

*Vertically Articulated  
Content Standards – Lessons Learned*



Designing and Prioritizing  
Developmentally Appropriate  
Grade Level Expectations

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# *Nine Lessons Learned*

- Begin with some essential assumptions
- Validate GLE development criteria
- Build protocols to support design
- Notice how GLEs develop across grades
- Each discipline requires its own unique considerations
- Prioritization strategies are essential for resolving issues
- Test Specifications are influenced by...
  - Distribution of Emphasis
  - Applying Depth of Knowledge – Levels of Complexity
  - Identifying the DOK “ceilings” and “range” for assessment



# *What is unique about this approach to the GLE & test development process?*

- Closely linked to learning...and support for classroom instruction
- Working towards assessing the BIG ideas of each discipline
  - Format of GLEs
  - Prioritization Strategies
  - Distribution of Emphasis Studies



*Lesson #1:*

*Begin development with some essential assumptions.*



- Articulate a continuum of learning
- Have a research-based rationale for expectations and grade-level differences
- Support meaningful links between standards-instruction-assessment

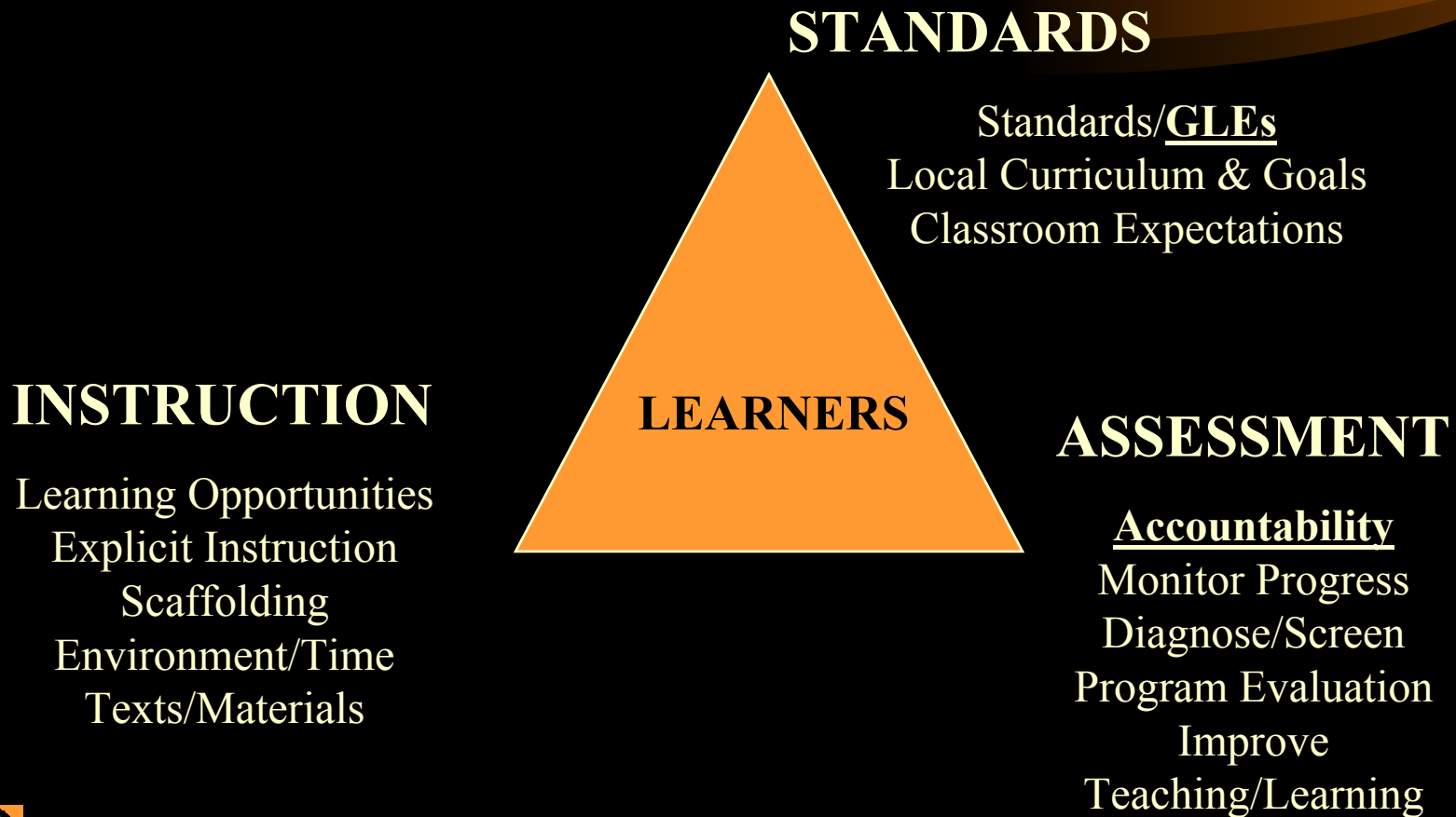
## *Definition of a GLE ...*

A Grade Level Expectation (GLE) is a stated objective that is aligned with NH, RI, and VT standards, by grade level. A GLE differentiates performance on concepts, skills, or content knowledge between adjacent grade levels. As a set, GLEs lead to focused, coherent, and developmentally appropriate instruction without narrowing the curriculum...and provide the foundation for designing large-scale assessment.



# *S-I-A Alignment Triangle*

## *Standards-Instruction-Assessment*



# *What the GLEs are..... and are NOT*

- Specific expectations in reading, writing, and mathematics for grades K- HS
- Drawn from curriculum standards and other sources/national references
- A “fair- game” list: GLEs marked “state” will be tapped for state-level assessments in reading, writing, and math
- A list of expectations for what is to be taught and assessed locally
- Descriptions of what students should be able to do *independently* at a grade level
- Intended to BE a local curriculum (but they should inform and focus local curriculum and instruction)
- A replacement for the standards. Rather – they are a grade-by-grade supplement to the standards – *to guide assessment.*
- A description of what instruction should look like. GLEs focus on the “what” to be learned, not the “how” of instruction.
- A checklist of topics to “cover.” (Simply checking off that something has been addressed won’t get us very far!)



## Lesson #2:

# *Validate GLE development criteria.*

- Aligned to (*but not limited by*) standards
- Maintain a balance between a generalizable skills, concepts, and knowledge (*discipline differences*)
- Have enough specificity to differentiate between adjacent grades, making it clear what is to be taught and learned (*Expert and Field Reviews*)
- Indicate cognitive demand explicitly - interaction of content and process (*DOK guides*)
- Be specific enough to know how it will be assessed (*provide aligned sample items*)





*Lesson #3:*

*Build protocols to support design.*

- Determine concepts & skills by grade level
- Prioritization
- Distribution of Emphasis across the content strands
- Depth of Knowledge (Webb) and Levels of Complexity (NAEP)



# *Format of GLEs adds clarity ...*

Stem (in bold) = Big Idea

”The What”

Specifics (unbold) =  
Cognitive Demand at a  
given grade - “The How”

**W-3-7 In informational writing, students effectively convey purpose by...**

W-3-7.1 Establishing a topic  
W-3-7.2 Stating a focus/controlling idea on a topic  
EXAMPLES: “Dogs” = topic;  
“Dogs make good pets” = focus

**W-4-7 In informational writing, students effectively convey purpose by...**

W-4-7.2 Stating and maintaining a focus/controlling idea on a topic .



Differences between adjacent grades are underlined to show new learning.



*Format of GLE sets provide coherence  
within grades and across grades ...*



**R-2-5: Analyze and interpret elements  
of literary texts, citing evidence where  
appropriate by...**



R-2-5.1 Making logical predictions  
EXAMPLE: What might happen  
next?

R-2-5.2 Identifying relevant physical  
characteristics or personality traits of  
main characters

*Lesson #4:*

*Notice how GLEs develop across grades.*



- Accumulate (more - but not harder)
- Discontinue/Begin (new)
- Increase in Cognitive Complexity (deeper understanding)



# *Ways GLEs Generally Develop across Grade Levels*

**1. Accumulate:** GLEs that accumulate or expand upon knowledge, concepts, or skills across the grade span. More does not always mean harder.

- In mathematics, as you move from grade 3 to grade 8, the types of graphs students need to use and interpret increases.



# *Ways GLEs Generally Develop across Grade Levels*

**2. Discontinue/Begin:** GLEs which as a whole, or in part, are phased out/in as you move across grades, usually as a result of developmental appropriateness.

- In reading, Word Identification *discontinues* by grade 6.



# *Ways GLEs Generally Develop across Grade Levels*

**3. Increase in Cognitive Complexity:** GLEs that may not add additional concepts or skills, but require deeper knowledge in their applications, conditions, or context.

- In reading, *text complexity* interacts with comprehension when applying vocabulary strategies or analysis of text, thus requiring deeper knowledge.
- In mathematics, conceptual understanding of addition, subtraction, and multiplication of integers and use of powers *using models, diagrams, or explanations* requires deeper knowledge.



*Each discipline has its own unique considerations.*

- Conserving the Mathematical Construct
- Describing Factors Influencing Increasing Text Complexity in Reading
- Determining How Unifying Themes in Science Interact with Science Domains and Scientific Inquiry



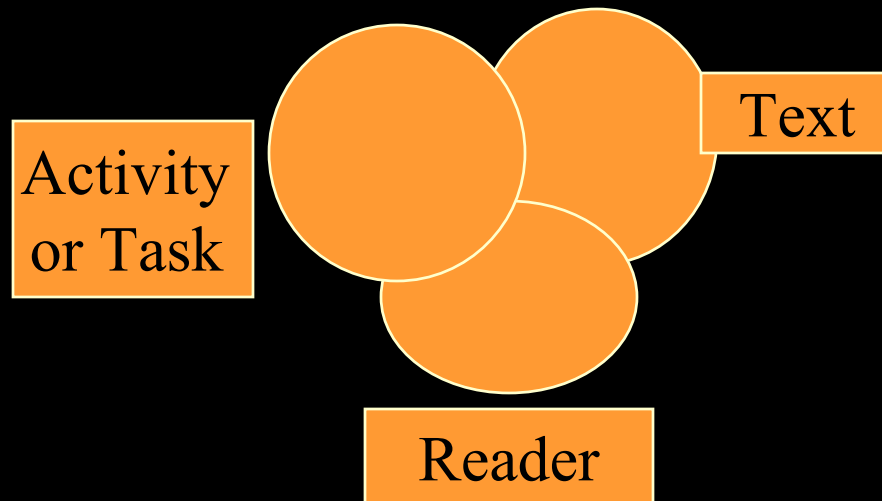
# *Conserving the Mathematical Construct* *(Lager and Petit 2003)*

- Explicitly align items with mathematical constructs being assessed— content and process demands in GLE
- Make intentional decisions of when and how to use context to assess the mathematics construct
- Streamline language (Lager, 2003) to provide access without compromising mathematical construct being assessed
- Appropriately use graphics, pictures, graphs, tables, diagrams, and models



# *Interactive Model of Reading*

.....Changing Contexts.....



# *Factors Influencing Text Complexity*

*(Hess and Biggam 2004)*

- **Word Difficulty and Language Structure**
- **Text Structure and Discourse Style**
- **Genre and the Characteristic Features of Texts**
- **Background Knowledge and/or Degree of Familiarity with Content Needed**
- **Level of Reasoning Required**
- **Format and Layout**
- **Length of Text**



*Prioritization strategies are essential for resolving issues.*

- Testing Space

  - Determining State/Local GLEs

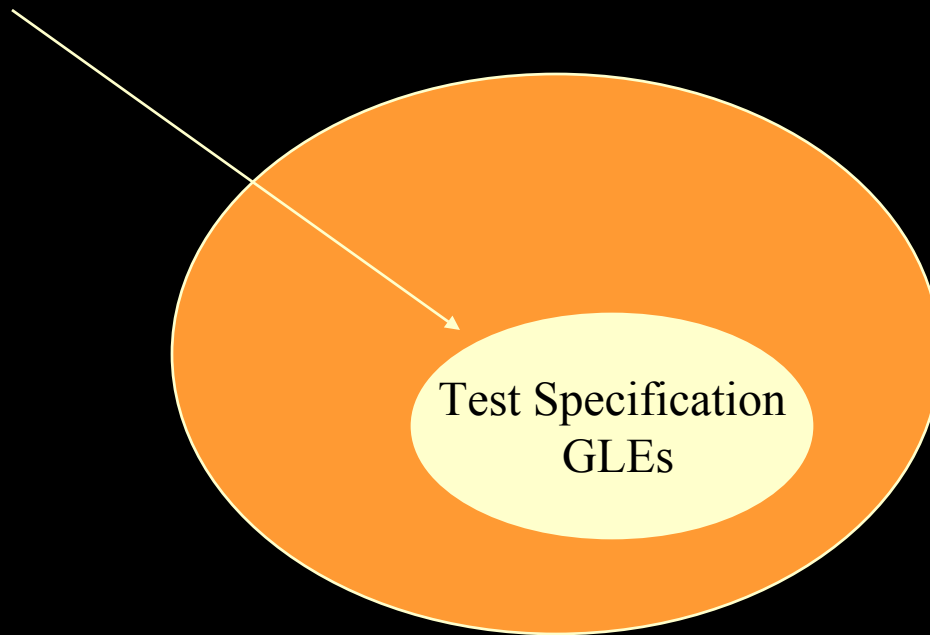
  - Determining Appropriate Grade Levels

  - Determining Distribution of Emphasis at each Grade Level

- Time for Teaching and Learning

# Two Types of Grade Level Expectations

Test Specification  
GLEs for large-  
scale assessment



GLEs for  
local  
curriculum,  
instruction,  
and  
assessment

# Characteristics of Two GLE Types

## Test Specification GLE

- Must be assessable in an on-demand, large-scale setting
- Should be a prioritized set

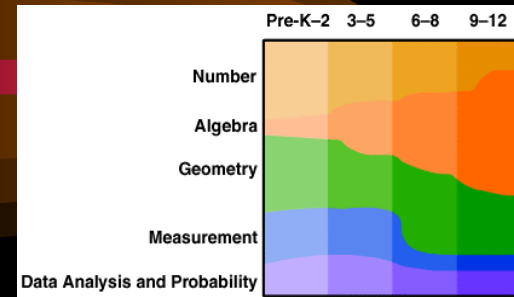
## Local Curriculum and Assessment GLE

- Can include concepts and skills not easily assessable in an on-demand setting
- Can fill gaps between grades as a result of prioritization for test specification
- Can include foundational skills as they develop across grades



# Questions to Guide GLE Prioritization (Hess and Petit 2004)

- 1) Is the concept or skill part of a big idea in the discipline?
- 2) Is the success on the concept or skill in a given grade essential for success in this subject area in subsequent grades?
- 3) Should the concept or skill be assessed at an earlier grade, because success at that earlier grade is important for success at the given grade?
- 4) Is the concept or skill assessed adequately at an earlier grade?
- 5) Should the concept or skill be assessed at a later grade for state/large-scale assessment purposes?
- 6) Is the concept or skill subsumed in other GLEs at that grade level?
- 7) Is the concept or skill better assessed in the classroom?



*Distribution of Emphasis for Test Specification is influenced by...*

- Review of literature/research and national standards and assessments
- The number of GLEs – but NOT driven by the number of GLEs
- Specifics described within GLEs (e.g., Depth of Knowledge)
- Sampling protocols (ands/ors, e.g./i.e.)





*How should you spend  
your 100 pennies?*



# Sample Distribution of Emphasis for NECAP Reading

Reporting Categories	Gr 3	Gr 4	Gr 5	Gr 6	Gr 7	Gr 8
Word Identification Vocabulary	20%	15%	10%	0	0	0
	20%	20%	20%	20%	25%	25%
Initial Understanding of (Literature/Info text)	20 %	20 %	20 %	20 %	15 %	15 %
	20 %	20 %	20 %	20 %	20 %	20 %
Analysis & Interpretation Of (Literature/Info text)	10 %	15%	15%	20%	20%	20%
	10 %	10%	15%	20%	20%	20%



Lesson # 8:  
*Applying Depth of Knowledge – Levels of Complexity...*

- Levels are focused on the complexity of the item, not on how different students interact with the item.
- Descriptors of each level, *specific to each discipline*, are essential in guiding GLE and item development and alignment.
- Levels help to define upper limits (“ceiling”) and range of the complexity of items that are “fair game” for an assessment for a given GLE.



*Identifying the “ceilings” and “range”  
for assessment is important.*


If GLEs are only assessed at the “ceiling,”  
then...

- The assessment as a whole might be too difficult; and
- Important information might be lost about gains in student learning and instructional implications.

# Identifying the “ceilings” and “range” for large-scale assessment items...

GLE	DOK Ceiling	DOK Range
<p>Mathematics example: <b>M–F&amp;A–6–1 Identifies, extends to specific cases, <u>and generalizes</u> a variety of patterns represented in models, tables, <u>graphs</u>, sequences, or in problem situations; and writes a rule in words or symbols for finding specific cases; <u>and uses words or symbols to express the rule/generalization of a linear relationship.</u></b></p>	3	2, 3
<p>Reading example: <b>R—5.2.1 Students identify the meaning of unfamiliar vocabulary by...</b></p> <p>Using strategies to unlock meaning (e.g., knowledge of word structure, including prefixes/suffixes and base words; or context clues; or other resources, such as dictionaries or glossaries; or prior knowledge)</p>	2	1, 2





*Coming Full Circle –  
Grade Level Expectations and  
Assessment Support Meaningful  
Teaching and Learning...*

# *Zone of Proximal Development*

*(What a child can do with assistance today)*

What a child can  
do independently

Actual  
Development  
Area

What a child can  
do independently  
tomorrow

Potential  
Development  
Area

The  
ZONE

Dynamic area

Causes development to move forward

Social interaction essential (Scaffolding for Learning, Vygotsky)



*For more information:*



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