

Designing Cornerstone Performance Tasks
to Promote Meaningful Learning
and Assess What Matters Most



presented by

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Five Principles of Sound Assessment

Principle #1 – Assessment should serve learning.

The first principle asserts that the primary purpose of classroom assessment is to inform teaching and improve learning, *not* to sort or select students or generate grades. Of course, evaluation is one important purpose of assessment, but this purpose should not trump the principle.

Principle #2 – Multiple measures provide a richer picture.

Assessment is a process by which we make inferences about what students know, understand, and can do based on information obtained through assessments. Educators sometimes loosely refer to an assessment as being valid and reliable. However, a more precise conception has to do with the extent to which the results of an assessment permit valid and reliable inferences. Since all forms of assessment are susceptible to measurement error, our inferences are more dependable when we consider multiple measures; i.e., various sources of evidence. Consider this principle in terms of a photographic analogy. A photo album typically contains a number of pictures taken over time in different contexts. When viewed as a whole, the album presents a more accurate and revealing “portrait” of an individual than does any single snapshot.

Principle #3 – Assessments should align with goals.

To allow valid inferences to be drawn from the results, an assessment must provide an appropriate measure of a given goal. Since teachers typically direct their instruction toward different types of goals, we need an associated variety of assessments in order to gather the proper evidence of learning. To extend the photographic analogy, a diversity of educational goals implies that we should include a variety of types of pictures in our assessment photo album.

Principle #4 – Assessments should measure what matters.

You’ve no doubt heard aphorisms such as, “We measure what we value,” “What gets measured is what gets done,” or “It only counts if it counts.” Indeed, what we assess sends strong messages to students about what learning outcomes are valued. Learners are quick to pick up on this as they move through school. “Will this count?” is an irritatingly familiar student query, and they quickly conclude that if a teacher does not assess something, “it doesn’t really matter.” This principle raises straightforward and vital questions for teachers, teams and schools to consider: Are we assessing all of the Standards? Everything that we value? What matters most? Or do most of our assessments simply target those outcomes that are easiest to test, measure and grade?

Principle #5 – Assessments should be fair.

The principle of fairness in classroom assessment simply means giving all students an equal chance to show what they know, understand, and can do. Large-scale achievement tests are typically standardized and are intended to be “fair” since all students are assessed in an identical manner. However, one aspect of fairness has to do with allowing learners to demonstrate their learning in an appropriate manner. A student who has reading difficulties or is not fluent in English may not understand a written test question or the task directions, even though they might understand the tested content. In such cases, a “one size, fits all” assessment may not be a fair representation of their learning.

Glossary of Key Terms

Analytic Trait Rubric - a scoring tool which evaluates performances according to selected traits, with each trait receiving a separate score. For example, a piece of writing may be evaluated according to organization, use of details, attention to audience, and language usage/mechanics. Trait scores may be weighted and/or totaled.

Assessment - any systematic basis for making inferences about characteristics of people, usually based on various sources of evidence; the global process of synthesizing information about individuals in order to understand and describe them better.

Authentic - refers to tasks that elicit demonstrations of knowledge and skills in ways that they are applied in the “real world.” An authentic performance task also engages students and reflects the best instructional activities. Thus, teaching to the task is desirable.

Balanced Assessment - has two connotations: 1) balance in format (e.g., selected response, essay, performance task); and 2) balance of purpose (pre-assessment, formative and summative/evaluative).

Criteria - guidelines, rules, or principles by which student responses, products, or performances are judged.

Evaluation - judgment regarding the quality, value, or worth of a response, product, or performance based upon established criteria. Evaluations are usually based on multiple sources of information.

Formative Assessment - ongoing diagnostic assessment providing information to guide instruction and improve student performance.

Holistic Rubric - a scoring tool yielding a single score based upon an overall impression of a product or performance. In holistic scoring, judgments are made by evaluating products or performances against others within the same pool, rather than against pre-established criteria.

Performance Task - an activity that engages students to apply their learning and develop a product or performance. A performance task can be used as a rich learning experience and/or an assessment. Since performance tasks generally do not have a single “correct” answer or solution method, evaluations of student products or performances are based on judgments guided by criteria.

Standards - goal statements identifying the knowledge, skills, and dispositions to be developed through instruction in the content areas.

Summative Assessment - culminating assessment for a unit, grade level, or course of study providing a status report on mastery or degree of proficiency according to identified learning outcomes.

Assessment Planning Framework: Key Questions

Desired Learning Results	Purpose(s) for Assessment	Audience(s) for Assessment
<p><i>What do we want students to know, understand, and be able to do?</i></p>	<p><i>Why are we assessing? How will the assessment information be used?</i></p>	<p><i>For whom are the assessment results intended? What information do they need?</i></p>
<p>Long-term Transfer Goals:</p> <ul style="list-style-type: none"> • _____ • _____ <p>Factual Knowledge:</p> <ul style="list-style-type: none"> • _____ • _____ • _____ <p>Skills and Processes:</p> <ul style="list-style-type: none"> • _____ • _____ • _____ <p>Understanding(s):</p> <ul style="list-style-type: none"> • _____ • _____ • _____ <p>Habits of Mind:</p> <ul style="list-style-type: none"> • _____ • _____ • _____ 	<ul style="list-style-type: none"> <input type="checkbox"/> diagnose student strengths and needs <input type="checkbox"/> provide feedback on student learning <input type="checkbox"/> provide a basis for instructional placement <input type="checkbox"/> inform and guide instruction <input type="checkbox"/> communicate learning expectations <input type="checkbox"/> motivate; focus student attention and effort <input type="checkbox"/> provide practice applying knowledge and skills <input type="checkbox"/> provide a basis for evaluation <ul style="list-style-type: none"> ___ grading ___ promotion/graduation ___ program selection/admission <input type="checkbox"/> provide accountability data <ul style="list-style-type: none"> ___ school/district ___ teacher evaluation ___ administrator evaluation <input type="checkbox"/> gauge program effectiveness 	<ul style="list-style-type: none"> <input type="checkbox"/> teacher/instructor <input type="checkbox"/> students <input type="checkbox"/> parents <input type="checkbox"/> grade-level/department team <input type="checkbox"/> other faculty <input type="checkbox"/> school administrators <input type="checkbox"/> curriculum supervisors <input type="checkbox"/> policy makers <input type="checkbox"/> business community/employers <input type="checkbox"/> college admissions officers <input type="checkbox"/> higher education <input type="checkbox"/> general public <input type="checkbox"/> other: _____

Framework of Assessment Approaches and Methods

<i>How might we assess student learning in the classroom?</i>				
SELECTED RESPONSE ITEMS	PERFORMANCE-BASED ASSESSMENTS			
	CONSTRUCTED RESPONSES	PRODUCTS	PERFORMANCES	PROCESS-FOCUSED
<ul style="list-style-type: none"> <input type="checkbox"/> multiple-choice <input type="checkbox"/> true-false <input type="checkbox"/> matching 	<ul style="list-style-type: none"> <input type="checkbox"/> fill in the blank <ul style="list-style-type: none"> • word(s) • phrase(s) <input type="checkbox"/> short answer <ul style="list-style-type: none"> • sentence(s) • paragraphs <input type="checkbox"/> label a diagram <input type="checkbox"/> Tweet <input type="checkbox"/> “show your work” <input type="checkbox"/> representation(s) <ul style="list-style-type: none"> • e.g., fill in a: • flow chart • matrix 	<ul style="list-style-type: none"> <input type="checkbox"/> essay <input type="checkbox"/> research paper <input type="checkbox"/> blog/journal <input type="checkbox"/> lab report <input type="checkbox"/> story/play <input type="checkbox"/> concept map <input type="checkbox"/> portfolio <input type="checkbox"/> illustration <input type="checkbox"/> science project <input type="checkbox"/> 3-D model <input type="checkbox"/> iMovie <input type="checkbox"/> Podcast 	<ul style="list-style-type: none"> <input type="checkbox"/> oral presentation <input type="checkbox"/> dance/movement <input type="checkbox"/> science lab demonstration <input type="checkbox"/> athletic skills performance <input type="checkbox"/> dramatic reading <input type="checkbox"/> enactment <input type="checkbox"/> debate <input type="checkbox"/> musical recital <input type="checkbox"/> Prezi/Power Point <input type="checkbox"/> music performance 	<ul style="list-style-type: none"> <input type="checkbox"/> oral questioning <input type="checkbox"/> observation (“kid watching”) <input type="checkbox"/> interview <input type="checkbox"/> conference <input type="checkbox"/> process description <input type="checkbox"/> “think aloud” <input type="checkbox"/> learning log

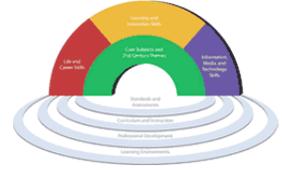
examples

Evaluation and Communication Methods

Evaluation Methods <i>How will we evaluate student knowledge and proficiency?</i>	Evaluation Roles <i>Who will be involved in evaluating student responses, products or performances?</i>	Communication/ Feedback Methods <i>How will we communicate assessment results?</i>
<p><u>Selected-Response Items:</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> answer key <input type="checkbox"/> scoring template <input type="checkbox"/> machine scoring <p><u>Performance-Based Assessments:</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> generic rubric <input type="checkbox"/> task-specific guide <input type="checkbox"/> rating scale <ul style="list-style-type: none"> • bi-polar • hierarchical <input type="checkbox"/> checklist <input type="checkbox"/> written/oral comments 	<p><u>Judgment-Based Evaluation by:</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> teacher(s)/instructor(s) <input type="checkbox"/> peers/co-workers <input type="checkbox"/> expert judges (external raters) <input type="checkbox"/> student (self-evaluation) <input type="checkbox"/> parents/community members <input type="checkbox"/> employers 	<ul style="list-style-type: none"> <input type="checkbox"/> numerical scores <ul style="list-style-type: none"> • percentage scores • point totals <input type="checkbox"/> letter grades <input type="checkbox"/> proficiency scale <ul style="list-style-type: none"> • generic rubric • task-specific rubric <input type="checkbox"/> developmental continuum/ learning progression <input type="checkbox"/> narrative report (written) <input type="checkbox"/> checklist <input type="checkbox"/> written comments <input type="checkbox"/> verbal report/conference

adapted from McTighe and Ferrara (1997). *Assessing Learning in the Classroom*. Washington, DC: National Education Association

The Partnership for 21st Century Skills



The Partnership for 21st Century Skills has developed a vision for 21st century student success in the new global economy. The Partnership created the Framework for 21st Century Learning, which describes the skills, knowledge and expertise students must master to succeed in work and life. Only when a school or district combines the framework with 21st century professional development, assessments and standards, can the American public be sure that high school graduates are prepared to thrive in today's global economy.

21st century skills represent the necessary student outcomes for the 21st century, i.e. students need to obtain Learning and Innovation Skills (creativity and innovation, critical thinking and problem solving, etc.), Information, Media and Technology Skills, Core Subjects and 21st Century Themes (global awareness, financial literacy, etc.) and Life and Career Skills (initiative and self-direction, among others).

Learning and Innovation Skills

Learning and innovation skills are what separate students who are prepared for increasingly complex life and work environments in the 21st century and those who are not. They include:

- Creativity and Innovation
- Critical Thinking and Problem Solving
- Communication and Collaboration

Information, Media and Technology Skills

People in the 21st century live in a technology and media-driven environment, marked by access to an abundance of information, rapid changes in technology tools and the ability to collaborate and make individual contributions on an unprecedented scale. To be effective in the 21st century, citizens and workers must be able to exhibit a range of functional and critical thinking skills, such as:

- Information Literacy
- Media Literacy
- ICT (Information, Communications and Technology) Literacy

Life and Career Skills

Today's life and work environments require far more than thinking skills and content knowledge. The ability to navigate the complex life and work environments in the globally competitive information age requires students to pay rigorous attention to developing adequate life and career skills, such as:

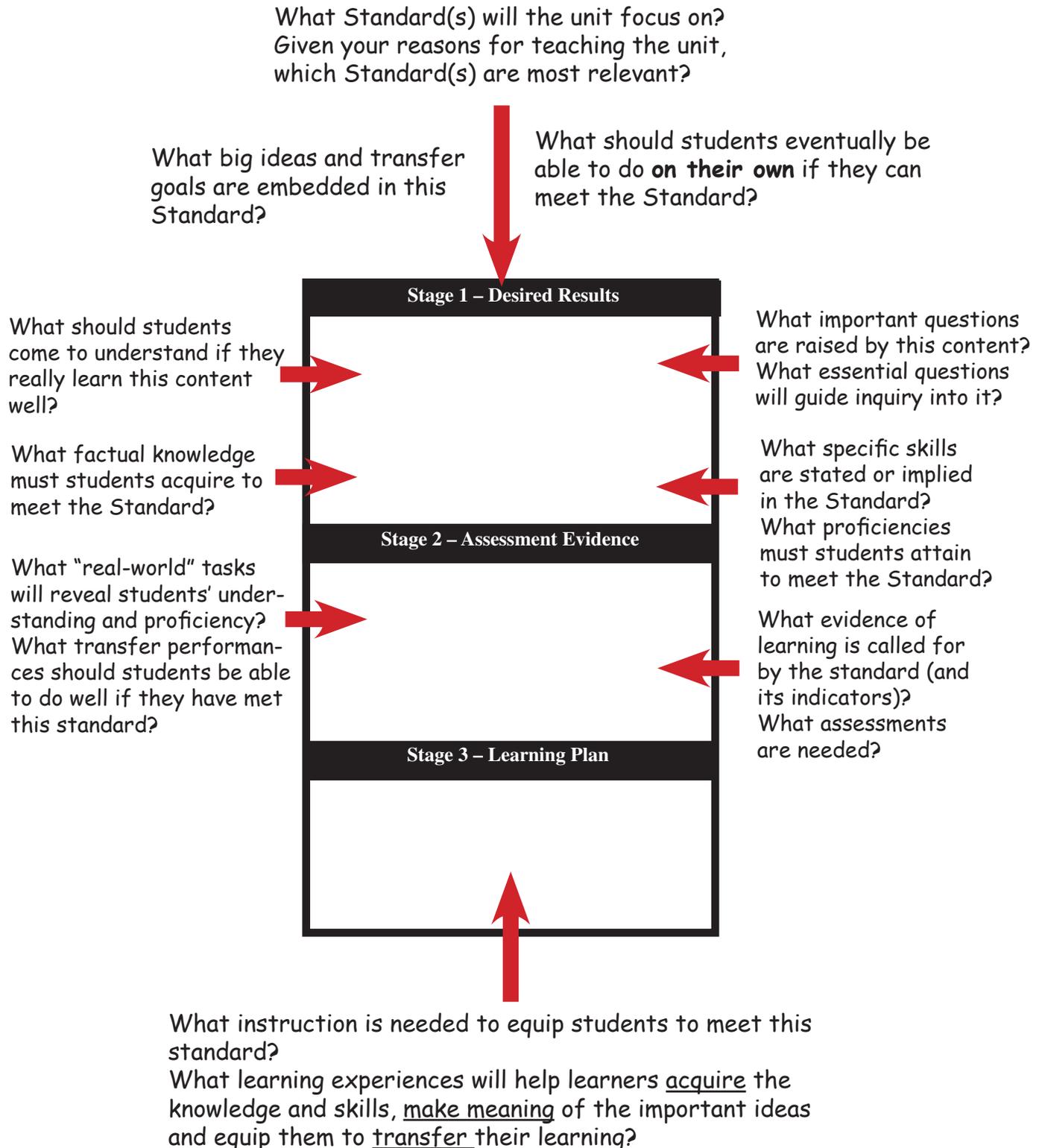
- Flexibility and Adaptability
- Initiative and Self-Direction
- Social and Cross-Cultural Skills
- Productivity and Accountability
- Leadership and Responsibility

Attributes Employers Seek

Each year, the National Association of Colleges and Employers (NACE) conducts a survey of employers to gather data about the hiring intentions of employers as they relate to new college graduates. The following table provides a summary of the rank ordering of the desired job qualities and skills as reported by employers in the NACE 2013 survey.

Leadership skills	80.6%
Problem-solving skills	75.3%
Communication skills (written)	74.7%
Ability to work in a team	74.2%
Analytical/quantitative skills	72.0%
Strong work ethic	73.1%
Communication skills (verbal)	67.2%
Initiative	66.7%
Computer skills	64.5%
Technical skills	64.0%
Detail oriented	57.5%
Flexibility/adaptability	57.5%
Interpersonal skills (relates well to others)	57.0%
Organizational ability	49.5%
Friendly/outgoing personality	33.3%
Strategic planning skills	32.8%
Creativity	25.8%
Entrepreneurial skills/risk-taker	23.8%
Tactfulness	23.5%

Curriculum Planning with Standards using UbD



Performance Tasks



Performance tasks can be used as rich learning activities or as assessments. They ask students to apply knowledge and skills to a new situation, and typically yield tangible products and performances that serve as evidence of learning. Performance tasks (as distinct from long-term projects) can usually be completed within a relatively short time frame, generally between one and four class periods. Here are general characteristics of performance tasks; they:

- demand thoughtful application of knowledge and skills, not just recall;
- yield tangible products and performances that serve as evidence of learning;
- establish authentic contexts for performance;
- can integrate two or more subjects as well as 21st century skills (e.g., critical thinking, technology use, teamwork);
- do not have a “single, best” answer or one, “right way” to accomplish the task;
- evaluate performance with established criteria and rubrics; and
- may be used as rich learning activities and/or assessments.

Performance tasks may be content-specific (e.g., mathematics, science, social studies) or integrated (i.e., involving two or more subjects). One natural interdisciplinary connection is to include a reading, research and/or communication (writing, graphics, presentation) component to tasks in content areas. Such tasks encourage students to see meaningful learning as integrated, rather than something which occurs in isolated segments.

Two examples of performance tasks are provided below.

Fairy Tales [grades 3-4]

You have just finished reading three fairy tales that all have the same general pattern – characters overcoming a confrontation with an animal when the animal’s intent is to harm the character(s). Your task is to write a story that includes all the characteristics of a fairy tale and also uses this same general pattern. You will then read your story to your kindergarten reading buddy and teach him/her about the characteristics and general pattern of a fairy tale.

Source: Assessing Outcomes: Performance Assessment Using Dimensions of Learning

City Park [high school physics]

Your design team has been asked by the City Park Department to construct a model for a new playground near the elementary school. The playground will have swing sets and see-saws. For the safety of the children who will be using the playground equipment, you must design your swings so that they don’t swing too fast or “loop-the-loop “ over the top of the swing set.

Design and conduct an experiment to determine how the variables - length, mass, height of release - affect the rate of back-and-forth movement of a swing. Be prepared to present your findings, recommendations, and a demonstration to the City Park officials.

Source: A Tool Kit for Professional Developers: Alternative Assessment

Performance Task Review Criteria

KEY TO RATINGS: 3 = <i>extensively</i> 2 = <i>somewhat</i> 1 = <i>not yet</i>
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CRITERIA

1. The task addresses/assesses targeted standard(s)/outcome(s).	3	2	1
2. The task calls for understanding and transfer, not simply recall or a formulaic response.	3	2	1
3. The task requires extended thinking and habits of mind – not just an answer.	3	2	1
4. The task is set in an “authentic” context; i.e., written in the G.R.A.S.P.S. form.	3	2	1
6. The task includes criteria/rubric(s) targeting distinct traits of understanding and successful performance; i.e., criteria do not simply focus on surface features of a product or performance.	3	2	1
7. The task directions for students are clear.	3	2	1
<u>Optional:</u>			
8. The task allows students to demonstrate their understanding/proficiency with some appropriate choice/variety (e.g., of products or performances).	3	2	1
9. The task effectively integrates two or more subject areas	3	2	1
10. The task incorporates appropriate use of technology.	3	2	1
Other: _____	3	2	1

A Process for Designing Performance Tasks

1. Identify learning goals.	<p><i>What goal(s) will be assessed through this performance task?</i> These can include:</p> <ul style="list-style-type: none"> • Standards • Long-Term Transfer Goals • Mission-related Outcomes (e.g., 21st Century Skills; Habits of Mind)
2. Consider key traits implied by the goals.	<p><i>What important qualities must students demonstrate to show attainment of Standards and other identified goals?</i> These will serve as the criteria by which student performance will be judged.</p>
3. Consider one or more of the suggested frameworks.	<p><i>How will the task involve “higher order” thinking?</i> Consider resources such as:</p> <ul style="list-style-type: none"> • Depth of Knowledge (DOK) • Six Facets of Understanding • Content/Process Matrices • Task Frames (e.g., Literacy Design Collaborative)
4. Generate initial task ideas.	<p><i>How will learners demonstrate their understanding and proficiency?</i> Outline the basic task to gather the evidence you will use to assess depth of understanding and level of proficiency.</p>
5. Check for validity and alignment.	<p><i>To what extent will this task provide acceptable evidence of the targeted goals?</i> Consider: Could students perform this task and meet the evaluative criteria without demonstrating evidence of the targeted goals? If possible, get feedback from others regarding task validity and alignment.</p>
6. Use G.R.A.S.P.S. to flesh out task details.	<p><i>How will the task establish an authentic context for student performance?</i> When establishing the context, consider “real world” application of learning along with students’ interests and experiences. Using the G.R.A.S.P.S. elements will help establish a more authentic situation.</p>
7. Develop scoring rubric(s).	<p><i>How will student performance be evaluated? How good is good enough?</i> Use the key traits to flesh out a more detailed rubric.</p>
8. Differentiate the task as needed.	<p><i>In what ways might the task be differentiated?</i> You may need to modify the task for special populations (e.g., ELL, SPED, G/T). This can be done by adjusting the context, audience, product options, time frame and support.</p>
9. Assess the entire draft task and rubric using Review Criteria.	<p><i>Is this task ready to use?</i> Self assess the task against the review criteria. If possible, get feedback from colleagues as well as experts in the content. Then, revise as needed based on feedback.</p>
10. Develop detailed directions for students.	<p><i>What exactly are students being asked to do?</i> Once the draft task has met the review criteria, develop detailed directions for students. Include guidelines, accompanying resources, and response forms as appropriate.</p>
THEN... Use the task with students. Make needed revisions.	<p><i>How did it go? What revisions are needed?</i> Drafting a performance task is just the first step. Once you use it with students, you will get invaluable feedback to help you fine-tune it. Take careful notes about what worked and what refinements are needed.</p>

Depth of Knowledge

Dr. Norman Webb developed the Depth of Knowledge (DOK) framework to distinguish four levels of rigor and cognitive complexity. The DOK framework provides a common language and a frame of reference to help educators understand “rigor,” or cognitive demand, in assessments, as well as curricular units, lessons, and tasks. Many State Departments of Education have used the DOK Framework in developing state assessments.

Here is a summary of the four levels of the DOK Framework and the asks at this

Level 1

- Require students to recite or recall information including facts, formulae, or simple procedures.
- May require students to demonstrate a rote response, use a well-known formula, follow a set procedure (like a recipe), or perform a clearly defined series of steps.
- Typically focus on a “correct” answer.

Level 2

- Focus on application of basic skills and concepts.
- Involve some reasoning beyond recall.
- Require students to perform two or more steps and make some decisions on how to approach the task or problem.

Level 3

- Require strategic thinking and reasoning applied to situations that general do not have a single “right” answer.
- Require students to go beyond the information given to generalize, connect ideas, evaluate, and problem solve.
- Expect students to support their interpretations and conclusions with evidence and to “explain their thinking.”

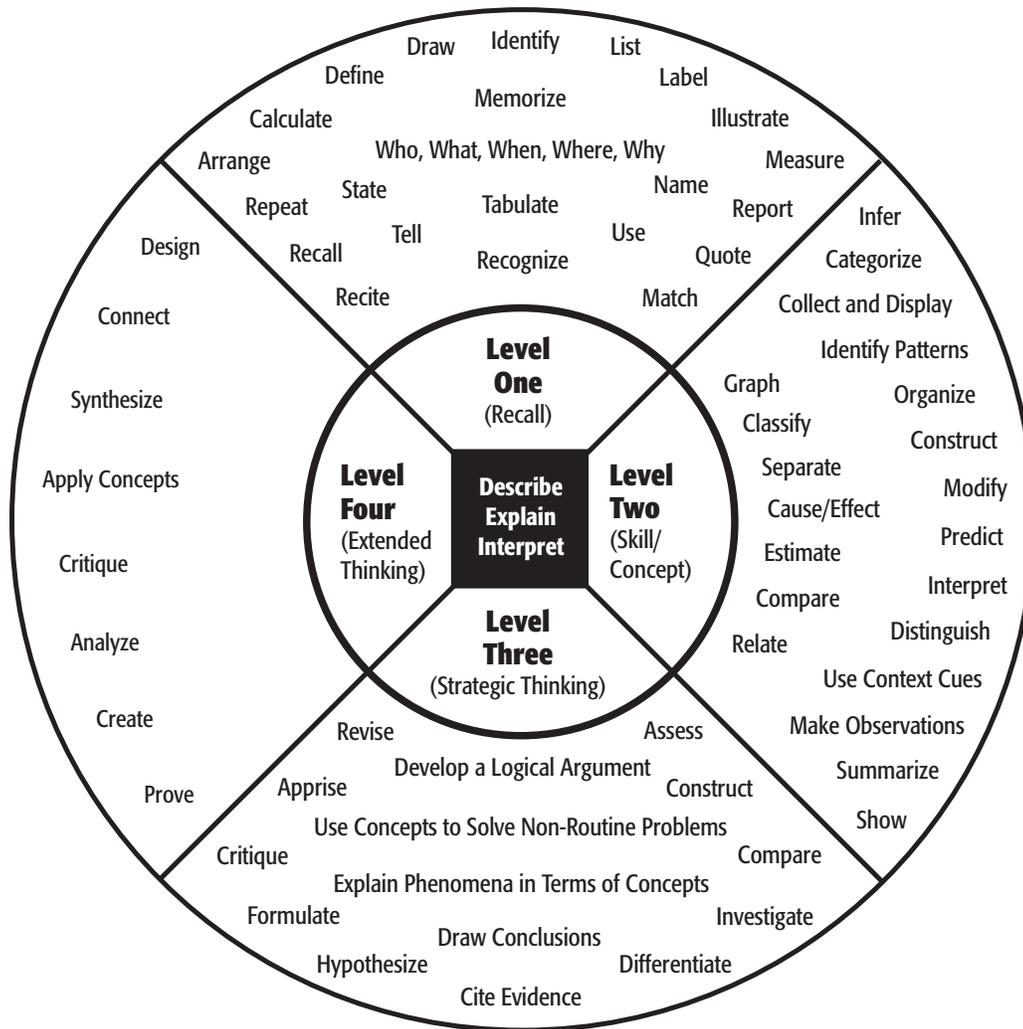
Level 4

- Require extended thinking and complex reasoning over an extended period of time.
- Expects students to transfer their learning to novel, complex and “messy” situations.
- Requires students to devise an approach among many alternatives for how to approach the task or problem.
- May require students to develop a hypothesis and perform complex analysis.

Webb’s Depth of Knowledge for Reading and Mathematics

DOK Level	Reading Tasks require:	Mathematics Tasks require:
1	<ul style="list-style-type: none"> • verbatim recall of a text • only basic, literal comprehension • basic paraphrasing of specific details from the text • support for ideas by reference to details from the text • use of a dictionary to find the meanings of words 	<ul style="list-style-type: none"> • recalling information (e.g., a math fact or definition) • performing a one-step, well-defined procedure (e.g., an algorithm or formula) • “plug in” numbers into a given algorithm • follow a set procedure with a clearly defined series of steps
2	<ul style="list-style-type: none"> • some inference/interpretation of textual information • summary of main idea(s) • prediction of an outcome based on text information • use of context cues to identify the meaning of unfamiliar words 	<ul style="list-style-type: none"> • applying some mathematical reasoning to: <ul style="list-style-type: none"> - multi-step, yet routine, problems - one-step, simple word problems • collecting, classifying, organizing, and comparing simple data • organizing and displaying simple data in tables, graphs, and charts • interpreting non-complex numerical information
3	<ul style="list-style-type: none"> • comprehension and interpretation of abstract ideas (e.g., metaphor, analogies) • going beyond the literal text by summarizing, generalizing and connecting ideas from multiple sources • support for inference/interpretation with textual evidence and reasoning • critical analysis; for example, <ul style="list-style-type: none"> - author’s style in literature - distinguishing fact and opinion - recognizing bias or flawed reasoning 	<ul style="list-style-type: none"> • application of sound mathematical reasoning to multi-step, non-routine problems • analysis of problem situations (e.g., determining what information is needed) • explanation of one’s thinking and reasoning • interpreting complex numerical or statistical information • making and supporting mathematical conjectures • perseverance
4	<ul style="list-style-type: none"> • transfer – applying ideas/information from a given text to a new task • developing hypotheses and performing complex analyses across texts • analyzing and synthesizing information from multiple sources • evaluating alternative perspectives across multiple sources • extracting common ideas/themes across texts from different times and cultures 	<ul style="list-style-type: none"> • application of sound mathematical reasoning to confront complex, ill-structured problem situations • complex analytical and creative thinking • strategic planning • transferring mathematical concepts and process to new contexts (e.g., in science) • interpreting complex numerical or statistical information from multiple sources • lots of perseverance!

Depth of Knowledge (DOK) Levels

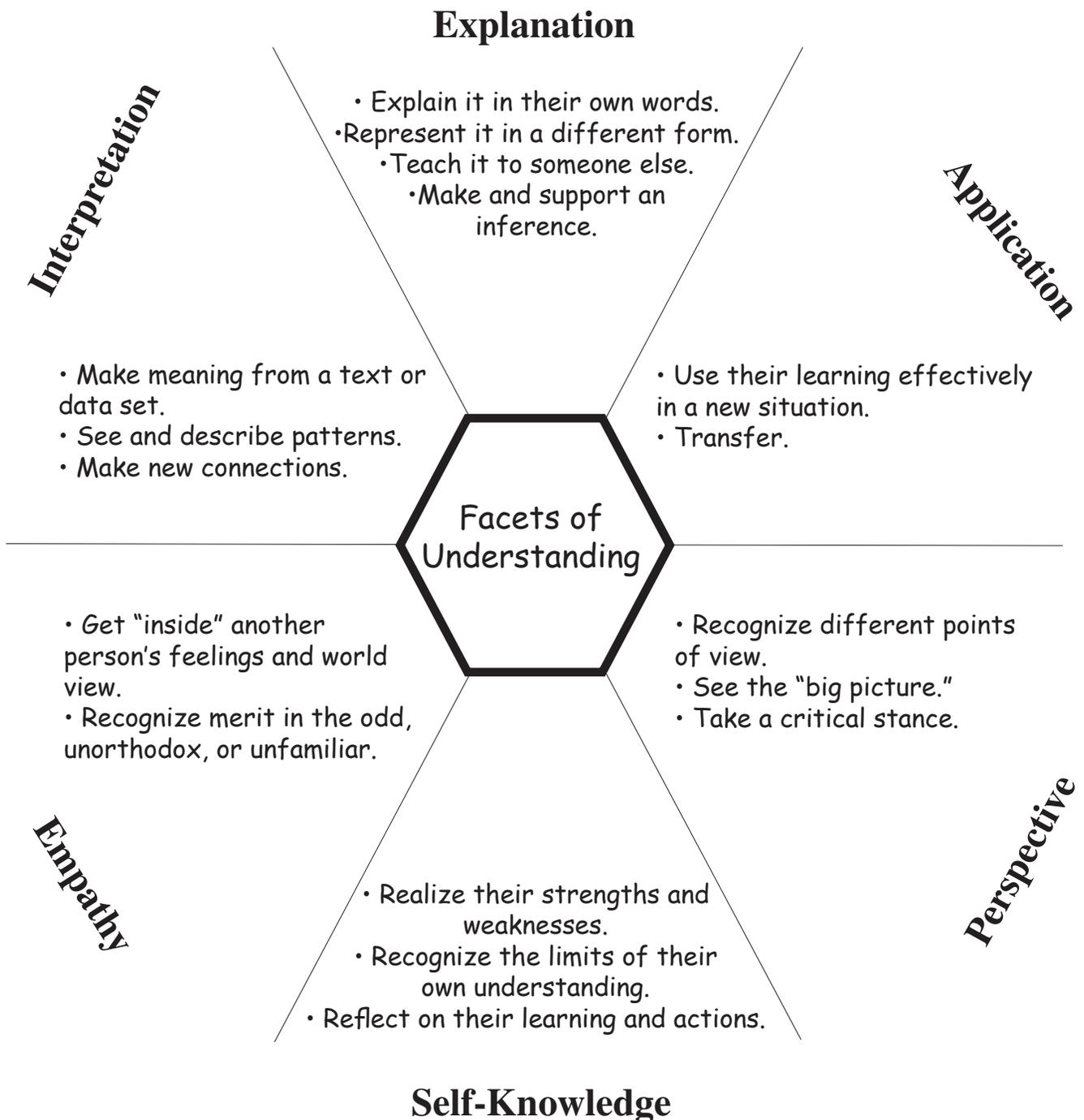


Level One Activities	Level Two Activities	Level Three Activities	Level Four Activities
Recall elements and details of story structure, such as sequence of events, character, plot and setting. Conduct basic mathematical calculations. Label locations on a map. Represent in words or diagrams a scientific concept or relationship. Perform routine procedures like measuring length or using punctuation marks correctly. Describe the features of a place or people.	Identify and summarize the major events in a narrative. Use context cues to identify the meaning of unfamiliar words. Solve routine multiple-step problems. Describe the cause/effect of a particular event. Identify patterns in events or behavior. Formulate a routine problem given data and conditions. Organize, represent and interpret data.	Support ideas with details and examples. Use voice appropriate to the purpose and audience. Identify research questions and design investigations for a scientific problem. Develop a scientific model for a complex situation. Determine the author's purpose and describe how it affects the interpretation of a reading selection. Apply a concept in other contexts.	Conduct a project that requires specifying a problem, designing and conducting an experiment, analyzing its data, and reporting results/ solutions. Apply mathematical model to illuminate a problem or situation. Analyze and synthesize information from multiple sources. Describe and illustrate how common themes are found across texts from different cultures. Design a mathematical model to inform and solve a practical or abstract situation.

Webb, Norman L. and others. "Web Alignment Tool" 24 July 2005. Wisconsin Center of Educational Research. University of Wisconsin-Madison. 2 Feb. 2006. <<http://www.wcer.wisc.edu/WAT/index.aspx>>.

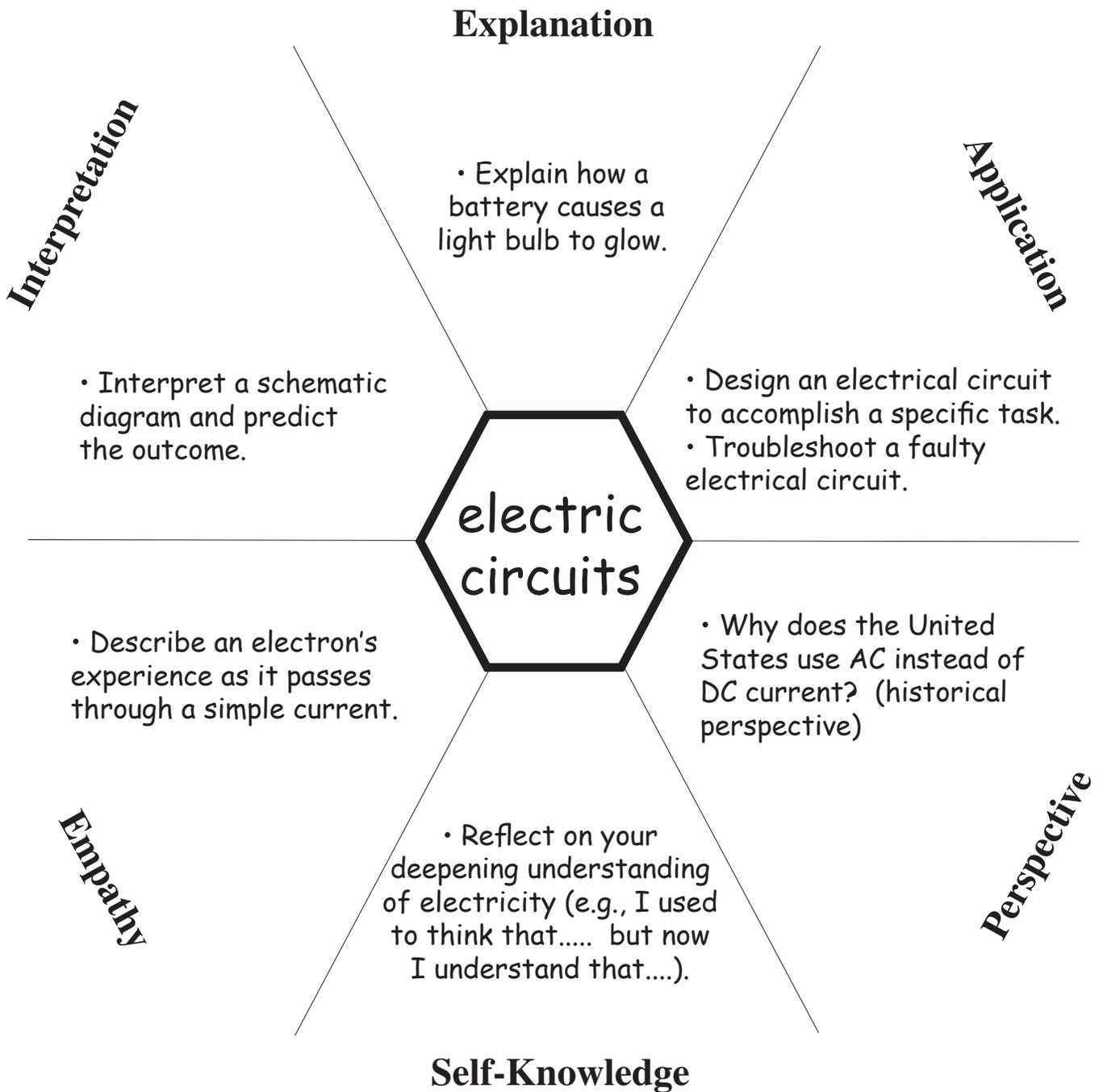
The Facets of Understanding

The facets of understanding provide *indicators* of understanding and thus can be used to select or develop assessments. *If someone really understands something, they can...*



Brainstorming Assessment Ideas Using the Facets

Use the six facets of understanding to generate possible ways in which students might reveal understanding.



Questioning for Understanding using the Facets

Explanation

What is the key idea in _____?
What are examples of _____?
What are the characteristics/parts of _____?
How did this come about? Why is this so?
What caused _____? What are the effects of _____?
How might we prove/confirm/justify _____?
How is _____ connected to _____?
What might happen if _____?
What are common misconceptions about _____?

Interpretation

What is the meaning of _____?
What are the implications of _____?
What does _____ reveal about _____?
How is _____ like _____ (analogy/metaphor)?
How does _____ relate to me/us?
So what? Why does it matter?

Application

How and when can we use this (knowledge/process)?
How is _____ applied in the larger world?
How might _____ help us to _____?
How could we use _____ to overcome _____?

Perspective

What are different points of view about _____?
How might this look from _____'s perspective?
How is _____ similar to/different from _____?
What are other possible reactions to _____?
What are the strengths and weaknesses of _____?
What are the limits of _____?
What is the evidence for _____?
Is the evidence reliable? sufficient?

Empathy

What would it be like to walk in _____'s shoes?
How might _____ feel about _____?
How might we reach an understanding about _____?
What was _____ trying to make us feel/see?

Self-Knowledge

How do I know _____?
What are the limits of my knowledge about _____?
What are my "blind spots" about _____?
How can I best show _____?
How are my views about _____ shaped by _____
(experiences, habits, prejudices, style)?
What are my strengths and weaknesses in _____?

Performance Verbs

based on the Six Facets of Understanding

Consider the following “performance verbs” when planning possible ways in which students may demonstrate their understanding.
(See the design tool on the next page.)

<u>explain</u>	<u>interpret</u>	<u>apply</u>	<u>perspective</u>	<u>empathy</u>	<u>self-knowledge</u>
demonstrate	create analogies	adapt	analyze	be like	be aware of
derive	critique	build	argue	be open to	realize
describe	document	create	compare	believe	recognize
design	evaluate	decide	contrast	consider	reflect
exhibit	illustrate	de-bug	criticize	imagine	self-assess
express	judge	design	infer	relate	
induce	make sense of	exhibit		role-play	
instruct	make meaning of	invent			
justify	provide metaphors	perform			
model	read between the	produce			
predict	lines	propose			
prove	represent	solve			
show	tell a story of	test			
synthesize	translate	use			
teach					

Performance Task Ideas Based on the Six Facets

Topic	Explain	Interpret	Apply	Perspective	Empathy	Self-Knowledge
History/ Social Studies	Provide conceptual clarification (e.g., freedom compared to license; meaning of the term, “third world”).	Develop an oral history on the significance of the 1960’s using primary sources, and write a historical biography.	Design a museum exhibit on the causes and effects of early 20 th century immigration.	Compare British and French textbooks accounts of the Revolutionary War to your textbook account.	Role-play a meeting of the minds (e.g., Truman deciding to drop the atomic bomb).	Self-assess your involvement in class discussions and performances, and explain your patterns of participation.
	Study a common phenomenon (e.g., weather data). Reveal subtle and easily overlooked patterns in the data.	Do a trend analysis of a finite data set.	Develop a new statistic for evaluating the value of a baseball player in key situations.	Examine the differences when using various measures (e.g., mean, median) for calculating grades.	Read <i>Flatland</i> and a set of letters between mathematicians explaining why they fear publishing their findings; write a reflective essay on the difficulty of explaining new ideas, even “abstract” ones.	
English/ Language Arts	Describe why a particular rhetorical technique is effective in a speech.	“What’s wrong with Holden?” Make sense of the main character in <i>Catcher in the Rye</i> .	What makes a “great book”? Make an audiotope review of a favorite book for the school library.	Read and discuss <i>The Real Story of the Three Little Pigs</i> by A. Wolf.	Work in a soup kitchen, and write an essay on the experiences of the homeless after reading Charles Dickens.	Attach a self-assessment to each paper you write reflecting on <i>your</i> writing process.
	Explain the role of silence in music.	Represent fear and hope in a visual collage or dance.	Write and perform a one-act play on a school issue.	Critique three different versions of the same Shakespeare play (focus on a key scene).	“Imagine you are Juliet from <i>Romeo and Juliet</i> , and consider your terrible, final act. What are you thinking and feeling?”	Keep a log of the drama class exercises that demand the most from you emotionally.
Science	Link everyday actions and facts to the laws of physics, concentrating on easily misunderstood aspects (e.g., mass compared to weight).	Take readings of pond water to determine whether the algae problem is serious.	Perform a chemical analysis of local stream water to monitor EPA compliance, and present findings.	Conduct thought experiments (e.g., Einstein’s - What would the world be like if I were riding on a beam of light [from ?]).	Read and discuss premodern or discredited scientific writings to identify plausible or “logical” theories (given the information available at the time).	Propose solutions to an ineffective cooperative learning activity based on what didn’t work in your group.

Performance Task Ideas Based on the Six Facets

Topic	Explain	Interpret	Apply	Perspective	Empathy	Self-Knowledge
Social Studies: Pioneer Life	Write letters home describing what pioneer life is <i>really</i> like vs. what you expected.	Read and interpret real-life journals and stories of pioneers (e.g., <i>Sarah Plain and Tall</i>) to infer from vocabulary and images what life was really like.	Create a museum exhibit in which photos and facsimile artifacts tell the story of the hardships of pioneer life.	Stage a debate between settlers and Native Americans on the effects of western settlement.	Write a letter to relatives "back east" describing the death of pioneer neighbors.	"Why Leave Home?" Write on how you have felt or would feel if you had to leave the home you have known.
Friendship	"Who are your true friends? Who are your fair-weather friends?"	Interpret "Spring" in <i>Frog and Toad Are Friends</i> . What does this episode reveal about friendship?	Place an order for a "true friend" from an imaginary Mail-Order Friendship store.	How do others view me as a friend?	Write on essay or journal entry on why some kids always get picked on and what it feels like to be those kids.	Respond to writing prompts - "Do I know who my true friends are?"
History: U. S. Revolutionary War	Write a newspaper editorial in a 1777 newspaper: Was the break with England inevitable?	"What really happened at Lexington?" Analyze the texts and information available to make sense of the war's opening (facts vs. opinions).	Design a "whisper chamber" for a science museum under various logistical constraints, using your knowledge of conic sections.	Read a Canadian and French account of the Revolutionary War era. Defend or oppose their use as teaching resources at a simulated school board meeting.	Write a series of simulated letters back and forth between relatives in American and England during the pre-Revolutionary war, war, and post-war era.	Journal writing: "what would I fight for?"
Mathematics: Conic sections	Explain how slicing a cone produces all conic sections and justifies their algebraic formulae.	Analyze various data sets to determine the "best-fit" conic section curve.	Build a working set of switches for a model railroad layout.	Conduct experiments with flashlights, conic section cut-outs and shadows to explore how conic sections are formed and how their shapes vary.	Create an imaginary diary entry - "A day in the life of an electron."	
Physics: Electricity	Develop a troubleshooting guide for an electric circuit system.	Assume the role of an electrical sub-contractor: Interpret and analyze the wiring drawings for building a house.	Role play a conversation over the phone (e.g., planning weekend activities for French visitors to your town).	AC or DC? Argue the merits of each type of current for various users.		
French	Explain the difference between the various forms of past tense, and when they should and should not be used.	Compare French vs. English versions of <i>Le Petit Prince</i> to determine if/how language influences the meaning.			Develop a guide containing lists of colloquialisms and their translations to help French visitors avoid misunderstandings.	Keep a log of your reactions to French customs.

Creating Performance Tasks: Task Frames in Mathematics

Task Frames	Task Ideas
Create a mathematical model/ representation of _____ (e.g., quantity, size, rate, motion, change).	Create a mathematical model to use in evaluating International stock funds using data from the past 5 years. Which funds would you recommend to an investor?
Make and justify predictions or decisions based on pattern analysis.	Predict the winning time of the women's marathon event in the next two Olympic games based on the pattern of the winning times in previous games. Explain your reasoning. Compared the women's marathon times to the men's times since 1984. Given the results, will the women ever run faster? If so, in what year? Explain your answer.
Design a physical structure.	Design a 3-dimensional shipping container to maximize volume and safety for shipping glass marbles. What shape and size container do you propose? Explain your reasoning.
Collect, organize, record, analyze and display data.	Collect data about student "favorites" such as music, movies, video games, actors, school subjects, hobbies, foods, beverages, etc. Organize and analyze the results. Decide on an effective method to present your findings (e.g., a blog, poster, article, podcast).
Evaluate a mathematical or statistical claim.	Claim: 50% of all Americans eat at least one meal at a fast food restaurant every week. How would you go about evaluating this claim?
Correct flawed mathematical reasoning.	Ricardo said, "Four plus three times two is 14." Angela replied, "No, it's 10." Did someone make a mistake? Explain the reasons that they came up with the different solutions. Then, tell which one is correct and explain why.
Other:	

Topics for Mathematics' Tasks

Appendix A: Suggested Topics

Category	You are going to . . .	
<i>Animals</i>	Plan and Design	Evaluate and Recommend
	Animal cage Animal tank Animal terrarium	Choose a pet
<i>Arts</i>	Plan and Design	Evaluate and Recommend
	Monument Sculpture Tangram designs	Art supply order
<i>Budget</i>	Plan and Design	Evaluate and Recommend
	Budget for a class trip Road trip Weekly schedule (time budget)	Save for a bike Save for a car Save for college
<i>Business</i>	Plan and Design	Evaluate and Recommend
	Bake sale School spirit-wear sale Club/team fundraiser	Newspaper delivery A family trip
<i>Construction</i>	Plan and Design	Evaluate and Recommend
	House Room Building Building a tree house	Home repairs Bicycle repairs
<i>Crafts</i>	Plan and Design	Evaluate and Recommend
	Jewelry box	
<i>Education</i>	Plan and Design	Evaluate and Recommend
	Game A class trip to an art museum A class trip to a science museum Cafeteria design Auditorium design	A class trip to an art museum A class trip to a science museum School calendar School schedule School festival
<i>Entertainment</i>	Plan and Design	Evaluate and Recommend
	Class party Dinner party Holiday party Designing a video game	Movies Eating out Cable television plans Video game online memberships Internet plans
<i>Environment</i>	Plan and Design	Evaluate and Recommend
	Community garden Landscaping Tree planting	Landscaping
<i>Food</i>	Plan and Design	Evaluate and Recommend
	Disaster Relief Nutrition planning Recipes	Bake sale Create a cracker/cookie box Food temperatures/timing
<i>Government</i>	Plan and Design	Evaluate and Recommend
		Helmet fines Littering fines

Topics for Mathematics' Tasks <i>continued</i>		
<i>Outdoor Activities</i>	Plan and Design	Evaluate and Recommend
	Hiking trip School/community garden Landscaping the campus Butterfly garden Container garden Geocaching	Playground design Hiking trails
<i>Science</i>	Plan and Design	Evaluate and Recommend
	Amusement park attraction Derby car contest Paper airplane contest Interior decorating Water bottle Soda can A robot	Relative humidity Temperature and heat transfer Evaporation rate Finding dew point Population growth Government statistics Shipping packages Planting crops
<i>Sports</i>	Plan and Design	Evaluate and Recommend
	Track meet Olympics Obstacle course Bike race Urban adventure 5K/10K race	Bike tour Athletic equipment order Gymnasium floor redesign Exercise Plan

Source: Smarter Balanced Assessment Consortium

The Literacy Design Collaborative Task Templates

Funded through the Bill and Melinda Gates Foundation, the Literacy Design Collaborative (LDC) has developed a set of Modules designed to support the integration of the Common Core Standards (6-12) in English/ Language Arts with core content in Science, Social Studies and Technical areas. Each Module consists of a task and associated instructional procedures intended to provide a rigorous, authentic classroom experience for students at the secondary level.

The Tasks require students to read, analyze, and comprehend written materials and then write cogent arguments, explanations, or narratives in the subjects they are studying. A key feature of the LDC's work is a set of generic Task Templates -- fill-in-the-blank "shells" that allow teachers to design their own tasks.

Here are several samples:

Argumentation Task Template

After researching _____ (informational texts) on _____ (content topic or issue), write a/an _____ (essay or substitute) that argues your position on _____ (topic, issue, essential question). Support your position with evidence from research. Be sure to acknowledge competing views. Give examples from from past or current events issues to illustrate and clarify your position.

Social Studies Example:

After researching academic articles on **censorship**, write a/an **blog or editorial** that argues your position on **the use of filters the use of Internet filters by schools**. Support your position with evidence from research. Be sure to acknowledge competing views.

ELA Example:

What makes something something funny? After reading selections from **Mark Twain and Dave Barry**, write a **review** that **compares their their humor** and argues **which type of humor works for a contemporary audience and why**. Be sure to support your position with evidence from the texts.. Be sure to support your position with evidence from the texts.

Informational or Explanatory Task Template

[Insert question] After reading _____ (literature or informational texts), write a/an _____ (essay, report, article, or substitute) that defines and explains (term or concept). Support your discussion with evidence from the text(s). What _____ (conclusions or implications) can you draw?

Social Studies Example:

What did the authors of the American Constitution mean by "rights"? After reading the **Bill of Rights**, write an **essay** that defines **"rights"** and explains **"rights" as the authors use it in this foundational document**. Support your discussion with evidence from the text. What implications can you draw?

The Literacy Design Collaborative Task Templates Science Task Samples

Funded through the Bill and Melinda Gates Foundation, the Literacy Design Collaborative (LDC) has developed a set of Modules designed to support the integration of the Common Core Standards (6-12) in English/ Language Arts with core content in Science and Technical areas. Each Module consists of a task and associated instructional procedures. The Tasks require students to read, analyze, and comprehend written materials and then write cogent explanations or arguments related to topics they are studying. A key feature of the LDC's work is a set of generic Task Templates -- fill-in-the-blank "shells" that allow teachers to design their own tasks. Here are several samples:

Informational or Explanatory Task Template

[Insert question] After reading _____ (informational texts), write a/an _____ (essay, report, article, or substitute) that defines and explains (term or concept). Support your discussion with evidence from the text(s). What _____ (conclusions or implications) can you draw?

After reading **various sources on the issue of water contamination**, write a (**report, article**) that explains the causes and the effects of contamination. What conclusion or implications can you draw? **Cite at least four sources, pointing out key elements from each source.** Include a bibliography of your sources. Support your discussion with evidence from the text. What implications can you draw? (Informational or Explanatory/Synthesis)

How can energy be changed from one form into another? After reading **scientific sources on energy transformation**, write a report that examines the **causes of energy transformation and explains the effects when energy is transformed.** What conclusions or implications can you draw? Support your discussion with evidence from the texts. (Informational or Explanatory/Cause-Effect)

Argumentation Task Template

After researching _____ (informational texts) on _____ (content topic or issue), write a/an _____ (essay or substitute) that argues your position on _____ (topic, issue, essential question). Support your position with evidence from research. Be sure to acknowledge competing views. Give examples from from past or current events issues to illustrate and clarify your position.

After researching **technical and academic articles on the use of pesticides in agriculture**, write a (**speech, blog, podcast, letter to editor**) that argues your position, pro or con, on the use of pesticides in managing crop production. Support your position with evidence from your research. Be sure to examine competing views. (Argumentation/Analysis)

After researching **scientific and technical sources on methods for preventing water shortages**, write a **proposal in which you identify a problem faced by communities in arid regions and argue for a solution to improve water availability.** Support your position with evidence from your research. Be sure to examine a competing view challenging your solution. Give an example from past or current events to illustrate and clarify your position. (Argumentation/Problem-Solution)

Creating Cornerstone Tasks: Idea Starters in Science

	<u>Task Ideas</u>
<p>Design and conduct an experiment to answer a question or explain phenomena.</p> <hr/> <p>Effectively use scientific tools to:</p> <ul style="list-style-type: none">o Observeo Collect datao Measureo Record datao Classifyo Draw conclusions	
<p>Evaluate scientific claims (e.g., XX brand of paper towels absorbs the most liquid of all the leading brands) or arguments.</p>	
<p>Critique experimental design or conclusions. (e.g., Chris thinks that Stain Remover B is more effective than A or C.)</p>	
<p>Analyze current issues involving science or technology. (e.g., Ethanol is the most cost-effective alternative fuel source.)</p>	
<p>Other: _____ _____</p>	

Creating Cornerstone Tasks: Idea Starters in Social Studies

	<u>Task Ideas</u>
<p>Evaluate historical claims or interpretations based on:</p> <ul style="list-style-type: none">o Primary source evidenceo Secondary source evidenceo Personal opinion	
<p>Critically analyze current events/ issues</p> <ul style="list-style-type: none">o Summarize/ compare key pointso Analyze causes and effectso Identify points of view and potential biaso Debate possible courses of action	
<p>Make predictions for current or future events or issues based on understanding of historical patterns.</p>	
<p>Make informed decisions using critical thinking and understanding of historical patterns.</p>	
<p>Act as a responsible citizen in a democracy (e.g., stay informed, study issues, participate in community events, express opinions respectfully, vote).</p>	
<p>Other: _____ _____</p>	

Creating Cornerstone Tasks: Idea Starters in Health and P.E. and the Arts

	<u>Task Ideas</u>
<p>Make healthful choices and decisions regarding diet, exercise, stress management, alcohol & drug use, etc.</p>	
<p>Engage in healthful activities and behaviors to promote wellness throughout one's life and encourage others to do so.</p>	
<p>Create artistic expressions through various forms:</p> <ul style="list-style-type: none">o Media (e.g., pastel, photography)o Genre (e.g., jazz music, modern dance)o Styles (e.g., impressionism, cubism)	
<p>Create artistic expressions for various audiences and purposes, including to:</p> <ul style="list-style-type: none">o Entertain (e.g., tell a story)o Evoke Emotiono Commemorateo Persuadeo Challenge (e.g., the status quo)	
<p>Respond to artistic expressions through:</p> <ul style="list-style-type: none">o Global understandingo Interpretationo Critical Stanceo Personal Connections	

Performance Task Examples

Examine the performance task vignettes on the following pages. What distinguishes these tasks from typical test “items”? What common features or characteristics do these share?

State Tour – (*History, Geography, Math, grades 5-8*)

A group of nine foreign students is visiting your school for one month as part of an international exchange program. (Don't worry, they speak English!) The principal has asked your class to plan and budget a four-day tour of [your state or region] to help the visitors understand the state's impact on the history and development of our nation. Plan your tour so that the visitors are shown sites that best capture the ways that [your state or region] has influenced our nation's development.

You should prepare a written tour itinerary, including an explanation of why each site was selected. Include a map tracing the route for the four-day tour and a budget for the trip.

Musical Score – (*Music, 3- HS*)

You have been chosen to select a repertoire of three to four songs for your chorus to perform at the retirement gala for Mrs. Jones (a beloved retiring teacher). Give your reasons for the songs you have chosen and for the performance sequence you propose.

Spot Remover – (*Science - secondary*)

Chris wants to decide which of two spot removers is best. First, he tried Spot Remover A on a T-shirt that had fruit stains and chocolate stains. Next, he he tried Spot Remover B on jeans that had grass stains and rust stains. Then he compared the results.

Explain what did Chris do wrong that will make it hard for him to know which spot remover is best. Redesign the experiment to help him determine the best spot remover.

Exchange Student – (*World Languages*)

You are an exchange student in a school in [insert name of country]. A local radio station will be interviewing exchange students to learn how they celebrate holidays in their home countries. You have been asked to speak about your favorite celebration back in the United States. To prepare for the interview, record a five-minute talk in [target language] which you offer a detailed description of the origin of this celebration and describe the major activities, foods, and special memories for your selected celebration.

Performance Task Examples

Burglar Alarm – (Science – upper elementary)

Since you have learned about electric circuits, you have been asked to design a prototype of a burglar alarm to be used in homes and public buildings. Using the equipment and materials provided (batteries, wires, bulbs, electric buzzers and bells; various “building” materials), design and construct a working model of a burglar alarm that would notify a building’s occupants of a “break in.” In addition to a working model, include a diagram of the circuit(s) used to explain how the alarm works.

See My World – (Visual Art – middle school)

You have recently analyzed the narrative work of Faith Ringgold to identify ways she communicated ideas about her world. Think about your own world – your family, friends, hobbies and interests, daily experiences, and the things that are important to you. Select a drawing or painting medium, or use mixed media to create your own narrative work that visually communicates personal ideas about your world.

Spot Remover – (*Science, middle school*)

Chris wants to decide which of two spot removers is best. First, he tried Spot Remover A on a T-shirt that had fruit stains and chocolate stains. Next, he he tried Spot Remover B on jeans that had grass stains and rust stains. Then he compared the results.

Explain what did Chris do wrong that will make it hard for him to know which spot remover is best. Redesign the experiment to help him determine the best spot remover.

Just Swinging Around – (*Physics*)

Your design team has been asked by the City Park Department to construct a model for a new playground near the elementary school. The playground will have swing sets and see-saws. For the safety of the children who will be using the playground equipment, you must design your swings so that they don’t swing too fast or “loop-the-loop “ over the top of the swing set.

Design and conduct an experiment to determine how the variables - length, mass, height of release - affect the rate of back-and-forth movement of a swing. Be prepared to present your findings, recommendations, and a demonstration to the City Park officials.

Source: A Tool Kit for Professional Developers: Alternative Assessment

Here I Come! (*Language Arts, elementary*)

Your principal has asked all students to write a letter to next year’s teacher to help the teacher prepare for the new class. Write a letter telling your new teacher about yourself as a learner. Be sure to tell what you find easy to learn, what is most difficult to learn, and how you learn best.

Performance Task Examples – Math

Examine the performance task vignettes on the following pages. What distinguishes these tasks from typical test “items”? What common features or characteristics do these share?

Painting a Schoolroom

When contractors give us an estimate on repairs, how can we know if the cost is reasonable? You have been asked by the Principal to review a painting contractor’s proposal to determine whether s/he is being overcharged. (Students are given room dimensions and cost figures for materials, labor, and a 20% profit.)

Examine the proposal and write a letter to the Principal providing your evaluation of the proposal. Be sure to show your calculations so that s/he will understand how you arrived at your conclusion.

Day Care Center Playground

You have been hired by a day care agency to fence in an area to be used for a play area. You have been provided with 60 feet of fencing (in 4’ sections) and a 4’ gate. How can you put up the fence so the children will have the maximum amount of space in which to play?

Submit your plan for the playground area. Include a diagram, your calculations, and an explanation of why this is the best design.

Find the Best Deal

Your friend has told you that he has just upgraded his cell phone plan with BS&S. The plan offers unlimited calls and texts for a fixed monthly fee. Your current plan is based on a price per call (in minutes) and text (mbs). He insists that his new plan is the best plan available and you should choose this same plan. Is he correct in his assumption that this is the best plan for you? Why or why not? Explain your position, cite your mathematical reasons, and show table(s)/graph(s) and equation(s) to support your recommendation.

A Model Solar System

A former NBA legend, Hoops McGinty, has pledged money to the local science museum for an exhibit on our solar system. He pledges the money under one condition: that a regulation NBA basketball be used to represent some aspect of the scale display and that other NBA-related shapes and sizes be used (e.g., a basketball be used to represent a planet or moon). The building floor space is 300 by 800 feet.

As designer, how do you propose that the main exhibit hall with a model of the solar system be built to scale? Prepare a diagram with accurate measurements drawn to scale. Show your work so that Hoops can follow your reasoning will select your design.

Performance Task Examples – E/LA

Mail-Order Friend – (*Language Arts, grades K-2*)

Imagine that you have an opportunity to “order” a friend by telephone from a mail-order catalog. Think about the qualities that you want in a friend. Before you “order” your friend over the telephone, practice asking for three characteristics that you want in a friend and give an example of each characteristic. Remember to speak clearly and loud enough so that the sales person will know exactly what to send.

We Salute You - (*Language Arts, Social Studies, grades 1-4*)

Our room mother, Mrs. _____, has done many things to help us throughout the year. When people do things for you, it is important to show appreciation. We will each write a letter to her to thank her and let her know how she has helped our class.

Your letter should include all the parts of a friendly letter. Be sure to tell Mrs. _____ at least three ways she has been helpful to our class. Include at least one thing that you especially appreciate about Mrs. _____.

Movie Mogul – (*Language Arts - secondary*)

Many movies and plays originated from published novels or short stories. Identify a novel or short story that you think would make an entertaining or thought-provoking film or play. Then, write a letter or e-mail to a movie or theater producer to persuade them to hire you to develop the screenplay. Explain why you think this would be a successful film/play, suggest the actors to play the key roles, and include a sample scene to display your writing talent.

How-To Guide – (*E/LA; may include other content areas*)

Since you are an accomplished user of _____ software (e.g., iMovie, Google Docs), you have been asked to develop a User’s Guide or Tutorial to help _____ (e.g., fellow students, adults) learn to use it. Provide clear step-by-step directions for using specific features and include a Trouble-Shooting Guide for common problems that beginning users may encounter.

What’s Wrong with Holden? – (*English - High School*)

You are a member of Holden Caulfield’s case-review committee at the hospital from which Holden is telling his story. Your task is to write: 1) a diagnostic report for the hospital OR 2) a letter to Holden’s parents explaining what’s wrong with him.

Support your analysis by citing Holden’s own words and actions from the text.

Constructing a Performance Task Scenario using G.R.A.S.P.S.

Consider the following set of stem statements as you construct a scenario for a performance task. Refer to the previous idea sheets to help you brainstorm possible scenarios. (Note: These are idea starters. Resist the urge to fill in all of the blanks.)

Goal :

- Your task is _____
- The goal is to _____
- The problem/challenge is _____
- The obstacle(s) to overcome is (are) _____

Role:

- You are _____
- You have been asked to _____
- Your job is _____

Audience:

- Your client(s) is (are) _____
- The target audience is _____
- You need to convince _____

Situation:

- The context you find yourself in is _____
- The challenge involves dealing with _____

Product/Performance and Purpose:

- You will create a _____
in order to _____
- You need to develop _____
so that _____

Standards & Criteria for Success:

- Your performance needs to _____
- Your work will be judged by _____
- Your product must meet the following standards _____
- A successful result will _____

Constructing a Performance Task Scenario

G.R.A.S.P.S. example

Goal:

- **The goal (within the scenario) is to minimize costs for shipping bulk quantities of M&Ms.**

Role:

- **You are an engineer in the packaging department of the M&M Candy Company.**

Audience:

- **The target audience is non-engineer company executives.**

Situation:

- **You need to convince penny-pinching company officers that your container design will provide cost-effective use of the given materials, maximize shipping volume of bulk quantities of M&Ms, and be safe to transport.**

Product/Performance and Purpose:

- **You need to design a shipping container from given materials for the safe and cost-effective shipping of the M&Ms. Then you will prepare a written proposal in which you include a diagram and show mathematically how your container design provides effective use of the given materials and maximizes the shipping volume of the M&Ms.**

Standards & Criteria for Success:

- **Your container proposal should...**
 - provide cost-effective use of the given materials
 - maximize shipping volume of bulk quantities of M&Ms
 - be safe to transport
- **Your models must make the mathematical case.**

Constructing a Performance Task Scenario

G.R.A.S.P.S. example

Goal:

- **Your goal is to help a group of foreign visitors understand the key historic, geographic and economic features of our region.**

Role:

- **You are an intern at the Regional Office of Tourism.**

Audience:

- **The audience is a group of nine foreign visitors (who speak English).**

Situation:

- **You have been asked to develop a plan, including a budget, for a four-day tour of the region. Plan your tour so that the visitors are shown sites that best illustrate the key historical, geographic and economic features of our region.**

Product/Performance and Purpose:

- **You need to prepare a written tour itinerary and a budget for the trip. You should include an explanation of why each site was selected and how it will help the visitors understand the key historic, geographic and economic features of our region. Include a map tracing the route for the tour.
[Optional: Provide a budget for the trip.]***

Standards & Criteria for Success:

- **Your proposed tour plan needs to include...**
 - an itinerary and route map
 - the key historical, geographic and economic features of the region
 - a clear rationale for the selected sites
 - *- accurate and complete budget figures

Possible STUDENT ROLES and AUDIENCES

KEY: ROLES = R and AUDIENCES = A

- | | | |
|--|--|--|
| <input type="checkbox"/> actor | <input type="checkbox"/> family member | <input type="checkbox"/> pilot |
| <input type="checkbox"/> advertiser | <input type="checkbox"/> farmer | <input type="checkbox"/> playwright |
| <input type="checkbox"/> artist/illustrator | <input type="checkbox"/> filmmaker | <input type="checkbox"/> poet |
| <input type="checkbox"/> author | <input type="checkbox"/> firefighter | <input type="checkbox"/> policeman/woman |
| <input type="checkbox"/> biographer | <input type="checkbox"/> forest ranger | <input type="checkbox"/> pollster |
| <input type="checkbox"/> board member | <input type="checkbox"/> friend | <input type="checkbox"/> radio listener |
| <input type="checkbox"/> boss | <input type="checkbox"/> geologist | <input type="checkbox"/> reader |
| <input type="checkbox"/> boy/girl scout | <input type="checkbox"/> government official | <input type="checkbox"/> reporter |
| <input type="checkbox"/> businessperson | <input type="checkbox"/> historian | <input type="checkbox"/> researcher |
| <input type="checkbox"/> candidate | <input type="checkbox"/> historical figure | <input type="checkbox"/> reviewer |
| <input type="checkbox"/> carpenter | <input type="checkbox"/> illustrator | <input type="checkbox"/> sailor |
| <input type="checkbox"/> cartoon character | <input type="checkbox"/> intern | <input type="checkbox"/> school official |
| <input type="checkbox"/> cartoonist | <input type="checkbox"/> interviewer | <input type="checkbox"/> scientist |
| <input type="checkbox"/> caterer | <input type="checkbox"/> inventor | <input type="checkbox"/> ship's captain |
| <input type="checkbox"/> celebrity | <input type="checkbox"/> judge | <input type="checkbox"/> social scientist |
| <input type="checkbox"/> chairperson | <input type="checkbox"/> jury | <input type="checkbox"/> social worker |
| <input type="checkbox"/> chef/cook | <input type="checkbox"/> lawyer | <input type="checkbox"/> statistician |
| <input type="checkbox"/> choreographer | <input type="checkbox"/> library patron | <input type="checkbox"/> storyteller |
| <input type="checkbox"/> CEO | <input type="checkbox"/> literary critic | <input type="checkbox"/> student |
| <input type="checkbox"/> coach | <input type="checkbox"/> lobbyist | <input type="checkbox"/> taxi driver |
| <input type="checkbox"/> community members | <input type="checkbox"/> meteorologist | <input type="checkbox"/> teacher |
| <input type="checkbox"/> composer | <input type="checkbox"/> museum director/
curator | <input type="checkbox"/> t.v. viewer |
| <input type="checkbox"/> clients/customer | <input type="checkbox"/> museum goer | <input type="checkbox"/> tour guide |
| <input type="checkbox"/> construction worker | <input type="checkbox"/> neighbor | <input type="checkbox"/> trainer |
| <input type="checkbox"/> dancer | <input type="checkbox"/> newscaster | <input type="checkbox"/> travel agent |
| <input type="checkbox"/> designer | <input type="checkbox"/> novelist | <input type="checkbox"/> traveler |
| <input type="checkbox"/> detective | <input type="checkbox"/> nutritionist | <input type="checkbox"/> t.v./movie
character |
| <input type="checkbox"/> editor | <input type="checkbox"/> panelist | <input type="checkbox"/> tutor |
| <input type="checkbox"/> elected official | <input type="checkbox"/> parent | <input type="checkbox"/> viewer |
| <input type="checkbox"/> embassy staff | <input type="checkbox"/> park ranger | <input type="checkbox"/> visitor |
| <input type="checkbox"/> engineer | <input type="checkbox"/> pen pal | <input type="checkbox"/> website designer |
| <input type="checkbox"/> expert (in _____) | <input type="checkbox"/> photographer | <input type="checkbox"/> zoo keeper |
| <input type="checkbox"/> eye witness | | |

Possible Products and Performances

What student **product(s)** and/or **performance(s)** will provide appropriate evidence of understanding and/or proficiency? The following lists offer possibilities. (Remember that student products and performances should be framed by an explicit purpose or goal and an identified audience.)

Written	Oral	Visual
<input type="checkbox"/> advertisement	<input type="checkbox"/> audiotape	<input type="checkbox"/> advertisement
<input type="checkbox"/> biography	<input type="checkbox"/> conversation	<input type="checkbox"/> banner
<input type="checkbox"/> blog	<input type="checkbox"/> debate	<input type="checkbox"/> book/CD cover
<input type="checkbox"/> book report/review	<input type="checkbox"/> discussion	<input type="checkbox"/> cartoon
<input type="checkbox"/> brochure	<input type="checkbox"/> dramatization	<input type="checkbox"/> collage
<input type="checkbox"/> crossword puzzle	<input type="checkbox"/> dramatic reading	<input type="checkbox"/> computer graphic
<input type="checkbox"/> editorial	<input type="checkbox"/> infomercial	<input type="checkbox"/> data display
<input type="checkbox"/> essay	<input type="checkbox"/> interview	<input type="checkbox"/> design
<input type="checkbox"/> field guide	<input type="checkbox"/> radio script	<input type="checkbox"/> diagram
<input type="checkbox"/> historical fiction	<input type="checkbox"/> oral presentation	<input type="checkbox"/> display
<input type="checkbox"/> journal	<input type="checkbox"/> oral report	<input type="checkbox"/> drawing
<input type="checkbox"/> lab report	<input type="checkbox"/> poetry reading	<input type="checkbox"/> Face Book/My Space page
<input type="checkbox"/> letter	<input type="checkbox"/> podcast	<input type="checkbox"/> flowchart
<input type="checkbox"/> log	<input type="checkbox"/> puppet show	<input type="checkbox"/> flyer
<input type="checkbox"/> magazine article	<input type="checkbox"/> rap	<input type="checkbox"/> game
<input type="checkbox"/> memo	<input type="checkbox"/> skit	<input type="checkbox"/> graph
<input type="checkbox"/> newscast	<input type="checkbox"/> speech	<input type="checkbox"/> map
<input type="checkbox"/> newspaper article	<input type="checkbox"/> song	<input type="checkbox"/> model
<input type="checkbox"/> play	<input type="checkbox"/> teach a lesson	<input type="checkbox"/> Power Point show
<input type="checkbox"/> poem		<input type="checkbox"/> photograph(s)
<input type="checkbox"/> position paper/ policy brief	<input type="checkbox"/> other: _____	<input type="checkbox"/> questionnaire
<input type="checkbox"/> proposal	<input type="checkbox"/> other: _____	<input type="checkbox"/> painting
<input type="checkbox"/> research report		<input type="checkbox"/> poster
<input type="checkbox"/> screen play		<input type="checkbox"/> scrapbook
<input type="checkbox"/> script		<input type="checkbox"/> sculpture
<input type="checkbox"/> story		<input type="checkbox"/> storyboard
<input type="checkbox"/> test		<input type="checkbox"/> videotape
<input type="checkbox"/> Tweet		<input type="checkbox"/> web site

Considering Student Interests

Primary Grades (pre-K – 2)

- animals/pets
- cartoons
- characters (in books, on t.v., etc.)
- community helpers
- dinosaurs
- five senses
- holidays
- planets/outer space

- plants
- seasons
- sharks
- weather/snow
- zoo

Other:

- _____

Intermediate Grades (3 – 5)

- archaeology
- books/literature
- computers - games
- disasters
- famous people
- friends
- games
- geography

- movies
- mysteries
- outer space
- sports
- television/t.v. shows
- video games

Other:

- _____

Middle School (6 – 8)

- amusement parks
- cell phones
- clothing/fashion
- computers – games, e-mail, IM
- disasters
- friends
- games
- jobs/earning money

- music/musical groups
- movies
- science fiction
- shopping
- sports
- television/t.v. shows
- video games

Other:

- _____

High School (9 – 12)

- automobiles
- careers
- cell phones
- clothing/fashion
- colleges
- computers – games, e-mail, IM
- dating/romance
- friends

- music/musical groups
- jobs/earning money
- shopping
- sports
- travel
- vacations
- video games

Other:

- _____

Task Variables

The following variables could be considered when designing learning and performance tasks. The desired results, nature and needs of the students, the teacher's style, available resources (time, supplies, equipment, funds) and classroom feasibility.

Student Choice – To what extent will students have choices regarding the following?

- task topic task activities process for completing task
 product(s)/performance(s) audience(s)

Access to Resources – Will all resources needed (information, supplies, equipment) be provided? To what extent will students be expected to gather information, provide their own supplies/equipment, etc.?

- all necessary information/ resources provided other: _____

Performance Mode – How will students work?

- individually pair/group (optional) pair/group (required)

Audience(s) for Student Product(s)/Performance(s) – To whom will students present their products and performances?

- teacher other school staff expert(s) parents/community
 peers (in class) other students other: _____

Time Frame – How long will students be involved in this task? Include time for presentations and evaluations.

- 1 – 2 class periods 3 – 5 periods other:

Degree of Scaffolding – To what degree will students be provided with instructional support (scaffolding) as they work on the task?

- no support some support, as needed extensive support

Evaluation of Student Product(s)/Performance(s) – Who will be involved in evaluating student products and performances?

- teacher other staff expert judge(s) external scorers
 student (self evaluation) peers other: _____

Reviewing for Bias/Sensitivity

Consider the following questions when developing or reviewing performance assessment tasks for 1) racial/ethnic, religious, cultural, or gender biases, and 2) sensitive or controversial issues that may be offensive to students, staff, or parents.

Language Bias

Do the task activities and materials:

- use language that has the same basic semantic content for all persons regardless of race, gender, ethnicity, age, sexual orientation, or physical or mental condition?
- avoid emotionally loaded language that reinforces biases?
- avoid potentially negative or pejorative labeling of individuals or groups?
- use names that connote a broad balance of national origins and present names of both sexes in both traditional and non-traditional roles?

Stereotyping

Do the task activities and materials avoid:

- stating or implying that a population group has a genetic deficit or surplus in some area of intellect, talent, or ability?
- suggesting that a population group is deserving of a particular fate?
- making a causal link between membership in a particular population group and poverty, crime, intelligence, physical talents, work ethic, etc.?

Do the task activities and materials:

- represent men/women, younger/older persons, religious, ethnic, and racial minorities, and persons with disabilities in many different environments and occupations, and in roles of diverse status and power?
- depict people with disabilities as productive members of society?
- show people with disabilities interacting positively in a variety of interpersonal relationships; do not show them always being helped by others?

Sensitive Topics

Do the task activities or materials avoid the following sensitive, controversial, offensive, or inappropriate topics?

- Abortion
- Birth Control/Condoms
- Child Abuse/Child Neglect
- Death
- Divorce
- Drugs/Alcohol
- Family Problems
- Ghosts/Spirits
- Guns/Gun Laws
- Homelessness
- Homosexuality
- Incest
- Murder
- Pregnancy
- Racism
- Rape
- Religion
- Religious Holidays
- Sex/Sexuality/Same Sex marriage
- Sexually Transmitted Disease
- Suicide
- Violence

Do the task activities or materials:

- avoid presenting one-sided perspectives on sensitive topics such as religion, politics, the family, environment, etc.?
- avoid inaccurate or unrealistic portrayals of historical or contemporary life?

References for Bias/Sensitivity Reviews

Bias and Sensitivity Guidelines, Smarter Balanced Assessment Consortium

Bias Issues in Test Development, National Evaluation Systems, Inc.

Guidelines to Ensure a Multicultural Perspective, Maryland State Department of Education

Guidelines for Bias-Free Publishing, McGraw-Hill Book Company

Policies and Procedures for Evaluation and Selection of Instructional Materials, Maryland State Department of Education

Promoting Bias-Free Curriculum Materials, New York City Board of Education

English Language Arts – Cornerstone Performance Tasks

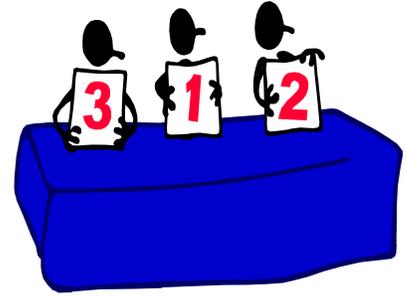
GRADE	WRITTEN	ORAL	INTERACTIVE
Nursery	Vocabulary	Vocabulary	Vocabulary
Pre Kinder	Letters Aa-Cc	Letter Rr Song	Ocean Vocabulary
Kinder	Landforms Book	Show and Tell	Around the World
Grade 1	Kinder Kid Advice Paragraph	Community Helper Presentation Poetry Day	Landforms Map
Grade 2	Personal Feeling Narrative	Animal Habitat Wax Museum	Book Reports
Grade 3	Personal Narrative Book Project	Poetry Presentations Poetry Rubric	Demonstration Speech-How to
Grade 4	Character Traits and Setting	Debate- How can we help save our planet Climate Change	Games - Book Clubs Book Club Discussion
Grade 5	Research Report on Famous Explorer	Song Writing Performance Rubric Rubric	Build a Memorial to Honor a Great Leader Rubric Rubric
Grade 6	Personal Writing: 6+1 Trait of IDEAS (Balloon Project)	Modified IOC: Partner Oral Commentary and Analysis	Olympian Letter Writing
Grade 7	Autobiographical Essay	Authors' Party Presentations	Informational Text Page
Grade 8	Literary Analysis Rubric	Problem Solution Campaign	Research-Informational Text
Grade 9	Greek Myths	1930s South PPT Presentations	Romeo & Juliet Performance
Grade 10	Investigative Research Report	Group Song Analysis	Native American/Puritan Peace Treaty Debate
Grade 11	Language and Mass Communication	Further Oral Activity	Filming Scene from <i>Much Ado About Nothing</i>
Grade 12	Literary Magazine or Newspaper	Research Oral Presentations	Courtroom Trial

Cornerstone Assessments in Writing (6-12)

GREECE CENTRAL SCHOOL DISTRICT, NY

GRADE	Expository	Persuasive	Literary Analysis	Creative/ Expressive
Grade 6	Research report	Position paper	Literary essay on setting or conflict	Original myth
Grade 7	Autobiography	Policy evaluation	Literary essay on character	Persona writing
Grade 8	Research report	Problem/solution essay	Literary essay on symbolism	Narrative fiction
Grade 9	Cause/effect essay	Editorial	Analysis of multiple literary elements	Poetry
Grade 10	Research report	Social issue essay	Critical Lens essay	Historical Persona
Grade 11	Definition essay	Argumentative essay	Comparative genre essay	Parody/satire
Grade 12	Research paper	Position paper	Response to literary criticism	Irony

RUBRICS



Definition

Rubrics are criterion-based evaluation tools used in conjunction with “open-ended” performance tasks and projects, which do not have a single, “correct” answer or solution process.

Two general types of rubrics – holistic and analytic – are widely used to judge student products and performances. A holistic rubric provides an overall impression of a student’s work. Holistic rubrics yield a *single* score or rating for a product or performance. An analytic rubric divides a product or performance into distinct traits or dimensions and judges each separately. Since an analytic rubric rates each of the identified traits independently, a separate score is provided for each.

A third type of rubric -- longitudinal -- describes growth along a fixed, novice-expert continuum, in which each level represents a key benchmark on the road to exit-level performance. These longitudinal rubrics provide a basis for designing backward from mastery performance so that teachers and learners at all levels know where they stand along a developmental continuum against exit-level performance goals. Longitudinal rubrics are not tied to any particular performance or assessment task. Rather, they enable teachers, parents, and learners to chart progress toward desired accomplishments.

Purpose

Effective rubrics:

- clearly define criteria for judging student performance;
- promote more consistent evaluation of student performance;
- help clarify instructional goals and serve as teaching targets;
- provide specific feedback to learners and teachers;
- help students focus on the important dimensions of a product or performance;
- support criterion-based assessment

Note: The criteria within a rubric should be directly linked to the targeted outcomes in Stage 1, and not simply focus on the surface features of products or performances.

Performance List for Graphic Display of Data (elementary level)

Key Criteria	Points Possible	Self	Other	Teacher
1. The graph contains a title that tells what the data shows.	<input type="text"/>	_____	_____	_____
2. All parts of the graph (units of measurement, rows, etc.) are correctly labelled.	<input type="text"/>	_____	_____	_____
3. All data is accurately represented on the graph.	<input type="text"/>	_____	_____	_____
4. The graph is neat and easy to read.	<input type="text"/>	_____	_____	_____
Total	<input type="text"/>	_____	_____	_____

Performance lists offer a practical means of judging student performance based upon identified criteria. A performance list consists of a set of criterion elements or traits and a rating scale. The rating scale is quite flexible, ranging from 3 to 100 points.

Teachers can assign points to the various elements, in order to “weight” certain elements over others (e.g., accuracy counts more than neatness) based on the relative importance given the achievement target. The lists may be configured to easily convert to conventional grades. For example, a teachers could assign point values and weights that add up to 25, 50 or 100 points, enabling a straightforward conversion to a district or school grading scale (e.g., 90-100 = A, 80-89 = B, and so on). When the lists are shared with students in advance, they provide a clear performance target, signaling to students what elements should be present in their work.

Despite these benefits, performance lists do not provided detailed descriptions of *performance levels*. Thus, despite identified criteria, different teachers using the same performance list may rate the same student’s work quite differently.

Performance List for Writing Fiction

Primary Level

	Terrific	O.K.	Needs Work
1. I have an interesting setting and characters for my story.			
2. The problem in my story will be clear to my readers.			
3. My story events are in order.			
4. The solution will be clear to my readers.			
5. I used many describing words to tell what is happening.			
6. My words “paint a picture.”			
7. I have a title that goes with my story.			

What will you try to do better the next time you write a story?

Holistic Rubric for Graphic Display of Data

3	All data is accurately represented on the graph. All parts of the graph (units of measurement, rows, etc.) are correctly labelled. The graph contains a title that clearly tells what the data shows. The graph is very neat and easy to read.
2	All data is accurately represented on the graph OR the graph contains minor errors. All parts of the graph are correctly labelled OR the graph contains minor inaccuracies. The graph contains a title that suggests what the data shows. The graph is generally neat and readable.
1	The data is inaccurately represented, contains major errors, OR is missing. Only some parts of the graph are correctly labelled OR labels are missing. The the title does not reflect what the data shows OR the title is missing. The graph is sloppy and difficult to read.

A holistic rubric provides an overall impression of a student’s work. Holistic rubrics yield a *single* score or rating for a product or performance. Holistic rubrics are well suited to judging simple products or performances, such as a student’s response to an open-ended test prompt. They provide a quick snapshot of overall quality or achievement, and are thus often used in large-scale assessment contexts (national, state or district levels) to evaluate a large number of student responses. Holistic rubrics are also effective for judging the “impact” of a product or performance (e.g., to what extent was the essay persuasive? did the play entertain?).

Despite these advantages, holistic rubrics have limitations. They do not provide a detailed analysis of the strengths and weaknesses of a product or performance. Since a single score is generally inadequate for conveying to students what they have done well and what they need to work on to improve, they are less effective at providing specific feedback to students.

A second problem with holistic rubrics relates to the interpretation and use of their scores. For instance, two students can receive the same score for vastly different reasons. Does an overall rating of “3” on a 4-point holistic writing rubric mean that a student has demonstrated strong idea development (“4”) and weak use of conventions (“2”), or vice-versa? Without more specific feedback than a score or rating, it is difficult for the student to know exactly what to do to improve.

Holistic Rubric for Reading – Comprehension of Key Ideas and Details (grades 4-5)

Score Point 3

The student response an accurate analysis of what the text says explicitly and inferentially and references the text explicitly to support the analysis, showing full comprehension of complex ideas expressed in the text(s).

Score Point 2

The student response provides a mostly accurate analysis of what the text says explicitly and inferentially and references the text to support the analysis, showing comprehension of ideas expressed in the text(s).

Score Point 1

The student response provides a minimally accurate analysis of what the text says and may reference the text showing limited comprehension of ideas expressed in the text(s).

Score Point 0

The student response provides an inaccurate analysis or no analysis of the text, showing little to no comprehension of ideas expressed in the text(s).

Source: PARCC –Partnership for Assessment of Readiness for College and Careers

Analytic Rubric for Graphic Display of Data

	title	labels	accuracy	neatness
weights –				
3	The graph contains a title that clearly tells what the data shows. <input type="checkbox"/>	All parts of the graph (units of measurement, rows, etc.) are correctly labelled. <input type="checkbox"/>	All data is accurately represented on the graph. <input type="checkbox"/>	The graph is very neat and easy to read. <input type="checkbox"/>
2	The graph contains a title that suggests what the data shows. <input type="checkbox"/>	Some parts of the graph are inaccurately labelled. <input type="checkbox"/>	Data representation contains minor errors. <input type="checkbox"/>	The graph is generally neat and readable. <input type="checkbox"/>
1	The the title does not reflect what the data shows OR the title is missing. <input type="checkbox"/>	Only some parts of the graph are correctly labelled OR labels are missing. <input type="checkbox"/>	The data is inaccurately represented, contains major errors, OR is missing. <input type="checkbox"/>	The graph is sloppy and difficult to read. <input type="checkbox"/>

An analytic rubric divides a product or performance into distinct traits or dimensions and judges each separately. Since an analytic rubric rates each of the identified traits independently, a separate score is provided for each.

Analytic rubrics are better suited to judging complex performances (e.g., research process) involving several significant dimensions. As evaluation tools, they provide more specific information or feedback to students, parents and teachers about the strengths and weaknesses of a performance. Teachers can use the information provided by analytic evaluation to target instruction to particular areas of need. From an instructional perspective, analytic rubrics help students come to better understand the nature of quality work since they identify the important dimensions of a product or performance.

However, analytic rubrics are typically more time-consuming to learn and apply. Since there are several traits to be considered, analytic scoring may yield lower inter-rater reliability (degree of agreement among different judges) than holistic scoring. Thus, analytic scoring may be less desirable for use in large-scale assessment contexts, where speed and reliability are necessary.

Analytic Rubric for Problem Solving

	Reasoning	Computation	Representation	Communications
4	An efficient and effective strategy is used and progress towards a solution is evaluated. Adjustments in strategy, if needed, are made, and/or alternative strategies are considered. There is sound mathematical reasoning throughout.	All computations are performed accurately and completely. There is evidence that computations are checked. A correct answer is obtained.	Abstract or symbolic mathematical representations are constructed and refined to analyze relationships, clarify or interpret the problem elements, and guide solutions.	Communication is clear, complete and appropriate to the audience and purpose. Precise mathematical terminology and symbolic notation are used to communicate ideas and mathematical reasoning.
3	An effective strategy is used and mathematical reasoning is sound.	Computations are generally accurate. Minor errors do not detract from the overall approach. A correct answer is obtained once minor errors are corrected.	Appropriate and accurate mathematical representations are used to interpret and solve problems.	Communication is generally clear. A sense of audience and purpose is evident. Some mathematical terminology is used to communicate ideas and mathematical reasoning.
2	A partially correct strategy is used, or a correct strategy for only solving part of the task is applied. There is some attempt at mathematical reasoning, but flaws in reasoning are evident.	Some errors in computation prevent a correct answer from being obtained.	An attempt is made to construct mathematical representations, but some are incomplete or inappropriate.	Communication is uneven. There is only a vague sense of audience or purpose. Everyday language is used or mathematical terminology is not always used correctly.
1	No strategy is used, or a flawed strategy is tried that will not lead to a correct solution. There is little or no evidence of sound mathematical reasoning.	Multiple errors in computation are evident. A correct solution is not obtained.	No attempt is made to construct mathematical representations or the representations are seriously flawed.	Communication is unclear and incomplete. There is no awareness of audience or purpose. The language is imprecise and does not make use of mathematical terminology.

Source: Jay McTighe, adapted from Exemplars.com

Common Analytic Speaking Rubric for World Languages

	Comprehensibility	Fluency	Pronunciation	Vocabulary	Language Control
4	Responses readily comprehensible, requiring no interpretation on the part of the listener.	Speech continuous with few pauses or stumbling.	Accurate pronunciation enhances communication.	Rich use of vocabulary enhances communication.	Accurate control of basic language structures.
3	Responses comprehensible, requiring minimal interpretation on the part of the listener.	Some hesitation but manages to continue and complete thoughts.	Infrequent mispronunciations do not interfere with communication.	Adequate and accurate use of vocabulary for this level enhances communication.	Generally accurate control of basic language structures.
2	Responses mostly comprehensible, requiring interpretation on the part of the listener.	Speech choppy and/or slow with frequent pauses; few or no incomplete thoughts.	Mispronunciations sometimes interfere with communication.	Inadequate and/or inaccurate use of vocabulary sometimes interferes w/ communication.	Emerging use of basic language structures.
1	Responses barely comprehensible.	Speech halting and uneven with long pauses or incomplete thoughts.	Frequent mispronunciations greatly interfere with communication.	Inadequate and/or inaccurate use of vocabulary greatly interferes with communication.	Inadequate and/or inaccurate use of basic language structures.

Source: Fairfax County, VA Public Schools <http://www.fcps.edu/DIS/OHSICS/forlang/PALS/rubrics/>

Generic Rubric for 21st Century Skills

COLLABORATION and TEAMWORK

Works towards the achievement of group goals.

- 4 Actively helps identify group goals and works hard to meet them.
- 3 Communicates commitment to the group goals and effectively carries out assigned roles.
- 2 Communicates a commitment to the group goals but does not carry out assigned roles.
- 1 Does not work toward group goals or actively works against them.

Demonstrates effective interpersonal skills.

- 4 Actively promotes effective group interaction and the expression of ideas and opinions in a way that is sensitive to the feelings and knowledge base of others.
- 3 Participates in group interaction without prompting. Expresses ideas and opinions in a way that is sensitive to the feelings and knowledge base of others.
- 2 Participates in group interaction with prompting or expresses ideas and opinions without considering the feelings and knowledge base of others.
- 1 Does not participate in group interaction, even with prompting, or expresses ideas and opinions in a way that is insensitive to the feelings or knowledge base of others.

Contributes to group maintenance.

- 4 Actively helps the group identify changes or modifications necessary in the group process and works toward carrying out those changes.
- 3 Helps identify changes or modifications necessary in the group process and works toward carrying out those changes.
- 2 When prompted, helps identify changes or modifications necessary in the group process, or is only minimally involved in carrying out those changes.
- 1 Does not attempt to identify changes or modifications necessary in the group process, even when prompted, or refuses to work toward carrying out those changes.

Effectively performs a variety of roles within a group.

- 4 Effectively performs multiple roles within the group.
- 3 Effectively performs two roles within the group.
- 2 Makes an attempt to perform more than one role within the group but has little success with secondary roles.
- 1 Rejects opportunities or requests to perform more than one role in the group.

Source: Marzano, B., Pickering, D. and McTighe, J. (1993) *Assessing Outcomes: Performance Assessment based on the Dimensions of Learning Model*. Alexandria, VA: ASCD.

Generic Rubric for 21st Century Skills

INFORMATION GATHERING and PROCESSING

Effectively uses a variety of information-gathering techniques and information resources.

- 4 Uses the important information-gathering techniques and information resources necessary to complete the task. Identifies little-known information resources or uses unique information-gathering techniques.
- 3 Uses the important information-gathering techniques and information resources necessary to complete the task.
- 2 Fails to use some significant information-gathering techniques and information resources necessary to complete the task.
- 1 Fails to use the most important information-gathering techniques or the major information resources necessary to complete the task.

Effectively interprets and synthesizes information.

- 4 Interprets the information gathered for a task in accurate and highly insightful ways. Provides a highly creative and unique synthesis of the information.
- 3 Accurately interprets information gathered for a task and concisely synthesizes it.
- 2 Makes significant errors in interpreting the information gathered for a task or synthesizes the information imprecisely or awkwardly.
- 1 Grossly misinterprets the information gathered for the task or fails to synthesize it.

Accurately assesses the value of information.

- 4 Analyzes information in detail, accurately and insightfully determining whether it is credible and relevant to a specific task.
- 3 Accurately determines whether information is credible and relevant to a specific task.
- 2 Makes some significant errors in determining whether information is credible and relevant to a specific task.
- 1 Makes little or no attempt to determine whether information is credible and relevant to a specific task or totally misjudges the relevance and credibility of information.

Recognizes where and how projects would benefit from additional information.

- 4 Insightfully determines the types of information that will benefit a task and effectively seeks out that information.
- 3 Accurately assesses a task to identify areas requiring additional information for clarification or support and seeks out the needed information.
- 2 Does not accurately assess the information needs of the task or fails to seek out needed information.
- 1 Makes little or no attempt to assess whether a task would benefit from additional information.

Source: Marzano, B., Pickering, D. and McTighe, J. (1993) *Assessing Outcomes: Performance Assessment based on the Dimensions of Learning Model*. Alexandria, VA: ASCD.

Task-Specific Rubric for a Science Investigation

Item 1 - Plan investigation (total possible points: 2)

- a) describes how the investigation will be conducted
- b) states what variables will be measured or observed; includes both solution time and temperature
- c) design provides control for other variables, or renders other variables irrelevant

Item 2 - Conduct investigation and record measurements in table

Response is scored for both the quality of the presentation and the quality of the data collection.

Quality of presentation (total possible points: 2)

- a) presents at least 2 sets of measurements in table.
- b) measurements are paired: dissolution time and temperature.
- c) labels table appropriately: data entries in columns identified by headings and/or units; units incorporated into headings or placed beside each measurement.

Quality of data (total possible points: 3)

- a) records solution time for at least three temperature points
- b) measurements are plausible: time and temperature (109 to 100 degrees)
- c) records solution times that decline as temperature increases

Item 3 - Draw conclusions about effect of temperature (total possible points: 2)

- a) conclusion is consistent with data table or other presentation of data
- b) describes relationship presented in the data

Item 4 - Explain conclusions (total possible points: 2)

- a) relates higher temperature to greater energy or speed of particles (atoms, molecules, etc.).
- b) makes connection between greater speed or energy of water molecules and the effect on the tablet (may be implicit).

Source: *Third International Mathematics and Science Study (TIMMS)*

Creating Task-Specific Rubrics from Generic

Generic Rubric for Declarative Knowledge (understanding)

- 4 Demonstrates a thorough understanding of the generalizations, concepts, and facts specific to the task or situation and provides new insights into some aspect of this information.
- 3 Displays a complete and accurate understanding of the generalizations, concepts, and facts specific to the task or situation.
- 2 Displays an incomplete understanding of the generalizations, concepts, and facts specific to the task or situation and has some notable misconceptions.
- I Demonstrates severe misconceptions about the generalizations, concepts, and facts specific to the task or situation.

Content Standard - *Understands how basic geometric shapes are used in the planning of well-organized communities.*

Task-Specific Rubric in Mathematics

- 4 Demonstrates a thorough understanding of how basic geometric shapes are used in the planning of well-organized communities and provides new insights into some aspect of their use.
- 3 Displays a complete and accurate understanding of how geometric shapes are used in the planning of well-organized communities.
- 2 Displays an incomplete understanding of how basic geometric shapes are used in the planning of well-organized communities and has some notable misconceptions about their use.
- 1 Has severe misconceptions about how basic geometric shapes are used in the planning of well-organized communities.

Source: Marzano, R., Pickering, D. and McTighe, J. (1993). *Assessing Outcomes: Performance Assessment Using the Dimensions of Learning Model*. Alexandria, VA: ASCD

Four Categories of Criteria

Content – refers to the appropriateness and relative sophistication of the understanding, knowledge and skill employed.

Quality – refers to the overall quality, craftsmanship and rigor of the work.

Process – refers to the quality and appropriateness of the procedures, methods, and approaches used, prior to and during performance.

Result – refers to the impact, success or effectiveness of performance, given the purpose(s) and audience.

Example – Cooking a Meal

Here is an example in which all four types of criteria might be used to evaluate a meal in nine different ways:

Content

1. meal reflects knowledge of food, cooking, situation, and diners' needs and tastes
2. meal contains the appropriate, fresh ingredients
3. meal reflects sophisticated flavors and pairings

Quality

4. meal is presented in aesthetically appealing manner
5. all dishes are cooked to taste

Process

6. meal is efficiently prepared, using appropriate techniques
7. the two cooks collaborated effectively

Result

8. meal is nutritious
9. meal is pleasing to all guests

NOTE: While these four categories reflect common types of criteria, we do not mean to suggest that you must use all four types for each and every performance task. Rather, you should select the criterion types that are appropriate for the goals being assessed through the task and for which you want to provide feedback to learners.

Four Categories of Criteria

Content – refers to the appropriateness and relative sophistication of the understanding, knowledge and skill employed.

- *Was the work accurate?*
- *Did the product reveal deep understanding?*
- *Were the answers appropriately supported?*
- *Was the work thorough?*
- *Were the arguments of the essay cogent?*
- *Was the hypothesis plausible and on target?*
- *In sum: Was the content appropriate to the task, accurate, and supported?*

Quality – refers to the overall quality, craftsmanship and rigor of the work.

- *Was the speech organized?*
- *Was the paper mechanically sound?*
- *Was the chart clear and easy to follow?*
- *Did the story build and flow smoothly?*
- *Was the dance graceful?*
- *Were the graphics original?*
- *In sum: Was the performance or product of high quality?*

Process – refers to the quality and appropriateness of the procedures, methods, and approaches used, prior to and during performance.

- *Was the performer methodical?*
- *Was proper procedure followed?*
- *Was the planning efficient and effective?*
- *Did the reader/problem solver employ apt strategies?*
- *Did the group work collaboratively and effectively?*
- *In sum: Was the approach sound?*

Result – refers to the impact, success or effectiveness of performance, given the purpose(s) and audience.

- *Was the desired result achieved?*
- *Was the problem solved?*
- *Was the client satisfied?*
- *Was the audience engaged and informed?*
- *Was the dispute resolved?*
- *Did the speech persuade?*
- *Did the paper open minds to new possibilities?*
- *In sum: Was the work effective?*

Indicators for Types of Performance Criteria

By what criteria should understanding performances be assessed? The challenge in answering is to ensure that we assess what is *central* to the understanding, not just what is easy to score. In addition, we need to make sure that we identify the *separate* traits of performance (e.g. a paper can be well-organized but not informative and vice versa) to ensure that the student gets specific and valid feedback. Finally, we need to make sure that we consider the different *types* of criteria (e.g. the quality of the *understanding* vs. the quality of the *performance* in which it is revealed).

Four types of performance criteria (with sample indicators)

content	process	quality	result
Describes the degree of knowledge of factual information or understanding of concepts, principles, and processes.	Describes the degree of skill/proficiency. Also refers to the effectiveness of the process or method used.	Describes the degree of quality evident in products and performances.	Describes the overall impact and the extent to which goals, purposes, or results are achieved.
accurate appropriate authentic complete correct credible explained justified important in-depth insightful logical makes connections precise relevant sophisticated supported thorough valid	careful clever coherent collaborative concise coordinated effective efficient flawless followed process logical/reasoned mechanically correct methodical meticulous organized planned purposeful rehearsed sequential skilled	attractive competent creative detailed extensive focussed graceful masterful organized polished proficient precise neat novel rigorous skilled stylish smooth unique well-crafted	beneficial conclusive convincing decisive effective engaging entertaining informative inspiring meets standards memorable moving persuasive proven responsive satisfactory satisfying significant useful understood

Rubric Design Process #1 – T-Chart

One effective process for developing a rubric is to begin at the ends. In other words, to develop a rubric to assess degrees of understanding of a “big idea” or complex process, ask: What are indicators of a sophisticated understanding? What do the most effective performers do that beginners do not? Contrast these indicators with those of a novice. Similarly, when creating a rubric for skills, distinguish the qualities displayed by an expert compared to a novice. Use the following worksheet to identify specific indicators of novice versus expert.

example:

persuasion

<i>novice</i>	<i>expert</i>
<p><i>The novice ...</i></p> <ul style="list-style-type: none">• assumes that presenting a clear position with a reason is sufficient to persuade••••••	<p><i>The expert ...</i></p> <ul style="list-style-type: none">• understands that effective persuaders carefully analyze their audience to determine the most persuasive approach•••••

Rubric Design Process #2 – Identifying Important Performance Qualities

PART 1 – Individually, list the important qualities or traits for _____.

- _____
- _____
- _____
- _____
- _____
- _____
- _____

PART 2 – With your group, agree to 4-6 of the most important traits. List them below.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

An Analytic Rubric Frame

Understanding or Proficiency: _____

Specific Product/Performance: _____

Descriptive Terms for Differences in Degree

Use the following general terms to describe differences in degree when constructing a “first-time” scoring rubric with a 4-point scale. Once the rubric is applied, an analysis of student work will yield more precise descriptive language and/or a rubric with more gradations.

Degrees of Understanding

- **thorough/complete**
- **substantial**
- **partial/incomplete**
- **misunderstanding/
serious misconceptions**

Degrees of Frequency

- **always/consistently**
- **frequently/generally**
- **sometimes/occasionally**
- **rarely/never**

Degrees of Effectiveness

- **highly effective**
- **effective**
- **moderately effective**
- **ineffective**

Degrees of Independence

student successfully completes the task:

- **independently**
- **w/ minimal assistance**
- **w/ moderate assistance**
- **only w/ considerable assistance**

Degrees of Accuracy

- **completely accurate; all _____
(facts, concepts, mechanics,
computations) correct**
- **generally accurate; minor
inaccuracies do not affect
overall result**
- **inaccurate; numerous
errors detract from result**
- **major inaccuracies;
significant errors throughout**

Degrees of Clarity

- **exceptionally clear; easy to fol-
low**
- **generally clear; able to follow**
- **lacks clarity; difficult to follow**
- **unclear; impossible to follow**

Tips for Designing Effective Scoring Tools

1. Make sure that the scoring tool (rubric or checklist) includes the most important traits, given the **purpose** of the assessment and the **qualities of excellent performance**. Consider:

- Are you scoring what is easy to score rather than what is most important?
- Could a student meet all the scoring criteria and get high scores without really demonstrating the desired understanding(s) or producing excellent work?
- Are any of the criteria or reasons for the score arbitrary? In other words, are you giving or taking away points based on characteristics that have little to do with excellence at this particular task?

2. Beware of the following common problems with scoring tools:

- a. Scoring the length of the paper instead of its quality.
- b. Focusing on mechanics, organization and presentation rather than content, substance and effect. For example, a science project display could be attractive, but superficial.
- c. Looking for quantity rather than results (e.g., the number of information sources used in research instead of the appropriateness and thoroughness of those sources; number of reasons in a persuasive essay instead of the logic of the reasoning).
- d. Demanding that the performance follow an arbitrary format (e.g., 5-paragraph essay), even though expert performance may follow different paths or forms.

3. Check for consistency of the descriptive terms throughout the scoring scale. For example, if the top score point includes the descriptors – *consistently* and *thorough* – we would expect to see parallel descriptors in the lower score points; e.g., *sometimes* and *incomplete*.

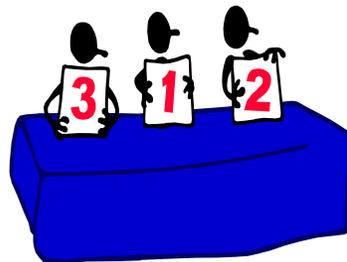
4. Use the following prompts to help avoid these problems:

- *Since the aim of [the performance] is to provide evidence of _____, we need to assess whether or not the performance has been _____.* (List appropriate traits, given the purpose of the task and the evidence it demands.)
- *The best pieces of work are those which are always _____ (insert trait(s) from your list) _____. Does the sentence make sense or not? If yes, the trait is appropriate; if not, it is probably arbitrary.*

Reviewing Your Rubric

In summary, the best criteria/rubrics...

1. evaluate student performances in terms of characteristics central to Stage 1 goals, not just the surface features of the task itself. Be careful not to over-emphasize the surface features of a particular product or performance (e.g., “colorful”, or “neat”) at the expense of the most important traits related to understanding (e.g., “thorough” or explanation with support”).
2. reflect the central features of performance, not just those which are easiest to see, count or score (e.g., “at least 4 footnotes” or “no misspellings”) at the expense of the most important traits (e.g., “accurate” or “effective”).
3. split independent criteria into separate traits. In other words, do not combine distinct traits, such as “very clear” and “very organized” in the same criterion, since an essay might be clear but not organized, and vice versa.
4. emphasize the result of the performance. Ultimately, meaning-making and transfer are about results – was the paper persuasive?, ...the problem solved?, ...the story engaging?, ...the speech informative?, etc. The criteria chosen should always highlight the purpose of a task, in other words, as indicated by results-focused criteria. Be careful not to assess for mere compliance or process (i.e., “followed all the steps,” “worked hard”).
5. balance specific feedback on the task with reference back to general goals. Ultimately, a broad understanding matters more than performance on a unique and very specific task. However, the indicators need to be specific enough to provide useful feedback as well as reliable scoring of the particular task.



Rubric for a Civil War Re-enactor

Adapted from a humorous rubric created by Dr. Tim Dangel, Anne Arundel Schools (MD)

Score Point 4

The re-enactor always wears wool from head to toe while on the battlefield or in camp. S/he eliminates all 20th century terms from vocabulary while in role. Subsists entirely on hardtack and coffee. Contracts lice and annoying intestinal ailments during extended re-enactments.

Score Point 3

The re-enactor dresses in wool from head to toe in July. S/he usually follows drill orders to march and fire rifle. Carries hardtack and coffee in haversack. Can correctly identify Union and Confederate troops while in the field.

Score Point 2

The re-enactor wears a blue uniform made of synthetic materials. S/he executes most orders, but usually 3-5 seconds after the rest of the company. Hides a Snickers bar in haversack and carries beer in canteen. Sometimes can not remember which side wears blue and which wears gray.

Score Point 1

The re-enactor wears an Orioles cap, Hard Rock Cafe tee-shirt, and Reeboks with uniform. S/he cannot tell Union from Confederate troops. Has been heard asking, "Are you a Union or Confederate soldier?" Fires upon his fellow soldiers and frequently wounds self or fellow soldiers. Litters the 19th century campground with Twinkie and Big Mac wrappers.

Comments:

Critique These Two Rubrics

Topic: Observing and describing living things

Score Point 4

Accurately describes 4 or more attributes of plants and animals.

Score Point 3

Accurately describes 3 attributes of plants and animals.

Score Point 2

Accurately describes 2 attributes of plants and animals.

Score Point 1

Accurately describes 1 attribute of plants and animals.

Score Point 0

Does not accurately describe any attributes of plants and animals.

Topic: Persuasion (in writing or speaking)

4 – Provides 4 or more reasons.

3 – Provides 3 reasons.

2 – Provides 2 reasons.

1 – Provides a reason.

0 – Provides no reasons.

Rubric Design/Refinement Process #3 – Categorizing Student Work

The following six-step process for identifying performance criteria and using them as a basis for designing a scoring rubric. The procedure begins with sorting student work and then proceeds by looking at sample performance criteria from other places.

Step 1: Gather samples of student performance that illustrate the desired skill or understanding.

Choose as large and diverse a set of samples as possible.

Step 2: Sort student work into different stacks and write down the reasons.

For example, place the samples of student work into three piles: strong, middle and weak. As the student work is sorted, write down reasons for placing pieces in the various stacks. If a piece is placed in the “sophisticated” pile, describe its distinguishing features. What cues you that the work is sophisticated? What are you saying to yourself as you place a piece of work into a pile? What might you say to a student as you return this work? The qualities (attributes) that you identify reveal criteria. Keep sorting work until you are not adding anything new to your list of attributes.

Step 3: Cluster the reasons into traits or important dimensions of performance.

The sorting process used thus far in this exercise is “holistic.” Participants in this process end up with a list of comments for high, medium and low performance; any single student product gets only one overall score. Usually, during the listing of comments someone will say something to the effect that, “I had trouble placing this paper into one stack or another because it was strong on one trait but weak on another.” This brings up the need for analytical trait scoring systems; i.e., evaluating each student’s product or performance on more than one dimension.

Step 4: Write a definition of each trait.

These definitions should be “value neutral” – they describe what the trait is about, not what good performance looks like. (Descriptions of good performance on the trait are left to the “high” rating.)

Rubric Design/Refinement Process #3

(continued)

Step 5: Find samples of student performance that illustrate each score point on each trait.

Find samples of student work which are good examples of strong, weak and mid range performance on each trait. These can be used to illustrate to students what to do and what “good” looks like. It’s important to have more than a single example. If you show students only a single example of what a good performance looks like, they are likely to imitate or copy it.

Step 6: Continuously Refine

Criteria and rubrics evolve with use. Try them out. You’ll probably find some parts of the rubric that work fine and some that don’t. Add and modify descriptions so that they communicate more precisely. Choose better sample papers that illustrate what you mean. Revise traits if you need to. When appropriate, let students help—this is a tool for learning.

Questions to consider when using a rubric to evaluate student work samples:	Possible rubric refinements:
<ul style="list-style-type: none"> • Have any important elements “fallen through the cracks”? Are important qualities that are evident in the best student work samples not specified in the rubric? 	<p><i>If so...</i> Add the missing element(s). Make sure that it (they) appear(s) consistently throughout the scale.</p>
<ul style="list-style-type: none"> • Is it difficult for reviewers to distinguish between two score points in the rubric? Are the distinctions between score points unclear or indistinguishable? 	<p><i>If so...</i> Consider shrinking the scale (e.g., from 6 to 5 points) so that the distinctions between levels are significant and readily determined.</p>
<ul style="list-style-type: none"> • Are raters asking to use + or – symbols next to the score points for some samples? 	<p><i>If so...</i> Consider expanding the scale (e.g., from 3 to 4 points) to accommodate these “border dwellers.”</p>
<ul style="list-style-type: none"> • Are scores determined quantitatively; i.e., by “counting on fingers”? 	<p><i>If so...</i> Substitute qualitative descriptors for numbers so that differences in salient qualities are characterized within the various score points.</p>

Source: Arter, J. and McTighe, J. (2001). *Scoring Rubrics in the Classroom: Using Performance Criteria for Assessing and Improving Student Performance*. Thousand Oaks, CA: Corwin Press

Questions To Ask When Examining Student Work

Use the following questions to guide the examination of student work.

Describe

- *What knowledge and skills are assessed?*
- *What kinds of thinking are required (e.g., recall, interpretation, evaluation)?*
- *Are these the results I (we) expected? Why or why not?*
- *In what areas did the student(s) perform best?*
- *What weaknesses are evident? • What misconceptions are revealed?*
- *Are there any surprises? • What anomalies exist?*
- *Is there evidence of improvement or decline? If so, what caused the changes?*

Evaluate

- *By what criteria am I (are we) evaluating student work?*
- *Are these the most important criteria?*
- *How good is “good enough” (i.e., the performance standard)?*

Interpret

- *What does this work reveal about student learning and performance?*
- *What patterns (e.g., strengths, weaknesses, misconceptions) are evident?*
- *What questions does this work raise?*
- *Is this work consistent with other achievement data?*
- *Are there different possible explanations for these results?*

Identify Improvement Actions

- *What teacher action(s) are needed to improve learning and performance?*
- *What student action(s) are needed to improve learning and performance?*
- *What systemic action(s) at the school/district level are needed to improve learning and performance (e.g., changes in curriculum, schedule, grouping)?*

• Other: _____?

• Other: _____?

Data-Driven Improvement Planning

Based on an analysis of achievement data and student work:

- What *patterns* of weakness are noted? • What *specific* areas are most in need of improvement?

- problem solving and mathematical reasoning are generally weak
- students do not effectively explain their reasoning and their use of strategies
- appropriate mathematical language is not always used
- _____



What *specific* improvement actions will we take?

- Increase our use of “non routine” problems that require mathematical reasoning.
- Explicitly teach (and regularly review) specific problem solving strategies.
- Develop a poster of problem solving strategies and post in each math classroom.
- Increase use of “think alouds” (by teacher & students) to model mathematical reasoning.
- Develop a “word wall” of key mathematical terms and use the terms regularly.
- Revise our problem solving rubric to emphasize explanation & use of mathematical language.

ANNOTATED EXEMPLAR
Persuasive

School is meant to be a place of learning, an opportunity to acquire knowledge and insight, and it was at Greece Olympia High School that I learned this lesson. It was one of those rainy day mornings when little could be heard above the squeak of wet rubber soles against the tile floor of the freshman hallway. I was heading into homeroom early; I thought I'd

The writer engages the reader by establishing a context and using an appropriate tone

be the first to arrive. However, just as I was about to enter the room, I saw that a girl with vibrant brown hair, jeans, and a pink sweater had already gone into the room. Seemingly because her shoes had no texture, with a bottom as smooth as the complexion of her youth, she slipped, hung in the air for a moment, then crashed to the ground. I took a step backward to laugh out in the hall. When I peered back in the room, I expected that after such a fall she would be unable to move. However, she had already leapt to her feet. That's when I noticed her fervent glances. Left and right. Left then right. Her head quickly turned. Satisfied in her anonymity, she slowly, and I believe painfully, walked to her seat.

The writer's use of imagery helps to create a context for the reader.

The writer utilizes vivid and precise language.

The writer varies sentence patterns for effect.

At that moment, I became consciously aware that people, including myself, seem to concern themselves more with the opinions and wants of others than with what they themselves think or desire. This girl had been so worried about what someone else might think that she didn't even stop to catch her breath. It's no wonder that a phrase like, "What will the neighbors think?" sounds cliché. For years people have been interested in owning a better house, buying a faster car and having a more attractive mate. Yet, are these things going to bring self-fulfillment? Is somehow having these items going to impress people, and, if so, why do we care what these people think? We are raised to do just that. From a young age, we are taught to please mostly our parents, then our teachers, coaches, and friends. From the moment we are born, others expect us to behave, think, and value in a certain way, and being the impressionable youths that we

The writer chooses and employs specific rhetorical devices to support assertions and strengthen persuasiveness of the argument (anecdote) based on the topic, audience and purpose.

The writer uses effective interpretation that offers insights.

Ideas for Diagnostic (Pre-) Assessment

The following pre-assessment techniques provide efficient diagnostic checks of student prior knowledge and misconceptions. This information guides any differentiated instruction/assessment that may be needed. Pre-assessments should NOT be graded.

K-W-L-S

Prior to the introduction of a new topic or skill, ask students what they already **Know** (or think they know) about the topic or skill. These are recorded on a board or chart paper under the “K” column. (Sometimes, students make statements that are incorrect or reveal misconceptions.)

Secondly, ask them what they **Want** to know (or what questions they have) about the topic/skill. These are recorded under the “W” column. (Their questions often reveal interests or “hooks” to the topic. In some cases, their questions reveal misconceptions that will need to be addressed.)

As the lesson or unit proceeds, **Learnings** are summarized and recorded in the “L” column as they occur. (This provides an opportunity to go back and correct any misconceptions that may have been initially recorded in the “K” column.)

Pre-Test

Give students a pre-test to check their prior knowledge of key facts and concepts. Use the results to plan instruction and selection of resources. (Make sure that students know that the results will not count toward final grades.)

Skills Check

Have students demonstrate their proficiency with a targeted skill or process. It is helpful to have a proficiency checklist or developmental rubric to use in assessing the degree of skill competence. Students can then use the checklist or rubric for on-going self assessment.

Web/Concept Map

Ask students to create a web or concept map to show the elements or components of a topic or process. This technique is especially effective in revealing whether students have gaps in their knowledge and the extent to which they understand relationships among the elements.

Misconception Check

Present students with common errors or predictable misconceptions regarding a designated topic, concept, skill or process. See if they are able to identify the error or misconception and explain why it is erroneous or flawed. The misconception check can also be presented in the form of a true-false quiz, where students must agree or disagree with statements or examples.

Formative Assessment – Whole Group

The following on-going assessment techniques can be used to obtain a quick “pulse check” of a whole class or group of students.

Hand Signals

Ask students to display a designated hand signal to indicate their understanding of a designated concept, principle, or process. For example,

1. I understand _____ and can explain it (e.g., thumbs up)
2. I do not yet understand _____. (e.g., thumbs down)
3. I’m not completely sure about _____. (e.g., wave hand)

White Boards

Have students record a response on a white board and hold it up. For example,

Prediction – *What number should appear next in the sequence?*

Agree/Disagree – *Is this an example of adaptation?*

Student Response Systems

Use SRS “clickers” to have students record a response to a question or a prompt. The results can be tabulated on the teacher’s computer to provide immediate feedback.

Misconception Check

Present students with common or predictable misconceptions about a designated concept, principle, or process. Ask them to agree or disagree. Student can respond using hand signals, white boards, SRSs, or on paper.

“Quick Writes” and Exit Cards (“Ticket to Leave”)

Periodically, distribute index cards or slips of paper and ask students to complete the cards. Here are sample prompts:

- What are the most important things you learned about ____?
- What do you understand about _____?
- What don’t you understand yet? What questions do you have?

Quick Writes can be used at the beginning of a class. Exit cards are typically completed at the conclusion of a class period or the end of the week, etc.

Scan the responses, looking for patterns (e.g., when students have the same questions).

Observations

Carefully observe students as they work or respond to questions. Observe the work they produce. What areas of strength and weakness do you notice?

Formative Assessment – Individuals

The following on-going assessment techniques provide a quick check of the knowledge, skill levels, and degree of understanding of individual students. Of course, **oral questioning** and **observation** can be used to provide on-going assessment of individuals.

Exit Card (“Ticket to Leave”)

Periodically, distribute index cards and ask students to complete the cards at the conclusion of a class period, end of the week, etc. Students must include their names.

Example #1: I.Q. Card

Side 1 – Based on our study of (unit topic), list a “big idea” that you understand in the form of a summary statement.

Side 2 – Identify something about (unit topic) that you do not yet fully understand (as a statement or a question).

Example #2: 3-2-1- summary

List 3 things that you learned about _____ (topic or skill)_____.

List 2 examples or applications of _____.

List 1 question that you have about _____ (topic or skill)_____.

Example #3: What’s Working?

Side 1 – List the things that are helping you learn.

Side 2 – Identify things that have been difficult or are not working for you.

Colored Cups

Distribute small plastic cups (red, yellow, green) and instruct students to place the cups on their desk according to their understanding (green = *got it*; yellow = *not sure*; red = *I’m lost*).

Weekly Letter

Have students write a letter to the teacher and parents summarizing what they have learned during the past week. Students are asked to reflect on their progress during the week and set a learning goal for the upcoming week.

Web/Concept Map

Ask students to create a web or concept map to show the elements or components of a topic or process. This technique reveals if students understand relationships among elements.

Question Box/Board

Establish a location (e.g., question box, bulletin board, e-mail address) where students may post questions about things that they do not understand. (This technique may be preferred by those students who are uncomfortable admitting publicly that they do not understand.)

Encouraging Self-Assessment and Reflection

Assessment *for* learning includes opportunities for students to self assess, reflect and set goals. The following questions may be used as prompts to guide student self assessment and reflection.

- What do you really understand about _____?
- What questions/uncertainties do you still have about _____?
- What was most effective in _____?
- What was least effective in _____?
- How could you improve _____?
- What would you do differently next time?
- What are you most proud of?
- What are you most disappointed in?
- How difficult was _____ for you?
- What are your strengths in _____?
- What are your deficiencies in _____?
- How does your preferred learning style influence _____?
- What grade/score do you deserve? Why?
- How does what you've learned connect to other learnings?
- How has what you've learned changed your thinking?
- How does what you've learned relate to the present and future?
- What follow-up work is needed?
- other: _____?

Students' Voices: What do the Learners Say?

Comments from High School students in response to the questions: What was the most interesting and engaging course you took this year? What made it so? Source: Authentic Education

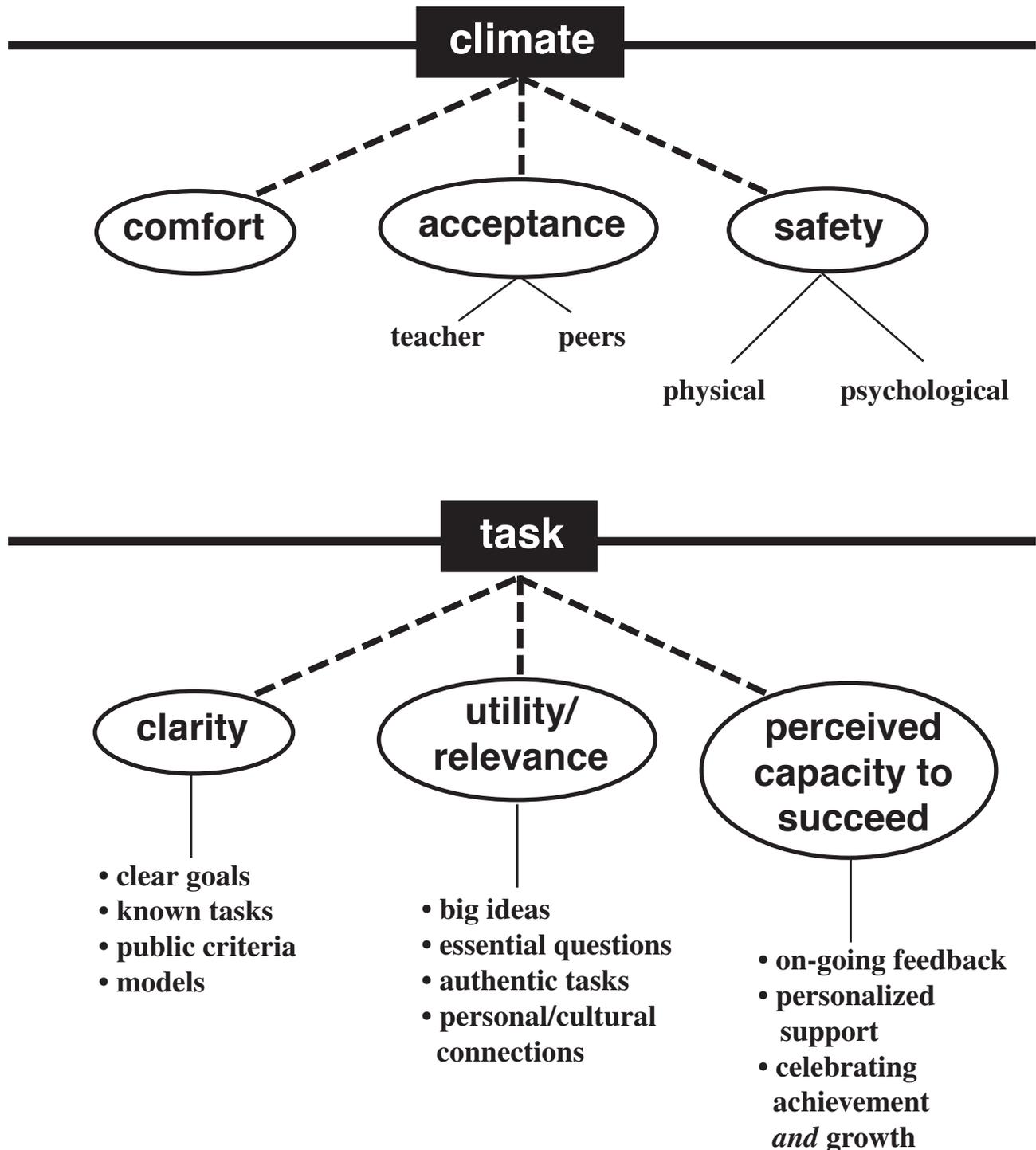
- *In my Algebra 2 class, we had to do a final project. It was very free formed and actually a lot of fun. Our assignment was to find a real life example that involved some of the math ideas we had learned that year. Everyone did a different topic. I feel like I got more out of that project than I have in any other project. I did mine on roller coasters using functions and regression equations to find out the equations of the track. I also found the angles of descent using points on the graph. Anyways, this project really opened up my eyes and I actually enjoyed doing it.*
- *Essay for English because it was a clear rubric and I did very well on it because I knew the requirements and saw models of previous good grades on it.*
- *To make a Spanish cooking show! Any type of project where you can create a video to complete it makes it a lot of fun and worth my time.*
- *Earth science, when we were required to test the potential energy of a few substances (by lighting them on fire). and it was interesting because we got to do hands on stuff with fire.*
- *In health class we had to put together a project on a previous drug addict and it helped me learn more about the drugs we learned about in class along with it was interesting.*
- *In my sociology class we did a study where we went to all of the lunches that class period and just sat with different groups of people and study group behavior. Then we mapped out the whole lunch room with where different groups typically sat. It was interesting because I got to go out of my comfort zone and study people.*
- *Last year, in my art class, the most interesting piece I did was an eye project. We had to choose four different artists styles and paint one eye for each style. It was a challenge but it was fun.*
- *Problems of the week in math involved both the students having to come up with a problem of the week to pose to the other students, as well as posting it online. The rest of the class was then required to solve that problem, which was interesting in the fact that it was all student-oriented.*
- *We made a comic book in history class. I loved doing this because I like hands-on projects where I get to be creative, and it was a lot of fun.*
- *The labs in chemistry. They are very difficult, but to me they are very interesting and fun.*
- *Last year in math we applied a concept we learned during the year (log. functions) to a real life thing, being the career stats of basketball players. We used the stats to predict what young players would eventually end up being all stars in their careers.*

Students' Voices: What do the Learners Say?

(continued)

- *While reading To Kill a Mockingbird, my English teacher had my class take a survey about some of our traits (eye color, hair color, skin color, height, # of immediate family members, and many others). The next day, she had students be separated into the "normal people" and the "slaves". Throughout the class, the slaves had to do ANYTHING the teacher asked us to do for the other normal students, and she kept the separating trait a secret until the end of the class. This technique helped us really realize how much discrimination plays a role in our everyday lives.*
- *A journal that we had to keep in History class. We had to write a story about what it would be like if we were a certain character during the French Revolution, and we had certain topics to write about with each entry. There were 6 entry's total and each one had to be full of detail.*
- *Last year we did a midevil banquet. it was interesting because everyone had to be a person from midevil times and describe your self to everyone.*
- *The most interesting work I have done in the last year was when we had to write a story about a person based on a picture of a shoe of theirs.*
- *We preformed our marching show at football games and at a band competition.*
- *A debate in history because it was interesting to hear other students ideas and also share my own.*
- *We did a lab in science where we used a bunch of toys and it was fun because we were doing hands on work-with toys!!!*
- *In history we did this activity where we were talking about the execution of King Louis XVI. We had a mock trial for him where we got to be lawyers and the jury and debated whether he really was guilty of the charges brought up against him. When he was found guilty, we drew his face on a carrot and chopped its head off in a guillotine. It got us engaged and was fun.*
- *Write about a person in a magazine based on their picture.*
- *I was asked to create a hypothetical budget for after college using an Excel spreadsheet. This was cool because I got to see first hand what it's like dealing with expenses after college.*
- *Last year in my Spanish class we were asked to make a movie trailer in Spanish, and our group was extremely engaged in the task. Most likely because we enjoyed filming our project using our own script, and not something too strict. We were allowed to expand our ideas and present them.*
- *In math, in lieu of taking a final, we had to do group projects which encompassed most of the math skills we learned throughout the year. It was interesting because we also had to connect it to real life, and it was very helpful as far as remembering the material goes.*

Variables Influencing Learners' Motivation and Effort

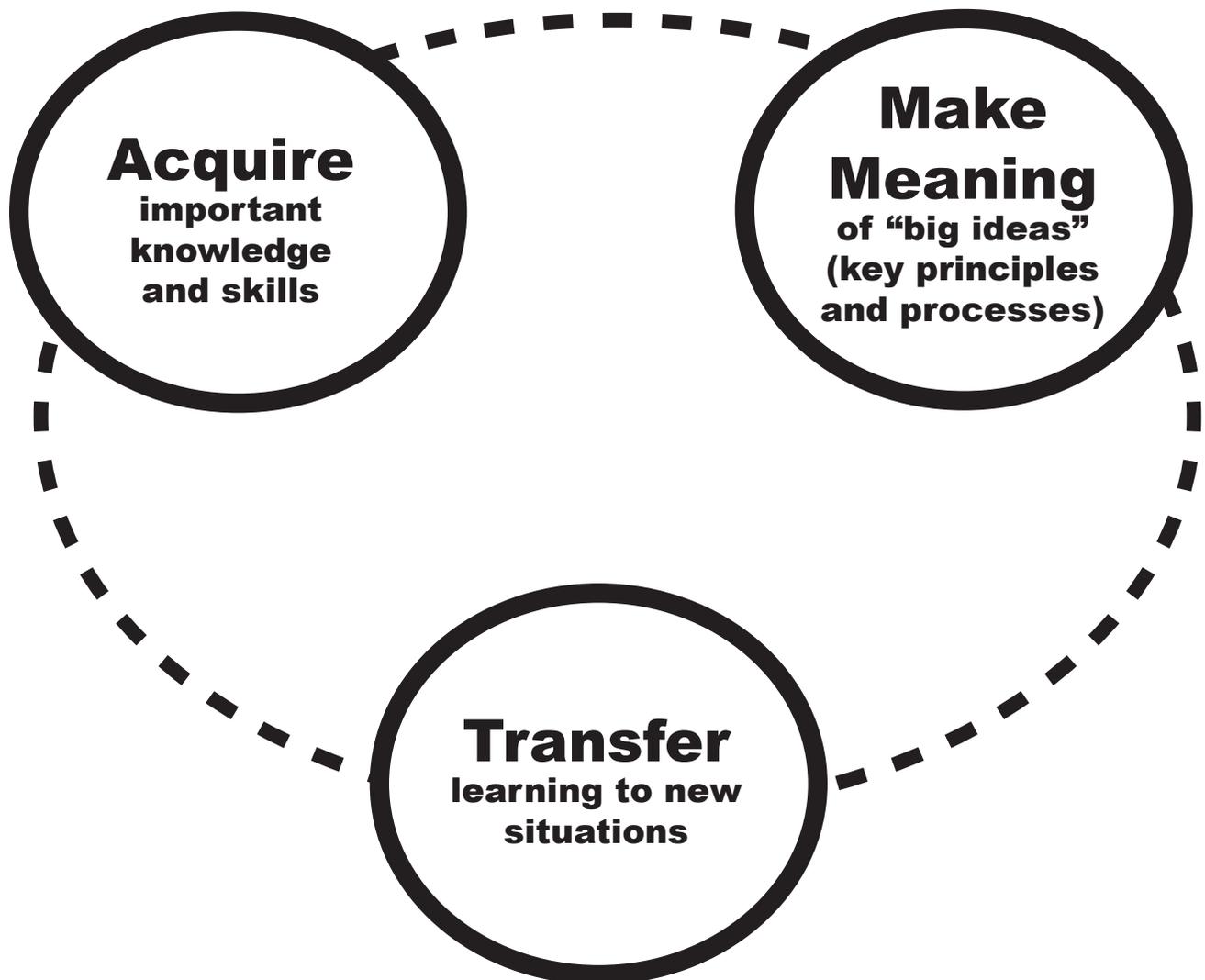


Teaching and Learning for Understanding

What does it mean to teach and learn for understanding?

We have found it useful to consider this question by examining three distinct, yet interrelated, learning goals: 1) acquisition of new information and skill, 2) making meaning of that content (i.e., coming to understand), and 3) transfer of one's knowledge (i.e., applying one's learning to new situations).

These three categories link directly to elements identified in *Understanding by Design*. In Stage 1 teachers specify the knowledge and skill that they intend students to **acquire**. They also decide upon the “big ideas” they want students to come to understand and develop essential questions to help students **make meaning** of those ideas. In Stage 2, teachers develop performance tasks requiring **transfer** as evidence that students understand and can apply their knowledge in authentic contexts.



Learning Goals and Teaching Roles

	ACQUIRE	MAKE MEANING	TRANSFER
Three Interrelated Learning Goals →	<p>This goal seeks to help learners <i>acquire</i> factual information and basic skills.</p>	<p>This goal seeks to help students <i>construct meaning</i> (i.e., <i>come to an understanding</i>) of important ideas and processes.</p>	<p>This goal seeks to support the learner’s ability to <i>transfer</i> their learning autonomously and effectively in new situations.</p>
<p>Teacher Role/ Instructional Strategies</p> <p><i>Note: Like the above learning goals, these three teaching roles (and their associated methods) work together in pursuit of identified learning results.</i></p>	<p><u>Direct Instruction</u> In this role, the teacher’s primary role is to <i>inform</i> the learners through explicit instruction in targeted knowledge and skills; differentiating as needed.</p> <p><i>Strategies include:</i></p> <ul style="list-style-type: none"> <input type="radio"/> diagnostic assessment <input type="radio"/> lecture <input type="radio"/> advanced organizers <input type="radio"/> graphic organizers <input type="radio"/> questioning (convergent) <input type="radio"/> demonstration/modeling <input type="radio"/> process guides <input type="radio"/> guided practice <input type="radio"/> feedback, corrections, <input type="radio"/> differentiation 	<p><u>Facilitative Teaching</u> Teachers in this role engage the learners in actively processing information and guide their inquiry into complex problems, texts, projects, cases, or simulations; differentiating as needed.</p> <p><i>Strategies include:</i></p> <ul style="list-style-type: none"> <input type="radio"/> diagnostic assessment <input type="radio"/> using analogies <input type="radio"/> graphic organizers <input type="radio"/> questioning (divergent) & probing <input type="radio"/> concept attainment <input type="radio"/> inquiry-oriented approaches <input type="radio"/> Problem-Based Learning <input type="radio"/> Socratic Seminar <input type="radio"/> Reciprocal Teaching <input type="radio"/> formative (on-going) assessments <input type="radio"/> understanding notebook <input type="radio"/> feedback/ corrections <input type="radio"/> rethinking and reflection prompts <input type="radio"/> differentiated instruction 	<p><u>Coaching</u> In a coaching role, teachers establish clear performance goals, supervise on-going opportunities to perform (independent practice) in increasingly complex situations, provide models and give on-going feedback (as personalized as possible). They also provide “just in time teaching” (direct instruction) when needed.</p> <p><i>Strategies include:</i></p> <ul style="list-style-type: none"> <input type="radio"/> on-going assessment, <input type="radio"/> providing specific feedback in the context of authentic application <input type="radio"/> conferencing <input type="radio"/> prompting self-assessment and reflection

Teaching and Assessing for Understanding – Observable Classroom Indicators

To what extent are...

1. Instruction and assessment focused on “big ideas” and essential questions based on established standards/outcomes?	4	3	2	1
2. Essential questions posted and revisited throughout a unit?	4	3	2	1
3. Pre-assessments used to check students’ prior knowledge and potential misconceptions regarding new topics of study?	4	3	2	1
4. Opening ”hooks” used to engage students in exploring the big ideas and essential questions?	4	3	2	1
5. Students’ understanding of the “big ideas” and core processes assessed through authentic tasks involving one or more of the six facets?	4	3	2	1
6. Evaluations of student products/performances based upon known criteria/rubrics, performance standards, and models (exemplars)?	4	3	2	1
7. Appropriate instructional strategies used to help learners’ acquire knowledge and skills, make meaning of the big ideas, and transfer their learning?	4	3	2	1
8. Students given regular opportunities to rethink, revise and reflect on their work based on feedback from on-going (formative) assessments?	4	3	2	1
9. The students expected to self-asses/ reflect on their work/learning and set goals for improvement?	4	3	2	1
10. Other: _____	4	3	2	1