WHAT IS ‘BACKWARD DESIGN’?

In *Understanding by Design*, Wiggins and McTighe argue that backward design is focused primarily on student learning and understanding.

When teachers are designing lessons, units, or courses, they often focus on the activities and instruction rather than the outputs of the instruction. Therefore, teachers often focus more on teaching rather than learning.

This perspective can lead to the misconception that learning is the activity when, in fact, learning is derived from a careful consideration of the meaning of the activity.

You can find more information about Understanding by Design [HERE](#).
3 STAGES OF BACKWARD DESIGN

IDENTIFY
Identify desired results

DETERMINE
Determine acceptable evidence

PLAN
Plan learning experiences and instruction

Wiggins & McTighe, 2002
Identify desired results

- What specific insights about big ideas do we want students to leave with?
- What essential questions will frame the teaching and learning, pointing toward key issues and ideas, and suggest meaningful and provocative inquiry into content?
- What should students know, understand and be able to do?
- What subject competencies are addressed explicitly by the unit?
• What are key complex performance tasks indicative of understanding?
• What other evidence will be collected to build the case for understanding, knowledge, and skill?
• What rubrics will be used to assess complex performance?

Keep in mind that you really understand when you can:
• explain, connect, systematize, predict
• show meaning or importance
• apply or adapt it to novel situations
• see it as one plausible perspective among others, question its assumptions
• see it as its author/speaker saw it
• avoid and point out common misconceptions, biases, or simplistic views

Wiggins & McTighe, 2002
<table>
<thead>
<tr>
<th>Where</th>
<th>Where are students headed?</th>
</tr>
</thead>
<tbody>
<tr>
<td>How</td>
<td>How will the student be ‘hooked’?</td>
</tr>
<tr>
<td>What</td>
<td>What opportunities will there be to be equipped, and to experience and explore key ideas?</td>
</tr>
<tr>
<td>Where</td>
<td>What will provide opportunities to rethink, rehearse, refine and revise?</td>
</tr>
<tr>
<td>E</td>
<td>How will students evaluate their work?</td>
</tr>
<tr>
<td>T</td>
<td>How will the work be tailored to individual needs, interests, styles?</td>
</tr>
<tr>
<td>O</td>
<td>How will the work be organized for maximal engagement and effectiveness?</td>
</tr>
</tbody>
</table>

Wiggins & McTighe, 2002
# What is the difference between knowledge and understanding?

<table>
<thead>
<tr>
<th>Knowledge</th>
<th>Understanding</th>
</tr>
</thead>
<tbody>
<tr>
<td>• A body of coherent facts</td>
<td>• The meaning of the facts</td>
</tr>
<tr>
<td>• Verifiable claims</td>
<td>• The “theory” that provides coherence and meaning to those facts</td>
</tr>
<tr>
<td>• Right or wrong</td>
<td>• Fallible, in-process theories</td>
</tr>
<tr>
<td>• I know something to be true</td>
<td>• A matter of degree or sophistication</td>
</tr>
<tr>
<td>• I respond on cue with what I know</td>
<td>• I understand why it is judge when to and when not to use what I know</td>
</tr>
</tbody>
</table>
BIG IDEAS
A SIMPLIFIED VIEW

- What are we teaching/learning?
- How are we teaching/learning it?
- Why does the learning matter?

Wiggins & McTighe, 2002
WHAT IS YOUR BIG IDEA?

Without BIG IDEAS, students are left with forgettable fragments of knowledge. BIG IDEAS should be at the core of the subject. BIG IDEAS are:

- Broad & abstract
- Represented by one or two words
- Universal in application
- Timeless
- Provide a conceptual lens
- Have great transfer value

Wiggins & McTighe, 2002
• Does it have many layers and nuances, not obvious to the naïve or inexperienced person?
• Can it yield great depth and breadth of insight into the subject? Can it be used throughout K-graduation?
• Do you have to dig deep to really understand its subtle meanings and implications even if anyone can have a surface grasp of it?
• Is it (therefore) prone to misunderstanding as well as disagreement?
• Are you likely to change your mind about its meaning and importance over a lifetime?
• Does it reflect the core ideas as judged by experts?
WHAT ARE ESSENTIAL QUESTIONS?

- A question that lies at the heart of a subject or a curriculum and one that promotes inquiry and the discovery of a subject
  - These are questions which touch our hearts and souls.
  - They are central to our lives.
  - They help define what it means to be human.

Wiggins & McTighe, 2002
ESSENTIAL QUESTIONS SHOULD...

• Cause genuine inquiry into the big ideas & core content
• Provoke deep thought, lively discussion, sustained inquiry, & new understandings as well as more questions
• Require students to consider alternatives, weigh evidence, support their ideas & justify their answers
• Stimulate

Wiggins & McTighe, 2002
ESSENTIAL QUESTIONS:

- Have no obvious “right” answer
- Raise other important questions, often across subject-area boundaries
- Address a concept
- Raise other important questions
- Naturally and appropriately recur
- Stimulate critical, ongoing rethinking
- Are framed to provoke and sustain student interest

Wiggins & McTighe, 2002
ESSENTIAL QUESTIONS

Don’t have one obvious answer

• Why is winter colder than summer?

Raise other important question often across disciplines

• What can be done to reduce CO2 emissions?

Address philosophical or conceptual foundations of a discipline

• In nature, do only the strong survive?

Recur naturally and are important enough to show up periodically

• What evidence of patterns of change is illustrated within … (the rock cycle, seasons, adaptation)?

Are framed to provoke student interest

• Why or how do we see color?
EXAMPLES OF ESSENTIAL QUESTIONS

• What is a true friend?
• What makes an artist amazing?
• In what sense is the body a system?
• What is the law of nature, and how is it like or unlike social laws?
• To what extent is US history a history of progress?
• In what ways do diet and exercise affect health?
EXAMPLES OF ESSENTIAL QUESTIONS

• Must heroes be flawless?
• How do effective writers hook and hold their readers?
• How do cultures affect one another?
• Does practice make perfect?
• What is healthy eating? Healthy living?
• How and when do we use mathematics?
• How does something acquire value?

Wiggins & McTighe, 2002
FACETS OF UNDERSTANDING
FACETS UNDERSTANDINGS

Explanation

Self Knowledge

Interpretation

Empathy

Application

Perspective

Wiggins & McTighe, 2002
<table>
<thead>
<tr>
<th><strong>When we truly understand, we...</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Can explain</strong></td>
<td>via generalizations or principles, providing justified &amp; systematic accounts of phenomena, facts &amp; data; make insightful connections &amp; provide illuminating examples or illustrations</td>
</tr>
<tr>
<td><strong>Can interpret</strong></td>
<td>tell meaningful stories; offer apt translations; provide a revealing historical or personal dimension to ideas &amp; events; make the object of understanding personal or accessible through images, anecdotes, analogies &amp; models</td>
</tr>
<tr>
<td><strong>Can apply</strong></td>
<td>effectively use &amp; adapt what we know in diverse &amp; real contexts – we can “do” the subject</td>
</tr>
<tr>
<td><strong>Have perspective</strong></td>
<td>see &amp; hear points of view through critical eyes &amp; ears; see the big picture</td>
</tr>
<tr>
<td><strong>Can empathize</strong></td>
<td>find value in what others might find odd, alien or implausible; perceive sensitively on the basis of prior direct experiences</td>
</tr>
<tr>
<td><strong>Have self-knowledge</strong></td>
<td>show metacognitive awareness; perceive the personal style, prejudices, projections, &amp; habits of mind that both shape &amp; impede our own understanding; are aware of what we do not understand; reflect on the meaning of learning &amp; experience</td>
</tr>
<tr>
<td>Six Facets</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Explanation</td>
<td>To ensure students understand why an answer or approach is the right one. Students explain or justify their responses or justify their course of action.</td>
</tr>
<tr>
<td>Interpretation</td>
<td>To ensure students avoid the pitfall of looking for the &quot;right answer&quot; and demand answers that are principled...students are able to encompass as many salient facts and points of view as possible.</td>
</tr>
<tr>
<td>Application</td>
<td>To ensure students' key performances are conscious and explicit reflection, self-assessment, and self-adjustment, with reasoning made evident. Authentic assessment requires a real or simulated audience, purpose, setting, and options for personalizing the work, realistic constraints, and “background noise.”</td>
</tr>
<tr>
<td>Perspective</td>
<td>To ensure students know the importance or significance of an idea and to grasp its importance or unimportance. Encourage students to step back and ask, “What of it?”  “Of what value is this knowledge?” “How important is this idea?” “What does this idea enable us to do that is important?”</td>
</tr>
<tr>
<td>Empathy</td>
<td>To ensure students develop the ability to see the world from different viewpoints in order to understand the diversity of thought and feeling in the world.</td>
</tr>
<tr>
<td>Self-Knowledge</td>
<td>To ensure students are deeply aware of the boundaries of their own and others’ understanding; able to recognize their own prejudices and projections; has integrity – able and willing to act on what one understands.</td>
</tr>
</tbody>
</table>

Explaination

Meaning:
Sophisticated & apt theories & illustrations, which provide knowledgeable & justified accounts of events

Key questions:
Why is this so? What explains such events? What accounts for such action? How can we prove it? To what is this connected? What is an illustrative example? How does this work? What is implied?

Revealed through performances & products that clearly, thoroughly & instructively explain how things work, what they imply, where they connect & why they happened

Includes knowledge of not just facts, but inference about how & why
Example: We can state the Pythagorean theorem but what is the proof? On what axioms does it depend? What follows from the theorem? Why is the theorem important?

Common verbs:
Demonstrate, derive, design, exhibit, express, support, justify, generalize, model, predict, verify, prove, show & substantiate

Wiggins & McTighe, 2002
Interpretation

Meaning:
Interpretations, narratives, & translations that provide meaning

Key questions:
What does it mean? Why does it matter? What does it illustrate or intimate in human experience? How does it relate to me? What makes sense?

The meanings & patterns we ascribe to all events, data, or experience transform our understanding & perception of particular facts
Example: Martin Luther King's *I have a dream* speech

All interpretations are bound by the personal, social, cultural & historical contexts in which they arise.

Common verbs: create analogies, critique, document, evaluate, illustrate. Judge. Provide metaphors, read between the lines, represent, tell a story of, translate

Wiggins & McTighe, 2002
Meaning:
Ability to use knowledge effectively in new situations & diverse realistic contexts

Key questions:
How & where can we use this knowledge, skill or process? How should my thinking & action be modified to meet the demands of this particular situation?

Common verbs: adapt, build, create, decide, invent, perform, produce, propose, solve, use

Wiggins & McTighe, 2002
Perspective

Meaning:
Critical & insightful points of view

Key questions:
From whose point of view? From which vantage point? What is assumed or tacit that needs to be made explicit & considered? What is justified & warranted? Is there adequate evidence? Is it reasonable? What are the strengths & weaknesses of the idea? What are its limits? So what?

By shifting perspective & casting familiar ideas in a new light, one can create new theories, stories & applications

Includes opportunities for students to confront alternative theories & diverse points of view regarding the big ideas

Common verbs: analyze, argue, compare, contrast, criticize, infer

Wiggins & McTighe, 2002
Empathy

Meaning:
The ability to get inside another person's feelings & worldview

Key questions:
How does it seem to you? What do they see that I don’t? What do I need to experience if I am to understand? What was the person feeling, thinking, seeing and trying to make me feel and sense?

Involves getting beyond what is odd, alien and seemingly weird opinions or people to find out what is meaningful in them

Common verbs: be like, be open to, believe, consider, imagine, relate, role play

Wiggins & McTighe, 2002
Self-knowledge

**Meaning:** The ability to get inside another person’s feelings & worldview

**Key questions:** How does it seem to you? What do they see that I don’t? What do I need to experience if I am to understand? What was the person feeling, thinking, seeing and trying to make me feel and sense?

Requires that we self-consciously question our ways of seeing the world if we are to become more understanding – better able to see beyond ourselves

**Common verbs:** be aware of, realize, recognize, reflect, self-assess

Wiggins & McTighe, 2002
FORMATIVE & SUMMATIVE ASSESSMENT
**Formative**
Assessment **FOR** learning
Assessment **AS** learning

**During Instruction**
Lesson Plans
Learning Activities

**Summative**
Assessment **OF** learning

**End of Instruction**
Unit Tests
Major Project

**During Instruction**
Give specific feedback (written or oral) to students concerning strengths and weaknesses

**Summative**
Has the student 'mastered' the learning task? To what degree?

Typically comprehensive
Higher stakes
Marks, grades assigned
Assessment FOR Learning
• assessment for the purpose of greater learning achievement.
• student’s achievement is compared to established criteria rather than to the performance of other students.
• promotes learning rather than as a final judgment, it shows students their strengths and suggests how they can develop further.

Assessment AS Learning
• assessment as a process of developing and supporting students’ active participation in their own learning.
• By providing regular opportunities for reflection and self-assessment, teachers can help students develop, practise, and become comfortable with critical analysis of their own learning.

Assessment OF Learning
• assessment for the purpose of providing evidence of achievement for reporting.
• can occur at the end of the year or at periodic stages in the instructional process.
Assessment for learning is designed to give teachers information to modify and differentiate teaching and learning activities.

It acknowledges that individual students learn in idiosyncratic ways, but it also recognizes that there are predictable patterns and pathways that many students follow.

It requires careful design on the part of teachers so that they use the resulting information to determine not only what students know, but also to gain insights into how, when, and whether students apply what they know.

Teachers can also use this information to streamline and target instruction and resources, and to provide feedback to students to help them advance their learning.

Assessment as learning is a process of developing and supporting metacognition for students.

Assessment as learning focuses on the role of the student as the critical connector between assessment and learning.

When students are active, engaged, and critical assessors, they make sense of information, relate it to prior knowledge, and use it for new learning.

Students monitor their own learning and use the feedback from this monitoring to make adjustments, adaptations, and even major changes in what they understand.

It requires that teachers help students develop, practise, and become comfortable with critical analysis of their own learning.
• Assessment of learning is summative in nature and is used to confirm what students know and can do, to demonstrate whether they have achieved the curriculum outcomes, and, occasionally, to show how they are placed in relation to others.

• Teachers concentrate on ensuring that they have used assessment to provide accurate and sound statements of students’ proficiency, so that the recipients of the information can use the information to make reasonable and defensible decisions.

An analytic rubric resembles a grid with the criteria for a student product listed in the leftmost column and with levels of performance listed across the top row often using numbers and/or descriptive tags. The cells within the center of the rubric may be left blank or may contain descriptions of what the specified criteria look like for each level of performance. When scoring with an analytic rubric each of the criteria is scored individually.

Examples: [https://wisc.pb.unizin.org/teachonlinerubrics/chapter/types-of-rubrics/](https://wisc.pb.unizin.org/teachonlinerubrics/chapter/types-of-rubrics/)
A holistic rubric consists of a single scale with all criteria to be included in the evaluation being considered together (e.g., clarity, organization, and mechanics). With a holistic rubric the rater assigns a single score (usually on a 1 to 4 or 1 to 6 point scale) based on an overall judgment of the student work. The rater matches an entire piece of student work to a single description on the scale.

Example: [https://chfasoa.uni.edu/analyticholisticrubrics.pdf](https://chfasoa.uni.edu/analyticholisticrubrics.pdf)