# Understanding by Design

*The following information has been adapted for Illinois teachers of Agriculture, Food, and Natural Resources. Original guides are publicly accessible from the from a Vanderbilt University Center for Teaching (CFT) on the CFT Teacher Guides web page.*

**What is Understanding by Design?**
*Understanding by Design* (commonly UbD) is a book written by Grant Wiggins and Jay McTighe that offers a framework for designing courses and content units using the process of backward design. UbD explains that teachers commonly approach curricular design in one of two misguided ways. The first could be characterized as the "activity" approach, meaning instructional planning built by first deciding which activities would be most engaging or enjoyable for students. The second could be characterized as the "coverage" approach, meaning instructional planning built by first determining which information is needing to be "covered."

In contrast to both of these methods, the backward design approach described in UbD first considers the goals or objectives of the course. Objectives must embody the knowledge and skills intended to be gained by students during the course or curricular experience. Once objectives are established, teachers must then define acceptable and appropriate evidence of achievement for each objective. This evidence serves as the unit assessment, which then enables a teacher to design and/or select activities and strategies to teach the course content. This process is considered more intentional than the traditional methods of curricular design.

**What are the benefits of using backward design?**
Wiggins and McTighe demonstrate in UbD that backward design is focused on student learning and understanding. When teachers are designing lessons, units, and courses, however, they often focus on the activities and instructional content. Therefore, it could be argued that teachers traditionally focus more on teaching rather than learning. From this perspective, Wiggins and McTighe establish the commonly held misconception the learning is the activity when learning is truly derived from a careful consideration and reflection on of the meaning of the activity.

Backward design is beneficial to AFNR teachers because it requires intentionality in the design process. For this reason, teachers will have a more obvious and logical experience in developing assessments and instructional activities as both are tied directly to clearly define learning goals. This also will enable the teacher to adapt learning without sacrificing "coverage" as required learning is not directly tied to the activities or instructional content but rather to a clearly defined knowledge or skills that can be achieved a variety of ways. This clarity is also transferred to students when teachers take time at the beginning of a course, unit, or lesson to provide a roadmap of the instructional plan. Furthermore, backward design eliminates the possibility of busy work, meaning doing certain activities just for the sake of doing them.

While successfully engaging students in coursework is a laudable achievement, effective teaching also ensures students have the knowledge and skills needed to achieve true "understanding." The term "understanding" is also more clearly defined in UbD.

**The Three Stages of UbD**

The backward design process of UbD can be characterized into three stages. They are:

1. Identify desired results.
2. Determine acceptable evidence.
3. Plan learning experiences and instruction.

*Stage 1. Identify Desired Results*

The instructor must first consider the learning goals of the lesson, unit, or course. Wiggins and McTighe provide a useful process of three succinct questions to help teachers focus on the most valuable understandings. Those questions are:

1. What should participants hear, read, view, explore, or otherwise encounter?
   This information is that which students should be exposed to during the lesson, unit, or course meaning that students are at least familiar with the concept, idea, or facts. This information is the lowest priority.

2. What knowledge and skills should participants master?
   The knowledge and skills referenced here might better be phrased as what students should know and be able to do following the lesson, unit, or course. The information in this stage could be the facts, concepts, principles, processes, strategies, and methods students should know when the leave the learning module. This information is of moderate priority.

3. What are big ideas and important understandings participants should retain?
   The big ideas and important understandings, called “enduring understandings” in UbD, are those ideas that teachers want students to remember for an extended period of time after they have completed the lesson, unit or course. This information is of top priority.

If used in the order they are listed, a teacher can use these questions to take a progressively more important focus on those ideas that are the most critically important. Once ideas have been identified in the third question, they can be the basis for learning goals specific to the lesson, unit, or course.

*Stage 2. Determine Acceptable Evidence*

The instructor must now consider the assessments and performance tasks students will complete in order to demonstrate evidence of understanding and learning. Because clearly defined learning goals were established in the first stage, teachers can decide what evidence students can provide to show they have achieved (in the case of summative, or final, assessments) or have started to attain (in the case of formative assessments) the intended learning outcomes. Teachers should consider the following questions in this stage:

1. How will I know if students have achieved the desired results?

2. What will I accept as evidence of student understanding and proficiency?

Teachers should consider a wide variety of assessment strategies to ensure that the method of assessment most appropriately aligns to the learning goal. Sometimes assessments do not align to the desired learning goal, and both students and teachers may experience frustration if the chosen method of assessment unintentionally prevents the learner from demonstrating their growth in knowledge and skills.

*Stage 3. Plan Learning Experiences and Instruction*

The final stage of backward design is the point at which teachers consider how they will actually “teach” the content knowledge and relevant skills needed to perform well on the chosen assessment. The following questions should be considered by teachers when choosing teaching methods:

1. What enabling knowledge (meaning facts, concepts, and principles) and relevant skills (meaning processes, procedures, and strategies) will students need in order to perform effectively on the chosen assessment and achieve the desired results?

2. What activities or experiences will equip students with the knowledge and skills needed?

3. What will need to be taught and coached, and how should it best be delivered in light of the performance goals?

4. What materials and resources are best suited to accomplish these goals?

It is important that teachers utilize a wide variety of instructional strategies when considering these questions. If the method of teaching is not properly aligned with the chosen assessment strategy, students may not be able to demonstrate the knowledge or skills they have gained.

**The UbD Template**

Wiggins and McTighe provide a template to use in successfully implementing the three stages of backward design. UbD Template 2.0 is free and publicly available on McTighe's public web page. The older version (UbD Template 1.0) is also available online. See **Figure 1** to view the template with embedded descriptions of each component.

**Figure 1.** UbD Template 2.0 with Descriptions

<table>
<tr><th colspan="3">Stage 1 – Desired Results</th></tr>
<tr><td rowspan="5">ESTABLISHED GOALS<br><br>The enduring understandings and learning goals of the lesson, unit, or course.</td><td colspan="2">Transfer</td></tr>
<tr><td colspan="2">Students will be able to independently use their learning to…<br><br>Refers to how students will transfer the knowledge gained from the lesson, unit, or course and apply it outside of the context of the course.</td></tr>
<tr><td colspan="2">Meaning</td></tr>
<tr><td>UNDERSTANDINGS<br>Students will understand that…<br><br>Refers to the big ideas and specific understandings students will have when the complete the lesson, unit, or course.</td><td>ESSENTIAL QUESTIONS<br><br>Refers to the provocative questions that foster inquiry, understanding, and transfer of learning. These questions typically frame the lesson, unit, or course and are often revisited. If students attain the established goals, they should be able to answer the essential question(s).</td></tr>
<tr><td colspan="2">Acquisition</td></tr>
<tr><td>Students will know…<br><br>Refers to the key knowledge students will acquire from the lesson, unit, or course.</td><td>Students will be skilled at…<br><br>Refers to the key skills students will acquire from the lesson, unit, or course.</td></tr>
<tr><th colspan="3">Stage 2 – Evidence and Assessment</th></tr>
<tr><td>Evaluative Criteria</td><td colspan="2">Assessment Evidence</td></tr>
<tr><td rowspan="2">Refers to the various types of criteria that students will be evaluated on.</td><td colspan="2">PERFORMANCE TASK(S):<br><br>Refers to the authentic performance task(s) that students will complete to demonstrate the desired understandings or demonstrate they have attained the goals. The performance task(s) are typically larger assessments that coalesce various concepts and understandings like large projects or papers.</td></tr>
<tr><td colspan="2">OTHER EVIDENCE:<br><br>Refers to other types of evidence that will show if students have demonstrated achievement of the desired results. This includes quizzes, tests, homework, etc. This is also a good point to consider incorporating self-assessments and student reflections.</td></tr>
<tr><th colspan="3">Stage 3 – Learning Plan</th></tr>
<tr><td colspan="3">Summary of Key Learning Events and Instruction<br><br>This stage encompasses the individual learning activities and instructional strategies that will be employed. This includes lectures, discussions, problem-solving sessions, etc.</td></tr>
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**Implementing UbD in the AFNR Classroom**
Teachers and administrators who use the UbD backward design process cite both its strengths and weaknesses. Its primary strength is that it takes an obvious, clear, and intentional approach to curricular design. It's primary weakness is the time required for teachers and administrators to implement the approach.

As a teacher in AFNR, your time is consumed by many program components beyond the many lessons, units, and courses that make up your classroom curriculum. So, despite its clear benefits and common-sense approach, the question of *how* to implement UbD with limited time is still present. With this in mind, there are strategies to overcome the time barrier in implementing UbD in your classroom. They are:

- **Seek and select prepared curricular resources that use the UbD backward design process.**
  UbD has been adopted by many curriculum development organizations. Understanding the UbD process and seeking out those resources that have been developed using UbD is a quick, effective way to meet this goal. However, using highly developed curricular resources designed with UbD principles is not a substitute for teacher planning and preparation. Even the best resources still require an effective educator to review and plan in the context of a specific course, classroom, and school. Great AFNR teachers take those resources and, by understanding the UbD process, implement prepared curriculum to meet the needs and intentions of their specific classroom.

- **Implement UbD in small, manageable segments over a longer period of time.**
  A total overhaul or comprehensive review of your entire curriculum is likely not reasonable or feasible based on your personal schedule or additional FFA and Supervised Agricultural Experience responsibilities as an AFNR teacher. However, that doesn't mean UbD can't be implemented in smaller segments. Teachers using this strategy should choose one small segment, perhaps a single course or unit, to begin phasing in backward design. In UbD, Wiggins and McTighe explain that teachers often select a familiar unit or course or alternatively first try implementing backward design with a new unit or course.

- **Collaborate with other teachers to develop instructional plans with UbD.**
  Working with others, be it AFNR teachers in your area or other teachers at your school with concurrent courses (e.g., science, math, etc.), can be a powerful way to implement UbD. If you are working with a small professional learning community, the following steps may prove beneficial:
  1. For a study group to read and discuss selected sections of UbD.
  2. View and discuss selected videos on *What is Understanding?* and *Using Backward Design.*
  3. Select the targeted lesson, unit, or course of interest.
  4. Work in collaboration to complete the three stages of backward design.
  5. Assign peer groups to review work before advancing in the process.
  6. Share best-practices, resources, and plans at the conclusion of the process.

**What are some additional resources relating to this topic?**
Explore the resources below for more information on UbD.


- Sample, Mark. (2011). *Teaching for Enduring Understanding*. Retrieved from http://www.chronicle.com/blogs/profhacker/teaching-for-enduring-understanding/35243.

- Wiggins, Grant, and McTighe, Jay. (1998). Backward Design. In *Understanding by Design* (pp. 13-34). ASCD.