



# The Understanding by Design • **Guide** to •

**Advanced  
Concepts in  
Creating and  
Reviewing  
Units**



Forms and FAQs

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## Forms and FAQs

The figures (worksheets and examples) printed in the book are basic to exploring Understanding by Design. Those figures, along with additional worksheets and FAQs, are included in this download.

**NOTE:** To access individual figures, click on the icon for the page with a bookmark. Then click on the title of the form to go directly to that page.

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Outline of Modules

Stage 1— Desired Results	Stage 2— Assessment Evidence	Stage 3— Learning Plan
Module I: Unpacking Standards	Module J: Identifying Evaluative Criteria for Assessments	Module K: Refining the Learning Plan in Stage 3
Module L: Sharpening Essential Questions and Understandings	Module M: Authentic Assessment and Validity	Module N: Differentiating— Tailoring the Learning Plan to the Learners
Module O: Designing the Lesson Plan for Your Unit		
Module P: Obtaining and Using Feedback		

Figure I.1

## Unpacking Standards Stage 1—Mathematics

Stage 1—Desired Results		
<b>Established Goals</b>  <b>Common Core State Standards in Math</b>  <b>Interpret the structure of expressions</b> 1. Interpret expressions that represent a quantity in terms of its context.  <b>Write expressions in equivalent forms to solve problems</b> 3. Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.  <b>Rewrite rational expressions</b> 6. Rewrite simple rational expressions in different forms.  <b>Mathematical Practices</b> 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.	<b>Transfer</b>	
	<i>Students will be able to independently use their learning to . . .</i> Solve nonroutine problems by persevering: simplify them, interpret expressions, and use equivalent forms based on the properties of real numbers and the order of operations.	
	<b>Meaning</b>	
	<b>UNDERSTANDINGS</b> <i>Students will understand that . . .</i> 1. In mathematics, we accept certain truths as necessary to permit us to solve problems with logical certainty (e.g., the properties of real numbers), whereas other rules are conventions that we assume just for effective communication. 2. We can use the commutative, associative, and distributive properties to turn complex and unfamiliar expressions into simpler and familiar ones when problem solving.	<b>ESSENTIAL QUESTIONS</b> <i>Students will keep considering . . .</i> 1. What important rules and conventions are required to make algebra “work”? 2. How can we simplify this expression?
	<b>Acquisition of Knowledge &amp; Skill</b>	
	<i>Students will know . . .</i> 1. The commutative property and to which operation it applies (and when it does not apply). 2. The associative property and to which operation it applies (and when it does not apply). 3. The distributive property and to which operation it applies (and when it does not apply). 4. The “order of operations” mathematicians use and why is it needed. 5. What PEMDAS mean. 6. What it means to “simplify” an expression via equivalent forms.	<i>Students will be skilled at . . .</i> 1. Writing expressions in equivalent forms. 2. Revealing and explaining properties represented. 3. Rewriting rational expressions in different forms. 4. Identifying equivalence that results from properties and equivalence that is the result of computation. 5. Justifying steps in a simplification or computation by citing applicable laws, properties, conventions.

Source: Goals from high school algebra standards, pp. 63–65. © Copyright 2011, National Governors Association Center for Best Practices and Council of Chief State School Officers. All rights reserved.



Figure I.2

## Unpacking Standards Stages 1–3—English Language Arts

<p><b>Key Ideas and Details</b></p> <p>1. Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.</p>	<p><b>Stage 1: Different Goal Types</b></p> <p>What are the key higher-order VERBS, and what do they suggest the general long-term transfer goal is? <i>Students eventually need to be able, on their own, to...</i></p> <ul style="list-style-type: none"> <li>• Determine what the text says explicitly and infer what the text implies, regardless of text or genre.</li> </ul> <p>What are the key NOUN CONCEPTS, and what do they suggest the big ideas to be mastered and used are? <i>Students will need to organize their thinking, knowledge, and skill around such ideas/questions as...</i></p> <ul style="list-style-type: none"> <li>• Logical inferences.</li> <li>• Textual evidence.</li> </ul> <p>What VERBS state or imply specific skills to be mastered? <i>Students need to be able to demonstrate such skills as...</i></p> <ul style="list-style-type: none"> <li>• Cite specific textual evidence.</li> </ul> <p>What key FACTS must be known and used? <i>Students need to know such facts as...</i></p> <ul style="list-style-type: none"> <li>• Definitions of “logical,” “inference,” “evidence,” “support.”</li> <li>• The facts stated in the text.</li> </ul> <p><b>Stage 2: Assessment</b></p> <p>What are the key VERBS, and what do they suggest the specific assessments need to be? <i>Students will need to show they can...</i></p> <ul style="list-style-type: none"> <li>• Determine what the text says explicitly.</li> <li>• Make logical inferences (from the text).</li> <li>• Support conclusions drawn from the text.</li> <li>• Cite specific textual evidence.</li> </ul> <p>What are the key ADJECTIVES and ADVERBS, and what do they suggest the key criteria for judging work should be? <i>Student performance and products will need to reveal to what extent students ...</i></p> <ul style="list-style-type: none"> <li>• Read <i>closely</i>.</li> <li>• Make <i>logical</i> inferences.</li> <li>• Cite <i>specific</i> textual evidence.</li> </ul> <p><b>Stage 3: Learning Plan</b></p> <p>What do the verbs, nouns, and verb modifiers imply for instruction? <i>The standard can only be reached if students are given instruction, practice, and feedback in...</i></p> <ul style="list-style-type: none"> <li>• How to make sense of a text, how inference is different from inspecting the text, and seeing the difference between sound and unsound evidence and inference when claims are made about the text.</li> </ul>
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Source: Standard excerpt from College and Career Readiness Anchor Standard in *Common Core State Standards for English Language Arts and Literacy in History/Social Studies, Science, and Technical Subjects*, p. 35. © Copyright 2010. National Governors Association Center for Best Practices and Council of Chief State School Officers. All rights reserved.

Figure I.3

### Unpacking Standards Worksheet—Mathematics

<p><b>Common Core Best Practice #4</b></p> <p><b>Model with mathematics.</b> Mathematically proficient students can apply the mathematics they know to solve problems arising in everyday life, society, and the workplace. In early grades, this might be as simple as writing an addition equation to describe a situation. In middle grades, a student might apply proportional reasoning to plan a school event or analyze a problem in the community. . . .</p> <p>Mathematically proficient students who can apply what they know are comfortable making assumptions and approximations to simplify a complicated situation, realizing that these may need revision later. They are able to identify important quantities in a practical situation and map their relationships. . . .</p> <p>They can analyze those relationships mathematically to draw conclusions. They routinely interpret their mathematical results in the context of the situation and reflect on whether the results make sense, possibly improving the model if it has not served its purpose.</p>	Transfer goals in the VERBS:	<ul style="list-style-type: none"> <li>• Apply what they know to everyday problems.</li> <li>• Make assumptions and approximations.</li> <li>• Analyze relationships mathematically and draw conclusions.</li> <li>• Interpret results in context.</li> <li>• Simplify a complicated situation.</li> <li>• Reflect and improve model.</li> <li>• Be able to identify important quantities in a practical situation.</li> </ul>
	Criteria in the ADVERBS and ADJECTIVES:	<ul style="list-style-type: none"> <li>• Mathematically proficient</li> <li>• Context-sensitive</li> <li>• Comfortable</li> <li>• Important quantities</li> <li>• Routinely interpret</li> </ul>
	Possible task ideas:	<ul style="list-style-type: none"> <li>• Plan a school event.</li> <li>• Analyze a problem in the community.</li> </ul>
	Stated or implied big ideas in the NOUNS:	<ul style="list-style-type: none"> <li>• Simplification of a complicated situation</li> <li>• Proportional reasoning</li> <li>• Problems</li> </ul>
	Possible Understandings: <i>Students will understand that . . .</i> <ul style="list-style-type: none"> <li>• Mathematical models simplify and connect phenomena so that we might better understand them.</li> <li>• Mathematical models must be viewed critically so that they do not mislead us into thinking that reality is that simple.</li> </ul>	Possible Essential Questions: <ul style="list-style-type: none"> <li>• How can I simplify this complexity without distorting it?</li> <li>• How do I know if my model is a good one here (for this particular situation)?</li> <li>• What are the limits of my model?</li> </ul>

Source: Standard excerpt from Common Core State Standards, Standards for Mathematical Practice, p. 7. © Copyright 2011, National Governors Association Center for Best Practices and Council of Chief State School Officers. All rights reserved.

Figure I.4

## Unpacking Standards Matrix—Mathematics

Insert (within 1 or more cells) important learning activities and performance tasks that require strategic thought and real-world competence in the use of content. Refer back to the transfer and meaning goals to determine the kinds of complex work and thinking expected of students.

<div>Math <i>Practice</i> Standards</div> <div>Math <i>Content</i> Standards 3rd Grade</div>	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
Represent and solve problems involving multiplication and division.	<i>5–6 authentic performance tasks of increasing complexity over the course of the year in which students have to figure out what the problem is asking, figure out which operation to use and when to use it, develop a general math model for such problems, and defend an answer in a realistic situation. For example: prepare a budget for a class trip, a home renovation, a year's wardrobe, mindful of budget constraints and unit costs, etc.</i>							
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 multidigit arithmetic.								
Develop understanding of fractions as numbers.	<i>3–4 authentic tasks requiring students ON THEIR OWN to realize that fractions are involved, determine the fractions, and use operations on the fractions to calculate solutions, and represent their findings graphically.</i>							
Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.				<i>Activities and assessments that require students to judge, calculate, and defend the appropriate degree of precision in varied contexts where precision needs vary.</i>				
Represent and interpret data.								
Geometric measurement: understand concepts of area and relate area to multiplication and to addition.								

Source: Excerpt from mathematical practices and grade 3 overview standards, p. 22. © Copyright 2010, National Governors Association Center for Best Practices and Council of Chief State School Officers. All rights reserved.

Figure I.5

## Unpacking Standards Worksheet—Reading

<b>Standard:</b> 2. Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.		
	To meet the standard, students will need to successfully and independently do complex tasks such as—	↓
<b>Performance Tasks:</b> <ul style="list-style-type: none"> <li>• Read a new text independently and identify, via inference, the main idea—as reflected in a summary or statement of the author's point.</li> <li>• Situations might include a book review, a podcast “interview” of the author about the book, a summary of the book for Amazon.com, or a jacket blurb.</li> </ul>		
	To do such tasks well, students will need to constantly consider—	↓
<b>Essential Questions:</b> <ul style="list-style-type: none"> <li>• In short, what's the author trying to say? Why do I conclude that? (What is my evidence and reasoning about it?)</li> <li>• What's the point of the story? What's the moral of the story?</li> </ul>		
	To do such tasks well and consider such questions carefully, students will need to know and know how to—	↓
<b>Knowledge:</b> <ul style="list-style-type: none"> <li>• The main idea is not in the text but “between the lines.”</li> <li>• The author does not typically state the main idea or purpose; we have to infer it.</li> </ul>	<b>Skill:</b> <ul style="list-style-type: none"> <li>• “Read between the lines” to identify a purpose, point, line of argument, summary.</li> <li>• Make logically explicit what is implicit.</li> </ul>	

Source: Standard 2 excerpted from anchor standards for reading, K–5 pp. 10. © Copyright 2010. National Governors Association Center for Best Practices and Council of Chief State School Officers. All rights reserved.

Figure I.6

### Unpacking Standards Worksheet—English Language Arts

4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.	Transfer goals in the VERBS:	Produce writing
	Criteria in the ADVERBS and ADJECTIVES:	<ul style="list-style-type: none"> <li>• Clear</li> <li>• Coherent</li> <li>• Appropriate to task, purpose, audience</li> </ul>
	Stated or implied big ideas in the NOUNS:	<ul style="list-style-type: none"> <li>• Development</li> <li>• Organization</li> <li>• Audience</li> <li>• Purpose</li> <li>• Style</li> </ul>
	Possible task ideas:	<ul style="list-style-type: none"> <li>• Have students write for the same purpose (e.g., to inform or persuade) to different audiences, and explain the influence of audience on their style and word choice.</li> <li>• Have students write the same content for two different genres (e.g., essay, poem, letter to the editor), and explain each genre's influence on organization, style, word choice.</li> </ul>
	Possible understandings: <i>Students will understand that</i> <ul style="list-style-type: none"> <li>• A writer's purpose (e.g., to inform, entertain, persuade, provoke) shapes the style, development, and organization of the writing.</li> <li>• Different genres have unique organizational patterns as well as purposes.</li> <li>• The best writers shape their content and style to suit specific audiences.</li> </ul>	Possible essential questions: <ul style="list-style-type: none"> <li>• What am I trying to achieve through my writing?</li> <li>• For whom am I writing?</li> <li>• How do great writers hook and hold their readers?</li> </ul>

Source: Standard 4 excerpt from anchor standards for writing, K–5 p. 18. © Copyright 2010. National Governors Association Center for Best Practices and Council of Chief State School Officers. All rights reserved.

Figure I.7

### Unpacking Standards Matrix—Mathematics

Insert (within 1 or more cells) important learning activities and performance tasks that require strategic thought and real-world competence in the use of content. Refer back to the transfer and meaning goals to determine the kinds of complex work and thinking expected of students.

<b>Mathematical Practices:</b>  <b>Standards</b>	<b>1</b> Make sense of problems and persevere in solving them.	<b>2</b> Reason abstractly and quantitatively.	<b>3</b> Construct viable arguments and critique the reasoning of others.	<b>4</b> Model with mathematics.	<b>5</b> Use appropriate tools strategically.	<b>6</b> Attend to precision.	<b>7</b> Look for and make use of structure.	<b>8</b> Look for and express regularity in repeated reasoning.
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 multidigit 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.								

Source: Excerpt from mathematical practices and grade 3 overview standards, p. 22. © Copyright 2010, National Governors Association Center for Best Practices and Council of Chief State School Officers. All rights reserved.

Figure 1.8

## Unpacking Standards Matrix—History

After identifying the essential questions and historical themes, identify where each question will be highlighted. Then, identify performance tasks and key learning activities for each cell in the matrix in which content and process are woven together.

*Process skills to work in across the year (from AP History):*

- Crafting historical arguments from historical evidence—historical argumentation, appropriate use of relevant historical evidence
- Chronological Reasoning—Historical causation, patterns of continuity and change over time
- Comparison and Contextualization
- Historical Interpretation and Synthesis

[illegible]

Figure I.8

## Unpacking Standards Matrix—History *(continued)*

After identifying the essential questions and historical themes, identify where each question will be highlighted. Then, identify performance tasks and key learning activities for each cell in the matrix in which content and process are woven together.

*Process skills to work in across the year (from AP History):*




- Crafting historical arguments from historical evidence—historical argumentation, appropriate use of relevant historical evidence
- Chronological Reasoning—Historical causation, patterns of continuity and change over time
- Comparison and Contextualization
- Historical Interpretation and Synthesis

<div>History Eras as Themes</div> <div>Essential questions for key topics in U.S. history</div>	Discovery and Colonization	Founding a Nation: Independence and the Constitution	The Early Republic, expansion, and the pioneers	Civil War and Reconstruction	Industrialization and Immigration	America in the World	The Depression	WWII and Korean War	The '50s and '60s: The Red Menace and Civil Rights	Watergate and Its Aftermath	Technology Boom and Economic Bust	Post 9/11 World
F. How and why has America changed? When has it been evolution and when revolution? Which debates are timeless and which new? Healthy or unhealthy?												
G. What is the American Dream? Is it real or a hoax? What has been its impact, regardless?												
H. Why have we fought? When have those fights been just or needed and when wrong or foolish? How did we get in and how did we get out, and why?												
I. Life, liberty, and the pursuit of happiness: What does it mean? Are we more or less free than our founders envisioned?												



Figure I.9

### Unpacking Standards Worksheet—Civics

<b>Standard:</b> Civics Standard 2: Students will understand the principles and ideals underlying the American political system.
To meet the standard, students will need to successfully and independently do complex tasks such as— 
<b>Performance Tasks:</b> <ul style="list-style-type: none"><li>• Explain the rights guaranteed by the Bill of Rights and subsequent Supreme Court decisions.</li><li>• Participate in a mock Supreme Court in which students debate the scope and limits of various key rights in the amendments.</li></ul>
To do such tasks well, students will need to constantly consider— 
<b>Essential Questions:</b> <ul style="list-style-type: none"><li>• Whose rights, says who, why?</li><li>• Can a right be wrong? Can a wrong be right?</li><li>• To what extent are the various views about our rights similar and different? Why is there such fundamental disagreement about rights? Is the disagreement inevitable or the result of needless bias and partisanship?</li></ul>
Having done such tasks well, and considered such questions carefully, students should end up showing they see that— 
<b>Understandings:</b> <ul style="list-style-type: none"><li>• The concept of majority rule does not mean that the rights of those in minority may be disregarded.</li><li>• Making difficult judgments about the implications of moral principles and core laws is a difficult undertaking, for which there is no rulebook or recipe.</li></ul>

Source: Civics Standard Two © Delaware Department of Education.

Figure I.10

## Unpacking Standards Worksheet—Social Studies

<p><b>Standard(s):</b>          Civil War and Reconstruction: 1860s to 1877          USI.9: The student will demonstrate knowledge of the causes, major events, and effects of the Civil War by—</p> <p>a) <i>describing</i> the cultural, economic, and constitutional issues that divided the nation;</p> <p>b) <i>explaining</i> how the issues of states' rights and slavery increased sectional tensions;</p> <p>c) <i>identifying</i> on a map the states that seceded from the Union and those that remained in the Union;</p> <p>d) <i>describing</i> the roles of Abraham Lincoln, Jefferson Davis, Ulysses S. Grant, Robert E. Lee, Thomas "Stonewall" Jackson, and Frederick Douglass in events leading to and during the war;</p> <p>e) <b>using maps to explain critical developments in the war</b>, including major battles;</p> <p>f) <b>describing</b> the effects of war from the perspectives of Union and Confederate soldiers (including African American soldiers), women, and enslaved African Americans.</p> <p><b>Skills</b>          USI.1 The student will demonstrate responsible citizenship and develop skills for historical and geographical analysis, including the ability to</p> <p>a) <b>identify and interpret primary and secondary source documents</b> to increase understanding of events and life in United States history to 1865;</p> <p>b) <b>make connections between the past and the present</b>;</p> <p>c) sequence events in United States history from pre-Columbian times to 1865;</p> <p>d) <b>interpret ideas and events from different historical perspectives</b>;</p> <p>e) <b>evaluate and discuss</b> issues orally and in writing;</p> <p>f) <b>analyze and interpret maps</b> to explain relationships among landforms, water features, climatic characteristics, and historical events;</p> <p>h) interpret patriotic slogans and excerpts from notable speeches and documents.</p> <p><b>NOTE:</b>  <i>italics</i> = knowledge/skill goal  <b>bold</b> = meaning/transfer goal (as judged by the teacher)</p>	<p><b>Transfer Tasks, Stated or Implied:</b></p> <ul style="list-style-type: none"> <li>Implied: "Understanding," <i>not</i> "knowledge," seems to be the long-term goal: your <i>own</i> analysis about key causes and effects—or at least, in your own words.</li> <li>Implied: You can critique arguments by others about cause and effect.</li> </ul> <p><b>Meanings, Stated or Implied:</b>          See <b>essential understandings</b> in Framework: for example, "Cultural, economic, and constitutional differences between the North and the South eventually resulted in the Civil War. Southern states that were dependent upon labor-intensive cash crops seceded from the Union. Border states stayed in the Union."</p> <p><b>Essential Questions, Stated or Implied:</b></p> <ul style="list-style-type: none"> <li>How did cultural, economic, and constitutional issues create bitter divisions between the North and the South? (from the Framework)</li> <li>How did the issues of states' rights and slavery increase sectional tension between the North and South? (from the Framework)</li> <li>In what ways is the Civil War in the past, and in what ways is it still with us in the present?</li> </ul> <p><b>NOTE:</b> Some questions in the Framework are NOT essential as stated, but knowledge questions (e.g., Which states were in the Confederacy?).</p> <p><b>Skills, Stated or Implied:</b></p> <ul style="list-style-type: none"> <li>Skill in reading maps and primary and secondary source documents; distinguishing fact from opinion, author perspective, causal reasoning</li> </ul> <p><b>NOTE:</b> Skills a, b, and d are clearly meaning/transfer abilities, not discrete skills.</p> <p><b>Knowledge, Stated or Implied:</b></p> <ul style="list-style-type: none"> <li>Key events on a time line, related to secession, military, and political events.</li> <li>Slavery, culture, and economic knowledge are noted in the Framework.</li> </ul> <p><b>Related State Resources:</b>          "The History and Social Science Standards of Learning are accompanied by a Curriculum Framework that amplifies and defines in greater detail the essential understandings, knowledge, and skills contained in the Standards of Learning. The Standards of Learning and the Curriculum Framework should be considered together, because they form an integrated body of knowledge and skills that are measured by the Standards of Learning tests."</p>
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Figure I.11

Unpacking Standards Worksheet Stages 1-3

<b>Standard</b>	<p><b>Stage 1: Different Goal Types</b></p> <p>What are the key higher-order VERBS, and what do they suggest the general long-term transfer goal is? <i>Students eventually need to be able, on their own, to...</i></p> <p>What are the key NOUN CONCEPTS, and what do they suggest the big ideas to be mastered and used are? <i>Students will need to organize their thinking, knowledge, and skill around ideas/questions such as...</i></p> <p>What VERBS state or imply specific skills to be mastered? <i>Students need to be able to demonstrate skills such as...</i></p> <p>What key FACTS must be known and used? <i>Students need to know facts such as...</i></p> <p><b>Stage 2: Assessment</b></p> <p>What are the key VERBS, and what do they suggest the specific assessments need to be? <i>Students will need to show they can...</i></p> <p>What are the key ADJECTIVES and ADVERBS, and what do they suggest the key criteria for judging work should be? <i>Student performance and products will need to...</i></p> <p><b>Stage 3: Learning Plan</b></p> <p>What do the verbs, nouns, and verb modifiers imply for instruction? <i>The standard can only be reached if students are given instruction, practice, and feedback in...</i></p>
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Figure I.12

## Designing Units Based on Content Standards

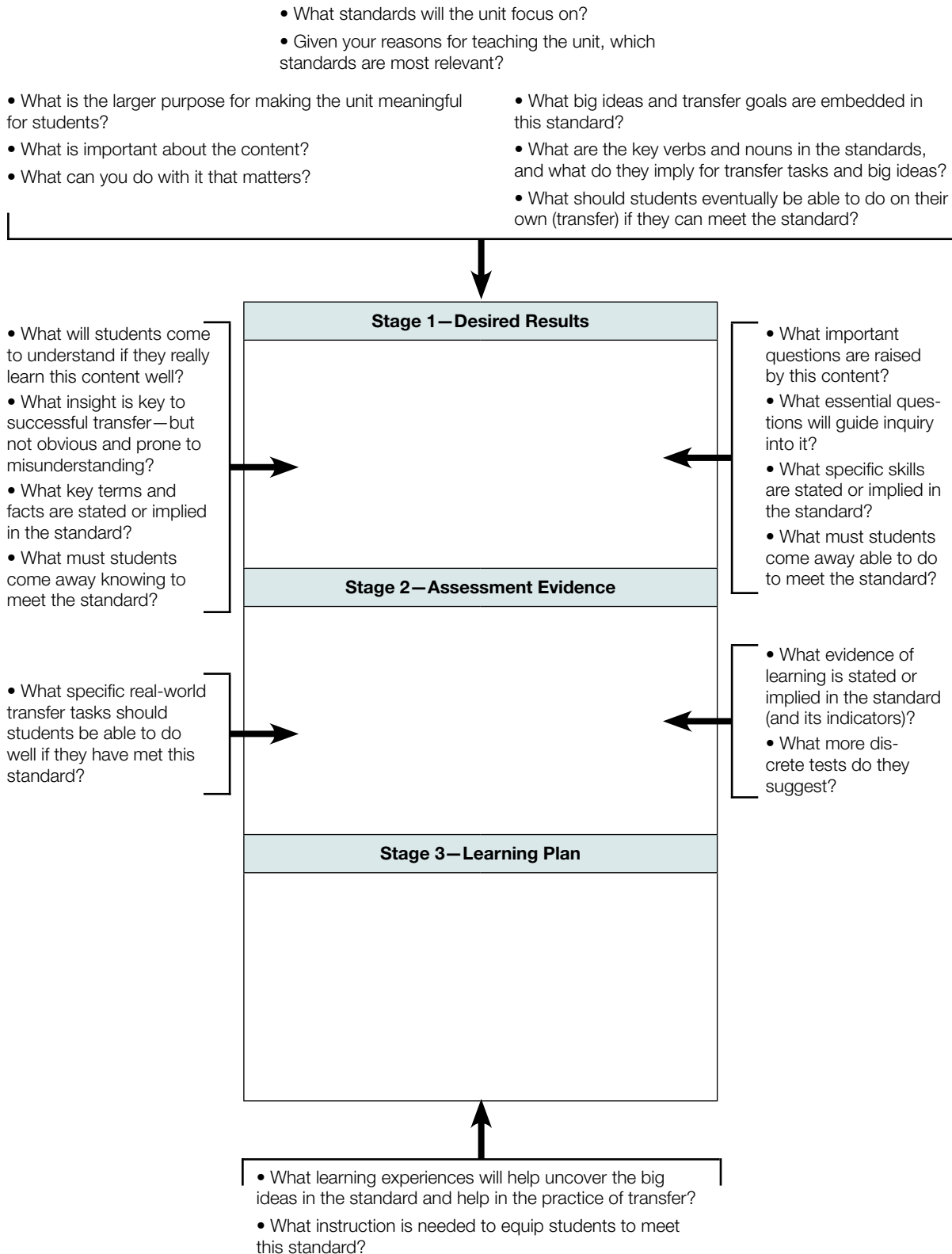


Figure I.13

**Unpacking Standards Worksheets**

<b>Standard:</b>		
	To meet the standard, students will need to successfully and independently do complex tasks such as—	↓
<b>Performance Tasks:</b>		
	To do such tasks well, students will need to constantly consider—	↓
<b>Essential Questions:</b>		
	Having done such tasks well and considered such questions carefully, students end up showing they see that—	↓
<b>Understandings:</b>		

## Frequently Asked Questions

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### Unpacking Standards (Module I)

Does everything we teach need to be taught for deep “understanding” and “transfer”? Aren’t there just some facts you simply need to memorize and some basic skills you can learn only by drill and practice?

Although there are certainly basics that must be mastered, it does not follow that rote learning is the only or best means of achieving these ends. Think of the unfortunate way many students (maybe even you) learned math facts (e.g., cross-multiplying fractions or using the quadratic formula) without understanding *why* a particular procedure works, *why* it matters, and *when* you would ever use it in the real world. In other words, even though you “knew” the fact, you didn’t necessarily understand its meaning or its applicability. So you didn’t know *when* to use it.

This point is evident in Bloom’s taxonomy, where “synthesis” equals *creative and flexible* performance, not just the ability to recite someone else’s idea. This is why we need to distinguish rote or prompted skill from transfer performance when we frame our goals in Stage 1. Far too many teacher-designers lose sight of the desired performance goals by reducing them to lists of discrete facts and skills, and then teaching and testing each in isolation. The result is predictable: many of our students cannot perform in or adapt knowledge and skill to unfamiliar situations (i.e., transfer meaning to situations). They can only recall and plug bits of learning into highly prompted, familiar-looking exercises. Student motivation, engagement, and ultimately, achievement, are the casualties of rote learning without understanding.

I tried UbD unit planning, and it is hard! (And I have only finished Stage 1.) How can teachers possibly plan everything they teach in this fashion?

UbD is hard for several reasons:

- It calls for much more precise identification and clarification of standards and other established learning goals than typically occurs in curriculum planning.
- Unit planners need a solid knowledge of the subjects and topics they teach. Without deep content knowledge, it is difficult to identify important understandings and create essential questions.
- UbD planning challenges comfortable habits, such as simply checking off any and all standards and benchmarks that loosely connect with a unit topic, or jumping to Stage 3 to plan activities.

Thankfully, backward design becomes more comfortable with practice. Indeed, many teachers have noted that it becomes a way of thinking and that they will never return to their previous (nonbackward) planning approach. The litmus test of UbD planning lies in the results with students—more engaged and effective learning.

### How can teachers possibly plan everything they teach in this fashion?

Although many teachers acknowledge its power, UbD presents a demanding planning framework. Indeed, it can seem daunting if one considers how much work will be required to plan *everything* that one teaches in this format. We offer three considerations to alleviate these worries:

- We encourage teachers and curriculum developers to think big but start small. What we mean is that you might plan only two or three UbD units during the first year. Such a pace is not overwhelming, and in several years you will have many UbD units prepared.
- Whenever possible, we recommend that curriculum planning be done in teams, at either the district or school levels. Most teachers find it beneficial to be able to bounce around unit ideas with others, and getting feedback from colleagues really helps refine your unit plan.
- Work smarter by accessing the many UbD unit ideas now available on the Internet.

Figure J.1

## Evaluative Criteria and Related Evidence for Driver's Education Unit

Stage 2—Evidence	
Evaluative Criteria	Assessment Evidence
<i>Performance is judged in terms of—</i>	<i>Students will show their learning by...</i>
<ul style="list-style-type: none"> <li>• Skillful</li> <li>• Courteous</li> <li>• Defensive</li> <li>• Responsive to conditions</li> <li>• Law-abiding</li> </ul>	<p><b>TRANSFER TASK(S):</b></p> <ol style="list-style-type: none"> <li>1. 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.</li> <li>2. Same task as 1 but with rainy conditions.</li> <li>3. Same task as 1 but in rush-hour traffic.</li> </ol>
<ul style="list-style-type: none"> <li>• Accurate</li> <li>• Perceptive</li> <li>• Skilled</li> <li>• Knowledgeable</li> <li>• Proficient</li> </ul>	<p><b>OTHER EVIDENCE:</b></p> <ol style="list-style-type: none"> <li>4. Student self-assessment of driving and parking in Tasks 1–3 in terms of courteous and defensive behavior. Discuss adjustments made.</li> <li>5. Observation of student driver in a driving simulator or car off road.</li> <li>6. Written test required for getting a license.</li> <li>7. Road test required for getting a license.</li> </ol>



Figure J.2

**Two Types of Criteria with Related Indicators**

CONTENT	PROCESS
accurate	mechanically sound
valid	original/creative
insightful	precise
appropriate	poised
comprehensive	polished
justified	well crafted

Figure J.3

### Four Types of Criteria

**Impact**—Refers to the success or effectiveness of performance, given the purpose and audience.

**Content**—Refers to the appropriateness and relative sophistication of the understanding, knowledge, and skill employed.

**Quality**—Refers to the overall quality, craftsmanship, and rigor of the work.

**Process**—Refers to the quality and appropriateness of the procedures, methods, and approaches used—before and during performance.

Figure J.4

#### Four Types of Criteria with Sample Questions

<p><b>Impact</b></p> <p>Was the desired result achieved?</p> <p>Was the problem solved?</p> <p>Was the client satisfied?</p> <p>Was the audience engaged and informed?</p> <p>Was the dispute resolved?</p> <p>Did the speech persuade?</p> <p>Did the paper open minds to new possibilities?</p> <p><b>In sum: Was the work effective?</b></p>	<p><b>Content</b></p> <p>Was the work accurate?</p> <p>Did the product reveal deep understanding?</p> <p>Were the answers appropriately supported?</p> <p>Was the work thorough?</p> <p>Were the arguments of the essay cogent?</p> <p>Was the hypothesis plausible and on target?</p> <p><b>In sum: Was the content appropriate to the task, accurate, and supported?</b></p>
<p><b>Process</b></p> <p>Was the student methodical?</p> <p>Was proper procedure followed?</p> <p>Was the planning efficient and effective?</p> <p>Did the reader employ apt strategies?</p> <p>Did the group work collaboratively and effectively?</p> <p><b>In sum: Was the approach sound?</b></p>	<p><b>Quality</b></p> <p>Was the speech organized?</p> <p>Was the paper mechanically sound?</p> <p>Was the chart clear and easy to follow?</p> <p>Did the story build and flow smoothly?</p> <p>Was the dance graceful?</p> <p>Were the graphics original?</p> <p><b>In sum: Was the performance or product of high quality?</b></p>

Figure J.5

### Naive to Expert Understanding: A Continuum

Use the following example to develop your own simple rubric to assess understanding of a targeted big idea or complex process along a continuum. Although you may start at any point on the continuum, it may be easiest to begin by identifying the indicators of a sophisticated, expert understanding. Then list the indicators of the understandings (and probable *mis*understandings) of a novice. Then sketch other points along the continuum. (The final rubric will require you to look at samples of work and have discussions to refine the indicators.)

#### Understanding the *causes and effects of the Civil War*

Naive	Knowledgeable	Expert
<p><b>The naive learner</b></p> <ul style="list-style-type: none"><li>• Assumes each effect has a single cause and a single predictable effect.</li><li>• Believes that the Civil War was fought only over the morality of slavery.</li><li>• Concludes that the “good guys” won and the Union was preserved.</li></ul>	<p><b>The knowledgeable learner</b></p> <ul style="list-style-type: none"><li>• Assumes each effect can have multiple causes but that they are obvious.</li><li>• Believes that the Civil War was fought over the economics of slavery. More sophisticated: explains the cultural and economic differences between North and South.</li><li>• Provides some examples of how the war’s impact lasted for decades. More sophisticated: links Civil War to recent U.S. history (civil rights era, “red” and “blue” states).</li></ul>	<p><b>The expert learner</b></p> <ul style="list-style-type: none"><li>• Understands that significant events typically have many causes and resulting consequences, and that some may be subtle.</li><li>• Recognizes that the Civil War was sparked by multiple factors, including states’ rights issues, fundamental economic and cultural differences between North and South, and divided opinions about slavery.</li><li>• Comprehends that the war’s lingering effects are evident in the form of regional loyalties and ongoing resentment of federal control.</li></ul>

Figure J.6

## Descriptive Terms for Differences in Degree

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

<b>Degrees of Understanding</b> <ul style="list-style-type: none"> <li>• Thorough/complete</li> <li>• Substantial</li> <li>• Partial/incomplete</li> <li>• Misunderstandings/serious misconceptions</li> </ul>	<b>Degrees of Frequency</b> <ul style="list-style-type: none"> <li>• Always/consistently</li> <li>• Frequently/generally</li> <li>• Sometimes/occasionally</li> <li>• Rarely/never</li> </ul>
<b>Degrees of Effectiveness</b> <ul style="list-style-type: none"> <li>• Highly effective</li> <li>• Generally effective</li> <li>• Somewhat effective</li> <li>• Ineffective</li> </ul>	<b>Degrees of Independence</b> <p>Student successfully completes the task</p> <ul style="list-style-type: none"> <li>• Independently</li> <li>• With minimal assistance</li> <li>• With moderate assistance</li> <li>• Only with considerable assistance</li> </ul>
<b>Degrees of Accuracy</b> <ul style="list-style-type: none"> <li>• Completely accurate; all _____ (facts, concepts, mechanics, computations) correct</li> <li>• Generally accurate; minor inaccuracies do not affect overall result</li> <li>• Inaccurate; numerous errors detract from result</li> <li>• Major inaccuracies; significant errors throughout</li> </ul>	<b>Degrees of Clarity</b> <ul style="list-style-type: none"> <li>• Exceptionally clear; easy to follow</li> <li>• Generally clear; able to follow</li> <li>• Lacks clarity; difficult to follow</li> <li>• Unclear; impossible to follow</li> </ul>

Figure J.7

### Holistic and Analytic Rubrics Compared—Examples for Graphing

#### Holistic Rubric

<b>3</b>	All data are accurately represented on the graph. All parts of the graph (units of measurement, rows, etc.) are correctly labeled. The graph contains a title that tells what the data show. The graph is very neat and easy to read.
<b>2</b>	Data are accurately represented on the graph <i>or</i> the graph contains minor errors. All parts of the graph are correctly labeled <i>or</i> the graph contains minor inaccuracies. The graph contains a title that tells what the data show. The graph is generally neat and readable.
<b>1</b>	The data are inaccurately represented, contain major errors, <i>or</i> are missing. Only some parts of the graph are correctly labeled <i>or</i> labels are missing. The title does not reflect what the data show <i>or</i> the title is missing. The graph is sloppy and difficult to read.

#### Analytic Rubric

Criteria:	Title	Labels	Accuracy	Neatness
Weight:	10%	20%	50%	20%
<b>Scale</b>	<b>3</b> The graph contains a title that clearly and specifically tells what the data show. <input type="checkbox"/>	All parts of the graph (units of measurement, rows, etc.) are correctly labeled. <input type="checkbox"/>	All data are accurately represented on the graph. <input type="checkbox"/>	The graph is very neat and easy to read. <input type="checkbox"/>
	<b>2</b> The graph contains a title that generally tells what the data show. <input type="checkbox"/>	Some parts of the graph are inaccurately labeled. <input type="checkbox"/>	Data representation contains minor errors. <input type="checkbox"/>	The graph is generally neat and readable. <input type="checkbox"/>
	<b>1</b> The title does not reflect what the data show, <i>or</i> the title is missing. <input type="checkbox"/>	Only some parts of the graph are correctly labeled <i>or</i> labels are missing. <input type="checkbox"/>	The data are inaccurately represented, contain major errors, <i>or</i> are missing. <input type="checkbox"/>	The graph is sloppy and difficult to read. <input type="checkbox"/>

Figure J.8

**Rubric for Autonomous Performance (Gradual Release of Responsibility)**

Level of Independence	Description
Independent	Learner completes task effectively with complete autonomy
Hints	Learner completes task with minimal assistance (e.g., 1-2 hints or guiding prompts from teacher)
Scaffolded	Learner needs step by step instructions and scaffolding (e.g., graphic organizer) to complete the task
Hand holding	Learner needs the task simplified; requires constant feedback and advice, review and reteaching; needs moral support to complete the task
Dependent	Learner cannot complete the task, even with considerable support

Figure J.9

**Differentiation and Uniformity Within Assessments**

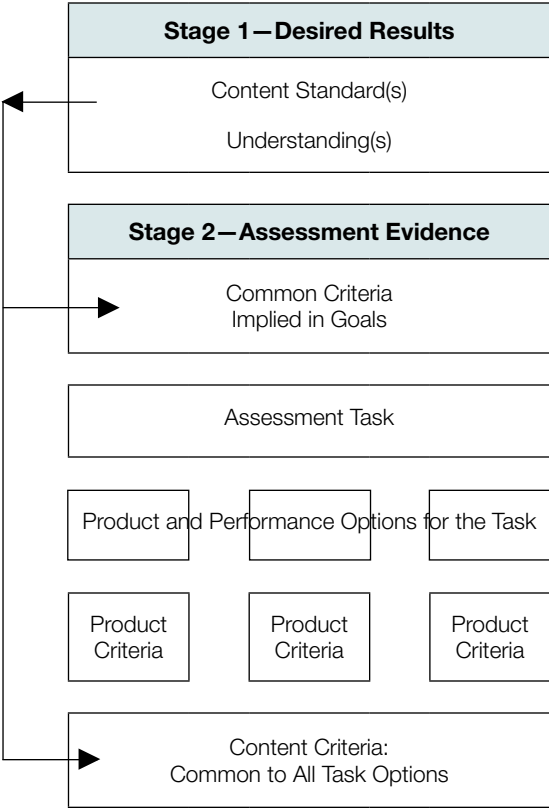




Figure J.10

### Four Types of Criteria with Descriptors or Indicators

Impact		Content	
<ul style="list-style-type: none"> <li>• Effective answers</li> <li>• Clients satisfied</li> <li>• Problem solved</li> <li>• Audience laughs</li> <li>• Reader informed</li> </ul>	<ul style="list-style-type: none"> <li>• Reader persuaded</li> <li>• Satisfying result</li> <li>• Novel creation</li> <li>• Successful product created</li> <li>• Proposal accepted</li> </ul>	<ul style="list-style-type: none"> <li>• Expert</li> <li>• Insightful</li> <li>• Fluent</li> <li>• Accurate</li> <li>• Correct</li> <li>• Precise</li> </ul>	<ul style="list-style-type: none"> <li>• Justifiable</li> <li>• Verified</li> <li>• Authentic</li> <li>• Appropriate</li> <li>• Focused</li> </ul>
Process		Quality	
<ul style="list-style-type: none"> <li>• Well designed</li> <li>• Clear</li> <li>• Elegant</li> <li>• Creative</li> <li>• Graceful</li> <li>• Well crafted</li> </ul>	<ul style="list-style-type: none"> <li>• Organized</li> <li>• Thorough</li> <li>• Coherent</li> <li>• Sound</li> <li>• Polished</li> </ul>	<ul style="list-style-type: none"> <li>• Purposeful</li> <li>• Efficient</li> <li>• Self-regulated</li> <li>• Persistent</li> <li>• Enterprising</li> <li>• (Self-)Critical</li> </ul>	<ul style="list-style-type: none"> <li>• Thoughtful</li> <li>• Careful</li> <li>• Responsive</li> <li>• Inquisitive</li> <li>• Methodical</li> </ul>

Figure J.11

**Criterion-Based Performance List for Graphic Display of Data**

	Yes	No	Points
1. The graph contains a title that tells what the data show.	<input type="checkbox"/>	<input type="checkbox"/>	_____
2. All parts of the graph, including units of measurement, rows, and columns, are correctly labeled.	<input type="checkbox"/>	<input type="checkbox"/>	_____
3. All data are accurately represented on the graph.	<input type="checkbox"/>	<input type="checkbox"/>	_____
4. The graph is neat and easy to read.	<input type="checkbox"/>	<input type="checkbox"/>	_____
		<b>Total:</b>	_____

## Naive to Expert Understanding: A Continuum Worksheet

**Understanding of \_\_\_\_\_**

Naive	Knowledgeable	Expert
Naive learner sees, says, or does	Knowledgeable learner sees, says, or does	Expert learner sees, says, or does
•	•	•
•	•	•
•	•	•

Figure J.13

**An Analytic Scoring Rubric for Understanding**

Use this frame to evaluate (1) the degree of student understanding and (2) effectiveness of the performance or product.

Traits:		Understanding	Performance or Product Quality
Weight:		65%	35%
Scale	4	Shows a sophisticated understanding of the relevant ideas or processes. The concepts, evidence, arguments, qualifications made, questions posed, and/or methods used are advanced, going well beyond the grasp of the subject typically found at this age level.	The performance/product is highly effective. The ideas are presented in an engaging, polished, clear, and thorough manner, mindful of the audience, context, and purpose. There is unusual craftsmanship in the final product/performance.
	3	Shows a solid understanding of the relevant ideas or processes. The concepts, evidence, arguments, and/or methods used are appropriate for addressing the issues/problems. There are no misunderstandings of key ideas or overly simplistic approaches.	The performance/product is effective. The ideas are presented in a clear and thorough manner, showing awareness of the audience, context, and purpose.
	2	Shows a somewhat naive or limited understanding of the relevant ideas or processes. The concepts, evidence, arguments, and/or methods used are somewhat simple/crude/inadequate for addressing the issues/problems. Response may reveal some misunderstanding of key ideas or methods.	The performance/product is somewhat effective. There are some problems with clarity, thoroughness, delivery, and/or polish. It is unclear whether audience, context, and purpose have been considered.
	1	Shows little apparent understanding of the relevant ideas and issues. The concepts, evidence, arguments, and/or methods used are inadequate for addressing the issues/problems. Response reveals major misunderstandings of key ideas or methods.	The performance/product is ineffective. The performance is unpolished, providing little evidence of prior planning, practice, and consideration of purpose and audience; or the presentation is so unclear and confusing as to make it difficult to determine the key points.

Figure J.14

An Analytic Rubric Frame

Understanding: \_\_\_\_\_

Specific Product/Performance: \_\_\_\_\_

Traits:					
Weight:		%	%	%	%
Scale	4				
	3				
	2				
	1				

Figure J.15

## Holistic Rubric for Understanding

### ***DEPTH OF UNDERSTANDING***

- 5** Student work shows a sophisticated and in-depth understanding of the subject matter involved. The concepts, evidence, arguments, qualifications made, questions posed, and/or methods used are expertly insightful, going well beyond the grasp of the subject typically found at this level of experience. Student grasps the essence of the idea or problem and applies the most powerful tools for solving it. The work shows that the student is able to make subtle distinctions and to relate the particular challenge to more significant, complex, or comprehensive principles.
- 4** Student work shows a rich understanding of the subject matter involved. The concepts, evidence, arguments, and methods used involve an advanced degree of difficulty and power. Student frames the matter appropriately for someone at this level of experience. There may be limits to the understanding or some naivete or glibness in the response, but there are no misunderstandings in or overly simplistic aspects to the work.
- 3** Student work shows an adequate understanding of the issues involved. Work reveals control of knowledge, concepts, and/or methods that enable the problem to be solved at the intended level of difficulty. There is less subtlety/discrimination/nuance than found in the more sophisticated work, and there may be evidence of some misunderstanding of key ideas. The work may yield correct answers, but the approach/concepts/methods used are more simplistic than expected at this level of experience.
- 2** Student work shows a naive or limited understanding of the ideas and issues involved. Simple rules/formulas/approaches/concepts are used where more sophisticated ones are called for and available from previous learning. Important ideas may be misunderstood or misapplied. The student's work may be adequate to address all or most aspects of the problem, but the concepts and methods used are simplistic.
- 1** Student work shows no apparent understanding of the underlying ideas and issues involved in the problem. Student brings to bear inappropriate or inadequate knowledge to the problem.
- 0** Insufficient evidence in the response to judge the student's knowledge of subject matter involved in this problem (typically due to a failure to complete the work).

Figure J.16

## Tips for Designing Effective Scoring Tools

1. Make sure that the scoring tool (rubric or checklist) includes the most important traits, given the purpose of the assessment and the qualities of excellent performance. Consider the following:
  - Are you scoring what is easy to score rather than what is most important?
  - Could a student meet all the scoring criteria and get high scores without really demonstrating the desired understanding or producing excellent work?
  - Are any of the criteria or reasons for the score arbitrary? In other words, are you giving or taking away points based on characteristics that have little to do with excellence at this particular task?
2. Beware of the following common problems with scoring tools:
  - Scoring the length of the paper instead of its quality.
  - Focusing on mechanics, organization, and presentation rather than content, substance, and effect. For example, a science project display could be attractive but superficial.
  - Looking for quantity rather than results (e.g., the number of information sources used in research instead of the appropriateness and thoroughness of those sources; number of reasons in a persuasive essay instead of the logic of the reasoning).
  - Demanding that the performance follow an arbitrary format (e.g., five-paragraph essay), even though expert performance follows different forms or approaches.
3. Check for consistency of the descriptive terms throughout the scoring scale. For example, if the top score point includes the descriptors *consistently* and *thorough*, we would expect to see parallel descriptors in the lower score points—for example, *sometimes* and *incomplete*.
4. Use the following prompts to help avoid these problems:
  - *Since the aim of [the performance] is to provide evidence of \_\_\_\_\_, we need to assess whether or not the performance has been \_\_\_\_\_.*  
(List appropriate traits, given the purpose of the task and the evidence it demands.)
  - *The best pieces of work are those that are always \_\_\_\_\_ (insert traits from your list) \_\_\_\_\_. Does the sentence make sense or not? If yes, the trait is appropriate; if not, it is probably arbitrary.*

## Frequently Asked Questions

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### Identifying Evaluative Criteria for Assessments (Module J)

Isn't the scoring of performance assessments just too subjective? How can I justify my scores to students, parents, and supervisors?

Concern over subjectivity is a common refrain regarding the use of performance-based assessments. A lengthy discussion of reliability of scoring is beyond the scope of our intent here, but we can offer a few summary points.

- Anything can be, and often has been, measured—the condition of baseball cards, fine wines, pigs at auction, diving, figure skating, and the AP art portfolio. As long as we can point to a sample of work and say “this piece is more creative/clear/organized/well developed than that piece, for the following reasons...,” then we can assess for qualities. Indeed, the best rubrics are built from studying and comparing samples of work and placing them in piles along a scale. (This is how people train to score state writing or Advanced Placement exams.) So to become able to effectively assess complex performance, collect samples of work and analyze them (either on your own or with colleagues) to find valid and helpful language for a rubric and to build a fair continuum. Supreme Court Justice Potter Stewart’s famous statement “I can’t define pornography, but I know it when I see it” humorously captures an experiential truth. Every day, people make fine and precise judgments about intangibles—“that was a very funny movie,” “that was a poorly reasoned editorial”—but it takes a lot of practice and feedback to turn those accurate intuitions into rubrics that will yield valid, reliable, and defensible evaluations.
- Measurement is never about perfect measurement—there is no such thing, given the fallibility of humans and tools. Rather, what we seek is *adequate reliability* and *defensible judgments*. As you know from national polls and surveys, it is possible to achieve reasonably precise measures of people’s likely voting pattern, where the margin of error is plus or minus 4 percentage points. And even such highly refined academic measures as the SAT have a margin of error of plus or minus 30 points (thus a 610 is somewhere between a 580 and a 640!). The practical tip for improving the reliability of your assessments is to use multiple and varied measures, over time, to reveal patterns of a student’s ability in reference to the same goals and evaluative criteria.
- The concern over subjectivity reflects a fuzziness and potential equivocation about the word *subjective*, which has two different connotations. By



definition, all human judgments about performance are subjective—that is, they are inferences made by human subjects and they are not facts. What matters for assessment of performance, then, is that any judgment required needs to be as valid and “objective” as possible—that is, neutral, criterion referenced, and unbiased (as in our judicial system). *Subjective* in the bad sense means unreasonable judgments; judgments that are self-interested, prejudiced, capricious, arbitrary, or unsupported. In short, all judgments are subjective, but good judgments are sufficiently objective to rely on. Indeed, we have no other choice in a world in which human judgment is required. Finally, what the lament conveniently ignores is that a so-called objective, factual, multiple-choice test is constructed by subjective writers and can easily be based on unreasonable decisions about what should be on the test, what distractors are used, and how it should be scored. We have all seen arbitrary and unfair test questions. It all goes back to the two-question test: *Can students do well at the proposed assessments without really understanding? Could some students do poorly at the proposed assessment but truly understand?* It’s a matter of sound professional judgment in terms of valid principles.

How, then, should I assign grades if I am using such criteria and related scoring rubrics?

Because most grading and reporting systems used in North America rely on letter grades, teachers who use rubrics confront the task of translating rubric scores to grades. Before we respond directly, consider these questions: What does a letter grade, such as *B*, represent? How about a numerical score, such as 3? In both cases, these are symbols reflecting an evaluation of performance based on some standard. For instance, a *B* on a multiple-choice test represents the score for a student who answered 83 percent of the items correctly. In this case, the performance standard for *B* is 80 to 89 percent. A 3 on a 4-point rubric for persuasive writing could describe a solid but not exemplary essay. The two symbol systems are compatible, but not identical.

It seems natural to derive a letter grade from a rubric by simply determining the total number of points earned divided by the number of points possible on the rubric. In the previous example, a holistic rubric score of 3 on a 4-point scale would translate to a 75 percent, or a *C* in most school districts. Similarly, on a four-trait writing rubric (with traits being, for example, Organization, Language Choices, Ideas/Persuasiveness, and Mechanics) with a 4-point scale, a student who was rated 11 (out of 16 possible points) would get 68.75 percent, a *D* by most grading standards. However, in both cases the resulting letter grade seems lower than what the actual performance deserved. So we need to reflect on what we want the score or grade to communicate before we unthinkingly make scores equivalent to grades.

One consideration in making a fair and helpful conversion is to weight the traits in an analytic rubric, based on their relative importance. For example, using a common rubric, all of the teachers in the mathematics department evaluate student problem solving according to the following five traits: Computational Accuracy, Reasoning, Representation, Communication, and Connections. The department could decide that the first two criteria are each worth 30 percent and the remaining criteria are each worth 10 percent (or whatever percentages seem most appropriate to a particular problem). Then the final *weighted* rubric score can be converted into a grade. This way the feedback is more precise and useful to the student, while allowing for a single-letter grade in systems that require it.

Put in practical and political terms, although a grade should perhaps reflect a dispassionate assessment of student ability against a worthy standard, letter grades typically reflect school norms and expectations. We give As to our best students, even in the lowest-performing schools. Thus if we turn a standards-based criterion-referenced score into a grade, we may be in the dreadful position of having to fail two-thirds of our students if the policy is to mechanically translate scores into grades! That clearly makes little sense in terms of pedagogy, measurement, or politics.

We can go further. The department might agree to weight Reasoning and Communication lower in the fall semester and higher in the spring semester in computing the grades, as we properly have greater expectations of students as the year unfolds. Or we might weight Effort more in the fall and Effectiveness more in the spring for similar reasons. As long as our system is transparent, consistent across teachers, and pedagogically sound, we can make such subtle adjustments with confidence.

Another practical approach involves deciding on the letter-grade equivalents in advance based on the rubric descriptions. For example, the foreign language department in Fairfax County (Virginia) Public Schools has developed grading conversion charts for rubrics based on performance expectations and rubric descriptions. See [www.fcps.edu/is/worldlanguages/pals/](http://www.fcps.edu/is/worldlanguages/pals/). For instance, on a 4-point holistic rubric, the conversions are as follows:

**Rubric Score 4**—Exceeds Expectations = Range: 93.5%–100%

**Rubric Score 3**—Meets Expectations = Range: 84%–93%

**Rubric Score 2**—Almost Meets Expectations = Range: 74%–83%

**Rubric Score 1**—Does Not Meet Expectations = Range: 54%–73%

Every foreign language teacher in this large district uses the same rubrics and grade-conversion system when evaluating student performance. This systemic approach results in greater evaluative consistency across classrooms and schools, leading to more effective communication to students and parents.

Regardless of the particular conversion method, it is important not to lose sight of the overall goal of grading—to provide a clear, consistent, and fair representation of student performance based on established performance standards. A well-developed rubric, with clear descriptions of the key traits and performance levels, renders any grading system more reliable and defensible.

In conclusion, the question about grades requires us to issue a stern warning: don't confuse assessment or helpful feedback with a grade that signals a value judgment. For example, it is not necessary that everything assessed with a rubric be graded at all. It is perfectly OK to use rubrics as part of formative assessment in order to provide useful feedback. Although we understand teachers' need to give grades and students' interest in their grades, Module J is about feedback against criteria and performance standards, not grading practices.

Figure K.1

## WHERETO Considerations for the Learning Plan

The acronym WHERETO summarizes the key elements that should be found in your learning plan, given the desired results and assessments drafted in Stages 1 and 2. Note that the elements need not appear in the same order as the letters of the acronym. Think of WHERETO as a checklist for building and evaluating the final learning plan, not a suggested sequence. For example, the learning might start with a hook (H), followed by instruction on the final performance requirements (W), then perhaps some rethinking of earlier work (R).

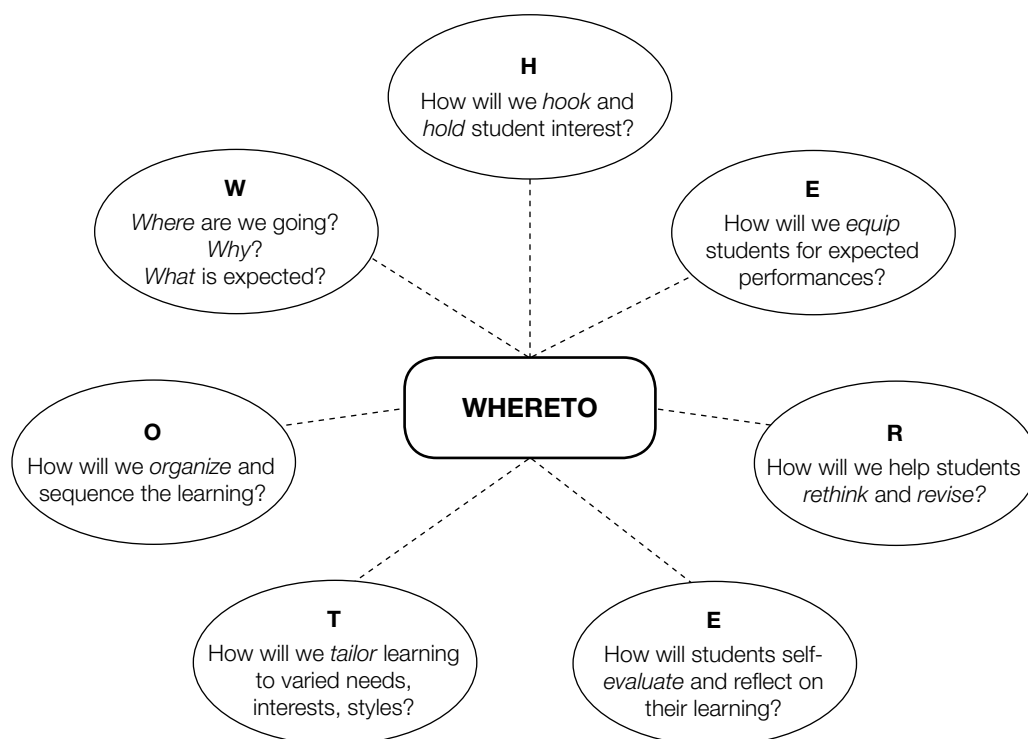
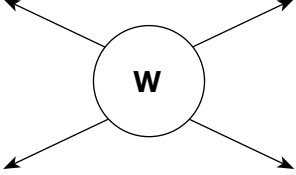


Figure K.2

## WHERE TO Worksheet—Examples for the W (Where?)

Review the various ideas to help learners understand the learning goals, the purpose and relevance of the content, and what is expected of them. Also, consider how you will diagnose their prior knowledge related to the unit topic. Then check off those ideas that you will include in your learning plan.

Goals	Expectations
<input type="checkbox"/> Directly state the desired results at the beginning of the unit. <input type="checkbox"/> Present unit/course goals, syllabus, and schedule on the first day. <input type="checkbox"/> Post and discuss essential questions at the start of unit. <input type="checkbox"/> Invite students to generate questions. <input type="checkbox"/> Ask students to identify personal goals.	<input type="checkbox"/> Present the culminating performance task requirements. <input type="checkbox"/> Review scoring rubrics. <input type="checkbox"/> Show models/exemplars for expected products/performances. <input type="checkbox"/> Involve students in identifying preliminary evaluation criteria.

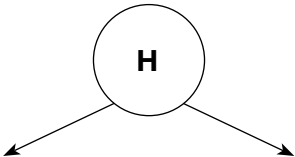


Relevance/Utility	Diagnosis
<input type="checkbox"/> Present the rationale for the unit/course goals. <input type="checkbox"/> Discuss the benefits to students. <input type="checkbox"/> Identify people and places beyond the classroom where this knowledge/these skills are applied. <input type="checkbox"/> Use K-W-L to have students identify things they want to learn.	<input type="checkbox"/> Give a pretest on content knowledge. <input type="checkbox"/> Give a diagnostic skills test. <input type="checkbox"/> Use K-W-L to see what students already know (or think they know). <input type="checkbox"/> Have students create a visual organizer to reveal their initial knowledge and understandings. <input type="checkbox"/> Check for possible/probable misconceptions.

Figure K.3

**WHERE TO Worksheet—Example for the *H* (Hook and Hold Interest)**

Effective teachers recognize the importance of hooking students at the beginning of a new learning experience and holding their interest throughout. The *H* in WHERE TO directs designers to consider ways of engaging students in the topic and pointing toward big ideas, essential questions, and performance tasks—by design. Use the list below to brainstorm possible hooks for your learning plan.



Hook	Hold
<p>How will you hook and hold student interest?</p> <ul style="list-style-type: none"><li><input type="checkbox"/> Odd fact, anomaly, counterintuitive example _____</li><li><input type="checkbox"/> Provocative entry question _____</li><li><input type="checkbox"/> Mystery _____</li><li><input type="checkbox"/> Challenge _____</li><li><input type="checkbox"/> Problem or issue _____</li><li><input type="checkbox"/> Experiment; predict outcome _____</li><li><input type="checkbox"/> Role-play or simulation _____</li><li><input type="checkbox"/> Personal experiences _____</li><li><input type="checkbox"/> Allow student choice for _____</li><li><input type="checkbox"/> Emotional connection _____</li><li><input type="checkbox"/> Humor _____</li></ul>	

Figure K.4

### **Making Inferences Organizer—Adding Up the Facts (Pioneer Unit)**

Many pioneers, especially children, died from disease.

The pioneers had to grow or hunt for their food. Often they went hungry.

Much hard work was required to settle new land, such as clearing fields and constructing shelter.



Settlers faced attacks by Native American tribes on whose lands they traveled or settled.

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**The pioneers faced many hardships in the settlement of the West.**

## WHERE TO Worksheet—Examples for *E* (Equip for Performance)

Performance Task or Other Evidence		
Assume the role of a historical character and role-play that person's participation in a debate on a current issue.		
<p><i>To perform successfully, students will have to know</i></p> <ul style="list-style-type: none"> <li>• Rules of debate</li> </ul> <hr/> <ul style="list-style-type: none"> <li>• Debate procedure</li> </ul> <hr/> <p><i>and be able to</i></p> <ul style="list-style-type: none"> <li>• Succinctly state a position</li> </ul> <hr/> <ul style="list-style-type: none"> <li>• Use rebuttal techniques</li> </ul> <hr/>	<p><b>THEN</b></p>	<p><i>What teaching and learning experiences will be needed to equip students for successful performance?</i></p> <ul style="list-style-type: none"> <li>• Review the rules of debate</li> </ul> <hr/> <ul style="list-style-type: none"> <li>• Show video excerpts of debates to illustrate the procedure and effective debating strategies</li> </ul> <hr/> <ul style="list-style-type: none"> <li>• Teach rebuttal techniques</li> </ul> <hr/>

[illegible]



Figure K.6

### WHERE TO—Examples for *R* (Rethink)

Review the various ideas to help learners rethink, revise, and reflect. Then check off those ideas that you will include in your learning plan.

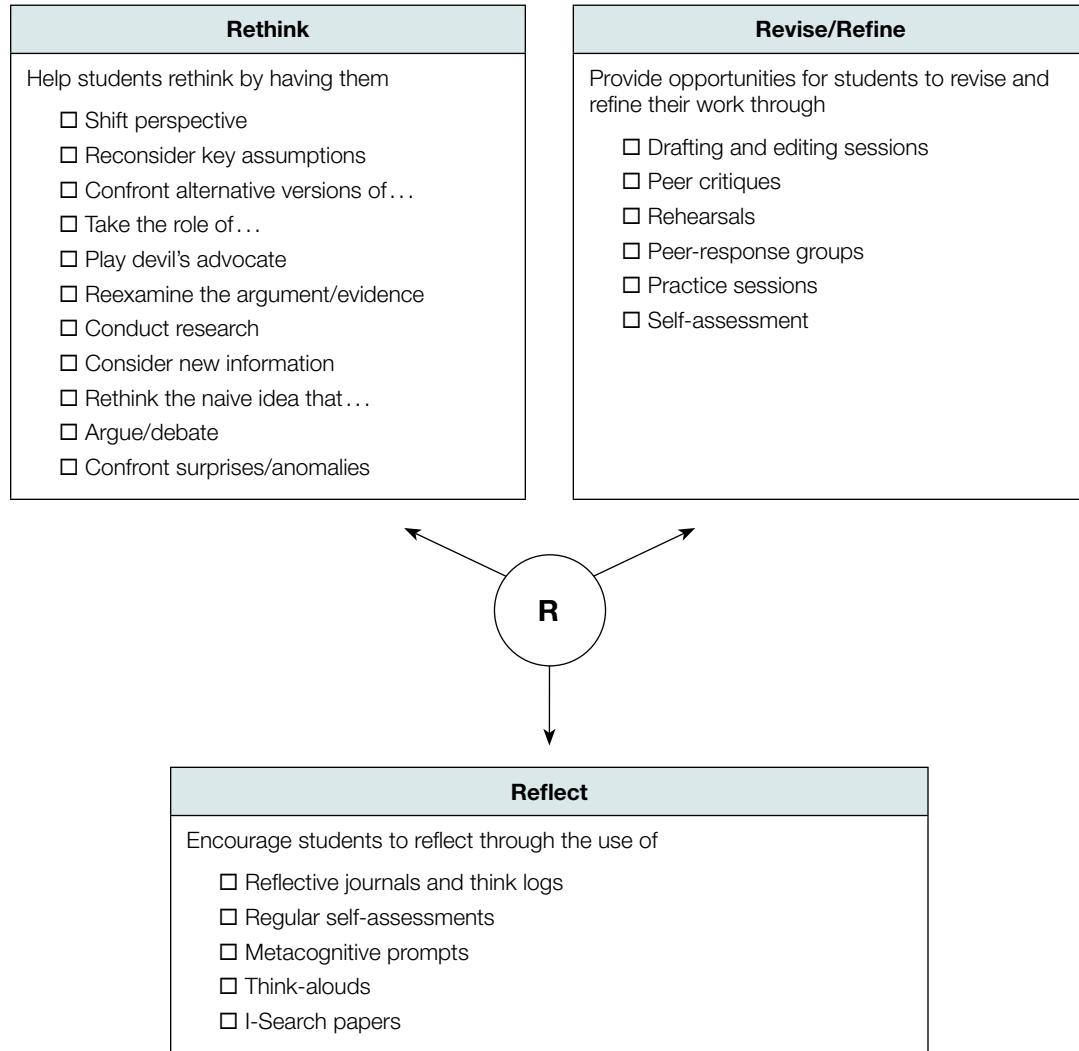


Figure K.7

### Brainstorming Ways to Rethink and Revise Using the Six Facets

Use the six facets of understanding to generate possible learning activities that require students to *rethink* and *revise* earlier ideas.

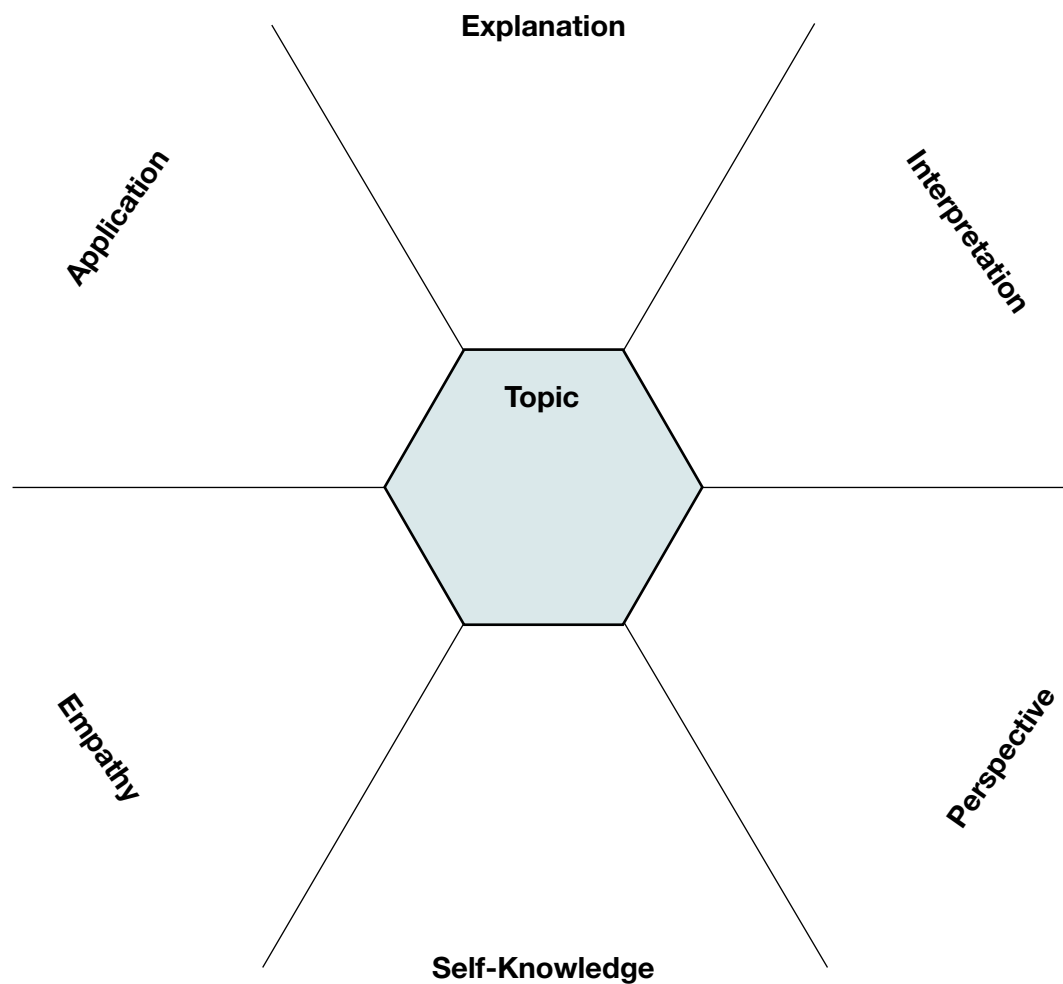


Figure K.8

**Rubric for Self-Assessment and Teacher Assessment—Persuasive Essay**

Traits:		Persuasive	Clear	Thorough	Polished
Weight:		30%	30%	20%	20%
Scale	4	Very persuasive. Compelling evidence; sound reasoning, effective in countering opposing positions or arguments. <input type="checkbox"/> <input type="checkbox"/>	Very clear. Position is precisely stated; the argument is easy to follow; persuasive language is targeted to audience. <input type="checkbox"/> <input type="checkbox"/>	Very thorough. Rich and comprehensive detail provided to fully address the issues and support the argument. <input type="checkbox"/> <input type="checkbox"/>	Very polished. No errors of syntax, mechanics, or usage. Publishable quality. <input type="checkbox"/> <input type="checkbox"/>
	3	Persuasive. Solid evidence, generally sound reasoning; acknowledges other positions or arguments. <input type="checkbox"/> <input type="checkbox"/>	Clear. Position is stated, the reader can follow the argument; language appropriate for targeted audience. <input checked="" type="checkbox"/> <input type="checkbox"/>	Thorough. Sufficient detail is provided to address the issues and support the argument. <input type="checkbox"/> <input type="checkbox"/>	Polished. A few minor errors of syntax, mechanics, or usage that do not detract from the overall effect of the essay, minor editing needed. <input checked="" type="checkbox"/> <input type="checkbox"/>
	2	Somewhat persuasive. Some gaps in logic or reasoning; some evidence is missing and/or inappropriate; does not effectively counter other arguments. <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	Somewhat clear. Position is somewhat vague or ambiguous; argument is implied but too hard to follow; language may not fit the audience. <input type="checkbox"/> <input checked="" type="checkbox"/>	Somewhat thorough. Some detail is provided, but more is needed to adequately address the issues and support the argument. <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	Somewhat polished. A few distracting errors of syntax, mechanics, and/or usage; editing and rewriting is needed. <input type="checkbox"/> <input checked="" type="checkbox"/>
	1	Not persuasive. Illogical, missing, or inappropriate evidence; does not acknowledge other positions or arguments or evidence. <input type="checkbox"/> <input type="checkbox"/>	Unclear. Writer's position is not evident; no coherent argument is provided; language is inappropriate for targeted audience. <input type="checkbox"/> <input type="checkbox"/>	Not thorough. Insufficient detail provided; does not adequately address the issues and/or support the argument. <input type="checkbox"/> <input type="checkbox"/>	Unpolished. Numerous errors in syntax, mechanics, and/or usage make the essay difficult to follow; significant editing and rewriting needed. <input type="checkbox"/> <input type="checkbox"/>

**Goals/Actions:** Next time I write a persuasive essay, I'll do a little more research on the topic and think about what other people are going to argue (especially those who disagree with me). That's hard for me because I always think my views are just right! My writing is pretty good, but I know I need to add more details to support my views.

Figure K.9

### WHERE TO—Examples for the Second *E* (Evaluate)

The second *E* in WHERE TO asks the designer to build in opportunities for ongoing evaluation, including opportunities for students to self-evaluate. The following questions may be used as prompts to guide student self-evaluation and reflection.

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

## Frequently Asked Questions

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### Refining the Learning Plan in Stage 3 (Module K)

Must every one of my lessons contain all of the WHERETO elements?

No. The WHERETO elements reflect important considerations for teaching and learning. Accordingly, they are important to consider over the course of a unit, but we would certainly not expect to see each of them in every single lesson. Nor should they be thought of as a checklist or quota. Rather, they reflect criteria—useful considerations for optimizing your learning plan. This is why we encourage you to code your Stage 3 learning events against these elements (along with T-M-A) on the UbD Template.

Over the years, our school district has conducted staff development in various instructional models, including Dimensions of Learning, 4-MAT, writing across the curriculum, cooperative learning, differentiated instruction, assessment for learning, and the 5 E's in science. Are these approaches compatible with Understanding by Design?

Yes! These are all proven instructional models and congruent with Understanding by Design. UbD does not specify any particular instructional approach or strategy in Stage 3. We believe that there are various ways to teach for understanding and transfer. The selection of specific teaching methods is influenced by the intersection among many variables, including content, age and experience levels of the learners, teacher styles, results from various achievement measures, and available resources, among others. From a backward-design perspective, two key questions should be considered: (1) Is this instructional approach appropriate for helping students reach the desired results? (2) Will it lead to engaging and effective learning of important ideas? If the answer to both questions is yes, then use it!

Many long-time users of Understanding by Design have observed that UbD serves as an integrative framework. That is, it helps people see how various instructional approaches fit together in a complementary way. UbD also reminds educators that the various instructional models and approaches are a means to an end. The ultimate goal is meaningful learning (understanding and transfer) of worthy content, *not* simply implementing a specific technique or program with fidelity.

I have worked very hard on designing just one unit using UbD. How can I possibly plan everything I teach in this way?

Admittedly, Understanding by Design is a sophisticated and demanding planning framework (although we believe that such planning results in more effective and

engaging teaching and learning). Nonetheless, the thought of planning everything one teaches in this manner can be daunting.

We suggest considering this challenge through a cooking analogy: UbD is to unit planning as gourmet cooking is to meal creation. Even those of us who love to cook generally do not plan gourmet meals every evening, as that would be too demanding. Similarly, attempting to apply the UbD framework to everything at once is not feasible. However, imagine that every teacher in a school or district (or state) had the opportunity to plan two gourmet units a year using UbD (ideally, working with a colleague or two). Once teachers became familiar with the process (and it does get easier), they would be encouraged to plan three units the following year. Then imagine that every teacher shared his or her gourmet unit via a website, so that others could access the designs. By working smarter in this fashion, every teacher would have access to dozens of gourmet units.

A different analogy involves software. Think of UbD as offering a powerful set of curriculum design tools, just as Adobe Photoshop or Illustrator offers powerful digital editing tools for photography and graphic design. Like these software programs, UbD requires a learning curve. However, the good news is that you can start at your comfort level, using only the tools you need. Indeed, you might never use all the tools, but they are available to you if and when you need them.

Figure L.1

**Essential Questions Versus Knowledge Questions**

Essential Questions	Knowledge Questions
<div>1. Are meant to be explored, argued, and continually revisited.</div> <div>2. Have various plausible answers. Often the “answers” raise new questions.</div> <div>3. Should provoke thought and stimulate students to engage in sustained inquiry and extended thinking.</div> <div>4. Reflect genuine questions that real people seriously ask, either in their work or in their lives—not “teacherly” questions asked only in schools.</div>	<div>1. Have a specific, straightforward, unproblematic answer.</div> <div>2. Are asked to prompt factual recall rather than to generate a sustained inquiry.</div> <div>3. Are more likely to be asked by a teacher or a textbook than by a curious student or person out in the world.</div> <div>4. Are more rhetorical than genuine.</div>

*Note:* There is a distinction between concrete “hook” questions (e.g., *Can what you eat help prevent zits?*) intended to engage students’ interest in a new topic, and more transferable essential questions (e.g., *Must food that is good for you taste bad?*). We recommend placing hook questions in Stage 3 as part of the learning plan.

Figure L.2

## Revising Essential Questions

Original Draft Questions	Commentary on the Drafts	Revised Questions	Commentary on the Revisions
Are there any benefits from the deforestation of the rain forests?	<i>The question calls for some research/information gathering and analysis but ends in a list.</i>	Do the benefits of deforestation outweigh the costs?	<i>The revised question broadens the inquiry and calls for a more sophisticated analysis; it's far more likely to spark debate and deeper inquiry than any list of pros and cons.</i>
How does this diet match up with the USDA nutrition recommendations?	<i>The question requires some analysis and evaluation, but it can be answered correctly.</i>	What should we eat?	<i>This is a much more open version with lots of potential for inquiry and debate.</i>
What is nonfiction?	<i>This is a definitional question that can be answered unambiguously.</i>	How much license does a writer of nonfiction have to make a point?	<i>This version of the question explores an interesting gray area having both historical and contemporary relevance.</i>
What is a life-changing experience?	<i>Although somewhat open, this question can be answered through recall and surface thinking.</i>	Is there a pattern to life-changing experiences?	<i>This revised question calls for learners to make inferences about the concept of "life changing."</i>
Who speaks Spanish in our community?	<i>This is a nonproblematic question asking for a list.</i>	How well can you thrive speaking only English?	<i>This more provocative version calls for greater analysis and a shift of perspective.</i>
What is an axiom?	<i>This is a definitional question calling for a straightforward answer.</i>	Why should we assume that [an axiom] is true?	<i>This much more open question gets at why some things are "given" even if they do not seem obvious or necessary.</i>
What distinguishes impressionism art?	<i>This is a leading question with an expected set of characteristics.</i>	Why and how do artists break with tradition?	<i>These questions require an examination of artistic trends and a generalization by the learner.</i>
What types of exercises will improve fitness?	<i>This question involves research but is leading. The answers are straightforward.</i>	"No pain, no gain"—agree?	<i>The revised version is more provocative and likely to spark discussion, debate, and further inquiry.</i>



Figure L.3

**Overarching Versus Topical Questions**

Overarching Questions	Topical Questions
These questions point beyond the particulars of a unit to the larger, transferable big ideas and enduring understandings. Practically speaking, the specific topics, events, or texts of the unit are typically not mentioned in the framing of overarching questions. For example, <i>Is science fiction great literature?</i> is an overarching question for any unit on a specific text such as <i>Stranger in a Strange Land</i> .	Topical questions are subject- and topic-specific. They frame a unit of study. They guide the exploration of big ideas and processes within particular subjects. For example, <i>What aspects of Stranger in a Strange Land are plausible?</i> is a question that guides inquiry within a specific literature unit. This unit question links to the overarching question <i>How “true” is a fictional story?</i> , which is addressed within other English/language arts units.
Examples	
<p><b>Art</b></p> <ul style="list-style-type: none"> <li>• In what ways does art reflect culture as well as shape it?</li> <li>• How do artists choose tools, techniques, and materials to express their ideas?</li> </ul> <p><b>Literature</b></p> <ul style="list-style-type: none"> <li>• What makes a great story?</li> <li>• How do effective writers hook and hold their readers?</li> </ul> <p><b>Science</b></p> <ul style="list-style-type: none"> <li>• How does an organism’s structure enable it to survive in its environment?</li> <li>• How do organisms survive in harsh or changing environments?</li> </ul> <p><b>Mathematics</b></p> <ul style="list-style-type: none"> <li>• If axioms are like the rules of the game, when should we change the rules?</li> </ul> <p><b>History/Government</b></p> <ul style="list-style-type: none"> <li>• How do governments balance the rights of individuals with the common good?</li> <li>• How and why do we provide checks and balances on government power?</li> </ul>	<p><b>Unit on masks</b></p> <ul style="list-style-type: none"> <li>• What do masks and their use reveal about the culture? What tools, techniques, and materials are used in creating masks from different cultures?</li> </ul> <p><b>Unit on mysteries</b></p> <ul style="list-style-type: none"> <li>• What is unique about the mystery genre?</li> <li>• How do great mystery writers hook and hold their readers?</li> </ul> <p><b>Unit on insects</b></p> <ul style="list-style-type: none"> <li>• How do the structure and behavior of insects enable them to survive?</li> <li>• How do insects survive when their environment changes?</li> </ul> <p><b>Unit on the parallel postulate</b></p> <ul style="list-style-type: none"> <li>• Why is this an axiom if it’s so complex?</li> <li>• What no longer holds true if we deny it?</li> </ul> <p><b>Unit on the U.S. Constitution</b></p> <ul style="list-style-type: none"> <li>• In what ways does the Constitution attempt to limit abuse of government powers?</li> <li>• Does separation of powers (three branches of government) create a deadlock?</li> </ul>

Figure L.4

## Understandings Versus Knowledge

Understandings	Knowledge
<ul style="list-style-type: none"> <li>• Are supportable conclusions—valid inferences based on facts and reasoning.</li> <li>• Aren't so much right or wrong as relatively more or less defensible and in depth.</li> <li>• Can vary across individuals and in ourselves over time as new evidence, arguments, and reflection dictate.</li> <li>• Are meaningful and transferable ideas and strategies.</li> <li>• Lead to the discovery or development of new knowledge.</li> </ul>	<ul style="list-style-type: none"> <li>• Is accurate information that we acquire.</li> <li>• Is either correct or incorrect.</li> <li>• Is established by settled and uncontroversial methods.</li> <li>• Is useful information that causes and results from successful inquiry.</li> <li>• Provides the facts in support of any rational understanding.</li> </ul>
Paired Examples	
<p>a. In a free-market economy, price is a function of supply and demand.</p> <p>b. Statistical analysis and data display often reveal patterns that may not be obvious.</p> <p>c. The most efficient and effective stroke mechanics in swimming involve pushing the maximum amount of water directly backward.</p> <p>d. Heating of Earth's surface and atmosphere by the sun drives convection within the atmosphere and oceans, producing winds and ocean currents.</p>	<p>a. The price of long-distance phone calls has declined during the past decade.</p> <p>b. Mean, median, and mode are measures of central tendency.</p> <p>c. The freestyle is an event in which the fastest times in swimming occur.</p> <p>d. Winds can sometimes exceed 200 miles per hour.</p>

Figure L.5

## Revising Understandings

Original Draft Understandings: Students will understand that	Commentary on the Drafts	Revised Understandings	Commentary on the Revisions
The three branches of government.	<i>This phrase simply states the topic, not the understanding sought about that topic. Note the stem (Students will understand that...), which is designed to remind you of this need.</i>	Our founders believed in <i>limited and divided</i> government, in order to ensure that absolute power could never occur in government.	<i>The revised understanding is both a transferable generalization and a not so obvious result of analysis of the history of monarchies and dictatorial regimes.</i>
We should eat right and live healthy lives.	<i>This understanding is a truism—obvious on its face and not requiring thought beyond basic knowledge to grasp.</i>	We are what we eat.	<i>The revision is a more thought-provoking and focused understanding that should encourage discussion and further inquiry in order to uncover the insights in the statement.</i>
Different countries have different cultures.	<i>Although this is an understanding that may not be obvious to younger students, the claim is so vague that it isn't clear where this leads in terms of specific inquiry and insight.</i>	Cultures develop unique traditions and norms around universal human needs (e.g., food and housing) and experiences (e.g., celebrations and mourning).	<i>The revised understanding provides greater focus about the inquiry and learning in the unit, and hints at an important paradoxical insight: cultures develop differently around universal human needs and experiences.</i>
Force makes things move.	<i>This is too superficial and imprecise a statement of the desired understanding.</i>	$F = ma$	<i>Newton's law is a profound, concise, and focusing understanding.</i>
Factoring and regrouping are ways to simplify.	<i>This is true by definition and doesn't get at the powerful idea in mathematics as to why we want to simplify and how in general to do it.</i>	Solving problems requires simplifying expressions by finding useful equivalent statements by which unknowns and unwieldy expressions are easier to work with.	<i>The revised understanding, although wordy, summarizes a critical idea about how all problem solving depends in part on finding equivalences.</i>
Artists are always working to be creative.	<i>This is a somewhat superficial view of the artistic process. It doesn't really suggest an in-depth or interesting inquiry about the creative process.</i>	"Creativity is 10 percent inspiration and 90 percent perspiration" (Pasteur).	<i>The revised version is a concise but profound and (to many) counterintuitive claim about the role of hard work in the creative process.</i>
Many linear relationships can be found in the world.	<i>This statement is extremely vague—we aren't told where to find such relationships or how. As stated, it is more of a fact than a useful insight drawn from inference.</i>	If you find a relationship in which two variables are related to each other in a constant ratio, the relationship can be represented graphically by a straight line.	<i>The revised understanding, although abstract, accurately describes the general class of relationships called "linear" and how to find them. (Note that this is not true by definition; it must be inferred from the definition and experience with such relationships.)</i>

Figure L.6

**Anticipating Misunderstandings**

Use these examples to help you identify possible misunderstandings for identified understandings or skills.

Desired Understanding	Possible Misunderstanding
Friendship is often revealed more through challenging times than during happy times.	People with whom you “hang” are your friends. Once a friend, always a friend.
Gravitational force is the only significant force acting on a ball once it has been thrown.	When a ball is thrown by the pitcher, there are two forces acting on it as it travels toward the catcher.
States’ rights issues, linked to regional economies, were a cause of the Civil War, but historians now generally agree that the chief cause was the economics and ethics of slavery.	The Civil War was fought over the evil of slavery, and the “good guys” won.
...for a Skill Area	Possible Misunderstanding
Listening is not passive. Effective listeners actively monitor their understanding of the speaker’s message by summarizing, clarifying, and questioning.	All I need to do is sit still, keep my eyes on the speaker, and hear all of the words.
Solving problems requires constantly clarifying the goal and the givens.	The math problem tells you how to solve it.
The author of a story rarely states a purpose or meaning, so readers have to infer them.	The meaning of the story is found in the text.

List possible misunderstandings for your identified understandings or skills.

Desired Understanding	Possible Misunderstanding

Figure L.7

## Overarching Versus Topical Understandings

Overarching Understandings	Topical Understandings
These understandings point beyond the specifics of a unit to the larger, transferable insights we wish students to acquire. They often reflect yearlong course or K–12 program understandings. The specific topics, events, or texts of the unit are typically not mentioned in the overarching understandings.	Topical understandings are subject- and topic-specific. They focus on the <i>particular</i> insights we wish students to acquire about the topic within a unit of study. Topical understandings are less likely to transfer naturally to other topics.
Examples	
<p><b>Art</b></p> <ul style="list-style-type: none"> <li>• Art often reflects the controversial, overlooked, or taboo aspects of a culture; or novel techniques and media.</li> </ul> <p><b>Literature</b></p> <ul style="list-style-type: none"> <li>• The modern novel overturns many traditional story elements and norms to provide a more authentic and engaging narrative.</li> </ul> <p><b>History/Government</b></p> <ul style="list-style-type: none"> <li>• Democracy requires a free and courageous press, willing to question and investigate authority.</li> </ul> <p><b>Mathematics</b></p> <ul style="list-style-type: none"> <li>• Mathematics allows us to see patterns that might otherwise have remained unseen.</li> </ul> <p><b>Physical Education</b></p> <ul style="list-style-type: none"> <li>• A muscle that contracts through its full range of motion will generate more force.</li> </ul> <p><b>Science</b></p> <ul style="list-style-type: none"> <li>• Gravity is not a physical thing but a term describing the constant rate of acceleration of all “falling” objects.</li> </ul>	<p><b>Unit on Impressionism</b></p> <ul style="list-style-type: none"> <li>• Impressionist artists departed from traditional painting forms by using color, light, and shadow to convey the impression of reflected light at a particular moment.</li> </ul> <p><b>Unit on <i>Catcher in the Rye</i></b></p> <ul style="list-style-type: none"> <li>• Holden Caulfield is an alienated antihero, not simply a weird kid who mistrusts adults.</li> </ul> <p><b>Unit on the U.S. Constitution</b></p> <ul style="list-style-type: none"> <li>• The Watergate incident, exposed by the press, represented a major constitutional crisis.</li> </ul> <p><b>Unit on statistics</b></p> <ul style="list-style-type: none"> <li>• Measures of central tendency enable us to find the right “average.”</li> </ul> <p><b>Unit on golf</b></p> <ul style="list-style-type: none"> <li>• A full stroke with follow-through will increase the distance a golf ball travels.</li> </ul> <p><b>Unit on gravitational force</b></p> <ul style="list-style-type: none"> <li>• Vertical height, not the angle and distance of descent, determines the eventual speed of a falling object.</li> </ul>

Figure L.8

### From Skills to Understandings

Review the following examples of big ideas and understandings related to skills. Then brainstorm possible understandings related to skills for your unit.

Stated as a Skill	Underlying Big Ideas	Specific Generalizations to Be Understood
Swimming: mechanics of arm strokes (freestyle, backstroke, breaststroke, butterfly, side stroke)	<ul style="list-style-type: none"> <li>• Efficiency</li> <li>• Maximum power</li> <li>• “Backward” push</li> <li>• Surface area</li> </ul>	<ul style="list-style-type: none"> <li>• The most efficient and effective stroke mechanics push the maximum amount of water directly backward.</li> <li>• A flat (versus cupped) palm offers the maximum surface area.</li> <li>• A bent arm pull enables a swimmer to push water directly backward with greatest power.</li> </ul>
Adding fractions	<ul style="list-style-type: none"> <li>• Part to whole relation</li> <li>• Relating “likes” to “likes”</li> </ul>	<ul style="list-style-type: none"> <li>• When “parts” are combined, they have to be framed in terms of the same “whole.”</li> </ul>
Ideas for Your Unit		

## Frequently Asked Questions

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### Sharpening Essential Questions and Understandings (Module L)

How many essential questions and understandings should a unit have?

The answer depends in large part on the scope and time frame of the unit. A 2-week unit on a specific topic within one subject area would likely have fewer EQs than a 12-week interdisciplinary unit. That said, we typically see between two and four essential questions and companion understandings in an average unit.

It does not follow that a unit with more essential questions or understandings is better than a unit with fewer. Keep in mind that a truly essential question is one that will be continually revisited throughout the unit, so we don't want too many.

Where do my nonessential but "important" questions go?

Having sharpened your understanding of essential questions and perhaps identified some of yours as not really essential, your question might now be this: what do I do with the questions that are important to my teaching of content but not truly essential in the UbD sense? Such questions are important to the learning plan and can be placed in Stage 3 as discussion prompts for specific learning events. Some designers also place nonessential but important questions in the knowledge box in Stage 1. In other words, instead of listing facts to be learned, they write their knowledge objectives in question form. This latter move is useful for reminding you to assess this knowledge in Stage 2 (not just ask the questions rhetorically or as a teaching technique in Stage 3).

Figure M.1

**Authentic Tasks Versus Simplified Exercises**

<b>Simplified (Drill-like) Exercises</b>	<b>Authentic (Gamelike) Tasks</b>
Select an answer from given data.	Interpret data based on real-world phenomena.
Fill in the blank with a recalled fact, or answer from someone else's research.	Conduct research using primary and secondary sources.
Recall what the history book says on a controversial issue.	Engage in a simulated debate on a controversial historical issue in a simulated United Nations session.
Answer factual questions at end of the chapter in a chemistry textbook.	Conduct a scientific investigation to identify unknown chemical compounds.
Solve simple, contrived math problems that have a single correct answer.	Solve real-world math problems that have multiple solution paths and different plausible answers.
Identify the topic sentence.	Interpret the meaning and assess the value of an award-winning children's novel.
Diagram sentences.	Write for a real audience with an explicit purpose (e.g., to entertain or persuade).
Copy a famous drawing.	Create a political cartoon to satirize a current event or policy.



Figure M.2

## Performance Task Frames

English Language Arts
<input type="checkbox"/> Read and respond to <i>text in various genres</i> (literature, nonfiction, technical) using <ul style="list-style-type: none"> <li>• Global understanding (the “gist”).</li> <li>• Interpretation (reading between the lines).</li> <li>• Critical stance.</li> <li>• Personal connections.</li> </ul>
<input type="checkbox"/> Create <i>oral presentations</i> or <i>written pieces</i> in various <i>genres</i> for various <i>audiences</i> in order to <ul style="list-style-type: none"> <li>• Explain (narrative).</li> <li>• Entertain (creative).</li> <li>• Persuade (persuasive).</li> <li>• Help perform a task (technical).</li> <li>• Challenge or change things (satirical).</li> </ul>
<input type="checkbox"/> Use various <i>sources</i> (e.g., lecture, radio commercial) for various <i>purposes</i> , including for <ul style="list-style-type: none"> <li>• Learning.</li> <li>• Enjoyment.</li> <li>• Performing a task.</li> <li>• Reaching a decision.</li> </ul>
Mathematics
<input type="checkbox"/> Create a mathematical model of physical phenomena (e.g., quantity, size, rate, change). <input type="checkbox"/> Conduct data analysis, specifically <ul style="list-style-type: none"> <li>• Observe.</li> <li>• Collect.</li> <li>• Measure.</li> <li>• Record.</li> <li>• Display.</li> </ul>
<input type="checkbox"/> Make and justify predictions based on pattern analysis. <input type="checkbox"/> Design a physical structure (e.g., a three-dimensional shipping container to maximize volume and safety). <input type="checkbox"/> Evaluate mathematical/statistical claims.
Science
<input type="checkbox"/> Design and conduct an experiment to answer a question or explain phenomena. <input type="checkbox"/> Effectively use scientific tools to <ul style="list-style-type: none"> <li>• Observe.</li> <li>• Collect data.</li> <li>• Measure.</li> <li>• Record data.</li> <li>• Classify.</li> <li>• Draw conclusions.</li> </ul>
<input type="checkbox"/> Evaluate scientific claims. <input type="checkbox"/> Critique experimental design or conclusions. <input type="checkbox"/> Analyze current issues involving science or technology.
History/Social Studies
<input type="checkbox"/> Evaluate historical claims or interpretations based on conflicting and incomplete information from <ul style="list-style-type: none"> <li>• Primary source.</li> <li>• Secondary source.</li> <li>• Personal opinion.</li> </ul>
<input type="checkbox"/> Critically analyze current events/issues: <ul style="list-style-type: none"> <li>• Summarize/compare key points.</li> <li>• Analyze causes and effects.</li> <li>• Identify points of view and potential bias.</li> <li>• Debate possible courses of action.</li> </ul>
<input type="checkbox"/> Make informed decisions using critical thinking and understanding of historical patterns. <input type="checkbox"/> Act as a responsible citizen in a democracy (e.g., stay informed, study issues, participate in community events, vote).
Visual and Performing Arts
<input type="checkbox"/> Create artistic expressions through various forms: <ul style="list-style-type: none"> <li>• Media (e.g., pastels, photography).</li> <li>• Genre (e.g., jazz music, modern dance).</li> <li>• Styles (e.g., Impressionism, cubism).</li> </ul>

Figure M.2—(Continued)

## Performance Task Frames

Visual and Performing Arts—(continued)	
<input type="checkbox"/> Create artistic expressions for various audiences and purposes, including to <ul style="list-style-type: none"> <li>• Entertain (e.g., tell a story).</li> <li>• Evoke emotion.</li> <li>• Commemorate.</li> <li>• Persuade.</li> <li>• Challenge (e.g., the status quo).</li> </ul>	
<input type="checkbox"/> Respond to artistic expressions through <ul style="list-style-type: none"> <li>• Global understanding.</li> <li>• Interpretation.</li> <li>• Critical stance.</li> <li>• Personal connections.</li> </ul>	
Health and Physical Education	
<input type="checkbox"/> Engage in healthful activities and behaviors to promote wellness throughout life. <input type="checkbox"/> Make healthful choices and decisions about diet, exercise, stress management, and substance abuse.	
Foreign/World Languages	
<input type="checkbox"/> Understand spoken and written communications in the target language. <input type="checkbox"/> Communicate effectively (orally and in writing) in the target language in realistic situations.	

Figure M.3

### **Performance Task for Nutrition—GRASPS Example**

**Goal:**

The goal (within the scenario) is to create a menu for the three-day trip to the Outdoor Education Center.

**Role:**

You are a menu advisor.

**Audience:**

The target audience is the Outdoor Education Center director (and your peers).

**Situation:**

You need to propose a nutritionally balanced and tasty menu, within budget, for three days of camping by the entire class.

**Product/Performance and Purpose:**

- Menu plan for three days, including the three main meals and three snacks (a.m., p.m., and campfire).
- Letter to the director explaining how your menu meets the USDA nutritional guidelines. Include a chart showing a breakdown of the fat, protein, carbohydrates, vitamins, minerals, and calories. Explain how you made your menu as tasty as possible.

**Standards and Criteria for Success:**

- Healthy and tasty menu
- Well-written and well-supported letter

Figure M.4

### GRASPS Task Scenario Builder

Consider the following set of sentence starters as you construct a scenario for a performance task.

Note: These are stems to help you generate ideas. Resist the urge to fill in all of the blanks.

**Goal:**

- Your task is \_\_\_\_\_.
- The goal is to \_\_\_\_\_.
- The problem or challenge is \_\_\_\_\_.
- The obstacles to overcome are \_\_\_\_\_.

**Role:**

- You are \_\_\_\_\_.
- You have been asked to \_\_\_\_\_.
- Your job is \_\_\_\_\_.

**Audience:**

- Your clients are \_\_\_\_\_.
- The target audience is \_\_\_\_\_.
- You need to convince \_\_\_\_\_.

**Situation:**

- The context you find yourself in is \_\_\_\_\_.
- The challenge involves dealing with \_\_\_\_\_.

**Product or Performance and Purpose:**

- You will create a \_\_\_\_\_  
in order to \_\_\_\_\_.
- You need to develop \_\_\_\_\_  
so that \_\_\_\_\_.

**Standards and Criteria for Success:**

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

Figure M.5

# Possible Student Roles and Audiences

\_\_\_ = ROLES    □ = AUDIENCES

___ □ actor	___ □ family member	___ □ playwright
___ □ advertiser	___ □ farmer	___ □ poet
___ □ artist/illustrator	___ □ filmmaker	___ □ police officer
___ □ author	___ □ firefighter	___ □ pollster
___ □ biographer	___ □ forest ranger	___ □ radio listener
___ □ board member	___ □ friend	___ □ reader
___ □ boss	___ □ geologist	___ □ reporter
___ □ Boy/Girl Scout	___ □ government official	___ □ researcher
___ □ businessperson	___ □ historian	___ □ reviewer
___ □ candidate	___ □ historical figure	___ □ sailor
___ □ carpenter	___ □ illustrator	___ □ school official
___ □ cartoon character	___ □ intern	___ □ scientist
___ □ cartoonist	___ □ interviewer	___ □ ship's captain
___ □ caterer	___ □ inventor	___ □ social scientist
___ □ celebrity	___ □ judge	___ □ social worker
___ □ CEO	___ □ jury	___ □ statistician
___ □ chairperson	___ □ lawyer	___ □ storyteller
___ □ chef	___ □ library patron	___ □ student
___ □ choreographer	___ □ literary critic	___ □ taxi driver
___ □ coach	___ □ lobbyist	___ □ teacher
___ □ community member	___ □ meteorologist	___ □ tour guide
___ □ composer	___ □ museum director/curator	___ □ trainer
___ □ client/customer	___ □ museum goer	___ □ travel agent
___ □ construction worker	___ □ neighbor	___ □ traveler
___ □ dancer	___ □ newscaster	___ □ tutor
___ □ designer	___ □ novelist	___ □ TV/movie character
___ □ detective	___ □ nutritionist	___ □ TV viewer
___ □ editor	___ □ panelist	___ □ viewer
___ □ elected official	___ □ parent	___ □ visitor
___ □ embassy staff	___ □ park ranger	___ □ website designer
___ □ engineer	___ □ pen pal	___ □ zookeeper
___ □ expert (in _____)	___ □ photographer	___ □ _____
___ □ eyewitness	___ □ pilot	___ □ _____

Figure M.6

**Possible Products and Performances**

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

Written	Oral	Visual
<input type="checkbox"/> advertisement	<input type="checkbox"/> audiotape	<input type="checkbox"/> advertisement
<input type="checkbox"/> biography	<input type="checkbox"/> conversation	<input type="checkbox"/> banner
<input type="checkbox"/> book report/review	<input type="checkbox"/> debate	<input type="checkbox"/> cartoon
<input type="checkbox"/> brochure	<input type="checkbox"/> discussion	<input type="checkbox"/> collage
<input type="checkbox"/> collection	<input type="checkbox"/> dramatic reading	<input type="checkbox"/> computer graphic
<input type="checkbox"/> crossword puzzle	<input type="checkbox"/> dramatization	<input type="checkbox"/> data display
<input type="checkbox"/> editorial	<input type="checkbox"/> interview	<input type="checkbox"/> design
<input type="checkbox"/> essay	<input type="checkbox"/> oral presentation	<input type="checkbox"/> diagram
<input type="checkbox"/> experiment record	<input type="checkbox"/> oral report	<input type="checkbox"/> diorama
<input type="checkbox"/> historical fiction	<input type="checkbox"/> poetry reading	<input type="checkbox"/> display
<input type="checkbox"/> journal	<input type="checkbox"/> puppet show	<input type="checkbox"/> drawing
<input type="checkbox"/> lab report	<input type="checkbox"/> radio script	<input type="checkbox"/> flyer
<input type="checkbox"/> letter	<input type="checkbox"/> rap	<input type="checkbox"/> game
<input type="checkbox"/> log	<input type="checkbox"/> skit	<input type="checkbox"/> graph
<input type="checkbox"/> magazine article	<input type="checkbox"/> song	<input type="checkbox"/> map
<input type="checkbox"/> memo	<input type="checkbox"/> speech	<input type="checkbox"/> model
<input type="checkbox"/> newscast	<input type="checkbox"/> teach a lesson	<input type="checkbox"/> painting
<input type="checkbox"/> newspaper article		<input type="checkbox"/> photograph
<input type="checkbox"/> play		<input type="checkbox"/> poster
<input type="checkbox"/> poem		<input type="checkbox"/> PowerPoint presentation
<input type="checkbox"/> position paper		<input type="checkbox"/> questionnaire
<input type="checkbox"/> proposal		<input type="checkbox"/> scrapbook
<input type="checkbox"/> research report		<input type="checkbox"/> sculpture
<input type="checkbox"/> script		<input type="checkbox"/> slide show
<input type="checkbox"/> story	Other:	<input type="checkbox"/> storyboard
<input type="checkbox"/> test	<input type="checkbox"/> _____	<input type="checkbox"/> video
<input type="checkbox"/> website	<input type="checkbox"/> _____	

Figure M.7

## Easier/More Difficult Situations

### French Class

#### *Easier Situation*

"You need to make train reservations for a trip from Marseilles to Paris on the TGV..." (The teacher is the ticket agent and speaks clearly, slowly, and repeats the words as often as requested when putting students in simulations of speaking with a ticket agent at a train station in Paris.)

#### *More Difficult Situation*

The teacher speaks quickly, with an accent, from behind a fake ticket window that makes it hard to hear. Impatient passengers wait behind the student to get their tickets as the loudspeaker in the station blares and other distractions are evident.

### Language Arts Class

#### *Easier Situation*

"Write a letter to your principal about what can be done to lower utility costs in the school." (The teacher reminds students repeatedly of the steps in the writing process and provides graphic organizers for their draft letters.)

#### *More Difficult Situation*

The teacher says nothing about the writing process and reminds students that they only have 45 minutes in which to draft a letter to the principal about lowering utility costs before she has to leave for a board meeting.

### Math/Science Class

#### *Easier Situation*

"Hoops McGinty has pledged a million dollars for a new museum dedicated to the solar system. The building lot is 300 × 800 feet. How would you design the layout of the main hall to fit a scale model of the solar system?"

#### *More Difficult Situation*

"Hoops has pledged the money under one condition: A regulation NBA basketball is to be used to represent a sun or a planet. The building lot is 300 × 800 feet. As a designer, how do you propose that the main exhibit hall with a model of the solar system be built to scale? If it cannot be done properly, what is your alternative approach to the design, to satisfy Hoops's interest in a basketball theme?"

Figure M.8

### Brainstorming Realistic Situations

The following sentence starters and ideas can help you brainstorm realistic situations to use for GRASPS tasks. Consider the following situational elements: setting with opportunities and constraints, points of view, messiness, cost versus benefit, dilemmas, and trade-offs.

- Typical approaches won't do here. Content must be creatively used to \_\_\_\_\_.
- The different points of view here include \_\_\_\_\_.
- To succeed, you must overcome messiness such as noise, distractions, false leads, misleading information, missing information, or \_\_\_\_\_.
- Success depends upon thinking through the trade-off of \_\_\_\_\_ and \_\_\_\_\_.
- No solution is perfect here; the dilemma requires you to negotiate \_\_\_\_\_.
- You realize that you can't fully trust the advice of \_\_\_\_\_.
- In this setting it isn't clear if \_\_\_\_\_ has the knowledge or authority to \_\_\_\_\_.
- You may not have the resources you need to \_\_\_\_\_.



Figure M.9

**Check: Is Every Desired Result Assessed?**

Use this worksheet to record each, individual Stage 1 desired result and then list corresponding assessments, numbered according to the related result. *Note:* There need not be a one-to-one correspondence. Some desired results will be assessed by more than one assessment, and vice versa.

Stage 1	Stage 2
If the desired results require learners to understand, address essential questions, know, and be able to do...	...then the assessments below match up with the desired results by number.
1	
2	
3	
4	
5	
6	

Figure M.10

**Matching Stage 1 Goals to Various Assessment Methods**

Stage 1 Goals	Assessment Methods
	Selected-response format (e.g., multiple-choice, true-false) quizzes and tests
	Written or oral responses to academic prompts (short-answer format)
	Authentic performance assessment tasks requiring transfer (with or without GRASPS)
	Discrete skill demonstrations
	Formal observations of students using observable indicators or list of criteria
	Informal, ongoing observations of students working
	Portfolios—collections of student work over time
	Reflective journals or learning logs
	Student self-assessments
	Other:

Figure M.11

## **GRASPS Performance Task Scenario for Social Studies**

### **Goal:**

The goal (within the scenario) is to help a group of foreign visitors understand the key historic, geographic, and economic features of our region.

### **Role:**

You are an intern at the Regional Office of Tourism.

### **Audience:**

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

### **Situation:**

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

### **Product or Performance and Purpose:**

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

### **Standards and Criteria for Success:**

Your proposed tour plan needs to include

- An itinerary and route map.
- Key historical, geographic, and economic features of the region.
- A clear rationale for the selected sites.
- Accurate and complete budget figures.

Figure M.12

## **A Collection of Assessment Evidence (Nutrition Unit)**

### **Performance Tasks**

- “You Are What You Eat”—Students create an illustrated brochure to teach younger children about the importance of good nutrition for healthful living.
- “Chow Down”—Students develop a three-day menu for meals and snacks for an upcoming outdoor education camp experience. They write a letter to the camp director to explain why their menu should be selected (by showing that it meets the USDA recommendations yet is tasty enough for the students).

### **Other Evidence** (e.g., tests, quizzes, prompts, work samples, observations)

Quiz 1—The food groups

Quiz 2—The USDA Food Guidelines

Prompt—Describe two health problems that could arise as a result of poor nutrition and explain how these could be avoided.

### **Student Self-Assessment and Reflection**

1. Self-assess the brochure “You Are What You Eat.”
2. Self-assess the camp menu “Chow Down.”
3. Self-assess the extent to which you “eat healthy” at the end of unit compared with how you ate at the beginning of the unit.

Figure M.13

## Design Checklist—Stage 2

### Performance Task

1. \_\_\_\_\_ The performance task is aligned with one or more desired results in Stage 1. The task will yield appropriate evidence of the identified transfer and meaning goals.
2. \_\_\_\_\_ The task involves a complex, real-world (“authentic”) application of the identified knowledge, skill, and understandings.
3. \_\_\_\_\_ The task is written in the GRASPS form.
4. \_\_\_\_\_ The task allows students to demonstrate understanding with some appropriate options and variety in the performances or products.
5. \_\_\_\_\_ The task is not likely to be performed well without a clear understanding of the task that it is meant to assess.
6. \_\_\_\_\_ The task requires one or more of the six facets of understanding.
7. \_\_\_\_\_ The scoring rubric includes distinct traits of understanding and successful performance.
8. \_\_\_\_\_ The scoring rubric highlights what is appropriate, given the evidence needs suggested by the desired results of Stage 1.

### Other Evidence

9. \_\_\_\_\_ Other appropriate evidence has been identified in summary form (e.g., key quizzes, exams, student self-assessments) to supplement the evidence provided by the performance tasks.
10. \_\_\_\_\_ Students are given the opportunity to self-assess and reflect upon their learning and performance.

Figure M.14

## Assessment Design Tips and Guidelines

### Stage 2: Determine acceptable evidence.

What evidence will show that students understand and can meet unit goals?

#### Performance Tasks

- A performance task—
  - Requires *transfer*—a repertoire of knowledge and skill to be used wisely and effectively in a new situation (used with understanding).
  - Asks students to “do” the subject, not just recall and plug in discrete learning, out of context.
  - Is set in a novel situation, with little or no scaffolding or cues provided; the student has to think through what the task demands as part of the assessment (the “game” versus the scaffolded and simplified “drills”).
  - Is as realistic as possible, requiring students to confront the same kinds of challenges, constraints, and options found in the real world.
- A task, like any other aspect of Stage 2, is meant to yield evidence of key elements in Stage 1. The *primary* concern is validity, not whether the task is interesting or fun.
- A performance task may actually involve a *variety* of situations, performances, and products (it can be a complex task, with related subtasks).
- Writing the task in GRASPS form makes it likely that the task will involve authentic transfer. Give the student a goal, a role, an audience, a setting, performance/product demands, and a set of standards and criteria by which work will be judged.
- Build in as much differentiation via options and alternatives in the situations as is feasible—*without corrupting the validity of the assessment*. (The various options should be relatively equal in what they demand and reveal about a student’s understanding.)
- The goal is sufficient evidence for *each* student. Any group component to a task should be matched by evidence about the individual’s understanding. This can be accomplished by having separate parts to the task (such as a separate subtask in which roles and perspective change—for example, from group design team to solo reviewer) or by quizzes and prompts given to each student (and put in Other Evidence) that assess for the same goals.
- Don’t unwittingly assess for evidence unrelated to your goals. Keep in mind the “two-question validity test” and its implications: *Can the task be done well without understanding? Can the task be done poorly by someone with deep understanding?* If the answer is yes, then the task will not yield valid evidence, by definition. Be especially careful about demanding a mode or method of assessment that favors one student ability over others in ways that are not at the heart of your goals, so that, for example, you end up assessing—unfairly—writing ability or multimedia facility instead of understanding of the subject.

#### Rubrics

Clarify the criteria by which constructed-response work should be judged, and develop rubrics for each continuum of quality. It doesn’t matter whether you have a single rubric in a matrix form for the various traits or separate pages for each rubric related to each criterion. What matters is that you assess all the independent variables central to success.

Use as many distinct criteria as needed to ensure excellent feedback. A good rule of thumb is to identify the fewest independent variables, but “accuracy” is independent of “well developed” and “creative.”

Make sure that you identify valid criteria for scoring that suit the transfer goals and understandings, not just the particulars of the performance tasks (e.g., if the standard involves causes and effects of the Civil War, score “causal reasoning” and “insight of historical analysis,” not just “high-quality museum display”).

#### Other Evidence (Quizzes, Tests, Prompts, Observations, Dialogues)

- Identify the *specific questions* related to key knowledge and skill goals from Stage 1 that you expect students to be able to answer upon completion of this unit.
- Typical tests, quizzes, and homework belong in this box: discrete and uncomplicated assessment of skills and factual knowledge that isn’t otherwise assessed in the performance tasks.

Figure M.14—(Continued)

### Assessment Design Tips and Guidelines

- Supplement all your performance tasks, as needed, to get more reliable and varied evidence of understanding, knowledge, and skill for *each individual student*. This is especially important if you claim that this unit addresses a standard in an in-depth way, and the performance tasks are basically group projects. Ultimately you need evidence for each student.
- The goal is a photo album, not a single snapshot, for the assessments in the unit to be both valid and reliable.
- Don't confuse "assessment evidence" with "giving grades." Just because you plan to assess it doesn't mean you will grade it. Nor does the assessment "score" need to translate mechanically into a "grade." If the task is difficult and new for students, then grade accordingly; if the point of the assessment is more for feedback, then don't make it a grade for achievement, but only for process and effort, for example. This does not mean "don't give grades." It does caution not to confuse "feedback to students" with the separate act of "giving grades." (Local grading policy may need discussion and revision as a separate issue.)

## Frequently Asked Questions

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### Authentic Assessment and Validity (Module M)

Is a “performance task” the same thing as a “transfer” task? Is it the same as an “authentic” task?

Not necessarily. All performance tasks require by definition a *constructed* response in that they ask the learner to produce some multifaceted response (a product or a performance in the broadest sense), rather than simply selecting from given alternatives (*selected* response). However, not all performances require transfer. Playing a Chopin piece in recital after considerable practice, following a step-by-step science lab, building a database from a template—all of these involve scripted performance, hence minimal transfer. This is not a criticism, just a fact. Nontransfer tasks that are heavily scaffolded or scripted are best placed in the box for other evidence on the template.

Many scripted performances provide important evidence of knowledge and skill, and (sometimes) meaning-making. But transfer requires the application of prior learning in a *novel* situation or problem. The two-question test of validity (from Module D) applies here: *Can a proposed Stage 2 task be performed well without meaning-making by the learners? Can the task be done from memory, without strategy and adaptation?* Then the task does not require understanding, only practiced and refined skill. Even if the performance is impressive, that doesn’t mean it required transfer to do it well.

A performance task is authentic if it reflects the way in which people in the real world use (and adapt) the knowledge and skill to various situations. Authentic tasks typically include a goal (solve a problem, explore an issue, conduct an investigation, communicate for a purpose) and a target audience. Moreover, such tasks introduce realistic constraints (such as a time schedule or a budget). Therefore, not all performance tasks are authentic (e.g., a prompted essay on a state writing test).

Are you saying that *all* assessments of understanding need to be framed with GRASPS?

We do not mean to suggest that all understanding-related goals require assessments designed using the GRASPS elements. Reserve GRASPS for tasks that assess the most important recurring ideas and processes that you really want students to understand and be able to ultimately transfer. Performance tasks having these features provide meaningful learning targets for learners, worthy performance goals for teaching, and the kind of evidence needed to assess true understanding. Supplement the authentic tasks with additional evidence, including traditional tests, quizzes, and



prompts (in the box for other evidence). In some units, it may be neither necessary nor appropriate to use GRASPS. But just as young Suzuki violinists and youth soccer players get to quickly perform with their nascent abilities, we must alert students from the earliest phases of learning where the basics are headed—that is, toward real-world performances yielding genuine accomplishments. On a practical level, we encourage designers to include at least one authentic task when planning a major unit of study.

I understand the value of GRASPS tasks, but these tasks take lots of time for students to complete and for me to score. I see that they may be very effective, but they don't seem efficient. Do you have any suggestions regarding the time challenge?

There are two distinct issues to consider in making assessment more efficient: (1) How can we streamline an authentic task and its scoring? and (2) Under what circumstances should we use or skip an authentic task in favor of something simpler?

In terms of streamlining the scoring, a number of options are available. You can assess student work on their products and performances, make student self-assessment a part of the score, use the same rubrics repeatedly, stagger the due dates of the work to be handed in (typical “test security” is often not an issue because knowing what is being assessed doesn't corrupt the project or task results), and get help from administrators and department or team members whenever possible.

In terms of the second question, we need to make sure that the time required by students and teachers in both preparation and implementation is time well spent. Sometimes we see lots of time spent on frivolous and time-consuming tasks (e.g., constructing an elaborate diorama of a scene from a story, creating a sheet cake in the form of Nevada to show the geography of the state, or designing a website to illustrate the parts of a cell). Such tasks are likely to be engaging to students, and they do have aspects of authenticity. However, they are likely to fail the “worth the squeeze” test discussed in Module M (i.e., they are not worth all the time spent on the irrelevant skills of cake baking or diorama building when the point was to determine content understanding).

In addition, there are important performances at the heart of a subject that a student needs practice in mastering. If more traditional assessments or formats (such as an essay or an oral presentation) would do the job more effectively and efficiently, and the task you thought of is not inherently important, then it may be wiser to use more traditional forms of assessment. As stated earlier, we recommend reserving GRASPS tasks for the most important understandings and transfer goals, and the use of other evidence to assess other unit goals.

Here is a rule of thumb: When getting started with Understanding by Design, try to frame just one important performance task per unit using GRASPS, where the unit goal has an important element of transfer. As you try it out, be alert to the following: *Will effective performance on the task really demonstrate students' understanding and transfer? Are the students engaged by the task? Do they put forth notable effort? What is the quality of the work that they produce? Is the task worth teaching to?* If the answer to most of these questions is yes, then the juice is worth the squeeze.

## Backward Design and Differentiation

## The Understanding by Design Guide to Advanced Concepts in Creating and Reviewing Units

Figure N.2

## Strategies for Differentiating Input

Consider the various possibilities for differentiating *input* (how you will present and how learners will access content). Check those options that will be effective and feasible for your learning plan.

### READINESS

- ☐ Provide texts at varied reading levels and in students' primary languages.
- ☐ Provide supplementary materials at varied reading levels.
- ☐ Provide audiotaped materials.
- ☐ Use videos to supplement and support explanations and lectures.
- ☐ Use texts with key portions highlighted.
- ☐ Provide organizers to guide notetaking.
- ☐ Provide key vocabulary lists for reference.
- ☐ Use reading buddies or partners to work with text materials.
- ☐ Use flexible groupings to address knowledge and skill gaps.
- ☐ Other: \_\_\_\_\_

### LEARNING PROFILE

- ☐ Present information orally, visually, and in writing.
- ☐ Use applications, examples, and illustrations from various intelligences.
- ☐ Use materials, applications, examples, and illustrations from both genders and a range of cultures and communities.
- ☐ Use materials that connect content to students' cultures.
- ☐ Teach from both whole-to-part and part-to-whole approaches.
- ☐ Demonstrate ideas in addition to talking about them.
- ☐ Use wait time to allow for student reflection.
- ☐ Other: \_\_\_\_\_

### INTERESTS

- ☐ Provide interest centers to encourage further exploration of topics.
- ☐ Provide a wide range of materials related to student interests and cultures.
- ☐ Use student questions to guide lectures, materials, and assignments.
- ☐ Other: \_\_\_\_\_

Figure N.3

## Strategies for Differentiating Process and Product

Consider the various possibilities for differentiating *process* (how learners will make meaning of the content) and *product* (how they will show their learning). Check those options that will be effective and feasible for your learning plan.

### Readiness

- ☐ Use tiered activities (activities at different levels of difficulty, but focused on the same learning goals).
- ☐ Provide detailed and highly structured task directions for learners who need it, while leaving the task more open for the more capable and independent students.
- ☐ Provide resource materials at varied levels of readability and sophistication.
- ☐ Provide teacher-led miniworkshops on needed skills at varied levels of complexity based on student needs.
- ☐ Provide tailored homework assignments based on readiness.
- ☐ Provide materials in the primary language of second-language learners.
- ☐ Other: \_\_\_\_\_

### Learning Profile

- ☐ Allow multiple options for how students express their learning (varied products and performances to allow learners to work to their strengths).
- ☐ Balance competitive, collegial, and independent work arrangements.
- ☐ Allow students to have choices regarding their preferred working mode (e.g., visually, orally, kinesthetically, in writing).
- ☐ Other: \_\_\_\_\_

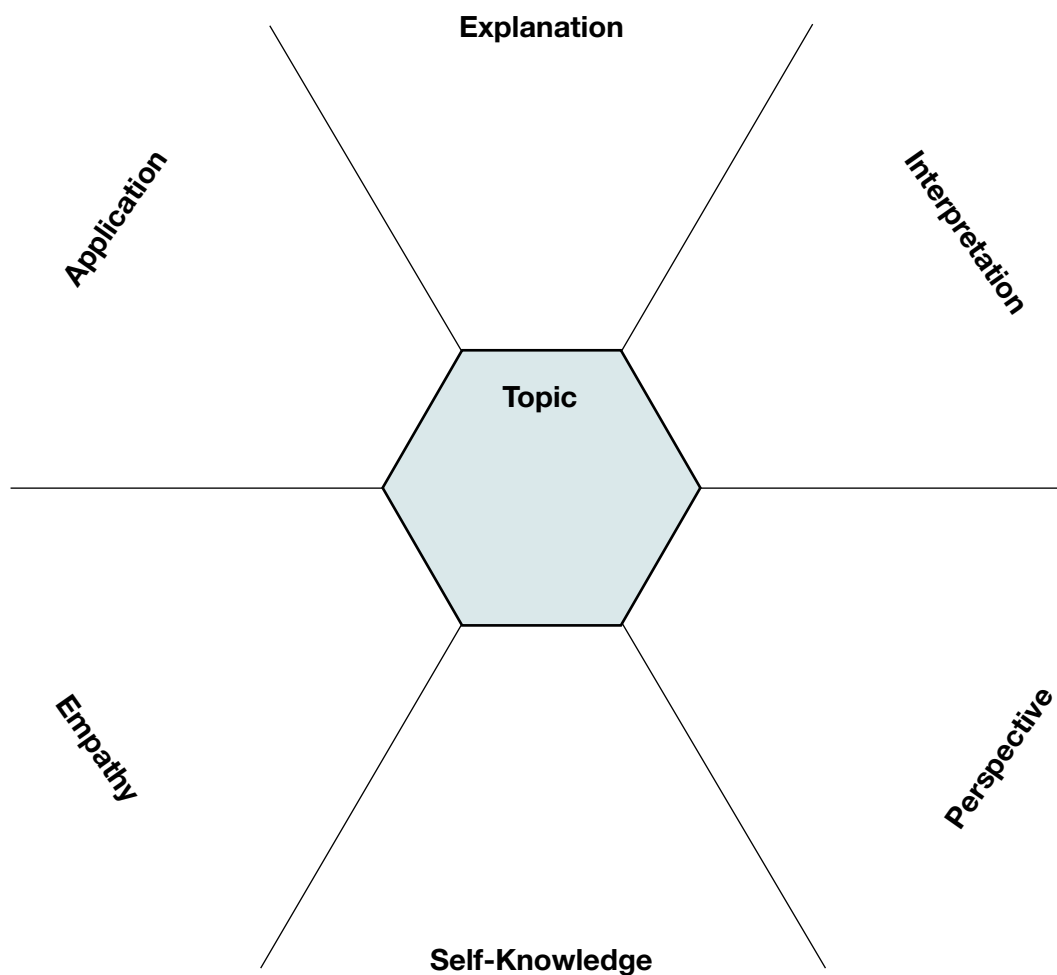
### Interests

- ☐ Establish interest-based work groups and discussion groups.
- ☐ Use both like-interest and mixed-interest work groups.
- ☐ Use the jigsaw cooperative strategy to allow students to specialize in aspects of a topic they find interesting.
- ☐ Allow students to propose interest-based projects and independent studies (related to the content being learned).
- ☐ Develop activities that seek multiple perspectives on topics and issues.
- ☐ Other: \_\_\_\_\_

Figure N.4

### Differentiating Using the Six Facets

Use the six facets of understanding to brainstorm ideas for differentiating your learning plan.



## Using Information from Pre-assessment

<b>Pre-assessments to Check for Readiness</b>	<b>Knowledge</b>	<b>Skills</b>
<input type="checkbox"/> K-W-L for  <input type="checkbox"/> Pretest on  <input type="checkbox"/> Skills check for  <input type="checkbox"/> Web/concept map on  <input type="checkbox"/> Misconception check for	Ideas for building needed background knowledge or addressing skill gaps for struggling learners	
	Ideas for extending knowledge/skill learning for advanced learners	

Figure N.6

## General Ideas for Differentiating Instruction and Assessment

<p>____ Review the task to determine if students have been taught the necessary concepts and skills. Provide targeted instruction as needed.</p> <p>____ Determine if the task is too difficult in its present form and if the time frame is appropriate.</p> <p>____ In the presentation of a task, try to stay within the framework of the established daily classroom routine.</p> <p>____ Arrange for special grouping or seating (e.g., in the front of the room, at a carrel, near someone helpful).</p> <p>____ Prepare students for a change in the daily routine by explaining any unusual procedures so that they know what to expect.</p> <p>____ State the directions in a clear, concise manner.</p> <p>____ Rephrase the directions if necessary. Focus the students' attention on important details.</p> <p>____ Provide large-print materials for visually impaired students.</p> <p>____ Sign directions (e.g., use ASL) for hearing-impaired students.</p> <p>____ Check to see if students understand by asking them to repeat or rephrase the directions.</p> <p>____ Write the directions on the board or on paper so that students can refer to them when needed.</p> <p>____ Provide choices (e.g., product, process, audience) for an open-ended task.</p> <p>____ In a multistep activity, simplify the task by providing instruction for one part at a time. Have students complete that part of the activity before you provide instruction for the next part of the activity.</p> <p>____ Adjust the timing of the task to allow extra processing and response time.</p> <p>____ Provide periodic breaks.</p> <p>____ Administer the activity over several days.</p> <p>____ Assist students with organization of work on paper.</p> <p>____ Provide assistance to those students who require help with materials or equipment used in the task. For example, you may need to precut materials or set up equipment.</p> <p>____ Structure cooperative groups to maximize student success.</p> <p>____ Circulate about the room, inconspicuously providing assistance to students.</p> <p>____ Provide immediate feedback when tasks are completed.</p> <p>____ Reinforce students for attempts, approximations, and work completion as they proceed through the task.</p>	<p>How might you do this in your situation?</p>
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Figure N.7

**Ideas for Differentiating Instruction and Assessment for Reading**

<p>___ Select simplified reading material on the same topic.</p> <p>___ Ask specific questions to guide the students' reading.</p> <p>___ Use graphic organizers to provide visual overviews and show meaningful connections.</p> <p>___ Assign reading in advance to give students an opportunity to preview material. This will increase opportunities for students to be more actively involved during class activities.</p> <p>___ Use a colored highlighter to mark important ideas, significant names, and key terms.</p> <p>___ Prepare recorded text segments to provide overviews and summaries.</p> <p>___ Encourage students to formulate questions and make and validate predictions while reading.</p> <p>___ Use mental or visual imagery to enhance students' ability to recall information.</p> <p>___ Teach students cues (e.g., headings, captions, differentiated print, introductory and summary paragraphs) for recognizing features of expository text structure.</p> <p>___ Provide assistance in organizing information.</p> <p>___ Encourage students to rehearse important information read by retelling, paraphrasing, or summarizing.</p> <p>___ Check for understanding after reading.</p>	<p>How might you do this in your situation?</p>
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Figure N.8

## Ideas for Differentiating Instruction and Assessment for Writing

<p>____ Keep directions short and simple. Condense lengthy written directions by writing them in brief steps.</p> <p>____ Give students the opportunity to talk about their ideas before writing.</p> <p>____ Encourage students to select the method of writing (cursive or manuscript) that is most comfortable for them.</p> <p>____ Brainstorm vocabulary that could be incorporated in written work.</p> <p>____ Reduce the amount of written work. Have students dictate some responses orally. Allow students to dictate into a recording device.</p> <p>____ Permit students to include pictures, drawings, and diagrams as part of their written products.</p> <p>____ Have students write on every other line of the paper.</p> <p>____ Allow students to use a computer, typewriter, or recording device to reduce paper/pencil tasks.</p> <p>____ Provide a proofreading checklist.</p> <p>____ Allow students additional time to complete written assignments.</p> <p>____ Allow students to list components/concepts, rather than write complete paragraphs.</p> <p>____ Provide assistance with organizing ideas and information.</p> <p>____ Model and encourage the use of reference materials such as word banks, word walls, graphic organizers, or dictionaries.</p> <p>____ Use peer support for generating and brainstorming ideas during the prewriting and revision stages of writing.</p> <p>____ Structure opportunities for students to verbalize (prewriting) in pairs and in small groups.</p>	<p>How might you do this in your situation?</p>
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Figure N.9

**Ideas for Differentiating Instruction and Assessment for Math and Science**

<p>___ Use concrete objects and manipulatives to teach abstract concepts (e.g., weight, width, energy, shape, dimension, force).</p> <p>___ Provide students with a list of steps necessary to complete an activity or the entire task.</p> <p>___ Teach and model problem-solving strategies (e.g., using pictorial representation, tallying, charting, simplifying the problem).</p> <p>___ Post a basic problem-solving sequence chart in the room. For example: 1. Read the problem. 2. Identify the key words. 3. Identify the operation. 4. Write the number sentence. 5. Solve the problem. 6. Check your work.</p> <p>___ Check students' understandings of key vocabulary and skills.</p> <p>___ Have students restate the problem/task in their own words.</p> <p>___ Assist students in breaking complex problems/tasks into specific steps or subparts.</p> <p>___ Use color coding to help students distinguish math/science symbols and operations/processes.</p> <p>___ Allow students to use calculators to perform calculations to drill problems as a means of demonstrating that they know the appropriate operation.</p> <p>___ Have students verbalize steps as they work in order to help them monitor their progress and identify errors.</p>	<p>How might you do this in your situation?</p>
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Figure N.10

## Ideas for Challenging High Achievers

In some cases, you may need to modify the curriculum activities or performance tasks to provide greater challenge for high-achieving students or those learners with exceptional potential. The following list provides general suggestions for enriching learning activities and assessment tasks for highly able learners.

<p>____ Provide extension activities and assignments to students who have demonstrated mastery of the basic curriculum material.</p> <p>____ Provide more sophisticated resources (e.g., texts, primary sources, websites) on the same topic.</p> <p>____ Use Socratic questioning to push students' thinking (e.g., play devil's advocate) when exploring essential questions and challenging tasks.</p> <p>____ Present more open-ended and authentic tasks or problems with minimal cues or scaffolds.</p> <p>____ Encourage high achievers to use creative, out-of-the-box thinking when tackling challenging tasks.</p> <p>____ Use the GRASPS format to adjust student role, audience, situation, and products/performances to provide greater challenge.</p> <p>____ Encourage students to explore topics, issues, and problems through the six facets of understanding.</p> <p>____ Allow gifted learners to propose and conduct independent or small-group inquiry/research projects.</p> <p>____ Allow students appropriate choices regarding content, process, and product/performance.</p> <p>____ Provide self-paced, contract-based learning options for high achievers.</p>	<p>How might you do this in your situation?</p>
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## Frequently Asked Questions

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### Tailoring (Differentiating) the Learning Plan to the Learners (Module N)

What if I have too many students for whom to tailor my learning plan? How can I possibly do this?

The call for differentiation does not imply that we must individualize instruction to meet the unique needs and interests of every learner at all times. That would not be feasible for most teachers. On the other hand, one-size-fits-all teaching is not likely to be optimally effective. Designers are thus encouraged to tailor their unit plan in ways that are most manageable and likely to have the highest yield for the greatest number of learners.

Often effective tailoring can be accomplished by varying the modes of instruction (e.g., verbal, visual), by allowing students appropriate choices in work process and product, and by incorporating learners' interests whenever possible. For assessment tasks, one can adjust the following GRASPS elements—R (role), A (audience), S (situation), or P (products/performances).

Most of my teaching has been directed by the textbook I use. Aren't I then stuck with the organization of the textbook?

As common and tempting as it is to believe that your teaching sequence must reflect the pagination of the textbook, a moment's thought about the key UbD elements of backward design, essential questions, and transfer tasks should reveal otherwise. By definition, essential questions recur, whereas most textbooks just organize content in an orderly way, like a cookbook, software manual, or dictionary. Just as it would be foolish to learn English by reading the dictionary page by page, it is unwise to organize learning for understanding by the way the resources are ordered for easy access. The situation is similar with transfer. We do not learn to drive a car, play a musical instrument, or use software by just reading chapters in which the content is logically organized. We read chapters when the information is needed to help us accomplish a desired performance and solve emergent problems. In other words, the content in the textbook or manual is a *means* to a larger performance end. Backward design reminds us to always keep that end in mind and to sequence accordingly.

So try to first lay out the most intelligent syllabus based on your unit or course goals *without* looking at the textbook table of contents. After thinking through the "logic" of learning to perform with content, select the relevant textbook chapters and the appropriate sequence.

Figure O.1

Beginning and Ending Lessons

Beginning Lessons in a Unit Include	Ending Lessons in a Unit Include
<ul style="list-style-type: none"><li>• An introduction to the unit goals and the purpose/value of learning them (W).</li><li>• A preview of the evidence needed to demonstrate learning, including the transfer performance tasks (W).</li><li>• A preview of the rubrics to be used, along with models/exemplars of effective performance (W).</li><li>• A review of the unit sequence (W).</li><li>• Pre-assessment to check for student readiness—knowledge, skill levels, potential misconceptions, and interests related to the unit topic (W).</li><li>• A hook to engage interest and focus learning (H).</li></ul> <p>Note: <i>There is not a prescribed sequence for these beginning elements. For example, a teacher may begin a new unit with a hook, and then introduce the unit goals. Alternatively, a teacher might start by showing models of excellent performance, and then describe the unit goals and assessments.</i></p>	<ul style="list-style-type: none"><li>• A return to the essential questions to consider what has been learned and better understood (E-2, R).</li><li>• An opportunity for students to self-assess their performance based on the unit goals and assessment results.</li><li>• A reflection on the “so what”; for example, <i>What can I now do with what I have learned? How will this learning help me in school? In my life?</i> (E-2, R).</li><li>• An opportunity for students to set future learning goals (E-2).</li><li>• A preview of the next unit (W) and its connection to the one just completed.</li></ul> <p>Note: <i>The end of the unit affords the opportunity for teachers to reflect on the unit’s effectiveness, self-assess their own teaching, and identify adjustments they plan to make when teaching the unit in the future.</i></p>

Figure O.2

### Analyzing Sequence: Example and Worksheet

Sequencing Questions	Example (Statistics Unit)	Ideas for Sequencing Your Unit
<i>How will learners be hooked from the start?</i>	<ul style="list-style-type: none"> <li>• The unit begins with an interesting and accessible problem, not passive learning of new content with no context.</li> <li>• The focus on the question of fairness as the underlying issue is engaging.</li> </ul>	
<i>How will learners be made aware of the big picture (and reason for learning the content) all along the way?</i>	<ul style="list-style-type: none"> <li>• The final performance goal—a “fair” grading system and reflection on the essential question—is known early and constantly referred to in the unit.</li> </ul>	
<i>How will the learning unfold in a natural flow, from the learner's point of view?</i>	<ul style="list-style-type: none"> <li>• The discussions and inquiries from one problem or issue feed back into the original problem.</li> <li>• The textbook material on mean, median, and mode is only introduced when students are ready for it as a potential source of help, given the issues.</li> </ul>	

## Lesson Plan Format

Objectives: \_\_\_\_\_

[illegible]



Figure O.3—(Continued)

**Lesson Plan Format**

**Closure**

Review the day's objectives. What was learned?

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Preview the next day's learning:

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**Homework**

Purpose and expectations:

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**Reflection**

What went well? Did the students accomplish the objective? What evidence do I have?

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What would I do differently next time I teach this lesson?

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Figure O.4

Alternate Lesson Plan Format

Unit: \_\_\_\_\_ Designer: \_\_\_\_\_ Date: \_\_\_\_\_ Subject: \_\_\_\_\_ Grade: \_\_\_\_\_ Period: \_\_\_\_\_

Stage 3—Today's Lesson			
Events in Order	Purpose in Terms of Stages 1 and 2	Look-Fors	If Not Working, Try the Following:

Figure O.5  
Example of Lesson Plan Coding Using T-M-A: Algebra Unit on Laws and Rules

Stage 3—Learning Plan		
<b>Coding</b>	<p>Pre-assess: Give a nongraded quiz using simple numbers but with tricky decisions related to order of operations. Although the problems appear easy, students disagree about the answers when you go over the quiz. Discuss the different answers without stating the rule. As students describe how they got their answers, pose questions, such as “Why is that approach OK? Not OK? Couldn’t we all agree to add before we multiply—or work from right to left? Should we?” Work through one simple example together to get the discussion started; e.g., <math>5 - 3 \times 2</math>.</p>	<i>Pre-assessment</i>
	<p><b>Learning Events</b></p> <p><i>Student success at transfer, meaning, and acquisition depends upon . . .</i></p> <p>Often students are given properties and conventions, told to memorize them, and then drilled on their use. The following inquiry activities will engage students in coming to understand the difference between properties and conventions—in algebra and beyond.</p> <p><b>Find Value and Interest in the Study of Rules, Laws, Conventions</b></p> <p>For example, begin the unit with an exploration of rules of games. Share with students a few little-known but interesting rule changes (e.g., foul third strike equals an out in baseball; zone defense was once legal then was outlawed in the NBA. See <a href="http://www.baseball-almanc.com/rulechng.shtml">http://www.baseball-almanc.com/rulechng.shtml</a> and <a href="http://www.nba.com/analysis/rule_history.html">http://www.nba.com/analysis/rule_history.html</a>). Assign homework on research into their favorite games and rules. Pose questions, such as this: Given the rules of your favorite game, which rules are essential? Which rules are just conventions that could be changed without fundamentally messing up the game? The goal is to help students come to the understanding that “some rules are essential to the game, whereas others are enacted but could be changed” (e.g., the three-point line in basketball).</p> <p><b>M, T (hook)</b></p> <p><b>M, A</b></p> <p>Tell students that you have declared the next 10 minutes as “Do Your Own Thing” time. You’re going to suspend <i>all</i> the rules of math as we know them; that is, every answer is a potential good answer. Distribute various problems involving order of operations and properties, and encourage the students to work in teams to come up with as many plausible answers as possible. Then discuss the various “answers.” (The goal is to help students come to the understanding that “Rules and conventions are necessary for accuracy in mathematics.”)</p> <p><b>M, A</b></p> <p>Give students a new set of problems that will lead to discussion of the main properties (commutative, associative, and distributive)—without using those names just yet. It’s valuable to use more complex examples with many possible answers, but also include some simple examples, like <math>5 \times 3 + 4</math> and <math>5 - 3 \times 4</math>, to illustrate properties and when they are true. Lead a discussion of possible answers for each exercise. Be sure that students have had time to explore the problems fully and discuss them in pairs or small groups.</p>	<p><i>Progress Monitoring</i></p> <p>Predictable rough spots in their learning that need constant monitoring:</p> <ul style="list-style-type: none"> <li>• Forgetting the mnemonic and its meaning</li> <li>• Not grasping why PEMDAS is needed yet conventional</li> <li>• Not understanding that conventions differ from core and logically derived principles</li> </ul> <p>Some groups may have difficulty generating plausible alternatives to the “same” problem. Some groups may have difficulty drawing generalizations from the answers. Be ready with prompting questions to help them make meaning with minimal assistance from you.</p>

Figure O.5—(Continued)  
**Example of Lesson Plan Coding Using T-M-A**

Stage 3—Learning Plan—(continued)		
Coding	Pre-assessment	
A, M	Learning Events	Progress Monitoring
	<p><i>Student success at transfer, meaning, and acquisition depends upon ...</i></p> <p><b>Know What a Law Is Versus a Convention (via direct instruction, as needed)</b></p> <p>Introduce the idea that some of the things students learn in mathematics are not natural truths but agreed-upon human conventions. For example, order of operations does not matter for addition. However, some properties are essential (e.g., we don't want <math>1 + 1</math> to have more than one answer).</p> <p>Introduce PEMDAS and give them practice in using this mnemonic for order of operations. Then, try to get students to infer the importance of the three core properties—and any others they think of as important to make math “work.” After exploring their ideas, introduce the three properties from the textbook ... (continued).</p>	<p>At some point use an ungraded writing prompt as a check for their understanding of the properties: “Why can we multiply by zero but not divide by zero? Do you think that is a convention or the result of a fundamental property?”</p>

Figure O.6

## Lesson Plan Coding Using WHERETO

Stage 3—Learning Plan		
Coding	Use K-W-L chart to pre-assess students' prior knowledge and their initial questions about nutrition. <i>Pre-assessment</i>	
	<b>Learning Events</b> <i>Student success at transfer, meaning, and acquisition depends upon ...</i>	<i>Progress Monitoring</i>
<b>H</b>	1. Begin with an entry question (Can the foods you eat cause zits?) to hook students into considering the effects of nutrition on their lives. Use K-W-L to check prior knowledge and to invite their questions about nutrition.	Assess throughout the unit informally using observations, ongoing questioning, and review of student work in progress.
<b>W</b>	2. Introduce the essential questions and discuss the culminating unit performance tasks (Chow Down and Eating Action Plan).	Engage students in peer reviews and self assessment related to the performance tasks (video, illustrated brochure, and camp menu).
<b>E</b>	3. Use the “concept attainment” technique to help students distinguish between healthy and unhealthy foods.	
<b>E</b>	4. Introduce My Plate (USDA) and the types of foods in each group. Students review and discuss relevant selections from the USDA website— <a href="http://www.choosemyplate.gov/">http://www.choosemyplate.gov/</a> . Key vocabulary terms are introduced as needed by the various learning activities and performance tasks.	
<b>E, R</b>	5. As an ongoing activity, students keep a chart of their daily eating and drinking for later review and evaluation.	
<b>E</b>	6. Give quiz on the My Plate food group and categories and discuss results.	
<b>E, R</b>	7. Have students work in pairs in the computer lab to play the interactive game <a href="http://www.choosemyplate.gov/kids/">http://www.choosemyplate.gov/kids/</a> .	
<b>R, W</b>	8. Model how to read and interpret food label information on nutritional values. Then, have students practice using donated boxes, cans, and bottles (empty!).	
<b>E, E2</b>	9. Working in cooperative groups, students analyze a hypothetical family's diet (deliberately unbalanced) and make recommendations for improved nutrition. Teacher observes and coaches students as they work. Have groups share their diet analyses and discuss as a class. (Note: Teacher collects and reviews the diet analyses to look for misunderstandings needing instructional attention.)	
<b>E</b>	10. Have students work in teams to create a video for the My Plate Fruits and Veggies Video Challenge. See details at <a href="http://fruitsandveggies.challenge.gov/">http://fruitsandveggies.challenge.gov/</a> . Present and discuss these.	

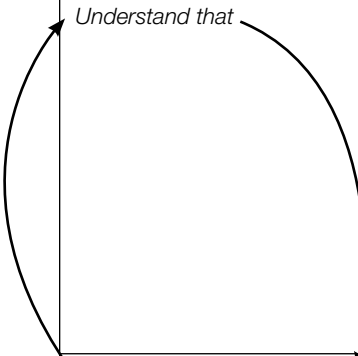
Figure O.6—(Continued)

### Lesson Plan Coding Using WHERETO

Stage 3—Learning Plan—(continued)		
Coding	Pre-assessment	
	<p><b>Learning Events</b></p> <p><i>Student success at transfer, meaning, and acquisition depends upon . . .</i></p> <p><b>E</b> 11. Students listen to, and question, a guest speaker (local nutritionist) about health problems caused by poor nutrition.</p> <p><b>E</b> 12. Students respond to written prompt: Describe two health problems that could arise as a result of poor nutrition and explain what changes in eating could help to avoid them. (Teacher collects and grades papers.)</p> <p><b>E, R, E2</b> 13. Each student designs an illustrated nutrition brochure to teach younger children about the importance of good nutrition for healthy living and the problems associated with poor eating. This activity is completed outside class. Students exchange brochures with members of their group for a peer assessment based on a criterion list. Allow students to make revisions based on feedback.</p> <p><b>R, E2</b> 14. Students work independently to develop a three-day camp menu. Evaluate and give feedback on the camp menu project. Students self- and peer-assess their projects using rubrics.</p> <p><b>R, E2</b> 15. At the conclusion of the unit, students review their completed daily eating chart and self-assess the healthfulness of their eating. Have they noticed changes? Improvements? Do they notice changes in how they feel and/or their appearance?</p> <p><b>E2</b> 16. Students develop personal eating action plans for healthful eating. These are saved and presented at parent conferences.</p> <p><b>E2</b> 17. Conclude the unit with student self-evaluation regarding their personal eating habits. Have each student develop a personal action plan for their healthful eating goal.</p>	<p><i>Progress Monitoring</i></p>
<b>W = help students know <i>Where</i> unit is going; H = Hook; E1 = Equip; R = Rethink; E2 = Evaluate</b>		

Figure O.7

Using the Textbook Wisely



Stage 1	Stage 2	Stage 3
If the desired result is for learners to...	Which textbook assessments should be used?	And which textbook pages should be...
Understand that		Emphasized?
Be able to use contents to—		Skipped?
Know—		Skipped?
Be skilled at—		Resequenced?

Figure O.8

**Sequence Options**

Sequence Options	Ideas for My Unit
Whole-Part-Whole	
Immersion	
Narrative	
Problem based	



## Frequently Asked Questions

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### Designing the Lesson Plan for Your Unit (Module O)

Our school district requires teachers to follow curriculum pacing guides. These seem at odds with some of your recommendations. What are your thoughts about how we should work when such pacing guides are provided?

Of course it makes sense to have a general sense of pace in teaching, just as pacing is important in long-distance running and swimming. A plan for general pacing is needed because you don't want to get lost on a tangent or spend an inordinate amount of time on a trivial topic. Some schools and districts have established pacing guides for lessons that teachers are obligated to follow.

Although these are well intentioned, we caution against the imposition of rigid, prescriptive pacing guides for two fundamental reasons. First, a pacing guide that requires teachers to be at a certain place in a syllabus or textbook by a certain date conflates inputs and outputs—that is, it confuses learning with the content to be covered. The issue is not the pace at which content is being covered; the issue is whether assessment results suggest that we are on target to reach year-end performance goals. (Think of swimming and track: the coach yells “splits” to help you know where you are now against a specific end-of-race performance result.) Second, pacing guides imply that students learn in identical and predictable ways, at the same pace. Anyone who has spent more than a few days in any classroom (kindergarten to college) recognizes the fallacy of this assumption. In sports, the expectation is not that everyone will run the same pace and the same race, but that each will use the pacing information to achieve the best possible result—and results will vary. The idea of an inflexible pacing guide runs counter to the variability of human learning and the need for teachers to be responsive to individual and group differences (the *T* in WHERETO).

We contend that the best way to pace learning is to have a clear sense of the few desired long-term performance results and use ongoing assessments to monitor progress toward those goals for everyone—just as the coach does on the track or in the pool.

Figure P.1

### Unit Design and Feedback Loop

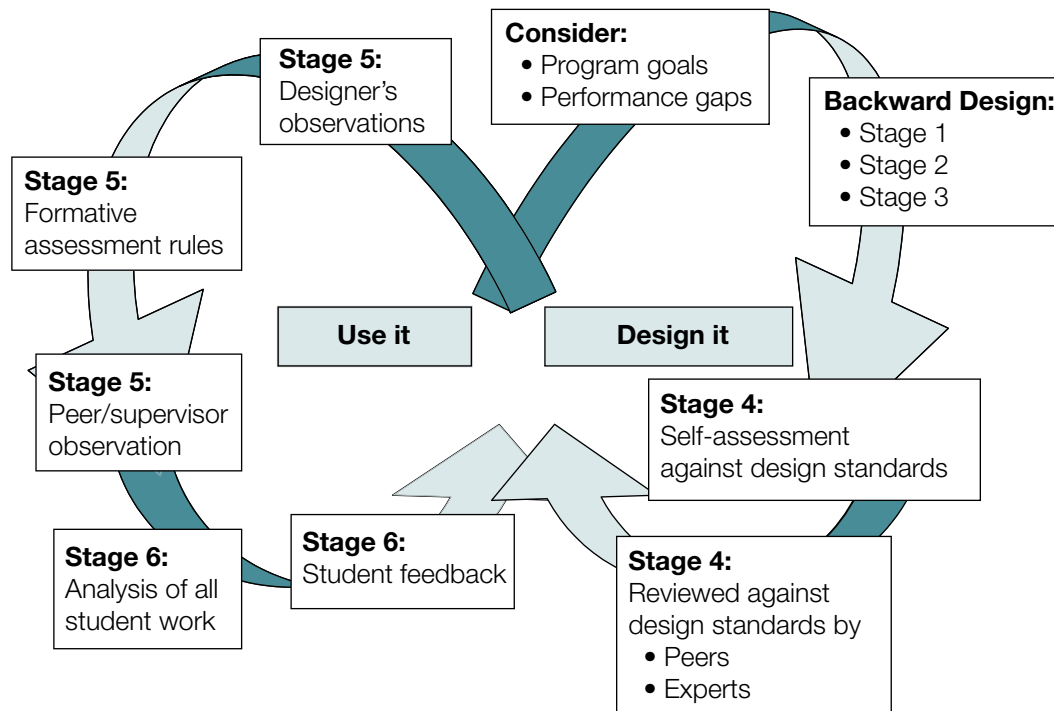


Figure P.2

**UbD Feedback Matrix**

Stage	Feedback Source	Drafting	Implementation	Results
4	Self-Assessment	X		
4	Peer/Expert Review	X		
4	Expert Review	X		
5	Designer's Observation		X	X
5	Formative Assessments		X	
5	Outside Observers		X	
6	Analysis of Results			X
6	Students		X	X

Figure P.3

**UbD Design Standards 2.0****3 = Meets the standard    2 = Partially meets the standard    1 = Does not yet meet the standard**

Unit Plan				
Stage 1	3	2	1	Feedback and Guidance
1. Specifies the desired long-term transfer goals that involve genuine accomplishment.				
2. Identifies important, transferable ideas worth exploring and understanding.				
3. Identifies understandings stated as full-sentence generalizations: <i>Students will understand that...</i>				
4. Is framed by a few open-ended, thought-provoking, and focusing essential questions.				
5. Identifies relevant standards, mission, or program goals, to be addressed in all three stages.				
6. Identifies knowledge and skill needed to achieve understanding and address the established goals.				
7. Aligns all the elements so that Stage 1 is focused and coherent.				
Stage 2				
8. Specifies valid assessment evidence of all desired results: Stage 2 aligns with Stage 1.				
9. Includes authentic performance tasks based on one or more facets of understanding.				
10. Provides sufficient opportunities for students to reveal their achievement.				
11. Includes evaluative criteria to align each task to desired results and to provide suitable feedback on performance.				
Stage 3				
12. Includes learning events and instruction needed to help learners				
a. Acquire targeted knowledge and skills.				
b. Make meaning of important ideas.				
c. Transfer their learning to new situations.				
13. Effectively incorporates the WHERETO elements so that the unit is likely to be engaging and effective for all learners.				
Overall				
14. Is coherent, with all three stages in alignment.				
15. Is likely to work; is feasible and appropriate for this situation.				

Figure P.4

### Observable Indicators in the Classroom (General)

Rate the following indicators on the scale of 1= not at all; 2 = infrequently; 3= somewhat; or 4 = greatly.

To what extent are

1. Instruction and assessment focused on big ideas and essential questions based on established standards or outcomes? \_\_\_\_\_
2. Essential questions 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 one or more of the six facets? \_\_\_\_\_
6. Evaluations of student products/performances based upon known criteria/rubrics, performance standards, and models (exemplars)? \_\_\_\_\_
7. Appropriate instructional strategies used to help learners *transfer* their learning, *make meaning* of the big ideas, and *acquire* knowledge and skills? \_\_\_\_\_
8. Students given regular opportunities to rethink, revise, and reflect on their work based on feedback from ongoing (formative) assessments? \_\_\_\_\_
9. The students expected to self-assess or reflect on their work and learning and set goals for improvement? \_\_\_\_\_
10. Other: \_\_\_\_\_

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Figure P.5

## Final Self-Assessment Form

### ***UbD Stage 6: Final Unit Assessment Form***

**Unit** \_\_\_\_\_

Overall unit effectiveness: *ineffective* | *somewhat effective* | *effective*

Percent for whom effective: *a few* | *a minority* | *a majority* | *all*

Overall unit engagement: *a few* | *a minority* | *a majority* | *all*

UNIT STRENGTHS: *Check and briefly note any relevant observation:*

- ☐ Students were most successful at \_\_\_\_\_.
- ☐ Students were most engaged when \_\_\_\_\_.
- ☐ The Stage 1 elements best achieved were \_\_\_\_\_.
- ☐ Evidence showed unusually strong results at \_\_\_\_\_.
- ☐ Even my less able students \_\_\_\_\_.

UNIT WEAKNESSES: *Check and briefly note any relevant observation:*

- ☐ The unit was not as effective as it might have been, as shown by \_\_\_\_\_.
- ☐ Students were least successful at \_\_\_\_\_.
- ☐ Students were least engaged when \_\_\_\_\_.
- ☐ Stage 1 elements targeted that were not achieved were \_\_\_\_\_.
- ☐ Evidence showed disappointing results at \_\_\_\_\_.
- ☐ My less able students had trouble with \_\_\_\_\_.

Figure P.6

### Observable Indicators in the Classroom (Learner Focused)

Rate the following indicators on the scale of 1= not at all; 2 = sometimes; 3 = often; or 4 = regularly.

We look for evidence of students' understanding in their products and performances. In addition, the following indicators may be observed or revealed through interviews and responses to questions.

*Understanding is revealed when students can effectively*

1. Explain the key ideas (concepts and principles, processes, strategies) in their own words and ways (e.g., visually). \_\_\_\_\_
2. Provide new examples of a concept or process; make apt analogies. \_\_\_\_\_
3. Interpret (make meaning of) data, a text, experiences. \_\_\_\_\_
4. Support and justify their answers. \_\_\_\_\_
5. Apply their learning to a new situation or problem (transfer their learning). \_\_\_\_\_
6. Identify and correct common errors and misconceptions. \_\_\_\_\_
7. Distinguish and describe different points of view on an issue or different approaches to accomplishing a task; explain how someone else might think or feel differently from them. \_\_\_\_\_
8. Describe their learning styles and strengths and weaknesses as learners. \_\_\_\_\_
9. Self-assess their performance and set personal improvement goals. \_\_\_\_\_
10. Reflect on the meaning and significance of their learning experiences. \_\_\_\_\_
11. Other: \_\_\_\_\_

Figure P.7

### Detailed Rubric for UbD Design Standards 2.0

Design Standards	3 = Meets the standard	2 = Partially meets the standard	1 = Does not yet meet the standard
<b>1. Specifies the desired long-term transfer goals that involve genuine accomplishment.</b>	<p>All listed transfer goals—</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Are framed in terms of application of prior learning to present and future situations.</li> <li><input type="checkbox"/> Require students to find and address real-world issues, problems, and applications of their learning.</li> <li><input type="checkbox"/> Require students to show increasing autonomy in using their prior learning in new situations.</li> </ul>	<p>Some or all listed items suggest transfer goals, but—</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> The goals are too vaguely stated to know whether or not transfer is really the goal.</li> <li><input type="checkbox"/> Transfer-like language is used, but it is unclear whether the aim is transfer or just a prompted display of specific skills.</li> </ul>	<p>Some or all listed items—</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Are not transfer goals but goals related to discrete skills.</li> <li><input type="checkbox"/> Do not require deliberate and adaptive transfer; they merely require “plugging in” of prior learning.</li> <li><input type="checkbox"/> Do not require any autonomy or strategic thinking on the learner’s part.</li> </ul>
<i>Examples</i>	<ul style="list-style-type: none"> <li>• Write effectively for different audiences and purposes.</li> <li>• Find, analyze, and adjudicate current disputes among our branches of government.</li> <li>• Use your understanding of measures of central tendency to improve an existing rating system (e.g., calculation of grades, pro football rankings).</li> <li>• Apply your understanding of Newton’s laws to real-world problems and predictions (e.g., roller coaster design, improving an athlete’s technique, a more efficient pulley system).</li> </ul>	<ul style="list-style-type: none"> <li>• Write an essay on a specific purpose for a specific audience. (Not clear if transfer is required or just skill execution.)</li> <li>• Explain a specific current dispute in U.S. politics in light of our work so far. (Not clear if this will require transfer or be highly prompted by the teacher.)</li> <li>• Determine the best measure of central tendency for various real-world situations (Too much scaffolding is suggested, so little transfer may be required.)</li> <li>• Solve physics problems that require application of Newton’s laws. (Sounds like it could be just textbook skill problems.)</li> </ul>	<ul style="list-style-type: none"> <li>• Use the five-paragraph structure to write an essay. (Skill)</li> <li>• Make an organization chart of the U.S. government. (Textbook provides almost all of this, so it is really a knowledge task.)</li> <li>• Define mean, median, and mode and use each. (Knowledge and skill)</li> <li>• Analyze the forces acting on a cart rolling down an inclined plane. (Skill)</li> </ul>



Figure P.7—(Continued)

### Detailed Rubric for UbD Design Standards 2.0

Design Standards	3 = Meets the standard	2 = Partially meets the standard	1 = Does not yet meet the standard
<b>2. Identifies important, transferable ideas worth exploring and understanding.</b>	<p>Listed ideas—</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Reflect key ideas (concepts, theories, themes, principles, etc.) for this topic and the discipline.</li> <li><input type="checkbox"/> Will very likely develop and deepen student meaning-making and enable transfer.</li> </ul>	<p>Some or all listed items—</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Reference ideas, but they are not the most important.</li> <li><input type="checkbox"/> Are important ideas but not really relevant to the work of this unit.</li> <li><input type="checkbox"/> Are interesting ideas but not useful for meeting unit goals.</li> <li><input type="checkbox"/> Will not likely require extended inquiry to grasp.</li> <li><input type="checkbox"/> Need to be more general, theoretical, or conceptual to be transferable.</li> </ul>	<p>Some or all listed items—</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Are really facts that need only be apprehended. They are not ideas that require analysis or the result of inference and meaning making.</li> <li><input type="checkbox"/> Are trivial or vague ideas that provide no rich intellectual goal or focus.</li> </ul>
<i>Examples</i>	<ul style="list-style-type: none"> <li>• Audience and purpose as the focus for writing</li> <li>• Limited government of different branches in a balance of power</li> <li>• The associative, commutative, and distributive properties as the foundation of all problem solving</li> <li>• Newton's three laws of motion</li> </ul>	<ul style="list-style-type: none"> <li>• The genre of essay</li> <li>• The eternal disputes among the three branches of government</li> <li>• Finding the lowest common denominator</li> <li>• The idea of a constant rate of acceleration for gravitational force</li> </ul>	<ul style="list-style-type: none"> <li>• The idea of a summary</li> <li>• The president is chief of the executive branch</li> <li>• Definition of the associative property</li> <li>• Definition of acceleration</li> </ul>

Figure P.7—(Continued)

### Detailed Rubric for UbD Design Standards 2.0

Design Standards	3 = Meets the standard	2 = Partially meets the standard	1 = Does not yet meet the standard
<b>3. Identifies understandings stated as full-sentence generalizations.</b>	<p>All listed understandings—</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Are framed as full-sentence generalizations, specifying the inferences we want students to come to understand.</li> </ul>	<p>Some or all listed items include important ideas (e.g., key concepts or theories) but—</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Are not framed as full-sentence generalizations.</li> <li><input type="checkbox"/> Are framed as full sentences, but provide little more than simple factual statements or definitions rather than summary inferences.</li> <li><input type="checkbox"/> The generalizations are truisms or otherwise obvious or superficial.</li> </ul>	<p>Some or all listed items—</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Are facts, skills, indicators, or other content objectives. (These should be placed in the Knowledge or Skill boxes on the template.)</li> <li><input type="checkbox"/> Are stated as phrases: they just state the topic, not the understanding sought.</li> </ul>
<i>Examples</i>	<ul style="list-style-type: none"> <li>• Constantly asking yourself “Who is my audience and what is my purpose?” will invariably lead to much improved writing.</li> <li>• Our government is designed to be inherently limited and held in check by separate branches because otherwise government power too readily and easily goes beyond the control of the people.</li> <li>• The goal in problem solving is to find equivalent expressions by which complicated or unfamiliar equations can be simplified and solved.</li> <li>• Newton’s three laws of motion can explain and predict the movement of any object in the solar system subject to those forces.</li> </ul>	<ul style="list-style-type: none"> <li>• “Who is my audience and what is my purpose?” are important questions. (A truism rather than insight into each)</li> <li>• Checks and balances. (Not stated as a full-sentence generalization; there is no <i>specific</i> understanding about checks and balances identified.)</li> <li>• The goal in mathematics is problem solving. (A truism)</li> <li>• Newton’s three laws of motion and gravitational force as a constant. (Not stated as full-sentence generalization. What is important about Newton’s laws and why?)</li> </ul>	<ul style="list-style-type: none"> <li>• Understand the steps of the writing process. (A skill)</li> <li>• The judicial branch includes the Supreme Court. (A fact)</li> <li>• Understand that <math>x^0 = 1</math>. (Not really an “understanding”—a fact, true by definition)</li> <li>• Mass is not the same as weight. (A fact as stated)</li> </ul>

Figure P.7—(Continued)

### Detailed Rubric for UbD Design Standards 2.0

Design Standards	3 = Meets the standard	2 = Partially meets the standard	1 = Does not yet meet the standard
<b>4. Is framed by a few open-ended, thought-provoking, and focusing essential questions.</b>	<p>All listed questions—</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Will focus the unit on important, transferable ideas.</li> <li><input type="checkbox"/> Are genuinely thought provoking and will likely foster student interest and meaning-making.</li> </ul>	<p>Some or all listed questions—</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Are only somewhat appropriate for understanding the content (even if they are interesting questions).</li> <li><input type="checkbox"/> Are not very thought provoking.</li> <li><input type="checkbox"/> Are too convergent.</li> <li><input type="checkbox"/> Are somewhat leading—“teacherly”—because they seem like they are fishing for the already-approved answers rather than framed to provoke thought.</li> <li><input type="checkbox"/> May not help students much in focusing inquiry and making meaning.</li> <li><input type="checkbox"/> May be essential, but there are too many questions to focus the unit.</li> </ul>	<p>Some or all listed questions are—</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Fact questions.</li> <li><input type="checkbox"/> Not important or not worth devoting a unit to.</li> <li><input type="checkbox"/> Not thought provoking; not likely to be of interest to students.</li> <li><input type="checkbox"/> Too narrow and leading.</li> <li><input type="checkbox"/> So vague as to suggest little in the way of inquiry and focus for learners.</li> <li><input type="checkbox"/> Unclear or otherwise not ready.</li> </ul>
<i>Examples</i>	<ul style="list-style-type: none"> <li>• Who is my audience and what is my purpose, so what follows for my writing?</li> <li>• What is the ideal balance of power in a government? How can a government be designed to do its job without overreaching?</li> <li>• What does this problem remind me of? How can it be simplified?</li> <li>• Why did that object move in that way?</li> </ul>	<ul style="list-style-type: none"> <li>• What have we learned about what makes a good essay? (Leading question)</li> <li>• Why would the founders of a country argue for three branches of government instead of just one? (Too convergent)</li> <li>• How might the commutative property help us here? (Asked by the teacher; too leading)</li> <li>• What is the importance of <math>F=ma</math>? (Too leading)</li> </ul>	<ul style="list-style-type: none"> <li>• What is an essay? (Fact)</li> <li>• Why did our founders want three branches of government? (Factual question, as stated)</li> <li>• What is the commutative property? (Factual question as stated)</li> <li>• What is the meaning of <math>F=ma</math>? (Factual question as stated)</li> </ul>

Figure P.7—(Continued)

### Detailed Rubric for UbD Design Standards 2.0

Design Standards	3 = Meets the standard	2 = Partially meets the standard	1 = Does not yet meet the standard
<b>5. Identifies relevant standards, mission, or program goals, to be addressed in all three stages.</b>	<p>All listed goals—</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Address at least one substantial standard or mission-related goal.</li> <li><input type="checkbox"/> Are appropriate to this unit.</li> <li><input type="checkbox"/> Are genuinely targeted, not just mentioned.</li> </ul>	<p>Some or all listed goals—</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Are too minor or short-term to be listed as a goal.</li> <li><input type="checkbox"/> Are only somewhat appropriate to what this unit is about.</li> <li><input type="checkbox"/> Are mentioned but not really addressed in the unit.</li> </ul>	<p>Some or all listed goals are—</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Not long-term substantive goals; they are best listed as knowledge or skill.</li> <li><input type="checkbox"/> Are not appropriate to this unit.</li> <li><input type="checkbox"/> Are mentioned but never addressed anywhere.</li> </ul>
<i>Examples</i>	<ul style="list-style-type: none"> <li>• Students will be skilled and thoughtful writers of essays.</li> <li>• Students will understand the deliberately divided and representative form of U.S. government and its rationale.</li> <li>• Students will understand and effectively use measures of central tendency in problem solving.</li> <li>• Students will understand Newton's three laws of motion.</li> </ul>	<ul style="list-style-type: none"> <li>• Students will write an essay. (A short-term task, not a long-term goal)</li> <li>• Students will know the history of the U.S. Constitution. (Only tangentially what the unit is about)</li> <li>• Students will solve problems using mean, median, mode. (Too short-term and specific to be a long-term goal)</li> <li>• Students will solve real-world problems related to Newton's laws. (But the problems are simple textbook exercises.)</li> </ul>	<ul style="list-style-type: none"> <li>• Students will use American, not British, spelling conventions. (Skill not addressed specifically in the unit)</li> <li>• Students will know the authors and main ideas of the writers of <i>The Federalist</i>. (Belongs in Knowledge)</li> <li>• Students will solve problems involving linear relationships. (But the unit does not focus on this.)</li> <li>• Students will use the scientific method. (But no experimental design work is required by the unit.)</li> </ul>

Figure P.7—(Continued)

### Detailed Rubric for UbD Design Standards 2.0

Design Standards	3 = Meets the standard	2 = Partially meets the standard	1 = Does not yet meet the standard
<b>6. Identifies knowledge and skill needed to achieve understanding and address the established goals.</b>	<p>All listed knowledge and skills—</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Address key content needed for transfer and meaning.</li> <li><input type="checkbox"/> Address content related to the established goals.</li> </ul>	<p>Some or all listed knowledge and skills—</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Address key content, but the content is not essential for understanding or transfer.</li> <li><input type="checkbox"/> The content isn't clearly connected to the unit and its overall focus.</li> </ul>	<p>Some or all listed knowledge and skills—</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Are not key content.</li> <li><input type="checkbox"/> Are not relevant to this unit.</li> </ul>
<i>Examples</i>	<ul style="list-style-type: none"> <li>• Know and be able to do the writing process.</li> <li>• Know the key arguments made in the <i>Federalist Papers</i> for the U.S. Constitution.</li> <li>• Be able to calculate the mean, median, and mode for sets of numbers.</li> <li>• Be able to calculate the position, velocity, or distance of a body in motion, based on the forces at work.</li> </ul>	<ul style="list-style-type: none"> <li>• Be able to draft a five-paragraph essay.</li> <li>• Know the first four presidents of the United States.</li> <li>• Know the associative, commutative, and distributive properties.</li> <li>• Know how Galileo proved that height, not distance traveled, determines the final velocity of a falling object.</li> </ul>	<ul style="list-style-type: none"> <li>• Be able to use the semicolon accurately.</li> <li>• Know the birthdates of the first four presidents of the United States.</li> <li>• Know how to compute a baseball player's batting average.</li> <li>• Know the date and location of Isaac Newton's birth.</li> </ul>
<b>7. Aligns all the elements so that Stage 1 is focused and coherent.</b>	<p>All listed Stage 1 elements—</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Are interconnected and provide a focused and coherent set of goals for learners.</li> </ul>	<p>Some listed Stage 1 elements—</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Are only somewhat interconnected goals, so that the unit seems insufficiently focused or incoherent.</li> </ul>	<p>The listed Stage 1 elements—</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Are hardly related to one another; this isn't really a unit but a set of thrown-together objectives that do not really fit together.</li> </ul>
<i>Examples</i>	<ul style="list-style-type: none"> <li>• Inspection of Stage 1 strikes the reader as intellectually focused and coherent; the unit is clearly organized around one or two big ideas, the student has to meet transfer goals that expect application of the ideas in appropriate ways, and the knowledge and skill are clearly related to understanding and transfer of the ideas.</li> </ul>	<ul style="list-style-type: none"> <li>• Inspection of all the Stage 1 elements reveals a lack of focus. There are too many different ideas mentioned or there is a long and unprioritized list of Goals, Knowledge, and Skill. It doesn't seem likely that this is a <i>single</i> unit that will hold together and permit sufficient depth.</li> </ul>	<ul style="list-style-type: none"> <li>• Inspection of all the Stage 1 elements reveals a complete lack of intellectual focus. It seems like a long list of content with no clear purpose or learning goals.</li> </ul>

Figure P.7—(Continued)

### Detailed Rubric for UbD Design Standards 2.0

Design Standards	3 = Meets the standard	2 = Partially meets the standard	1 = Does not yet meet the standard
<b>8. Specifies valid assessment evidence of all desired results: Stage 2 aligns with Stage 1.</b>	<p>All proposed assessment evidence—</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Address all the Stage 1 elements.</li> <li><input type="checkbox"/> Will likely provide valid evidence of the Stage 1 elements.</li> </ul>	<p>The proposed assessment evidence—</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Does not address all the Stage 1 elements.</li> <li><input type="checkbox"/> May not provide valid evidence of the Stage 1 elements (in the absence of clearer task directions and scoring rubrics).</li> </ul>	<p>The proposed assessment evidence—</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Does not address key Stage 1 elements related to understanding.</li> <li><input type="checkbox"/> Is unlikely to provide valid evidence of the Stage 1 elements.</li> </ul>
<i>Examples</i>	<ul style="list-style-type: none"> <li>• A portfolio of essays, self-assessments, and reflections on essay writing.</li> <li>• A role-play simulation of the Constitutional Convention, “newspaper articles” on the role-play, writings on the U.S. form of government, and commentary on <i>The Federalist</i>.</li> <li>• Solutions to problems related to measures of central tendency and a paper on generalizations on clear versus misleading uses of measures of central tendency.</li> <li>• Labs and write-ups on experiments related to Newton’s three laws of motion, a real-world application of the laws, and quizzes on the laws.</li> </ul>	<ul style="list-style-type: none"> <li>• A portfolio of essays only. (Not enough direct evidence that the student understands the essay and their own strengths and weaknesses.)</li> <li>• A role-play simulation of the Convention. (Not likely by itself to provide sufficient or valid evidence of <i>all</i> students’ understanding of our form of government.)</li> <li>• Solutions to constructed-response and multiple-choice problems in the textbook about mean, median, and mode. (Not valid assessment of understanding of measures of central tendency and transfer; this just assesses the skill and knowledge objectives.)</li> <li>• A single experiment on the rate of acceleration of cars on inclined planes. (Does not address all the Stage 1 goals related to transfer and understanding of Newton’s three laws.)</li> </ul>	<ul style="list-style-type: none"> <li>• A five-paragraph essay. (Assesses a specific skill; no assessment of transfer or understanding of the genre as a whole.)</li> <li>• A role-play of a modern Constitutional Convention. (Highly unlikely to provide evidence of all students’ understanding and knowledge of the relevant history and philosophy of our government as it came into being.)</li> <li>• Answers the even-numbered problems in the chapter on mean, median, and mode. (Assesses skill only; no understanding of measures of central tendency and understandings about them required.)</li> <li>• Invent a roller coaster that works and explain why it works. (Can be done with minimal understanding of Newton’s laws.)</li> </ul>

Figure P.7—(Continued)

### Detailed Rubric for UbD Design Standards 2.0

Design Standards	3 = Meets the standard	2 = Partially meets the standard	1 = Does not yet meet the standard
<b>9. Includes authentic performance tasks based on one or more facets of understanding.</b>	<p>All listed performance tasks—</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Provide a realistic setting: task, goal, audience, options, constraints, incentives, criteria are authentic or are faithful simulations of real-world contexts.</li> </ul>	<p>The performance task or aspects of the task—</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Are only somewhat realistic, in terms of setting.</li> <li><input type="checkbox"/> Are sufficiently vague in detail to make the proposed setting unimportant or irrelevant to the prompt.</li> </ul>	<p>All listed performance tasks—</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Are not realistic; people out in the world are not “tested” this way.</li> <li><input type="checkbox"/> Are not genuine “performance” tasks but rather typical school tests of content mastery.</li> </ul>
<i>Examples</i>	<ul style="list-style-type: none"> <li>• Writing for specific and real audiences to achieve real effects.</li> <li>• Applying your understanding of government to develop a proposed new governance structure for your school, explain it, and argue for it against other proposals. Direct your proposal to the school board.</li> <li>• A real-world problem that requires data collection, multiple points of view, etc. Example: Propose a more fair and revealing grading system for the school, a sport, or music competition, based on your understanding of measures of central tendency.</li> <li>• Build, refine, and race CO<sub>2</sub>-run racers, using your knowledge of acceleration, friction, inertia; analyze successes and failures in terms of ideas of physics.</li> </ul>	<ul style="list-style-type: none"> <li>• A writing prompt and the audience are provided by the teacher. (Nothing in the task or rubric requires the writer to be genuinely sensitive to or get feedback from the audience cited.)</li> <li>• Propose a new governance structure for your school. (No further contextual details)</li> <li>• Propose why mean, median, or mode should be used to report house prices, salaries, food costs. (Too prompted and decontextualized)</li> <li>• You have to build the car and race it only once, and that one race determines the winner. (Unrealistic in terms of using feedback and physics ideas to improve performance based on trial runs; can be done without much understanding of physics.)</li> </ul>	<ul style="list-style-type: none"> <li>• Students get an essay-writing prompt and one class period to write their essay. (They cannot talk to anyone else as they draft and revise—very unrealistic.)</li> <li>• Explain how the three branches of government are found in the way your school is run. (No realistic demands or setting, no understanding of history required.)</li> <li>• Word problems on mean, median, mode. (No realism to tasks or setting)</li> <li>• Brief paper: What should the best race car be to honor physics? (Fine question, but no audience, purpose, setting; teacher is looking for content knowledge only.)</li> </ul>

Figure P.7—(Continued)

### Detailed Rubric for UbD Design Standards 2.0

Design Standards	3 = Meets the standard	2 = Partially meets the standard	1 = Does not yet meet the standard
<b>10. Provides sufficient opportunities for students to reveal their achievement.</b>	<p>The assessments—</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Provide appropriate personalization, enabling students to play to strengths and interests without compromising the validity of the assessments.</li> <li><input type="checkbox"/> Provide sufficient evidence, of different kinds, to make the results reliable.</li> </ul>	<p>Some assessments—</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Permit some personalization but more options and opportunities were available.</li> <li><input type="checkbox"/> Permit options that may compromise the validity of the assessment.</li> <li><input type="checkbox"/> Are insufficient as evidence in meeting goals.</li> </ul>	<p>Most or all assessments—</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Do not provide adequate opportunities to personalize the work.</li> <li><input type="checkbox"/> Provide options that compromise the validity of the assessments.</li> <li><input type="checkbox"/> Do not provide enough evidence to make reliable judgments about the goals.</li> </ul>
<i>Examples</i>	<ul style="list-style-type: none"> <li>• Writing an essay in which choice is available for audience, purpose, and setting.</li> <li>• The role-play concerning the three branches of government provides many options for students to choose roles and role-play without compromising the goals of the assessment. Role-play is supplemented by quiz and essay.</li> <li>• The key task—propose a fair grading or scoring system for any area of interest (school, sports, music)—provides students with freedom within the bounds needed to judge understanding of measures of central tendency. Supplemented by quiz on mean, median, mode, and essay on “What is ‘fair’?”</li> <li>• Develop an optimally working CO<sub>2</sub> race car based on the laws of physics provides great personalization, supplemented by written questions that have to be answered about all design decisions and results of races.</li> </ul>	<ul style="list-style-type: none"> <li>• Students are given the essay purpose. There is some room for personalization in the writing style and audience chosen.</li> <li>• Students are assigned roles to play in a Constitutional Convention and graded on their performance.</li> <li>• Students can propose a better grading system but don’t have to link it back to prior work with measures of central tendency.</li> <li>• Students develop a race car and race it. The assessment only requires racing the car that they designed.</li> </ul>	<ul style="list-style-type: none"> <li>• Students are told to write a five-paragraph essay on a topic for which the prompt is given. (Insufficient evidence.)</li> <li>• There are two assessments: an essay on why the three branches of government are needed, and a quiz on the chapter. (Too restrictive.)</li> <li>• A quiz on mean, median, and mode. (Not able to reveal depth of insight or transfer.)</li> <li>• A test on various problems involving Newton’s laws, where all questions are either multiple-choice or short-answer response. (Not able to reveal depth of insight or transfer.)</li> </ul>



Figure P.7—(Continued)

### Detailed Rubric for UbD Design Standards 2.0

Design Standards	3 = Meets the standard	2 = Partially meets the standard	1 = Does not yet meet the standard
<b>11. Includes evaluative criteria to align the task to desired results and to provide suitable feedback on performance.</b>	<p>All evaluative criteria—</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Are valid for assessing such performance.</li> <li><input type="checkbox"/> Are aligned with the broader Stage 1 goals.</li> </ul>	<p>Some or all criteria—</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Are valid for assessing such performance.</li> <li><input type="checkbox"/> Are too general or not clearly aligned with Stage 1 goals.</li> <li><input type="checkbox"/> Are too specific to the performance to permit inference back to Stage 1 goals.</li> </ul>	<p>Some or all criteria—</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Are not valid for assessing such a performance.</li> <li><input type="checkbox"/> Are not appropriate for or aligned with Stage 1 goals to permit valid inference.</li> </ul>
<i>Examples</i>	<ul style="list-style-type: none"> <li>• Reaches audience, accomplishes purpose, writes persuasively, highly polished work with no distractions.</li> <li>• Reveals insight into our form of government, is faithful to facts and language of the time.</li> <li>• Solutions are accurate, well supported, and indicative of understanding of measures of central tendency.</li> <li>• Data are accurate; conclusions are valid; experiments well designed; understanding of Newton's laws is apparent.</li> </ul>	<ul style="list-style-type: none"> <li>• Well argued. (OK but insufficient.)</li> <li>• Argues convincingly as Franklin or other figure. (Too specific to the task and not aligned with all key Stage 1 goals.)</li> <li>• Accurate and well supported. (Too general to reflect all Stage 1 understanding-related goals.)</li> <li>• Lab results are thorough; work is accurate, conclusions are justified. (No link back to understanding-related goals.)</li> </ul>	<ul style="list-style-type: none"> <li>• Engaging and well written. (Not aligned with the goal of essay writing.)</li> <li>• Correct information, great role-play. (Not a valid set of criteria related to the desired understanding.)</li> <li>• Assignment completed and all answers correct. (Not valid for assessing complex performances related to measures of central tendency.)</li> <li>• All work is turned in and complete. (Not valid criteria for the Stage 1 elements related to Newton's laws.)</li> </ul>

Figure P.7—(Continued)

### Detailed Rubric for UbD Design Standards 2.0

Design Standards	3 = Meets the standard	2 = Partially meets the standard	1 = Does not yet meet the standard
<b>12. Includes learning events and instruction needed to help learners—</b> <b>a. Acquire targeted knowledge and skills.</b> <b>b. Make meaning of important ideas.</b> <b>c. Transfer their learning to new situations.</b>	<p>The learning events are likely to enable learners to—</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Acquire the targeted knowledge and skill in Stage 1.</li> <li><input type="checkbox"/> Successfully reveal understanding in Stage 2, based on the Stage 1 understanding goals.</li> <li><input type="checkbox"/> Transfer their learning effectively in Stage 2, based on the transfer goals in Stage 1.</li> </ul>	<p>The learning events are somewhat likely to enable learners to—</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Acquire the targeted knowledge and skill in Stage 1.</li> <li><input type="checkbox"/> Successfully reveal understanding in Stage 2, based on the Stage 1 understanding goals.</li> <li><input type="checkbox"/> Transfer their learning effectively in Stage 2, based on the transfer goals in Stage 1.</li> </ul>	<p>The learning events are unlikely to enable learners to—</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Acquire the targeted knowledge and skill in Stage 1.</li> <li><input type="checkbox"/> Successfully reveal understanding in Stage 2, based on the Stage 1 understanding goals.</li> <li><input type="checkbox"/> Transfer their learning effectively in Stage 2, based on the transfer goals in Stage 1.</li> </ul>
<i>Examples</i>	<ul style="list-style-type: none"> <li>• The learning plan is thorough and valid for causing transfer, acquisition, and understanding. There are rich, sufficient, and valid opportunities to acquire knowledge and skill, reflect on the importance or extension of that acquisition, explore key ideas, generalize about the meaning and use of knowledge/skill, practice transfer, get feedback.</li> </ul>	<ul style="list-style-type: none"> <li>• Though the outline of the learning plan is thorough and clearly targets the meaning and transfer goals, there are not enough higher-order learning activities to foster in-depth and high-level understanding.</li> </ul>	<p>A typical unit plan focused primarily on the learning of content. There are no explicit lessons and experiences that make in-depth understanding and higher-order thinking likely.</p>

Figure P.7—(Continued)

### Detailed Rubric for UbD Design Standards 2.0

Design Standards	3 = Meets the standard	2 = Partially meets the standard	1 = Does not yet meet the standard
<b>13. Effectively incorporates the WHERETO elements so that the unit is likely to be engaging and effective for all learners.</b>	<input type="checkbox"/> All WHERETO elements are implicitly or explicitly addressed to make engagement and effectiveness likely.	<input type="checkbox"/> Some WHERETO elements are implicitly or explicitly addressed to make engagement and effectiveness somewhat likely.	<input type="checkbox"/> Few or no WHERETO elements are implicitly or explicitly addressed making engagement and effectiveness unlikely.
<i>Examples</i>	<ul style="list-style-type: none"> <li>All the WHERETO elements are addressed:  W = Student is helped to know where the unit is going and why it matters.  H = Unit is framed by great hooks and tapping of prior knowledge.  E = Plan equips the student with all needed learning and resources to succeed in the unit.  R = Learning plan requires students to rethink key ideas and revise their work as the unit unfolds.  E = Students are asked to evaluate their progress based on formative assessments and self-assessments.  T = Unit is tailored to the differences in student interests and abilities.  O = Unit is sequenced in an engaging and appropriate way to ensure optimal engagement and effectiveness.</li> </ul>	<ul style="list-style-type: none"> <li>Some of the WHERETO elements are not adequately addressed. Typical problems include absence of a genuine hook and tailoring to make the work intriguing for all students; absence of sufficient opportunities to reflect on and rethink the big ideas; and absence of sufficient opportunities to get feedback and use it as part of the evaluation and organization.</li> </ul>	<ul style="list-style-type: none"> <li>A typical unit suffers from lack of engaging and thought-provoking experiences, little tailoring to student differences, no in-depth exploration of big ideas (for example, ideas are just mentioned; there are no real opportunities for students to think and rethink; meanings are just handed over to be recalled).</li> </ul>

Figure P.7—(Continued)

### Detailed Rubric for UbD Design Standards 2.0

Design Standards	3 = Meets the standard	2 = Partially meets the standard	1 = Does not yet meet the standard
<b>14. Is coherent, with all three stages in alignment.</b>	<input type="checkbox"/> The unit is coherent, with all three stages in complete alignment. The assessments in Stage 2 provide valid evidence for all the Stage 1 goals, and the learning events in Stage 3 are likely to cause the Stage 1 goals to be met and the assessments to be properly prepared for.	<p>The unit is somewhat incoherent, with some question as to whether the three Stages are aligned:</p> <input type="checkbox"/> Some of the proposed evidence in Stage 2 does not suit the Stage 1 goals. <input type="checkbox"/> There are gaps in the learning plan in terms of achieving the Stage 1 goals.	<p>The unit is not coherent. The three stages do not align.</p> <input type="checkbox"/> All the proposed evidence in Stage 2 does not suit the Stage 1 goals. <input type="checkbox"/> There are major gaps in the learning plan in terms of achieving the Stage 1 goals.
<i>Examples</i>	<ul style="list-style-type: none"> <li>(All the Stage 1 elements seem well embodied in the assessments of Stage 2 and the learning events of Stage 3. If, for example, you cover up Stage 1 and look at Stages 2 or 3 only, you can usually infer quite accurately what the Stage 1 goals really are.)</li> </ul>	<ul style="list-style-type: none"> <li>(The most typical weakness is that the total evidence of all the assessments does not quite align with all the elements of Stage 1. Thus, if you cover up Stage 1 and look at Stage 2, you are likely to make some inaccurate inferences as to what the goals of the unit are, given the assessments.)</li> </ul>	<ul style="list-style-type: none"> <li>(The weakest units aren't even really "units" of coherent work. It seems like a lot of content being thrown at the wall in the hopes that some of it will stick.)</li> </ul>
<b>15. Is likely to work: feasible and appropriate for this situation.</b>	<input type="checkbox"/> The unit is feasible as designed, given the time frame, student population, and resources provided.	<input type="checkbox"/> The unit is feasible as designed but has some likely rough spots or issues not sufficiently thought through, given the time frame or student population.	<input type="checkbox"/> The unit is not feasible as designed. The plan is incapable of working in the allotted time, or the unit is unlikely to work for the students it was designed for.
<i>Examples</i>	<ul style="list-style-type: none"> <li>(The best units seem well paced, with enough time built in for learning in depth but without spending too much time on just one unit. Such units have also clearly been thought through in terms of the diversity of students in the class and the place of the unit in the sequence of the yearlong course of study.)</li> </ul>	<ul style="list-style-type: none"> <li>(Typical rough spots include putting too much into the unit, given the time frame; not thinking through the diversity of students in the class, not considering the need for formative assessments to ensure timely and helpful adjustments to meet unit goals.)</li> </ul>	<ul style="list-style-type: none"> <li>(Typical weak units seem overstuffed with lessons, activities, ideas, content; inattention to student diversity; no built-in formative assessments and flex time for needed adjustments; inadequate resources to support the understanding-related goals [e.g., just using the textbook to drive all learning].)</li> </ul>

Figure P.8

## Final Self-Assessment Form Based on Feedback: Improvement Ideas

### ***UbD Stage 6: Final Unit Assessment Form***

**Unit** \_\_\_\_\_

My observations and analysis suggest the need for

☐ Further instruction in \_\_\_\_\_

\_\_\_\_\_

☐ More student practice at \_\_\_\_\_

\_\_\_\_\_

☐ A greater variety of \_\_\_\_\_

\_\_\_\_\_

☐ More student opportunities in \_\_\_\_\_

\_\_\_\_\_

☐ More examples/models of \_\_\_\_\_

\_\_\_\_\_

☐ More feedback and coaching in \_\_\_\_\_

\_\_\_\_\_

☐ Changes in teaching so that \_\_\_\_\_

\_\_\_\_\_

☐ Other instructional approaches so that \_\_\_\_\_

\_\_\_\_\_

☐ More time for \_\_\_\_\_

and less time for \_\_\_\_\_

☐ Other activities to ensure \_\_\_\_\_

\_\_\_\_\_

☐ Changes in the sequence so that \_\_\_\_\_

\_\_\_\_\_

☐ Changes in the pace so that \_\_\_\_\_

\_\_\_\_\_

☐ Greater advance student preparation in \_\_\_\_\_

\_\_\_\_\_

Figure P.9

**Peer Review—Individual or Group Review Form**

Design Standards	Strengths	Weaknesses
<b>Stage 1—Desired Results</b>		
<i>To what extent does the design—</i> <ul style="list-style-type: none"> <li>• Highlight long-term transfer goals?</li> <li>• Focus on big ideas?</li> <li>• Frame those ideas around essential questions?</li> </ul>		
<b>Stage 2—Assessment Evidence</b>		
<i>To what extent do the assessments provide—</i> <ul style="list-style-type: none"> <li>• Evidence aligned with the desired results?</li> <li>• Evidence of in-depth understanding?</li> <li>• Authentic contexts for performance?</li> </ul>		
<b>Stage 3—Learning Plan</b>		
<i>To what extent does the learning plan—</i> <ul style="list-style-type: none"> <li>• Align with desired results and assessments?</li> <li>• Balance the goals of transfer, meaning, and acquisition appropriately?</li> <li>• Prove appropriate pre- and formative assessments and room for adjustment?</li> </ul>		
<b>Overall Design</b>		
<i>To what extent is the entire unit—</i> <p>4. Coherent, with the elements of all three stages aligned?</p>		

Figure P.10

### UbD Stage 4/5 Visit Planner

What will you be doing? What should I look for?

Teacher: _____ Room: _____ Date: _____
Subject: _____ Grade: _____
What is the lesson about? What's the content and the context? Where in the unit are you?  <i>Attaching the unit plan and highlighting the targeted Stage 1 elements and lesson summary in Stage 3 is sufficient.</i>
What's the point? Which Stage 1 transfer and meaning goals are you highlighting in this lesson?  By the end of class, students should be better able to independently...
What misunderstandings and transfer deficits are predictable? How will you check for understanding?
To what extent is student learning supposed to be higher-order/unscaffolded/self-directed?
What will you be looking for, and what do you want me to do and observe? <i>Where</i> should you/we look, and <i>what</i> should you/we look for to monitor and assess the lesson's success?

Figure P.11

## UbD Stage 5 Observation Form

Teacher and class: \_\_\_\_\_ Date: \_\_\_\_\_

<p>GOALS: What is the primary aim of the lesson observed?</p> <p><input type="checkbox"/> <b>T</b>—<i>Transfer</i> of learning. Students must apply their repertoire to a new format, task, situation with minimal scaffold.</p> <p><input type="checkbox"/> <b>M</b>—<i>Meaning-making</i>. Students must make inferences/interpretations/generalizations.</p> <p><input type="checkbox"/> <b>A</b>—<i>Acquisition</i> of discrete skill or knowledge.</p> <p><input type="checkbox"/> None stated or apparent.</p>	<p>Notes:</p> <p>Teacher or unit plan goal statement:</p>
<p>TYPE of learning: What are students doing?</p> <p><input type="checkbox"/> Active: Student-led discussion, projects, problem solving, responding to challenging prompts, etc.</p> <p><input type="checkbox"/> Passive: Listening to teacher, filling in prescriptive/low-level worksheets.</p>	<p>Are they engaged? Are they <i>learning</i>? What are they <i>really</i> learning?</p>
<p>CONTENT of the work: Is this worthwhile and intellectually rich work?</p> <p><input type="checkbox"/> Valid: The learning activities are intellectually important and related to important goals.</p> <p><input type="checkbox"/> Questionable: The activities seem somewhat important though clearly related to important goals.</p> <p><input type="checkbox"/> Not valid: The activities seem neither important nor clearly related to important goals.</p>	
<p>ENGAGEMENT: How engaged in the work are students?</p> <p>____% Highly engaged in the work, as suggested by effort, body language, talk, productivity.</p> <p>____% Engaged; on task, exerting some effort and showing some interest.</p> <p>____% Somewhat engaged; following along, but with minimal or inconsistent effort/enthusiasm.</p> <p>____% Not engaged; not doing the work expected or looking and acting disengaged.</p>	
<p>QUESTIONING: How many of what kinds of questions are being asked by the teacher?</p> <p>____# Higher-order: "Why? If... then... ? What's the point? How does that square with... ? Evidence... ?"</p> <p>____# Some thought required, but scaffolded: "Given what we learned earlier, how should we... ?"</p> <p>____# Low level: "What are the three points he makes in the summary?"</p> <p>Total number of questions: _____ Number of higher-order questions: _____</p>	
<p>DEPTH: To what extent are the inquiry and discussion going beyond initial responses?</p> <p><input type="checkbox"/> In depth: Teacher constantly probes answers, points out issues needing further inquiry, highlights conflicting answers or apparent contradictions, reminds students of prior discussions that suggest other answers, invites further inquiry, invites students to test answers proposed.</p> <p><input type="checkbox"/> Somewhat in depth: Teacher solicits different student answers but <i>in general</i> aims for the desired answer and overlooks opportunities to provoke further thought and discussion.</p> <p><input type="checkbox"/> Superficial: Teacher clearly aims for the desired answer. Dialogue or inquiry is not encouraged.</p>	



Figure P.12

## UbD Stage 5 Understanding “Look-Fors”—Transfer

Teacher: \_\_\_\_\_ Date: \_\_\_\_\_

### TRANSFER

The work requires or develops transfer ability if students have to	The work does <i>not</i> require or develop transfer (even if the teacher claims that transfer is the goal) if the teacher or text	Notes:
<ul style="list-style-type: none"> <li>• Figure out, on their own, how a novel situation can best be addressed by a thoughtful use of prior learning.</li> </ul>	<ul style="list-style-type: none"> <li>• Tells students exactly how the new task should be handled, based on prior learning.</li> </ul>	
<ul style="list-style-type: none"> <li>• Draw intelligently from their repertoire; for example, ask themselves, “Which skills, ideas, facts are required for <i>this</i> specific challenge, here, now?”</li> </ul>	<ul style="list-style-type: none"> <li>• Tells or hints to students which skills, facts, ideas are required in the current challenge.</li> </ul>	
<ul style="list-style-type: none"> <li>• Adapt prior knowledge, ideas, theory, principles to a new situation in which those ideas are concretely at stake.</li> </ul>	<ul style="list-style-type: none"> <li>• Tells students how to apply prior learning to the current task. (This is really instruction in skill acquisition, not transfer.)</li> </ul>	
<ul style="list-style-type: none"> <li>• Determine on their own how the new problem or task relates to prior learning since it does not look like what was just studied or what is obvious and familiar.</li> </ul>	<ul style="list-style-type: none"> <li>• Provides not a genuine new “problem” but merely a familiar “exercise” involving plugging in what was just learned.</li> </ul>	
<ul style="list-style-type: none"> <li>• Negotiate real (or realistically simulated) opportunities, constraints, and feedback—in the context of a specific audience and purpose.</li> </ul>	<ul style="list-style-type: none"> <li>• Provides a task where students need only apply a formulaic approach (e.g., 5-paragraph essay) in which no authentic context is established.</li> </ul>	
<ul style="list-style-type: none"> <li>• Provide their own scaffold by recalling past learning, guidance, scaffolding, or think-alouds (as originally modeled by teacher-coaches).</li> </ul>	<ul style="list-style-type: none"> <li>• Scaffolds the work so thoroughly (by providing directions, graphic organizers, or reminders) that merely following directions and recalling routines is all that is required.</li> </ul>	

Figure P.13

**UbD Stage 5 Understanding “Look-Fors”—Meaning**

Teacher: \_\_\_\_\_ Date: \_\_\_\_\_

**MEANING**

The work requires or develops meaning-making ability if students have to ...	The work does <i>not</i> require or develop meaning-making if the teacher or text ...	Notes:
<ul style="list-style-type: none"> <li>Figure things out—e.g., a complex text, an ambiguous data set, a puzzling phenomenon—with minimal teacher guidance. “Hmm, what might <i>this</i> mean?”</li> </ul>	<ul style="list-style-type: none"> <li>Mostly <i>tells</i> students what they are looking for, where to and how to find it. They need merely follow directions.</li> </ul>	
<ul style="list-style-type: none"> <li>Draw conclusions; if they have to ask and infer: “So, what is the point? What’s the bottom line? What’s the gist of this? What am I expected to do with this?”</li> </ul>	<ul style="list-style-type: none"> <li>Gives the so-called “meaning” that students are intended to find, infer, or grasp. It is really just a taught “fact.”</li> </ul>	
<ul style="list-style-type: none"> <li>Generalize, on their own, about the meaning of specific lessons, data, facts, experiences.</li> </ul>	<ul style="list-style-type: none"> <li>Offers explicit generalizations or heavily hints at them, so that simple logic is all that is needed.</li> </ul>	
<ul style="list-style-type: none"> <li>Tackle a novel-looking task where the surface features do not look like what was just studied or what is familiar. Students have to thoughtfully consider prior learning, and ask, “Hmm, what does <i>this</i> remind me of?”</li> </ul>	<ul style="list-style-type: none"> <li>Provides only an easily recognized version of a prior lesson, not a novel inquiry. No significant questioning, probing, framing, or solving is required.</li> </ul>	
<ul style="list-style-type: none"> <li>Create and critique their own understanding and not just fall back on truisms, clichés, or recall. Deliberate attention is paid in formative assessment and instruction to possible student misconceptions.</li> </ul>	<ul style="list-style-type: none"> <li>Signals that a formulaic or stereotyped understanding is acceptable, where little original or critical thought is required; where possible misconceptions are not explored.</li> </ul>	
<ul style="list-style-type: none"> <li>Develop and test out a personal idea or “theory” in light of other facts or answers, and provide valid evidence and reasoning in support of it against other theories.</li> </ul>	<ul style="list-style-type: none"> <li>Asks only for initial student opinions or reactions, where those opinions are not probed or tested.</li> </ul>	

Figure P.14

## Unit Design Tips and Guidelines

### Stage 3: Plan Learning Experience and Instruction

#### The learning plan: How will the desired results be best achieved?

- The challenge is to use the most appropriate teaching and learning approaches that derive from Stages 1 and 2, and to avoid plugging in favorite activities and methods that may not be valid. There should be an appropriate mix of transfer-related practice and feedback, meaning-making activities, and acquisition of discrete content.
- The general guidelines for Stage 3 are that the activities and teachings be both highly *engaging* and *effective*, for all learners, in achieving the desired results of Stage 1.
- The acronym WHERETO summarizes ways of ensuring that the activities are engaging and effective. How will the design
  - Help learners know *where* the unit is going and where it has come from? In other words, how will the work, handouts, and activities keep the big ideas, the final performance—the big picture—in view?
  - *Hook* and hold their attention throughout the unit?
  - Help them *experience and explore* the essential questions and performance issues at the heart of the unit?
  - Make students constantly *rethink* their understandings in light of new findings, perspectives, questions, and knowledge?
  - *Evaluate* their work against standards, giving them vital feedback en route—thereby making them see the need for adjustments?
  - Be *tailored* to accommodate a diverse group of learners, to make success more likely for all—without compromising the goals of the unit?
  - Be *organized* to maximize an in-depth and engaging inquiry (as opposed to a linear march through content)?
- It is highly recommended that you adjust the activities and personalize the unit, as needed, based on a *pre-assessment* of student abilities, needs, interests.
- Keep in mind that any activity by itself cannot develop understanding. The work must require a reflective/analytical piece (and teacher-facilitated debriefing, in most cases) during and after the activity, if understanding is to occur.
- Formative assessments belong in Stage 3, not Stage 2, because their primary purpose is to provide feedback and thus learning, not a final evaluation; they are part of the instruction. Make sure you provide students with sufficient formative assessment and opportunities to use it in the unit—don't overplan the unit. Leave room for adjustments and reteaching, as needed, to achieve the goals.

Figure P.15

## The UbD Template, Version 2.0

Stage 1—Desired Results		
<b>Established Goals</b>  What content standards and program- or mission-related goal(s) will this unit address?  What habits of mind and cross-disciplinary goal(s)—for example, 21st century skills, core competencies—will this unit address?	<b>Transfer</b>	
	<i>Students will be able to independently use their learning to ...</i>	
	What kinds of long-term independent accomplishments are desired?	
	<b>Meaning</b>	
	<b>UNDERSTANDINGS</b> <i>Students will understand that ...</i>  What specifically do you want students to understand? What inferences should they make?	<b>ESSENTIAL QUESTIONS</b> <i>Students will keep considering ...</i>  What thought-provoking questions will foster inquiry, meaning-making, and transfer?
<b>Acquisition</b>		
<i>Students will know ...</i>  What facts and basic concepts should students know and be able to recall?	<i>Students will be skilled at ...</i>  What discrete skills and processes should students be able to use?	

Figure P.15  
The UbD Template, Version 2.0 *(continued)*

Stage 2—Evidence		
Code	Evaluative Criteria	
Are all desired results being appropriately assessed?	What criteria will be used in each assessment to evaluate attainment of the desired results?	<p>PERFORMANCE TASK(S): <i>Students will show that they really understand by evidence of . . .</i></p> <p>How will students demonstrate their understanding (meaning-making and transfer) through complex performance?</p>
	Regardless of the format of the assessment, what qualities are most important?	<p>OTHER EVIDENCE: <i>Students will show they have achieved Stage 1 goals by . . .</i></p> <p>What other evidence will you collect to determine whether Stage 1 goals were achieved?</p>

Figure P.15  
 The UbD Template, Version 2.0 (continued)

Stage 3—Learning Plan		
Code	What pre-assessments will you use to check student's prior knowledge, skill levels, and potential misconceptions?  <div>Pre-Assessment</div>	
What's the goal for (or type of) each learning event?	<div>Learning Events</div> <p><i>Student success at transfer, meaning, and acquisition depends upon ...</i></p> <ul style="list-style-type: none"> <li>• Are all three types of goals (acquisition, meaning, and transfer) addressed in the learning plan?</li> <li>• Does the learning plan reflect principles of learning and best practices?</li> <li>• Is there tight alignment with Stages 1 and 2?</li> <li>• Is the plan likely to be engaging and effective for all students?</li> </ul>	<div>Progress Monitoring</div> <ul style="list-style-type: none"> <li>• How will you monitor students' progress toward acquisition, meaning, and transfer, during lesson events?</li> <li>• What are potential rough spots and student misunderstandings?</li> <li>• How will students get the feedback they need?</li> </ul>

## Frequently Asked Questions

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### Obtaining and Using Feedback (Module P)

Many teachers have never had their work critiqued by peers. How do you prepare for a productive peer review session?

Because public reviews of the work of colleagues is somewhat counter to the normal culture of schools, it takes a little groundwork to make sure that the peer review process is welcome and effective. Participants need a level of trust so that they feel safe when engaged in giving and receiving feedback. Creation of trust takes time and is built by practicing the skills of providing descriptive feedback and guidance based on the design standards instead of speaking about what you “liked” or thought was “good.”

The UbD peer review process follows a structured protocol that guides reviewers to provide helpful feedback and guidance to unit designers. A facilitator should review the protocol and the ground rules before each session. It is helpful to hold practice sessions using sample units before initiating the process with the actual unit designs of teachers in the room. The skills of giving and receiving feedback need to be modeled and practiced.

Should peer review groups be homogeneous (composed of teachers in the same subjects and levels), or can heterogeneous groups be effective?

Peer reviews can be organized around homogenous or heterogeneous teams, and each type of group composition has advantages. In general, homogeneous groups provide sharper feedback around the content-oriented criteria, such as the big ideas, essential questions, and assessment task validity. Heterogeneous groups tend to look at the design more as a student might. This perspective can be helpful in determining the extent to which the task is clear, potentially engaging to students, and feasible for the classroom. Also, administrators and teachers who have not been part of unit design can be productively included in review groups, as the goal is to maximize feedback and guidance to the designers.

Why do you distinguish between feedback and guidance?

The distinction between feedback and guidance is almost universally misunderstood. Despite common parlance, feedback merely describes what happened in light of a goal, not how you feel about it or what should be changed. For example, this is feedback: *The second essential question is the most thought-provoking of all. I expect that this question will both help students focus their learning and generate lively*

*discussion. The third question, however, seems leading, as if there is no real debate intended, just a right answer.*

No advice is given here, just feedback. The reviewer is saying where the design does and doesn't meet the criteria for essential questions. Guidance (advice) would naturally follow any feedback that points out a weakness: *You might open up that third question by changing "What?" to "Why or why not?"*

The most common mistake in peer review, as a result of this misconception, is to assume that the peer review process is meant primarily to offer designers advice on what to do differently. That is far less important than accurately describing the design's strengths and weaknesses based on design standards, so the designer will understand why any advice is offered. In fact, in our experience, when reviewers jump to advice, a less than careful reading of the unit results, thus causing many designers to tune out the review comments. By contrast, paying close attention to giving feedback *first* causes the reviewers to not only read the unit more carefully but also to better empathize with the designer's purpose, thus causing designers to be far more willing to be receptive to reviewers' comments.

*Why do you ask the designer to temporarily leave the conversation? That seems a little intimidating (and contrary to other protocols in use in some schools).*

We have found that the presence of the designer in the early stages of discussion of the unit prevents the reviewers from thinking out loud and voicing all reactions to the design. In the long run, the designer is best served by getting all relevant feedback, and in our experience, the most helpful feedback sometimes comes when a member of the review team is struggling to voice a concern or a vague feeling about a design. Because the designer is present at the start and at the end, and because the designer's intent is the framework of the process, we think that the fear factor is quickly overcome once helpful feedback is obtained through our process.



# About the Authors



**Grant Wiggins** is president of Authentic Education in Hopewell, New Jersey. He earned his EdD from Harvard University and his BA from St. John's College in Annapolis. Grant and his colleagues consult with schools, districts, and state and national education departments on a variety of reform matters. He and his colleagues also organize conferences and workshops, and develop print and web resources on key school reform issues.

Grant is perhaps best known for being coauthor, with Jay McTighe, of *Understanding by Design*, the award-winning and highly successful program and set of materials on curriculum design used all over the world, and of *Schooling by Design*. He is also a coauthor for Pearson Publishing on more than a dozen textbook programs in which UbD is infused. His work has been supported by the Pew Charitable Trusts, the Geraldine R. Dodge Foundation, and the National Science Foundation.

For 25 years, Grant has worked on influential reform initiatives around the world, including Ted Sizer's Coalition of Essential Schools; the International Baccalaureate Program; the Advanced Placement Program; state reform initiatives in New Jersey, New York, and Delaware; and national reforms in China, the Philippines, and Thailand.

Grant is widely known for his work in assessment reform. He is the author of *Educative Assessment* and *Assessing Student Performance*, both published by Jossey-Bass. He was a lead consultant on many state assessment reform initiatives, such as the portfolio project in Vermont and performance assessment consortia in New Jersey and North Carolina.

Several journals have published Grant's articles, including *Educational Leadership* and *Phi Delta Kappan*. His work is grounded in 14 years of secondary school teaching and coaching. Grant taught English and electives in philosophy, coached varsity soccer and cross country, as well as junior varsity baseball and track and field. He also plays in the Hazbins, a rock band. Grant may be contacted at [gwiggins@authenticeducation.org](mailto:gwiggin@authenticeducation.org).



**Jay McTighe** brings a wealth of experience developed during a rich and varied career in education. He served as director of the Maryland Assessment Consortium, a state collaboration of school districts working together to develop and share formative performance assessments. Prior to this position, Jay was involved with school improvement projects at the Maryland State Department of Education where he directed the development of the Instructional Framework, a multimedia database on teaching. Jay is well known for his work with thinking skills, having coordinated statewide efforts to develop instructional strategies, curriculum models, and assessment procedures for improving the quality of student thinking. In addition to his work at the state level, Jay has experience at the district level in Prince George's County, Maryland, as a classroom teacher, resource specialist, and program coordinator. He also directed a state residential enrichment program for gifted and talented students.

Jay is an accomplished author, having coauthored 10 books, including the best-selling *Understanding by Design* series with Grant Wiggins. He has written more than 30 articles and book chapters, and has published in leading journals, including *Educational Leadership* (ASCD) and *The Developer* (National Staff Development Council).

Jay has an extensive background in professional development and is a regular speaker at national, state, and district conferences and workshops. He has made presentations in 47 states within the United States, in 7 Canadian provinces, and 18 other countries on 5 continents.

Jay received his undergraduate degree from the College of William and Mary, earned his master's degree from the University of Maryland, and completed post-graduate studies at the Johns Hopkins University. He was selected to participate in the Educational Policy Fellowship Program through the Institute for Educational Leadership in Washington, D.C., and served as a member of the National Assessment Forum, a coalition of education and civil rights organizations advocating reforms in national, state, and local assessment policies and practices. Contact information: Jay McTighe, 6581 River Run, Columbia, MD 21044-6066 USA. E-mail: [jmctigh@aol.com](mailto:jmctigh@aol.com).