use each month for Verizon to be the best value?

a. 2

b. 3

c. 4

d. 5*

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SESSION 4: APPLYING SESSIONS 1-3 TO YOUR OWN ASSESSMENTS/DATA

To address

- Looking at your assessment, what standards are being assessed? Given the wording of the standards being assessed, do the items seem to be well aligned to the GSE? More specifically, can you determine the learning target to which each item is aligned?
- Do the DOK levels for the items seem appropriate for mastery?
- Then, look at the data related to the assessment.
- Is the assessment data providing valid information on student achievement? (Think about how you answered bullets 1 and 2).
- If not, what changes need to be made to the assessment items?
- Finally, think back to Bernhardt (1998). How are subgroups doing? How might perception or process data relate to achievement data? Do you need to collect data on demographic, perception, or process variables?

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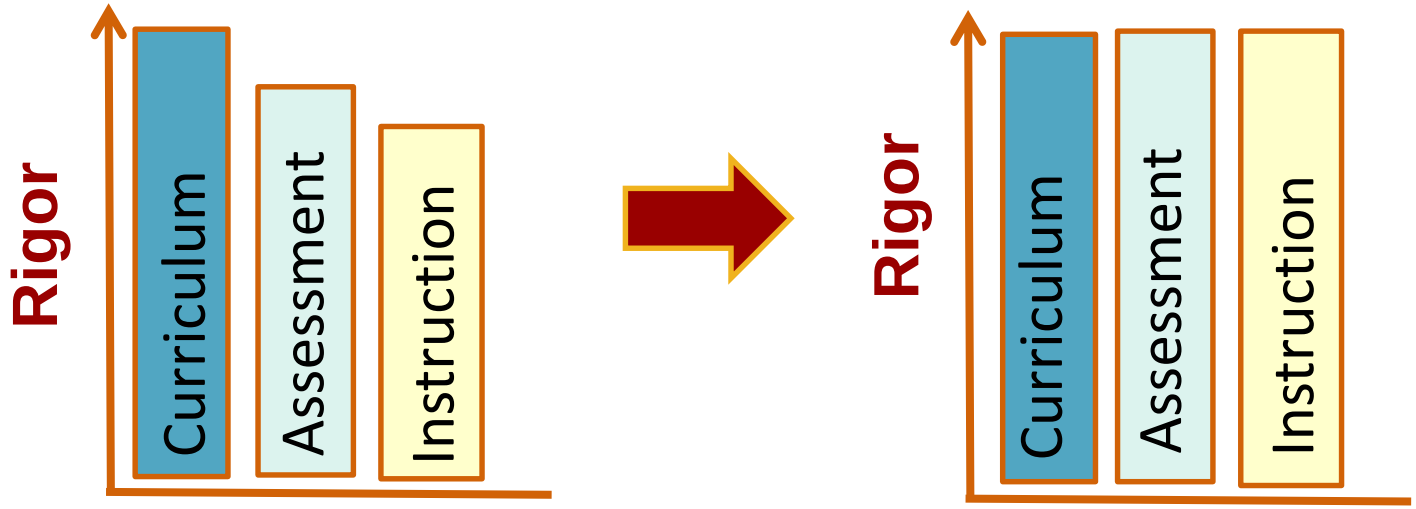

SESSION 5: A ROADMAP TO FOLLOW

To address, over multiple meetings

Think ahead to the next unit for any of the 4 core subject areas.

Key questions to ask / steps to follow for any upcoming unit:

1) What standards are involved in the unit? For curriculum maps for each grade level/subject area, see https://www.georgiastandards.org/Georgia-Standards/Pages/default.aspx

2) Follow the deconstruction process to identify the learning targets.

3) Build your summative assessment for the unit, aligning items to specific learning targets. As you do, try creating very similar items for formative use.

4) Think about formative assessment and instruction: given an understanding of the learning targets for the unit, how am I going to get my students to mastery, instructionally speaking? How can I use formative assessment data during the unit to inform instruction? How do I need to differentiate my instruction? Be specific and document!

5) Analyze summative assessment data for the unit. How did we do overall? How about subgroups? Was my instruction successful? To all students? Do I need to gather other data to help all of my students achieve (think Bernhardt)?

6) How can we create time/space in our schools for teachers to engage in this process?

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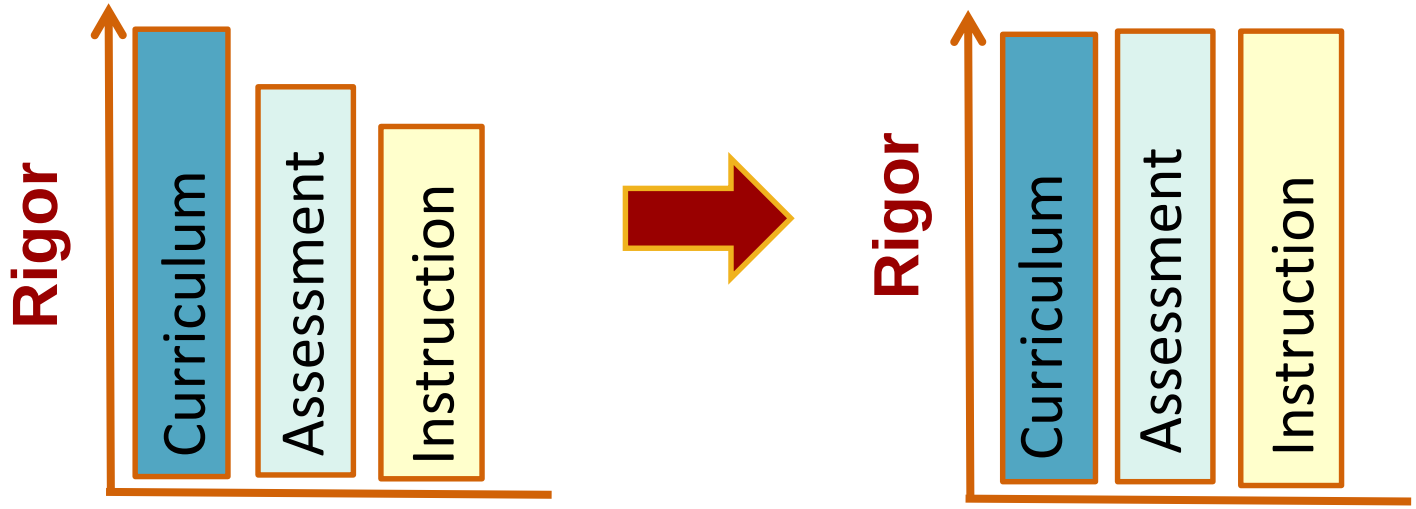


SAMPLE TEMPLATE

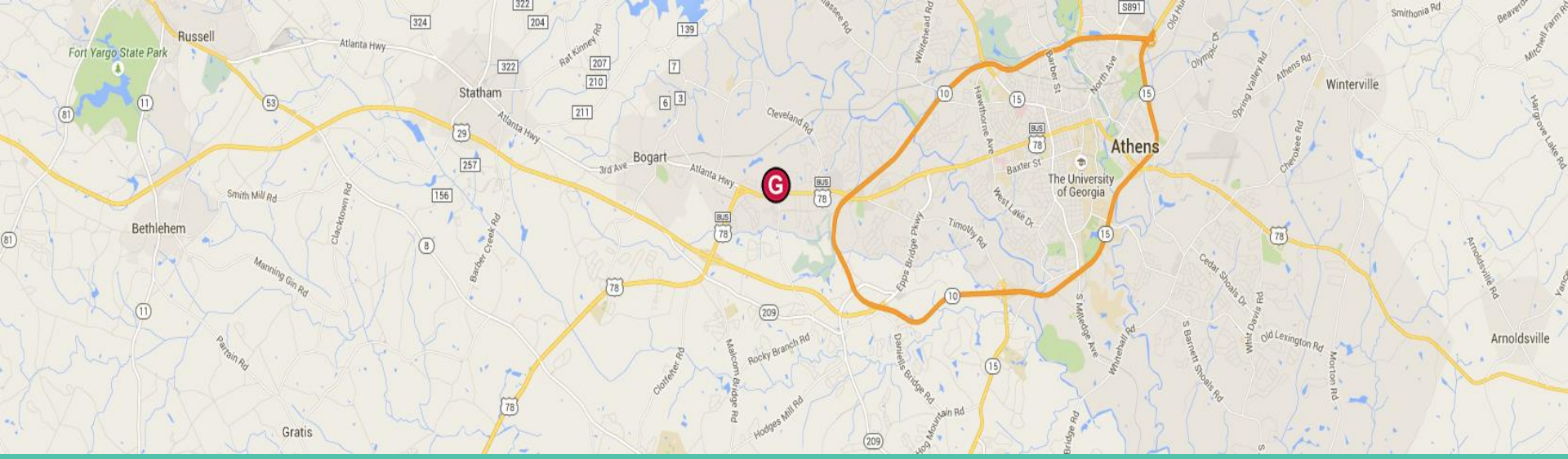
Standard:

Knowledge	Reasoning	Performance Process Skill	Product

What academic language do students need to know?

Which type of learning target best represents the level of rigor required by the Standard?

Knowledge Reasoning Performance Skill Product



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