

Using Learning Progressions to Define “Good Enough” Performance for Alternate Assessment Students

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Two Key Challenges for Alternate Assessment

- *Establishing high quality extended content standards*
- *Justifying what is “good enough” for proficiency and measuring growth*



Our emerging understanding of learning progressions provides a strong basis for addressing these critical issues.



This presentation will provide:

- Some working definitions of LPs
- Four Interrelated Principles for constructing/validating LPs
- Examples of learning progressions – concepts & processes
- Some suggestions for applying LPs to address these challenges

- And a horse story...



What are learning progressions?

- “descriptions of the **successively more sophisticated ways of thinking** about an idea that follow one another as students learn” Wilson & Bertenthal (2005)
- “a picture of **the path students typically follow as they learn**...a description of skills, understandings, and knowledge in the sequence in which they typically develop” Masters & Forster (1996)



What are learning progressions? [2]

- Learning progressions propose the *intermediate* understandings that are “**reasonably coherent networks** of ideas and practices...that contribute to building a more mature understanding...the **important precursor ideas may not look like the later ideas**, yet crucially contribute to their construction.” Duschl, et al. (2007)



Learning Progressions can provide a schema for ...

- **Planning & Modifying Instruction**
- **Developing Meaningful Assessments**
 - especially formative assessments
- **Monitoring Progress**
 - Mastery of Specific Benchmark Concepts & Skills
 - Novice \longleftrightarrow Expert Understanding



Looking at 4 *Interrelated Guiding Principles* of Learning Progressions

1. Based on available **Research**
2. The big ideas/the "**essence**" of concepts/processes are the binding threads
3. May not be linear, but **articulate movement toward increased understanding** (e.g., deeper, broader, ability to apply or generalize)
4. Go hand-in-hand with **well-designed/aligned assessments**



Unpacking Guiding Principle #1: Based on Research

1. What does cognitive research tell us about building deeper understanding?
2. What does content-specific research tell us about learning/building upon earlier skills/concepts?
3. What do we elicit & learn from ongoing action research/formative assessment?
 - ✓ Observations (ongoing & systematic)
 - ✓ Evidence (what's there/what's not there)
 - ✓ Assessment Tasks (short constructed responses that "uncover" student thinking)



Vygotsky: Zone of Proximal Development

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

What a child can
do independently
now: **“ENTRY”**

Actual
Development
Area

The
ZONE

What a child can
do independently
tomorrow/future

Potential
Development
Area

LEARNING PROGRESSIONS ZONE:

Dynamic area

Causes development to move forward

Social interaction essential (scaffolding)



Learning Progressions Can Link the Zones of ALL Students



Content-Specific LP Examples

(Grade-Level or Curriculum LPs)

Mathematics: Fractions

- Partition an area into parts
- Identify the fraction described by the partitioned area
- Find the fractional part of a whole

Reading: Vocabulary Development

- Recognize & learn words
- Recognize & learn related words (e.g., synonym, antonym)
- Use word structure to determine meaning
 - syllables
 - base words and affixes
- Use context to determine meaning
 - intended meaning
 - multiple meanings



Action Research with a Math Example

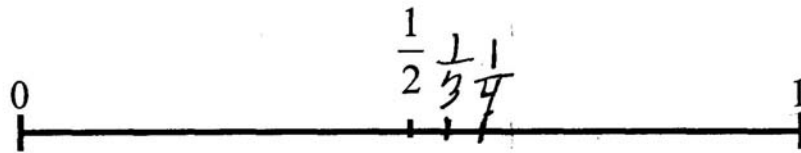
- Start with an existing curricular learning progression
- Use Formative Assessment to validate the LP range and later to monitor progress
 - “Place $\frac{1}{3}$ and $\frac{1}{4}$ in the correct position on the number line. Explain your answers using words and diagrams.”
(source VT Mathematics Partnership/ OGAP)



Action Research/Formative Assessment: Short constructed response that elicits application & conceptual thinking...

Place $\frac{1}{3}$ and $\frac{1}{4}$ in the correct location on the number line below.

Explain your answer using words or diagrams.



What understandings are evidenced in this student's work?

I chose these spots because, it says $\frac{1}{2}$, and then $\frac{1}{3}$ comes after $\frac{1}{2}$, and then $\frac{1}{4}$ after $\frac{1}{3}$ because it goes 1, 2, 3, 4, and so that is how I think.

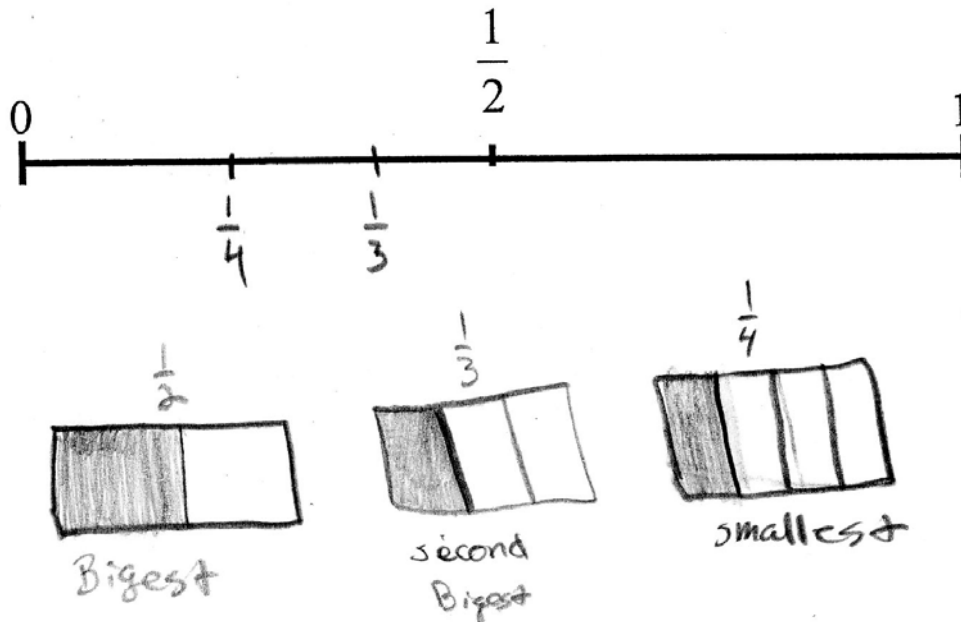
Source: Vermont Mathematics Partnership/OGAP



Formative Assessments help to develop or validate the LP range and later to monitor progress

Place $\frac{1}{3}$ and $\frac{1}{4}$ in the correct location on the number line below.

Explain your answer using words or diagrams.



What understandings are evidenced in this student work *that are different*?

What are some potential next instructional steps based on the evidence?

Source: Vermont Mathematics Partnership/OGAP

LP Refined/Expanded with Action Research: “Filling in the Gaps”

BEFORE

- ?
- Partition an area into parts
- Identify the fraction described by the partitioned area
- Find the fractional part of a whole

AFTER

- Understand the difference between whole and part
- Show that one meaning of fractions is *as a value* (student often sees fractions as two whole numbers)...
 - Locate a fraction on a number line
 - Represent a fraction with a set of objects or on an area models
 - Operate with fractions – e.g., use models to compare
- Knowing when whole number reasoning is not appropriate
- **Partition an area or set of objects or number line into parts**



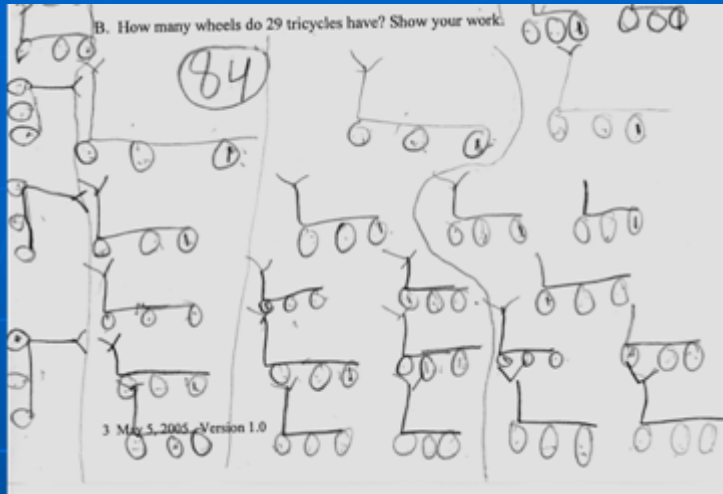
“Filling in the Gaps” can mean...

- **Breadth of Content** (e.g., more ways to represent data; more/different text features)
- **Deepening or generalizing understanding** of the same content (e.g., topic of text, topic sentence, main idea, author’s message)
- **Use of more sophisticated reasoning**
 - Flexible use of reading strategies to make meaning (e.g., is there more than way to figure out the meaning of a word?)
 - Additive to transitional to multiplicative reasoning (see next slide) – not about just getting the right answer!



One tricycle has three wheels.

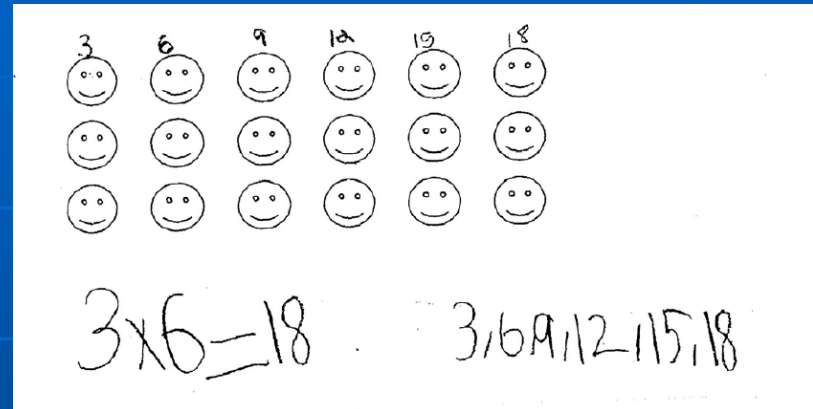
How many wheels do 29 tricycles have?



Additive Strategy

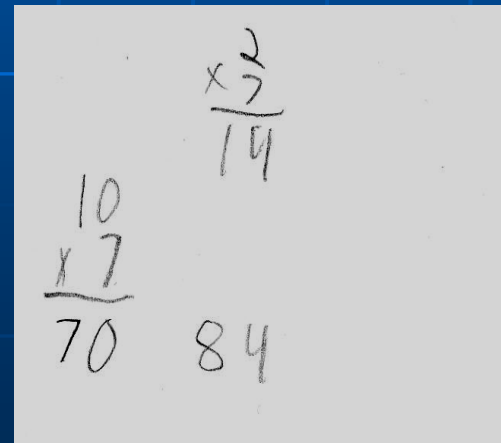
Transitional Multiplicative Strategy

Write an equation to match this picture.



Multiplicative Strategy

Farmer Brown donated 7 dozen eggs to the senior center.
How many eggs did he donate?



Unpacking Guiding Principle #2: Big ideas/the “essence” are the threads

- Identify the Big ideas/the “essence” of concepts/processes (Wiggins & McTighe)
 - ✓ What has enduring value beyond the classroom? Why learn it?
 - ✓ What are the essential questions students seek to answer/discover?
- Does the “essence” connect LPs within ... & across years?



A collection versus “unifying thread”

A “Collection” of Reading Concepts and Skills	Foundational Skills...lead to...	Developing & Expanding Skills
<p>Identify words that are nouns</p> <p>Identify words that are verbs</p> <p>Identify words that have same or different meanings</p> <p>Track text from left to right</p> <p>Track text from top to bottom</p> <p>Read high frequency words</p>	<p>Identify vocabulary (pictures, symbols, objects, or words) that demonstrate knowledge of basic pragmatic functions (e.g., social words, asks questions, makes requests)</p> <p>Generalize use of pictures, symbols, objects, and actions to identify their meaning</p> <p>Use vocabulary to identify objects and events</p>	<p>Expand vocabulary with words related to known words</p> <ul style="list-style-type: none"> Words that sound the same Are spelled the same Are in the same category <p>Use word structure/ known parts of words to make sense of whole word</p> <ul style="list-style-type: none"> Syllables, affixes, base words, roots Meanings of word parts <p>Use context to determine meaning</p>



Foundational Skill—skills that students are assumed to be competent in, in order to perform the grade level skill (e.g., turning the page of a book or tracking text from left to right are foundational skills that lead to reading at any grade level)
[NAAC, 2007]



Core “Threads” of the ELA Tapestry

1. **Early Reading Strategies (Foundational Skills)**
 - Concepts of Print
 - Phonological Awareness
2. **Word Identification & Decoding Strategies: Making Meaning at the Word Level**
3. **Comprehension: Making Meaning at the Text Level**
 - literary text
 - informational text
4. **Developing Communication Skills**
 - Depth & Breadth of Vocabulary
 - Oral Communication
 - Written Communication



Unpacking Guiding Principle #3: **Articulate Increased Understanding**

- May not be linear, but moves learners forward
 - ✓ A map versus a route
 - ✓ Depth, breadth, complexity, strategy use, ability to generalize/transfer in a variety of contexts ...
- Moves from pre-existing/prior knowledge to expected learning/understanding
- Describes a range of performance: how students organize ideas, facts; mental models/schema
 - ✓ Novice (distracted by surface features & unrelated content; have no mental models or faulty mental models; use all of working memory space)
 - ✓ Expert (use little working memory space, rely on patterns rather than bits of information)



Science Inquiry: How Does the Ability to Observe Develop?

- *Distinguishes differences (this is foundational to scientific observation, the ability to make predictions, & sequencing & interpreting observations, as well as learning to read, compare amounts in math, etc.)*
- *Distinguishes differences in physical characteristics*
- *Identifies similarities in physical characteristics*
- *Identifies both differences and similarities in physical characteristics*
- *Categorizes objects and materials by physical characteristics*
- *Explains why things belong to a specific group*
- *Distinguishes relevant differences from non-relevant differences when trying to answer a specific question*



Applying Principles 1, 2, & 3

A Vocabulary Example

- Identify words that are nouns
 - match object to picture
 - match picture to word
- Identify words that are verbs
 - match object to picture
 - match picture to word
- Identify words that have same or different meanings
- Track text from left to right
- Track text from top to bottom
- Read high frequency words

QUESTIONS

1. **Does this LP appear to be research based?**
 - ✓ What do we know about vocabulary development?
2. **What is the “essence” of this learning progression?**
 - ✓ What is the thread that connects throughout the LP?
 - ✓ See HANDOUT
3. **Does the LP describe a range from emerging skills/ concepts to proficiency?**
 - ✓ Depth? Breadth? Complexity?
 - ✓ Specific to General
 - ✓ Novice to Expert



Unpacking Guiding Principle #4: **Well-Designed** (aligned) **Assessments**

- Use evidence to Refine & Validate LPs
 - Are there in gaps in the LP?
 - Should you refine your thinking?
- Focus on tasks/probes that elicit how learners reason, use, or organize information
- Use evidence (especially from “formative probes”) to inform next steps for instruction



Coming full circle...

LPs seek to articulate what students will learn, how they will demonstrate learning, and what making progress *could* look like for most students;

Assessments seek to describe and interpret what students did and measure how much progress was made.



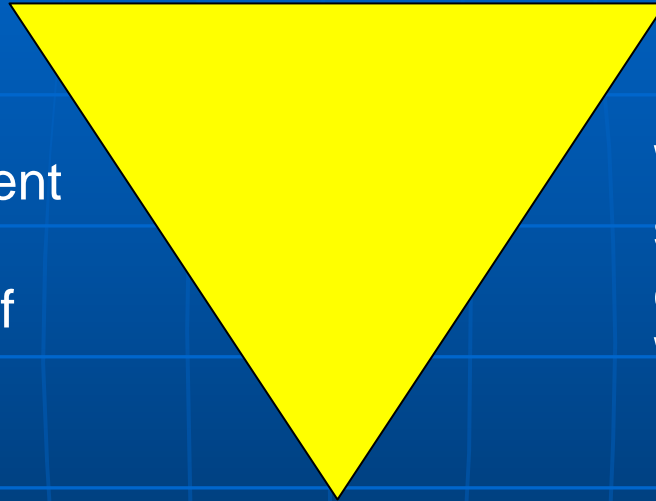
The Assessment Triangle

(Knowing what Students Know, Pellegrino, et al., 2001)

Observation:

What will/did the student do/say?

Was there evidence of reasoning/ use of strategies?



Interpretation:

What do you know for sure, given the evidence?

Where do you need to **probe** more?

Cognition: How will/did the student represent knowledge? How is/is the student developing competence in the subject?



Summary Questions: Develop/Refine/Validate

1. Is this LP research based?
 - What does the/our research say about learning _____?
2. What is the “essence” (big idea) of this learning progression?
 - Does the thread connect throughout the LP? And across grade levels? Or are threads getting tangled?
3. Does the LP describe a meaningful *range* of skills/concepts? How does understanding “grow?”
 - Depth? Breadth? Complexity? Generalize/Transfer?
 - Novice –to- Expert?
4. What do your data tell you?
 - Are there gaps? (need lower levels, between levels, higher levels, side trips on the map)
 - Are you getting enough/the right information to: track progress; see patterns; link to the learning progression?
 - Do you need to modify/expand your assessment tools?



Some concrete suggestions...

- Wording refinements to LPs
 - Is language clear enough for designing assessments that elicit differences/a range of possibilities?
 - Is language clear enough for distinguishing “stages/phases” of progress?
- Conceptual refinements of LPs
 - Are conceptual levels too arbitrary? (e.g., half visual and half numeric patterns vs. visual patterns learned before numeric)
 - Check “essence” especially when extending down
- Matching grain size to purpose
- Some Tools & Strategies www.nciea.org
 - “Analysis to Action” Tools (4 applications to refine/validate)
 - Student Profile across Grades (Science Inquiry PreK-4)
 - Resources



4 Interrelated Guiding Principles of Learning Progressions

Monitor & instruct using well-designed/aligned assessments

Use available Research

Observe, interpret, plan

Develop, validate, & Refine LPs

Create the LP "map"

Find the threads

Articulate increased understanding

Connect using the essence of concepts or processes



Bibliography of Related Resources

Hess, Karin (2008) "Tools & Strategies for Developing and Using Learning Progressions"

www.nciea.org or Khess@nciea.org

