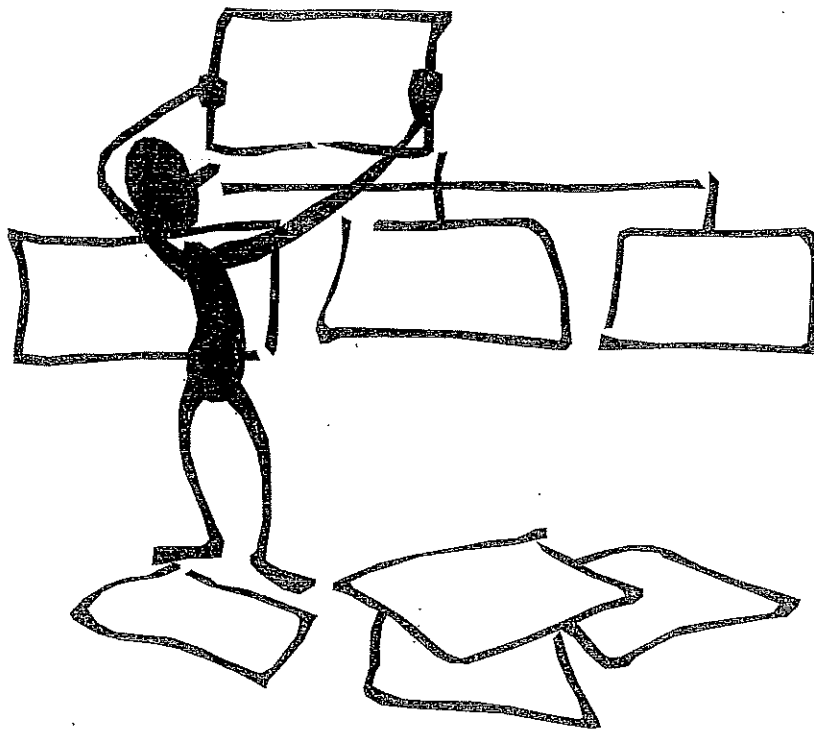


Understanding by Design® A Framework for Curriiculum

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presented by

Jay McTighe

Author and Educational Consultant

E-mail: jay@mctighe-associates.com

Website: www.jaymctighe.com

Twitter: [@jaymctighe](https://twitter.com/jaymctighe)

Principles of Curriculum for Understanding*

Students presented with vast amounts of content knowledge that is not organized into meaningful patterns are likely to forget what they have learned and to be unable to apply the knowledge to new problems or unfamiliar contexts (Haidar, 1997). Curriculum for understanding provides ample opportunity for students to apply their knowledge in a variety of contexts and conditions. This helps them transfer their learning to new situations and better prepares them for future learning (Bransford and Schwartz, 2000). Providing students with frequent opportunities to apply what they learn in multiple contexts requires a reallocation of instructional time. Allowing time for in-depth learning means decisions must be made about what knowledge is of most worth. For this reason, the curriculum needs to specify clearly the appropriate balance between breadth and depth of coverage in terms of student learning outcomes.

A mathematics or science curriculum for advanced study that promotes learning with understanding:

1. Structures the concepts, factual content, and procedures that constitute the knowledge base of the discipline around the organizing principles (big ideas) of the domain.
2. Links new knowledge to what is already known by presenting concepts in a conceptually and logically sequenced order that builds upon previous learning within and across grade levels.
3. Focuses on depth of understanding rather than breadth of content coverage by providing students with multiple opportunities to practice and demonstrate what they learn in a variety of contexts.
4. Includes structured learning activities that, in a real or simulated fashion, allow students to experience problem solving and inquiry in situations that are drawn from their personal experiences and real-world applications.
5. Develops students' abilities to make meaningful applications and generalization to new problems and contexts.
6. Incorporates language, procedures, and models of inquiry and truth verification that are consistent with the accepted practice of experts in the domain.
7. Emphasizes interdisciplinary connections and integration and helps students connect learning in school with the issues, problems, and experiences that figure prominently in their lives outside of the classroom.

*Source: Committee on Programs for Advanced Study of Mathematics and Science in American High Schools

Key Understandings about...

-- Understanding --

- A primary goal of education is the development and deepening of student understanding of important ideas and processes within, and across, disciplines so that they can transfer their learning to new situations. Rote learning will not prepare students for transfer.
- Content and Standards need to be “unpacked” to identify the big ideas worth understanding and the essential questions worth exploring.
- Evidence of student understanding is revealed when students can apply (transfer) their learning to new situations within authentic contexts.
- Six facets of understanding – the capacity to explain, interpret, apply, shift perspective, empathize, and self-assess – serve as indicators that students understand.

Understanding must be “earned” by the learner. Teaching for understanding facilitates meaning making by students.

-- Design --

- Effective curriculum development reflects a three-stage design process called “backward design.” This process helps to insure that curriculum plans are well aligned and focused on desired results. Backward design of curriculum helps avoid the twin problems of “textbook coverage” and “activity-oriented” teaching.
- The backward design process can be productively applied to planning a single unit, a year-long course, and an entire K-12 curriculum.
- Regular reviews of curriculum and assessment designs, based on design standards, are needed for quality control to avoid the most common design mistakes and disappointing results.
- Educators can “work smarter” in curriculum design by working collaboratively and sharing ideas via electronic networks (e.g., using the Eduplanet21 UbD Planner).

A Summary of Key Research Findings Supporting Understanding by Design

- Views of how effective learning proceeds have shifted from the benefits of diligent drill and practice to focus on students' understanding and application of knowledge.

- Experts' knowledge is organized... Their knowledge is not simply a list of facts and formulas that are relevant to the domain; instead, their knowledge is organized around core concepts or 'big ideas' that guide their thinking about the domain (e.g., Newton's second law of motion); it is "conditionalized" to specify the contexts in which it is applicable; it supports understanding and transfer (to other contexts) rather than only the ability to remember. Novices' knowledge is much less likely to be organized around big ideas; they are more likely to approach problems by searching for correct formulas and pat answers that fit their everyday intuitions.

- Learning must be guided by generalized principles in order to be widely applicable. Knowledge learned at the level of rote memory rarely transfers; transfer most likely occurs when the learner knows and understands underlying principles that can be applied to problems in new contexts. Learning with understanding is more likely to promote transfer than simply memorizing information from a text or a lecture.

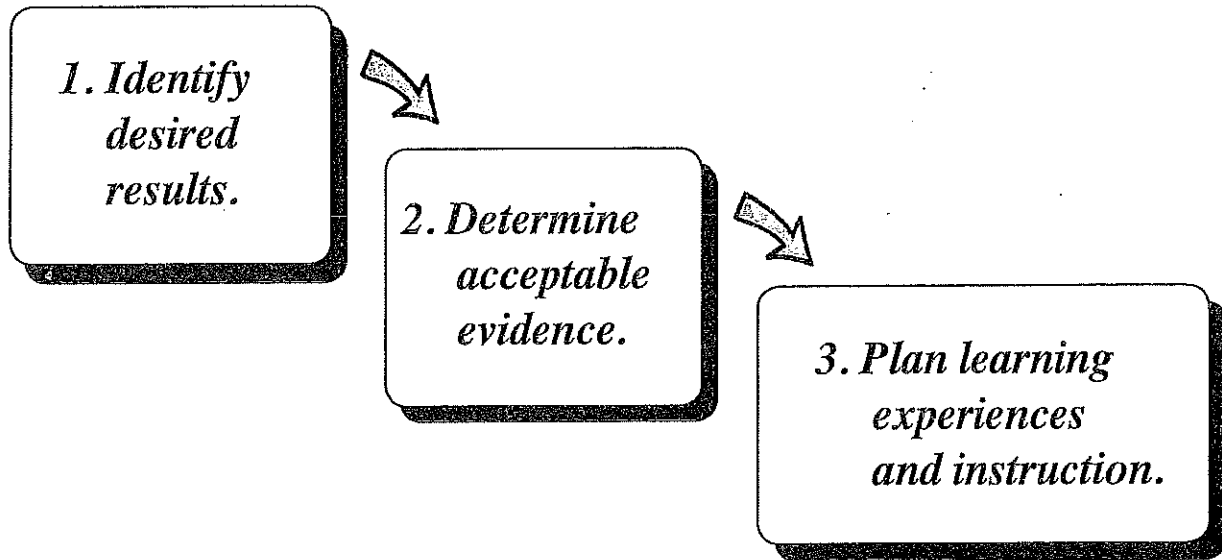
- Skills and knowledge must be extended beyond the narrow contexts in which they are initially learned. For example, knowing how to solve a math problem in school may not transfer to solving math problems in other contexts. It is essential for a learner to develop a sense of *when* what has been learned can be used -- the conditions of application. Failure to transfer is often due to learners' lack of this type of conditional knowledge.

- Curricula that are a "mile wide and an inch deep" run the risk of developing disconnected rather than connected knowledge. Research on expertise suggest that a superficial coverage of many topics in the domain may be a poor way to help students develop the competencies that will prepare them for future learning and work."

- Feedback is fundamental to learning, but feedback opportunities are often scarce in classrooms. Students may receive grades on tests and essays, but these are summative assessments that occur at the end of projects. What are needed are formative assessments, which provide students with opportunities to revise and improve the quality of their thinking and understanding.

- Assessments must reflect the learning goals that define various environments. If the goal is to enhance understanding and applicability of knowledge, it is not sufficient to provide assessments that focus primarily on memory for facts and formulas. Many assessments measure only propositional (factual) knowledge and never ask whether students know *when*, *where*, and *why* to use that knowledge. Given the goal of learning with understanding, assessments and feedback must focus on understanding, and not only on memory for procedures or facts.

The Three Stages of Backward Design



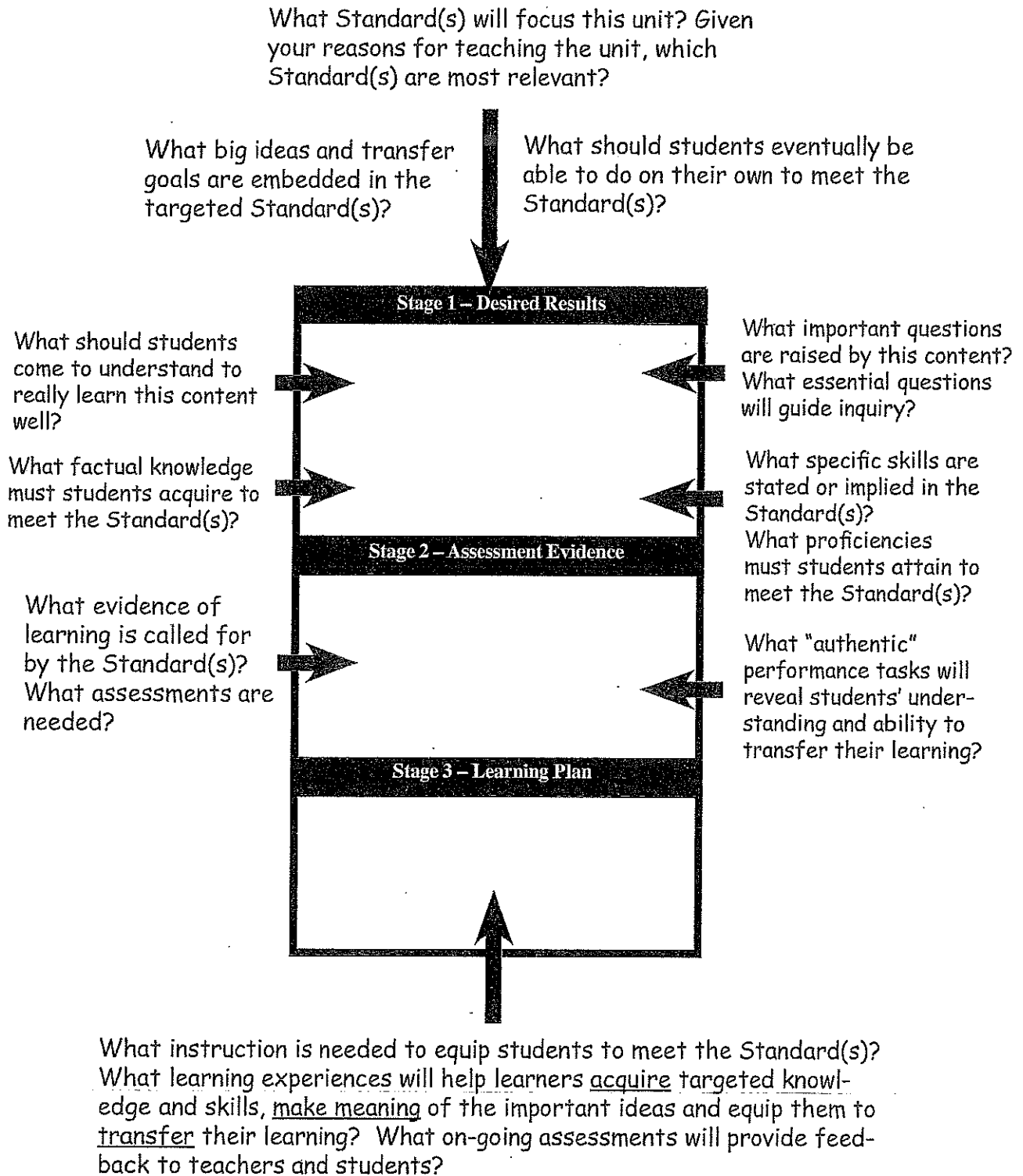
The backward design approach consists of three general stages:

Stage 1. Identify Desired Results – In stage one we consider the goals. What should students know, understand, and be able to do? What big ideas are worthy of understanding and implied in the established goals (e.g., Standards, curriculum objectives, etc.)? What “enduring” understandings are desired? What essential questions are worth pursuing to guide student inquiry and meaning making? What specific knowledge and skills are targeted and needed for effective performance?

Stage 2. Determine Acceptable Evidence – In the second stage we consider evidence of learning. How will we know if students have achieved the desired results and met the Standards? How will we know that students *really* understand the identified big ideas? What will we accept as evidence of proficiency? The backward design orientation suggests that we think about our design in terms of the collected assessment evidence needed to document and validate that the desired results of Stage 1 have been achieved.

Stage 3. Plan Learning Experiences and Instruction – With identified results and appropriate evidence of understanding in mind, it is *now* time to develop the learning plan. What will need to be taught and coached in light of the performance goals? What resources will be employed? How should the learning experiences be sequenced? What on-going assessments are needed for feedback? In planning learning activities, consider the AMT elements: How will we help learners *acquire* needed knowledge and skills? How will we engage learners in *making meaning* of important ideas? How will we equip students to *transfer* their learning?

UbD and Standards-based Curriculum Planning



Stage 1 – Desired Results

Established Goals	
National Driver Development Standards	
G1	Demonstrate a working knowledge of rules, regulations and procedures of operating an automobile
G2	Use visual search skills to obtain correct information and make reduced-risk decisions for effective speed and position adjustments
G3	Interact with other users within the Highway Transportation System by adjusting speed, space, and communications to avoid conflicts and reduce risk
G4	Demonstrate balanced vehicle movement through steering, braking, and accelerating in a precise and timely manner throughout a variety of adverse conditions
Source: American Driver & Traffic Safety Association	

Transfer	
<i>Students will be able to independently use their learning to...</i>	
T1	drive responsibly, defensively and courteously.
T2	adapt driving to various traffic, road and weather conditions.
Meaning	
UNDERSTANDINGS	<i>Students will understand that...</i>
U1	A motor vehicle can become a lethal weapon, and driving one demands constant attention.
U2	Defensive driving assumes that other drivers are not attentive and that they might make sudden or ill-advised moves.
U3	Effective drivers constantly adapt to various traffic, road, & weather conditions.
U4	Proper car maintenance is a safety measure that can help save money in the long run.
Acquisition	
<i>Students will know...</i>	
K1	the driving rules and regulations
K2	meaning of traffic signs and signals
K3	basic car features and functions
K4	what to do in case of an accident
<i>Students will be skilled at...</i>	
S1	adjusting seats and mirrors
S2	coordinating accelerator and brake
S3	signalling/communicating intentions
S4	merging into traffic
S5	parallel parking

Stage 2 – Evidence

Coding	Evaluative Criteria	Assessment Evidence
1. Transfer goals	<ul style="list-style-type: none"> • skillful • defensive • anticipates • responsive • courteous 	<p style="text-align: center;">PERFORMANCE TASK(S)</p> <p>1. <i>Task:</i> drive from home to school and back, with parental and teacher supervision. The goal is to demonstrate skillful, responsive, and defensive driving under real-world conditions.</p> <p>2. <i>Task:</i> Same task as #1 but with rainy conditions.</p> <p>3. <i>Task:</i> Same task as #1 but with rush hour traffic.</p> <p>4. Prepare a tutoring booklet to help other young drivers come to understand the big ideas of safe and courteous driving.</p> <p style="text-align: center;">..... SUPPLEMENTARY EVIDENCE</p> <p>5. Self-assess your driving and parking in Tasks 1 - 3 in terms of <i>courteous & defensive</i>. Discuss adjustments made.</p> <p>6. Observation of student driver in a driving simulator or car off road.</p> <p>7. Written test required for getting a license.</p> <p>8. Road test required for getting a license.</p>
2. Transfer goals	<ul style="list-style-type: none"> • accurate • clear • complete 	
3. Transfer goals	<ul style="list-style-type: none"> • accurate • perceptive • skilled • knows the law • drives well enough to pass driving test 	
4. Meaning Goals	<ul style="list-style-type: none"> • accurate • perceptive • skilled • knows the law • drives well enough to pass driving test 	
5. Meaning Goals	<ul style="list-style-type: none"> • accurate • perceptive • skilled • knows the law • drives well enough to pass driving test 	
6. Skill & Transfer Goals	<ul style="list-style-type: none"> • accurate • perceptive • skilled • knows the law • drives well enough to pass driving test 	
7. Knowledge Goals	<ul style="list-style-type: none"> • accurate • perceptive • skilled • knows the law • drives well enough to pass driving test 	
8. Skill Goals	<ul style="list-style-type: none"> • accurate • perceptive • skilled • knows the law • drives well enough to pass driving test 	

Stage 3 – Learning Plan

Coding

Code Key: T = Transfer, M = Meaning-making, A = Acquisition

Pre-assessment

Pre-assessment of driving knowledge, skill, understandings, and attitudes using surveys and simulators.

Formative Assessments

KEY LEARNING EVENTS

Note: this is an overview of a drivers' ed. plan. A typical unit summarizes all learning events in more detail.

Expert driving is modeled via video and the driving instructor. The requirement of the driver's test are reviewed.

All instruction is carried out and formatively assessed under a 4-step system for developing autonomy:

- the driving skill is explicitly taught and modeled
- the skill is practiced and performed with guidance in a simple/controlled situation
- the skill practiced and performed independently in a simple/controlled situation
- the skill is performed independently in more complex, authentic situations

Students practice the following driving skills in a simulator and in controlled driving situations with an instructor:

- | | | |
|----------------------------------|----------------------|-------------------------------|
| Car Check | Circles | Anticipation & Planning Ahead |
| Safety Checks | Pedestrian Crossings | Use of Speed |
| Controls & Instruments | Highways | Other Traffic |
| Starting up, Moving and Stopping | Turns | Intersections |
| Safe Positioning | Reversing | Darkness |
| Mirrors | Parking | Weather Conditions |
| Signals | Emergency Stopping | Rules & Laws |
| | Security | |

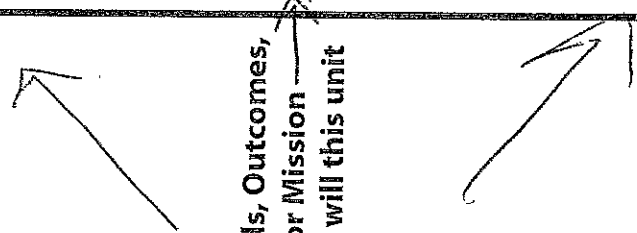
Guided instruction is provided in terms of how to handle a variety of driving conditions, including: dry roads, wet roads, daylight, darkness, highway, city, country, during rush hour and off-peak hours.

The essential questions are used to focus attention during practice and guide reflection and self-assessment following each simulated or actual driving experience.

On-going assessment and feedback by the instructor as students practice new driving skills in the simulator and on the road. Look for such common misconceptions and skill deficits as -

- failure to check mirrors and peripheral vision
- not adjusting in response to changes in road, traffic or weather conditions
- not perceiving speed of oncoming cars during merges and turns

Stage 1 – Desired Results

<p>Established Goals</p> <p style="text-align: center;">  </p> <p>What Standards, Outcomes, Program and/or Mission related goal(s) will this unit address?</p>	<p style="text-align: center;">Transfer</p> <p><i>Students will be able to independently use their learning to...</i></p> <p style="text-align: center;">What long-term, independent accomplishments are desired?</p>
<p style="text-align: center;">Meaning</p> <p>UNDERSTANDINGS <i>Students will understand that...</i></p> <p>What specifically do you want students to come to understand?</p>	<p>ESSENTIAL QUESTIONS <i>Students will keep considering...</i></p> <p>What thought-provoking questions will foster inquiry, meaning making, and transfer?</p>
<p style="text-align: center;">Acquisition</p> <p><i>Students will know...</i></p> <p>What facts and basic concepts should students know?</p>	<p><i>Students will be skilled at...</i></p> <p>What discrete skills and processes should students be able to use?</p>

Stage 2 – Evidence

Coding	Evaluative Criteria	Assessment Evidence
<p>Are all of the Desired Results being appropriately assessed?</p>	<p>What criteria will be used in each assessment to evaluate attainment of the Desired Results?</p>	<p>PERFORMANCE TASK(S) <i>Application + Explanation</i></p> <p>How will students demonstrate their understanding (meaning-making and transfer) through authentic performance?</p> <p><i>Consider the six facets when developing assessments of understanding. Use the G.R.A.S.P.S. elements to frame an authentic context for the task(s).</i></p> <p>SUPPLEMENTARY EVIDENCE <i>Skill checks, Quizzes, Tests, Skills etc.</i></p>
	<p>What other evidence will you collect to determine whether Stage 1 goals were achieved?</p>	

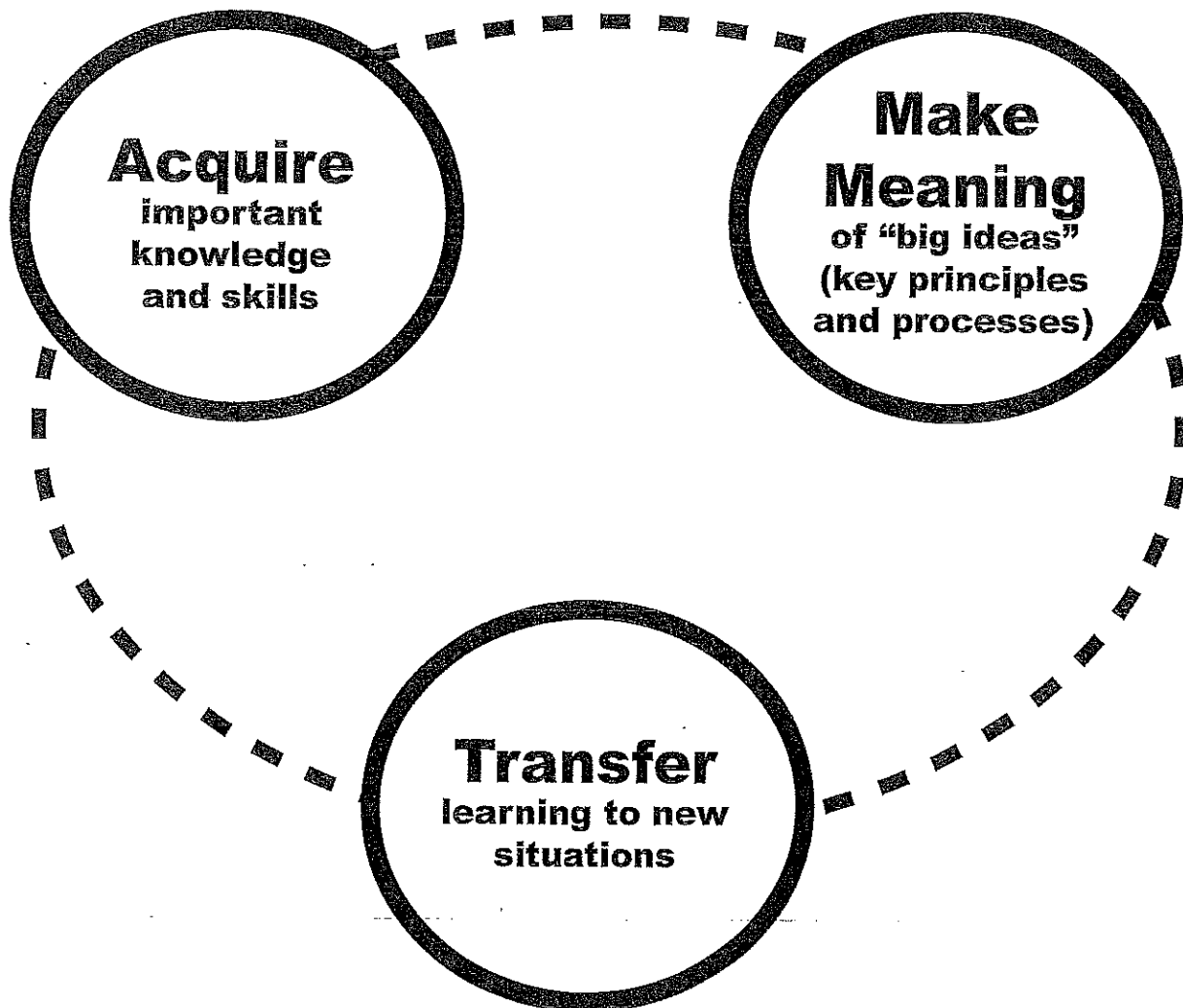
Stage 3 – Learning Plan

Coding	<p style="text-align: center;">What pre-assessments will you use to check students' prior knowledge, skill levels and potential misconceptions?</p> <hr style="border-top: 1px dotted black;"/> <p style="text-align: center;">KEY LEARNING EVENTS</p> <p style="text-align: center;">Are all three types of goals (acquisition, meaning making, and transfer) addressed in the learning plan?</p> <p style="text-align: center;">Does the learning plan reflect principles of learning and best practices?</p> <p style="text-align: center;">Is there tight alignment across all three stages?</p> <p style="text-align: center;"><i>While detailed lesson plans are not expected here, you should include sufficient information so that another teacher who is familiar with the unit's content could understand and follow the basic learning plan. That means not just stating WHAT learners will do but WHY ; i.e., the purpose of the learning the activity.</i></p> <p style="text-align: center;"><i>Optional: Use the column on the left to code your learning activities; e.g., their alignment with Stage 1 elements, T-M-A, or W.H.E.R.E.T.O.</i></p>	<p style="text-align: center;"><i>Pre-assessment</i></p>	<p style="text-align: center;"><i>Formative Assessments</i></p>	<p>How will you monitor students' progress towards acquisition, meaning-making, and transfer during the unit?</p> <p>What are potential trouble spots and student misunderstandings?</p> <p>How will students get the feedback they need and opportunities to make use of it?</p>
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Three Types of Learning Goals

We have found it useful to consider three types of 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 goals are interrelated, yet distinct. The distinctions are important since each type of goal requires different approaches to both instruction and assessment.

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. Ideally, units are framed with long-term **transfer** goals in mind.



UbD Unit Design Standards 2.0

Key: 3 = meets the standard 2 = partially meets the standard 1 = does not yet meet the standard

Stage 1	3	2	1	Feedback & Guidance
1. The listed Transfer Goals specify desired long-term, genuine accomplishment.				
2. The identified Understandings reflect important, transferable ideas.				
3. The identified Understandings are stated as full-sentence generalizations – <i>Students will understand that...</i>				
4. Essential Questions are open-ended and thought provoking.				
5. Relevant Standards, Mission, and/or Program Goals are addressed explicitly in all 3 Stages.				
6. The identified knowledge and skills are needed to address the established goals, achieve the targeted understanding(s), and support transfer.				
7. All the elements are aligned so that Stage 1 is focused and coherent.				
Stage 2				
8. The specified assessments provide valid evidence of all desired results; i.e., Stage 2 aligns with Stage 1.				
9. The specified assessments include authentic transfer tasks based on one or more facets of understanding.				
10. The specified assessments provide sufficient opportunities for students to reveal their attainment of the Stage 1 goals.				
11. Evaluative criteria for each assessment are aligned to the Desired Results in Stage 1.				
Stage 3				
12. Appropriate learning events and instruction will help learners:				
a. Acquire targeted knowledge and skills.				
b. Make meaning of important ideas.				
c. Transfer their learning to new situations.				
13. The W.H.E.R.E.T.O. elements are included so that the unit is likely to be engaging and effective for all learners.				
Overall				
14. All 3 stages are coherent and in alignment.				
15. The unit design is feasible and appropriate in the time available.				

Four Types of Big Ideas

concepts

- adaptation
- equivalence
- rhythm
- migration
- diversity
- perspective

themes

- good & evil
- heroes & sheroes
- the Gilded Age
- freedom & responsibility
- the nature of truth
- the pursuit of happiness

Big Ideas

processes

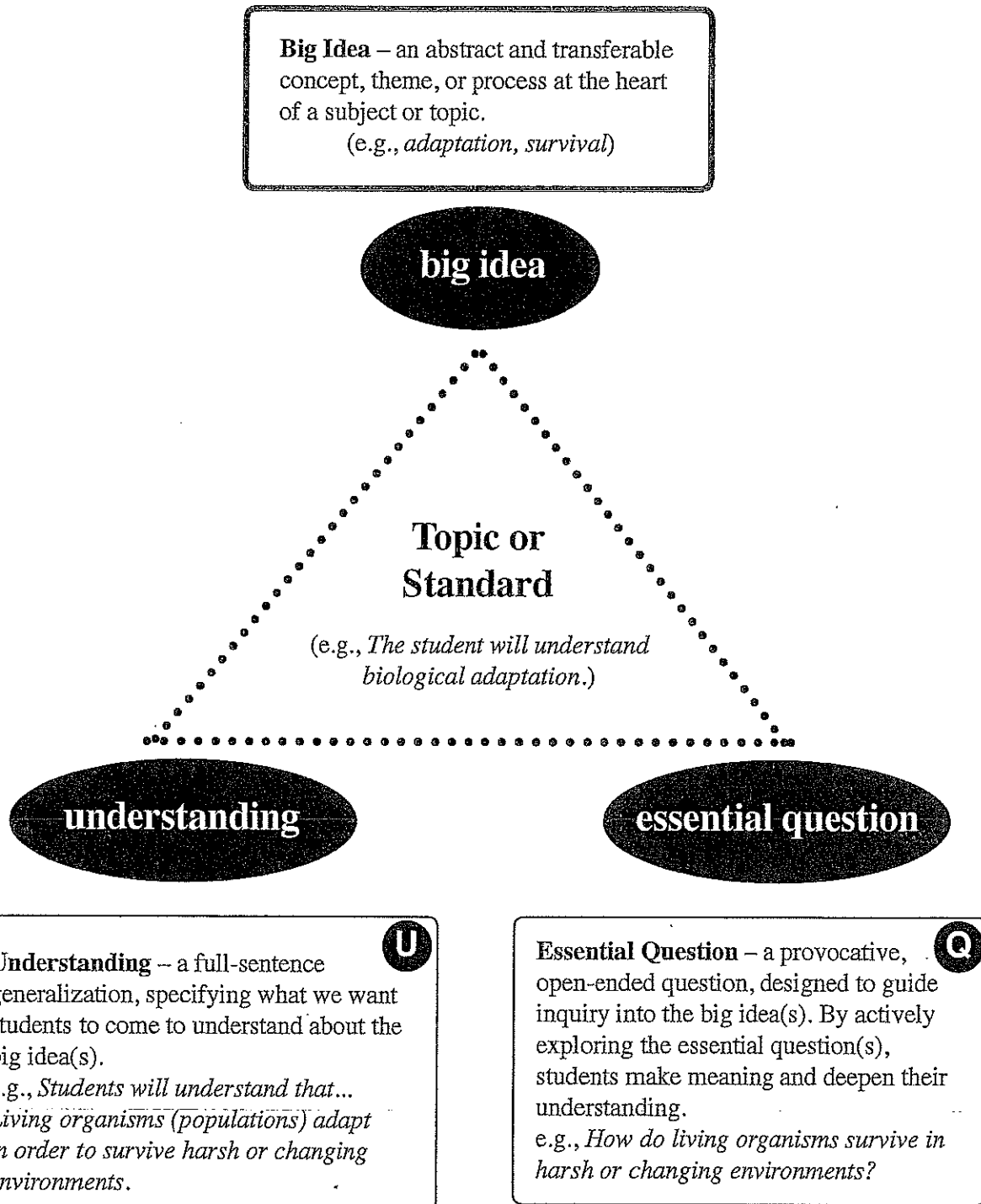
- Critical Thinking
- Problem Solving
- Scientific Investigation
- Writing Process
- Historical Inquiry
- Creativity

principles

- Force equals mass times acceleration ($F=MA$).
- Price is a function of supply and demand.
- Water seeks its own level.
- In the absence of forces, an object at rest will remain at rest.

Big Ideas, Understandings and Essential Questions

The following visual represents the interrelationship among big ideas, understandings and essential questions. Understanding is needed for transfer.



UNDERSTANDINGS



Definition

Understandings refer to the important, transferrable ideas and processes that students should come to understand. Understandings differ in scope and breadth. **Overarching** understandings point beyond the specifics of a unit to the larger, transferrable ideas that spiral throughout the curriculum. **Topical** understandings target the particular insights we want students to attain within a unit of study. Topical understandings are less likely to transfer to other topics. Effective understandings...

- Reflect important, transferrable ideas
- Are stated as full-sentence generalizations in response to the stem:

Students will understand that...

Desired understandings are identified in Stage 1 for the purpose of:

1. focusing curriculum around enduring, transferable learning to avoid fixation on simply covering and testing discrete learning objectives;
2. encouraging active meaning making by students; and
3. preparing students to be able to transfer their learning to new situations.

Overarching Understandings	Topical Understandings
English/Language Arts Audience and purpose influence a writer's choice of organizational patterns, language, and literary techniques to elicit an intended response from readers.	<u>Unit on Poetry</u> Poets use rhyme schemes, meter (regular rhythms) and word sounds (e.g., alliteration) to engage their readers.
Science The way in which an object or living thing is shaped and its substructure determine many of its properties and functions.	<u>Unit on Cells</u> Special structures within cells are responsible for particular functions, and the cell membrane forms the boundary that controls what enters and leaves the cell.
Physical Education A muscle that contracts through its full range of motion will generate greater force.	<u>Unit on Golf</u> A full stroke with follow-through will increase your distance on a drive.

Understandings

examples

Students will understand that....

Arithmetic (numeration)

- Numbers are concepts that enable people to represent quantities, sequences, and rates.
- Different number systems can represent the same quantities (e.g., bases).

Art

- The greatest artists often break with established traditions and techniques to better express what they see and feel.
- Available tools, techniques and resources influence artistic expression.
- Great art addresses universal themes of human existence.

Dance

- Dance is a language of shape, space, timing and energy.
- Movement can communicate ideas and feelings.

Economics

- In a free-market economy, price is a function of supply and demand.
- Relative scarcity may lead to trade and economic interdependence or to conflict.

Foreign/World Language

- Studying other languages and cultures offers insights into our own.
- Meaning is conveyed through phrasing, intonation, and syntax. (Just because you can translate all the words doesn't mean you understand the speaker.)

Geography

- The topography, climate, and natural resources of a region influence the culture, economy, and life-style of its inhabitants.
- All maps distort the earth's representation of area, shape, distance, and/or direction.

Government

- Democratic governments must balance the rights of individuals with the common good.
- A written constitution sets forth the terms and limits of a government's power.
- Different political systems vary in their tolerance and encouragement of innovation.

History

- History involves interpretation; historians can and do disagree.
- Historical interpretation is influenced by one's perspective (e.g., freedom fighters vs. terrorists).

Media/Technology

- Technological progress presents new possibilities and problems.
- Just because it is on the Internet or in a book, doesn't make it true.

Understandings

examples

Literature

- Novelists often provide insights about human experience through fictional means.
- An effective story engages the reader by setting up questions – tensions, mystery, dilemmas, or uncertainty - about what will happen next.
- Everybody is entitled to an opinion about what a text means, but some interpretations are more insightful and supportable than others.

Mathematics

- Sometimes the “correct” mathematical answer is not the best solution to “real-world” problems.
- Heuristics are strategies that can aid problem solving (e.g., breaking a complex problem into chunks, creating a visual representation, working backward from the desired result, guess and check).
- Statistical analysis and data display often reveal patterns that may not be obvious.

Music

- The silence is as important as the notes.
- Popular music has shifted from emphasizing melody and lyrics to emphasizing multi-layered rhythms.

Physical Education/Athletics

- Creating “space” away from the ball/puck spreads the defense and increases scoring opportunities (e.g., in basketball, soccer, football, hockey, water polo, and lacrosse).
- The most efficient and effective swimming strokes involve pulling and pushing the water directly backward.
- Proper follow through increases accuracy when throwing (e.g., baseball, foul shot) and swinging (e.g., golf, tennis).

Reading/Language Arts

- Effective readers use specific strategies to help them better understand the text (e.g., using context clues, questioning the author, predicting what will come next, re-reading, summarizing, etc).
- Different types of texts (e.g., narrative, mystery, biography, expository, persuasive, etc.) have different structures. Understanding a text’s structure helps a reader better understand its meaning.

Science

- Scientific claims must be verified by independent investigations.
- Standardized measures allow people to more accurately describe the physical world.
- Correlation does not insure causality.

Writing

- Audience and purpose (e.g., to inform, persuade, entertain) influence the use of literary techniques (e.g., style, tone, word choice).
- Punctuation marks and grammar rules are like highway signs and traffic signals – they guide readers through the text to help avoid confusion.

ESSENTIAL QUESTIONS



Definition

Open-ended questions designed to promote sustained inquiry and meaning making. Essential questions differ in scope and breadth. We distinguish between overarching and topical questions. **Overarching** essential questions point beyond the particulars of a unit to the larger, transferable ideas and enduring understandings that cut across topics. They recur fruitfully across the grades, spiraling throughout the curriculum to provide conceptual through lines. Effective overarching essential questions:

- are broad and general in nature; and
- lead to overarching understandings

Topical essential questions are more specific. They guide the exploration of ideas and processes within particular topics within a unit of study.

Essential questions are identified in Stage 1 for the purpose of:

1. Provoking deep thought, lively discussion, sustained inquiry, and additional questions leading to new and/or deeper insight(s).
2. Asking students to consider alternatives, weigh evidence, support their ideas and rethink key ideas.
3. Support connections within and across content and context.

Examples

Overarching Essential Questions	Topical Essential Questions
<p>Visual Art</p> <ul style="list-style-type: none">• <i>In what ways does art reflect culture as well as shape it?</i>• <i>How do artists choose tools, techniques, and materials to express their ideas?</i> <p>English/Language Arts</p> <ul style="list-style-type: none">• <i>What makes a great story?</i>• <i>How do effective writers hook and hold their readers?</i>	<p>unit on masks</p> <ul style="list-style-type: none">• <i>What do masks and their use reveal about the culture? What tools, techniques, and materials are used in creating masks from different cultures?</i> <p>unit on mysteries</p> <ul style="list-style-type: none">• <i>What is unique about the mystery genre?</i>• <i>How do great mystery writers hook and hold their readers?</i>

Concept Attainment – Essential Questions

Part 1 - Examine the following examples and non-examples to determine the common characteristics of Essential Questions. List these in the box below.

Essential Questions	Not Essential Questions
<ol style="list-style-type: none"> 1. How are "form" and "function" related in biology? 2. How do effective writers hook and hold their readers? 3. Who "wins" and who "loses" when technologies change? 4. Should it be an axiom if it is not obvious? 5. What distinguishes fluent foreigners from native speakers? 6. How would life be different if we couldn't measure time? 	<ol style="list-style-type: none"> 7. How many legs does a spider have? How does an elephant use its trunk? 8. What is "foreshadowing"? Can you find an example of "foreshadowing" in the story? 9. What is the original meaning of the term, technology (from its Greek root, "techne")? 10. By what axioms are we able to prove the Pythagorean theorem? 11. What are some French colloquialisms? 12. How many minutes are in an hour? How many hours are in a day?

List common characteristics of the Essential Questions:

No one "right" answer, cannot be answered in one sentence, requires combination of conceptual understanding, practical application/background knowledge, and factual knowledge. Higher Order Thinking

Part 2 - Use your list of characteristics as criteria to determine which of the following are Essential Questions. Check "yes" or "no" after each example.

	YES	NO
13. What is the relationship between popularity and greatness in literature?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
14. When was the Magna Carta signed?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
15. Crustaceans - what's up with that?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
16. To what extent are common sense and science related?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
17. Which modern U.S. president will have the most disappointing legacy?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
18. What's the pattern?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Refine your list of key characteristics of Essential Questions:

Essential Questions

examples

Arithmetic (numeration)

- What is a number?
- Why do we have numbers? What if we didn't have numbers?
- Can everything be quantified?

Arts (visual and performing)

- Where do artists get their ideas?
- How does art reflect, as well as shape, culture?
- Do you like that (artwork)?

Culinary Arts

- When is it o.k. to deviate from the recipe?
- What makes a "safe" kitchen?

Dance

- How and what can we communicate through the "language" of dance?
- In what ways can motion evoke emotion?

Economics

- What determines value?
- Can macro-economics inform micro-economics (and vice-versa)?

Foreign/World Language

- What distinguishes a fluent foreigner from a native speaker?
- What can we learn about our own language and culture from studying another?

Geography

- What makes places unique and different?
- How does *where* we live influence *how* we live?

Government

- Who should decide?
- How should we balance the rights of individuals with the common good?

Health

- What is "healthful" living?
- How can a diet be healthy for one person and not another?

Essential Questions

examples

History

- Whose “story” is it?
- How do we know what to believe about historical claims?
- What can we learn from the past?

Literature

- What makes a “great” book/story?
- What “truths” can fiction reveal? Should a story teach you something?

Mathematics

- When is the “correct” answer not the best solution?
- What are the limits of mathematical representation/modeling?

Music

- How are sounds and silence organized in various musical forms?
- If practice makes perfect, what makes “perfect” practice?

Physical Education/Athletics

- Who is a “winner?”
- Is pain necessary for progress in athletics? (“No pain, no gain” – agree?)

Reading/Language Arts

- How does *what* you read influence *how* you should read it?
- How do you read “between the lines?”
- Why do we punctuate? What if we didn’t have punctuation marks?

Science

- To what extent are science and common sense related?
- How are “form” and “function” related in biology?

Technology

- In what ways can technology enhance research and communication? In what ways might technology hinder them?
- What are the pros and cons of technological progress?

Writing

- How do effective writers hook and hold their readers?
- How does audience and purpose influence writing style?
- What is a “complete” thought?

What Makes an Essential Question?

Questions that meet all or most of the following criteria qualify as “essential.” An essential question:

1) is open-ended; i.e., it typically will not have a single, final, and correct answer.

Essential questions yield inquiry and argument -- a variety of plausible (and arguable) responses, not straightforward facts that end the matter. They should *uncover* rather than cover (up) the subject’s controversies, puzzles, and perspectives.

2) is thought-provoking and intellectually engaging, often sparking discussion and debate.

Essential Questions work best when they are designed and edited to be thought-provoking to students, engaging them in sustained, focused inquiries. Such questions often involve the counter-intuitive, the visceral, the whimsical, the controversial, the provocative. *Is the Internet dangerous for kids? Are censorship and democracy compatible? Does food that is good for you have to taste bad?*

3) calls for high-order thinking, such as analysis, inference, evaluation, prediction. It cannot be effectively answered by recall alone (or via a Google search).

Their aim is to stimulate thought, to provoke inquiry, and to spark more questions, including thoughtful student questions, not just pat answers. They serve as doorways into focused yet lively inquiry and research. They are intended to result in conclusions drawn by the learner, not recited facts.

4) points toward important, transferable ideas within (and sometimes across) disciplines.

Essential questions reflect the most historically important issues, problems and debates in a field of study. *Is history inevitably biased? What is a proof? Nature or nurture?* By examining such questions, students are engaged in thinking like an expert (i.e., “doing” the subject).

5) raises additional questions and sparks further inquiry.

Thought-provoking essential questions are naturally generative. They lead to other important questions within, and sometimes across, subject boundaries. For example: *In nature, do only the strong survive?* leads to other questions and inquiries into human biology and the physics of physiology. *What do we mean by “strong?” Are insects strong (since they are survivors)?*

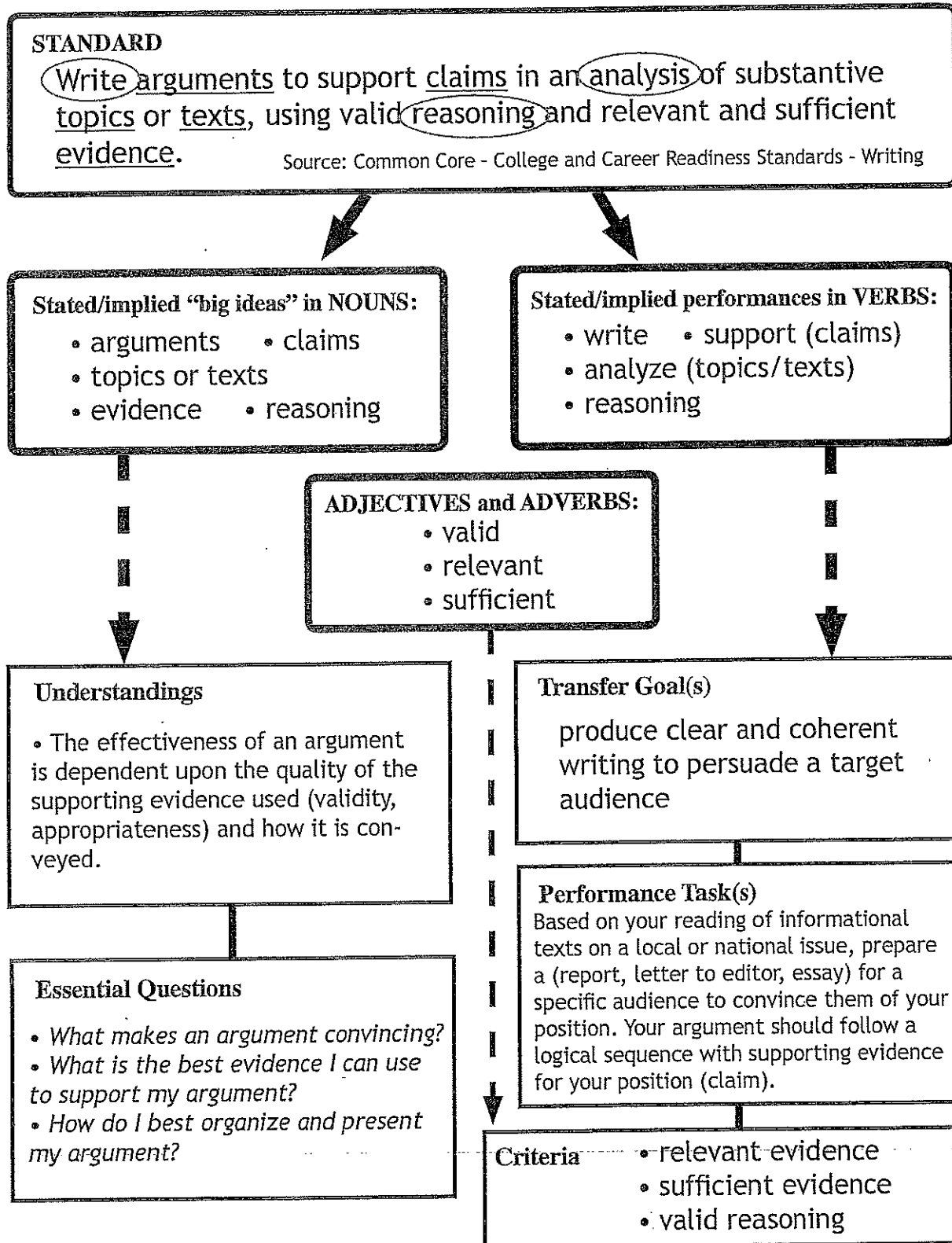
6) requires support and justification, not just an answer.

Essential questions are intended to elicit a variety of plausible (and arguable) responses. Students are expected to provide reasons and evidence. Thus, teachers pose follow-up prompts; e.g., *Why?, What’s your reasoning? Who agrees? Who disagrees? What’s another way of viewing this?*

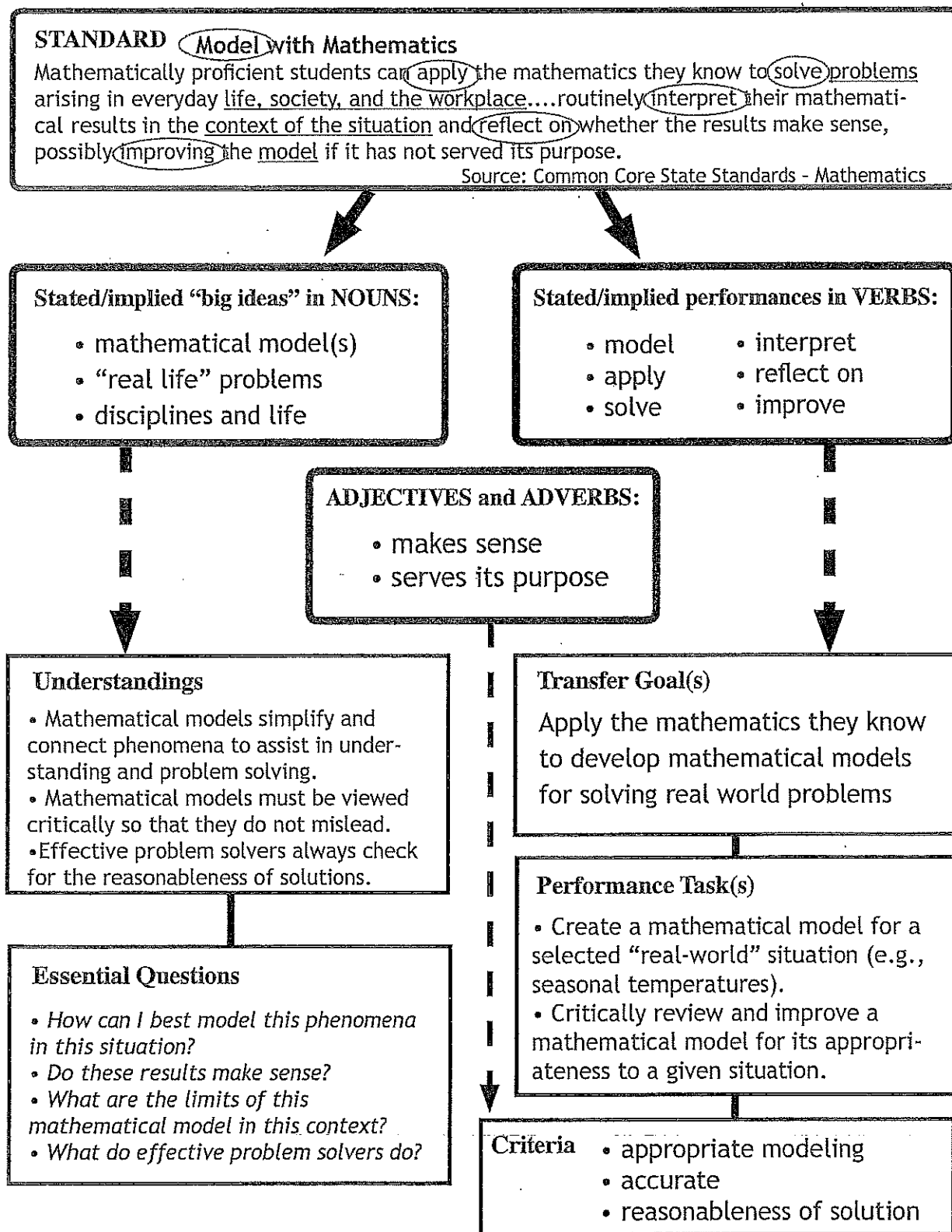
7) recurs over time; i.e., the question can and should be re-visited again and again.

These are questions that are not answerable with finality in a single lesson or brief sentence – and that’s the point. The same important questions get asked and re-asked throughout one’s learning and in the history of the field. For example: *What makes a great book great? Are the Harry Potter novels great books?* can be productively examined and re-examined by first graders as well as college students. Over time, student responses become more sophisticated, nuanced, and well-reasoned.

Unpacking Standards - "Inside Out" Method



Unpacking Standards - "Inside Out" Method



Sources of Assessment Evidence: Self Assessment

Directions: Use the following scale to rate your “level of use” of each of the following assessment tools (at the classroom, school or district level). What do the survey results suggest? What patterns do you notice? Are you collecting appropriate evidence for *all* the desired results, or only those that are easiest to test and grade? Is an important learning goal “falling through the cracks” because it is not being assessed?

4 = Frequent Use
3 = Use Sometimes
2 = Occasional Use
1 = Do Not Use

- 4 1. selected-response format (e.g., multiple-choice, true-false) quizzes and tests
- 4 2. written/oral responses to academic prompts (short-answer format)
3. performance assessment tasks, yielding:
- 4 extended written products (e.g., essays, lab reports)
- 2 visual products (e.g., Power Point show, mural)
- 2 oral performances (e.g., oral report, foreign language dialogues)
- 1 demonstrations (e.g., skill performance in physical education)
- 1 4. long-term, “authentic” projects (e.g., senior exhibition)
- 1 5. portfolios - collections of student work over time ← used to use
- 1 6. reflective journals or learning logs
- 4 7. informal, on-going observations of students
- 3 8. formal observations of students using observable indicators or criterion list
- 3 9. student self-assessments
- 1 10. peer reviews and peer response groups
11. other: _____

A Collection of Assessment Evidence

(example - 4 week unit on Nutrition for grade 6)

Performance Tasks:

You Are What You Eat - Create a picture book to teach 1st graders about "healthful" eating and show at least 2 health problems that may result from poor nutrition.

Camp Menu - Design a "balanced" 3-day menu for meals and snacks for a weekend camping trip. Explain why your menu plan is both healthy and tasty.

Note: Both performance tasks will be evaluated with rubrics.

Other Evidence:

(e.g., tests, quizzes, prompts, work samples, observations, etc.)

Quiz on the food groups and their nutritional benefits

Skill Check on reading and interpreting nutrition information on food labels.

Unit Test on health problems caused by poor eating.

Student Reflection on Daily "eating" Journal -

- To what extent are you a "healthy" eater?
- What could you do to become more of one?

What is Understanding?

Part 1 – How would you define “understanding”? What does it mean to really understand or “get it”?

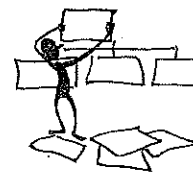
Someone who understands...

- Can teach someone else
- Can demonstrate it
- Can evaluate whether someone else can do it
- Can apply their understanding to a new exercise
- Can make connections
- Can create

Part 2 - What are concrete indicators of *really* understanding something (as apposed to merely knowing important facts about it)? What can the person with understanding do that the person with only knowledge—even lots of knowledge—cannot do?

<i>Indicators of Understanding</i>	<i>Indicators of Knowledge without Understanding</i>
→ Can show others how	Can do it themselves
→ Can explain what, how + why they did	but can't help others to do it
→ Can evaluate	Can't explain what they did
→ Can create a new one	Can't use the knowledge in a practical application
→	

Performance Tasks



Performance tasks ask students to apply knowledge and skills to a new situation, and typically yield tangible products and performances that serve as evidence of learning. These tasks can be used as rich learning activities or as assessments. 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 = *extensively* 2 = *somewhat* 1 = *not yet*

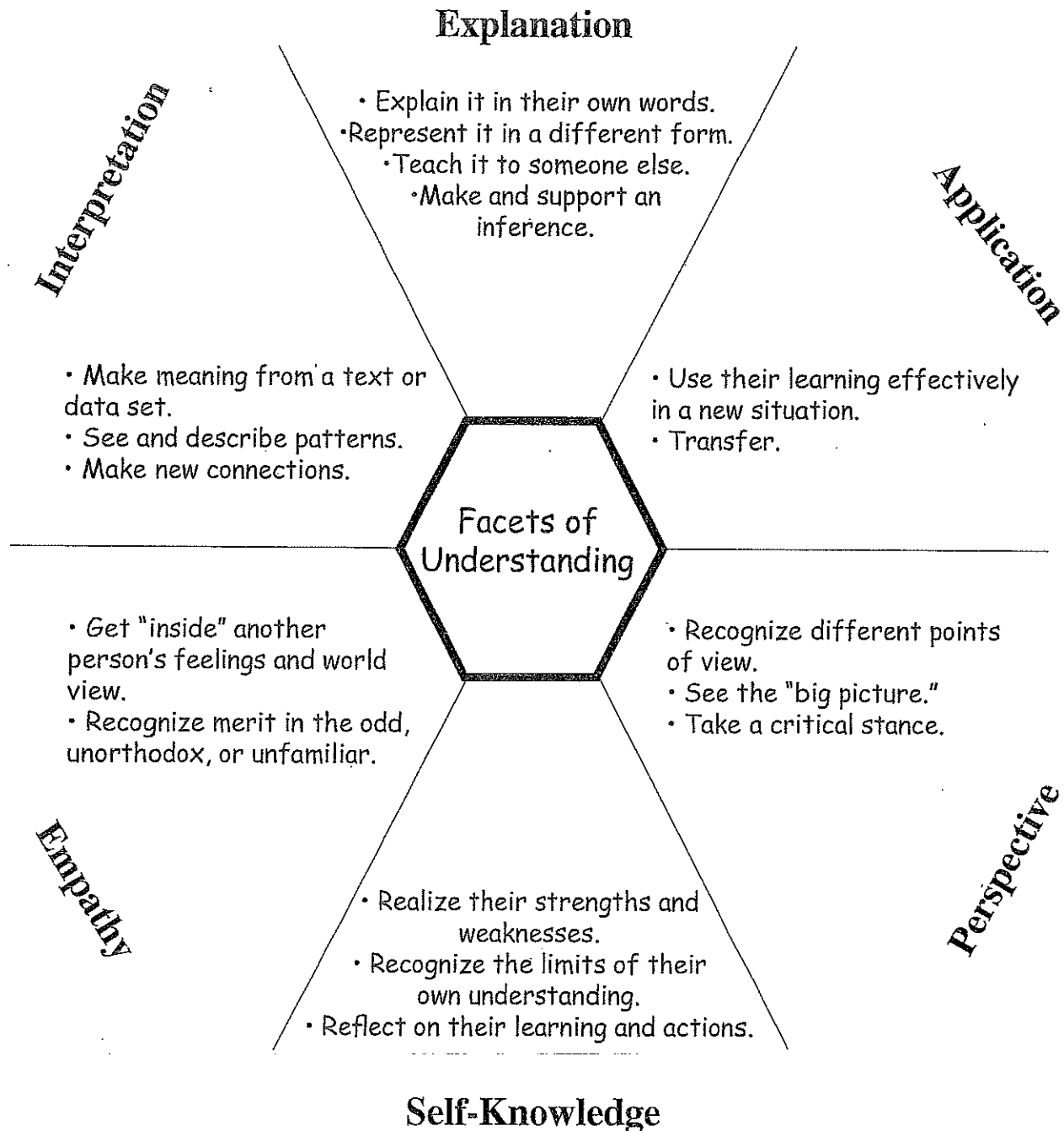
CRITERIA

1. The task aligns with targeted standard(s)/outcome(s) and one or more of the 4C's – critical thinking, creativity, communication, collaboration.	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., includes a realistic purpose, a target audience, and genuine constraints.	3	2	1
5. 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
6. The task directions for students are clear.	3	2	1
7. The task will be feasible to implement.	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

The Facets of Understanding

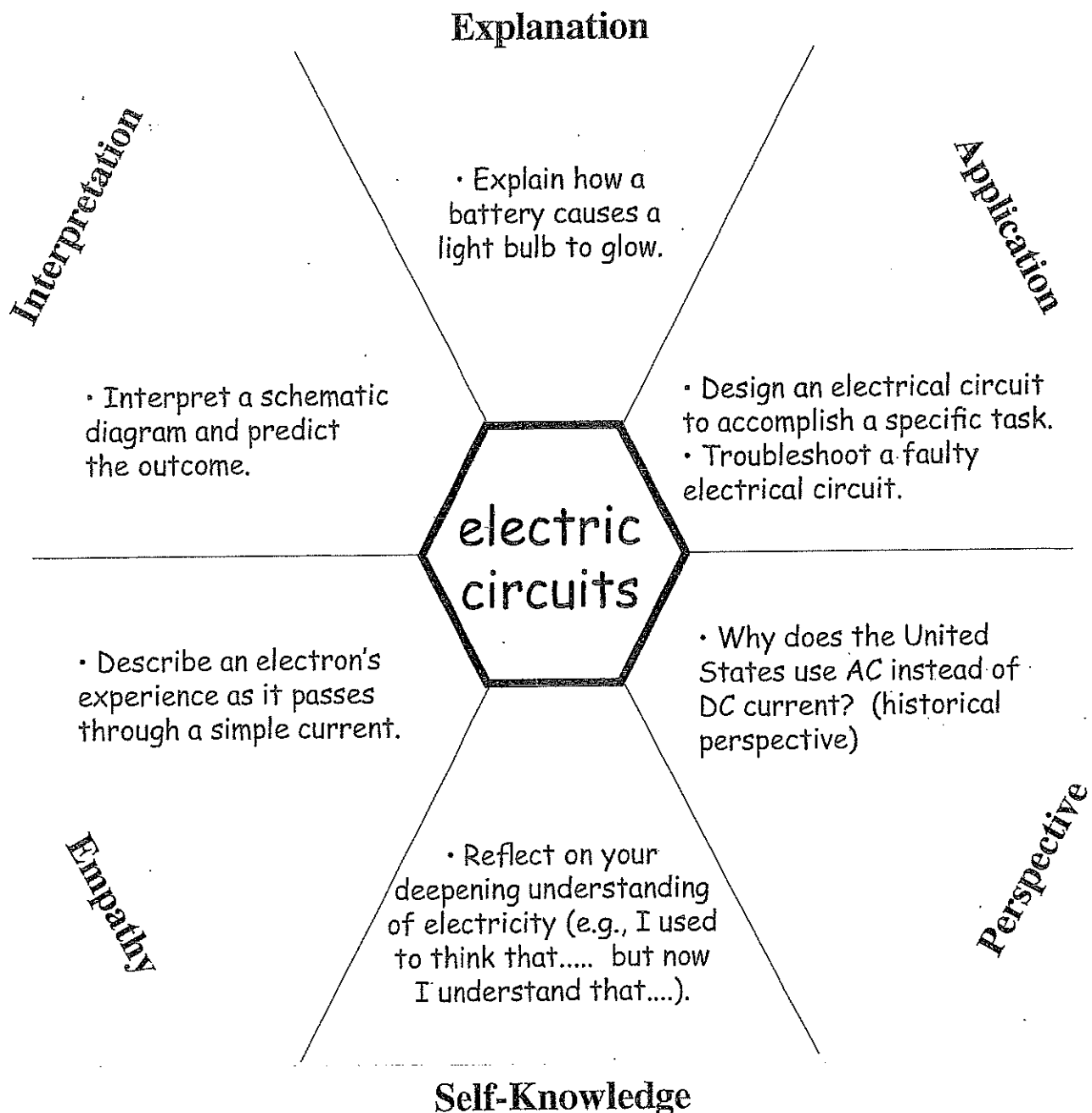
The facets of understanding provide *indicators* of understanding and thus can be used to select or develop assessments.

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.)

<i><u>explain</u></i>	<i><u>interpret</u></i>	<i><u>apply</u></i>	<i><u>perspective</u></i>	<i><u>empathy</u></i>	<i><u>self-knowledge</u></i>
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 lines	produce			
predict	represent	propose			
prove	tell a story of	solve			
show	translate	test			
synthesize		troubleshoot			
teach		use			

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!

Matrix Method -- Mathematics Common Core Standards

Practice Standards	1 Make sense of problems and persevere in solving them.	2 Reason abstractly and quantitatively.	3 Construct viable arguments and critique the reasoning of others.	4 Model with mathematics.	5 Use appropriate tools strategically.	6 Attend to precision.	7 Look for and make use of structure.	8 Look for and express regularity in repeated reasoning.
MATH GR 3								
Content Standards								
Represent and solve problems involving multiplication and division.								
Understand properties of multiplication and the relationship between multiplication and division.								
Multiply and divide within 100.								
Solve problems involving the four operations, and identify and explain patterns in arithmetic.								
Use place value understanding and properties of operations to perform multi-digit arithmetic.								
Develop understanding of fractions as numbers.								
Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.								
Represent and interpret data.								
Geometric measurement: understand concepts of area and relate area to multiplication and to addition.								
Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.								
Reason with shapes and their attributes.								

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?

Painting a Schoolroom – *Mathematics, grades 7-9*

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.

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.

From the Mountains to the Seashore – *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 province] 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 province] has influenced the 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.

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.

Performance Task Examples

Find the Best Deal – *Mathematics, High School*

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.

Pulse Rate – *Science, grade 6-9*

Design and conduct an investigation to answer the question, How does exercise affect the pulse rate? Compare normal pulse rate to changes caused by two selected physical activities (e.g., jogging, push-ups, squats, swimming) for designated intervals. Prepare a report to explain the results to other students in a news article, graphic, e-mail or other appropriate media.

Active Citizen – *Social Studies, Language Arts, grade 4-9*

You have an idea that you believe will make your school/community better, and you want to convince school/community leaders that they should act on your idea. Identify your audience (e.g., principal, PTSA Board, students, city council, citizens) and:

- Describe your idea.
- Explain why & how it will improve the school/community.
- Develop a plan for acting on your idea.

Your idea and plan can be communicated to your target audience in a letter, e-mail, public service announcement or presentation.

Pooper Scooper – *Science, grade 4-6*

The Pooper Scooper Kitty Litter Company claims that their litter is 40% more absorbent than other brands. You are a Consumer Advocates researcher who has been asked to evaluate their claim. Develop a plan for conducting the investigation. Your plan should be specific enough so that the lab investigators could follow it to evaluate the claim.

Performance Task Examples

Hall of Recognition – *Social Studies, Language Arts, grade 4-5*

The state has announced the establishment of a Hall of Recognition to honor the contributions of local citizens to their community, the state or the nation. Since you are learning about famous individuals from _____, you have been asked to nominate a candidate who you believe would be worthy of admission to the Hall.

Your task is to select and research the life of your chosen individual. Submit a nomination letter to the Hall's selection committee explaining the reasons why your candidate should be included Hall of Recognition. Be sure to describe his/her accomplishments and the contributions they he/she has made.

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.

Chemical Equilibrium – *Chemistry, grades 11 - 12*

You are a researcher hired by a group of expert mountain climbers. Hypoxia is the set of symptoms (headache, fatigue, nausea) that comes from a lack of oxygen in body tissues. It is often felt by mountain climbers as they ascend altitude quickly. Sherpas, long-time residents of high altitudes, seem to feel no hypoxic discomfort. Why might that be? Your group wants to know, and to benefit from the knowledge.

Design a series of experiments that would test the difference in hypoxic symptoms between mountain climbers and sherpas. Explain, using chemical equilibrium, why high altitude causes hypoxia in the climbers. How can sherpas avoid these symptoms? How can you test for these possibilities? What would a positive test look like? What inherent errors would you have to be aware of?

Tour Director – *World Languages - Level 1*

You serve on a Welcome Committee to provide tours for new students. Plan a trip to three places (e.g., school, town, mall) in the new student's target language. Incorporate the following vocabulary: directions (left, right, near, far, next to, etc.), places (e.g., classrooms, cafeteria, gym, library, labs, churches, police and fire stations, schools, restaurants, stores) and transportation (e.g., bus, bike, stairs, escalators, taxi, train, car). Remember to include a variety of locations, directions, and forms of transportation on your "trips." Keep sentences simple and narrate in the target language.

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 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?

Four 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). The chart below offers ideas for different types of criteria and their associated 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 focused 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

What Is Exemplary Design for Learning?

1. Think back to your many prior experiences with well-designed learning, *both in and out of school*. What was the most **well-designed learning experience** you have ever encountered as a learner? What features of the design - *not* the teacher's style or your interests - made the learning so **engaging and effective**? (Design elements include: challenges posed, sequence of activities, resources provided, assignments, assessments, groupings, teacher's role, etc.). Briefly describe the design, below:

2. In sharing your recollections and analyses with your colleagues, build a **list of generalizations that follow** from the accounts. What do well-designed learning experiences have in common? In other words, what must be built in "by design" for any learning experience to be maximally **effective and engaging** for students?

The best designs for learning...

- ---
- ---
- ---
- ---
- ---
- ---
- ---
- ---

Seven Principles of Learning*

1. Learning with understanding is facilitated when new and existing knowledge is structured around the major concepts and principles of the discipline.
2. Learners use what they already know to construct new understandings.
3. Learning is facilitated through the use of metacognitive strategies that identify, monitor, and regulate cognitive processes.
4. Learners have different strategies, approaches, patterns of abilities, and learning styles that are a function of the interaction between their heredity and prior experiences.
5. Learners' motivation to learn and sense of self affects what is learned, how much is learned, and how much effort will be put into the learning process.
6. The practices and activities in which people engage while learning shape what is learned.
7. Learning is enhanced through socially supported interactions.

Principles of Instruction for Understanding*

Teaching for conceptual understanding in advanced mathematics and science courses:

1. Maintains students' focus on the central organizing themes and underlying concepts of the discipline.
2. Is based on careful consideration of what students already know, their ideas and ways of understanding the world, and the patterns of practice they bring into the classroom.
3. Focuses on detecting, making visible, and addressing students' often fragile, underdeveloped understandings and misconceptions.
4. Reflects an understanding of differences in students' interests, motivations, preferences, knowledge, and abilities.
5. Is designed to provide the appropriate degree of explicitness for the situation and the abilities of the learners.
6. Recognizes students' preferences for and varying abilities to process different symbol systems, such as language (written and spoken), images, and numerical representations, by employing multiple representations during instruction.
7. Engages students in worthwhile tasks that provide access to powerful mathematical and scientific ideas and practices; moves students to see past the surface features of problems to the deeper, more fundamental principles; and develops their conceptual understanding.
8. Structures learning environments in which students can work collaboratively to gain experience in using the ways of thinking and speaking used by experts in the discipline.
9. Orchestrates classroom discourse so that students can make conjectures, present solutions, and argue about the validity of claims, thus helping them explore old understandings in new ways, reveal misconceptions, and generalize and transfer their learning to new problems or more robust understandings.
10. Provides explicit instruction in metacognition as part of teaching in the discipline.
11. Uses various kinds of formal and informal formative assessments to monitor students' understanding and target instruction effectively.
12. Creates expectations and social norms for the classroom that allow students to experience success and develop confidence in their abilities to learn.

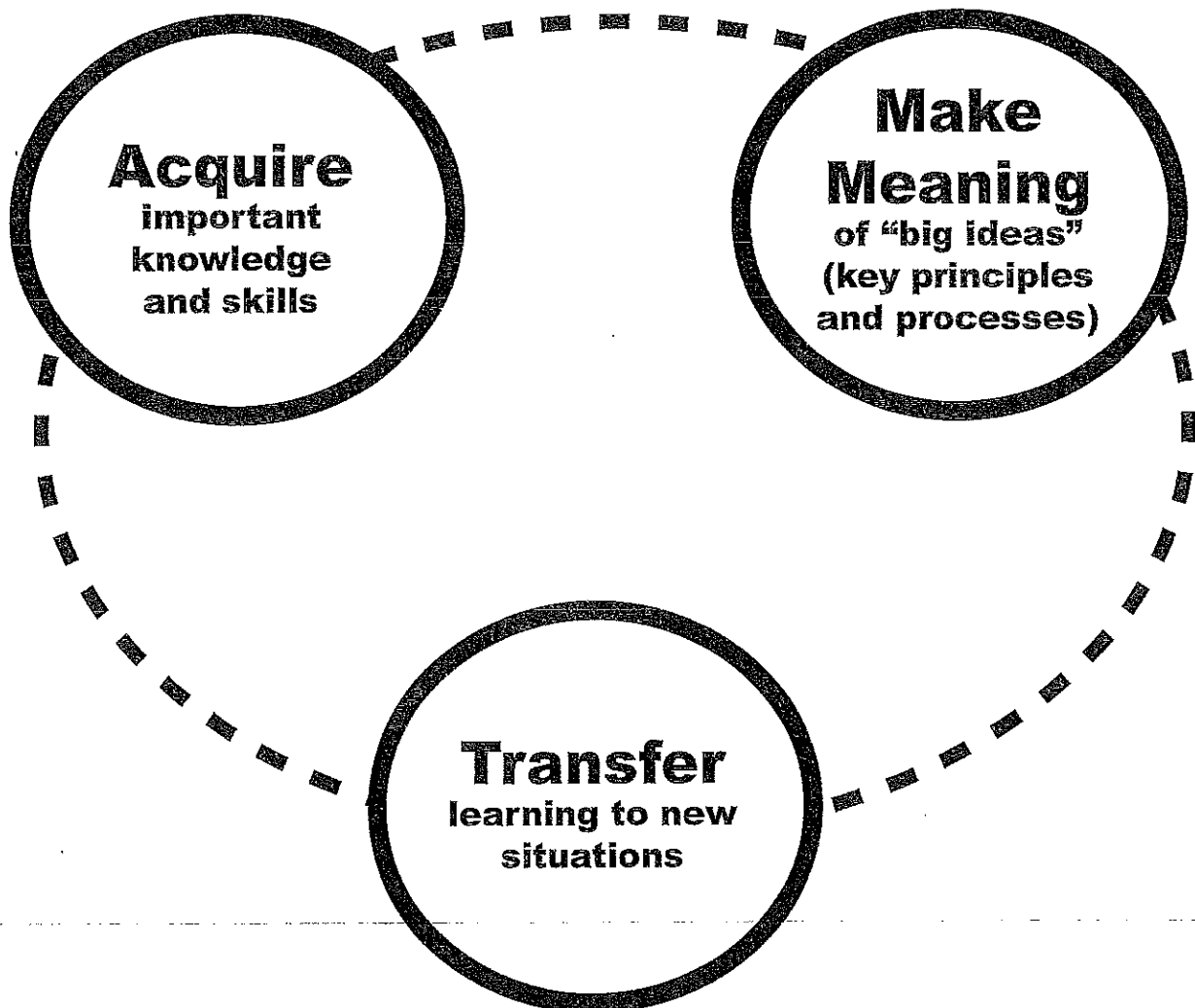
*Source: Committee on Programs for Advanced Study of Mathematics and Science in American High Schools

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.



What is Fair?

Who won this year's 7th grade race around the campus?

Every year Birdsong Middle School has a field day in which classes engage in various outdoor activities. One of the events is a $\frac{3}{4}$ mile run around the perimeter of the campus. Below are the results for the four 7th grade classes. The data show the order of finishes for all of the 7th grade runners.

But there is a problem: The teachers never intended this as a competition, so they did not develop a method of calculating the winning class. However, the students want to know the winner!

What is the fairest way to determine which class should be declared winner?

Your group task is to review the order of finish data in the chart below and decide a FAIR way of deciding which class is the winner? Your group should discuss the problem, decide on a winning class, AND be prepared to explain your reasoning and defend your approach.

<u>Class rank</u>	<u>Class A</u>	<u>Class B</u>	<u>Class C</u>	<u>Class D</u>
1	4	6	1	2
2	9	7	3	5
3	11	10	14	8
4	12	13	18	15
5	20	16	19	17
6	21	22	23	31
7	25	24	28	33
8	26	27	30	36
9	29	34	32	37
10	35	39	41	38
11	43	40	44	46
12	45	42	47	51
13	49	48	50	55
14	54	52	56	57
15	61	53	60	58
16	65	62	63	59
17	69	66	64	67
18	70	72	68	
19	71		73	
20			74	

Notes on the chart:

- The numbers in the chart, from 1 to 74 represent the place of finish of that runner. So, the overall race winner was from Class C, the number two runner overall was in Class D, etc.
- Class rank refers to the rank of finish place in that class, not the overall race. So, the first runner in class A was 4th overall in the race, the 2nd best runner in class A came in 9th overall, etc.
- The blanks reflect the fact that each of the 4 classes has a different number of students.

Coding a Learning Plan Using A - M - T

A = acquiring basic knowledge and skills **M** = making meaning **T** = transfer

Mathematics Unit on Measures of Central Tendency

Essential Question: *What is fair - and how can mathematics help us answer the question?*

1. Introduce and discuss the essential question, first part - What is “fair”? What is “unfair”? **M**
2. Introduce the 7th grade race problem: Which of the 7th-grade classes won the race? What is a fair way to decide? Small-group inquiry, followed by class discussion of answers. **M**
3. Teacher informs students about the mathematical connections derived from the problem analysis, and lays out the unit and its culminating transfer task. **A**
4. In small-group jigsaw, students share their answers to the INQUIRY sheet, then return to their team to generalize from all the small-group work. Discuss other examples related to the concept of “fairness” such as the following. **M**
 - *What is a fair way to rank many teams when they do not all play each other?*
 - *What is a fair way to split up limited food among hungry people of very different sizes?*
 - *When is it ‘fair’ to use majority vote and when is it not fair? What might be fairer?*
 - *Is it fair to have apportioned Representatives based on a state’s population, yet have two Senators from each state irrespective of their size? What might be fairer?*
 - *What are fair and unfair ways of representing how much money the “average” worker earns, for purposes of making government policy?*
5. Teacher connects the discussion to the next section in the textbook - measures of central tendency (mean, median, mode, range, standard deviation). **A**
6. Students practice calculating each type of measure. **A**
7. Teacher gives quiz on mean, median, mode from textbook. **A**
8. Teacher leads a review and discussion of the quiz results. **A M**
9. Group task worked on in class: What is the fairest possible grading system for schools to use? **M T**
10. Individuals and small teams present their grading policy recommendations and reasons. **M T**
11. Culminating transfer task: Each student determines which measure (mean, median or mode) should be used to calculate their grade for the marking period and writes a note to the teacher showing their calculations and explaining their choice. **T**
12. Students write a reflection on the essential question and their learnings as a result of the unit. **M**

Learning Goals and Teaching Roles

	ACQUIRE	MAKE MEANING	TRANSFER
<p>Three Interrelated Learning Goals →</p>	<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>Direct Instruction 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>Facilitative Teaching 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>Coaching 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

Learning Goals and Student Actions

ACQUIRE	MAKE MEANING	TRANSFER
<p><i>In order to acquire knowledge and skills, learners need to:</i></p> <ul style="list-style-type: none"> <input type="radio"/> listen, read, and view carefully <input type="radio"/> respond <input type="radio"/> take notes <input type="radio"/> ask questions <input type="radio"/> use mnemonics <input type="radio"/> link to prior knowledge <input type="radio"/> compare <input type="radio"/> create non-linguistic representations <input type="radio"/> rehearse/practice <input type="radio"/> complete classwork and homework <input type="radio"/> self assess <input type="radio"/> set learning goals <input type="radio"/> employ productive habits of mind 	<p><i>In order to make meaning (i.e., come to an understanding) of important ideas and processes learners need to:</i></p> <ul style="list-style-type: none"> <input type="radio"/> listen, read, and view critically <input type="radio"/> respond thoughtfully <input type="radio"/> take reflective notes <input type="radio"/> critically question <input type="radio"/> compare <input type="radio"/> make inferences <input type="radio"/> create analogies <input type="radio"/> make connections <input type="radio"/> create non-linguistic representations <input type="radio"/> rehearse/practice <i>mindfully</i> <input type="radio"/> self assess <input type="radio"/> reflect on their understanding <input type="radio"/> rethink ideas <input type="radio"/> set learning goals <input type="radio"/> employ productive habits of mind 	<p><i>In order to develop the capacity to transfer their learning, students need to:</i></p> <ul style="list-style-type: none"> <input type="radio"/> apply their learning in novel and increasingly complex situations. <input type="radio"/> observe the results <input type="radio"/> listen to and act on feedback <input type="radio"/> engage in focused practice <input type="radio"/> visualize performance <input type="radio"/> re-try <input type="radio"/> refine <input type="radio"/> rethink action <input type="radio"/> revise <input type="radio"/> reflect on performance <input type="radio"/> employ productive habits of mind

Three Interrelated Learning Goals →

Note: Not every learner action will be applicable to every situation. Nonetheless, these are the kinds of learner actions needed to achieve the various learning results.

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

Video Observation Form

What strengths did you observe? What questions would you pose to the teacher or the students? What suggestions would you offer?

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

10. Other: _____

Video #1

Video #2

Video #3

Characteristics of the Best Learning Designs...

(based on surveys of K-16 faculty throughout the nation)

Expectations *the best learning designs...*

- provide clear learning goals and performance expectations.
- cast learning goals in terms of genuine/meaningful performance.
- frame the work around genuine questions & meaningful challenges.
- show models/exemplars of expected performance.

Instruction *in the best learning designs...*

- the teacher serves as a facilitator/coach to support the learner.
- targeted instruction and relevant resources are provided to “equip” students for expected performance.
- the textbook serves as one resource among many (i.e., text is resource, not syllabus).
- the teacher “uncovers” important ideas/processes by exploring essential questions and genuine applications of knowledge and skills.

Learning Activities *in the best learning designs...*

- individual differences (e.g., learning styles, skill levels, interests) are accommodated through a variety of activities/methods.
- there is variety in work, methods and students have some choice (e.g., opportunities for both group and individual work).
- learning is active/experiential to help students “construct meaning”.
- cycles of *model-try-feedback-refine* anchor the learning

Assessment *in the best learning designs...*

- there is no mystery as to performance goals or standards.
- diagnostic assessments check for prior knowledge, skill level, and misconceptions.
- students demonstrate their understanding through “real world” applications (i.e., genuine use of knowledge and skills, tangible product, target audience).
- assessment methods are matched to achievement targets.
- on-going, timely, and descriptive feedback is provided.
- learners have opportunities for trial and error, reflection and revision.
- self-assessment is expected.

Sequence & Coherence *the best learning designs...*

- start with a “hook”, immerse the learner in a genuine problem/issue/challenge.
- move back and forth from whole to part, with increasing complexity.
- scaffold learning in “do-able” increments.
- teach as needed; don’t over-teach all of the “basics” first.
- revisit ideas – have learners rethink and revise earlier ideas/work.
- are flexible (e.g., respond to student needs; revise plan to achieve goals).

Analyzing Current Practices Against Best Learning Designs

3 = consistently 2 = sometimes 1 = rarely/never

Expectations

To what extent does my/our designs...

- provide clear learning goals and performance expectations (i.e., no mystery for learners)?
- cast learning goals in terms of genuine/meaningful performance?
- frame the work around genuine questions & meaningful challenges?
- show models/exemplars of expected performance?

3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Instruction

To what extent does my/our teaching...

- provide targeted instruction and relevant resources to “equip” students for expected performance?
- use the textbook as one resource among many (i.e., the textbook is a resource, *not* the syllabus)?
- help “uncover” important ideas/processes by exploring essential questions?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Learning Activities

To what extent does my/our learning activities...

- address individual differences (e.g., learning styles, skill levels, interests) through a variety of activities/methods (vs. “one size fits all”)?
- provide variety in work, methods and students have some choice (e.g., opportunities for both group and individual work)?
- include inquiry/experiential opportunities to help students “make meaning” for themselves?
- incorporate cycles of *model-try-feedback-refine* learning experiences?

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<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Assessment

To what extent does my/our assessments...

- provide appropriate measures of *all* of the learning goals?
- ask students to demonstrate their understanding through “real world” applications?
- provide on-going, timely, and descriptive feedback to learners?
- include opportunities for trial and error, reflection and revision?
- allow self-assessment by the learners?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Sequence & Coherence

To what extent does my/our designs...

- include pre-assessments to check for prior knowledge, skill level, and misconceptions?
- begin with a “hook” (e.g., immerse the learner in a genuine problem/issue/challenge)?
- move back and forth from whole to part, with increasing complexity?
- scaffold learning in “do-able” increments?
- revisit important ideas/questions and allow learners to rethink and revise earlier ideas/work?
- remain flexible (e.g., to respond to student needs; allow revisions to achieve goals)?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Using Backward Design to Structure Observations

by Dr. James Reidl

Pre-Observation Conference

Stage 1

- What do you want students to come to understand?
- What do you want students to know and be able to do?
- How will students know what they will be learning?

Stage 2

- What are some forms of evidence you will collect to determine if students have achieved the desired results?
- Are students clear about the criteria for success?

Stage 3

- In what ways will you help students learn this?

Observation

Observation focuses on student actions and products more than on the teacher's actions.

Post-Observation Conference

- To what extent did your students learn what you intended?
- What evidence of learning did you collect? What does it tell you? Is other evidence needed?
- In what ways did you provide feedback?
- Of the strategies you used, which were most effective?

Students' Voices: What do the Learners Tell Us?

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?

- *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 performed 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.*

Understanding by Design Elements: Assessing Your School

Use the continuum to analyze the classroom practices in your school according to the following UbD reform elements.

Desired Results

1. Learning activities clearly address established standards.
2. The textbook is one resource among many used in teaching to the standards.
3. Instruction and assessment are focused on exploring “big ideas” and essential questions.
4. Student understanding of the “big ideas” in content standards is assessed through complex performance tasks using the six facets.
5. Teacher evaluations of student products/ performances are based upon known criteria, performance standards, and models.
6. The students regularly self assess their work based on the established criteria.
7. Teachers regularly pose open-ended questions with no obvious right answer. They are designed to direct and deepen inquiry and understanding.
8. Students are given regular opportunities to rethink and revise their work based on feedback from on-going (formative) assessments.

Needed Changes

1. Learning activities do not typically address established standards.
2. Textbooks serve as the primary teaching resource. (The textbook functions as the syllabus.)
3. Instruction consists primarily of content coverage, doing activities, and/or preparation for high-stakes, standardized tests.
4. Assessment consists primarily of quizzes and tests of factual knowledge and discrete skills.
5. The students do not know (i.e., cannot explain) how their work will be evaluated. They are typically not shown models of exemplary work.
6. Students do not regularly self assess their work according to established criteria.
7. Most teacher questions are convergent, leading questions, pointing toward the knowledge students are expected to learn.
8. Formative assessments are not routinely used. Students are rarely given opportunities to rethink and revise their work based on specific feedback.

How to Kill UbD - by Design

How to Kill UbD – by Design	Tips to Avoid Killing UbD from the Start
<p>1. Mandate that every teacher must use UbD for <i>all</i> of their planning immediately (without sufficient training, on-going support, or structured planning time).</p>	<p>☛ Think <i>big</i>, but start <i>small</i>. For example:</p> <ul style="list-style-type: none"> • Work with volunteers-at first • Ask teachers to plan just one UbD unit per semester for starters. • Encourage teachers to work w/ a colleague or team, and begin w/ a familiar unit topic. • Provide some designated planning time.
<p>2. Assume that staff members understand the need for UbD and/or will naturally welcome it. In other words, prescribe UbD as an “answer” or “solution” when staff do not see or own the “problem.”</p>	<p>☛ Establish the need for a change (e.g., analysis of performance data or staff/student surveys) <i>before</i> proposing a prescription. Make sure that staff see UbD as an appropriate response to a need that they recognize and own.</p>
<p>3. Introduce UbD as <i>this year’s</i> focus – suggesting that UbD can be fully implemented in a year and that it bears no relation to last year’s initiative. (This practice can foster a “This too shall pass” attitude in staff.)</p>	<p>☛ Develop and publish a multi-year plan to show how UbD will be slowly and systematically implemented as part of a larger strategic plan.</p>
<p>4. Attempt to implement too many initiatives simultaneously (e.g., UbD, Differentiated Instruction, Curriculum Mapping, Bran-based Learning, Professional Learning Communities, etc.)</p>	<p>☛ Develop a 1-page graphic (e.g. limbs of a tree, pieces of a puzzle, supports of a building, etc.) showing how the various school/district initiatives are interconnected and support Mission-related goals. Use “backward design” to plan all major initiatives.</p>
<p>5. Provide one introductory presentation/workshop on UbD and assume that teachers now have the ability to implement it well.</p>	<p>☛ Design a long-term professional development program “backward” from your goals. Develop a plan for the year (workshops, study groups, action research, etc.) to develop staff competence and confidence with UbD.</p>
<p>6. Provide UbD training for teachers, but not for administrators, <u>OR</u> give administrators and supervisors the <i>same</i> training as teachers.</p>	<p>☛ Establish parallel tracks of training for administrators in which they learn how to supervise and support UbD; e.g., how to conduct in-class “look-fors,” establish peer reviews of units, form PLC teams to analyze assessment results, etc.</p>

How to Kill UbD - by Design

(continued)

How to Kill UbD - by Design	Tips to Avoid Killing UbD from the Start
7. Provide minimal UbD training for a few teachers in a Train-the-Trainers program and then expect immediate and effective turn-key training of all other staff.	☛ Invest in cultivating expertise in a team. Engage staff in “coming to understand” UbD through study groups, exploration of essential questions and data, etc. Consider using outside experts/consultants to launch UbD when necessary.
8. Train people in Stage 1 for the first year, Stage 2 in year 2, then Stage 3 in Year 3.	☛ Introduce UbD as a “whole.” Begin by working on elements in all three stages (e.g., EQs for Stage 1, Performance Tasks for Stage 2).
9. Announce that UbD is the official way to plan, and from now on, teachers are expected to use the UbD template to plan <i>each and every lesson</i> .	☛ Make clear that the UbD framework is designed for unit and course design, <i>not</i> for planning individual lessons. Encourage teacher teams to agree on Desired Results (Stage 1) and Evidence (Stage 2), then allow teachers some freedom in how they develop and write lessons (Stage 3).
10. Standardize all UbD implementation. Do not permit options/alternatives/different approaches to learning and using UbD. Disregard the interests, talents, and readiness of individuals and teams.	☛ Differentiate UbD implementation as appropriate. For example: <ul style="list-style-type: none"> • Allow different departments and grade-level teams some options for actions and schedule. • Permit minor modifications to the Template to highlight specific school/district goals.
Other: _____ _____ _____ _____	
Other: _____ _____ _____ _____	

