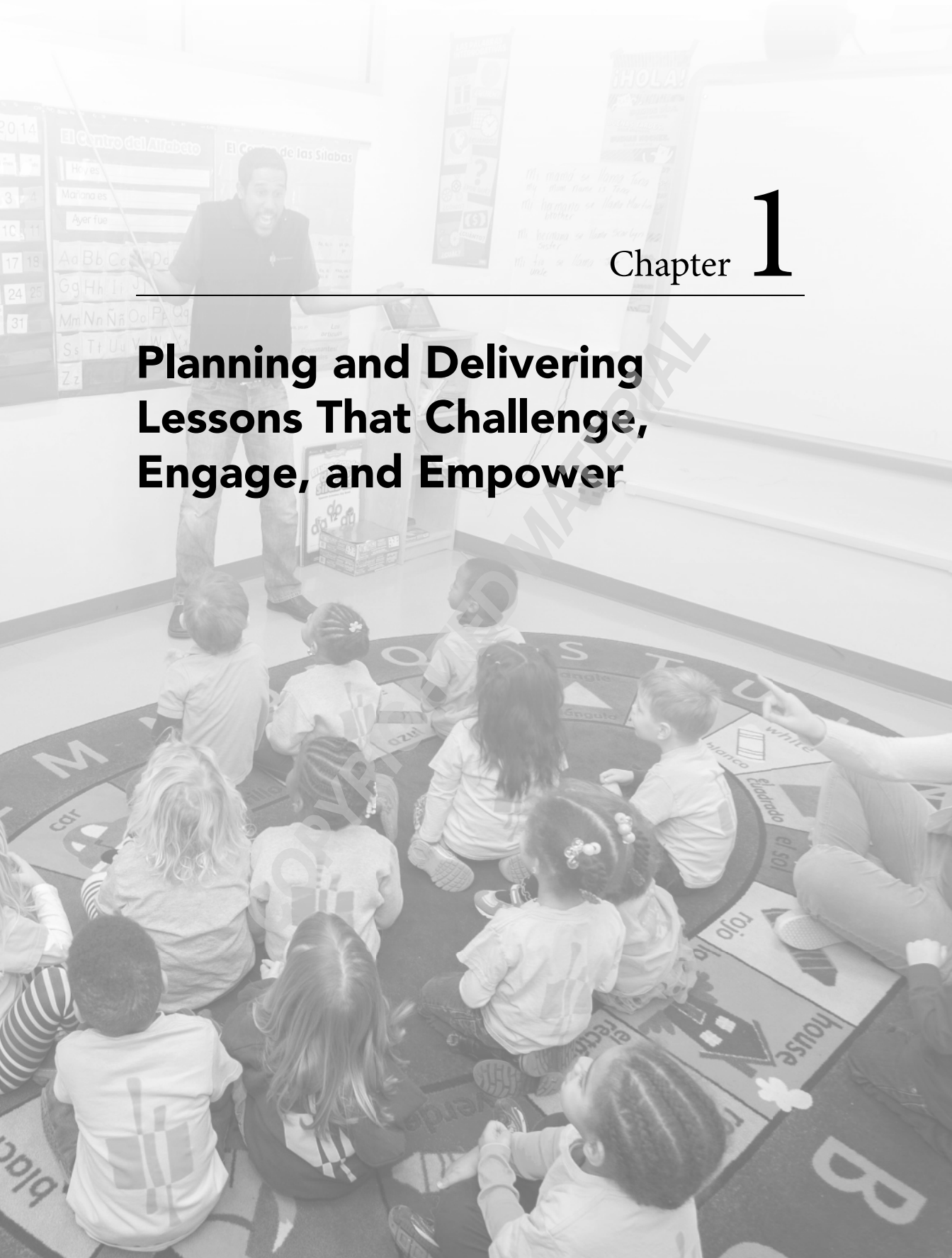


Chapter 1

Planning and Delivering Lessons That Challenge, Engage, and Empower

OVERVIEW

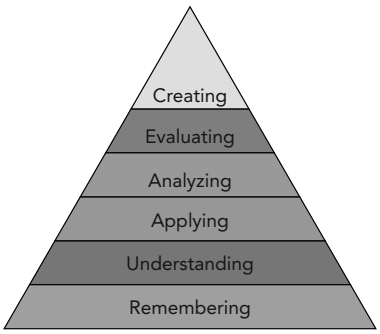
A Call to Action

In December 2011, Jal Mehta and Sarah Fine, researchers from the Harvard Graduate School of Education, visited the Springfield Renaissance School, a 6–12 public district school in Springfield, Massachusetts, the state's second-largest school district. They were in the midst of a large-scale tour of high schools across the United States looking for evidence of deeper learning.

At Renaissance they observed classes and interviewed students, teachers, and the school's founding principal, Steve Mahoney. In a follow-up e-mail to Mahoney after their visit, Mehta noted the palpably strong and positive culture at the school and its amazing results. Since opening in 2006, nearly all of Renaissance's students have graduated on time and 100 percent of those graduates have been accepted to college. For many years the students have beaten the odds in their city with dedication and perseverance, and they have set a new bar for their school district and the city. And as a result, students, families, and faculty feel deeply connected to and proud to be part of the community at their mission-driven school.

Mehta also, however, noted areas that were less strong, particularly in the depth of instructional rigor observed during lessons. He cited a few bright spots but found many examples of low-level tasks and students who could recall information (the lowest level of Bloom's Taxonomy: See Figure 1.1) but seemed to lack true understanding of concepts. Overall, both researchers found that classroom instruction across the school didn't move students often enough up the taxonomy

Figure 1.1 Bloom's Revised Taxonomy



of complexity. Despite strong structures for supporting instruction, including frequent observations by administrators, Renaissance as a school had not yet created the rigorous instruction across classrooms to which they aspired.

Mahoney likes to joke about Mehta's comprehensive and candid e-mail: "He tore us apart!" he'll say with a grin. Instead of feeling defensive about the critical parts of the analysis, Mahoney took the e-mail as a welcome provocation to improve. At Renaissance, Mahoney shared the e-mail with his staff, and it sparked their development of an instructional checklist to be used for data collection and as a catalyst for conversation about instructional practice following administrator observations. The checklist reflected a renewed focus on checking for understanding strategies and what Mahoney refers to as his "obsession" with good debriefs at the conclusion of every lesson. Mahoney also shared the e-mail with EL Education's national staff and mentor principals, who used it as a common reading during their summer meeting and subsequently began a multiyear effort to increase instructional rigor in their schools.

Though Mahoney takes no comfort in this fact, Mehta and Fine found evidence of deeper learning only very rarely on their national tour of "good" high schools. Almost every school they visited was struggling with rigorous daily instruction. Schools everywhere, even high-achieving and highly regarded schools, struggle in ways similar to Renaissance. It is often easier to consider the ways that curricular choices (e.g., challenging projects or texts) can lead to deeper learning. But daily instruction that compels students to build conceptual understanding is difficult to define and difficult to find in action. This chapter begins our exploration of deeper instruction by lifting up effective instructional strategies that help students learn deeply during daily lessons in any discipline.

Why This Practice Matters

Our focus on the lesson acknowledges repeated studies that show that teacher quality and instructional practices are the greatest predictor of student achievement (Goe & Stickler, 2008). The lesson is the heart of the instructional core (City et al., 2009) where teachers, students, and the content interact every day. Creating classrooms where deeper learning flourishes requires teachers' and leaders' persistent effort to create high-quality lessons where the interactions that occur within this core are planned and delivered purposefully. This focus is important for the following key reasons.

Students Need *Challenge*

A college- and career-ready education must prepare students for jobs that don't yet exist and global problems that haven't yet been defined. Preparing students to thrive intellectually and emotionally in the twenty-first century means they have to be facile and resilient problem solvers. As students in one of our schools often say, "The harder the problems, the more our brains grow." Unless we have lesson structures that compel students to take on complex work and do the thinking themselves, they will leave their K–12 education unprepared for what awaits them.

Students Need *Engagement*

Students of every demographic are distracted by technology. Cell phones, the Internet, media, music, and the "noise" of the marketplace bombard our daily lives with information, opinions, sales pitches, and data. One goal of any lesson, then, must be to captivate students and motivate them to dig in. This does not mean to *entertain* them. It means rather to *intrigue* them, to *engage* them in discovering connections, making meaning, and grappling with challenge. Lessons that engage students impel them to become self-directed and independent in pursuing knowledge and honing skills.

Students Need *Empowerment*

Purposeful lesson design and delivery is critical to empowering students with tools for leading their own learning. Creating time and structures for students to understand their learning goals, own their progress, and synthesize and reflect helps them develop responsibility and independence as learners. As teachers, we often admire those students who are self-directed in their learning and wish our other students were just as motivated and confident. We need to embrace the fact that the lessons we plan and deliver can serve to cultivate empowered, self-directed learners or, just the opposite, discourage those dispositions in our students.

Getting started with lessons that engage, challenge, and empower students begins with reflection, planning, and centering lessons within the big picture of teaching and learning. In the Getting Started section that follows we explore the key decision points for teachers by mapping the lesson planning process onto the deeper instruction framework. By unpacking what it means to plan lessons that

challenge, engage, and empower students, we move one step closer to answering the call for deeper learning.

GETTING STARTED

Planning Lessons That Challenge, Engage, and Empower Students

Planning the 45, 60, or 90 minutes of each lesson is some of the most challenging and important work a teacher can do. Whether designing a lesson from scratch or customizing a lesson provided with a published curriculum, getting the details right really matters. There are timeless questions that every teacher wrestles with:

- What do I most want my students to learn?
- How will I know if they understand?
- How will I challenge them?
- How will I help make the learning last?
- How will I meet the needs of my diverse learners?

But wrestle we must, because the lesson plans that result from our answers are the best tools we have to promote deeper learning.

A good lesson is the heart of deeper instruction, bringing to life the body of knowledge and skills students need. Indeed, the lesson is how a teacher brings any curriculum to life. Thus, when planning a lesson it is critical to first consider the curriculum for the unit, semester, or year and the knowledge, skills, and concepts required by grade-level standards. Nesting the lesson intentionally within the content, and sequencing lessons in a way that makes the content compelling, challenging, and authentic is work that goes hand in hand with creating and delivering any one individual lesson.

We understand that some teachers build lessons themselves, some regularly customize lessons provided in a curriculum, and still others are expected to follow a lesson plan provided to them almost exactly as it is written. We encourage teachers in all of these circumstances to make use of the deeper instruction structures and strategies we present here as much as is feasible. The structures and strategies can be a foundation for creating an original lesson sequence or can be used to modify

and enhance lesson plans that are already created. Because teachers are professionals who need to respond to the needs of their students, there is no teacher-proof curriculum that can effectively script lessons for every group of students.

Planning in the context of curriculum (whether district provided or teacher created) and keeping the destination of students' learning in mind are critical to planning for deeper instruction. "When I am lesson planning," says Thomas Rochowicz, a former high school history teacher at the Washington Heights Expeditionary Learning School (WHEELS) in New York City, "I have the unit plan open. I first think,

> how does this lesson fit within the context of the unit and the week? I think about the final projects that students will do and the knowledge and skills they will need in order to be successful on the learning targets for the project. The hardest work for me comes in the planning, writing the targets, choosing the texts, identifying the protocol, and deciding how much time each element will take. After that, I am playing the role of facilitator as students dig in to develop their understanding. I coach, but the students are taking ownership for their learning."

By keeping the end in mind and sequencing his lessons to get students to the target in a productive and timely fashion, Rochowicz can devote the rest of his attention to keeping his students challenged and engaged during the lesson itself.

Planning for Challenge

The 1980s documentary, *A Private Universe,*[1] is a cautionary tale and a good opportunity to reflect on the importance of keeping the end in mind when designing lessons, particularly the tasks we ask students to complete in order to demonstrate their learning. In the documentary, Harvard University graduates, still wearing their caps and gowns, are asked to describe why the Earth has seasons. Nearly all of them, despite years of science education and degrees from one of the most prestigious universities in the world, promote the same misconception. They state, often with earnest gesticulations, that the Earth moves around the sun in a highly exaggerated elliptical pattern. When the earth is at the end nearest the sun it is summer and when it is at the far end it is winter. They repeat a misconception common even among adults: that the seasons are caused by the changing distance between the Earth and the sun.

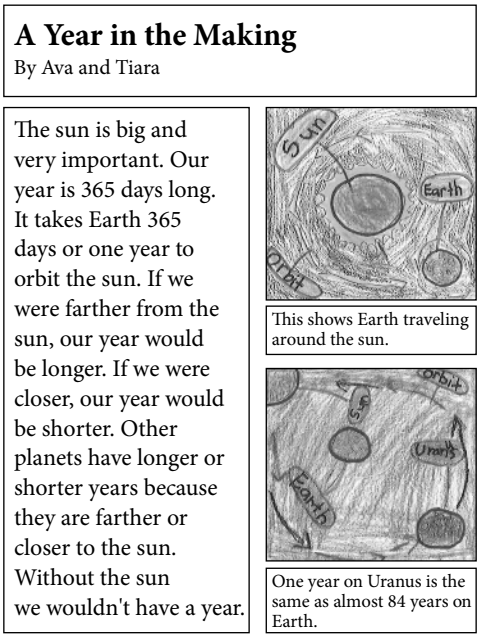
The solar system is something that we begin studying in elementary school and often come back to in classes throughout our education. Why do our misconceptions persist? It is likely that the concepts were never fully understood and etched deeply in our brains in the first place. When we learn things for tests, but never have to apply that knowledge to new settings or use it to teach others or create something of value, the learning often does not last. Facts, like times tables or the order of the eight planets (or nine, depending on one's age), can be memorized. Understanding of concepts, like why we have seasons on Earth, is not built by sheer memorization. If our goal in a lesson sequence is to build conceptual understanding, we have to plan a lesson that requires students to demonstrate conceptual understanding, such as explaining the concepts to others.

Describing tricky concepts is challenging, even for adults. It often takes multiple attempts, and we may discover new and better ways to do it each time we try. We may start with gestures, move on to drawings, and finally arrive at models to help us. The open-ended nature of such tasks is what makes them challenging and important for our students. Asking students to describe or replicate the concept, like the producers of *A Private Universe* did, is the best way for teachers to ensure that students are moving beyond recall to true understanding. Rather than increasing challenge for our students by assigning more difficult reading (e.g., one grade level up) or a larger problem set, focusing on tasks that require them to uncover and explain simple concepts may provide more bang for the buck.

Second-grade teacher Rob Yongue and his colleagues at Glenwood Elementary in Decatur, Georgia, gave their students just such a task. Reflecting two Georgia science standards, they asked students to explain not only what causes the seasons, but also what a year represents on Earth and on other planets.

Students had to explain cosmic phenomena related to the sun, moon, and stars through scientific illustrations and written explanations based on research, reading, and observation. This task assessed both students' understanding of the concepts *and* their skill in communicating them. It measured students' mastery of knowledge and skills through a performance assessment that gave credit to high-quality work. Toward this product, students revised their work multiple times, not for neatness or beauty (though the results are neat and beautiful), but for scientific accuracy and detail—the criteria used to evaluate real-world scientific communication. Notice how one of the students' pages, shown in Figure 1.2, correctly renders the Earth's orbit as nearly circular.

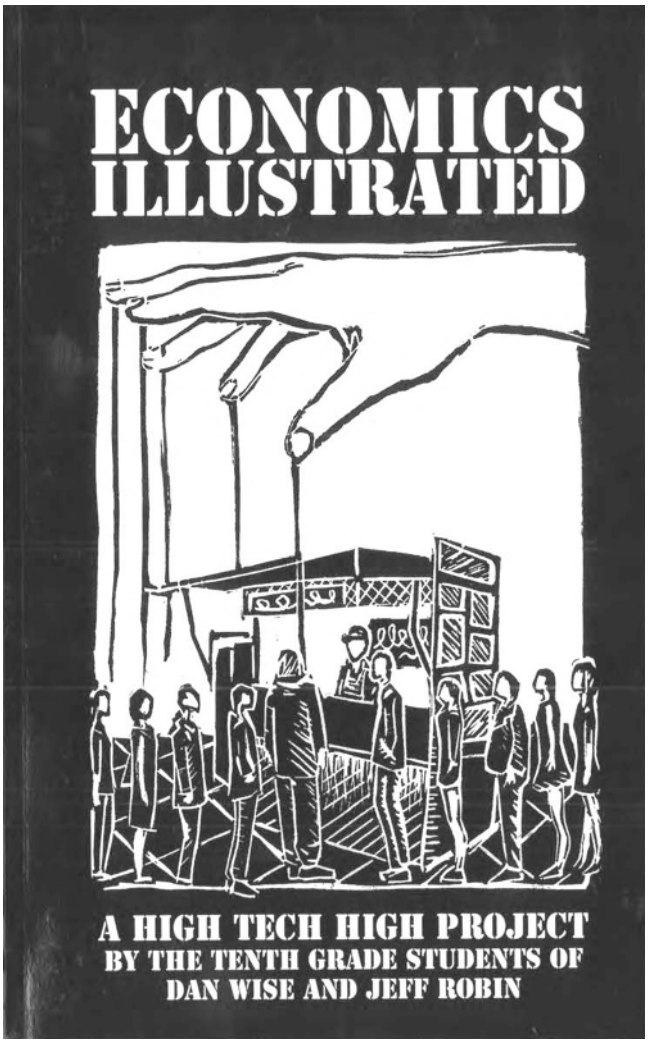
Figure 1.2 Second-Grade Solar System Project



This example shows that even young students, when held to a rigorous standard, can demonstrate an understanding of complex concepts. The key, says Yongue, is "dialogue, continued questioning, and lots of revision. It took many drafts for kids to get it right and to understand why the changes were important to communicating a scientific picture of what we see in the sky."

At High Tech High, a public charter school in San Diego, tenth-grade economics students were given a task that similarly challenged them with new skills and complex concepts. They each chose an economic term and were required to explain that term in writing for a lay audience, so that anyone could understand it, even someone who had never studied economics. They also created a wood cut–style illustration that illuminated the term. Finally, they had to write an essay about a contemporary issue that is an example of how that term, and the concept it represents, exists in a real-life situation. The final product, a book titled *Economics Illustrated,* which contains all of the terms explored by the entire class, is a joy to read—the descriptions and artistic representations make the concepts highly accessible (Figure 1.3). The students succeed in bringing economics to life in a way that no textbook can.

Figure 1.3 Economics Illustrated



Take, for example, Nathan's description of the economic concept of "signaling." He uses a Harvard degree (ironically) as an example of a signal to future employers that an applicant has the right amount of education for the job. Nathan then goes on to write an essay titled "The Rise of Education Inflation," which describes how the value of college degrees has gone down as more and more people obtain them. A college degree no longer signals the same thing that it once did, when fewer people had them—today's master's degree is yesterday's bachelor's degree. He closes

by arguing that a Harvard degree is still a stronger signal than a degree from his local school, San Diego State (even if graduates can't explain why we have seasons).

Use Learning Targets to Increase the Level of Rigor in Daily Lessons

Zooming in from the big picture of where the lesson fits in the arc of the curriculum, the teacher's next step is to consider the specific objectives for a particular lesson. Beyond content objectives, this includes the *kind of thinking* (e.g., knowing, reasoning, doing) and *depth of thinking* (e.g., remembering, analyzing, creating) expected of students.

Our approach to instruction and assessment promotes the use of learning targets as a way to reframe traditional teacher-centered objectives into more student-centered targets that students themselves own. Learning targets, written in student-friendly language and reflected on throughout a lesson, transfer ownership for meeting objectives from the teacher to the student. They are written in concrete, student-friendly language—beginning with the stem "I can"—shared with students, posted in the classroom, and tracked carefully by students and teachers during the process of learning.[2]

Learning targets involve much more than tacking the words "I can" in front of a teacher's objective for a lesson or in front a sentence copied from state standards. The statements must help students describe the goals for their learning and give them an anchor for tracking their progress. For example, in one first-grade classroom in Massachusetts, a state standard called for all students to "understand the monetary value of standard US coinage." This is a reasonable and useful standard, but putting the words "I can" in front of that sentence would not make it understandable or motivating to any first grader. The teacher in this classroom used the learning target: "I can make change for a quarter in many different ways." This was exciting for the students. They all got good at it and could demonstrate it to their friends and families. When they were done they had met the intent of the state standard beautifully.

In the sample learning targets in Table 1.1, notice how important the verb is for identifying the intended learning. Approaching a lesson with the student-centered outcome, "I can communicate my understanding of these patterns through an accurate and detailed scientific diagram" is much different than approaching it with the teacher-centered objective: "Cover lab 3.1 from the text." A learning target can help teachers shift their mindsets from covering content to motivating students to uncover concepts and ideas.

Table 1.1 Examples of Daily Learning Targets

Second-Grade *Skylights* Project	Tenth-Grade *Economics Illustrated* Project
I can demonstrate curiosity and critical thinking by asking questions about the sun, moon, and stars.	I can cite strong and thorough evidence to support an analysis of informational text.
I can explain what causes the seasons based on evidence of change and patterns in space.	I can generate and evaluate analogies that will best illustrate an economic concept for someone unfamiliar with economics.
I can communicate my understanding of these patterns through an accurate and detailed scientific diagram.	I can explain an economic term artistically.

In our 2014 book, *Leaders of Their Own Learning: Transforming Schools through Student-Engaged Assessment,* we explore how teachers can attend to learning target "types"—knowledge, reasoning, and skill—as a helpful starting place for analyzing what students should understand and be able to do in any given lesson (see Table 1.2). Labeling learning targets is helpful, but it may not be enough when considering the overall rigor of a lesson. Teachers also need to consider the complexity of student tasks and assessments linked to the learning targets. Hess's Cognitive Rigor Matrix (Table 1.3) is a useful tool to analyze this component of a lesson. If, for example, your exit ticket, or a "pop quiz" given at the end of a lesson, asks student to recall facts from their text, you can map that onto the matrix and see that it is the lowest level of Bloom's Taxonomy (Remember) and of Webb's Depth-of-Knowledge Levels (Level 1: Recall and Reproduction). This isn't a bad thing necessarily—often

Table 1.2 Knowledge, Reasoning, and Skills Learning Targets

	Knowledge	Skill	Reasoning
Explanation	Knowledge, facts, concepts to be learned outright or retrieved using reference materials	Use of knowledge to perform an action; demonstration is emphasized	Thinking proficiencies—using knowledge to solve a problem, make a decision, plan, and so on
Sample verbs	Explain, describe, identify, tell, name, list, define, label, match, choose, recall, recognize, select	Observe, listen, perform, conduct, read, speak, write, assemble, operate, use, demonstrate, measure, model, collect, dramatize	Analyze, compare and contrast, synthesize, classify, infer, evaluate

Source: ETS (Educational Testing Service); Stiggins, Rick J.; Arter, Judith J.; Chappuis, Jan; Chappuis, Steve, Classroom Assessment for Student Learning: Doing It Right - Using It Well, 1st Edition, (c) 2008. Reprinted by permission of Pearson Education, Inc., Upper Saddle River, NJ.

Table 1.3 Cognitive Rigor Matrix

Revised Bloom's Taxonomy	Webb's DOK Level 1 Recall & Preproduction	Webb's DOK Level 2 Skills & Concepts	Webb's DOK Level 3 Strategic Thinking/ Reasoning	Webb's DOK Level 4 Extended Thinking
Remember Retrieve knowledge from long-term memory, recognize, recall, locate, identify	Recall, recognize, or locate basic facts, details, events, or ideas explicit in texts Read words orally in connected text with fluency & accuracy			
Understand Construct meaning, clarify, paraphrase, represent, translate, illustrate, give examples, classify, categorize, summarize, generalize, infer a logical conclusion, predict, compare/ contrast, match like ideas, explain, construct models	Identify or describe literary elements (characters, setting, sequence etc.) Select appropriate words when intended meaning/definition is clearly evident Describe/explain who, what, where, when, or how Define/describe facts, details, terms, principles Write simple sentences	Specify, explain, show relationships; explain why, cause-effect Give non-examples/examples Summarize results, concepts, ideas Make basic inferences or logical predictions from data or texts Identify main ideas or accurate generalizations of texts Locate information to support explicit/implicit central ideas	Explain, generalize, or connect ideas using supporting evidence (quote, example, text reference) Identify/make Inferences about explicit or implicit themes Describe how word choice, point of view, or bias may affect the readers' interpretation of a text Write multiparagraph composition for specific purpose, focus, voice, tone, and audience	Explain how concepts or ideas specifically relate to other content domains or concepts Develop generalizations of the results obtained or strategies used and apply them to new problem situations
Apply Carry out or use a procedure in a given situation; carry out (apply to a familiar task), or use (apply) to an unfamiliar task	Use language structure (prefix/ suffix) or word relationships (synonym/antonym) to determine meaning of words Apply rules or resources to edit spelling, grammar, punctuation, conventions, word use Apply basic formats for documenting sources	Use context to identify the meaning of words/phrases Obtain and interpret information using text features Develop a text that may be limited to one paragraph Apply simple organizational structures (paragraph, sentence types) in writing	Apply a concept in a new context Revise final draft for meaning or progress ion of ideas Apply internal consistency of text organization and structure to composing a full composition Apply word choice, point of view, style to impact readers'/ viewers' interpretation of a text	Illustrate how multiple themes (historical, geographic, social) may be interrelated Select or devise an approach among many alternatives to research a novel problem

Analyze Break into constituent parts, determine how parts relate, differentiate between relevant/irrelevant, distinguish, focus, select, organize, outline, find coherence, deconstruct (e.g., for bias or point of view)	Identify whether specific information is contained in graphic representations (e.g., map, chart, table, graph, T-chart, diagram) or text features (e.g., headings, subheadings, captions) Decide which text structure is appropriate to audience and purpose	Categorize/compare literary elements, terms, facts/details, events Identify use of literary devices Analyze format, organization, and internal text structure (signal words, transitions, semantic cues) of different texts Distinguish relevant/irrelevant information; fact/opinion Identify characteristic text features; distinguish between texts, genres	Analyze information within data sets or texts Analyze interrelationships among concepts, issues, problems Analyze or interpret author's craft (literary devices, viewpoint, or potential bias) to create or critique a text Use reasoning, planning, and evidence to support inferences	Analyze multiple sources of evidence, or multiple works by the same author, or across genres, time periods, themes Analyze complex/abstract themes, perspectives, concepts Gather, analyze, and organize multiple information sources Analyze discourse styles
Evaluate Make judgments based on criteria, check, detect inconsistencies or fallacies, judge, critique			Cite evidence and develop a logical argument for conjectures Describe, compare, and contrast solution methods Verify reasonableness of results Justify or critique conclusions drawn	Evaluate relevancy, accuracy, and completeness of information from multiple sources Apply understanding in a novel way, provide argument or justification for the application
Create Reorganize elements Into new patterns/ structures, generate, hypothesize, design, plan, produce	Brainstorm ideas, concepts, problems, or perspectives related to a topic or concept	Generate conjectures or hypotheses based on observations or prior knowledge and experience	Synthesize information within one source or text Develop a complex model for a given situation Develop an alternative solution	Synthesize information across multiple sources or texts Articulate a new voice, alternate theme, new knowledge or perspective

Source: © 2009 Karin K. Hess's Cognitive Rigor Matrix. For full article, go to www.nciea.org.

students do need to memorize basic facts—but you should take care to not stay stuck at this level day after day. View it as one part of a sequence of lessons.

Knowing where a task falls on the matrix can inform backward planning, helping teachers ensure that the learning targets will scaffold students' learning appropriately through an arc of lessons. Perhaps on Monday recall is important, but by Friday you want students to be able to analyze the interrelationships among concepts, issues, or problems (Analyze on Bloom's and Level 3: Strategic Thinking and Reasoning on Webb's). Using the matrix can be especially helpful for considering tasks that fall in the Extended Thinking column, emphasizing real-world application, cross-disciplinary connections, problem solving, and creative thinking—all important aspects of deeper learning.

Planning for Engagement

Too often engagement is confused with attention. If students are paying attention or not acting out, we assume they're engaged with the lesson. Often we see students *complying* with the teacher's directions, but to assure that they are engaging with the content and skills in a lesson we need to delve deeper. When lessons are designed to feed students' curiosity and connection—compelling all students to work collaboratively and to grapple with real problems—we see students engaged in active and intentional learning. We see it in how they interact with the lesson and also in the work they produce during the lesson.

Feeding curiosity fuels students' motivation to learn

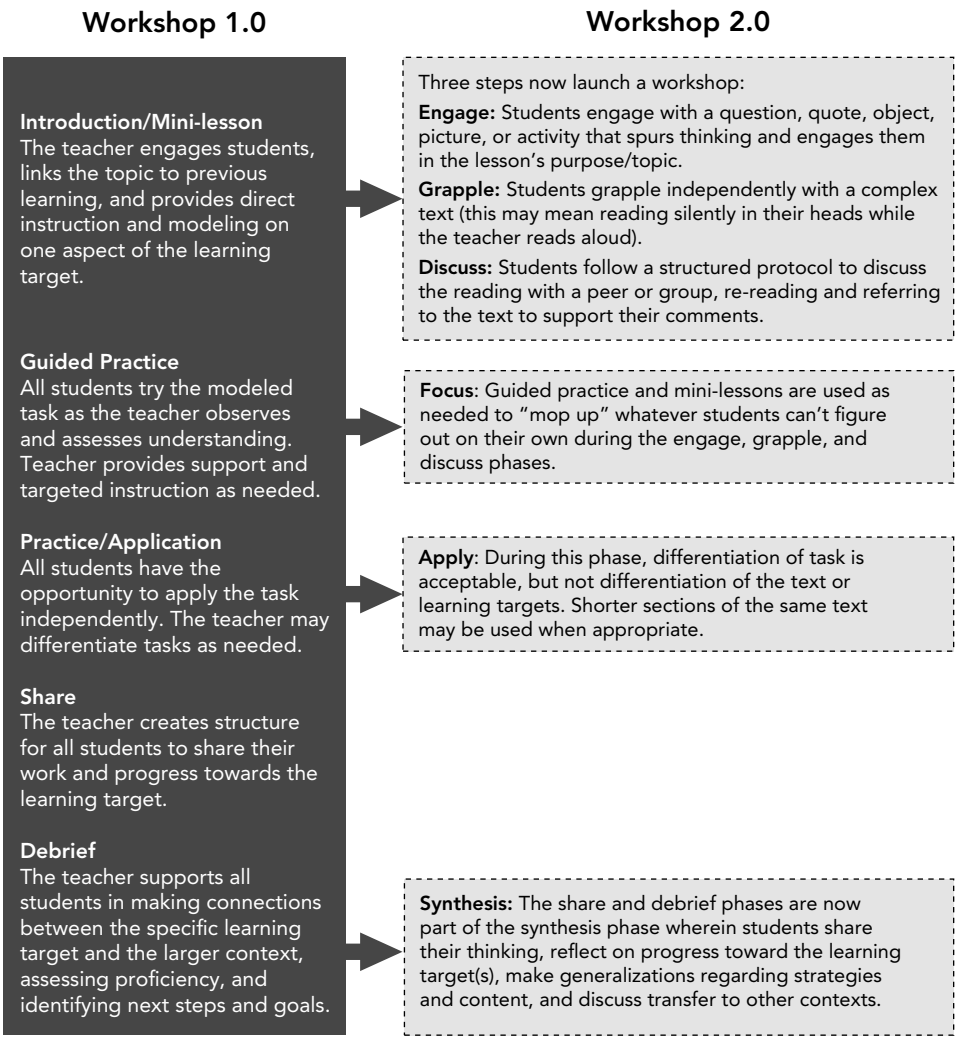
Worthy curriculum is a necessary ingredient for engaging lessons, and one we address more in the discipline-specific chapters to come. Here we focus on how the design of daily lessons can impel students to engage with their learning. What follows are descriptions of three lesson structures—workshop lessons, protocol-based lessons, and discovery-based lessons—that foster engagement because they get students reading, thinking, talking, writing, and investigating. Regardless of structure, key to any lesson, no matter its name, length, or intended learning, are the following components: an opening that hooks students into the worthiness of the work with which they are about to engage; time for students to grapple with concepts, ideas, texts, or problems; frequent checks for understanding; and a debrief or synthesis. These components are unpacked a bit more in the In Practice section of this chapter.

The Workshop Model

The workshop model has long been a structured yet versatile "container" for introducing or elaborating concepts, skills, and thinking strategies in any subject area. It can be flexed for different time frames or modified to accommodate the needs of a particular group of students or a variety of instructional activities. Although it is flexible, the workshop model has distinct components that limit the amount of teacher talk and make time for students to *think* and *do*, apply their learning, and reflect on what they've learned. The workshop model also staunchly fosters collaboration, communication, and responsibility by structuring roles and time for students to work together, independently, and on tasks that hold them accountable for their learning.

When the Common Core standards were introduced, one of the first things we did was revise the workshop model to address the demand for new capacities for students. We call it Workshop 2.0. Workshop 2.0 for reading and math features a small but important shift in the basic workshop instructional sequence, putting individual grappling with complex text (or, in mathematics, complex problems) before a mini-lesson, peer discussion, or group work. Updating the classic "I do, we do, you do" sequence of Workshop 1.0, Workshop 2.0 prioritizes time for independent, productive struggle with complex text or problems. Figure 1.4 is a comparison of Readers' Workshop 1.0 and 2.0. (Math Workshop 2.0 is discussed at length in Chapter 4).

Figure 1.4 Comparison between Readers' Workshops 1.0 and 2.0



When would you choose workshop 2.0?

Workshop 2.0 does not *replace* Workshop 1.0. There are times when Workshop 1.0 is still the most appropriate choice. But we believe Workshop 2.0 is an important additional lesson structure that builds different skills in students and should be included in the quiver of lesson structures that a teacher uses. Because the

standard workshop model is well known and described effectively and elegantly in a number of books, most notably *That Workshop Book* by Samantha Bennett (2007), we focus on illuminating what makes Workshop 2.0 different and how and when it may be useful.

The major difference between Workshop 1.0 and 2.0 is that Workshop 2.0 begins with students grappling individually and then constructing meaning through peer discussion rather than with the teacher modeling the thinking. When learning certain skills, Workshop 1.0 is a better choice. Students often benefit from modeling with a mini-lesson before attempting a new skill. Consider a highly technical skill like learning to drive: having a lesson first, before being thrown into the driver's seat, is crucial. Similarly, there are academic skills that would be frustrating and discouraging for students—and ultimately unsuccessful—to take on without teacher modeling and guidance to begin.

However, if we always model for students how to approach challenges, they are not being prepared to confidently address problems without teacher previews and scaffolding. Because teacher modeling is typically intended to give students as many supports as possible, teachers may end up doing some of the struggling and thinking for students ahead of time. Though it is not the intent of Workshop 1.0, in practice this modeling may allow students to avoid dealing with complex text and problems on their own. It explicitly prevents for students the shock of confronting complex text or problems "cold"—on their own and without careful preview. This is a positive thing in many instances, but if this were always the case, students may not be prepared to individually tackle difficult challenges on high stakes tests, in school, or in real life.

Choosing between Workshop 2.0 and the traditional Workshop 1.0 for a lesson should be based on the professional judgment of teachers. The questions that teachers can ask themselves are

- Do students have sufficient strategies and background knowledge so that grappling with the text or problems in the lesson *before they have teacher modeling* can be successful (i.e., not easy or immediately successful, but offering entry points toward success)?
- Is there important information for students to know ahead of diving into materials or content that should be covered in a mini-lesson to ensure that materials, class norms, student confidence, and the momentum of learning are not harmed?

What does workshop 2.0 look like in action?

The workshop model has earned its reputation as the go-to lesson format for many teachers. Because it can be used for any subject matter at any grade level and prioritizes engagement, it is eminently useful for teachers. With practice, Workshop 2.0 is another powerful tool for digging deep and amplifying students' thinking and doing. In the Snapshot that follows, and in the accompanying video, notice the level of engagement in Giselle Isbell's fifth graders at Anser Charter School in Boise, Idaho. Each stage of the Workshop 2.0 lesson is highlighted.

SNAPSHOT: Workshop 2.0 Lesson: Fifth-Grade Mathematics

Giselle Isbell's fifth graders at Anser Charter School in Boise, Idaho, have gotten accustomed to grappling with challenging problems on their own before she teaches them new strategies for solving them. A typical mathematics class begins with a student reading a word problem aloud and all students taking a few minutes to **GRAPPLE** with the problem independently before Isbell does any instruction. On a day when students are wrestling with decimal operations—dividing 2.58 acres into six evenly sized garden plots—students come up with more than one way to determine how big the plots need to be. Up until now students have only practiced division with whole numbers. A few students, working on their own, get completely stuck or reach the wrong answer. Isbell circulates while students are working and asks probing questions to nudge their thinking into new territory.

Before any students shut down in frustration, she gives them a chance at their tables to **DISCUSS** their strategies and solutions with each other. During this time, students must critique each other's reasoning and defend their own while following the class discussion norms. Isbell reminds them of those norms—listen closely, respect air time, share ideas—before they begin. "I think it's important to work as a group [after you try to solve it yourself], because even if the person got it wrong, they might give you a hint, and then you're, like, 'Oh, I know how to do this now,' and then you can help them," one of her students explains.

Isbell carefully observes how students are working on the problem and talking about it during the discussion time. What she sees informs how she explains the strategies in the brief, explicit **FOCUS** lesson that follows the table discussions. Here, she introduces and unpacks the lesson's learning target so that students know exactly what they need to be able to do and are positioned to own their own learning. Then Isbell both demonstrates multiple strategies for dividing decimals and invites students to explain which strategy is most efficient and why.

Most of the class period is dedicated to **APPLICATION** time, during which most students practice their mathematical thinking on similar problems, using multiple strategies. Some students, identified during the grapple and discuss time, begin their application by practicing together under Isbell's guidance. This illustrates a key difference between the Workshop 1.0 lesson structure, in which all students participated in guided practice, and Workshop 2.0, where the application time is fully differentiated to challenge students who are ready to move on and to support students who are not.

The lesson ends with a time for **SYNTHESIS**, in which Isbell invites the class to reflect on whether they have met the learning target, addressing both content and the process by which they learned it. "It's a time for us to think about where we are going next," she says. "Now that they have some experience with the strategies, it's wonderful to see them think about how they would transfer that understanding to a new problem. They feel empowered to move forward. They want to know what's going to come next."

WATCH Video 1: Grappling with New Concepts during a Common Core Math Workshop

Protocol-Based Lessons

Familiar protocols for reading, writing, discussion, and sharing liberate students to focus their attention on *what* they're learning, rather than *how*. A protocol-based lesson gives students a structure that levels the playing field for engagement so that all students can embrace the challenge of the content or skill being taught. Protocols don't rely on the teacher being center stage; instead, once students have mastered the protocol, they are empowered to manage their own reading, thinking, talking, writing, and doing about the topic.

Protocols are not typically full lessons; most often they represent one part of a lesson, however, certain protocols are comprehensive enough that they can serve as an entire lesson. Protocols can range in length from very simple (and short) discussion protocols like "think, pair, share"—students consider a question, compare ideas with a neighbor, and share out to the full group—which can occur in the midst of any lesson type, to multistep protocol-based lessons. Building Background Knowledge workshops and Socratic Seminars are common examples of protocol-based lessons (see Appendix A: Sample Protocol-Based Lessons). The value of a protocol-based lesson is in its "rules." Students work productively and can fairly share roles because protocols follow predictable and clear guidelines.[3]

When would you choose a protocol-based lesson?

Protocols articulate the process and procedures for learning with exactitude—and the exactitude matters. It's appropriate to choose a protocol-based lesson when *how* students do something will affect *what* they get out of it, and you want them to use the same procedure on multiple occasions throughout the year. For example, taking the time to teach, model, and practice listening to a peer's work, identifying specific strengths and weakness, giving constructive feedback, and making a plan for revision will pay off in much better writing over the course of a year.

What does a protocol-based lesson look like in action?

A full lesson based on a multistep protocol takes students deeper into a process or a topic and, once the guidelines have been explicitly taught and rehearsed, holds students accountable for making their way through the procedure to the learning target. In the Snapshot that follows, students in Eric Levine's tenth-grade biology class at the Springfield Renaissance School are using a Science Talk protocol to practice thinking and speaking like scientists, using evidence from complex texts, original research, and authentic data. The steps of the Science Talk protocol can be found in Appendix A.

SNAPSHOT: Science Talk Protocol: Tenth Grade

Eric Levine's students are in the midst of a learning expedition (see box) called "Resistance," which is focused on the global crisis of antibiotic-resistant bacteria. Prior to today's Science Talk, students had conducted original research at their school, collecting samples from locker rooms, bathrooms, the cafeteria, and other key locations around the school. In addition to their own original research, students read articles and other research about the topic. By the time they engage in the Science Talk protocol they are well equipped with data and background knowledge.

Learning expeditions are the signature curricular structure in EL Education schools that make content standards come alive for students. They are interdisciplinary studies, usually lasting six to twelve weeks, led by a teacher or teaching team. Learning expeditions are based on standards, aligned with local curriculum maps, and focused on essential content and skills. Each learning expedition includes guiding questions, kickoff experiences, case studies, projects, lessons, fieldwork, experts, service learning, and a culminating event that features high-quality student work.

Levine begins today's Science Talk by focusing students on the class anchor chart for what it means to think, talk, and write like a scientist. This list, which students built together after watching videos of scientists talking about their work, includes such reminders as *provide evidence*, *cite your sources*, *build off each other's ideas*, and *ask questions.* Students then share their personal goals for the Science Talk. "My goal is to build off of others' ideas," says one student. Another states that she wants to "focus on providing evidence." This step, combined with the debrief at the end of the Science Talk, in which students reflect on their process as learners, is key to deeper instruction—it empowers students with tools for learning.

The next step in the protocol is introducing the questions that will guide students through their Science Talk. The questions are strategically pre-planned by Levine so that students start with the big picture and then hone in on their data. Finally, students have the opportunity to dig into the *So What:* Why is this an important global issue?

- Is antibiotic resistance a global threat? Why?
- What do our own data tell us about the problem?
- What can scientists, politicians, and the public do about it? What do the experts say? What do our own data say about the solution?

Students move quickly from discussing the evidence presented in their reading—addressing the first question—to their own research. They begin to make connections between what they noticed in their research and what they have been reading. One student states, "I noticed that where we clean the most and where we care for the most, like the gym and the bathroom and the nurse's office, have more antibiotic resistance." He surmises that this is "due to the fact that all the cleaning materials that we use have ingredients that we put into antibiotics." Another student follows up by referencing the class data stating that 34 percent of the bacteria in the school are resistant to amoxicillin (this is the same student who set a goal for himself to "build off of others' ideas").

When students have sufficiently addressed the second question, they move on to the final question, getting to the *So What?* Students cite data from their research about successful state-level policy efforts in the United States. One student suggests that Massachusetts should "follow the lead" of states that have lower levels of antibiotic resistance. Another suggests tighter regulations and follow-up with doctors who prescribe antibiotics.

Reflecting on the protocol, one student states, "I *am* thinking more like a scientist during the Science Talk. I use relevant information that scientists use, I use data, and I use what I researched." You can view Levine and his students engaged in this Science Talk in the accompanying video.

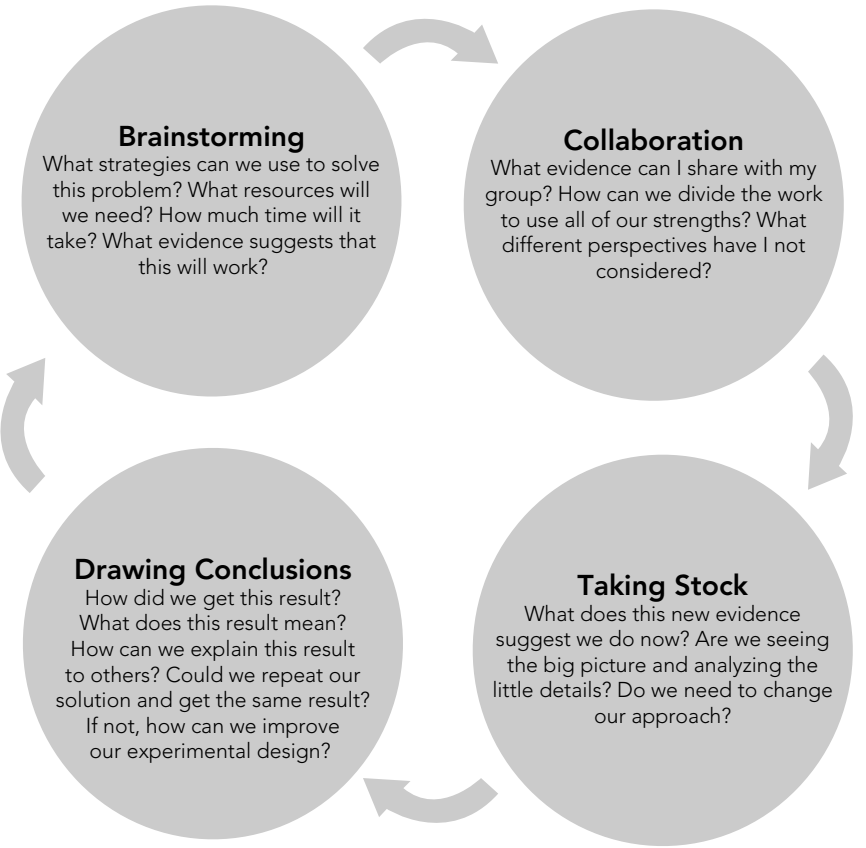
WATCH Video 2: Thinking and Speaking Like Scientists through a Science Talk

Discovery-Based Lessons

The label "discovery-based" covers a range of lesson formats that have in common an inductive approach to teaching. Essentially, the teacher provides neither the answer nor direct instruction in how to find the answer. Instead, students are given only the materials they will need to solve a problem, conduct an experiment,

or meet a challenge. Students, often working in teams, marshal their prior knowledge and critical thinking skills to discover their own methodology and answers to the problem. The discovery-based lesson concludes with students explaining their process and product and generalizing from this specific task to draw conclusions about "how things work" in other similar domains or tasks (see Figure 1.5). Proponents of this approach (e.g., Jerome Bruner, Jean Piaget) note that this process replicates scientific inquiry, in which scientists "discover" general patterns and principles of nature by hypothesizing about and then investigating specific cases that yield significantly similar results.

Figure 1.5 The Discovery Cycle



When would you choose a discovery-based lesson?

Discovery-based lesson structures, such as the Five Es,[4] in which students Engage, Explore, Explain, Extend, and Evaluate a problem, are often effective structures for science, mathematics and even social studies lessons when the class has met two conditions:

1. Students have been supported in developing sufficient prior knowledge and skills so that they have ideas of where to begin with the problem.
2. Students have been engaged with sufficient desire and motivation so that they are eager to tackle the problem without instruction.

Absent these conditions, discovery-based lessons may result in only a few students feeling successful or, worse, devolve into chaos and generalized frustration when students flounder with the realization that they have no idea how to approach the task.

The Five Es lesson design can also disrupt instructional patterns in the classroom that unintentionally favor the participation of some students and disengage the disengaged even further. The staff at Delaware Ridge Elementary School in Kansas City, Kansas, decided to focus on Five Es lessons as a way to cut down on the amount of teacher talk and engage more students. Former principal Cindy Kapeller notes, "Our experience has been that students who are less motivated are sometimes most intrigued by the Five Es. Our more advanced students tend to like precise answers, they like knowing. In the Five Es, there's a lot of not knowing. Some of our students who have to work really hard on a daily basis, even students with learning disabilities, become leaders in these Five Es experiences because they have more experience with having to work hard to get to the answer over time."

What does a discovery-based lesson look like in action?

In the Snapshot that follows, primary teacher Bill Simmons from Gill Elementary School in Gill, Massachusetts, engages a diverse class of students in rich learning without having to do much at all during the actual lesson other than observe students. The hard work for him was all done ahead of time: building a class culture with clear norms and routines for work, training students to be self-directed in setting and cleaning up, and getting the materials just right.

SNAPSHOT: Discovery-Based Lesson: First, Second, and Third Grades

Bill Simmons has more than the usual range of student needs in his classroom. He is teaching a multi-age primary class of first, second, and third graders that includes a few students with highly challenging special needs. For many lessons, he needs to differentiate by grades or skill levels. For this lesson, however, all students are together. Students enter the classroom in the morning to find that a section of the room is set up with a large glass aquarium filled with dirt, moss, and plants. Next to it are stacks of small plastic aquaria and bins of dirt, sticks, moss, and plants, along with science supplies—hand lenses, rulers, and science notebooks.

Simmons explains to students that each of them will be adopting a land snail to take care of and study. Each student is assigned a partner (most pairs are an older and younger student working together). The pairs will share responsibility for a plastic aquarium home for two snails. The large glass aquarium is home to all of the snails for the time being. Simmons gives a few quick instructions about how to handle snails carefully, modeling with a live snail, and then students are sent off to join their partners. Their instructions:

- Look carefully at the model environment in the glass aquarium.
- Take a plastic aquarium and supplies and build an environment similar to the model environment.
- Choose two snails from the model environment to adopt and place them in their new home. Be sure you can tell them apart.
- Observe them closely, adding notes and drawings in your science journals, focusing on:
    - What do you notice about the snails' bodies and behavior?
    - What questions do you have about your snails?

For the next 25 minutes, there is almost no need for an adult to be in the classroom. The students are captivated by the task, building elaborate miniature environments and then peering intently and discovering all kinds of things about their snails. They are brimming with questions. Simmons circulates around the room making sure students are calm and focused, but saying very little. He takes notes on the questions he hears from students.

The lesson ends with three steps. First, Simmons gathers all the students on the carpet and they chart their questions. They are excited to share all the things they learned, but he keeps the focus only on their questions. Second, Simmons hands out index cards and students are asked to name their snails and create a sign with the snails' names and their names and tape it onto the front of their snail homes. Last, they are asked to clean up.

When the cleaning is done and his student-inspectors give him the thumbs-up that everything looks good, Simmons dismisses them for recess. He has to compel many students to go out to the playground because so many of them want to stay inside and watch their snails.

Other Lesson Formats

Occasionally teachers may choose other formats for lessons, including delivering a traditional lecture, showing a video, or providing an entire class period of independent project time. These lessons are mostly used at the beginning of a unit when a specific resource (an expert's lecture, a compelling video segment) provides rich content and essential information that in subsequent lessons students will manipulate and apply, or toward the end of a unit when students are strictly applying their learning through the creation of products (e.g., research papers, essays).

Lectures and videos deserve particular attention because they have traditionally been the default lesson structure in so many classrooms. These formats are not inherently "wrong"; lectures and educational videos can be compelling and informative. However, when we focus on student learning, not on what is covered in the lesson, we need to consider what students actually take away. Teachers who use these formats regularly must be careful to maximize active ways to engage students in reflection, checking for understanding, or strategic questioning during these lessons. Simply pausing a video at strategic moments so that students can record their thinking on a well-designed graphic organizer goes a long way to making sure that students not only watch but also respond to a video. New technology, such as Zaption, can equip teachers to customize a video by building reflections, assessments, and class discussion right into the flow of the video itself. Punctuating a lecture, even with an "audience" of 100 students, with turn-and-talk questions gives every student a chance to participate. Checking for understanding using answer clickers, a cold-call technique, or exit tickets livens the dialogue between teacher and students, and provides useful data for that lesson or the next lesson.

Regardless of the lesson format, teachers would do well to do more listening than talking, asking strategic questions and giving students time and encouragement to answer them with evidence from their reading, discussion, and experience. Dylan Wiliam, writing in *Educational Leadership,* even suggests that teachers pose a question and give students *an* answer, then challenge students to argue why the answer is correct or not correct by supporting their answer with points from their notes (Wiliam, 2014). Additional questioning techniques are described in the In Practice section of this chapter.

It is fair to say that lesson planning is both a necessary craft for the novice teacher and an elegant art for the master teacher. Mastering the basics of the

lesson formats described here gives teachers room to explore new and more challenging texts, devise real-world inquiry-based investigations, and fine-tune strategies for differentiation. Although predetermined lesson structures like those discussed here don't guarantee engagement or deeper learning, they do help teachers focus on the challenge, engagement, and empowerment that are crucial to deeper instruction.

Planning for Empowerment

As referenced in the opening of this chapter, Steve Mahoney from the Springfield Renaissance School has an obsession with debriefs. "We want teachers to circle kids up at the end of every class," he says. "'What did we learn today? What was the process? How did we do as a team? How does this connect to what we did yesterday? How does it connect to what we're doing as we move forward? How does it connect to the big picture of the whole course?'" Mahoney's obsession has become part of the instructional checklist that guides lesson planning at Renaissance. Quality debriefs, even when time is tight, are something that every teacher is expected to prioritize in the 5 to 10 minutes at the end of every lesson. Debriefs like these are a key strategy for Renaissance teachers to help their students track their progress toward learning targets, synthesize and solidify their understanding of concepts, reflect on their process as learners, and prepare to transfer their learning to new situations.

Sixth-grade teacher Maria Ekmalian, featured in the accompanying video, often uses a debrief protocol in which her students form an inner circle and an outer circle so that they rotate to new partners and answer questions that help them reflect on the day's learning. "Students are able to speak to each other and hold each other accountable for what they were learning and how they were learning it," she says. Often they will answer simple reflective questions such as "What did you notice? What did you wonder?" In today's lesson about ratios, in which students apply the concept by making waffles, one student reflects, "I wondered if it would fully rise and I wondered if it would be thin." At the end of the debrief, Ekmalian refocuses students on their learning target: "I can describe the relationship between two quantities." She asks the inside circle to tell the outside circle what it meant to describe that relationship today. The

same girl who wondered whether her waffle would rise or be thin commented to her partner: "It meant you had to have enough batter to balance out the water."

WATCH Video 3: Debrief Circles

"Debrief is where kids get the deeper learning and the deeper understanding," says Ekmalian. Her comment reveals the essence of why deeper instruction matters. A lesson that challenges, engages, and empowers goes beyond following a set curriculum or textbook chapter or meeting required standards. It challenges students with higher-order thinking, develops student ownership and intrinsic engagement in learning, and cultivates students' awareness of and responsibility for their own learning process.

Ekmalian's lesson was designed to allow students to grapple with the concept of ratios with a real-world problem and to work together to come up with a solution. The debrief was the key to empowering them as learners—they reflected on why their waffles turned out well (or not) and how this related to the mathematical concept of describing the relationship between two quantities. This ability to transfer knowledge and skills empowers students. It is what they need to succeed in work and in life—and it's the deeper objective of every great lesson.

Debrief circles, which can be used in the synthesis portion of a Workshop 2.0 lesson, are one strategy for empowering students with tools for learning, but they aren't the only one. Other lesson designs have reflection baked in as well. For example, a Socratic Seminar protocol can be set up like a Fishbowl in which the outer circle observes and makes "metacognitive insights" about the inner circle's process or progress toward learning targets (e.g., "I noticed Raj using evidence directly from the text"). The Evaluate portion of a Five Es lesson is a chance for students to reflect on the success (or failure) of their approach to a problem.

Just understanding the purpose and their responsibilities during all the parts of a lesson can also be empowering for students. This "self-knowledge" becomes a lever for engagement and empowerment. Lane Harlow, a former third-grade teacher at Tollgate Elementary in Aurora, Colorado, spends a lesson at the

beginning of the year teaching students the purpose and expectation for each part of the workshop model lesson component. "Students thrive when they understand the structure of their day," she says. "Furthermore, they like the predictability of the daily routines. Once students understand the *why* and *how* of the lesson format, everything just flows together and less time is wasted setting up, settling down, and repeatedly explaining new or different structures. I know the routines also help me be a better-prepared teacher because they offer me a framework in which to think through the learning."

The familiarity with protocols and routines fosters confidence. Carri Thomason, an elementary school teacher at Pocatello Community Charter School in Idaho, begins each day's mathematics lesson with a protocol she calls "My favorite mistake." As students get started on the *grapple* portion of the workshop, she floats and looks for common errors.

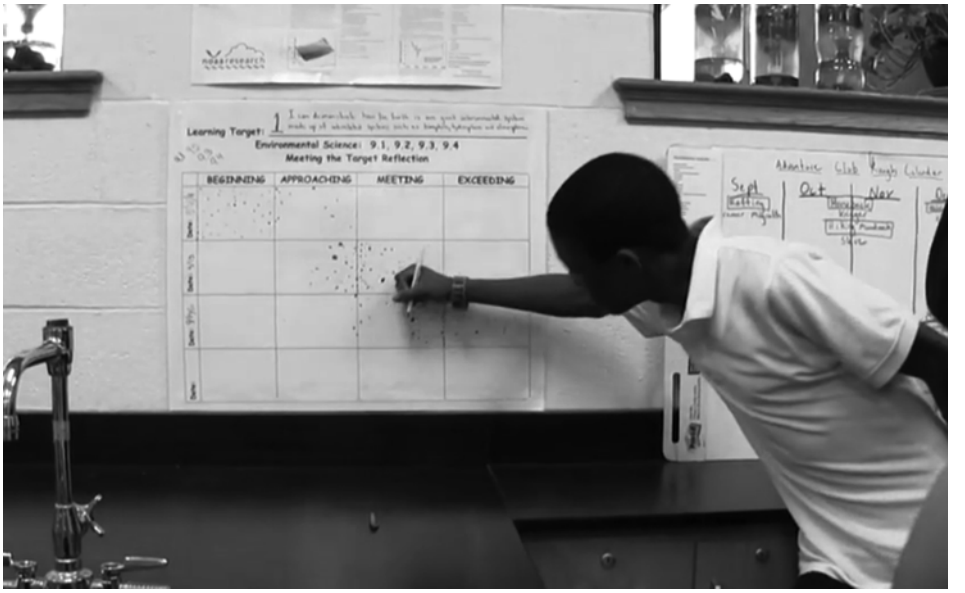
> "Then I post them, dramatically, as my favorite mistake (it's important that my favorite mistake is one made by lots of students, that way no one feels picked on and it is never revealed by me who made the mistakes). I make a huge deal about how the mistake is so clever that kids would have to be mathematical geniuses to find and correct the mistake I've shared. Of course, the kids find and fix the mistake. We have a discussion about why that mistake is made and how we can avoid it in the future. Then we begin the lesson. My point is this: We all make mistakes. The only bad mistake is one we don't try to learn from."

Build Structures That Help Students Track and Own Their Progress toward Learning Goals

To design a lesson that empowers students with a deep understanding of how they learn as well as what they've learned, punctuate the lesson with opportunities for students to track their progress. "Tracking progress charts," used by students as a group to reflect on class progress or by individual students to track progress on specific learning targets, are one such tool. For an example of students tracking their data, see the accompanying video.

WATCH Video 4: Students Own Their Progress

Tracking their progress empowers students to own their learning.



Portfolios that include drafts of student work and feedback from peers and teachers, anchored in explicit rubric criteria, are a more holistic long-term way of tracking progress toward quality work. Teachers can plan for students to use a portfolio for a single project or for an entire year's course. Lessons can be planned to allow students to dig into their work and assess their progress toward long-term learning targets or standards. Finally, daily or weekly reflections (e.g., exit tickets), in which students describe the progress they've made toward targets and provide evidence for their claims are a narrative way for students to track their own progress.

Whatever structures you choose to support students in owning their own learning need to be identified as part of the lesson planning, and time must be dedicated to teaching students how to use the structure. Thereafter, time must occasionally be set aside for students to reflect, track their progress, and report that progress in a systematic way.

Plan for Differentiation

Planning instructional moves—including protocols and assessments—to meet the needs of diverse learners is key to deeper learning. Done well, differentiated

instruction challenges, engages, and empowers students. Students who are less ready for the reading, writing, or speaking required by a lesson or students who have already mastered the content of a lesson require special attention. They may need different materials, more or less scaffolding, or a modified setting. A detailed description of the many ways that teachers can effectively differentiate for all kinds of learners is offered in Chapter 6: Differentiating Instruction.

As we see in the In Practice section that follows, students themselves are full partners in the teaching and learning enterprise. Challenge, engagement, and empowerment begin with an effective plan for deeper instruction. But they come to fruition only when the plan is executed.

IN PRACTICE

From Planning to *Delivering* Lessons That Challenge, Engage, and Empower

Throughout a series of lessons, Anne Simpson's kindergarten students at Two Rivers Public Charter School in Washington, D.C., have been learning how to make text-to-self connections. Today, in order to push their thinking even further, she has planned a new lesson that will introduce them to the concept of text-to-text connections. Using the fictional story "Trouper," about a rescued dog, and the nonfiction text "Everything Dogs," Simpson asks her students to make connections between the two texts.

Simpson reads passages aloud to students and asks them to write their text-to-text connections on sticky notes. As they are working independently, she moves among them and asks them about the connections they are identifying. Up until this point, Simpson thought the lesson was going pretty well, but listening to her students as they work tells her a different story—students are reverting back to text-to-self connections. "I had really high expectations," she says, "but about halfway through my lesson I realized they really weren't getting to the point where I wanted them to be and I had to switch gears." She quickly transitions the students into independent learning centers and revisits her plan for the lesson.

At this point, one student, Ozzy, approaches Simpson and asks a simple but critical question: "What's a text-to-text connection?" Simpson sits with him and by asking him questions and looking together at the texts she is able to steer him toward a solid understanding of the concept. He is finally able to make text-to-text

connections, and his work becomes the exemplar she needs to help the rest of the class. "Kids learn so much more from their peers," Simpson says. "He will share his thoughts with other kids and be able to word it in a way that the other kids will understand probably much better than I'll be able to word it."

Upon reflection, Simpson notes, "Today I asked them to do too much too fast." Despite this false start, Simpson is able, in the end, to lead her students (with Ozzy's help) to the learning she hoped they would gain from the lesson. Key to her ultimate success was her ability to listen closely to what her students were telling her and her willingness to change her plan to accommodate their needs. View this lesson in the accompanying video.

WATCH Video 5: Redirecting a Lesson with Exemplars

Plan Great Lessons, but Be Prepared for Anything

Planning lessons is essential. Planning is the rehearsal time when teachers can identify and refine opportunities for deeper instruction. But delivering a great lesson is less like following a script and more like live interactive theater, in which actors and audience members tell a collaborative story. Each performance is different, depending on the energy, skills, and interests of the audience. The actors, under the leadership of a director, have prepared and rehearsed their opening lines, the structure of the play, and a repertoire of strategic moves that draw the audience in and engage them—not as passive observers, but as central characters—in the story that unfolds. The magic of interactive theater is not on the page of the script, but in the spark of connection as the story, the professional actors, and the untrained audience members interact.

This interactive magic is very much like what happens in classrooms everywhere as teachers develop their own repertoire of strategic moves and students interact with the content, each other, and their teachers within the instructional core. Teachers, like directors, must know their students, organize their material, and determine both the how and the when of delivering it. In the theater of the classroom, however, the content, not the teacher, is the main actor on the stage. The teacher is the director behind the scenes, and her goal is to engage students with the content—to bring students into the story, where they become center stage, interacting with words, numbers, ideas, and each other.

As we saw in Anne Simpson's kindergarten classroom, sometimes students don't progress as you intend them to. And, just like she did, it's important to recognize when it's time to turn the page of your script or toss it out and write a new one. Abandoning your plan should not be seen as a failure. In fact, knowing when to "flip the script" usually indicates that you are clear about what you want students to learn, and you have checked for understanding along the way—this is good practice. After all, the most ambitious and well-written lesson is not worth much if students leave the room more confused than they were when they walked in. Changing course is part of being a teacher. In the theater of the classroom, there is no one right way to do things, and there's certainly no way to predict how twenty or thirty diverse learners will interact with the content, each other, and you.

In this section we shift from the planning of challenging, engaging, and empowering lessons to what it takes to deliver them. There is no doubt that there is an art to delivering lessons well, but this art can be learned. It is not something bestowed on great teachers from birth. It is something that comes from practice, willingness to learn from others, and a belief that improvement is within our control. Primarily we focus on a few key lesson components—no matter the design—that are essential for the success of any lesson: an opening that hooks students into the worthiness of the work with which they are about to engage; time for students to grapple with concepts, ideas, texts, or problems; frequent checks for understanding; and a debrief or synthesis.

Setting a Course for Learning with a Strong Opening

How many times have we heard our students ask, "Why do we have to do this?" How many times have we said this ourselves throughout our own educational journey? Answering this question by helping students understand why their hard work matters is a critical ingredient when designing curricula and lessons, but too often it is left out of the plan. The worth of a lesson does not need to be *justified* to students as in "You'll need to know this for next week's test." Those are just words. Instead, lessons should begin with a "hook" that will naturally build students' curiosity and fuel their motivation to do their best work. This hook may come from a table full of mysterious materials at the start of a discovery-based lesson. It may come from a challenging grapple problem during a Workshop 2.0 lesson. Or, it may come from a beautiful model of high-quality work that students aspire to replicate. These thoughtfully planned lesson openings invite students into a learning space where they can answer the question "Why?" for themselves.

A strong opening engages students with their questions and makes them want to seek answers

Reenie McMains, a sixth-grade teacher at Sierra Expeditionary Learning School in Truckee, California, recalls starting a lesson with a mathematics problem in which she intentionally withheld the units of measurement from students. "Pretty soon," she says, "students started asking, 'What measurement are we talking about here? Are these triangles even comparable?' Next, a student conjectured that he could use the Pythagorean theorem to solve for the missing variables in the measurements, if only he knew how to calculate square roots. "So then the math we were learning became purposeful. They were hooked," she reflects. She then shared the daily learning target with students, who were by then primed and ready: *I can develop a complex mathematical question based on observations.*

Don't Just Write Learning Targets; Use Them to Leverage Growth

As discussed in the Getting Started section, we recommend learning targets as a tool to plan purposeful lessons and sequences of lessons that move students up Bloom's Taxonomy. McMain's example is a good one for demonstrating their value in engaging students in the lesson, hooking them in to the learning that is before them. Learning targets can be used strategically and wisely. They can also be used

poorly. Simply writing them on the board or reading them aloud at the start of the lesson is not enough. This does little to engage students in their learning. The target must be introduced at the right time, unpacked in discussion with students so that they understand it and can own it, and referred to throughout a lesson so that students can articulate the connection between what they are doing and what they aim to know and be able to do at the end of the lesson. Thomas Rochowicz, from WHEELS in NYC, almost always shares the learning target(s) with students at the beginning of class, and, often, he shares what the student's exit ticket (i.e., assessment) will be at the end of the class at the same time. When students are consciously aiming for the target, they work harder to develop the skills and knowledge they will need to "hit it" on the assessment.

In the hands of teachers, learning targets are a powerful tool for planning for challenge and engagement. In the hands of students they are equally powerful as a tool for empowerment. As one eighth-grade student at the Odyssey School of Denver states, "I know I understand the learning target when I feel the confidence to say 'I can.'" Knowing where they're headed gives students ownership over their progress. If they can't say "I can," they know they haven't met the target. A former Odyssey student, Elena Fulton, subsequently attended a large comprehensive high school in Denver where teachers don't use learning targets. She reflects on how she handled the transition: "Learning targets guided and supported my learning for all of my nine years, and by the time I graduated, I could not bear to part with them. In fact, it had not even occurred to me that traditional schools don't use learning targets regularly, if at all. Walking into my first class freshman year . . . almost without thinking, I created a target for myself based on the writing prompt and reading assignment on the board."

Connect the Intended Learning to Students' Prior Knowledge

Connecting students to what they already know about a topic is a productive way to ground them in the learning. Prior knowledge or skills become a firm surface from which to launch new learning. Connecting with "what I know" facilitates their "need to know" and thus engages them in deeper learning. Incorporating this step in the opening of any lesson is also a way of situating students within the broad landscape of their learning; it's a way of saying "This is where we've been, this is where we are, and this is where we're going next." The daily learning target

then becomes just one step on the staircase to meeting a standard (or, over a student's K–12 education, on the staircase to college- and career-readiness).

Share Models of High-Quality Work

Another engaging way to open a lesson and motivate through inspiration is with compelling and beautiful student work or professional work. No amount of teacher talk or written guidelines can achieve what a model can. A model creates a vision of what quality looks like and allows students to create specific criteria, in their own words, of what quality looks like. When a teacher in one of our schools in Maine put out a gallery of models—professional-looking local field guides created by students of different ages in schools across the country—his students were captivated. They immediately wanted to create something equally impressive and useful. They argued about their favorite guides and favorite features. They argued about what features they could borrow for their own project. They wanted to come to consensus about what quality work would look like so that they could begin the work right away.

Particularly when introducing a challenging assignment or product as the outcome of a lesson, seeing a model of how other students or professionals have done something similar can kick start students' understanding of where they are headed and motivate them to persevere with their own work, to do more than they may have thought possible. How to critique a model of high-quality work *with students* so that students identify and articulate the criteria for quality is explored at length in Chapter 2.

Grappling with Problems, Ideas, and Concepts

A well-designed opportunity for students to grapple with problems, texts, ideas, or concepts is where the rich brew of deeper instruction is most powerful. This is where asking the right questions—as opposed to giving the right answers—can give students a challenge that they can sink their teeth into. Allowing them to grapple with that question collaboratively engages them in co-constructing knowledge and empowers them as they learn that they can discover the "answers" with their own ingenuity.

Grappling is baked into the lesson structures described in the Getting Started section. No matter what the lesson structure, however, using complex texts or tasks that are initially confounding to students is a strategy that should be approached

thoughtfully so that it is productive and empowering for students. The following list provides an overview of strategies teachers can use to create a class culture in which challenge or struggle is viewed as a way to learn, not as a barrier to learning:

- Build common language in your classroom for "grappling"—you don't have to call it grappling, but label it for students. Make it a class routine with specific strategies (e.g., re-reading, annotating, collaborating).
- Give students tangible successes early in the year by designing tasks you know they can be successful with and supporting them to do them with quality. Give students lots of individual feedback to help them grow and regularly point out their growth.
- Talk explicitly about the importance of taking on challenges in order to learn. When appropriate, read and discuss with students short pieces of research about having a growth mindset and its impact on learning.
- Use group initiatives to practice grappling with a challenge, tenacity, and problem solving—discuss application to classroom lessons when debriefing the initiative.
- Engage students in discussions that make the link between character traits and the grapple phase of your lessons: What does perseverance look like? What are tips for helping yourself keep going when the going is hard?
- Create meaningful metaphors for instilling a growth mindset (e.g., the mind is a muscle that can get stronger).
- Do a "zones of comfort" activity: draw concentric circles for the comfort, risk, and danger zones. Students identify the types of experiences they have that fall into the different zones. Point out that the risk zone is our learning zone—we learn best when we are a little uncomfortable.

Harness the Power of Questions

The first and easiest shift teachers can make when incorporating more productive struggle into lessons is moving from asking questions with "right" answers to asking open-ended questions. In Workshop 2.0 and discovery-based lessons, curiosity and engagement stem from an opening problem or question that students encounter right out of the gate. Reenie McMains, from Sierra Expeditionary

Learning School, often puts an intriguing question, like "Do round things fly?," on the board to start her Inquiry Friday lessons. "When they come to me from fifth grade, this sometimes stumps them," she says. "They are used to being told how to do things. Then I try to be less helpful."

Open-ended questions invite students to generate their own ideas, defend them with reasoning and evidence, elaborate on them, and build on them with new questions (Alber, 2013). These are also questions that can't be answered by the teacher himself. They are questions that beg for real-time, original answers rather than the scripted solutions from the answer key. They are questions that allow the teacher to see and hear student thinking, questions that push students to engage fully in the lesson content and to make connections between concepts and back to the text, and to take responsibility for articulating their learning in their own words.

"If the questions are not causing students to struggle and think, they are probably not worth asking," says Dylan Wiliam (2014, p. 16). Formulating challenging and meaningful questions takes time and forethought and should be part of the lesson-planning process. Preparing questions in advance allows teachers to differentiate and contextualize the questions in the sequence of the lesson so that all students have access and opportunity to dig deep for the answers. Pre-planned strategic questions advance the discussion of a text, the understanding of a topic, or the synthesis of the lesson's activities. They demand that students think deeply and critically (not just that they remember or relate to their own experience).

Teachers will not always have the answers to good questions. Students will not always find the answers. A classroom dialogue based on inquiry makes failure a real possibility. But through perseverance, collaboration, and multiple attempts—perhaps guided by redirection after assessment—students can, and do, succeed over time. Just as important, they learn that asking hard questions, looking for answers, and evaluating the evidence to support their answers is what educated people do.

Questions are powerful tools for teachers. They are also powerful tools for students. The Common Core literacy standards ask students to ask and answer questions about key details (reading anchor standard R.1) and to conduct

> The purpose of strategic questions is to enhance comprehension, not to assess it.
>
> *–Suzanne Plaut, director of Curriculum Design, EL Education*

research based on self-generated questions (writing anchor standard W.7). But how do we teach students to ask the right questions? In *The Language of Learning: Teaching Students Core Thinking, Listening, and Speaking Skills*, Margaret Berry Wilson (2014) emphasizes the importance of teaching students to identify the purpose of different types of questions. "By understanding the purpose behind every question, students can better clarify their own thinking and make strategic decisions about what to ask in a given situation." She describes a lesson in which students generate questions about a text and then sort them according to their purpose:

- *Clarifying questions*: To understand what you read, heard, or saw
- *Background questions*: To understand more about the history behind what you read, heard, or saw
- *Opinion-seeking questions*: To find out what others think about what you read, heard, or saw
- *Challenging questions*: To find out whether you believe or trust what you read, heard, or saw

Finally, Wilson recommends that instead of giving students the pat response "Good question," teachers should point out what kind of question students are asking and how it will help them reach their learning target. For example, when a student asks, "How does being a vegetarian qualify this writer to evaluate the health impacts of genetically modified foods?" the teacher might answer, "Your question challenges us to determine whether or not this source is biased and valid. It will help you identify strong evidence for your argument." When students understand the different types of questions, and how they flesh out a concept, they are more likely to generate multiple questions and different types of questions (Wilson, 2014).

In the Strategy Close Up that follows, Dan Rothstein and Luz Santana of the Right Question Institute offer a protocol for teaching students to ask their own questions.

STRATEGY CLOSE UP: The Question Formulation Technique

The Question Formulation Technique[5] prescribes these specific instructional moves to help students prioritize a list of brainstormed questions, select one, and improve it before beginning an investigation.

1. Ask a small group of students to write as many questions as they can about the topic in a short amount of time.

2. Students then talk about each question on the list: What is its purpose? Is it open ended or closed? Is it a testable question? What sources would provide answers?
3. Students categorize questions according to Bloom's Taxonomy, then "choose three questions that move you up the ladder."
4. Select the one that can be researched accurately and reliably. This also might be a starting point for further research.

As is true with all protocols, the Question Formulation Technique must be explicitly taught and practiced. Initially it may require a full 50-minute period for students to do it successfully. Once students know how and why to generate critical questions, the teacher can and should step back into the role of facilitator and coach.

Checking for Understanding: Knowing What They Know Empowers Students

As Anne Simpson discovered, a well-planned lesson can still fall short if students don't reach the target of the lesson. Consequently, an essential part of deeper instruction is checking for understanding. Our approach to checking for understanding involves both the quick checks that happen during the course of daily lessons, like what we saw Simpson doing in her kindergarten classroom, and the deeper kind of check that occurs when we design tasks that require students to describe their conceptual understanding, like we saw in the *Economics Illustrated* example in the Getting Started section.

Quick checks encompass a wide range of techniques—formal and informal, oral and written, verbal and nonverbal—used by teachers and students to track what students understand and can do throughout a lesson. As a result of this ongoing assessment, teachers and students make adjustments to what they are doing to ensure that gaps in understanding are addressed and that students who have mastered concepts may comfortably move on to another learning task.

It is important that these kinds of quick checks are meant to get a true read on *every* student's progress, not just on the progress of some students. Too often you will hear teachers asking questions—"What year did the Civil War start?" "How much is 7 + 5?" "What does an adverb do?" Often, if no student answers the question immediately, you will hear the teacher himself give the answer. Or, if two or three students raise their hands to answer the question, the teacher may listen to the answer, clarify if necessary, and then move on, assuming that most students understand the material. Dylan Wiliam notes that these off-the-cuff, lower-level questions don't provide accurate assessment data for the teacher, and they give

opportunity and affirmation only to those students who already know the answer; those who don't raise their hands still don't know, and, worse, don't know how to find out (Wiliam, 2014).

Strategies that ask all students to reflect, assess themselves, and communicate their own sense of their progress toward the learning target are much more valuable, both for the teacher and for the students. What follows are some examples of quick checks that involve all students in self-assessment:

- *Heads together.* Students stand up and literally put their heads together (huddle) to respond to a question. After a minute or so, "heads apart" and debrief answers with the class.
- *Think-pair-share.* Given a prompt or a question, students think first independently and then turn to share their thinking with partners. Partners may be assigned strategically to match students with different or similar strengths. Partners may also be asked to share out with the whole class.
- *Electronic response systems.* "Clickers," or apps like "Poll Everywhere," enable teachers to ask a question and get instant data about students' understanding.
- *Exit tickets.* This involves short writing in response to a prompt or question that all students complete at the end of the lesson. Well-crafted exit tickets can also serve as a pre-assessment for the next lesson.

Quick checks give teachers important information about students' collective and sometimes individual progress toward targets so that they can adjust instruction if necessary. They often don't, however, provide a granular picture of whether individual students have met long-term objectives or demonstrated deep understanding of concepts and skills. Checking for this kind of understanding requires locating high-quality summative assessments at strategic points in a series of lessons. The design of the assessment is critical; it must match the thinking task (knowledge, skill, or reasoning) identified in the learning targets (Table 1.2). A multiple-choice test may allow you to check for a student's ability to analyze or evaluate, say, the best of three options. However, an essay might be a better way to see a student's logical reasoning abilities in support of a claim. Often, a truly complex task—an artifact, piece of writing, demonstration, or presentation—is needed to assess higher-order thinking skills on the upper levels of Bloom's Taxonomy. Such tasks may be on-demand, such as an essay or dialogue in a world

language class. Or, they can be tasks student work on and revise over time in class as they apply the learning of daily lessons.

Synthesizing and Reflecting on Learning

One of the hallmarks of a lesson that empowers students is that it helps them learn how to learn. At the end of a lesson, synthesizing and reflecting on learning with students enables them to "file" the learning away for transfer to a new lesson or learning opportunity. As we saw in Maria Ekmalian's class earlier in this chapter, an opportunity to debrief learning invites students to reflect on the big ideas they are taking away from the lesson. During this important part of any lesson, students reflect not only on what they learned, but also on how they learned it.

The debrief may also ask students to weigh the value of a strategy or behavior that helped them be successful that day, for example, "What strategies did you use to annotate your article that helped you discover the bias of its author?" Often, questions that get at this metacognition will arise from teachers observing students at work, seeing them have *aha*'s or overcome obstacles. Helping them process these experiences will support the development of positive work habits and a growth mindset Finally, synthesis and reflection invites students to connect their learning to bigger disciplinary concepts: "How is today's news story similar or different to what you've learned about economics in the 1920s?"

When time is short, as it often is at the end of a lesson, inviting students to answer synthesis or reflection questions in pairs, trios, or quads rather than speaking them out to the whole group will create more opportunities for participation. In any case, a debrief is a time for student voices to have the last word, for them to name and store for later the skills, understanding, and reasoning that have made them successful in the day's lesson.

The Critical Moves for Planning and Delivering Lessons That Challenge, Engage, and Empower

Planning and delivering challenging, engaging, and empowering lessons takes intention and practice. So that students can become leaders of their own learning, teachers must make thoughtful choices about lesson structure and content and attend to the nuanced choreography of the teaching and learning steps that students and teachers take during a lesson. Table 1.4 illustrates the who, what, and why of lessons that challenge, engage, and empower.

Table 1.4 The Who, What, and Why of Lessons That Challenge, Engage, and Empower

What Do Teachers Do?	What Do Students Do?	What's the Result?
Consider the curriculum. Plan daily lessons in the context of where you've been and where you're headed.	N/A	Lessons and sequences of lessons build the long-term skills, knowledge, and understandings students need to meet standards and learn deeply.
Plan for challenge. Focus on skills and tasks that demand cognitive rigor and demonstrate mastery of required standards.	N/A	Lessons intentionally move students up Bloom's Taxonomy and lead to deeper learning.
Plan for engagement. Choose a lesson structure in which students are doing the thinking, reading, writing, talking, and investigating.	N/A	Students do the cognitive work in the classroom and have a need-to-know orientation to their learning.
Plan for empowerment. Identify protocols, assessments, structures, and differentiation strategies that give all students tools for leading their own learning	N/A	Students develop the habits and skills of efficacious learners.
Launch the lesson with purpose. Name learning targets, connect to real-world issues, and set expectation for (or share models of) what students will do at the end.	Name the purpose of the lesson and take aim to meet the target. They identify strategies for meeting expectations and feel confident they can succeed.	Students create high-quality work and work toward mastery of knowledge and skills.
Insist that students grapple. Ask strategic questions and support students with graphic organizers, anchor charts, and other ways of representing their thinking.	Persevere through challenges because of structures that allow for grappling. They learn to debate and disagree and use evidence to support their ideas. They ask and answer deep questions.	Students know how to formulate focused questions and how to seek their own answers. They value evidence and develop routines and note-taking strategies for organizing, remembering, and archiving their ideas.
Actively use the learning target with students throughout the lesson to promote ownership of learning. Use well-designed formative and summative assessments to check for understanding and adjust instruction.	Assess their progress and articulate where they are going and how they'll get there. They understand the data and how it reflects their learning.	Students take responsibility for the results of their learning. They analyze their own data, reflect on academic choices, and revise their habits and actions to get different results.

What Do Teachers Do?	What Do Students Do?	What's the Result?
Provide opportunities for students to synthesize and reflect on what and how they learn.	Articulate both what they learned and how they learned it. They reflect on the process and the product.	Students can adapt to different and more complex learning situations. They are resourceful and resilient.

SCHOOLWIDE IMPLEMENTATION

Making Teaching Practice Transparent

In the introduction to this book we explored the concept of *academic mindsets*, including the importance of students' growth mindsets—their belief in their own capacity to "get smart" through hard work and persistence. But teachers need a growth mindset too. Believing that we can improve our craft as teachers builds our confidence and skill, and this is ultimately the path to better outcomes for our students. But how do we improve our craft as teachers? It is not as simple as reading a book or keeping up our professional development credits. It takes deep commitment from school communities to set up systems and structures to make teaching practice transparent and that allow others to plan with us, observe us, give us feedback, and learn from us.

At Two Rivers Public Charter School in Washington, D.C., the entire school community made such a commitment to improving their craft, particularly with planning and delivering great lessons. They agreed on common language and common structures, and to continually analyze when and why their lessons were working. Though the staff didn't decide to all follow one particular kind of lesson design, they did decide to bring common structures to lessons in all classrooms. They spent six months' worth of faculty meetings, in fact, studying one common component of all of their lessons: the debrief at the end of every lesson. They focused on such strategies as having one to three students or groups share rather than the whole class, identifying the key concepts in a lesson that they wanted students to synthesize, and creating some form of exit ticket to collect data on what every student took away from the lesson. Together they sharpened their practice for concluding lessons.

Teaching can be a lonely profession. Unless we consciously decide to do otherwise, or work in a school like Two Rivers that has committed to the practice, we

may rarely, if ever, find ourselves looking at other teachers' lesson plans or observing them teach. This has always been true in American schools, even though research shows that peer observation and collaborative analysis of lesson plans and student work leads to sharp improvement in teacher practice (Darling-Hammond & Richardson, 2009).

In other parts of the world—most notably Japan—teaching is viewed as a collaborative endeavor in which continuous improvement over the long term is an integral part of the profession. The Japanese lesson study is one of the best examples of focused, collaborative work that can affect the planning and implementation of lessons and, most important, the results for students. The steps of the Japanese lesson study include:[6]

1. *Defining the problem.* A group of teachers (often grade-level or disciplinary groups) collaboratively define a problem that can be addressed in the course of lesson. Usually this comes from a problem of practice in their classrooms (e.g., using proper punctuation when writing dialogue), though sometimes it comes from policymakers seeking teacher input on national priorities.
2. *Planning the lesson.* Teachers collaboratively plan a lesson to address the problem. The lesson plan is presented to schoolwide faculty for critique and then revised to prepare it for implementation. This initial planning may take several months.
3. *Teaching the lesson.* Teachers collaboratively prepare materials and conduct dress rehearsals. The actual lesson is then conducted by one teacher while the rest of the group observes.
4. *Evaluating the lesson and reflecting on its effect.* The teacher who taught the lesson reflects first on how the lesson went, including its problems. Other members of the group then offer critique of the lesson. Because the lesson is a group product and everyone in the group feels ownership, the focus is on the flaws of the lesson itself, not the teacher.
5. *Revising the lesson.* Based on specific misunderstandings of the students, the group might change the materials, activities, questions asked, and so on.
6. *Teaching the revised lesson.* Once the lesson is revised, it is taught to a different class, sometimes by the same teacher but often by a different teacher. All members of the school faculty attend.

7. *Evaluating and reflecting again.* As before, the teacher who taught the lesson reflects first. Then the entire faculty reflects on the success of the lesson, focusing on how well it addressed the defined problem and student learning.
8. *Sharing the results.* Most lesson study groups produce a report that details their work. This report is used in the school and sometimes is forwarded to educational authorities for wider dissemination.

The term "lesson study" is used rather loosely in the United States. Rarely does it refer to a process as comprehensive as the Japanese model, instead focusing on less robust classroom observation structures. School leaders may never find a way to engage teachers in a highly regimented lesson study like the Japanese, but making time and space in the school calendar for observation and critique, and, ideally, some kind of collaborative planning process, can make a difference.

Achieving consistent teaching practices throughout a school requires intentional and strategic leadership. To start with, leaders must make the time for teachers to engage with each other around the questions that drive their lesson planning. "How can I increase the level of challenge here?" "What's a better hook for this lesson?" "How will I help my students show that they can transfer their knowledge and skills to novel situations?" There is no reason to struggle with these questions alone. Collaboration in planning and structures that engage teachers in respectfully giving and receiving feedback on lesson plans and implementation improve learning. They can also go a long way in diminishing the isolation that so many teachers feel when they shut the doors to their classrooms.

Key Leadership Actions

Lay the Groundwork

- Be explicit and relentless in creating a professional culture that is safe for teachers to share their questions and struggles in order to grow together. Celebrate a growth mindset across the school so that faculty feel empowered to take risks, to open their classrooms to peer and coach observation, and do not feel they have to close their doors and bury their lesson plans to hide weaknesses in their instruction.

- Create structures for planning. Time is the most elusive commodity for most teachers, especially for those in the first few years of their careers; they often need school leaders to help them find planning time.
- Develop norms for effective collaboration and common systems for facilitating and documenting grade-level or subject-area planning meetings.
- Consider developing a common lesson-planning template that prompts teachers, especially novice teachers, to incorporate common lesson design elements (e.g., an engaging hook" time to grapple, a debrief).

Build Teachers' Capacity

- Be the lead learner. Attend professional development on lesson design and engagement strategies alongside teachers. Model lessons for teachers so that teachers see that leaders too have a growth mindset about improving schoolwide practice.
- Develop a multipronged strategy for professional learning around planning and delivering lessons that includes whole-staff professional learning, intensive and collaborative coaching for individual teachers, and planning and revision of plans within teaching teams.
- With individuals and teams, develop a theory of action (i.e., If we do *X,* then we expect to see *Y*). Collect data on these actions and analyze the results.

Support Teachers to Deepen Their Practice

- Schedule regular learning walks to analyze patterns of practice across the grade level, department, or building—and the impact these practices have on students' learning. If possible, invite teachers or teams to also conduct learning walks. Table 1.5 is an example of a learning walk note-catcher focused on the quality of questioning in the classroom. You can also use the Indicators of Deeper Instruction (Table I.1) to focus observations on deeper learning.
- Conduct a formal lesson study in which teachers plan a common lesson, observe each other teaching it, then analyze and revise their practices collaboratively. Share the Japanese model with them and decide together on an adaptation that will work in your setting.

Table 1.5 Observation Note-Catcher for Questioning in the Classroom

Category	Accomplished indicators . . . *The lesson includes*	Observations
Questions are planned	Questions aligned to the learning targets Strategies to make questions visible to students (charts, visual aids) Thinking extenders and challenge questions with an emphasis on probing Protocols or strategies to encourage students to ask their own questions	
Questions focus on specific content, concepts, skill and character targets	Warm-up questions to clarify learning targets and illuminate schema Questions that build on schema and increase in complexity Questions that clarify criteria for success and help students determine next steps	
Questions emphasize critical thinking and metacognition	Questions focused on critical thinking: top four levels of Bloom's Revised Taxonomy Questions that promote metacognition (thinking about thinking)	
Questions are structured to promote engagement and deep thinking of all learners in varied patterns of dialogue	Structures for think-time to promote deep thinking by all students Note-taking, illustration, written conversations or quick-check strategies to help all students engage during think time Cold call, no opt out, whiteboards and/or other whole-class engagement strategies Strategies to support students to ask their own questions Student-centered protocols that create varied patterns of dialogue	

COMMON CHALLENGES

Planning Lessons without a Long-Term Curriculum Map

Know how the lesson fits into the big picture. Lessons that are compelling in and of themselves, but not anchored in the larger purpose and arc of a long-term curriculum, may succeed in the moment but fail to move students toward the overarching goals for the work. These lessons sometimes fall into the category of "activities." When teachers sit down to plan and begin the conversation with an excited gasp and the phrase, "We could do . . ." beware! Beginning with the big picture and the long-term targets in mind will help teachers plan backward to individual lessons that follow a road map to lasting success.

Aiming Low

Design complex and challenging tasks. In order for students to strengthen their intellectual muscles, the tasks we ask them to complete must stretch them cognitively. Teachers can ask themselves a series of questions:

- What did students learn that they didn't know before?
- Did the task—reading, writing, questioning, discussing, writing, problem solving—involve higher-order thinking skills like analyzing, evaluating, or creating?
- Did they read complex text, conduct research, or use evidence to support their thinking?
- Did I ask them to synthesize ideas and apply what they learned in new work?
- How did this learning advance them toward the long-term targets of this unit?

Writing Vague Lesson Plans

Plan how you will challenge, engage, and empower students by writing down the lesson steps. Many lessons fail because they are too loosely constructed or teachers write them to comply with school policy but don't actually use them. Identify the teacher moves and directions for student moves throughout the lesson, including time for such things as grappling, annotating a text, discussing collaboratively using a protocol, or applying learning to solve a problem. Do the task yourself to troubleshoot problems that may arise for your students. Lesson plans should also

identify when and how students and the teacher will assess progress and debrief the lesson. It is important that the written lesson plan is a living document that guides instruction and that teachers reflect on afterward, annotate for revision, and save with plans to improve the next time around.

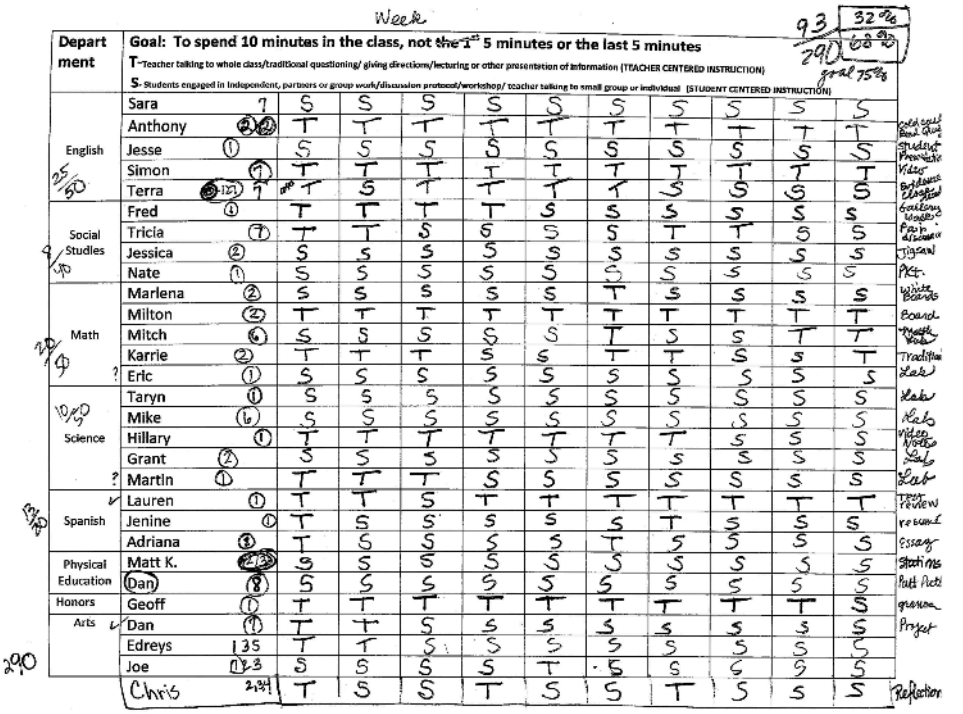
Too Much Teacher Talk

Structure ample time for student work and student voices. With so much going on in the classroom, it's easy to be unaware of who is doing the talking during a lesson. Observation feedback focused simply on the types of questions a teacher asks, the amount of wait-time he or she gives students, the use of cold calling or another method to reinforce accountability, and the depth of students' answers is a great way to push more and deeper student talk in the classroom. Attending to tight time frames for the various components of the workshop model or the other lesson structures introduced in this chapter will also help teachers shift from teacher-centered to student-centered teaching, where what students are doing and saying is at the heart of the classroom conversation. Leaders Lynn Bass and Elizabeth Smallwood at Tapestry Charter High School in Buffalo, New York, confronted this problem by collecting data about the ratio of teacher talk to student talk. They visited each classroom for 10 minutes and recorded who was doing the most talking during each minute. This data dramatically shifted teachers' practice. They became much more mindful and intentional about making room for students' voices. See Figure 1.6 for a sample data collection form used at Tapestry.

Forgetting to Assess What's Being Learned

Students and teachers must track students' progress. In the sincere effort to cover all the content, teachers sometimes rush through without pausing for an assessment of whether individual students are "getting it" along the way. The bell rings and that sound, mid-sentence, is the end of the lesson, rather than any strategic debrief or assessment of the skills and knowledge taught. Although the teacher may have taught a great deal, it's very possible the students have learned little. Assessment—both formative and summative—is the lynchpin of learning. It keeps the wheel of learning turning because students and teachers both know intimately the topography of where they've been and where the trail is headed next.

Figure 1.6 Teacher Talk versus Student Talk Recording Form



Overlooking the Needs of Some Students

Support all learners. It can be tempting to simply teach to the middle, but careful assessment will often reveal that although most students have met the learning targets, some fall far short and a few met them before or moments after the lesson began. A lesson designed to meet the needs only of most students, allows the "some" and the "few" to fall through the cracks. Successful differentiation is a tremendous challenge for teachers; however, careful planning prior to the lesson can help teachers identify places to provide additional scaffolds for some or fewer scaffolds for others so that by the time the lesson is delivered all students experience just right challenges. Chapter 6 covers differentiation comprehensively.

Avoiding Change

Cultivate a growth mindset. Learn from colleagues and commit to changing your practice. Teams that consistently and collaboratively implement high-quality

lessons continually critique and improve what they've done before. With lesson planning, technology is your friend. Composing lessons digitally and saving them to a shared electronic space on which others can critique, add to, or revise a lesson for their own class streamlines and elevates this process. Teachers rarely have enough time to sit down together and finish planning. An electronic sharing system, and a commitment to continual improvements that address shifting standards, student needs, and other parameters (class size, classroom technology, staffing support, schedule changes), allow teachers to work smarter, not harder, to develop lessons that challenge, engage, and empower students.

Notes

1. The original documentary can be viewed on YouTube.
2. Our work with learning targets is founded on the assessment for learning practices of Rick Stiggins, Judith Arter, Jan Chappuis, and Steve Chappuis and the Assessment Training Institute.
3. Appendix B: The What, Why, and How of Protocols, outlines the important ingredients in any protocol and provides a recipe for introducing protocols to students.
4. The Biological Science Curriculum Study (BSCS), a team led by Principal Investigator Roger Bybee, developed the instructional model for constructivism, called the "Five Es." Other models have been adapted from this model, including the 6E and 7E models.
5. The Question Formulation Technique (adapted from the Right Question Institute: http://rightquestion.org/educators/resources/).
6. Stigler, J. W., & Hiebert, J. (1999). *The teaching gap: Best ideas from the world's teachers for improving education in the classroom.* New York, NY: Free Press.