

Essential Questions: Doorways to Understanding

Given particular subject matter or a particular concept, it is easy to ask trivial questions. . . . It is also easy to ask impossibly difficult questions. The trick is to find the medium questions that can be answered and that take you somewhere.

—Jerome Bruner, *The Process of Education*, 1960, p. 40

To question means to lay open, to place in the open. Only a person who has questions can have [real understanding].

—Hans-Georg Gadamer, *Truth and Method*, 1994, p. 365

Any complex unit or course of study will naturally involve many educational targets simultaneously: knowledge, skills, attitudes, habits of mind, and understanding. But, as we have said, if the goal is to help students make good sense and use of what they learn, then the design (and resultant teaching) must explicitly focus on the big ideas that connect and bring meaning to all the discrete facts and skills.

How do we more deliberately stay focused on big ideas? How can we take a mass of content knowledge and shape it into engaging, thought-provoking, and effective work? How can we avoid the twin sins of activity-based and coverage-based design? In UbD, that focus is accomplished in part by framing goals in terms of what we call Essential Questions. (The other approaches, discussed in later chapters, are to specify the desired understandings and key performance tasks.)

What kinds of questions are we referring to? Not just any question will do. Consider the following examples of questions and notice how they differ from ones often posed in daily lessons and textbooks:

- What is a true friend?
- How precise must we be?
- To what extent does art reflect culture or shape it?
- Must a story have a beginning, a middle, and an end?
- Is everything quantifiable?

- Is the subjunctive necessary?
- To what extent is DNA destiny?
- In what ways is algebra real and in what ways is it unreal?
- To what extent is U.S. history a history of progress?
- What is the difference between a scientific fact, a scientific theory, and a strong opinion?
 - Must heroes be flawless?
 - What should we fear?
 - Who is entitled to own what?
 - What makes writing worth reading?

These are questions that are not answerable with finality in a brief sentence—and that’s the point. Their aim is to stimulate thought, to provoke inquiry, and to spark more questions—including thoughtful student questions—not just pat answers. They are broad, full of transfer possibilities. The exploration of such questions enables us to *uncover* the real riches of a topic otherwise obscured by glib pronouncements in texts or routine teacher-talk. We need to go beyond questions answerable by unit facts to questions that burst through the boundaries of the topic. Deep and transferable understandings depend upon framing work around such questions.

Return to the apples vignette in the Introduction to see the benefit of anchoring curricula in thought-provoking questions that suggest fruitful (sorry!) avenues of inquiry. If the proposed string of “fun” activities suffers from a lack of intellectual focus, notice how we can provide better perspective and the impetus to go into depth by framing the unit with a set of provocative questions such as these: How have planting, growing, and harvest seasons affected life in the United States? How have children’s roles at harvest changed over time? Compared to other foods, how good for you are apples? Can today’s apple farmers survive economically?

These questions implicitly demand more than just a smorgasbord of activities and bits of knowledge in isolated units. They are asked and made central to the unit to engender probing inquiry and eventual transfer. They suggest that uncoverage is a priority, not a frill or an option if time is left over after learning other “stuff.” Such questions, when properly used, thus send all the right signals about understanding as a goal.

Questions: Signposts to big ideas

The best questions point to and highlight the big ideas. They serve as doorways through which learners explore the key concepts, themes, theories, issues, and problems that reside within the content, perhaps as yet unseen: it is through the process of actively “interrogating” the content through provocative questions that students deepen their understanding. For instance, the question “How are stories from different places and times about me?” can lead students to the big ideas that great literature explores universal themes of the

human condition and helps us gain insight into our own experiences. Similarly, the question “To what extent can people accurately predict the future?” serves as a launch pad for examining big ideas in statistics (e.g., sampling variables, predictive validity, degrees of confidence, correlation versus causality).

As Bruner (1996) put it, good questions “are ones that pose dilemmas, subvert obvious or canonical ‘truths’ or force incongruities upon our attention” (p. 127). Good questions elicit interesting and alternative views and suggest the need to focus on the reasoning we use in arriving at and defending an answer, not just whether our answer is “right” or “wrong.” Good questions spark meaningful connections with what we bring to the classroom from prior classes and our own life experience. They can and do recur with profit. They cause us to rethink what we thought we understood and to transfer an idea from one setting to others.

In addition to stimulating thought and inquiry, questions can be used to effectively frame our content goals. For example, if a content standard calls for students to learn about the three branches of government, then a question such as “How might a government guard against abuses of power?” helps stimulate student thinking about *why* we need checks and balances, what the framers of the Constitution were trying to achieve, and other governmental approaches to balancing power.

Try it yourself. Instead of thinking of content as stuff to be covered, consider knowledge and skill as the means of addressing questions central to understanding key issues in your subject. This conceptual move offers teachers and curriculum committees a practical strategy for identifying important content ideas while engaging students in the very kind of constructivist thinking that understanding requires.

In short, the best questions serve not only to promote understanding of the content of a unit on a particular topic; they also spark connections and promote transfer of ideas from one setting to others. We call such questions “essential.”

What makes a question essential?

In what senses should a question be deemed “essential”? The best questions push us to the heart of things—the essence. *What is democracy? How does this work? What does the author mean? Can we prove it? What should we do? What is its value?* Honest pursuit of such questions leads not only to deeper understandings, but also to more questions.

But essential questions need not be so global. They can go to the heart of a particular topic, problem, or field of study. Thus we can say that each academic field can be *defined* by its essential questions. Consider these examples:

- When error is unavoidable in measurement, what margins of error are tolerable?
- In what ways should government regulate the market system?

- How can we know if the author was serious?
- What are the strengths and limits of the big bang theory?
- Who is a “winner” in athletics?
- What is the relationship between popularity and greatness in literature?
- To what extent is “musical” a culture-bound aesthetic judgment?
- What makes a mathematical argument convincing?
- What is the connection between a country’s form of government and the prosperity of its citizens?
- When is it wise in cooking to deviate from the recipe?
- What do “care” and “First, do no harm” mean in the health professions?
- How important is it to listen to our ancestors?

The best such questions are not merely emblematic of their fields but really *alive*. People ask and argue about them outside of school! The most vital discipline-bound questions open up thinking and possibilities for everyone—novices and experts alike. They signal that inquiry and open-mindedness are central to expertise, that we must always be learners. In the more practical sense, a question is alive in a subject if students really engage with it, if it seems genuine and relevant to them, and if it helps them gain a more systematic and deep understanding of what they are learning.

Questions like “What margins of error are tolerable?” are essential in yet another sense. They offer transferability across disciplines—linking not only units and courses in measurement and statistics, but also subjects as diverse as engineering, pottery, and music. Questions essential in this sense are those that encourage, hint at, even *demand* transfer beyond the particular topic in which we first encounter them. They should therefore recur over the years to promote conceptual connections and curriculum coherence.

Four connotations

Just as the six facets described in Chapter 4 represent different ways of characterizing understanding, there are four different but overlapping meanings for the term *essential* when used to characterize questions. One meaning involves *important questions that recur throughout all our lives*. Such questions are broad in scope and timeless by nature. They are perpetually arguable: What is justice? Is art a matter of taste or principles? How far should we tamper with our own biology and chemistry? Is science compatible with religion? Is an author’s view privileged in determining the meaning of a text? We may arrive at or be helped to grasp understandings for these questions, but we soon learn that answers to them are invariably provisional. In other words, we are likely to change our minds in response to reflection and experience concerning such questions as we go through life, and changes of mind are not only expected but beneficial. A good education is grounded in such lifelong questions, even if we sometimes lose sight of them while focusing on content mastery. The big-idea questions signal that education is not just about learning “the answer” but about learning how to learn.

A second connotation for *essential* refers to *core ideas and inquiries within a discipline*. Essential questions in this sense are those that point to the core of big ideas in a subject and to the frontiers of technical knowledge. They are historically important and very much alive in the field. “What is healthful eating?” engenders lively debate today among nutritionists, physicians, diet promoters, and the general public (despite the fact that much is known and understood about nutrition). “Is any history capable of escaping the social and personal history of its writers?” has been widely and heatedly debated among scholars for the past 50 years and compels novices and experts alike to ponder potential bias in any historical narrative.

A third important connotation for the term *essential* refers to what is needed for learning core content. In this sense, we can consider a question essential if it *helps students effectively inquire and make sense* of important but complicated ideas, knowledge, and know-how—a bridge to findings that experts may believe are settled but learners do not yet grasp or see as valuable. In what ways does light act like a wave? How do the best writers hook and hold their readers? What models best describe a business cycle? Actively exploring such questions helps the learner to arrive at important understandings as well as greater coherence in content knowledge and skill. For example, as noted earlier, in soccer the players must come to understand the importance of repeatedly asking, “How can we create more open space on offense?” (i.e., spread the defense and exploit open space to enhance scoring opportunities) in order to address the more obvious question, “How might we win more games?”

A fourth meaning for the term *essential* refers to questions that *will most engage a specific and diverse set of learners*. Some adult questions may be important in the grand scheme of things (as judged by both specialists and teachers) but of no apparent relevance, meaning, interest, or importance to particular students. In this sense, questions are essential if they hook and hold the attention of *your* students.

To call a question “essential” is thus ambiguous. On the one hand, a question can be essential even if students do not grasp its power upon hearing it for the first time. As we have noted, big ideas are abstract, not obvious—in some cases, counterintuitive. On the other hand, if the question does not soon speak to the learner by signaling interesting or useful inquiries and insights, then a narrow focus on that question may be counterproductive. Yet caution is also needed: A punchy question might provoke lively discussion among your students but not point to big ideas and the goals of the unit. The challenge in design and instruction is to make essential questions (in the first two “objective” senses) accessible, thought-provoking, challenging, and a priority—sooner rather than later. The challenge can be met in various ways: through provocative experiences that “naturally” give rise to the essential questions, or through concrete entry questions, the discussion of which points toward the core of big ideas and issues. In practice, then, this is a Stage 3 problem—the challenge of translating the desired results of Stage 1 into “kid-friendly” terms for teaching. (We provide tips for doing this in Chapter 9.)

These various connotations of *essential* have implications for finer-grained distinctions in question types that we examine later in the chapter. For now, let's consider the common characteristics—the “essential” aspects—of the various kinds of essential questions. We propose that a question is essential if it is meant to

1. Cause genuine and relevant inquiry into the big ideas and core content.
2. Provoke deep thought, lively discussion, sustained inquiry, and new understanding as well as more questions.
3. Require students to consider alternatives, weigh evidence, support their ideas, and justify their answers.
4. Stimulate vital, ongoing rethinking of big ideas, assumptions, prior lessons.
5. Spark meaningful connections with prior learning and personal experiences.
6. Naturally recur, creating opportunities for transfer to other situations and subjects.

The importance of intent

Using these criteria requires great care. Note that they refer not to any innate characteristic of a question itself but to its powers in context. No question is *inherently* essential (or trivial, complex, or important). It all comes down to purpose, audience, and impact: What do you as a teacher-designer intend to have students do with the question? Is the goal lively inquiry or the recall of a single right answer? The six criteria make clear what the aim must be for the question to be deemed essential: The goal must be robust and revealing inquiry, leading to deeper understandings and new questions.

When we pose a so-called essential question, we do so to signal the understanding-related goals and the inquiries they imply for the unit, as the italicized stem statement preceding the six criteria suggests: *To what extent is the question meant to . . . ?* The essentialness of the question depends upon *why* we pose it, *how* we intend students to tackle it, and *what* we expect for learning activities and assessments as a result. Do we envision an open exploration, including debate, around “open” issues, or do we plan to simply lead the students to a prescribed answer? Do we hope that our questions will spark students to raise their own questions about the text, or do we expect a conventional interpretation? Do we intend that students confront a common misconception and try to “unpack” the fallacies? Is our question meant to stay alive after the unit is over and to recur, or do we expect the question to be settled by unit's end?

Thus, if we look only at the wording of a question, out of context, we cannot tell whether the question is or is not essential. Consider, for example, the question “What is a story?” It seems to seek a specific and familiar answer. But we cannot say without looking at the whole design—especially the assessments—whether this question is essential or not. Clearly, if we ask the question with the

intent of having students chime back with “plot, characters, setting, theme,” then the question (as pursued) is not essential in terms of the six criteria. However, if the question is being asked to first elicit well-known story elements but then overturn that conventional definition through a study of postmodern novels, then the question *is* essential. It’s almost as if the emphasis of the question has changed: “So what *is* a story?”

More generally, questions such as “What is x ?” may seek complex and probing inquiry, or they may be fishing for a simple definition. Questions like “Why did y happen?” may seek high-level investigations, or they may require only recalling what the text said. In the absence of well-designed and deliberate inquiry as a follow-up to our asking the question, even essential-sounding questions end up merely rhetorical. Conversely, questions that sound rather mundane in isolation might become increasingly provocative as the answers become increasingly paradoxical, and the design makes clear that digging deeper is mandatory.

More than format

Thus, we cannot say a question is or is not essential based only on the language used in its phrasing. Yet many educators were taught that a question should be phrased in a certain way to signal an intent to instigate inquiry, discussion, or argument rather than the recall of learned facts. So it is common for new teachers to be advised to avoid yes/no or who/what/when formulations of a question if the goal is critical thinking or inquiry. Although we appreciate the concern that teachers need to clearly signal their intentions to learners, we don’t think a hard-and-fast rule about wording is the key issue. Rather, what is at stake is the whole design: Is it clear to students that their job is inquiry?

For example, a teacher might be encouraged to revise the question “Is light a particle or a wave?” because the phrasing suggests that a factual and final answer is sought. Although the advice makes some sense, the reality is different when the question is followed by experiments designed to have deliberately ambiguous results. Thus the deeper intent of the question is soon revealed by the paradoxical lab results in which light exhibits both wave-like and particle-like behavior.

In fact, many yes/no, either/or, and who/what/when questions offer the potential to spark impressive curiosity, thought, and reflection in students, depending upon how they are posed and the nature of the follow-ups. Consider the following examples and imagine the lively discussion, sustained thinking, and insights they might evoke:

- Is the universe expanding?
- Does Euclidean geometry offer the best map for the spaces we live in?
- Who should lead?
- Is *The Catcher in the Rye* a comedy or a tragedy?
- Is a democracy that suspends freedoms a contradiction in terms?

- What is the “third” world? Is there a “fourth”?
- When is victory assured?
- Is punctuation necessary?
- Are numbers real?

We can turn the point around: We accomplish little if the questions seem to invite exploration and argument but the discussion and follow-up work inhibit them. Teachers sometimes ask intriguing questions as a setup for very specific and bland teaching, as if a momentarily engaging conversation will build enough momentum toward the mastery of a pat lesson. We all understand that such questions as “How many degrees are there in a triangle?” and “What were the Intolerable Acts?” are leading toward specific factual answers. But questions such as “What would life in the United States be like without the Bill of Rights?” and “Is this water clean?” which *seem* open and might indeed cause lively conversation, may simply be intended as a warm-up before a lecture on the Bill of Rights or a canned hands-on science demonstration that acts as if the discussion never occurred. Similarly, teacher questions that sound like they anticipate a wide variety of responses—“To what extent . . . ?” “In what ways . . . ?”—may end up having only one “right” answer, to be gleaned from the textbook. If questions elicit thoughtful and varied student responses that will ultimately have no effect on the direction of the class or the design of the work, they are merely rhetorical questions, despite their seemingly open-ended form.

Ultimately, then, looking at the questions alone and even the teacher’s stated intent in Stage 1 is not what matters. We must look at the whole design and consider this: How serious is the designer about the question being pursued? This is one of many aspects of *alignment* considered in the fourth UbD Design Standard. We need always to consider the larger context—the assignments, assessments, and follow-up questions we envision—to determine whether the question *ends up* being essential.

Essential questions in skill areas

Some teachers have argued that essential questions may work fine in certain subjects like history, English, or philosophy but not in skill-focused areas such as mathematics, chemistry, reading, physical education, and world languages. Some have even said matter-of-factly that there simply can’t be any essential questions in skill areas. A teacher once said to us in a workshop that there were no big ideas or essential questions in her course, by its very nature. What was the course, we asked? Life Skills, she replied, without any hint of irony. That teacher has lost sight of her purpose, we think. Her job is not merely to teach a set of simple skills. Her job is to teach certain skills in order to develop *self-sufficiency*—a big idea from which many vital questions flow; for example, “What few skills do I most need to develop to be self-sufficient?” “What must I learn to do (versus have others do for me) to maximize my self-sufficiency?”

In fact, big ideas—hence important questions—underlie all skill mastery, and considering such questions is key to fluent and flexible performance. We have found that essential questions can be fruitfully framed around four categories of big ideas relevant to effective skill learning: (1) key concepts, (2) purpose and value, (3) strategy and tactics, and (4) context of use. Let's consider an example from physical education. For any sports that involve the skill of swinging with long-handled objects, such as baseball, golf, and tennis, *key concepts* include power, torque, and control. Thus, we might frame a question for exploring these ideas, such as “How does torque affect power?” We could pose the question “How can you hit with greatest power without losing control?” to help learners develop effective *strategies* for their swings (e.g., keeping eyes on the ball and follow-through). A third question relates to *context*: “When should we swing softly?”

The same categories are useful in academic skill areas, such as reading: “How do you know that you comprehend what you are reading?” (key concept); “Why should readers regularly monitor their comprehension?” (purpose and value); “What do good readers do when they don't understand the text?” (strategy); and “When should we use ‘fix-up’ strategies?” (context of use).

We have noted that when judging the essentialness of questions, intent is everything, as reflected in the entire design of work and evidence. Similarly, questions in skill areas are essential only when asked in a context of genuine performance challenges, where ongoing judgments are required. Skills are means, not ends; the aim is fluent, flexible, and effective performance. That requires the ability to make wise choices from our repertoire, in context: understanding *which* skill to use *when*, *how*, and *why*, when confronted with complex performance challenges. For example, the question “What is the pattern and how do you know?” is central to all mathematical thought and problem solving. But if the assessments call only for a single response, on cue, in simple prompted exercises, with simplified data, out of context, then they have bypassed the important issues central to genuine performance. Thus, it only *seems* that skill areas have no essential questions because the mostly commonly used assessments unfortunately require no transfer, no judgment.

Topical versus overarching essential questions

Making matters more complicated is the fact that essential questions differ in scope. For example, teachers typically ask, “What lessons should we learn from the Vietnam War?” and “How do the best mystery writers hook and hold their readers?” to help students come to particular understandings in a unit. They refer specifically to the topic (e.g., Vietnam War, mysteries) and they are meant to be settled—if only provisionally, in the teacher's mind—by unit's end.

The more general essential questions, however, take us beyond any particular topic or skill; they point toward the more general, transferable understandings. They do not refer to the topic content but to the big ideas that cut

across units and courses. For example, “What lessons have we learned or not learned from U.S. military involvement in foreign regional conflicts?” is a more general essential question, linked to the question about the Vietnam War. “How do the best writers and speakers hold their audience?” is the broader question linked to the one on mystery writing.

We refer to the more specific essential questions as “topical” and the more general questions as “overarching.” We believe that the best units are built upon *related sets* of such questions. Figure 5.1 presents matched examples of these two types of essential questions in various subject areas.

The questions in the second column, when pursued, lead to specific topical understandings within a unit. The questions in the first column, however, are different. They make no mention of the specific content of the unit. They point beyond the topic content toward broader, transferable understandings that cut across the unit or units alluded to in the second column. Note, too, that the last three rows of related questions signal that a number of topical inquiries may be needed before we can fully and effectively tackle an overarching question of some scope.

Overarching questions are therefore valuable for framing courses and programs of study (e.g., the K–12 health curriculum) around the truly big ideas. Their use as conceptual pillars strengthens a multiyear curriculum, making it more coherent and connected. (The design of courses and programs around broad, recurring essential questions with great transferability is pursued more thoroughly in Chapter 12.)

It may seem as if the topical essential questions are not really essential because they often seem to seek a “right” answer. But, again, we must beware judging the matter by the language only. If our intent is true inquiry, it will be reflected in what we actually ask students to do (or not do) with the questions in Stages 2 and 3. Will the learning activities make clear that no simple answer is forthcoming? Will the assessments require explanation and justification, not simply a right or wrong answer? As the saying goes, “The proof is in the pudding.” Are all “good” topical questions essential? No, for the same reason: Any question that is meant to culminate quickly in a fact or a completely settled conclusion is not essential, because no sustained inquiry and argument is intended or warranted. We sometimes call such questions “leading” because the intent is not so much to foster thinking and inquiry as to underscore an important point we want students to note.

To call a question “leading” is not to condemn it! Leading questions have their place in assessing and teaching, as Socrates demonstrated many times in the Dialogues. (Leading questions belong in Stages 2 and 3, in other words). We ask different types of questions to serve different educational goals. Our point is that leading questions—the kinds of questions students now most often encounter, alas—cannot be the foundation of a design for understanding because they fixate on facts and demand only recall, not the thoughtful use of big ideas.

Figure 5.1

Overarching and Topical Essential Questions

Overarching	Topical
<ul style="list-style-type: none"> • In what ways does art reflect, as well as shape, culture? • From whose perspective is this, and what difference does it make? • How do our various body systems interact? • 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? • What are common factors in the rise and fall of powerful nations? • How do authors use different story elements to establish mood? 	<ul style="list-style-type: none"> • What do ceremonial masks reveal about the Inca culture? • How did Native Americans view the "settlement" of the West? • How does food turn into energy? • To what extent does separation of powers (e.g., three branches of government, two houses of Congress) cause deadlock in U.S. government? • What are possible sources of measurement error in this experiment? • Is there a greater margin of error in this experiment than the last one? • Why did the Roman Empire collapse? • Why did the British Empire end? • What explains the United States' rise to world prominence? • How does John Updike use setting to establish a mood? • How does Ernest Hemingway use language to establish a mood? • How does Toni Morrison use images and symbols to establish mood?

A finer-grained look at essential questions

A useful framework for categorizing different types of essential questions is thus formed by the intersection of the two previously discussed elements: intent and scope. The chart in Figure 5.2 suggests four types of essential questions; it functions as a design tool for generating a mix of essential questions for units and courses.

An examination of the four categories of questions in the chart yields several important insights:

1. Framing a unit *with only topical questions* that focus on particular ideas and processes does not ensure transfer, regardless of how provocative or

Figure 5.2
An Essential Question Chart

Intent	Scope	
	Overarching	Topical
<p>Open: 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>Guiding: 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?

related to core content the questions may be. Topical questions are *necessary* for focusing on desired unit priorities but not *sufficient* to yield the broader understandings that students need in order to make connections *across* units. Thus, given their topical nature, such questions alone are unlikely to elicit the kind of broad connections and rethinking we seek.

2. Framing the unit *with only overarching and open questions* may cause a drift into aimless discussion without ever touching down on the particular understandings related to content standards and core content. The unanswerable nature of these questions will likely frustrate some students (and their parents)—all the more so if the discussion is unconnected with content mastery. A diet of only the most open, overarching questions will not typically

meet the first criterion (linking to core content) and will thus be difficult to justify in a results-focused design.

3. Framing units *with only guiding questions* makes it unlikely that students will have the intellectual freedom and invitation to ask questions needed in a curriculum dedicated to understanding. The idea that uncoverage is vital will be lost.

4. The best topical questions depend for their essentialness on being explicitly matched with related overarching questions. This signals to the learner that the learning process has stages and rhythms whereby answers lead to other questions and new inquiries suggest the need to revisit earlier answers. Topical questions that lead to final or unassailable answers,

unconnected to bigger ideas and questions, are more appropriately placed in Stage 3 as part of the teaching.

■ MISCONCEPTION ALERT!

Some readers may wonder whether a topical question can *ever* be essential, given our six criteria (especially the criteria that refer to questions that recur and focus on big ideas). They may prefer to define an essential question as one that must be overarching and open, in other words. Although this is a reasonable stance, we have chosen to call the best topical questions “essential,” mindful of the third broad meaning of *essential* offered earlier: Some topical questions are essential for student understanding of core content, and they point to or imply big ideas.

Or readers might object by saying that all topical guiding questions are leading, because they often point toward a specific answer. But though a leading question and a topical essential question may sound the same, their purposes are quite different. A leading question points to factual knowledge and a definitive answer, whereas a focused essential question seeks to prompt genuine inquiry leading to eventual understandings—inferences drawn from facts that are certainly provisional but not meant to be final. A leading question is answerable by just remembering what was said or read, or knowing where to find it in the book. A topical essential question demands analysis, interpretation, construction of arguments—in other words, real thought.

Essential questions: Emphasis on the plural

As this discussion suggests, a single question cannot accomplish everything. Given the different meanings of *essential* and the different goals we have as designers, the most useful way to think about essential questions is in terms of *sets* of interrelated questions. The best units are built around essential questions that, in their *variety* and *balance*, are most effective. Consider a few examples:

Topical Essential Questions: *What do we learn from Helen Keller’s My Life and The Diary of Anne Frank? How would you compare and contrast their lives? What did each writer “see” and “not see”?*

Overarching Essential Questions: *What “fictions” find their way into non-fiction? What can’t the writer of an autobiography see? What can the writer see that others cannot?*

Topical Essential Question: *What is the value of place value?*

Overarching Essential Questions: *What are the strengths and weaknesses of mathematical language? What are the limits of mathematical representation? Can everything be quantified?*

Topical Essential Questions: *What is magnetism? What is electricity? What is gravity?*

Overarching Essential Questions: *If a force can't be directly seen, how do we know it is there? What makes a theory "scientific" as opposed to merely speculative? In what ways are forces in physics similar to intangible "forces" in human conduct? Is psychology more like physics or history?*

Such sets don't just offer a balance between topical, overarching, guiding, and open inquiries. A family of questions signals lively and iterative movement between narrow and broad inquiries, and between tentative and deeper understandings and further needed inquiries. The art of teaching for understanding requires a delicate mix of open and guiding as well as topical and overarching inquiries. By striking the right balance, we show that intellectual freedom and creativity are valued alongside the most powerful insights of experts.

Tips for generating essential questions

How might we come up with the best family of questions for framing our units? We might begin to identify useful topical questions by using the format of the quiz show *Jeopardy*. Given the content found in a textbook—the “answers” to be learned—what is an important question about a big idea (and the related research it suggests) for which the textbook provides a good summary answer? Don't get bogged down in all the distinctions about types of questions made earlier—just brainstorm a list of good questions in which to anchor the unit.

Let's return to the “three branches of government” example. If that phrase is an “answer,” then what is a good question that would help students come to understand the underlying idea and its value? How about, “Why do we need a balance of powers? What's the alternative?” Or we could frame the challenge this way: “What were some of the questions our Founders were asking *themselves* that led to their proposal?” A more specific question for the unit might be this: “Why did the Federalists advocate for a balance of powers, and what were the arguments on the other side?”

Once we have identified one or more topical questions, we need to consider broader questions that will take us beyond the specific content in a provocative and transfer-rich way. Consider this: “What structure of government best suits the fact, to quote the *Federalist Papers*, that ‘all men are not angels’? What follows about government if you reject this premise about human nature?” Let's go even broader and more arguable: “When is it wise to share power? When do we gain (and when might we lose) power by sharing it?” All of these more overarching questions are thought provoking, have transfer value, link to prior knowledge, and require core content—in other words, they meet our criteria.

Another practical approach is to derive essential questions from national or state content standards. Review a set of standards and identify the key nouns that recur (i.e., the important concepts) and make them the basis of a question. In the following examples, notice how interrogatives have been fashioned from declarative statements.

Life Science: *All students will apply an understanding of cells to the functioning of multi-cellular organisms, including how cells grow, develop, and reproduce. (From Michigan Science Standards)*

Topical Essential Questions: *How can we prove that cells make up living things? If we're all made of cells, why don't we look alike?*

Overarching Essential Question: *How do scientists prove things?*

Dance: *Understanding dance as a way to create and communicate meaning. (From National Standards for Arts Education)*

Topical Essential Questions: *What ideas can we express through dance? How can motion convey emotion?*

Overarching Essential Questions: *In what ways do artists express what they think and feel? In what ways does the medium influence the message? What can the artist do that the nonartist cannot?*

Physical Education (6th grade): *Applies movement concepts and principles to the learning and development of motor skills. (From National Association for Sport and Physical Education)*

Topical Essential Questions: *How do we hit with greatest power without losing control? How important is follow-through for distance and speed?*

Overarching Essential Questions: *What kind of practice "makes perfect"? What feedback will enhance or improve performance most?*

A related process is to derive essential questions from the enduring understandings identified in Stage 1. For example, the understanding that "living things adapt in order to survive harsh or changing environments" naturally suggests a companion question: "In what ways do living things adapt to survive?"

In addition to their function as indicators of understanding in Stage 2, the six facets are also a useful framework for generating provocative questions. Figure 5.3 presents a list of question starters for each facet.

Clearly the learning plan will require curriculum designers to map out a sensible progression for moving from the accessible to the obscure, but the challenge in Stage 1 is related to backward design: What are the questions we want students to be *eventually* able to address well, irrespective of whether we think they can handle such questions at this moment? That, after all, is why Essential Questions are in Stage 1: the ability to ask and thoughtfully consider such questions is a desired result, not just a teaching ploy.

Design Tip

Teachers in UbD workshops frequently ask how many essential questions they should have for a unit. We recommend a variation on the Marine Corps recruiting slogan: We're looking for a few good questions. If they are truly essential, they can (and should) establish priorities and help uncover all key ideas. Do not state questions that you do not intend to actively investigate through discussion, research, problem solving, and other means.

Figure 5.3
Question Starters Based on the Six Facets of Understanding

Explanation

Who _____? What _____? When _____? How _____? Why _____?
 What is the key concept/idea in _____?
 What are examples of _____?
 What are the characteristics/parts of _____?
 Why is this so?
 How might we prove/confirm/justify _____?
 How is _____ connected to _____?
 What might happen if _____?
 What are common misconceptions about _____?

Interpretation

What is the meaning of _____?
 What does _____ reveal about _____?
 How is _____ like _____ (analogy/metaphor)?
 How does _____ relate to me/us?
 So what? Why does it matter?

Application

How and when can we use this (knowledge/process) _____?
 How is _____ applied in the larger world?
 How could we use _____ to overcome _____
 (obstacle, constraint, challenge)?

Perspective

What are different points of view about _____?
 How might this look from _____'s perspective?
 How is _____ similar to/different from _____?
 What are other possible reactions to _____?
 What are the strengths and weaknesses of _____?
 What are the limits of _____?
 What is the evidence for _____?
 Is the evidence reliable? Sufficient?

Empathy

What would it be like to walk in _____'s shoes?
 How might _____ feel about _____?
 How might we reach an understanding about _____?
 What was _____ trying to make us feel/see?

Self-Knowledge

How do I know _____?
 What are the limits of my knowledge about _____?
 What are my "blind spots" about _____?
 How can I best show _____?
 How are my views about _____ shaped by _____
 (experiences, assumptions, habits, prejudices, style)?
 What are my strengths and weaknesses in _____?

Tips for using essential questions

The following practical suggestions can help you apply essential questions in your classroom, school, or district:

- Organize programs, courses, units of study, and lessons around the questions. Make the “content” answers to questions.
- Select or design assessment tasks (up front) that are explicitly linked to the questions. The tasks and performance standards should clarify what acceptable pursuit of, and answers to, the questions actually looks like.
- Use a reasonable number of questions (two to five) per unit. Make less be more. Prioritize content for students to make the work clearly focus on a few key questions.
- Frame the questions in “kid language” as needed to make them more accessible. Edit the questions to make them as engaging and provocative as possible for the age group.
- Ensure that every child understands the questions and sees their value. Conduct a survey or informal check, as necessary, to verify this.
- Derive and design specific concrete exploratory activities and inquiries for each question.
- Sequence the questions so they naturally lead from one to another.
- Post the essential questions in the classrooms, and encourage students to organize notebooks around them to make clear their importance for study and note taking.
- Help students to personalize the questions. Have them share examples, personal stories, and hunches. Encourage them to bring in clippings and artifacts to help make the questions come alive.
- Allot sufficient time for “unpacking” the questions—examining subquestions and probing implications—while being mindful of student age, experience, and other instructional obligations. Use question and concept maps to show relatedness of questions.
- Share your questions with other faculty to make planning and teaching for coherence across subjects more likely. To promote overarching questions schoolwide, ask teachers to post their questions in the faculty room or in department meeting and planning areas; type and circulate questions in the faculty bulletin; present and discuss them at faculty and PTSA meetings.

The importance of framing work around open questions

Let me suggest one answer [to the problem of going into depth and avoiding excessive coverage] that grew from what we have done. It is the use of the organizing conjecture . . . [which serves] two functions, one of them obvious: putting perspective back into the particulars. The second is less obvious and more surprising. The questions often seemed to serve as criteria for determining where [students] were getting and how well they were understanding.

—Jerome Bruner, *Beyond the Information Given*, 1957, pp. 449–450

The point of education is not simply to learn the least controversial findings. Students need to see how penetrating questions and arguments produce knowledge and understanding. If transfer is the key to teaching for understanding, our designs must make clear that questions are not only the cause of greater understanding in the student, but also the *means* by which all content accrues.

In other words, schooling must enable students to be on the inside of how understandings are born, tested, and solidified through inquiry, criticism, and verification. Our students need a curriculum that treats them more like potential performers than sideline observers. They need to experience how their own inquiries and discussions are “essentially” parallel to those of experts, and how even key agreed-upon understandings can change over time as a result of ongoing inquiry. In this way, they come to more deeply understand knowledge as the *result* of inquiries as opposed to disembodied “truths” that are just “out there” to be learned from teachers and texts.

The learners’ own questions often do not seem important to them. “I know this sounds stupid . . .” is often the preface to a *wonderful* question. Why the self-deprecation? It is not merely developmental or a function of shyness. An unending dose of straightforward coverage and the sense that school is about “right answers” can easily make it seem as if the experts do not have questions, only the foolish and ignorant do.

A terrible price is paid when genuine intellectual questions get only lip service, perpetually postponed by teachers who claim that they have to cover the content. An unending stream of leading questions will reduce most student questions to these familiar few: Is this going to be on the test? Is this what you want? How long does the paper have to be?

When learning *the* answers is the only goal for students, instruction “covers up” the great and vital questions that *naturally arise* in the unfolding work—resulting in diminished engagement and less understanding. Unending coverage of only what is currently believed will eventually stifle thoughtful inquiry, as the philosopher Hans-Georg Gadamer (1994) suggests:

As against the fixity of opinions, questioning makes the object and its possibilities fluid. A person skilled in the “art” of questioning is a person who can prevent questions from being suppressed by the dominant opinion. . . . It is opinion that suppresses questions. (pp. 364–365)

For its 25th anniversary in 2003, the *New York Times* “Science Times” section highlighted 25 of the most important current questions in science. Consider a few examples:

How much of the body is replaceable?

What should we eat?

Are men necessary? Are women necessary?

Can robots become conscious?

When will the next Ice Age begin? (sec. D, p. 1)

Notice how these questions are qualitatively different from the lifeless questions that permeate a typical science textbook. All of the above questions are “alive” yet can be considered at some level in a K–16 science education—and

should be considered if school is to be relevant and empowering. To constantly put before learners a curriculum framed by essential questions is to leave a lasting impression about not only the nature of knowledge but also the importance and power of their intellectual freedom.

Uncoverage is thus not merely a nice strategy or philosophy of education; using questions to frame the curriculum is not merely an aesthetic or ideological request on our part. One might say that not exploring key ideas in the content through genuine questioning and sustained inquiry is like leaving all courtroom claims and evidence unexamined, to be taken on faith. Such teaching leads to a hodgepodge of unprioritized ideas and facts that end up feeling like so many random opinions. There must be a deliberate interrogation of the content so that students can see the key understandings as the *result* of connections and inferences (as opposed to authoritative textbook or teacher claims to be taken on faith—as “facts” for memorization).

Although this phrasing may sound odd, it points to an important truth about how all of us, novice and expert, come to understand. We must give students work that enables them to have an “Aha!” equivalent to that felt by the scholar who first came to the understanding. That is, after all, how the pioneer came to understand the unknown: asking questions and testing ideas, like the learner.¹ That’s why Piaget so wisely said that “to understand is to invent”:

Once the child is capable of repeating certain notions and using some applications of these in learning situations he often gives the impression of understanding; however . . . true understanding manifests itself by new spontaneous applications. . . . The real comprehension of a notion or a theory implies the reinvention of this theory by the [student]. (Piaget, in Gruber & Voneche, 1977, p. 731)

Many content standards documents and local curricula, by contrast, make the mistake of framing content goals as factlike sentences to be “learned” through direct instruction, and they thus run the risk of promoting “coverage” in the worst sense.² Coverage then hides from teachers as well as students two crucial understandings about learning and meeting the standards: (1) understanding derives from questions and inquiries, and (2) the meeting of intellectual standards requires not just taking in expert opinions but exploring, even questioning them.

So, what *were* the competing notions, theories, and points of view encountered on the way to adult understanding of the subject? What questions and *arguments* did the various textbook writers have *before* reaching a consensus? Some of this history of ideas is essential if students are to grasp the difference between *understandings* as hard-earned constructions versus ready-to-grasp *knowledge*—if they are to learn to see understandings as judgments or inferences, based on evidence and argument, not unproblematic facts to be covered and learned for recall.

In sum, as the quote from Bruner suggests, the best essential questions have a surprising benefit beyond their ability to provide greater insight and perspective—if we commit to basing our designs upon them. They can serve

as *criteria* against which to judge progress in our learning. They keep us focused on inquiry as opposed to just answers.

An essential question is not merely a ploy or a Stage 3 tactic in teaching “stuff,” therefore. The essential questions frame the goals. Asking and pursuing them is the obligation of teacher and learner—that’s why they belong in Stage 1 (whereas more “teacherly” questions belong in Stage 3). The pursuit of questions thus enables us as teachers and learners to *test* the educative power of the activities and assignments, to ensure that learning is more than merely engaging activity or indiscriminate coverage. Are we making headway in this lesson and unit in answering the question? (If not, students *and* teacher need to adjust. Just as effective coaches and athletes make adjustments based on performance results, effective designers must be open to revising their plan en route.)

Regardless of which specific slant the teacher (or class) chooses as a focus for the work—not every good question can be feasibly explored, after all—what should be clear is that a mix of topical and overarching essential questions renders the design more focused and makes the student’s role more appropriately intellectual and active. Without such a focus, the student is left with a mass of unconnected activities and undeveloped ideas—no *perspective* and no clear intellectual *agenda*. With no need to pursue questions, no use of content in the service of inquiry as the essence of the design, the student will be made unwittingly passive. “Listen and read, recall or plug in what is taught” will be the clear message. Without committing ourselves to curriculum designed around essential questions, the twin sins of aimless coverage and activity lurk in waiting, no matter how interesting the teacher or how lively the individual lessons.

Backward design in action with Bob James

Bob James rethinks his original plan, in light of a further consideration of essential questions.

I like this idea of an essential question hovering over all the work and serving as a guide toward deeper inquiry, while also using very precise probing or follow-up questions to sharpen understanding. Ever since I began teaching, I have tried to get my students to stretch their thinking by asking idea-sharpening questions, such as, Can you give another example of . . . ? How does this relate to that? What might happen if . . . ? Do you agree with . . . ? Why? Although I think I’m pretty good at posing these day-to-day questions, I realize that for the nutrition unit I’ll have to give more thought to the kinds of broader questions described here.

Well, my unit question—What is healthy eating?—clearly links to the overarching questions—What is healthy living? or What is wellness? Either could focus inquiry and discussion in our entire health education program. And we could just keep asking it in each course and pursue it over time through recurring assessments.

This idea of using unit questions to frame the curriculum has really gotten me thinking. I'm especially intrigued by this notion: If the textbook contains the answers, then what are the questions? As I reflect on my own education, I can't recall ever being in a course in which the content was explicitly framed around important, thought-provoking questions. Some of my teachers and professors asked thought-provoking questions during class, but these unit (and essential) questions are different. I see how they might provide a focus for all the work and knowledge mastery, if done right. I now feel a bit cheated because I'm beginning to realize the power of these overarching questions for pointing to the bigger ideas within a subject or topic.

To see if I was on the right track, I brought up my ideas over lunch with a few of the teachers in the faculty room, and they really got into it! We had a very interesting discussion about my question, which led to others: If left on their own, will children eat what they need nutritionally? Do tastes change as we grow up—in the direction of healthier eating? If so, why? What about others in the animal kingdom, then? Do young animals naturally eat what is good for them? What role does junk-food advertising play in influencing the eating patterns of children and adults? Unfortunately, we were really “cooking” when the 20-minute lunch period ended and I had to leave for recess duty. I think I'll stew on this awhile.

Looking Ahead

If questions both frame units around big ideas and point beyond them to overarching ideas, toward what resolution can we aim? What understandings are we after, in light of the questions framing the work? What do we mean by achieving “understanding” and how does it differ from achieving “knowledge” and “skill”? We now turn to those questions.