

Understanding By Design

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The rationale behind Understanding by Design

WHY UBD?

Assumptions

- Teachers are designers.
- Teachers should be mindful of their audience.
- Standards inform and shape our work, but should not “covered” at the expense of true understanding.
- All the methods and materials we use should be by a clear conception of the vision of the desired results.
- Students have not achieved significant learning if they do not come away with Understanding.

The Twin-Sins of traditional design

Hands-on without minds-on

- Engaging activities that only “accidentally lead” to insight or achievement.
- Teachers who think their job is to engage and thus engagement equates learning instead of seeing that learning comes from considering the meaning of the activity.

Coverage

- March through a textbook or curriculum page by page to “traverse all the factual material within a prescribed time.”
- Just because you go over every standard in class, it does not mean that students understand the overall meaning of your subject or curriculum.

Elements of UBD

USING THE UBD TEMPLATE

Traditional Unit Plan

A Social Studies Unit

Topic

Topic: Westward Movement and Pioneer Life
Social Studies—3rd Grade

Activities

1. Read textbook section—"Life on the Prairie." Answer the end-of-chapter questions.
2. Read and discuss *Sarah Plain and Tall*. Complete a word-search puzzle of pioneer vocabulary terms from the story.
3. Create a pioneer-life memory box with artifacts that reflect what life might be like for a child traveling west or living on the prairie.
4. Pioneer Day activities: Dress in pioneer clothes and complete the learning stations.
 - a. Churn butter
 - b. Play 19th-century game
 - c. Send letter home with sealing wax
 - d. Play "dress the pioneer" computer game
 - e. Make a corn husk doll
 - f. Quilting
 - g. Tin punching

Assessments

1. Quiz on pioneer vocabulary terms from *Sarah Plain and Tall*
2. Answers to end-of-chapter questions on pioneer life
3. Show and tell for memory-box contents
4. Completion of seven learning stations during Pioneer Day
5. Student reflections on the unit

Activity-Oriented Design (Before Backward Design)

Stage 1—Desired Results

Established Goals:

Topic: *Westward Movement and Pioneer Life*

G

Understandings:

Students will understand that . . .

U

Essential Questions:

Q

Students will know . . .

- Factual information about prairie life
- Pioneer vocabulary terms
- The story, *Sarah Plain and Tall*

K

Students will be able to . . .

S

Stage 2—Assessment Evidence

Performance Tasks:

T

Other Evidence:

OE

- Show and tell for the memory box and its contents: What would you put in it? Why?
- Quiz on pioneer vocabulary from *Sarah Plain and Tall*
- Answers to factual questions on *Sarah Plain and Tall* and from the textbook chapter
- Written unit reflection

Stage 3—Learning Plan

Learning Activities:

- Read textbook section "Life on the Prairie." Answer the end-of-chapter questions.
- Read *Sarah Plain and Tall*. Complete word search on pioneer vocabulary.
- Create a pioneer life trunk with artifacts you might take on a journey to a new life.
- Prairie Day activities:
 1. Churn butter
 2. Play a 19th-century game
 3. Seal a letter with sealing wax
 4. Play "dress the pioneer" computer game
 5. Make a corn husk doll
 6. Quilting
 7. Tin punching

L

Same lesson designed
with UBD template

After Backward Design

Stage 1—Desired Results

Established Goals:

2D—Explain the lure of the West while comparing the illusions of migrants with the reality of the frontier.

5A—Demonstrate understanding of the movements of large groups of people in the United States now and long ago.

Source: National Standards for United States History

Understandings:

Students will understand that . . .

- Many pioneers had naive ideas about the opportunities and difficulties of moving West.
- People move for a variety of reasons—for new economic opportunities, greater freedoms, or to flee something.
- Successful pioneers rely on courage, ingenuity, and collaboration to overcome hardships and challenges.

Students will know . . .

- Key facts about the westward movement and pioneer life on the prairie
- Pioneer vocabulary terms
- Basic geography (i.e., the travel routes of pioneers and location of their settlements)

Essential Questions:

- Why do people move? Why did the pioneers leave their homes to head west?
- How do geography and topography affect travel and settlement?
- Why did some pioneers survive and prosper while others did not?
- What is a pioneer? What is “pioneer spirit”?

Students will be able to . . .

- Recognize, define, and use pioneer vocabulary in context
- Use research skills (with guidance) to find out about life on the wagon train and prairie
- Express their findings orally and in writing

Stage 2—Assessment Evidence

Performance Tasks:

- Create a museum display, including artifacts, pictures, and diary entries, depicting a week in the life of a family of settlers living on the prairie. (What common misunderstandings do folks today have about prairie life and westward settlement?)
- Write one letter a day (each representing a month of travel) to a friend “back east” describing your life on the wagon train and the prairie. Tell about your hopes and dreams, then explain what life on the frontier was really like. (Students may also draw pictures and explain orally.)

Other Evidence:

- Oral or written response to one of the Essential Questions
- Drawings showing hardships of pioneer life
- Test on facts about westward expansion, life on the prairie, and basic geography
- Using pioneer vocabulary in context
- Explanation of the memory box contents

Stage 3—Learning Plan

Learning Activities:

- Use K-W-L to assess students’ prior knowledge and identify learning goals for the unit.
- Revise Prairie Day activities (e.g., substitute Oregon Trail 2 computer simulation for “dress the pioneer” and ask for journal entries while the simulation is played).
- Include other fictional readings linked to the identified content standards or understandings (e.g., *Little House on the Prairie*, *Buster in the West*).
- Create a timeline map of a pioneer family’s journey west.
- Add nonfiction sources to accommodate various reading levels, such as *Life on the Oregon Trail*, *Diaries of Pioneer Women and Dakota Dugout*. Guide students in using a variety of resources to research the period.
- Review the scoring rubrics for memory box, museum display, letters, and journals before students begin the performance tasks. Include opportunities for students to study examples of these products.

1-Page Template

Stage 1—Desired Results

Established Goals:

G

Understandings:

Students will understand that . . .

U

Essential Questions:

EQ

Students will know . . .

K

Students will be able to . . .

S

Stage 2—Assessment Evidence

Performance Tasks:

T

Other Evidence:

OE

Stage 3—Learning Plan

Learning Activities:

L

How to create a unit using UBD.

THE THREE STAGES OF UBD

Stages

Stage 1 – Identify desired results

Stage 2 – Determine acceptable evidence

Stage 3 – Plan learning experiences and instruction

Stage 1

- Established Goals
- Understandings
- Essential Questions
- Objectives: Know and Do

Established Goals

- National, state, local, or professional standards; course or program objectives; and district learner outcomes.
- This goal is the target of the design.
- The entire lesson is derived by “unpacking” this goal or standard.

Understanding

- “To grasp the meaning of a thing, an event, or a situation is to see it in its relations to other things: to see how it operates or functions, what consequences follow from it, what causes it, what uses it can be put to.” – Dewey

Knowledge vs. Understanding

Knowledge

- The facts
- A body of coherent facts
- Verifiable claims
- Right or Wrong
- I know something to be true
- I respond on cue with what I know

Understanding

- The meaning of the facts
- The “theory” that provides coherence and meaning to those facts.
- Fallible, in-process theories
- A matter of degree or sophistication
- I understand why it is, what makes it knowledge
- I judge when to and when not to use what I know

The six facets of understanding

1. Explanation
2. Interpretation
3. Application
4. Perspective
5. Empathy
6. Self-knowledge

Essential Questions

Open

- Overarching – deep questions that even experts in the field are trying to answer.
- Topical – stimulate inquiry and deepen understanding of important ideas.

Guiding

- Overarching – cut across the unit, course, and subject.
- Topical – unit specific questions

Examples

Overarching

- In what ways does art reflect, as well as shape culture?
- From whose perspective is this, and what difference does it make?
- To what extent do we need checks and balances on government power?
- Are there useful ways for distinguishing inherent error from avoidable error in the sciences?

Topical

- What do ceremonial masks reveal about the Inca culture?
- How did Native Americans view the “settlement” of the West?
- To what extent does separation of powers cause deadlock in the U.S. government?
- Is there are a greater margin of error in this experiment than the last one?

Essential Questions

Figure 5.2

An Essential Question Chart

Intent	Scope	
	Overarching	Topical
<p><i>Open:</i> To challenge students to think more deeply and creatively about important recurring and unsettled issues.</p> <p>Teachers pose these arguable questions as a means of engaging students in thinking like experts in the field. No definitive answer is expected.</p>	<p>These are broad and deep questions that remain open and alive in the discipline—perhaps forever. They cut across unit, course, and (sometimes) subject boundaries.</p> <ul style="list-style-type: none"> • To what extent is U.S. history a history of progress? What is “progress”? • To what extent is DNA destiny? • Who is a true friend? 	<p>These questions stimulate inquiry and deepen understanding of important ideas within the unit. It is not expected that they will be answered by unit’s end.</p> <ul style="list-style-type: none"> • How might Congress have better protected minority rights in the 1950s and 1960s? • Should we require DNA samples from every convicted criminal? • Should Frog have lied to Toad?
<p><i>Guiding:</i> To guide student inquiry toward a deeper understanding of a big idea.</p> <p>Teachers pose these questions as a means of uncovering desired understandings. Students construct meaning as they wrestle with the question.</p>	<p>These are general questions that cut across unit, course, and subject boundaries but that yield one or more desired understandings.</p> <ul style="list-style-type: none"> • How much progress in civil rights has the United States made since the founding of the country? • How do recent developments in genetics affect the nature/nurture argument? • What are the signs of a “fair weather” friend? 	<p>These are unit-specific questions that converge toward one or a few settled understandings of important ideas.</p> <ul style="list-style-type: none"> • What were the defining moments of the civil rights movement? • How is reliability ensured in DNA testing? • In what ways was Frog acting like a friend in the story?

Know and Do

- May be differentiated based on readiness level
- Facts and skills that support understanding.
- Typically what state exams require of students.

Examples

Know

- Key terms – protein, fat, calorie, carb, cholesterol
- Types of foods in each group and their nutritional values
- The USDA Food Pyramid guidelines
- Variables influencing nutritional needs
- Specific health problems caused by poor nutrition

Do

- Read and interpret nutrition information on food labels
- Analyze diets for nutritional value
- Plan balanced diets for themselves and others

Assessment Evidence

STAGE 2

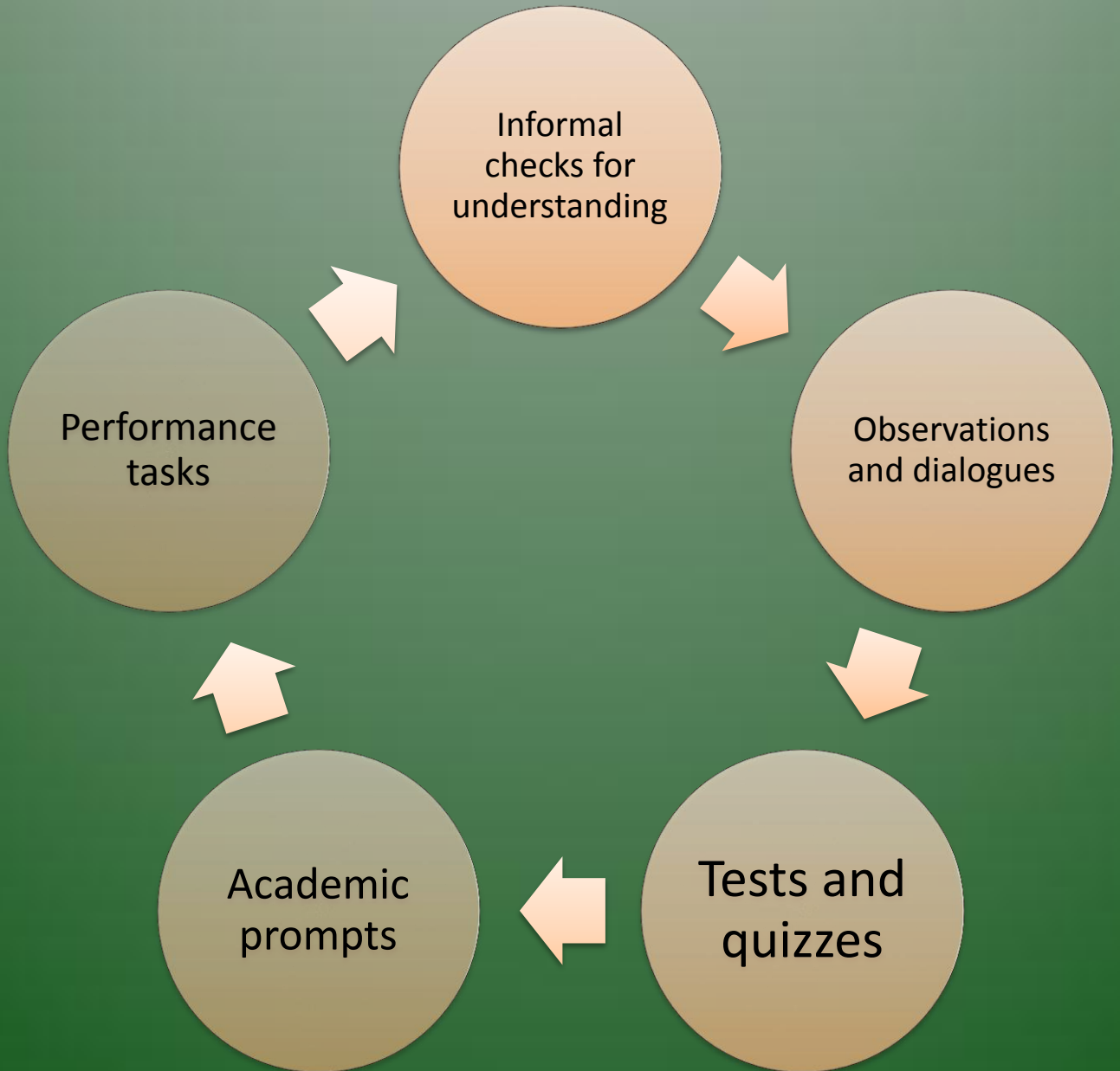
Think like an assessor

- What would be sufficient and revealing evidence of understanding?
- Given the goals, what performance tasks must anchor the unit and focus the instructional work?
- Against what criteria will we appropriately consider work and assess levels of quality?
- Did the assessments reveal and distinguish those who really understood from those who only seemed to? Am I clear on the reasons behind learner mistakes?

Difficulties

- Our natural instinct is to design our activities then plan assessment based on those activities.
- Often, when we design our activities first, they don't align with our assessments because there is not a sense of design which aligns learning goals, assessments, and activities. Doing it the right way is more difficult, requires more time, and it requires more thought.
- Some activities we've always done may have to fall by the wayside.

Continuum of Assessments



Academic Prompts

Open-ended questions or problems that require the student to think critically, not just recall knowledge, and to prepare a specific academic response, product, or performance.

- Open with no best answer
- Ill-structured requiring a strategy
- Analysis, synthesis, and evaluation
- Involve questions typically only asked of students in school

Performance Tasks

Complex challenges that mirror the issues and problems faced by adults. Ranging in length from short-term tasks to long-term, multi-staged projects, they yield one more tangible products and performances.

- Involve a real or simulated setting
- Require an identified audience
- Allow for greater personalization

Use the 6 facets of understanding to build assessments

Facet 1: Can explain

Facet 2: Can interpret

Facet 3: Can apply

Facet 4: Sees perspective

Facet 5: Demonstrates empathy

Facet 6: Reveals self-knowledge

Using DI in assessment

Consider “photo albums” instead of “snapshots.”

- Extended written products
- Visual products
- Oral performances
- Demonstrations
- Long-term “authentic” projects
- Portfolios
- Reflective journals
- Informal, ongoing observations of students
- Formal observations using indicators
- Student self-assessment
- Peer reviews and peer response groups

Evidence source 1

Role-play a store cashier – demonstrate the ability to make change quickly and accurately

Evidence source 2

You are a shopping helper for a mail-order company. Pretend to purchase various back-to-school wardrobes from mail-order catalogs while staying within a budget.

Content standard example:
Ability to solve problems from everyday life, develop number sense, select and apply various numerical operations

Worksheets and quizzes on addition and subtraction

Evidence source 3

Explain why a set of answers is based on various mistakes (misconceptions selected by the teacher) about adding and subtracting

Evidence source 4

Learning Plan

STAGE 3

The work

- Should be designed in a way to be reactive to students' needs and proactive based on your knowledge of your students.
- Should be in line with your assessments which are in line with your learning goals.
- Should promote understanding, knowledge, skill, student interest, and excellence.
- Should be coherent learning that will evoke and develop the desired understandings, knowledge, and skill; promote interest; and make excellent performance.

WHERE TO

Where is it going?

Hook the students

Explore and equip

Rethink and revise

Exhibit and evaluate

Tailor to student needs, interests,
and styles.

Organize for maximum engagement
and effectiveness.

Implementation

FINAL CONSIDERATIONS

Advice

- Take a unit plan you already have and put it in a UBD format.
- Work with a colleague on designing a unit together.
- Don't expect UBD to get easier; the more you do it, the more thoughtful you will be in your design (Picasso's last painting was probably more difficult than his first).
- Don't lose sight of what matters: student learning is why we do what we do.

References

- Tomlinson, C. A., & McTighe, J. (2006). *Differentiated instruction and understanding by design*. Alexandria, VA: ASCD.
- Wiggins, G., & McTighe, J. (2005). *Understanding by design* (2nd ed.). Alexandria, VA: ASCD.
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