



Montana

Office of Public Instruction

Meaningful Reporting in Science Assessment

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Meaningful Reporting

Presentation Overview

- NGSS Learning Progressions
- NGSS Evidence Statements
- Performance Level Descriptors

NGSS Learning Progressions



Earth Space Science Progression

INCREASING SOPHISTICATION OF STUDENT THINKING

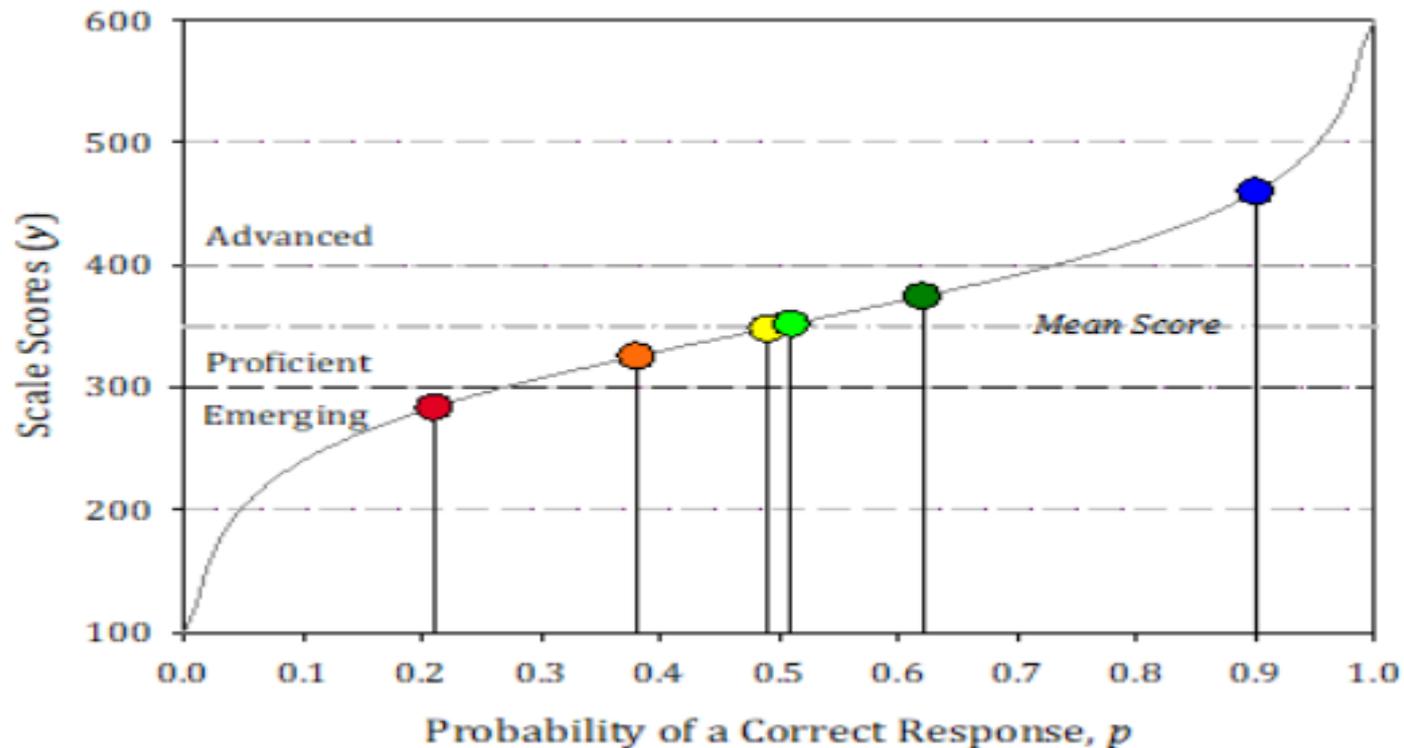
	K-2	3-5	6-8	9-12
ESS1.A The universe and its stars	Patterns of movement of the sun, moon, and stars as seen from Earth can be observed, described, and predicted.	Stars range greatly in size and distance from Earth and this can explain their relative brightness.	The solar system is part of the Milky Way, which is one of many billions of galaxies.	Light spectra from stars are used to determine their characteristics, processes, and lifecycles. Solar activity creates the elements through nuclear fusion. The development of technologies has provided the astronomical data that provide the empirical evidence for the Big Bang theory.
ESS1.B Earth and the solar system		The Earth's orbit and rotation, and the orbit of the moon around the Earth cause observable patterns.		The solar system contains many varied objects held together by gravity. Solar system models explain and predict eclipses, lunar phases, and seasons.

NGSS Evidence Statement

Observable features of the student performance by the end of the grade:	
1	Supported claims
	a Students make a claim about the merit of a given design solution that reduces the impact of a weather-related hazard.
2	Identifying scientific evidence
	a Students describe* the given evidence about the design solution, including evidence about:
	i. The given weather-related hazard (e.g., heavy rain or snow, strong winds, lightning, flooding along river banks).
	ii. Problems caused by the weather related hazard (e.g., heavy rains cause flooding, lightning causes fires).
iii. How the proposed solution addresses the problem (e.g., dams and levees are designed to control flooding, lightning rods reduce the chance of fires) [note: mechanisms are limited to simple observable relationships that rely on logical reasoning].	
3	Evaluating and critiquing evidence
	a Students evaluate the evidence using given criteria and constraints to determine:
	i. How the proposed solution addresses the problem, including the impact of the weather-related hazard after the design solution has been implemented.
	ii. The merits of a given solution in reducing the impact of a weather-related hazard (i.e., whether the design solution meets the given criteria and constraints).
iii. The benefits and risks a given solution poses when responding to the societal demand to reduce the impact of a hazard.	

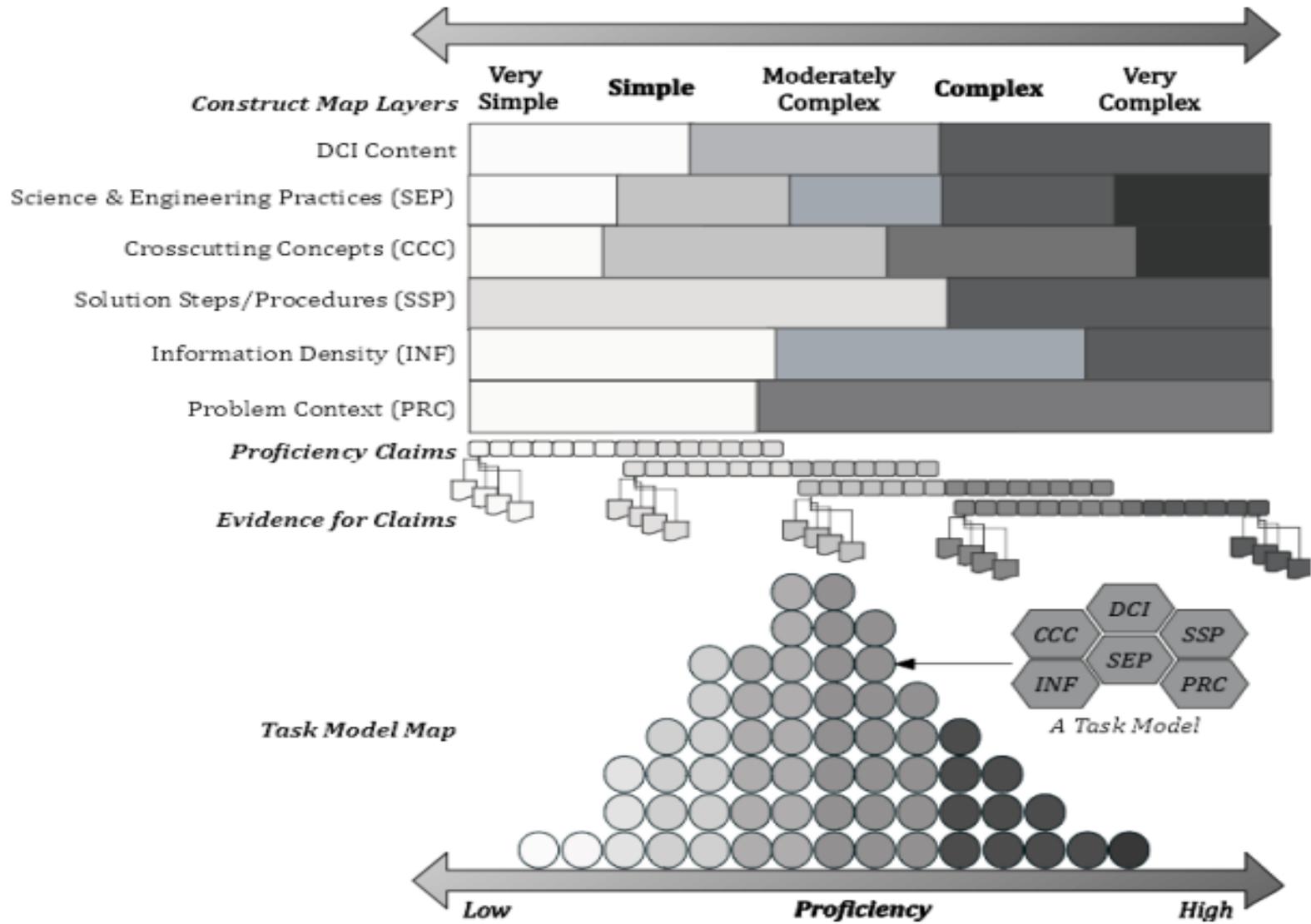
Proficiency Level Descriptors

Exhibit 1. Scale Scores and the Probability Correct to an Average Test Question



Luecht, R.M. (2019) *The Role of Performance Level Descriptors for Establishing Meaningful and Useful Reporting Scales in a Principled Design Approach*. <https://www.scillsspartners.org/scillss-resources/>

Exhibit 7. Connections Between a Construct Map and Task Model Map



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Proficiency Level Descriptors

- Describe a proficient science student?

Group Work

- look at one sample item
- Identify the DCI being addressed
- Find it in the progressions
- What would the answers look like for a student who is nearing proficient? advanced?



Want more about PLDs?

Attend a work session at 4:00 today.

- in this room
- led by Chris Noel
- focused on K-8 grade levels
- defining novice, near proficient, and advanced PLDs



Wrap Up

- Session Evaluation

Questions?

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