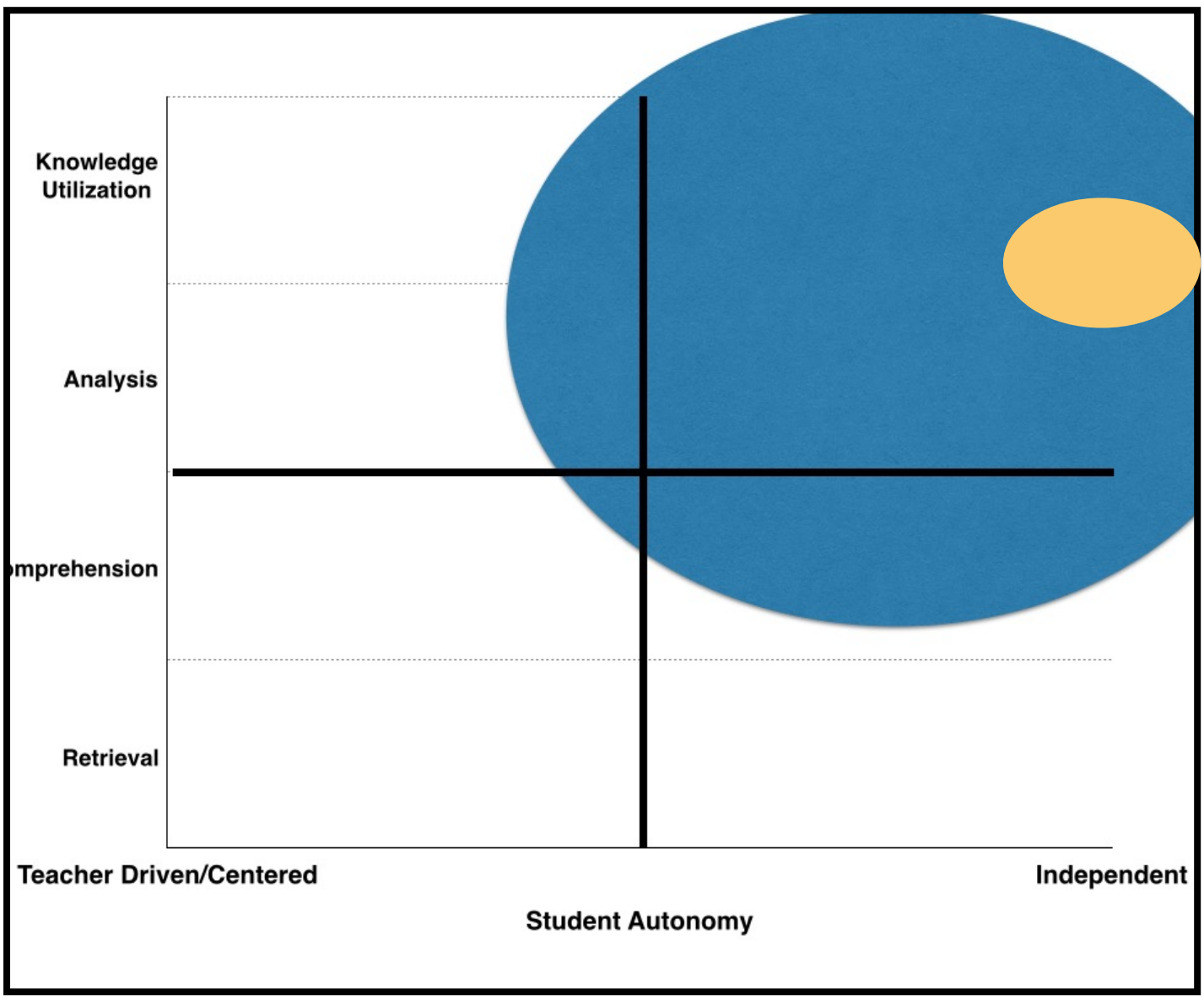
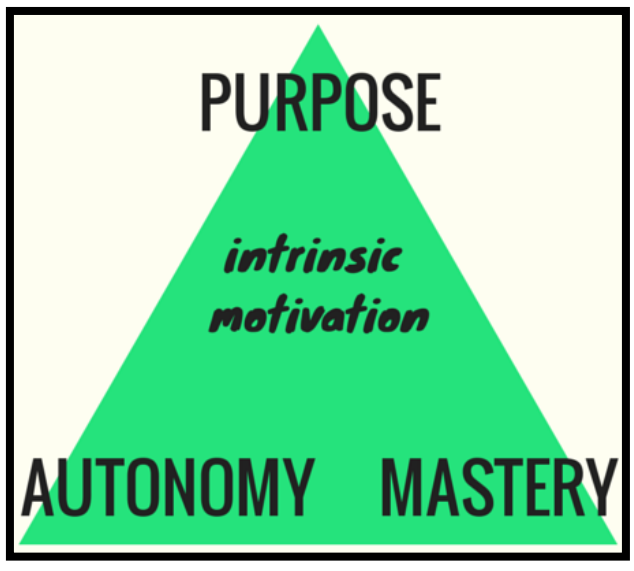
RIGOR = Cognitive Complexity + Student Autonomy



AOS #94 Assessment Alignment Protocol



AOS #94 Alignment Protocol Tools/Resources Needed:

- Marzano Taxonomy Chart
- Proficiency Scale Template
- Scale/Rubric Flowchart
- Standards Document
- Atlas

AOS #94 Assessment
Alignment Protocol

To meet the expectations and requirements of AOS #94's academic and performance proficiency standards, administrators, teachers, students, and parents need to think differently about what it means to "pass." Traditionally, "passing" has been based on an average of averages that averaged activities, quizzes, projects, homework, participation, and tests. If you have to go back and read that sentence again: go ahead. We'll wait.

Historically, when schools, teachers, and administrators have developed and aligned curriculum it has been based heavily on the classroom-mandated content. In a History Class, for example, there may be projects, tests, quizzes, etc. that have to do with various historical events or concepts. The *core focus* of those local measures of proficiency have been based on *content*.

Standard documents like the Common Core State Standards, Next Generation Science Standards, and the C3 Framework for Social Studies, along with the research and science behind learning place the *core focus* on **COGNITIVE COMPLEXITY**. This change in focus requires teachers, students, administrators, and parents to think differently about *how we measure learning*. A critical question to ask is:*"To what extent are our instruction, curriculum and assessment systems aligned to **COGNITIVE COMPLEXITY**?"*

This **Assessment Protocol** is designed to provide teachers, students, administrators, and parents in aligning our homework, projects, quizzes, tests, papers, or any assessment for learning to the ***COGNITIVE COMPLEXITY*** first; content, second.

Steps for Aligning an Assessment to Cognitive Complexity:

1. Identify Measurable Learning Goal(s)
2. Identify Cognitive Complexity
3. Create Proficiency Scale / Rubric
4. Design Various Pathways to Proficiency

For more information, clarification, or support using this protocol, please contact:

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AOS #94 Assessment
Alignment Protocol

STEP #1

IDENTIFY MEASURABLE LEARNING GOALS

TOOL NEEDED:

STANDARDS DOCUMENT

DESIGN QUESTIONS

What will your students have learned ***as a result*** of this unit/lesson/instruction?

What will your students be able to proficiently do ***as a result*** of this unit/lesson/instruction?

CLARIFYING QUESTIONS

HOW MANY GOALS?

Each standard you measure should have it's own proficiency scale.

Multiple standards can be put into a rubric using a 4-Point Scale, but too many will decrease the depth of learning.

If you must have a number: *MAXIMUM* of **3** learning goals measured in **1** rubric/assessment.

WHERE DO I FIND THE GOALS?

1. http://aos94.rubiconatlas.org
2. http://maine.gov/doe/proficiency/standards/index.html
3. http://www.google.com

EXAMPLE

LEARNING GOALS:

- ***Prove all circles are similar (CCSS.HSG-C.A.1)***
- ***Skilled at using complex reasoning processes to make meaning (ME.GP.E)***
- ***Demonstrate a sound understanding of technology, concepts, systems, and operations (ISTE-S.6)***

ADDITIONAL TOOL:

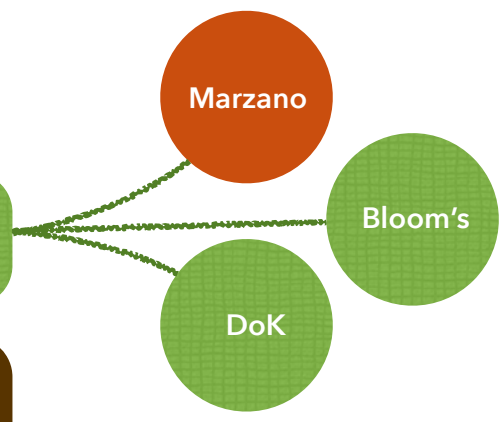
SAMPLE GRADUATION STANDARDS

STEP #2

IDENTIFY COGNITIVE COMPLEXITY

TOOL NEEDED:

TAXONOMY



DESIGN QUESTIONS

What higher-order skills are measured and required to ***apply*** the learning goal(s)?

What content are required to ***apply*** this learning goal?

CLARIFYING QUESTIONS

COGNITIVE COMPLEXITY: NOUN OR VERB?

Cognitive complexity is found in the **use** of the ***verbs*** in the learning goal.

The learning goal may say "compare and contrast," but only by looking at how the verbs interact with the nouns can the level of cognitive complexity be identified.

"Demonstrate" and "understand" are difficult verbs to measure. Use the taxonomy to be more specific.

WHERE DO I FIND MORE INFORMATION?

1. http://www.marzanocenter.com/essentials/
2. http://goo.gl/EDplZC ("The Role of Cognitive Complexity in Competency Education")
3. http://www.google.com

EXAMPLE

LEARNING GOAL:

- ***Prove all circles are similar (CCSS.HSG-C.A.1)***

"Proving" all circles are similar requires a proficient ability to analyze, distinguish between, differentiate, and draw conclusions about all circles (**Analysis level**), as well as have a deep applicable understanding of the of the fundamentals and foundational principles of "circles," including Pi, Diameter, Radius, Circumference, Exponents, Degrees, etc. (**Comprehension and Retrieval levels**).

The level of cognitive complexity for this learning goal is at a **Knowledge Utilization level**, as it requires the next step up in ability and knowledge from **Analysis**

ADDITIONAL TOOL: STANDARD/COMPLEXITY CROSSWALK

STEP #3

CREATE A PROFICIENCY SCALE

TOOL NEEDED:

PROFICIENCY SCALE TEMPLATE

DESIGN QUESTIONS

What are the *foundational* skills & content needed to meet proficiency expectations?

To what extent does this scale articulate the three core criteria of proficiency: ***content, complexity, and autonomy?***?

CLARIFYING QUESTIONS

PROFICIENCY SCALE VS. RUBRIC?

A **PROFICIENCY SCALE** is a BIGGER PICTURE. It focuses on defining the proficiency levels of the measurable learning goal(s). The **PROFICIENCY SCALE** is tied to the *learning goal*.

A **RUBRIC** is a SMALLER PICTURE. It focuses on the pathways and activities to demonstrate proficiency by using the defined proficiency scale levels. The **RUBRIC** is tied to the activities.

WHERE DO I FIND MORE INFORMATION?

1. Blank Proficiency Scale (http://goo.gl/nPIV0w)
2. How To Create and Use Rubrics for Formative Assessment and Grading by Susan Brookhart
3. Proficiency Scales vs. Rubrics (http://goo.gl/s1rrH1)

EXAMPLE

LEARNING GOAL: ***Prove all circles are similar (CCSS.HSG-C.A.1)***

PROFICIENCY SCALE

	Cognitive Complexity	Student Autonomy
4	*[purposefully not labeled to encourage direct conversation/ planning of higher level performance with students]*	In-depth inferences and applications that go beyond what was taught
3	Prove all circles are similar.	Independently perform complex and simple tasks.
2	Differentiate between and analyze the similarities of circles, eclipses, etc.	Can perform simpler tasks independently; with help on complex tasks.
1	Explain and solve problems involving circles.	Can perform only simple tasks with help.

ADDITIONAL TOOL:

ThemeSpark (www.themespark.net)

STEP #4

DESIGN VARIOUS PATHWAYS TO PROFICIENCY

TOOL NEEDED:

CURRICULUM FRAMEWORK — ATLAS

DESIGN QUESTIONS

In what varied ways will students be able to ***apply*** proficiency?

How will student choice and voice be embedded into the assessments and learning environments?

CLARIFYING QUESTIONS

PUTTING IT ALL TOGETHER

The Atlas curriculum map is broken into three distinct stages. **Desired Results** (Learning Goals), **Assessment Evidence**, and **Learning Activities**. All three stages are broken apart to define the various content, skills, levels of cognitive complexity, real-world applications, classroom activities, technology integration, and differentiation strategies. All stages should be scaffolded, aligned, and based primarily on the levels of cognitive complexity embedded in the Learning Goals and Assessments.

WHERE DO I FIND MORE INFORMATION?

1. http://aos94.rubiconatlas.org
2. http://www.google.com
3. http://www.greatschoolspartnership.org/proficiency/

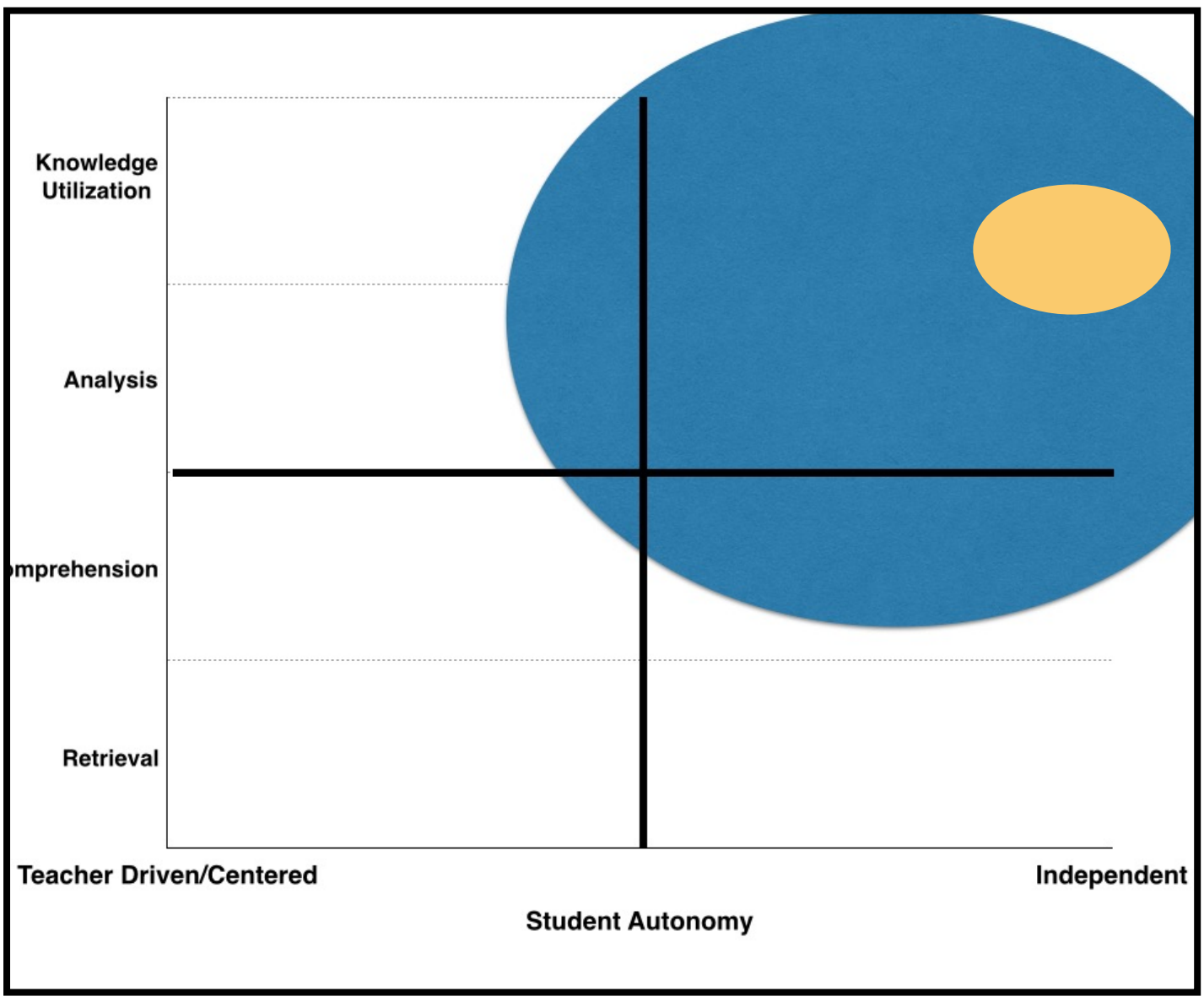
EXAMPLE

LEARNING GOAL: ***Prove all circles are similar (CCSS.HSG-C.A.1)***

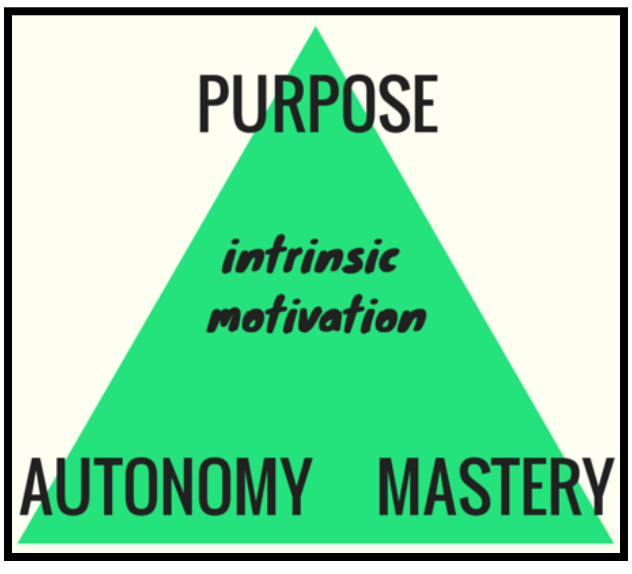
To ensure students have met proficiency in the above standard, students will be assessed regularly to determine learning, growth, fluency, mastery, and preparedness. When sufficient formative assessment evidence has been collected, students will collaborate with the teacher and design a summative assessment plan to authentically and effectively show proficiency in meeting the standard. Students will be required to design their own summative assessment tool(s) and procedures; communicate progress with the teacher; and present the results upon completion. The student also must recognize and accept that proficiency is not met, it is expected that the student will persevere, solve the problems, and return with a better and proficient result.

ADDITIONAL TOOL: http://goo.gl/WdLj3B

RIGOR = Cognitive Complexity + Student Autonomy



AOS #94 Assessment Alignment Protocol: Appendix



AOS #94 Alignment Protocol: Appendix

- Marzano Taxonomy
- Scale-Rubric Flowchart
- Proficiency Scale Template
- Grading Template
- Domain #1 Learning Map

MARZANO TAXONOMY

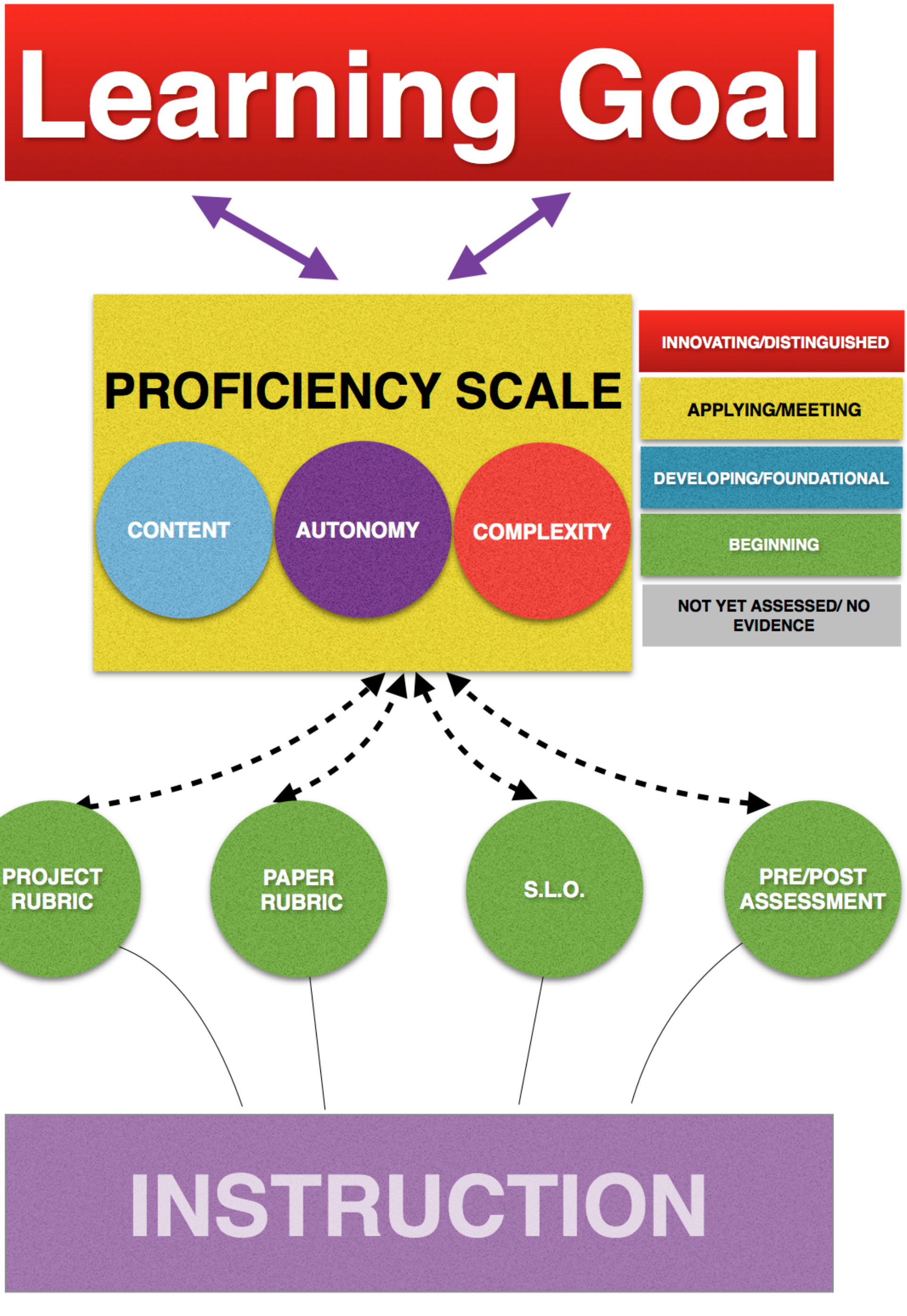
The New Taxonomy (Marzano and Kendall, 2007)

Complexity

Cognitive System

Level of Difficulty	Process	Useful Verbs, Phrases, Definitions
6 Self System Thinking	Examining Importance	The student can analyze how important specific knowledge is to them.
	Examining Efficacy	The student can examine how much they believe they can improve their understanding of specific knowledge.
	Examining Emotional Response	The student can identify emotional responses associated with a piece of knowledge and determine why those associations exist.
	Examining Motivation	The student can examine their own motivation to improve their understanding or competence in specific knowledge.
5 Metacognition	Specifying Goals	The student can set specific goals relative to knowledge and develop a plan for accomplishing the goal.
	Process Monitoring	The student can self-monitor the process of achieving a goal.
	Monitoring Clarity	The student can determine how well they understand knowledge.
	Monitoring Accuracy	The student can determine how accurate their understanding of knowledge is and defend their judgment.
4 Knowledge Utilization	Investigating	investigate; research; find out about; take a position on; what are the differing features of; how & why did this happen; what would have happened if The student generates a hypothesis and uses the assertions and opinions of others to test the hypothesis.
	Experimenting	experiment; generate and test; test the idea that; what would happen if; how would you test that; how would you determine if; how can this be explained; based on the experiment, what can be predicted The student generates and tests a hypothesis by conducting an experiment and collecting data.
	Problem-Solving	solve; how would you overcome; adapt; develop a strategy to; figure out a way to; how will you reach your goal under these conditions The student can accomplish a goal for which obstacles exist.
	Decision-Making	decide; select the best among the following alternatives; which among the following would be the best; what is the best way; which of these is most suitable The student can select among alternatives that initially appear to be equal and defend their choice.
3 Analysis	Specifying	make and defend; predict; judge; deduce; what would have to happen; develop an argument for; under what conditions The student can make and defend predictions about what might happen.
	Generalizing	what conclusions can be drawn; what inferences can be made; create a principle, generalization or rule; trace the development of; form conclusions The student can infer new generalizations from known knowledge.
	Analyzing Errors	identify errors or problems; identify issues or misunderstandings; assess; critique; diagnose; evaluate; edit; revise The student can identify and explain logical or factual errors in knowledge.
	Classifying	classify; organize; sort; identify a broader category; identify different types /categories The student can identify super ordinate and subordinate categories to which information belongs.
	Matching	categorize; compare & contrast; differentiate; discriminate; distinguish; sort; create an analogy or metaphor The student can identify similarities and differences in knowledge.
2 Comprehension	Symbolizing	symbolize; depict; represent; illustrate; draw; show; use models; diagram chart The student can depict critical aspects of knowledge in a pictorial of symbolic form.
	Integrating	describe how or why; describe the key parts of; describe the effects; describe the relationship between; explain ways in which; paraphrase; summarize The student can identify the critical or essential elements of knowledge.
1 Retrieval	Executing	use; demonstrate; show; make; complete; draft The student can perform procedures without significant errors.
	Recalling	exemplify; name; list; label; state; describe; who; what; where; when The student can produce information on demand.
	Recognizing	recognize (from a list); select from (a list); identify (from a list); determine if the following statements are true The student can determine whether provided information is accurate, inaccurate or unknown.

SCALE-RUBRIC FLOWCHART



Level Title	Level Description	Scale Level	I Can…	Example: 8th Grade Social Studies	Scale Level
Innovating	student has performed above the expected complexity level independently, and has included the necessary content	**4**	**I Can…**	**Develop an argument in support of and/or against** historical interpretations and their validity	**4**
Applying	student has independently performed at the expected complexity level, and has included the necessary and appropriate content	**3**	**I Can…**	**Compare, contrast, and interpret** interpretations of historical events that are based on different perspectives and evidence *on my own*. (MLR E1 D; 8th Grade SS)	**3**
Developing	student has independently performed at a foundational level and has included the necessary and appropriate content	**2**	**I Can…**	**Describe how** interpretations of historical events are based on different perspectives and evidence *on my own*.	**2**
Beginning	student has only performed foundational skills with help, and has included the necessary and appropriate content	**1**	**I Can…**	**Describe how** interpretations of historical events are based on different perspectives and evidence, *with help from someone*.	**1**
No Evidence / Not Assessed	No or insufficient evidence has been collected to evaluate student performance.	**0**		I'm not ready yet.	**0**

PROFICIENCY-SCALE TEMPLATE

AOS #94 Assessment
Alignment Protocol

Proficiency-Based Grading

CONTENT	COMPLEXITY	AUTONOMY	SCORE
All necessary and essential content	Performance **ABOVE** the level of complexity in the standard	Independently	4
All necessary and essential content	Performance **AT** the level of complexity in the standard	Independently	3
All necessary and essential content	Performance **AT** the level of complexity in the standard	With Help	2
All necessary and essential content	Performance **BELOW** the level of complexity in the standard	Independently	2
All necessary and essential content	Performance **BELOW** the level of complexity in the standard	With Help	1
Missing necessary and essential content	—-	—-	0

GRADING TEMPLATE

AOS #94 Assessment
Alignment Protocol

Domain 1: Classroom Strategies and Behaviors

Domain 1 is based on the Art and Science of Teaching Framework and identifies the 41 elements or instructional categories that happen in the classroom. The 41 instructional categories are organized into 9 Design Questions (DQs) and further grouped into 3 Lesson Segments to define the Observation and Feedback Protocol.

Lesson Segment Involving Routine Events

DQ1: Communicating Learning Goals and Feedback
1. Providing Rigorous Learning Goals and Performance Scales (Rubrics)
2. Tracking Student Progress
3. Celebrating Success

DQ6: Establishing Rules and Procedures
4. Establishing Classroom Routines
5. Organizing the Physical Layout of the Classroom

Lesson Segment Addressing Content

DQ2: Helping Students Interact with New Knowledge
6. Identifying Critical Content
7. Organizing Students to Interact with New Content
8. Previewing New Content
9. Chunking Content into "Digestible Bites"
10. Helping Students Process New Information
11. Helping Students Elaborate on New Information
12. Helping Students Record and Represent Knowledge
13. Helping Students Reflect on Learning

DQ3: Helping Students Practice and Deepen New Knowledge
14. Reviewing Content
15. Organizing Students to Practice and Deepen Knowledge
16. Using Homework
17. Helping Students Examine Similarities and Differences
18. Helping Students Examine Their Reasoning
19. Helping Students Practice Skills, Strategies, and Processes
20. Helping Students Revise Knowledge

DQ4: Helping Students Generate and Test Hypotheses
21. Organizing Students for Cognitively Complex Tasks
22. Engaging Students in Cognitively Complex Tasks Involving Hypothesis Generation and Testing
23. Providing Resources and Guidance for Cognitively Complex Tasks

Lesson Segment Enacted on the Spot

DQ5: Engaging Students
24. Noticing When Students are Not Engaged
25. Using Academic Games
26. Managing Response Rates
27. Using Physical Movement
28. Maintaining a Lively Pace
29. Demonstrating Intensity and Enthusiasm
30. Using Friendly Controversy
31. Providing Opportunities for Students to Talk about Themselves
32. Presenting Unusual or Intriguing Information

DQ7: Recognizing Adherence to Rules and Procedures
33. Demonstrating "Withitness"
34. Applying Consequences for Lack of Adherence to Rules and Procedures
35. Acknowledging Adherence to Rules and Procedures

DQ8: Establishing and Maintaining Effective Relationships with Students
36. Understanding Students' Interests and Background
37. Using Verbal and Nonverbal Behaviors that Indicate Affection for Students
38. Displaying Objectivity and Control

DQ9: Communicating High Expectations for All Students
39. Demonstrating Value and Respect for Low Expectancy Students
40. Asking Questions of Low Expectancy Students
41. Probing Incorrect Answers with Low Expectancy Students

Note: DQ refers to Design Question in the Marzano Art and Science of Teaching Framework. The 9 DQs organize the 41 elements in Domain 1.

The final Design Question, DQ10: Developing Effective Lessons Organized into a Cohesive Unit is contained in Domain 2: Planning and Preparing.

DOMAIN #1 LEARNING MAP

AOS #94 Assessment Alignment Protocol