

Understanding by Design

Understanding by Design: Introduction

This section provides a very brief introduction to *Understanding by Design* (UbD), the conceptual framework used to design the examples of curriculum units included in this tool kit. You will learn more about *Understanding by Design* as you analyze and use the examples provided. Your knowledge and skill in the use of *Understanding by Design* will develop even more when you begin to use it to create curriculum units for use in your classroom, school, or district. As you practice the principles of *Understanding by Design*, you will learn how the process can result in powerful learning experiences for learners of all ages. This section of the tool kit consists of four parts: a brief definition of *Understanding by Design*, a discussion of its conceptual framework, an explanation of the design process embodied in *Understanding by Design*, and a glossary of selected terms that you will encounter in this section and in the sample units contained in the tool kit. Taken together, these four parts are intended to:

- introduce you to the concept of *Understanding by Design*,
- help you understand why *Understanding by Design* is a powerful tool for educators,
- acquaint you with terminology you will encounter in *Understanding by Design*, and
- encourage you to begin using *Understanding by Design* to create curriculum units for your students.

Understanding by Design: What is it?

Understanding by Design is a conceptual framework, a design process, and a set of design standards, which have been used in the development of the sample units contained in this tool kit. It also offers a planning [template](#) that can be used as an aid in the design of curriculum, instruction, and assessment. This section will introduce you to the conceptual framework and to the design process. Additional information about *Understanding by Design* can be found in Wiggins and McTighe (1998) and in McTighe and Wiggins (1999). Current information about how *Understanding by Design* is being used by individuals and curriculum design teams can be found on the UbD web site at <http://www.ubdexchange.org/>. The web site also contains several examples of social studies curriculum units designed for a variety of topics and grade levels.

Understanding by Design: A Conceptual Framework

Understanding by Design represents a way of thinking about the design of curriculum, instruction, and assessment and pulls together many ideas and processes that have been tested both through research and classroom use. Used independently, these ideas and processes are valuable. Used within the conceptual framework of *Understanding by Design*, these ideas and processes can result in a way of thinking about curriculum, instruction, and assessment that can give rise to powerful learning experiences that result in deeper understandings of facts, [concepts](#), [generalizations](#), principles, and other ideas contained in the Texas Essential Knowledge and Skills (TEKS) for Social Studies. While it takes some time and effort to learn this way of thinking, the investment is worthwhile as it will result in learning experiences that will engage learners and result in learners gaining more sophisticated insights and abilities that will be reflected in a variety of performances both in school and in the real world.

One way in which *Understanding by Design* differs from conventional thinking about teaching and learning is that it emphasizes the use of a backward [design process](#). Backward design focuses thinking on the desired results of instruction, rather than beginning the planning process with activities, materials, or textbook content. What the learner should know, understand, and be able to do as a result of instruction

serves as the focal point for the planning of curriculum, instruction, and assessment. These results of instruction are frequently determined with reference to national standards, state standards, and local district curriculum standards. After the desired results of instruction have been specified, the backward design process turns the attention of the teacher or curriculum design team toward identifying the evidence that will be accepted in determining whether the learner has achieved the desired results. Finally, attention is turned to planning learning experiences and activities. Backward design is especially compatible with the Texas Essential Knowledge and Skills (TEKS) for Social Studies. The TEKS for Social Studies specify what the learner is to know and be able to do as a result of instruction rather than how the curriculum is to be organized or what instructional activities are to be used. If design begins with the end in mind, the result is likely to be instruction that will focus more clearly and effectively on the desired results.

Another way in which *Understanding by Design* differs from conventional thinking about curriculum is that it emphasizes the need to prioritize what students are to know, understand, and be able to do. Rather than viewing all knowledge as being equal, this way of thinking suggests that some knowledge is essential and enduring, some knowledge is important to know, and some knowledge is worth being familiar with. This is a critical idea for individual designers and design teams to consider since even a brief review of national, state, and district curriculum standards reveals that there is more content deemed important than can reasonably be covered in most classrooms. Superficial coverage of all content is not the answer if the desire is to help learners understand important ideas. Individual designers and curriculum design teams that grapple with the question of what content is of most importance can receive some guidance from Wiggins and McTighe (1998, pp. 10-11). They suggest four criteria, or filters, to assist in establishing curriculum priorities. They are as follows:

- To what extent are the content standards and topics enduring and transferable big ideas, having value beyond the classroom?
- To what extent are the content standards and topics big ideas and core processes at the heart of the discipline?
- To what extent are the content standards and topics abstract, counterintuitive, often misunderstood, or easily misunderstood ideas requiring uncoverage?
- To what extent are the content standards or topics big ideas embedded in facts, skills, and activities?

The use of these criteria will assist designers in determining which knowledge is essential and enduring, which is important, and which is worth being familiar with.

A third way in which *Understanding by Design* differs from conventional thinking about curriculum is that it gives serious consideration to the meaning of understanding. Understanding is sometimes ill defined. To some it might mean simply answering a question correctly, or defining a term in your own words, or carrying out a simple skill, or explaining why something occurred. *Understanding by Design* suggests that understanding is more than just knowing or doing. Wiggins and McTighe (1998, p. 24) describe understanding as follows:

To understand a topic or subject is to use knowledge and skill in sophisticated, flexible ways. Knowledge and skill, then, are necessary elements of understanding, but they are not synonymous with understanding. Matters of understanding require more: Students need to make conscious sense and apt use of the knowledge they are learning and the principles underlying it.

Understanding by Design identifies six aspects, or [facets of understanding](#) that help designers to determine a deep or mature understanding of an idea. Wiggins and McTighe (1998, p. 44), suggest that when we truly understand an idea we:

- Can explain: provide thorough, supported, and justifiable accounts of phenomena, facts, and data.
- Can interpret: tell meaningful stories; offer apt translations; provide a revealing historical or personal dimension to ideas and events; make it personal or accessible through images, anecdotes, analogies, and models.
- Can apply: effectively use and adapt what we know in diverse contexts.
- Have perspective: see and hear points of view through critical eyes and ears; see the big picture.
- Can empathize: find value in what others might find odd, alien, or implausible; perceive sensitively on the basis of prior direct experience.
- Have self knowledge: perceive the personal style, prejudices, and habits of mind that both shape and impede our own understanding; we are aware of what we do not understand and why understanding is so hard.

Understanding by Design: A Design Process.

Understanding by Design is both a road map and a checklist. As a road map it guides us to our destination of well designed curriculum, instruction, and assessment, avoiding wrong turns and delays. As a checklist it reminds us of what we need to do during the beginning, middle, and end of our journey. This section will provide a brief overview of the process of *Understanding by Design*. Further information on the design process is available in Wiggins and McTighe (1998) and McTighe and Wiggins (1999). The sample curriculum units in the tool kit have been designed using this process. Other sample social studies units that have resulted from this process can be found on the *Understanding by Design* web site <<http://www.ubdexchange.org/>>.

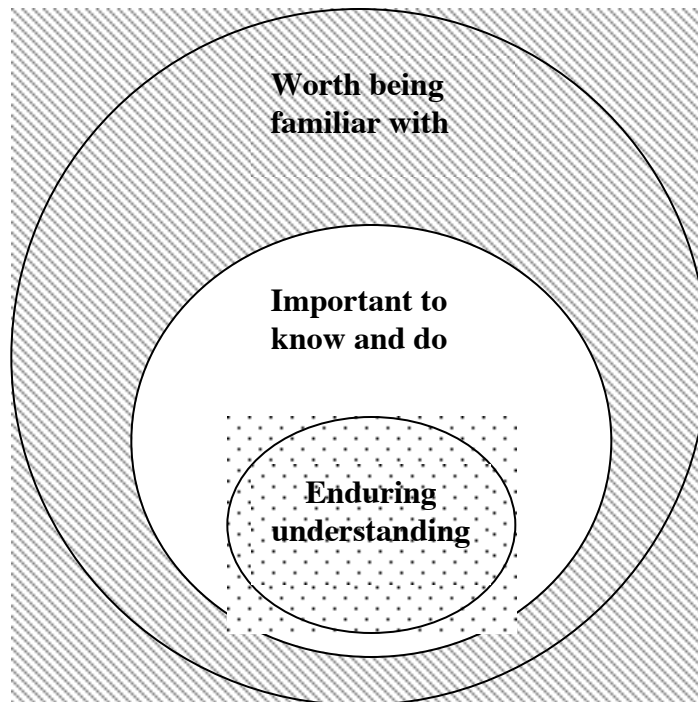
The *Understanding by Design* process includes three stages. These stages are as follows:

- Stage 1: identify desired results of instruction,
- Stage 2: determine acceptable evidence to judge whether the results were achieved and how well they were achieved, and
- Stage 3: plan learning experiences and instruction.

Stage 1. Stage 1 is a critical part of the *Understanding by Design* process. In this stage the desired results of instruction are specified. The backward design process comes into play as the focus of the designers is directed to the end results expected from instruction. Stage 1 involves the designers in three specific tasks: identifying enduring understandings, identifying essential questions, and identifying other important knowledge and skills that will result from the unit.

Identifying enduring understandings. The most difficult task with which the designers will have to grapple is what knowledge is most essential and enduring; in other words, what are the enduring understandings that should result from the unit. This task is difficult because the curriculum identified by national standards, state standards, district standards and textbooks is far more than can be reasonably handled in the nine month school year. Determining the desired results of instruction needs thoughtful consideration by the individual designer or the design team. The design team's task is to prioritize content knowledge so that the most essential and enduring ideas are given the attention they deserve. Essential and enduring ideas are defined as those big ideas that students will retain long after they have forgotten many of the details about them. They are ideas that are as useful and valid in the "real world" outside of the school as they are in the classroom. **Figure 1.** displays a graphic used by McTighe and Wiggins (1999, p. 70 in the *UBD Handbook*) to depict a framework for establishing curricular priorities.

Figure 1.
Curricular Priorities



Examples of these three levels of curriculum priorities based on the Grade 2 TEKS for Social Studies might be as follows:

- Enduring understanding: People work to provide goods and services for themselves and their families.
- Important to know and do: People make choices about the types of jobs they perform.
- Knowledge that is worth being familiar with: People are both producers and consumers.

Figure 2. shows an example of how these three levels of curriculum priorities might be related to the [TEKS for Social Studies, Grade 2](#).

Figure 2.
Relating Curriculum Priorities to the TEKS for Social Studies

Worth Being Familiar With

People are both producers and consumers.

Social Studies TEKS

- 2.10(A) The student is expected to: distinguish between producing and consuming.
- 2.10(B) The student is expected to: identify ways in which people are both producers and consumers.

Important to Know and Do

In the American free enterprise system people can make choices about the type of work they do to earn money to purchase goods and services.

Social Studies TEKS

- 2.9 (B) The student is expected to: explain the choices people in the U.S. free enterprise system can make about earning, spending and saving money, and where to live and work.

Enduring Understanding

People work to provide goods and services for themselves and their families.

Social Studies TEKS

- 2.9 Economics. The student understands the importance of work.
- 2.9(A) The student is expected to: explain how work provides income to purchase goods and services.

The design team’s deliberations on determining curricular priorities can be guided by four [criteria](#) or filters suggested by McTighe and Wiggins (1999, pp. 71-72).

- To what extent are the [content standards](#) and topics enduring and transferable [big ideas](#), having value beyond the classroom?
- To what extent are the content standards and topics big ideas and core processes at the heart of the discipline?
- To what extent are the content standards and topics abstract, counterintuitive, often misunderstood, or easily misunderstood ideas requiring uncoverage?
- To what extent are the content standards or topics big ideas embedded in facts, skills, and activities?

Identifying essential questions. Once the design team has determined curricular priorities for a unit, the next task is to consider essential questions around which the unit can be framed. Engaging questions can serve as doorways to understandings. They not only provide learners with a focus on enduring understandings, but they also invite the learners to think about interesting problems that they might not have perceived as questions before. Such questions set a clear direction for inquiry providing students with a purpose as they engage in learning activities. Educators who have a clear focus on the enduring understandings of a unit and who are guided by essential questions will develop learning experiences that are focused important understandings rather than coming up with a set of disconnected activities that are simply designed to be “hands on” or “fun.”

There are many different types of questions. McTighe and Wiggins (1999, p.109-110) suggest that essential questions share the following common characteristics:

- are framed to provoke and sustain student interest,
- recur naturally throughout one’s learning and in the history of the field,
- address the philosophical or conceptual foundations of a discipline,
- raise other important questions, often across subject-area boundaries, and
- have no one obvious right answer, but serve as doorways into focused yet lively discussion, inquiry, and research.

Essential questions related to the Grade 2 topic on work that was cited previously might include: Why do people work? How do people decide what type of work they will do? What happens when people are not able to work? Are there kinds of work in other communities that are different from the kinds of work in our community? What would happen if everyone decided not to work?

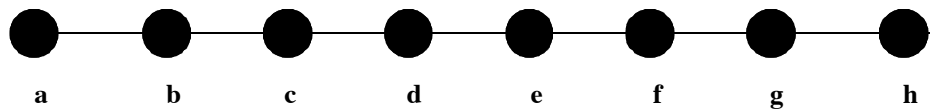
Identifying other important knowledge and skills. As the design team works to identify one or more of the essential understandings for a unit of instruction, they will discover that there are many other pieces of knowledge and several skills that are important or worth being familiar with. Knowledge and skills of this nature should be included in the unit because they are related to or give rise to the essential understanding that is the focus of the unit. They are allocated curriculum space (time and attention) depending on their importance and the potential for providing support for the enduring understanding. Examples of important skills that might be developed in relation to the Grade 2 topic on work might include the development of a bar graph that shows the types of work performed by parents of children in the class, or learners might be given additional instruction and/or practice in writing a short descriptive paragraph describing the type of work performed by one of their parents.

Stage 2. The concept of backward design again comes into play in Stage 2 as the design team’s attention is turned to determining acceptable evidence to judge whether the intended results of instruction were achieved and how well they were achieved. In Stage 2 the tasks of the design team involve formulating [performance tasks](#) and [projects](#) as well as traditional assessments such as quizzes and tests. [Figure 3.](#)

displays a range of assessments that are described and for which examples are provided in the Texas Social Studies Framework, Kindergarten-Grade 12 (Social Studies Center for Educator Development, 1999, p. 56-57).

Figure 3.
Multiple Methods of Assessment

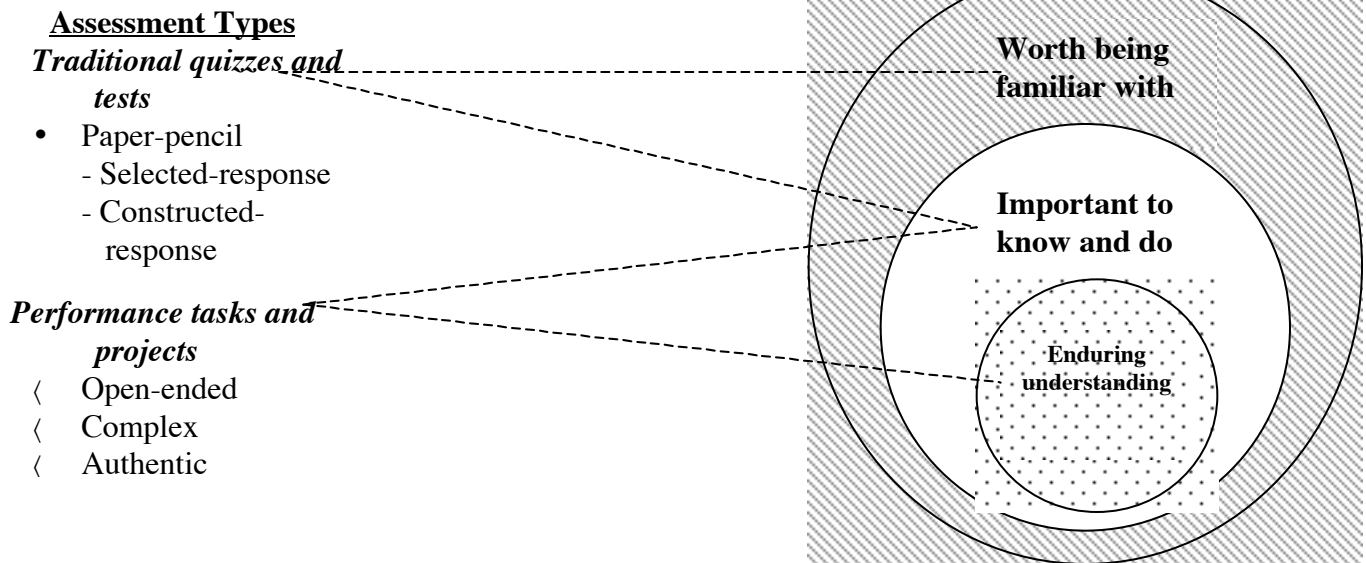
Multiple Methods of Assessment: From Least to Most Complex



<p>TRADITIONAL ASSESSMENTS</p> <ul style="list-style-type: none"> a. Informal Checks for Understanding b. Observation/Dialogue c. Quiz/Test 	<p>PERFORMANCE ASSESSMENTS</p> <ul style="list-style-type: none"> d. Academic Prompt e. Performance Task f. Authentic Task g. Long-Term Project h. Portfolio
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Choosing appropriate assessment methods. Educators sometimes have strong opinions about assessment methods as statements such as the following reveal: “Any type or level of knowledge worth measuring can be measured with multiple choice questions. Besides, I don’t have time to grade written work or projects,” or “I never use multiple choice or true-false questions.” Performance tasks are the only form of assessment that really gives me information about what my students actually know.” Despite these strong opinions, educators need to be open minded about what evidence of knowledge, skill, and understanding can be provided by various assessment methods. Multiple choice questions can provide valid and reliable information about whether students know and comprehend certain factual information. Such questions, if carefully written, can also determine whether students can apply the information in certain contexts. Determining whether students have acquired a skill can be determined only through actual performance. Determining whether students have developed a comprehensive and mature understanding of an enduring understanding that is at the core of a unit will most often demand the use of some type of complex, authentic performance task or project. McTighe and Wiggins (1999, p. 127 in the UbD Handbook) suggest relationships between assessment methods and curricular priorities. Their graphic, shown in [Figure 4](#), should be useful to design teams as they identify the types of assessment to be used in determining whether the intended results of instruction have been achieved.

Figure 4.
Assessment Types and Curricular
Priorities



It is important for the design team to understand that not all learning can be appraised by quizzes and tests and that not all learning must be appraised by performance tasks and projects. To take the former point of view would seriously risk not being able to determine if the learner has achieved a mature understanding of the enduring understanding that is the core of the unit. To take the latter point of view means gathering data through a sophisticated and time consuming process when the same information could be acquired through much simpler and more efficient techniques.

Designing authentic performance assessments. Most educators have had extensive experience in designing traditional assessment instruments such as quizzes and tests. Authentic performance tasks raise many questions for educators because of their lack of experience in developing such tasks and projects, their doubts about determining the quality of the work produced, and their concerns about the time requirements for completing and evaluating the tasks and projects. McTighe and Wiggins (1999, p. 140) identify some common characteristics of authentic performance tasks and projects. They state that a task or project is authentic if it

- is realistic;
- requires judgement and innovation;
- asks a student to “do” the subject;
- replicates or simulates the contexts in which adults are tested in the workplace, community, and home;
 - assesses a student’s ability to efficiently and effectively use a repertoire of knowledge and skills to negotiate a complex task; and
 - allows appropriate opportunities to rehearse, practice, and consult resources, obtain feedback on performances, and refine performances and products.

Examples of authentic performance tasks and projects for social studies can be found in McCollum (1994), McTighe and Wiggins (1999), SSCED (1999), and Wiggins and McTighe (1998). A brief description of a performance task that might be used with students in grade 7 follows.

A group of eight international students will be visiting your class. Two of the students are from Africa, two are from Asia, two are from Europe, and two are from Latin America. They are studying how various ethnic groups from their four regions of the world have maintained their cultural heritage after coming to Texas. The visiting students have requested your help. They have asked that you develop several presentations focusing on groups that came to Texas from each of their four regions of the world. Each of your presentations should focus on a particular group, identify elements of the group’s cultural heritage that have been maintained, identify elements of the group’s cultural heritage that have been lost or abandoned, explain why certain elements of the group’s cultural heritage have been maintained or lost, and document how the groups currently attempt to maintain their cultural heritage.

The example for grade 7 and those included in the sample units in this tool kit offer some insight into the concern about both the development of authentic performance tasks and the time required for students to complete such tasks. Authentic tasks are good instruction as well as good assessment. If an idea is considered an important and enduring understanding, it is worthy of well designed instruction. Educators who have the skills necessary to design good instruction will have the necessary skills to design good performance tasks and projects. While it will certainly take more time for students to complete a performance task or activity, it is easy to see that the time allocated to assessment is also instructional time. In the grade 7 example, the assessment experience is a learning experience which pushes learners to consider a real problem: where do we find information, how do we organize it, and how do we present it to our international visitors in a way that will be of greatest benefit to them as they seek to accomplish their goals. Instructional time that ordinarily would have been spent viewing and discussing a video on ethnic festivals in Texas now has a purpose that will engage learners and will result in a much more sophisticated understanding of ideas associated with cultural accommodation and assimilation.

Performance tasks provide for learning as well as for assessment. If this is so, then how can educators differentiate between performance tasks and learning activities that occur on a daily basis? [Figure 5](#), identifies some characteristics of learning activities and performance tasks that should help design teams differentiate between the two.

Figure 5.
A Comparison of Learning Activities
and Performance Tasks

Learning Activity	Performance Task
Designed to develop knowledge and/or skills that support an enduring understanding	Designed to assess the enduring understanding(s) that provided the frame for the unit
Focused, formative activity directed toward the acquisition of particular elements of knowledge or clearly identified skills	Complex, culminating activity based on integration of knowledge, skills, an understandings gained during the unit
May be based on only one or two of the facets of understanding	Based on the six facets of understanding
Can be accomplished by students who have the prerequisite knowledge and skill, who are engaged in the learning activity, and who receive appropriate instruction	Only students who have developed the desired level of understanding will be successful

Students demonstrate comprehension of knowledge or application of the skill	Students thoughtfully apply their understanding with flexibility, insight, and good judgement
Usually assessed at the knowledge, skill, and/or application levels	Usually assessed at the analysis, synthesis, and/or evaluation levels
Assessments are focused on factual information, concepts, or discrete skills	Assessments involve complex, authentic challenges frequently faced by adults in the real world
Assessments are usually clearly structured, using answer keys or machine scoring	Assessments involve the use of judgement based scoring, using known criteria, performance standards , and rubrics

Using GRASPS in designing authentic performance assessments. Educators can benefit from using design tools as they develop assessments. McTighe and Wiggins (1999, pp. 144-157) offer a helpful design tool in the form of an acronym, GRASPS, to assist educators in formulating authentic and engaging tasks and projects. The respective letters of the acronym represent the following:

- **Goal:** the goal of the performance task
Example: The goal is to assist potential small businesses in conducting a market analysis.
- **Role:** the role of the students as they carry out the performance task
Example: You are a consultant with an economic development corporation that has been formed by a small city in Texas.
- **Audience:** the target audience to which the finished product/performance will be presented
Example: The target audience is composed of individuals who are/might be interested in starting a small business in your community.
- **Situation:** the context
Example: Your community is not big enough to be attractive to large national business chains or franchises; however, the economic development corporation that employs you believes that small businesses could be successful in your community. The corporation also believes that small business start-ups could be encouraged by assisting prospects in conducting a market analysis in the community.
- **Product or Performance:** the result of the performance task or activity
Example: You are responsible for designing, producing, and presenting, in an electronic format, a training session that identifies economic data sources available in the community and demonstrates how to conduct a market analysis of the community.
- **Standards for Success:** the criteria by which the product/performance will be judged
Example: Your training session must identify all economic data sources that are relevant to the potential business, clearly demonstrate the steps involved in conducting a market analysis for the potential business, use a series of well designed electronic slides, and take no longer than 20 minutes to present to the potential businesses.

While not every authentic performance task or project will require the use of GRASPS, design teams will find it helpful to consider the components. The sample units in this tool kit provide additional examples of how GRASPS can be used in designing performance assessments.

Using the facets of understanding in designing authentic performance assessments. An additional tool that design teams can benefit from using in the development of authentic performance tasks and projects is provided by the six facets of understanding. The facets are an extremely useful guide as the design team turns its attention to the development of performance tasks and projects designed to determine whether learners have developed a mature and sophisticated understanding of the intended results of instruction.

McTighe and Wiggins (1999, p. 158-159 in the UbD Handbook) provide some assistance to design teams by giving some examples of ways that students can reveal their understanding. These ideas are shown below.

<u>Facet</u>	<u>Ways of Demonstrating Understanding</u>
Explanation	Explain/teach Give examples of Make connections with Describe how Prove/verify
Interpretation	Interpret Make sense of Provide an apt analogy for Show the importance or meaning of
Application	In a new situation, apply Show or demonstrate Use in the context of Design/invent
Perspective	Analyze See from the point of view of Compare and contrast Critique Show how it fits into the historical context
Empathy	Walk in the shoes of Experience directly and see Reach a common understanding concerning Consider the seemingly odd view
Self Knowledge	Recognize your prejudice about Identify the lens through which you view See how your habits influence how you approach Explain how you came to understand

Designing scoring rubrics for authentic performance tasks and activities. Rubrics are tools used to evaluate student performances or products. They outline a set of criteria and a scoring system by which quality of the products/performances can be evaluated. While the term “**rubric**” might be new to some educators, rubrics have been used for many years in the scoring of student writing samples for Advanced Placement tests and for International Baccalaureate tests. While rubrics enable educators to make reliable judgements about student **products**/performances, they also serve as a guide to students as they work on the performance task. Rubrics usually contain three, four, or six score points for each of the criteria upon which the product/ performance will be evaluated. The use of a larger number of score points for criteria (20, 50, 100) can lead to serious questions regarding the **reliability** of scores given to products/performances. In other words, it is doubtful that a group of teachers could agree upon and distinguish clearly between a product/performance that should receive a score of 37 and one that should receive a score of 38. Some of the characteristics of effective rubrics discussed by McTighe and Wiggins (1999, pp. 162-163) include:

- The rubric helps the assessor and the learner to discriminate among different degrees of understanding.
- The rubric does not combine independent criteria. For example, combining accuracy and organization creates a problem for the assessor since the product might be well organized but inaccurate.
- The rubric should use descriptive language to denote quality or the absence of quality as opposed to comparative or value laden language, e.g., “not as thorough as...” or “excellent.”

Examples of rubrics for authentic performance tasks and projects related to social studies can be found in McCollum (1994), McTighe and Wiggins (1999), SSCED (1999), and Wiggins and McTighe (1998). Additional examples also appear in each of the sample units found in this tool kit. An example of a simple rubric, involving three criteria and four score points, is shown in Figure 6. The rubric in Figure 6. was designed by Steven McCollum (1994) to evaluate the product resulting from a performance task that focused on the development of an employment advertisement for a historic person.

Figure 6.
Rubric-Employment Display

RUBRIC-EMPLOYMENT DISPLAY			
	Elements of a Display Ad	Accuracy	Presentation
Score Point 4	All required elements of a display ad are present	Completely accurate	Effective presentation of content and concepts
Score Point 3	Many of the required elements of a display ad are present	Accurate for the most part; minor errors do not detract from the overall response	Competent presentation of content and concepts with minor inaccuracies
Score Point 2	Some of the required elements of a display ad are present but with inaccuracies	Partially accurate; major errors of fact are present	Marginal presentation of content and concepts with major inaccuracies
Score Point 1	Required elements of a display are missing or muddled	Little or no accuracy	Random and sparse presentation of content and concepts

Rubrics work best for both the assessor and the learner if the score points are anchored with specific examples of products/performances. The reliability of scoring will improve substantially if assessors have a clear and specific example of a product/performance that is scored at a particular level along with the rationale for the score assigned. Likewise, learners will benefit from examples of products/performances at various score points. Such examples will provide learners with clear targets and expectations. These examples will also serve to help learners identify and understand different levels of quality.

Stage 3. Stage 3 involves the design team in planning learning activities and instruction. While many educators traditionally think of this stage first when designing units of instruction, the backward design process reserves this stage as the final part of the design process after the desired results of instruction have been identified and after the determination of acceptable evidence to judge whether the results were achieved and how well they were achieved. The backward design process, therefore, enables the individual designer or the design team to focus the design of learning activities and experiences on the targeted results of instruction.

The acronym **WHERE** is a Stage 3 design tool for the planning of learning experiences and activities offered by McTighe and Wiggins (1999, pp. 209-214). **WHERE** is based on research and classroom tested practice. The acronym is defined as follows:

- **W**here is the unit headed and what is the purpose of day-to-day work?
- **H**ook the students through engaging work that makes them more eager to explore key ideas.
- **E**xplore the subject in depth, equip students with required knowledge and skill to perform successfully on final tasks, and help students experience key ideas.
- **R**ethink with students the big ideas; students rehearse and revise their work.
- **E**valuate results and develop action plans through self-assessment of results.

This design tool was used in the planning of the sample units contained in the tool kit. You will see several examples of the use of **WHERE** in planning and sequencing the learning experiences and activities of units in a later section of the tool kit. An example of the use of **WHERE** is shown in **Figure 7**. The example, taken from an integrated social studies/science unit, originally appeared in McTighe and Wiggins (1999, p. 213).

Figure 7.
WHERE

	Questions for the Teacher	Responses from the Teacher
W	How will you help students know <i>where</i> they are headed and <i>why</i> (e.g., major assignments, performance tasks, and criteria by which the work will be judged)?	<ul style="list-style-type: none"> < Post essential questions on the bulletin board. < Review the rubric for the camp menu performance task and evaluate sample menus of previous years. < Print handouts that specify the performance requirements, deadlines, checklists, rubrics, and reference materials.
H	How will you <i>hook</i> students through engaging and thought-provoking experiences (e.g., issues, oddities, problems, and challenges) that point toward big ideas, essential questions, and performance tasks?	<ul style="list-style-type: none"> < Begin a unit with a problem-based learning mystery (e.g., the seafarer's disease [scurvy] that cleared up once fresh vegetables and fruits were eaten). < Challenge students to react to the statement, "If food is good for you, it must taste bad."
E	What events, real or simulated, can students <i>experience</i> to make the ideas and issues real? What learning activities will help students <i>explore</i> the big questions? What instructions are needed to <i>equip</i> students for the final performance?	<ul style="list-style-type: none"> < Explore such ideas as surveying the healthy eating habits of different ethnic groups; searching the Web for nutrition advice; and researching correlations between diet, school absence, and academic and athletic performance. < Equip students with skills in survey writing, oral interviews, and research, including searching on the Internet
R	How will you cause students to <i>reflect</i> and <i>rethink</i> , dig deeper into the core idea? How will you guide students in rehearsing, revising, and refining their work based on feedback and self-assessment?	<p>Ask students to work in groups to</p> <ul style="list-style-type: none"> < Evaluate different diets for nutritional balance (e.g. a hypothetical average diet and an exemplary diet). < Reflect on their family's eating and cooking habits. < Propose changes (if need) to their family's diet in light of their increased understanding of the elements of good nutrition.
E	How will students <i>exhibit</i> their understanding about their final performance and products? How will you guide them in <i>self-evaluation</i> to identify the strengths and weaknesses in their work and set future goals?	<ul style="list-style-type: none"> < Students self-assess their work on the key performance tasks (illustrated nutrition brochure and camp menu). < Students create a nutritional action plan for themselves and their family to promote healthy eating.

As the design team uses WHERE, they will find that it is a very effective tool in focusing attention on the learners and what they need to learn and do to achieve the enduring understandings that are the core of the unit?

The *Understanding by Design* process described in this section may seem cumbersome upon first reading and even more difficult upon the first attempt to use it. Those who attempt it for the first time should be reminded of the adage that most teachers have shared with their students over the years, “Everything that is worthwhile in life requires work.” The process is really quite simple: begin with the end in mind, identify evidence of quality products/ performances, and focus engaging learning experiences on the desired results. In reality, the work that is required in developing units of instruction using the *Understanding by Design* process is no more difficult or time consuming than traditional/conventional ways of developing units. The end result is considerably different, however: instructional units that are efficient and effective in producing deep understanding instead of units which result in little in-depth learning, or units that are “fun,” but result in little learning.

Understanding by Design: What do these terms mean?

This brief glossary is included to offer a quick review of some of the terms used in conjunction with *Understanding by Design*. Readers might also wish to consult this section as they examine the sample units included in a later section of the tool kit and as they initially engage in designing units using the *Understanding by Design* process. The definitions contained in this section are selected and adapted from the the Glossary contained in *The Understanding by Design Handbook* (McTighe and Wiggins, 1999, pp. 273-283).

Academic prompt: An assessment of academic content or skill with a response to a specific situation/topic.

Achievement target: A specific educational goal.

Authentic assessment task: A task designed to simulate or replicate important, real-world challenges, such as asking a student to use knowledge in contexts where the purposes, audiences, and situational variables are genuine.

Backward design: A process for designing a curriculum or unit by beginning with the end in mind and designing toward that end.

Big ideas: The core concepts, principles, theories, and processes that should serve as the focal point of curriculum, instruction, and assessment.

Concept: A mental construct represented by a word. Example: democracy, economic system.

Content standard: A goal statement that identifies the knowledge and skills to be learned in the content areas.

Criteria: The qualities that must be met for work to measure up to a content or performance standard.

Design: As a verb, means to “plan the form and structure” of something; as a noun, the “pattern or motif” of a work of art.

Enduring understandings: The important ideas or core processes that have lasting value beyond the classroom.

Essential question: A provocative question designed to engage student interest and guide inquiry into the important ideas in a field of study.

Facets of understanding: The six different kinds of understanding identified in *Understanding by Design*: explanation, interpretation, application, perspective, empathy, and self-knowledge.

Generalization: A statement that describes a relationship between and among concepts. Enduring understandings are often generalizations.

GRASPS: An acronym for, Goal, Role, Audience, Situation, Product or Performance, Standards for Success.

Performance standard: An established level of achievement, quality of performance, or degree of proficiency.

Performance task: A task that uses one's knowledge to effectively act or bring to fruition a complex product in which one's knowledge and expertise are revealed.

Portfolio: A representative collection of one's work.

Product: A tangible result of a performance and the processes that led to it.

Project: A complex set of intellectual challenges, typically occurring over a period of time. Projects usually involve student inquiry, culminating in student products and performances.

Reliability: In measurement and testing, it refers to the accuracy of a score. Is it sufficiently free of error? What is the likelihood that the score or grade would be constant if the same product/performance were re-scored by someone else.

Rubric: A criterion-based scoring guide that enables assessors to make reliable judgments about student work and enables students to self assess.

Template: A guide or framework for designers.

WHERE: Acronym for, **W**here is the work headed; **H**ook students through engaging and provocative entry points; **E**xplore the subject in depth and equip students with required knowledge and skill to perform successfully on final tasks; **R**ethink with students the ideas and answers as students rehearse and revise; and **E**valuate results and develop action plans through self-assessment of results.

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