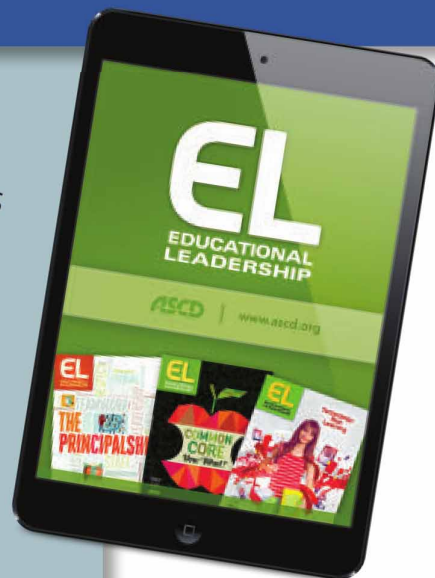


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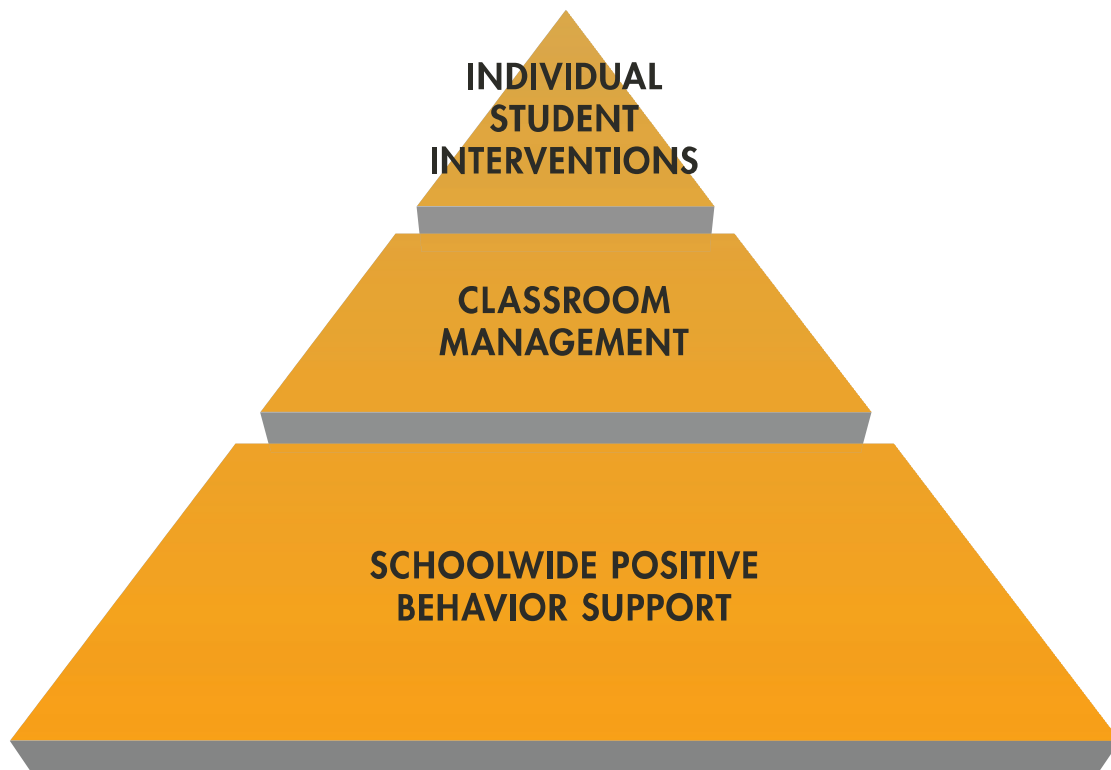
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Powerful Lesson Planning



10 Start with Higher-Order Thinking

Susan M. Brookhart

Convince your students you really want them to think, and watch both learning and motivation spike.

16 The Icing or the Cake?

Kristina J. Doubet and Jessica A. Hockett

Engagement is the ingredient to use if you want to make learning delicious.

22 Every Lesson Needs a Storyline

Bradley A. Ermeling and Genevieve Graff-Ermeling

To reach your lesson's goal, proceed with the end in mind.

28 For Sale: Your Lesson Plans

Kim Greene

A new marketplace of lesson plans is a click away. What are its benefits and drawbacks?

30 How to #GoOpen

Andrew P. Marcinek

What you need to know about open educational resources.

34 How to Partner with Your Curriculum

Janine T. Remillard

Good teachers *do* use curriculum materials to guide their instruction.

40 Using Math Menus

Marilyn Burns

Math menus extend the lesson with lots of options for kids.

46 Pursuing the Depths of Knowledge

Nancy Boyles

Give every level of learning—from recall to extended thinking—the respect it deserves.

52 Just-in-Time Support

Suzy Pepper Rollins

From bookmarks to graphic organizers to cheat sheets—teacher-made scaffolds keep students reaching for new learning.

58 The Promise of Collaboration

Michelle Bauml

Better than simply sharing the work, planning lessons with partners results in more effective instruction.

65 Starting Strong

Ben Curran

There's a place for both direct and indirect instruction. Here's how to plan to make each work.

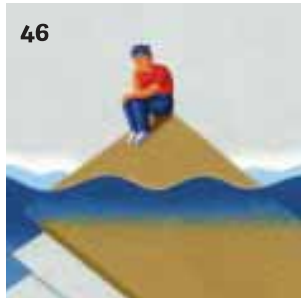
16



40



46



70 When Curriculum Meets Art

Nicola Giardina

Here's a museum-inspired framework for interdisciplinary art lessons.

Columns

PERSPECTIVES

7 Turning Lesson Plans into Learning Plans

Marge Scherer

RESEARCH MATTERS

75 Novice Teachers Benefit from Lesson Plans

Bryan Goodwin

Well-designed lessons can be a new teacher's best friend.

SHOW & TELL: A VIDEO COLUMN

79 Sponge Activities—Make Every Minute Count

Doug Fisher and Nancy Frey

These tools help kids soak up learning.

Watch the video.

THE TECHY TEACHER

83 Escaping the Lesson-Planning Doldrums

Catlin Tucker

Take advantage of students' interest in all things digital.

PRINCIPAL CONNECTION

86 How Principals Spark Engagement

Thomas R. Hoerr

The joy of learning applies to teachers, too.

ONE TO GROW ON

89 Lesson Plans Well Served

Carol Ann Tomlinson

A set of standards is a starting point; enlivening learning is the goal.

Departments

8 Double Take

84 Index to Advertisers

92 Tell Me About...

What You Learned from a Lesson Plan That Flopped

94 ASCD Community in Action

EL TAKEAWAYS

96 Seven Lessons on Lesson Planning

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8 Questions for Better Lessons

Otis Kriegel

To help improve any lesson plan, look at it from these eight ways.

Of Swallowtails and Swallows

Samantha Bennett

A butterfly unit transforms 2nd graders into readers, writers, and lepidopterists.

Off to the Duck Races: Planning for Inquiry in STEM

Michelle Stephan

How you launch a STEM lesson can make all the difference.

EL Study Guide

Naomi Thiers

EL Interview

Kristina J. Doubet talks about planning around a concept or essential question that connects to students' lives.

Inservice Guest Bloggers

Bradley A. Ermeling and Genevieve Graff-Ermeling and Suzy Pepper Rollins

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Coming Up in November | Disrupting Inequity

Gain insights into the effects of discrimination, the challenges of poverty, and the causes of opportunity gaps. And learn what researchers and practitioners who are fighting for equity every day believe will change our schools.

- James Ford and Monique W. Morris on discipline disparities for students of color
- Ellen Kahn on the needs of transgender students
- Steve Suitts and Vicky Dill and colleagues on addressing the challenges of the new majority: students living in poverty
- Susan B. Neuman on the tendency of current instructional strategies to make vulnerable students feel "measured and rubricked"
- Plus, Rick Wormeli and Julie Landsman provide multiple ways to start the conversation about racism in schools

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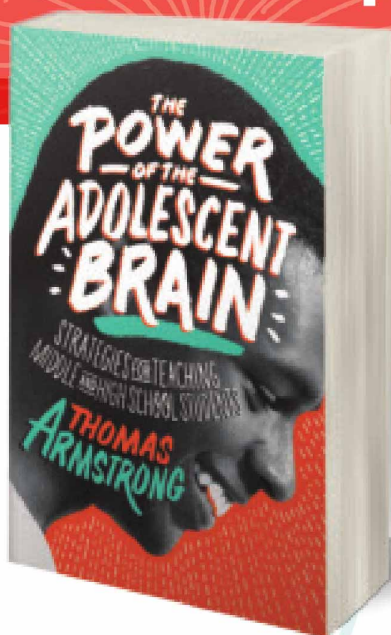
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The Power of the Adolescent Brain: Strategies for Teaching Middle and High School Students

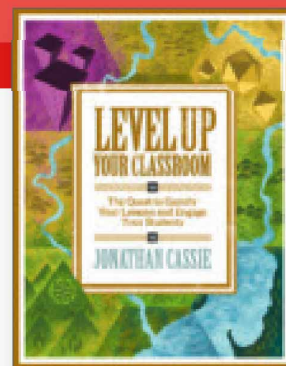
Thomas Armstrong

Thoroughly grounded in current neurological research, the book proposes eight essential instructional elements that will help students develop the ability to think, make healthy choices, regulate their emotions, handle social conflict, consolidate their identities, and learn enough about the world to move into adulthood with dignity and grace. Armstrong provides practical strategies and real-life examples.

Level Up Your Classroom: The Quest to Gamify Your Lessons and Engage Your Students

Jonathan Cassie

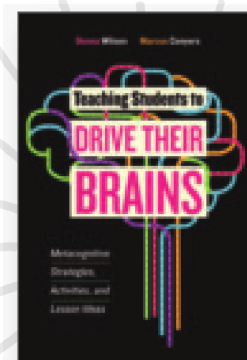
Get to know *gamification*, an instructional approach that's revolutionizing K-12 education. The best games feature meaningful choices that have lasting consequences, reward experimentation, provide a like-minded community of players, gently punish failure, and encourage risk-taking behavior. In the classroom, a gamified lesson fosters perseverance, creativity, and resilience. Students build knowledge through experimentation and then apply what they've learned to fuel further exploration at higher levels of understanding.



Teaching Students to Drive Their Brains: Metacognitive Strategies, Activities, and Lesson Ideas

Donna Wilson and Marcus Conyers

Metacognition is a tool that helps students unlock their brain's amazing power and take control of their learning. This book includes useful metaphors, learning strategies, and instructional tips that you can use to teach your students to be in charge of their brains. Sample lessons show these ideas in classroom settings; sections on professional practice help you incorporate these tools so that you are teaching for metacognition as well as with metacognition.



Marge Scherer

Turning Lesson Plans into Learning Plans

When we were planning this issue of *EL*, one colleague, a former middle school teacher, spoke up: Isn't lesson planning dead? he asked, and you could tell from his voice that he was hoping it was. He admitted that back in the day, he rarely put together formal lesson plans. His principal didn't demand it, and he considered it a thankless task.

The recent student teacher in our group had another take. Her cooperating teacher, known for her content expertise and good relationships with kids, "wasn't really a planner," she said. But faced with teaching 22 seniors *Hamlet* in an eight-week period, this student teacher really wanted a plan. She did come up with dozens of creative ideas, but not until she had spent a few midnight sessions scouring the Internet. Thus, when the school's instructional coach mentioned the Folger Shakespeare Theatre's Guide to *Hamlet*, she was grateful. "Google is great, but sometimes you just want an authoritative book that lays it all out," she said.

Lesson planning—Master teachers and beginners alike can have a love/hate relationship with it. In this issue, our authors examine some of its seeming contradictions. They also look at what's new in lesson planning and what may be old but worth keeping. From learning how to launch a lesson (p. 65) to exploring how to create scaffolds (p. 52), you are likely to find ways to make instruction more effective for your students as well as more rewarding for yourself and fellow educators.

Plan for Thinking or Plan for Engagement? The Common Core State Standards and other assessment-related standards have in some ways scrambled the theory of lesson planning, changing the daily agenda from a list of content and activity items to an outline of complex standards that demand rigor. An important question becomes, How do you plan lessons that address requirements, yet engage students so they want to learn?

Susan M. Brookhart (p. 10) dispels the idea that emphasis on higher-order thinking means less intriguing classes. In fact, she writes, "Memorizing facts is boring. Drill and practice is boring. But thinking for most students most of the time is actually fun." The problem is that students who are used to giving you what they think you want may need to be convinced you really want them to think. She describes strategies to accomplish this—from asking more "why?" questions to using more tasks of interpreting or producing.

For ideas about making challenging content engaging, see Kristina J. Doubet and Jessica A. Hockett's suggestions (p. 16). Or check out Marilyn Burns' math menus (p. 40) for adding choice and differentiation. And for more about planning for the depth of knowledge levels in the CCSS, see Nancy Boyles' plan for rigor at every level (p. 46).

Plan for the Day or Plan Long Term? Teachers have been reaching for something to teach on Monday morning

for a very long time. And sometimes, U.S. teachers in particular think more about planning engaging activities and less about planning for coherence, Bradley A. Ermeling and Genevieve Graff-Ermeling relate (p. 22).

Although these authors favor incorporating exciting and relevant activities, they note that activities often are scheduled at the wrong place in the sequence, before kids know the why behind them. They describe how to think backwards, starting with the end goal and planning guideposts. That way, instead of getting kids excited about the activities, you get them excited about the learning.

What Is the Best Way to Plan?

Our authors debate many questions: Should a teacher rely on published curriculum materials, or is it more helpful to create unique lesson plans together? See Janine T. Remillard (p. 34) and Bryan Goodwin (p. 75) for the benefits of using premade lessons plans, and look at Michelle Baum's perspective (p. 58) on the upsides of planning together. And, finally, is it worth your while to buy and sell lessons in the (sometimes) lucrative online marketplace? Kim Greene (p. 28) examines the pros and cons.

Beg, borrow, or share, or #GoOpen with vetted OERs (open education resources, p. 30). Planning is the new—and time-tested—route to being the teacher your students need.



Marge Scherer

Research Alert

Finding Materials to Teach the Common Core Standards

How are teachers finding materials to implement the Common Core English language arts and mathematics standards? A 2015 survey of more than 2,000 teachers in states that have adopted the Common Core standards suggests that although the great majority of teachers are using some materials provided by their districts to align with the standards, almost all of them are also developing or selecting their own instructional materials.

In mathematics, 97 percent of elementary teachers and 98 percent of secondary teachers said they used some materials they selected and/or developed themselves. In English language arts, 99 percent of elementary teachers and 96 percent of secondary teachers said they used materials they selected and/or developed themselves.

Most of these teachers said they used their self-developed or self-selected materials frequently (at least once a week)—in mathematics, 82 percent of elementary teachers and 91 percent of secondary teachers; and in English language arts, 89 percent of elementary teachers and 85 percent of secondary teachers.

The RAND report—*Implementation of K–12 State Standards for Mathematics and English Language Arts and Literacy: Findings from the American Teacher Panel*—is available at www.rand.org/content/dam/rand/pubs/research_reports/RR1500/RR1529/RAND_RR1529.pdf.

DOUBLE TAKE



Online Only A Guide to Open Educational Resources

If you're looking for a starting point to explore Open Educational Resources (OER), begin at Edutopia's OER Resource Roundup (www.edutopia.org/open-educational-resources-guide). The site features a video overview, tips for locating OER, and rubrics for evalu-

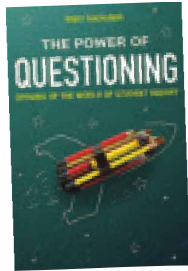
ating their quality. The roundup also includes a comprehensive list of websites with openly licensed content plus related articles for extended reading. For more about OER and how your district can "go open," see Andrew Marcinek's article in this issue on p. 30.

Relevant Read

The Power of Questioning: Opening Up the World of Student Inquiry

by Starr Sackstein
(Rowman & Littlefield, 2015)

Many educators would agree that having students follow their curiosity and take charge of their own learning is the Holy Grail of teaching. How can teachers set up classroom conditions and plan for interactions that lead students to approach learning as a delightful inquiry? Starr Sackstein's *The Power of Questioning* is packed with ideas about planning instruction that encourages inquiry and instills within students a lifelong desire to learn.



A lot of it comes down to making students' questions the centerpiece of classroom work—even if that means setting aside class time to help students

identify what they want to learn and to then develop their own rewarding questions. Sackstein explains in detail how to teach students about questioning. Teachers can help students explore what makes a rich question, dissect and get a handle on the poor questions they'll likely face on many standardized tests, and apply their questioning skills to course content. With examples from her own teaching and that of others, she shows how even slight shifts in approach (for instance, beginning a teacher-student learning conference with the *student's* thoughts on an upcoming learning goal) can fuel an attitude of inquiry.

Numbers of Note

Where do teachers find lesson plans?



91%
report finding or sharing
lesson plans on social
networking sites or
educational sites.



76%
say that they share
resources and lesson plans
when they spend time
collaborating with colleagues.

YouTube.com 64%

Discovery.com 50%

Scholastic.com 47%

PBS.org 46%

Pinterest.com 41%

What websites
do teachers use
most often for
lesson planning
help?

Source: Scholastic and the Bill & Melinda Gates Foundation's *Primary Sources: America's Teachers on Teaching in an Era of Change* (3rd edition); www.scholastic.com/primarysources/PrimarySources3rdEditionWithAppendix.pdf

Screen Grab

Putting Thinking in Students' Hands

Ideally, lesson design isn't so much about delivering content as it's about getting students to become autonomous thinkers, says English language arts teacher Sarah Brown Wessling in a Teaching Channel video, "Instructional Model: Gradual Release of Responsibility." In the video, Wessling leads her high school students through the in-depth exploration of a literary work, slowly but surely shifting the cognitive load to learners through four steps:

1. The focus lesson ("I do it")
2. Guided instruction ("We do it")
3. Collaborative group work ("You do it together")
4. Independent work ("You do it alone")

View the lesson and hear Sarah Brown Wessling's rationale for Gradual Release of Responsibility at www.teachingchannel.org/videos/improving-teacher-practice.

Page Turner

**"The simplest
strategy for designing
open questions that
will promote deep
thinking is to ask
'Why?' as often
as you can."**

—Susan M. Brookhart, p. 10



START WITH Higher-Order Thinking

These three strategies can help you ensure that every lesson encourages students to think deeply.

Susan M. Brookhart

Memorizing facts is boring. Drill-and-practice is boring. But thinking, for most students most of the time, is actually fun. The good news is that lessons that support higher-order thinking are also likely to interest and engage students.

In this article, I share three of the many strategies available for infusing higher-order thinking skills into your lesson plans. Try one or more of these, and experience the magic of students thinking together. With support and scaffolding (students who are used to memorization and drill may need to be convinced you really want them to think), both learning and motivation should improve. And that may inspire you to find other ways to infuse higher-order thinking into your classroom lessons.

Strategy One: Open Questions

I recommend that you plan two or three open questions for every lesson. Craft those questions carefully to make sure they tap the particular content and thinking skills you want to teach. And to deepen the learning even further, be sure to include in your lesson plan some follow-up strategies to get students to respond to one another instead of just to you.

Designing Open Questions

Ask students to describe similarities and differences. Be careful; asking for similarities and differences can be a simple comprehension strategy (for example, “Compare and contrast the physical characteristics of mammals and reptiles”). Instead, you need to go for comparisons that



require analysis and reasoning about concepts or situations. In mathematics, for example, when teaching number sense, you might ask, “How are 11 and 16 alike? How are they different?” Students will come up with all kinds of ideas. Or in social studies, “How was the political climate in President Obama’s first term like that in his second? How were the two climates different?” To answer these questions, students must know and comprehend both elements in the comparison, but they also must use reasoning to make and defend the comparisons.

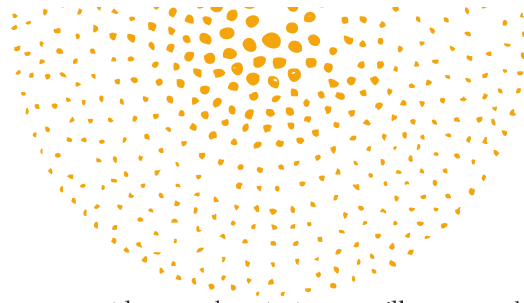
Describe a fictional student. Students sometimes find it easier to critique an idea if the object of their criticism is a fictional student. Write a brief scenario—even just a sentence or two—describing the work or thoughts of a fictional

student, and then ask for student responses. There are two ways this can work.

First, students can analyze the thinking of a fictional student who performed a procedure “wrong,” describing how they would correct it. For example, you might say, “Conrad solved this problem. Do you agree with Conrad’s answer? If not, what would you tell him?”

$$\begin{aligned}45 - 3x &= 141 \\45 - 141 - 3x &= 0 \\96 &= 3x \\x &= 32\end{aligned}$$

This math problem has a correct answer ($x = -32$), so finding the answer to the problem itself is a closed question. But figuring out what Conrad was thinking requires



analysis of his partially incorrect steps, and explaining his errors opens up the question to a variety of student approaches.

A second way to use fictional students is to elicit student thinking about different sides of questions that are already open. For example, if students are studying the local ecosystem and their school is near a river, your open question might have two fictional students disagreeing: “Elijah thinks that the best way to increase the trout population in the river is to pass a law prohibiting manufacturers from dumping waste into the river. Nicholai thinks the best way to help the trout population is to increase the number of flies and other insects in the river, so the trout will have more food. Do you agree with either position? What would you say to Elijah or Nicholai?”

Ask students to make an argument or explain their reasoning. Probably the simplest suggestion for designing open questions is to ask “Why?” as often as you can. Of course, waiting until a student says something interesting and then asking her “Why?” leaves a lot to chance, so when you’re preparing a lesson, try to preload some “Why?” questions into your class discussion. For example, in a lesson on interpreting informational text, ask “Why do you think the author describes the life of tigers first in the article, before she talks about how tigers are endangered?” Or for a social studies lesson about World War I and its aftermath, “Why do you think many people in the United States became isolationist in the period right after World War I?”

Encouraging Students to Respond to One Another

Use wait time. Students will need more time to answer higher-order thinking questions than they will to answer questions about facts. If you don’t

provide enough wait time, you’ll get either no responses or surface-level responses. One way to give students wait time is by literally waiting, asking for silence while students have time to get their thoughts together. “Think time, no hands up” is a good general strategy for simple waiting. When all the students have thought about the question and everyone is ready, ask for volunteers. This strategy works at all grade levels, but especially for young children.

Lessons that support higher-order learning are also likely to interest and engage students.

Another way to give students wait time is to structure a way for them to think out loud as they process their thoughts. A classic strategy for achieving this is think-pair-share. There are many variations of this strategy, but the basic idea is that you ask an open question and give students a brief time to think, then time to talk with a partner, and then the opportunity to share with the whole group. By the time students must share their thinking with everyone, every student should have something to say—whether it’s something the student was thinking, something his partner was thinking, or something they cooked up together. No one is stranded or disenfranchised, and everyone has had the opportunity to think, not just the few students who are called on.

Ask follow-up questions in whole-class discussions. Typically, students answer closed questions with the expectation that the teacher will tell them whether

they’re right or wrong. Open questions, however, can support more participation than that. As students offer their thoughts about the open question you’ve asked, resist the temptation to comment yourself. Instead, ask follow-up questions that allow other students to respond. Here are some examples: “Ella, can you tell us in your own words what Matio’s position on genetic engineering is?” “Sonjai, can you add another reason to Sarah’s argument that George Washington was uniquely suited to be the first U.S. president?” “Jamal, do you agree with what Julia just said about the speaker in Robert Browning’s ‘My Last Duchess’? Why or why not?”

Ask follow-up questions in small-group work. You can also start a whole-class discussion, take it in a productive direction for a few minutes, and then send students into small groups to discuss an open follow-up question that furthers students’ thinking about the content. For example, after a class discussion about how chemical and physical changes are alike and different, during which you asked students to elaborate on one another’s explanations, you might send them into small groups with another open question: “Sometimes chemical and physical changes happen together. For example, cutting the grass is a physical change, but it causes the cut part of the grass to die, which is a chemical change. Can you think of other examples? Which aspect of your example is a chemical change? Which is a physical change? Why?”

Strategy 2: Thinking, Not Retelling

A retelling task asks students merely to look up and reproduce information—artfully perhaps, but without additional cognitive processing. For example, a teacher assigns students

to find out about the natural resources in their state and assemble these facts into a report, poster, or brochure. The assignment requires students to locate information, but not necessarily to understand it or even remember it. There are tons of examples of retelling tasks on the Internet. Many of them look good. For example, in one high school class, each student artistically illustrated one element of the periodic table of elements. But in the end, all they had was a pretty reproduction of the periodic table.

As one step above simple copying information, some retelling tasks ask students to put information in their own words. Such tasks have a place—for example, we can use them to assess comprehension in reading lessons. However, even comprehension-level retelling tasks stop short of asking students to use higher-order thinking.

Here are two of the many ways you can turn retelling tasks into active thinking tasks. Both strategies start with content that might have been the subject of a retelling task, but instead have students ask (and answer!) something meaningful about that content. In the process, of course, students will have to comprehend the content, but they'll also have to wrap their heads around it in a more active way.

Pose a purposeful problem. Asking students to make a poster is the “poster child” for a retelling task—one that you find in many classrooms and all over the Internet. All students have to do is copy information onto their poster, make it colorful and attractive, and voilà, they have a completed assignment, with no evidence of what they understand about their topic.

Whenever you are tempted to assign a retelling task, start by posing a purposeful problem. Ask yourself, What



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might be an interesting problem to solve, one where students would have to know something about ___? For example, suppose your students are learning about the planets. Instead of having them choose a planet and make a poster showing its characteristics, give them this task:

You are one of a new generation of astronauts. You have been asked to help decide what planet you'd like to settle and why. Look at the characteristics of each of the eight planets in the solar system, and decide which one you'd want to try to settle. Make a poster describing your planet, the challenges it would present, and some of the equipment you might need to settle it.

(For example, if the planet is very cold, you might need some equipment that would provide heat.)

To accomplish this task, students will have to look up planet characteristics, understand what they mean, and prioritize them in terms of challenges they would be interested in facing. That means they must learn about the planet (your original learning intention) and also think analytically and critically about the information.

Ask “what if” and “what else” to compel students to expand or elaborate on what they're studying, analyzing, or describing. For example, in social studies, if students are studying



As students offer their thoughts about the open question you've asked, resist the temptation to comment yourself.

algorithm, and then ask, “How else could you solve this problem?” In figuring out other methods (using drawings, counters, or other algorithms, perhaps), students will also be processing what it means to divide.

Strategy 3: Student Self-Assessment

Students who can self-assess are poised to be life-long learners. They are poised to use self-regulation strategies and to be their own best coaches as they learn. They are able to ask focused questions when they don't understand or when they're stuck. Here are three strategies for building student self-assessment into lessons to promote higher-order thinking.

Teach students to self-assess with rubrics. Clear success criteria in the form of checklists or rubrics give students a tool they can use, alone or with partners, to assess the quality of their own work. In general, checklists are better for helping students assess how well they've followed directions, with such criteria as, I put my name on the paper, I wrote an introduction and conclusion, and I used at least three sources. Rubrics are better for self-assessment of qualities that indicate learning. (I stated a position. I defended it with reasoning. I used supporting details to back up my reasoning.) You'll need to teach some students to match qualities in their work with the qualities listed in the rubric.

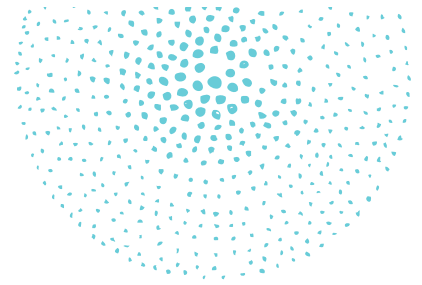
There are many ways to infuse the

presidential elections, you might be tempted to assign students to write a report on the election of their choice. That's a retelling task. Instead, you could ask “What might have happened in the 1968 presidential election if the United States were not embroiled in the Vietnam War?” Instead of simply learning facts about the 1968 presidential election, students would have to interpret those facts and understand what they mean. (An even more open version of this question would be to let students choose the election year and develop their own what-if scenario.)

Here's an example in science. If students are learning about the water

cycle, instead of giving them a retelling task like making a model of the water cycle, ask them “What else would you need to know about a particular region to predict how the water cycle would function there?” In working on their projects, students might think about factors that would influence how the water cycle functions in any given location, such as the climate, the geology of the land, and the presence of bodies of water.

Or in mathematics, if students are learning how to do long division using the standard algorithm, give them a problem (such as $46 \div 3$), ask them to solve it using the standard



use of self-assessment with rubrics into lessons. Probably the simplest is to stop at some point and have students, alone or in pairs, use the tool to self-assess and record their current status, either on a sticky note or on the rubric itself. This pause will not derail your lesson or take time away from things you need to cover. It's time well spent, and in the long run it will make learning more effective and efficient.

Use of rubrics for self-assessment can be more elaborate. For example,

Students who can self-assess are poised to use self-regulation strategies and to be their own best coaches as they learn.

you can hang a poster-sized version of your rubric on the wall and have students place anonymous dots indicating their appraisal of the current status of their work. Individual students will be aware of their own self-assessment, but all you'll see is an aggregated picture of overall class self-assessment. Another variation is to have students self-assess against a rubric and share their thoughts with a partner. Or you can ask students to highlight phrases on the rubric using a different color for each attribute, and then highlight their work accordingly. For example, if the rubric asks students to "take a position," they can highlight that phrase on the rubric in yellow and highlight the place in their essay where they take a position in the same color.

Use confidence ratings. Students can be more confident or less confident in their self-assessments. There are many ways to ask students how sure they are about the quality of their work and their learning. Here are a few.

In open discussion, ask students to indicate how confident they are that

they understand a specific term or concept (for example, "I know what an adjective is") by holding up "fist-to-five" (where a fist means zero confidence and five fingers means complete confidence). These votes are best kept private—for instance, by signaling just in front of the chest while facing the teacher—to minimize embarrassment or peer pressure.


During individual seatwork or writing, have students put red, yellow, or green circle stickers on their work.

Green means "I am confident I understand this," yellow means "I think I understand but I'm not sure," and red means "I don't really understand this yet." You can use this information to give more nuanced responses in your feedback. For example, low-quality work with a green sticker shows something quite different from high-quality work with a red sticker. In most lessons, however, the more likely distinctions will be between students with medium-quality work who show more and less confidence. Students with medium-quality work who believe they understand may need feedback targeted to specific errors. Students with medium-quality work who believe they don't understand may need feedback about the learning target in general as well as specific assistance.

Have students co-create success criteria. For learning goals with which students already have some familiarity, student self-assessment can begin with jointly creating the criteria you and the students will look for in their

work. This higher-order, creative exercise requires students to look at work samples, decide whether they are of high or low quality, decide what makes them high-quality or low-quality, and describe those characteristics. Give groups of students an unlabeled set of student work (for example, 10 different poems that use imagery). Have them sort the work into piles of high, medium, and low quality, and then ask them to come up with descriptions of what makes these poems high-, medium-, or low-quality work. List all the descriptions from all the groups on a whiteboard or on newsprint. Then ask students to group like descriptions (for example, "vivid" and "dramatic" are getting at the same quality in an image). Organize the resulting list into a rubric that students can use for self-assessment.

A Key Decision for Every Lesson

The most important question you can ask when you plan a lesson is probably this: How will I infuse higher-order thinking into this lesson, making sure that students are required not only to know something, but also to apply what they know? The strategies I've described here have just scratched the surface of the many methods available. Whether you use these strategies or others, I urge you to give students the opportunity to engage in higher-order thinking in every lesson. The result will be students who are more engaged and who learn more deeply. 

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Teachers can plan for student engagement so that it's more than just decoration.

**Kristina J. Doubet
and Jessica A. Hockett**

Please, please, please try to just shake it up sometimes. Give us a variety of work and activities and don't just stick to the same type of lesson every day."

This student's plea, reported in Grant Wiggins' 2014 Annual Student Survey of Academic Experience, reflects the longing of students in classrooms everywhere. Embedded in this learner's request are the top three culprits of classroom boredom, echoed by numerous high school students in the same survey: "Our assignments are just busywork," "There's no variety in what we do from day to day," and "The teacher talks too much."

It's tempting to dismiss such comments as the predictable complaints of adolescents who are inundated with compelling

and distracting content from screens and social media. But similar themes emerged in the responses of elementary and middle school students who were surveyed with the same questions (Wiggins, 2014a, 2014b). Both common sense and research tell us that an engaged student at any grade level will invest—and therefore achieve—more than will a disengaged student (Sousa and Tomlinson, 2011; Hattie, 2012; Walkington, 2013). So instead of disregarding these students' complaints, we should use them to catapult us toward more effective planning.

How then can teachers plan lessons that address required content and standards while promoting student investment? We offer the following four practical principles that address sources of disengagement.

1. Build teacher-student and student-student relationships.

There is little doubt that student-teacher connections have a powerful correlation with student success (Hattie, 2012). That's why so many teachers administer a getting-to-know-you inventory at the beginning of the year. Yet, when presented with the statement, "My teachers really know me," only 7.3 percent of surveyed students responded that they strongly agreed (Wiggins, 2014c). This disconnect indicates that simply gathering information about students is not sufficient to build relationships. Surveys are a step in the right direction, but they matter far less than how teachers act on the information revealed.

Consider the following survey questions:

- What do you enjoy spending time on?
- What do you struggle with? Explain.
- If you could invite anyone to a dinner party, whom would you invite and why?
- What's the best story you've ever seen or heard (from a book, article, movie, TV show, friend, or family member)?

If examined carefully, the results of such an inventory can provide contexts for math story problems, writing prompts, and even fodder for instructional groupings (for instance, "dinner

party" groups). By using survey information in this manner, teachers can connect students' personal lives to what they are learning *and* foster student-student connections.

Of course, relationships aren't built in one day at the beginning of the year, but over the course of the entire year. Teachers can integrate community-strengthening activities into normal academic routines to help a class gel, release

When students see themselves reflected in the "business" of class, they become more comfortable working with their classmates.

tension, and exercise courtesy: for instance, asking students to "fist bump" one another as they complete a task, or displaying fun questions for students to discuss once they are finished with their work, such as, "What television character is most like the protagonist in this story? How so?"

When students see themselves reflected in the "business" of class, they become more comfortable working with their classmates. The result



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is an interactive, open atmosphere that lays a solid foundation for promoting academic success.

2. Create interest through concepts and essential questions.

Let's face it: Most students will *not* jump up and down with excitement at the mention of topics like punctuation or the Civil War. Likewise, the statement "this is in the standards" is a less-than-compelling motivator for most learners of all ages. One way teachers can create interest in curricular content is by using two lenses: concepts and essential questions.

A concept is a broad, abstract idea—usually one or two words—that is universal and timeless (Erickson, 2002). Concepts can be discipline-specific (*chronology* in history/social studies or

Essential questions pique even the most reluctant learner's curiosity, begging to be discussed, debated, and explored.

composition in visual arts) or general (*perspective, change, patterns, conflict*). Teachers can probe the conceptual connections by considering what a particular topic is "a study in." For instance, punctuation could be "a study in the conventional and unconventional." Framing the content in this manner provides connections to students' lives and to the real role and purpose of punctuation. Additional examples include the following:

- Cells: A study in systems.
- Story: A study in power.
- Fractions: A study in relationships.
- The Civil War: A study in gain and loss.

Each of these examples provides an entry point into the content from students' lives and experiences. All students are part of multiple systems (family, school, peers); they understand what it's like to have and to lack power; they have experienced how relationships shape their identities; and they can connect with the idea that most good things come with a cost.

Teachers can use essential questions to propel

students from conceptual connections to investigation and study. Essential questions are provocative, ongoing, recursive inquiries that drive the study of a discipline, topic, or idea (McTighe & Wiggins, 2013). They reflect what the learner really would wonder under optimal conditions. An essential question for "punctuation, a study in the conventional and unconventional" might be, "What choices do writers have with 'the rules'? Who or what decides?"

A rich essential question has potential for engaging the youngest child and the expert alike. For example, "How do living things stay alive?" might focus a primary-grades science unit on the basic needs of living things. Such questions pique even the most reluctant learner's curiosity, begging to be discussed, debated, and explored.

3. Gauge and respond to student progress frequently.

As students wrestle with complex ideas, they will inevitably progress at different rates and encounter "road bumps" along the way. To keep students engaged in worthwhile work, teachers must gather evidence about how students are grasping content and where they are getting stuck. However, like responses from student surveys, this formative assessment evidence must be *used* in order to have instructional power.

Therefore, when planning lessons, teachers may consider reserving time—perhaps the first 15 minutes of class—to revisit issues arising from the previous lesson's formative assessment results. This might mean answering a few intriguing questions, addressing a common misconception, or giving students different tasks for practice or reinforcement that address needs revealed in the assessments.

As a routine, this habit has several positive outcomes that influence student engagement. First, when students see that the teacher has taken time to read and address what they have written, they are more likely to invest in giving honest responses. Second, students who see their teachers using their responses to drive instruction become more comfortable with the reality that everyone has different learning needs.

Teachers are often reticent to acknowledge students' different learning trajectories, fearing

that students will “feel bad” if their classmates know they “don’t get it.” But in classrooms where teachers respond to formative assessment evidence regularly, questions become the rule rather than the exception. In fact, surveyed students at all grade levels remarked that receiving extra teacher assistance, when needed, facilitated their learning because “every student learns at [his/her] own pace” (Wiggins, 2014a).

4. Offer choice.

There are inevitably spots in the curriculum—or even times of the year or day—that bring out the reluctance to learn in many (if not all) students. After repeated failed efforts to engage students at these points, a teacher might conclude, “Some kids just aren’t motivated.” But *all* human beings have passions, kinships, and areas of intrigue that motivate them to learn.

Few things motivate learners of all ages more than choice. Choice not only satisfies the innate human desire for autonomy and ownership, but can also increase student engagement in a task. Teachers can offer choice by appealing to two kinds of interests: personal and situational (Schraw, Flowerday, & Lehman, 2001).

Personal interests are those that the student brings to the classroom. Students “own” personal interests and develop them over time. Examples include playing video games, shooting hoops, and cartooning. One of many ways that teachers can proactively uncover personal interests is by asking students to make a pie chart representing their personal interests proportionally as different “slices.”

Harnessing students’ personal interests may be as simple as allowing students to listen to podcasts on the topic of their choice with the purpose of examining organizational structure. Alternatively, when students practice math skills by calculating discounts and sales tax, a teacher might provide them with ads for products

corresponding to their personal interests.

Although not all personal interests relate directly to curricular topics and skills, teachers can find and use patterns among interests—like technology, sports, music, and animals—to form interest-based groupings, design tasks, and make connections among school, learning, and real life.

In contrast, situational interests arise from a situation, such as those created by teacher-designed lessons and tasks. They are more spontaneous and “in the moment.” Teachers can

FIGURE 1. Examples of Assignment Options



Math

Use the angles (or shapes) we studied today to design one of the following:

1. Superhero movie set
2. Cupcake display
3. Stage for the Kids’ Choice Awards show



Language Arts

You will be provided with actual claims and terms from two documents: a phone company’s insurance policy, and an AppleCare agreement for extended warranty and support. Determine what each one promises. Then, write a blog post informing your followers which option provides better coverage of a new phone and why.



Social Studies

Your job is to use accurate information to provide a clear, reasoned, and supported opinion about whether we should retain the Electoral College. You may share your argument through one of the following products:

- Lawyer’s opening remarks (defending or critiquing the system to an uninformed jury).
- Analogy—written or visual—that illustrates the process and your stance on the process.
- Speech to the public explaining the system and persuading them to adopt your viewpoint.



Science

After an introduction to cells, choose an organelle to study. Examine Khan Academy videos on your organelle and make a “dating profile” listing what your organelle has to offer the cell and what it will need from the cell in return.

uncover students' situational interests before or during a unit by providing straightforward prompts such as the following:

■ Here are some things we will be learning about. Which three topics sound most interesting to you? Explain why you chose each one.

■ On a scale of 0 to 5 (0 = not interesting at all, 5 = super interesting), how interesting do you find what we're working on right now? Explain your rating.

video, reading about it, or listening to a podcast?" can pique students' interest and heighten engagement.

Teachers can also design tasks with simple variations that allow students to wrestle with the same learning goals in slightly different contexts. Figure 1 (p. 19) provides several examples of such assignment options.

Choices like these motivate students to focus on important, required content while giving them a say in how they accomplish the learning

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Surveys serve as a step in the right direction, but they matter far less than how teachers act on the information revealed.


■ What might make you more interested in the topic we're studying?

Research suggests that situational interest in a text or task actually increases with choice, even when personal interest is low (Schraw, Flowerday, & Lehman, 2001). Teachers can harness and create situational interest simply by providing students with options for how they will express their learning. Strategies like learning menus and jigsaw tasks promote choice in processing activities and assessments. Even asking, "Given a choice tomorrow, would you rather learn about this topic by watching a

goals. They meet the high standard of one 8th grader who said, "The work has to be fun, but also get the point across" (Wiggins, 2014b).

Not Just an "Extra"

These four principles offer practical ways to forge connections and infuse interest into the school day. It's easy to think of student engagement as an extra, or something to consider after getting the real unit or lesson in order. But students of all ages long to enjoy what they are doing and connect to what they are studying, to their teacher, and to their classmates.

Planning with student engagement in mind helps teachers meet students' real, human needs, without sacrificing their academic growth. It's not the icing on the cake; it's the cake itself. 

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EL Online

For more ideas on how to improve lesson plans, see the online article "8 Questions for Better Lessons" by Otis Kriegel at www.ascd.org/el1016kriegel.



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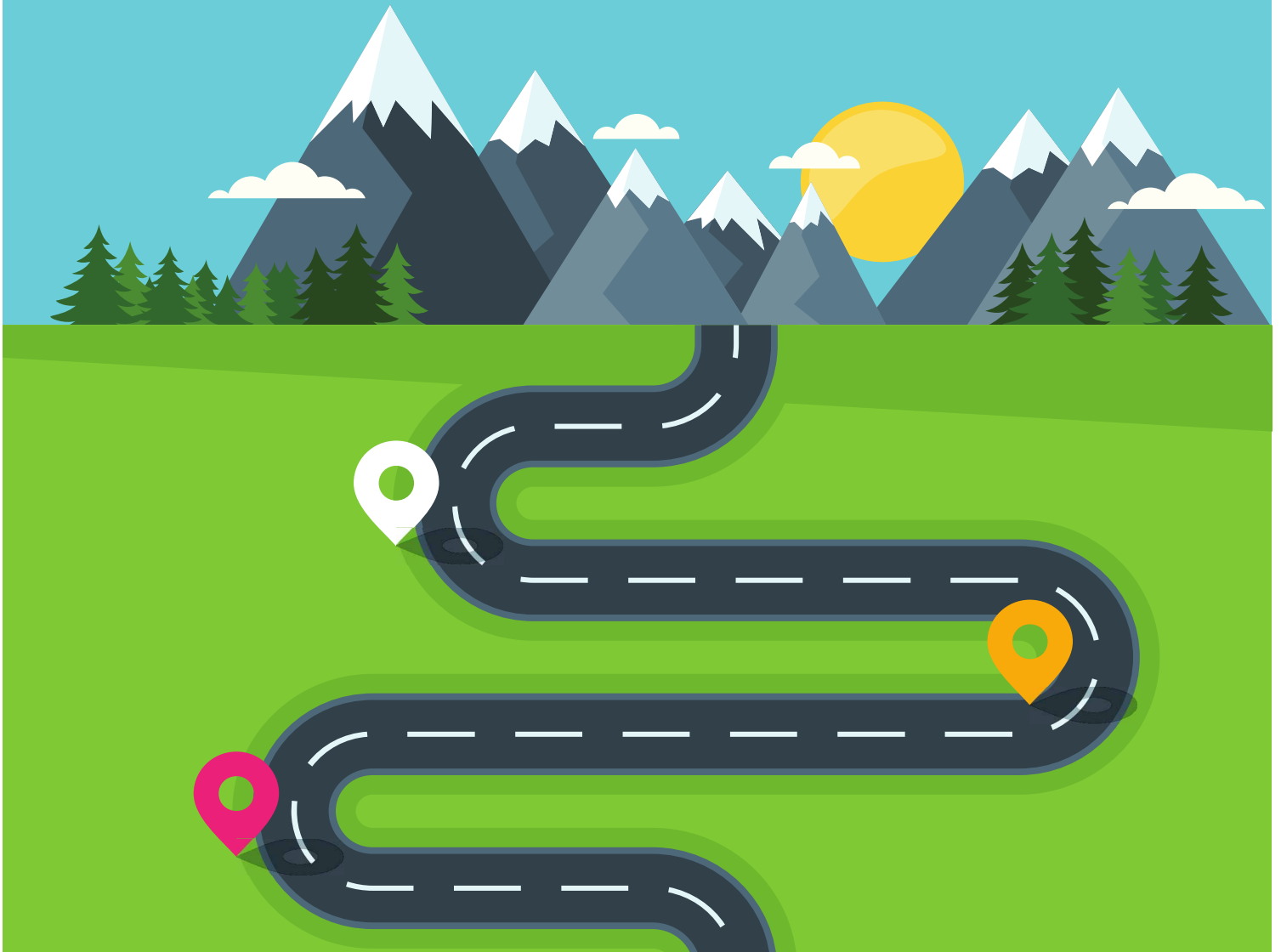


Solution Tree

Every Lesson Needs a STORYLINE

*Planning for coherent instruction not only engages students,
but also leads them toward mastery.*

Bradley A. Ermeling and Genevieve Graff-Ermeling



More than a decade ago, after comparing hundreds of classroom videos across five countries, researchers from the Trends in International Mathematics and Science Studies (TIMSS) made a disturbing observation about science lessons in the United States. U.S. classrooms, they said, commonly focused on “high-interest activities” (games, puzzles, excursions, humor, dramatic presentations, and so on) to increase student engagement—but teachers rarely used these activities to “support the development of content ideas in ways that were coherent and challenging for students.”¹

Moving Beyond Activity

These international studies reminded us that teaching is a cultural activity, and culture does not change easily. During the last 10 years, we’ve conducted research and worked with teachers in both elementary and secondary schools in planning instruction with less emphasis on activities and more emphasis on developing a coherent *lesson storyline*—the overall sequence or progression of lesson elements that helps students advance toward specific learning goals. Our observations suggest that “activity” and “engagement” are still the primary drivers of lesson content in many U.S. classrooms—not only in science, but also across other subject areas. But we’ve also found that teachers, with support and practice, can move beyond this focus on activity.

Here’s an example. A group of high school English teachers wanted to teach students to revise their own writing with less attention to mechanics and more emphasis on clarity of written arguments. The teachers were developing a lesson to help students revise their first drafts of a research paper. One teacher proposed that they build the lesson plan around a new peer-revision strategy in which students would work in groups, with each student filling a specific role: the *reader* would read the paper aloud; the *commentator* would stop the reader to discuss specific errors of clarity or content; and the *recorder* would keep notes from the discussion and preserve any specific sug-

gestions for improvement. The teachers’ initial rationale for selecting this activity was that introducing more variety into the peer revision process would increase student interest and engagement. They also hoped it would help students pause and think more carefully about the revision process.

As we worked with these teachers, however, they realized that their initial lesson plan lacked a coherent storyline that would move students toward the lesson objective. For students to master the skill of revising their writing to clarify their arguments, the teachers needed to create a more thorough lesson plan to explicitly teach students what revising for clarity actually looked like.

U.S. classrooms commonly focus on “high-interest activities,” but too rarely use them to develop content ideas that are coherent and challenging for students.

So the teaching team developed a sequence of exercises in which students would individually study a writing sample with a number of proposed revisions, rank these revisions on how well they improved the clarity of the sample’s arguments, and justify their rankings. Then, in a whole-class discussion, teachers would discuss the sample revisions, noting particularly strong student justifications and modeling their own thinking as they ranked the revisions. The teaching team anticipated that this series of modeling and analysis tasks would help students understand the desired shift from mechanics to clarity of content.

The teachers would end the lesson with their original peer-revision idea of group role assignments (reader, recorder, commentator), but now with an explicit emphasis on helping students pause and think more carefully about the quality of their revision work. Teachers would instruct the group commentators to stop the readers whenever they noticed specific errors in clarity or content, drawing on their earlier whole-class

How will this sequence of learning activities support the learning goal and advance students toward deeper understanding?

discussion of sample revisions.

The teachers found that after they implemented this lesson, students' error recognition and attention to clarity improved. As the teaching team reflected on the lesson results, they agreed that without the development of a coherent lesson storyline that incorporated modeling and ranking exercises, the peer revision activity would have engaged students—but it would likely not have enabled students to achieve the lesson goal.

Establishing a Design Rationale

A coherent lesson storyline requires that teachers develop and articulate a *design rationale* for the lesson. As teachers construct and combine lesson elements and activities, they must consistently ask, How will this sequence of learning activities support the learning goal and advance students toward deeper understanding?

For teachers who have little or no experience articulating a design rationale, the connections between an instructional activity and the desired outcome are often assumed. The teacher may simply state, "Students will be engaged with ____, so they will understand ____," or "Because we carefully reviewed ____, students will understand ____." These rationales do not explain the complex thread of teaching and learning that is woven together through each lesson activity and component. But teachers can learn to create a more complete rationale.



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Here's another example. We worked with a team of math teachers who were discussing ways to help students "visualize and understand the context of open-ended trigonometry problems" instead of memorizing solutions. They planned a lesson focused on solving right triangle problems with trigonometry and inverse trigonometry. At first, the teachers' discussions focused on increasing student interest in the content. To accomplish this, they planned to have students locate right triangles in architecture and other objects on the school campus; take pictures of the triangles; upload the images to an app called VoiceThread, which allows users to annotate uploaded images with recorded voice, text, audio, or video commentary; and analyze the triangles' unknown angles and side lengths using trigonometry and inverse trigonometry.

When the teachers first discussed the rationale for the lesson, they focused on how the high-interest activities would increase engagement. The teachers believed that getting students out of their seats to find triangles in their immediate surroundings would offer a change of pace, increase

student interest, and make the mathematics concepts seem more relevant. They assumed that this increased engagement would increase students' ability to visualize and conceptualize solutions to inverse trigonometry problems. But when prompted to further explain their rationale, the teachers realized that engagement alone would not help students become fluent with these complex concepts.

The teachers shifted the focus of their discussion to the potential of VoiceThread, not just to get students excited about the activity, but also to enable students to explain and monitor their own thinking. After uploading the images of triangles they found and analyzing their lengths and angles, students narrated their problem-solving process while sketching out each of their mathematical steps with VoiceThread's integrated pencil tool. The teachers' central question became, How will students' preparation for annotating their right triangles help them learn the concepts? The new lesson rationale was that as students annotated solutions and recorded their commentary (in writing and speaking) for various right triangle images, they

would actually be teaching the concepts to themselves and their peers.

In previous years, teachers had occasionally asked one or two students to demonstrate their problem-solving process on the board and questioned those students to elicit their thinking. Teachers hoped that other students would vicariously think through the process while they watched and listened to these examples from peers—but in actuality, only the presenters were engaged in the heavy lifting


of articulating mathematical reasoning and receiving direct feedback to advance their understanding of trigonometry.

By incorporating the voice-overlay function in VoiceThread, teachers moved beyond the constraints of this traditional method. They directly engaged all students in narrating their mathematical ideas about the triangles and broadened the range of examples available for teaching core concepts, such as congruence, similarity, and

symmetry. Student results exceeded teachers' expectations: 90 percent of students demonstrated effective use of "inverse trigonometry to find one missing angle," and 90 percent used the Pythagorean theorem to solve the remaining side.

As both the English and math examples illustrate, learning to develop and articulate a lesson rationale requires facilitation and practice. Figure 1 provides two more specific examples from teaching teams. One

FIGURE 1. From Incomplete Lesson Rationales to Advanced Rationales: Two Examples



Subject	Incomplete Rationale	Advanced Rationale
6th Grade Science	By being engaged in learning stations about the structures of the eye, students will better understand how these individual structures are related to their functions.	<p>By giving students time to study the introductory video on their tablets, we will enable them to gain basic familiarity with the essential structures and functions of the eye.</p> <p>By engaging in learning stations about each of these structures, groups of students will further explore and discover the relationship between the specific structures and functions. Because these stations will break the eye into individual components, students will more easily relate each structure to its function.</p> <p>By using the Socratic method (questioning and dialogue) at each station, students will develop deeper understanding of the structure and function than they might through simply memorizing information.</p>
High School Social Studies	By being taught the definition of <i>inference</i> and engaging in feedback with small groups, students will recognize and distinguish levels of inference.	<p>By initially learning about the definition of <i>inference</i> through direct teaching, students will gain a foundation for recognizing and distinguishing levels of inference in their subsequent activities and writing.</p> <p>Whole-group modeling and categorizing will allow the teacher to guide and develop students' understanding and application of inference before they collaboratively write a paragraph in small groups.</p> <p>By writing a paragraph in groups, students will receive continued support from peers while increasing their responsibility for independently generating inferences and placing these ideas in paragraph form.</p> <p>As groups study and evaluate one another's paragraphs, students will better understand how their writing will be evaluated and will further develop their understanding of the nature and quality of inferences and connections in written text.</p>

column shows an incomplete design rationale; the other column shows how teachers revised their original lesson design to produce a more thorough storyline, clarifying how the combined sequence of learning activities is expected to advance students toward the learning outcome.

What Professional Learning Communities Should Ask

Many of the teaching teams that we observe focus on isolated tasks, such as unpacking standards, designing assessments, analyzing student work, or reflecting on assessment results. When they discuss teaching, these teams often gravitate toward brief exchanges of so-called “best practices” and ideas for increasing variety and engagement. They rarely take time to articulate rationales for their instructional plans or to develop coherent lesson storylines that connect instructional activities with desired outcomes.

In contrast, professional learning communities or even pairs of teachers that are engaged in collaborative instructional inquiry or lesson study spend significant time planning, observing, and reflecting on the intricate elements of teaching. They work through a series of nuanced questions and tasks, such as the following:

- What do we want students to understand or be able to do at the end of this lesson or series of lessons? What evidence will we collect during and after the lesson to help us evaluate student progress and study the relationship between teaching and learning?
- What prior knowledge and background experience will students bring to this lesson? What will most students already know? What assumptions will they have? What common misconceptions might we expect?

What related content or prerequisite knowledge will be covered before the lesson?

- What combination and order of learning activities will help students progress toward these learning goals? How will each activity connect and build on the previous activity? How will it pave the way for subsequent learning activities? What specific teacher and student roles for each activity will best facilitate the desired outcome?

- What does the evidence from observations and student work suggest about students’ strengths and continuing needs? How did our instructional plan contribute to this, and what teaching is required to address continuing needs?

- What did we learn about our design rationale? How would we revise the rationale on the basis of our latest evidence and insights? How should we revise this lesson for future use? What key insights about teaching and learning did we gain from this lesson that might apply to our general teaching practice?


Start with a Few Lessons

Teachers are responsible for planning hundreds of lessons each year, and most of these lessons cannot be planned or analyzed with the level of detail described above. But teachers and teacher teams *can* strategically select a few key lessons for each unit or quarter and treat these as research lessons that they use to address the questions described here. As Hiebert, Morris, and Glass² explain, selecting

a few lessons as experiments provides a systematic way to engage teachers in ongoing learning and improvement by focusing attention on, and making more explicit, the process of developing instructional plans, articulating the rationale for each activity, and testing and refining hypotheses about teaching and learning.

Just as a rich drop of food coloring gradually diffuses through water, this type of deep planning and reflection with selected lessons has a rich,

Learning to develop and articulate a lesson rationale requires facilitation and practice.

permeating effect on practice. It shifts the emphasis from cursory selection of activities and spontaneous classroom decisions to careful analysis of cause-and-effect relationships and coherent instruction. 

¹Roth, K., & Garnier, H. (2006). What science teaching looks like: An international perspective. *Educational Leadership*, 64(4), p. 20.

²Hiebert, J., Morris, A. K., & Glass, B. (2003). Learning to learn to teach: An “experiment” model for teaching and teacher preparation in mathematics. *Journal of Mathematics Teacher Education*, 6(3), 201–222.

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Many teachers now buy and sell lesson plans in online marketplaces. What are the implications for teachers and students?

Kim Greene

Vera Corbett Ahiyya is a kindergarten teacher by day and an avid user of the website Teachers Pay Teachers by night. Since June 2012, the educator has purchased more than 530 products on the site, including lesson plans, worksheets, center activities, and classroom decorations. She has sold nearly 8,400 of the same, earning roughly \$25,000.

Corbett Ahiyya came upon the site when she moved from Texas to Massachusetts. “I realized I needed more activities to help me feel successful in teaching a new curriculum,” she says. She found

some resources that helped her, and later decided to create and sell her own products. Today her online store, called “The Tutu Teacher,” features hundreds of colorful products designed with attractive fonts and playful images, including printable vocabulary word cards and packets of morning worksheets for kindergarteners.

Teachers Pay Teachers (or TpT, as it’s known by users) is one of several online marketplaces where teachers can buy and sell their lesson plans and other instructional materials. As the largest of these sites in the United States, TpT says that it has 3.8 million

active users and that teachers have earned \$200 million by selling their wares since the site's founding by former teacher Paul Edelman in 2006. London-based site TES operates in a similar fashion with close to 8 million users. Smaller competitors include the likes of Teacher Lingo and Buy Sell Teach.

These marketplaces differ from Open Education Resources (OER) like EngageNY and OER Commons in that the latter resources are free and have a degree of oversight. Amazon also recently entered the OER market with its new site, Amazon Inspire, which offers no-cost lessons posted by teachers and third-party vendors. (See “How to #GoOpen on p. 30 for more information about OER.)

By contrast, the for-cost marketplaces function like Etsy for teachers and predominately attract elementary educators. Sellers post their products for sale—typically PDFs for buyers to print—complete with a description and sample preview of the item. (Not all products cost money. Some sellers offer free downloads to attract new customers.) Consumers browse the marketplaces for lessons to fit their grade level and subject area, with the opportunity to ask questions of the seller and view ratings from other buyers. Most lessons and units go for under \$10. For instance, a highly rated 105-page download of Halloween math and literacy activities sells for \$8 on TpT. After a customer buys a product, TpT takes a commission from the seller—40 percent for users who have a free account with the site and 15 percent for users who pay about \$60 per year for a premium account.

Growing Popularity

Why did these marketplaces become so popular? First, teachers seek out lessons to fill gaps in their curriculum. “Off-the-shelf textbooks often have holes that are identified by districts or teachers,” says Morgan Polikoff, associate professor of education at the USC Rossier School of Education in California. “Some of the higher cognitive demands from the standards are not well covered by textbooks, so they can be augmented with projects and assignments.” In other cases, teachers are simply looking for a fresh way to teach a concept they've covered year after year.

The Common Core standards likely facilitated the emergence of the marketplaces in the last few years, according to Polikoff. Before Common Core, it was difficult to market a lesson as being aligned to standards from multiple states. “But now you have one set of standards in 42 states,” he says, making it easier for teachers to share across state lines.

And then there was the issue of timing. When teachers heard that Common Core was coming down the pike, many scrambled for lessons. In fact, some teachers created and shared their Common Core lessons online well before most publishers had a chance to print standards-aligned materials. Of course, the promise of “Common Core-aligned” materials is a cautionary tale. “Users need to take claims of alignment with a large grain of salt,” says Polikoff. “That’s true of traditional textbooks, and it’s true of individual lessons.”

Most lessons are for teachers and by teachers, tested with students and for use with students, which isn't always the case with materials from publishers.



Ironically, some users say they buy lesson plans to save money. “I used to spend \$20 or \$30 on a teacher resource book only to use one or two activities,” Corbett Ahyya says. “But with the abundance of products and resources on TpT, I can spend \$3–\$5 on a resource and know I’ll use it over and over.”

Benefits for the Profession

One of the most prominent reasons that these sites have flourished is also one of their key strengths. Most lessons are for teachers and by

teachers, tested with students and for use with students, which isn’t always the case with materials from publishers. “There’s a certain legitimacy that you’ve already done this with students,” says José Luis Vilson, a middle school math teacher in New York City who has written about the topic. “There’s teacher empowerment there.”

To the point of empowerment, it’s worth noting that sellers on these sites can be dubbed *teacherpreneurs*. They’re breaking down their classrooms’ walls to share practices that have the power to improve the

profession. In doing so, they’ve merged their traditional teacher roles with those of small business owners. Sellers spend evenings, weekends, and summers designing merchandise and answering customers’ questions. They promote their products on blogs and social media—predominately Pinterest, Facebook, and Instagram. Corbett Ahyya, for one, has more than 15,000 Instagram followers, and she also presents at conferences.

For many teachers, the opportunity to supplement their income is a welcome one—and a factor to consider

How to #GoOpen

Andrew P. Marcinek

Openly licensed educational resources are not an entirely new concept in education.

In fact, the fundamental ethos of openly licensed educational resources (OER) is found within the 5 Rs concept connected to Creative Commons licensing: reuse, revise, remix, redistribute, and retain. Many educators have been practicing the 5 Rs for years in their own schools, districts, and professional networks.

Today, OER are defined as teaching, learning, and research resources that are free for educators to legally reuse, modify, and share with others, according to the Hewlett Foundation.¹ Well-designed OER hold the potential to improve student learning and promote teacher collaboration.

The OER movement has been gaining momentum over the past year with the announcement of the first Open Education Advisor by the U.S. Department of Education and the launch of #GoOpen. In the 2013 ConnectED Initiative, President Obama issued a call to connect more schools with high-speed broadband, develop improved professional learning opportunities, and provide equitable access to mobile devices and

high-quality digital resources that are modifiable and shareable. The plan signaled a shift in how the U.S. Department of Education and the White House viewed openly licensed educational resources.

In October 2015, the Department of Education launched #GoOpen to support P–12 school districts in the adoption of openly licensed educational resources. #GoOpen is composed of P–12 school districts that have made the commitment to replace at least one static, traditional textbook with openly licensed educational resources within a year. Then, in 2016, the department’s Office of Educational Technology published the “#GoOpen District Launch Packet” (<http://tech.ed.gov/open-education/go-open-districts/launch>) to help schools get their OER work off the ground.

This resource presents practical, step-by-step guidance for how a district can set a goal and strategy, and then select and organize an OER team. The packet also addresses how to establish an infrastructure to support openly licensed educational resources, create a quality review process, and provide professional development.

This educational model is happening all over the country in districts large and small. The Department of Education’s website features 12 district stories—plus resources and points of contact—about how schools have made the transition to openly licensed educational

when evaluating these marketplaces. Jeffrey Carpenter, assistant professor of education at Elon University in North Carolina, embraces the idea of teachers sharing resources without cost. “But I also understand that in some states, if you’re a beginning teacher, you can qualify for food stamps. If you’re creating good curriculum materials to make teaching a sustainable profession, who am I to judge?”

There’s another benefit for the profession. Virtual professional learning networks have sprung up from these sites, similar to those on Twitter. “I’m

constantly looking for opportunities to connect with my colleagues,” says Corbett Ahiyya. “I’ve made connections with teachers from all over the country—teachers who have purchased from me, teachers who also sell, and teachers who share the same passion for teaching as I do.” In this environment, the marketplaces allow for the spread of new ideas, with financial incentives for sellers to share their best lessons.

“I think there’s the possibility of innovation,” says Polikoff. “Under a traditional textbook-heavy system,

it’s unlikely that we’re going to learn too much about the specific best way to teach multiplying fractions. In contrast, if there were 10 or 15 lessons about multiplying fractions on a website, over time you could learn which was the most effective.” He notes that this kind of innovation is far in the future, especially with a lack of common assessments to evaluate the practices.

Legal and Ethical Questions

For all of these strengths, there are just as many concerns. From an ethical

resources (http://tech.ed.gov/stories/story_tag/oer).

For instance, Coronado Unified School District, located just outside San Diego, has put together a detailed plan to #GoOpen. For the past four years, the district has been using OER to create core and supplemental instructional materials. When the district needed new high school science texts, it enlisted in-district educators to design a digital textbook using OER content. Among the lessons learned: Even though the resources that the teachers curated were free, their time in doing that work was not. Projects like these require a significant and ongoing commitment to ensure alignment to current standards, best practices, and student and teacher needs.

However, the benefit to teacher-writers is the professional development inherent in this work, as well as an increased collaboration among members of the departments or grade levels who create the materials. The work has paid off for students, too. The OER science textbook has allowed for more personalized learning and has resulted in higher scores on the state science test. Making the tran-



sition to openly licensed educational resources is essentially reinvesting in the teaching profession.

The sustainability of this movement will live within the exemplary work of school districts like Coronado Unified and the materials they create. In the end, #GoOpen will allow for equitable access to high-quality digital resources that support all students—no matter their zip code. **EL**

¹Open Educational Resources, Hewlett Foundation. (n.d). Hewlett.org. Retrieved August 1, 2016 from www.hewlett.org/programs/education/open-educational-resources

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perspective, some argue that selling lesson plans cheapens the profession. They wonder what happened to the good old days of openly sharing ideas with colleagues—free of charge. (Critics contend that this notion buys into the stereotype of teachers as altruists. Would any other professional be judged for moonlighting to earn some extra cash?)

Legal questions abound, too. If a teacher creates a lesson for his class and uses it as such, who owns the work? That lesson likely belongs to the district, according to an article from the National Education Association (Walker, 2010). Unless the teacher's contract specifically states that he or she owns copyright for material he or she produces, the Copyright Act of 1975 dictates that the lesson is "work-for-hire," meaning that it belongs to the district. In fact, Prince George's County Public Schools in Maryland drafted a policy in 2013 stating that teacher-created instructional materials for use in its schools are property of the district—even if they're created on a teacher's own time. The policy created an uproar and was later scrapped. In an interview with *The New York Times*, Robert Lowry, deputy director at the New York State Council of School Superintendents, went so far as to ask whether districts should get a cut of teachers' profits (Hu, 2009).

This topic also seems apt for a lesson on plagiarism. "There are instances where teachers change a couple of things from a lesson they got for free and pass it off as their own," says Vilson, the New York math teacher. One top seller was challenged for selling materials that were allegedly too similar to those from a phonics education program. Other sellers have been warned about the use of graphics they don't own, such as Dr. Seuss images.

What It Means for Curriculum and Instruction

This pick-and-choose approach to curriculum could also have an effect on instruction. For Polikoff, it raises concerns about overall coherence. "Say what you will about textbooks, at least they're constructed with the intention of coherence," he says. "It's very difficult for me to imagine that a lot of teachers are able to craft coherent curricula with resources picked from the web."

And although some lessons are tested with students, there's no guarantee they will be the most effective tools for *all* students. Even the best ideas need tailoring. That's one of

the reasons Vilson doesn't purchase lessons (or follow publishers' lessons to a T, for that matter). "I find myself having to modify lessons for my students," he says. "Thank you for the idea, but now I have to go teach it to my kids and figure out how that works."

One of the biggest concerns is the lack of vetting. Beyond product reviews left by previous buyers, there is little in the way of quality control.

Case in point: Researchers Jenni Gallagher, Katy Swalwell, and Elizabeth Bellows conducted a qualitative case study of a lesson called "The Wedding of Q and U" (Gallagher, Swalwell, & Bellows, 2016). This particular lesson—or in some cases, unit—is a viral sensation in early

childhood circles, with hundreds of YouTube videos and countless Pinterest pins. "It seems to have spread quickly across online teacher-sharing resources, including Pinterest, teacher blogs, and Teachers Pay Teachers," says Gallagher, a graduate assistant in research and teaching at Iowa State University.

The lesson is designed to teach students that the letters *q* and *u* go together. A class (usually kindergarteners) participates in a mock wedding where *q* (represented by a female student) and *u* (a male student) are married in alphabetic matrimony. Many of the weddings feature full-fledged bridal parties of bridesmaids and groomsmen. Some of the YouTube videos show decorated gymnasiums full of parents and family members snapping pictures of students wearing costumes and holding props. Photos on blogs and social media depict elaborate wedding cakes decorated with *qu* words.

The research team conducted a content analysis of the resources shared online for this lesson, noting that certain handouts and activities were used repeatedly. For instance, TpT users can buy packets that include vows and wedding invitations for the ceremony.

"At first, we were shocked by how much time and how many resources were being dedicated to a lesson that is really quite simple—that just seemed like bad pedagogy," says Swalwell, assistant professor of education at Iowa State. "We also noticed that it's not even accurate from a literacy standpoint. As any good Scrabble player can tell you, there are words in which *q* and *u* do not go together."

But they were more troubled by the lesson from a social studies perspective. "The little girl often plays the *q* and vows to 'not get jealous when *u* has to go out with other letters'—a sentiment that seems to reinforce



the ideas that girls should be understanding of boys' dalliances," says Swalwell. "Aside from these troubling gender norms, we noticed patterns of extreme heteronormativity—there was not a single same-sex wedding—and monoculturalism." From the music to the minister, each wedding had heavy Protestant, Anglo-Saxon overtones.

When the researchers compared these implicit lessons with the National Council for the Social Studies' standards, they found that the wedding unit fell drastically short. "Rather than support these goals, the *qu* wedding resources seem to actually prevent these understandings from developing," Gallagher says. "Students would not be able to describe any differences in how cultural groups celebrate relationships or marriages after this lesson because the findings indicated only a very narrow conception of what weddings look like."

"Our analysis of the teacher blogs indicate that Internet resources that were considered cute and fun were highly valued," Gallagher says. In other words, robust, thoughtful content takes a backseat to the bold colors, catchy graphics, and fun value that seems to be a selling point in online marketplaces. By no means is this problem unique to online marketplaces—and in no way do all lessons come up short in this manner—but the marketplaces no doubt proliferate the exchange of ideas without a gatekeeper to ask questions about instructional ramifications.

Informed Producers and Consumers

So it seems that the question isn't whether teachers should buy and sell plans in online marketplaces—they are doing so. Perhaps the focus should shift toward training teachers to be informed producers and consumers.

Polikoff knows of a district that

decided to curate materials from the web and post them on its website after realizing that many of its teachers were buying plans online. "If teachers are going to use things that aren't in the textbook, at least they can be on the same page and have a better sense of quality," he says.

Polikoff believes it's a smart approach, especially if a district knows that the curriculum is coming up short in certain areas. "It requires some

capacity at the district level. Having one person who is an expert in curriculum lead that work as opposed to individual teachers doing it is both more efficient and more likely to be successful," he says.


Still, teachers who wish to purchase lesson plans on their own might use a rubric to independently evaluate the quality of a resource. The nonprofit group Achieve has published rubrics for evaluating OER, including factors such as alignment to standards, quality of assessments, and opportunities for deeper learning (Achieve Inc., 2011). There's no reason why scoring guides such as these can't be used to judge purchased lesson plans as well.

Gallagher and Swalwell are taking a more proactive approach with their preservice teachers. "We've begun to introduce the case of the *qu* wedding in our elementary social studies methods course," says Gallagher. She leads a discussion about the problematic social studies concepts in the lesson and then instructs

undergraduate students to search online and evaluate other lessons on the web for similar issues.

"We hope that more teacher prep programs are paying attention to this because more and more teachers are using these sites," Swalwell adds. "What tools are we giving teacher candidates to engage with the sites in ways that are professional, productive, and effective? We want to give them as much practice as possible sorting

Teachers wonder what happened to the good old days of openly sharing ideas with colleagues—free of charge.

through what is 'good' and 'bad' and learning that 'cute' or 'fun' activities are not sufficient reasons for doing something meaningful with students." 

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How to PARTNER with

It's time to rethink the assumption that good teachers don't use prepackaged curriculum materials.

Janine T. Remillard

When I met Kim Schiller, she had been teaching for 30 years and was well-known as a dedicated and creative teacher. She brought containers of mealworms and handfuls of budding branches to her 2nd grade class, encouraging students to observe natural phenomena and ask questions about what they saw. She created number centers,

stocked with objects that could be grouped and counted in different ways. Her classroom walls were covered with students' writing, and the daily morning meeting included numerous opportunities for students to share their ideas, offer suggestions and solutions, and explain their reasoning.

According to Kim, she had always been a "progressive" teacher, seeking out innovative and developmentally appropriate resources for teaching all subjects and creating lessons

Your CURRICULUM

from scratch. In math, she wanted to give her students a rich experience that helped them understand numbers and geometry in the world. Kim used commercially published curriculum programs infrequently and selectively. (By “curriculum program,” I mean collections of materials, including a teacher’s guide and student text, designed to provide guidance for daily instruction.)

As a mathematics education researcher and former teacher, I understood Kim’s aversion to textbooks. During my teaching career in the 1980s, most mainstream textbooks were formulaic—dry for both teachers and students. Math programs, in particular, offered predictably uninspired lessons focused on repetition of pencil-and-paper procedures.

But Kim’s school had recently adopted a new math program developed to reflect the vision of the National Council of Teachers of Mathematics Curriculum Standards. These standards, and the new math program, emphasized concepts over routines and favored learning through solving problems, developing strategies, using models, and participating in discussions. I was working with Kim and her colleagues to help them learn about and use the new program, and I was eager to find out how Kim was using it because it offered a wealth of instructional resources that seemed to fit with her philosophy. I was stunned to discover that, after a year, she had only incorporated a handful of the program’s activities into her instruction, selecting just a few that she felt meshed with her approach.

From her perspective, the new curriculum didn’t offer anything novel or distinct from what she had been doing. I was equally surprised when she explained that the new program was not “necessarily a curriculum.” To her, it was a collection of useful activities, within a loose

framework. It appeared that using a curriculum program, even one fully attuned to her ideas about teaching math, did not fit with Kim’s view of good teaching.

The Good-Teacher Doctrine

Kim was not alone. The doctrine that good teachers don’t rely on textbooks, and instead design their own lessons, has persisted over the years. We are seeing this doctrine play out in a different way under the influence of the Common Core State Standards. In many dis-

The belief that good teachers do not use curriculum materials severely hampers efforts to achieve curricular coherence across classrooms and grade levels.

tricts, teachers have been encouraged to use the new standards as their guide for *what* to teach, while they determine *how* to teach it—mainly by developing their own lessons and cobbling together materials from the Internet. Curriculum programs are viewed as unnecessary to what teachers *should* be doing.

The good-teacher doctrine has great appeal. It reveres teacher expertise. It views teachers as curriculum designers in the classroom, who are best positioned to tailor instruction to the needs of their particular students. According to this doctrine, curriculum programs might be useful for inexperienced teachers, or during periods of transition in a given school, but only as an impermanent solution. The ultimate goal is to move away from relying on them. Given the dearth of materials truly aligned to the standards and the expense of those that are available, many

schools and districts have pragmatically embraced this doctrine.

The Downside to the Good-Teacher Doctrine

The good-teacher doctrine has a harmful downside—one that misrepresents key distinctions between teachers and curriculum materials and works against teaching and schoolwide improvement. The doctrine promotes an image of teachers as solo performers and of curriculum resources as dispensable props. From this perspective, teachers improve by weaning themselves off of external supports. The best teachers work alone, without a net.

When taken to its logical conclusion, the good-teacher doctrine creates artificial barriers between teachers and potential partners. By placing a spotlight on single teachers, rewarding individual ingenuity and flair, it deflects conversation about the work of teaching and discourages genuine collaboration among colleagues. From a system-wide perspective, the belief that good teachers do not use curriculum materials leaves teacher development up to chance and severely hampers efforts to achieve curricular coherence across classrooms and grade levels.

It's been almost 20 years since my conversations with Kim. Since then, I've talked with many teachers and have studied how they use, adapt, and learn from curriculum materials. I have found that many teachers are reluctant to use teacher's guides or are hesitant to admit that they do. I have also analyzed more than a dozen elementary and middle school math curriculum programs, and have spent time with the developers of these materials to understand the design process. On the basis of these encounters, I contend that teachers

and curriculum materials are not interchangeable; they actually do different, yet complementary, work. I suggest that we might challenge the good-teacher doctrine and reframe the teacher-curriculum relationship as a partnership.

Partnering with Curriculum Materials

The first step in reframing the teacher-curriculum relationship is to understand the distinct contributions that skilled teachers and well-designed curriculum programs offer to the work of teaching. Let's begin with curriculum materials, since few teachers have opportunities to see how these

resources are developed.

It's important to note, however, that not all curriculum programs are designed with equal care or expertise. Well-designed programs are based on research findings and undergo rounds of field testing and revision. I encourage leaders to consult the Publishers' Criteria documents on the

Teachers have the power to bring a text to life, to make it engaging and relevant for their students.



the Common Core State Standards website, which contain criteria for developing CCSS-based programs.

Curriculum developers usually work in teams that include experienced teachers and instructional designers. They begin with a “big picture” map of the major concepts to be taught and an understanding of how concepts and skills develop over time and in relation to one another. These maps are influenced by state standards and are increasingly informed by research findings on student learning.

The curriculum development process typically involves several rounds of field-testing in real classrooms followed by revisions; in many cases, developers incorporate insights from these trials into their revisions, including what they’ve learned about how students are likely to respond to given tasks.

The most collaborative curriculum developers go out of their way to communicate with teachers. In other words, beyond constructing carefully designed and sequenced lessons, some authors include notes in the margins written to the teacher about the rationale for their designs, important ideas about the content, or what students often find difficult. These curriculum authors assume that teachers will make adaptive decisions, and they include these notes to support teachers in making those decisions (Ball & Cohen, 1996; Davis & Krajcik, 2005).

Teachers, on the other hand, bring to this partnership indispensable knowledge of their particular students, especially students’ current levels of understanding and learning needs. When planning with curriculum materials, teachers draw on their own experiences, expertise, and pedagogical skills, along with resources from their schools and districts, to make appropriate adaptations.

When enacting the curriculum, teachers must steer interactions with students toward the critical concepts, while ensuring that it is the students—not teachers themselves—doing the intellectual work. As they guide students down that pathway, teachers must be able to hear students’ developing ideas and adjust the pace, circle back, and even take a detour or two, without losing track of the journey. Deborah Ball once described this type of work as keeping an “ear to the ground” and her “eyes focused on the mathematical horizon” (1993, p. 376).

generally not taught how to partner effectively with curriculum materials, in particular how to discern and leverage authors’ contributions. Those teachers who develop these abilities often do so through opportunities to work with colleagues or curriculum developers, but these experiences are not typical. Finally, not all curriculum authors see themselves as collaborators with teachers. Some offer a product that lacks transparency or support, or is overly restrictive or scripted. Some products lack coherence or clear learning pathways.

Teachers and curriculum materials are not interchangeable; they actually do different, yet complementary, work.

All partnerships have the potential to be powerful when they bring together different types of expertise. The teacher-curriculum partnership is at its best when the distinct capabilities of each member are recognized and leveraged in support of student learning. Curriculum materials offer the teacher a high-level map of the domain and learning pathways within and around it. They also reflect the experiences of other teachers, classrooms, and students. Yet, their effectiveness depends on teachers using them and making appropriate adaptations in the process.

A number of factors impede the teacher-curriculum partnership. Teachers who believe that the best teachers do not use curriculum materials often feel guilty or inadequate when they do. Further, teachers are

Strategies for Teachers

Regardless of the quality of the curriculum program, teachers can use the following strategies to partner with curriculum materials.

1. *Look for the big ideas.* It’s tempting to focus on the steps of the lesson plan. However, it’s more important to first identify the central ideas or concepts that undergird the lesson. Identifying the big ideas gives you a sense of the horizon to keep in sight.

From there, you can evaluate the recommended steps and make modifications appropriate for your students. Such modifications might include adjusting the rigor of the main activity or changing the context of problems to make them more relatable to students. Studies of teachers using math curriculum materials have indicated that attending to the big ideas instead of

the specific procedural steps improves the quality of the lesson (Stein & Kaufmann, 2010) and increases student learning (Brown, et. al, 2009).

2. Pay attention to the pathways.

From one perspective, a curriculum guide provides a collection of activities and lessons to present to students. But the relationship among these activities shouldn't be missed. Lesson sequences, devised to shape an intended learning pathway, are one of the most important contributions of well-designed curriculum materials. Pathways—within and across lessons—should begin where students are and help them move to where they should be. Fractions sequences in upper elementary grades, for example, typically use students' understanding of halves to introduce fourths and even eighths, because these fractional parts can be made by subdividing larger fractional parts into smaller parts. These fractions can be used to develop an understanding of equal partitioning, the meaning of the denominator, and unit fractions before thirds and sixths are introduced.

Many warm-up tasks placed at the beginning of lessons are designed to review previously learned concepts that will be used in the upcoming lesson. In most cases, the underlying rationale or even the particulars of the pathway itself are not explicitly articulated. I have observed teachers undo these sequences or replace the planned warm-up task with a different and even unrelated one. When teachers know to look for the organizational structure of the collected lessons and activities in their curriculum, they are better situated to understand the impact of the adaptations they make and avoid changes that undermine the pathway.

3. Anticipate: What will ___ say?

Teachers should treat instructional

Teachers are generally not taught how to partner effectively with curriculum materials.


activities featured in curriculum materials as starting points for student learning. Learning occurs when students grapple with new ideas, extending those that are familiar. Curriculum developers know that teachers play a critical role in steering students through this meaning-making process, but they cannot plan for every contingency. When planning lessons with curriculum materials, it's often easier to focus on the ideal responses students might provide (the solutions or explanations that would signal understanding) than it is to consider possible incorrect or partially correct responses. When you anticipate the varied ways your specific students are likely to respond, you can consider what these responses reveal about students' developing understanding and think about how to react.

4. Collaborate with colleagues.

Teachers can collaboratively partner with their curriculum materials, working together to identify the big ideas, spot learning progressions, anticipate and plan for student responses, and make appropriate adaptations to meet the needs of their students. This type of teacher-curriculum-teacher partnership makes schoolwide curricular coherence possible. When teachers plan and reflect together, they are more likely to make decisions that benefit all students as

they progress from one grade or class to the next.

Good Teaching with Curriculum Materials

I spent four years working with Kim Schiller and her colleagues. Together, we learned to partner with the new curriculum. I saw that Kim was right: Curriculum materials cannot replace teachers or quality teaching. Teachers have the power to bring a text to life, to make it engaging and relevant for the students whom they know so well. Equally true, like the musical score used by a conductor, curriculum materials provide a strong foundation from which to draw. Good teaching involves discerning that foundation and building on it with students. 

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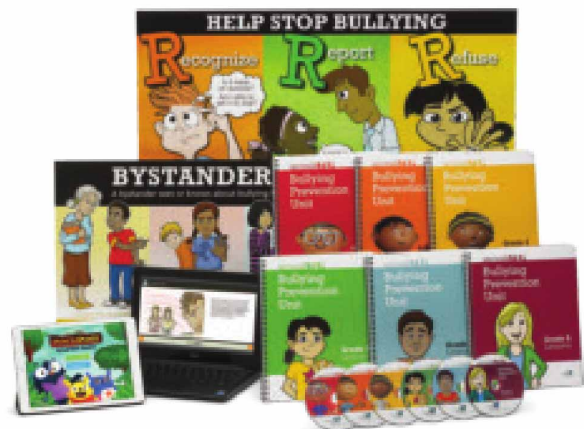
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USING MATH MENUS

Giving students a menu of activities to choose from helps differentiate instruction and engage all learners.

Marilyn Burns



Throughout the years that I've supported classroom teachers' math instruction, teachers have consistently asked me three questions:

- What do I do with students who finish their math assignments more quickly?
- How can I free up time to work with students who need extra help?
- How can I differentiate experiences to support struggling learners while also meeting the needs of students who require additional challenges?

Because these questions come up so often and so regularly, I've named them The Big Three. In this article, I describe a strategy I've used in my own classroom and now use with many teachers that helps address these three questions. Like many good strategies, it requires careful preplanning, but can make a large contribution to teaching and learning.

My Adopted Classroom

As an education consultant, I've come to believe that I can only offer teachers help with questions like The Big Three if I'm directly connected with classroom teaching. And because I'm no longer a full-time classroom teacher, I've found that the best way for me to continue to improve my teaching practice is to engage regularly with one class in a school so that I'm part of their math learning and their teacher's planning.

Most recently I adopted a 4th grade class at John Muir Elementary School in the San Francisco Unified School District. The teacher, Sara Liebert, has been teaching at the school for five years and has been a wonderful collaborator. We've also received guidance from my colleague Lynne Zolli, retired after 41 years as a classroom teacher in the district. It's been a dream situation. I've enjoyed teaching, observing, and learning from students, and I've enjoyed helping Sara plan her math instruction.

Like most elementary teachers, Sara is responsible for teaching her 4th graders all subjects, and she typically does a good deal of planning in the evenings. When planning for math, she usually reviews students' work from the day before and then prepares for the next day's lesson—an arduous enough regimen that typically doesn't leave time to plan for The Big Three.

Lynne and I offered Sara a strategy that would help her address The Big Three when planning classroom instruction. That strategy was math menus.



Students in Sara Liebert's 4th grade class at John Muir Elementary School play Pathways.

What Is a Math Menu?

A math menu is a list of math options posted on a sheet of chart paper for all to see. The options can include problems, investigations, games, and other activities that promote students' understanding, support their reasoning, or provide practice with the content and skills they've been learning. Sometimes I introduce a menu with just one or two choices, and then add to the list as I introduce new content. I typically have seven or eight options, at most, on the menu.

Using math menus gives teachers a solution for each of the challenges posed by The Big Three. Math menus provide students who finish in-class assignments more quickly with a way to be productively engaged. It's sort of a math counterpart to having students read silently when they finish class work. A teacher can also have the

A math menu is a list of math options posted on a sheet of chart paper for all to see.

entire class work on items from a menu independently for a period of time, freeing time for that teacher to work with individuals or small groups. And a math menu can offer a variety of experiences at a range of levels of difficulty to meet different students' needs. A particular menu item might also include variations that further allow for differentiation.

Some menu choices should be designed for students to

The Game of Pathways

Games make great items on a math menu. One popular game that helps students get comfortable with multiplication facts is Pathways. A Pathways gameboard is a 4 x 5 grid with numbers in each square that are each a product of two of the factors written below the grid.

Two players play on the same board. Each player's goal is to "X off" a connected "pathway" of squares from one side of the grid to the other, as in a variation on Bingo. The first player chooses two factors, then marks the square that contains the product of those factors. The second player has to change one of the factors just used, then mark the product of *those* two factors. Play continues, each player changing one of the factors from the previous move. Whoever completes a pathway first wins.

Choosing factors calls for strategic thinking—for instance, to pick factors whose product would block an opponent's path. To see several sample gameboards and for more detail on how to play Pathways, see this post on Marilyn Burns' Math Blog: <http://marilynburnsmathblog.com/wordpress/the-game-of-pathways>.



complete individually, providing a way to assess each student's progress. For other activities—typically those meant to help students explore something new, extend an experience, or deepen understanding—students can work in pairs. Some teachers mark each task with an "I" or a "P" so students are clear whether it's an individual or partner activity. Games that students play in pairs give learners a way to practice skills, apply reasoning, and use strategic thinking—and are especially good menu items because they encourage revisits. We generally ask students to play any game on the menu at least four times and with at least four different classmates.

We typically have students complete all the items on a given menu, but give them the opportunity to

Math menus are a math counterpart to having students read silently when they finish class work.

choose the order in which they try the tasks and which tasks they'd like to revisit. Sometimes, however, we direct the class to a particular item—for example, if we want students to engage with a certain activity so that they are prepared for an upcoming class discussion.

Activities on a menu may all focus

on a particular topic—such as multiplication—or may draw from a range of topics, including some that students learned earlier. A teacher can add menu items as new experiences are introduced and instructional content shifts, and cross out options that are no longer appropriate. When the paper becomes full or messy with crossed-out items, start over on a new sheet.

It's essential that menu options are familiar enough to students that they can work independently, and it's beneficial if some options offer variations that make for easier access for some and more of a challenge for others. Students' choices often reveal their academic comfort level.

A Lesson to Strengthen Addition and Subtraction Skills

To see how a math menu can extend concepts or skills explored in a lesson, let's look at a lesson from early in the school year in Sara Liebert's class—and the task she and I added to our menu as a follow-up. As I describe this lesson, I note places where the careful planning I had done helped things go effectively.

Our focus was on bolstering our 4th graders' understanding of place value and their mental reasoning skills with addition and subtraction. To focus on the benchmark number of 100, I wrote three numbers on the board—50, 70, and 80—and this direction: *Add or subtract, using each number once, to equal the target number 100.*

There's more than one way to get the target number of 100 by following these directions (actually, there are three ways). I knew this because I'd solved the problem myself and written down all the possible solutions during my planning. I find that when planning lessons, it's important to solve ahead of time any problems the lesson will involve, so I can anticipate student responses and be prepared to

offer suggestions if they get stuck.

I didn't tell the students that multiple ways were possible; instead, I had them work with a partner to come up with a way to solve the problem. Then I led a class discussion in which students shared their answers.

During our discussion, two solutions emerged. One student reported that he and his partner first added 80 and 70 to get 150, and then subtracted 50 to get 100. Other students reported using the same solution. I wrote two equations on the board:

$$80 + 70 = 150$$

$$150 - 50 = 100$$

Then I asked, "Did anyone find a different way?" Two girls reported that they had started with subtraction. As they explained their procedures, I recorded two equations on the board to represent how they reasoned:

$$70 - 50 = 20$$

$$80 + 20 = 100$$

I asked again if anyone had found a different way. When no one raised a hand, I told them, "I found another way. I'll give you a few minutes to see whether you and your partner can think of it. If not, I'll share what I figured out."

It wasn't long before several students figured out the third way, and I recorded their solution:

$$80 - 50 = 30$$

$$70 + 30 = 100$$

I confirmed for the class that these were the only three solutions I had found. Then, I returned to each set of two equations and modeled for the class how I could have recorded each solution with just one equation. This gave me the opportunity to introduce the notation of parentheses. I told the students, "Parentheses are math punctuation. They aren't absolutely necessary here, but they help to show what you did first." I wrote an equation using parentheses for each solution:

$$(80 + 70) - 50 = 100$$

$$(70 - 50) + 80 = 100$$

$$(80 - 50) + 70 = 100$$

At this point, I gave the students a follow-up problem to work on individually. I wrote on the board the numbers 40, 60, and 80 and this direction: *The target number is 100. Your task is to figure out and record three different ways to add and subtract, using each number once, to reach the target number.*

Planning and including time for in-class assignments that students do individually is an essential component of structuring good math lessons. Individual work is important for assessing students' understanding and monitoring their progress. In contrast to worksheets, which usually just have students practice procedures, well-planned assignments call for evidence of how students reason.

For instance, the individual work of two students on this assignment, shown in Figure 1, reveals something about their thinking and how much each student has learned. Mikala used two equations to represent each of the

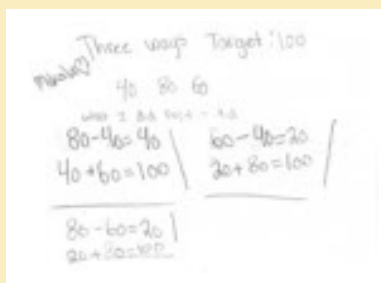
three ways she solved the problem.

Brayon wrote one equation for each way and used parentheses, which I had just introduced to the class.

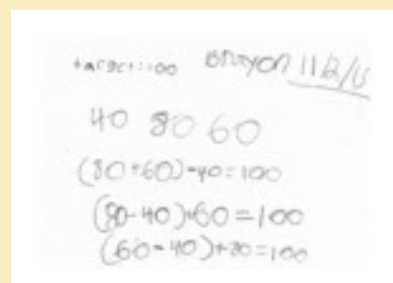
Extending the Lesson to the Math Menu

Looking over the student work from this in-class assignment helped Sara, Lynne, and me decide that this kind of exploration would be appropriate to include on the class's math menu. We saw that doing more of these kinds of problems would provide additional numerical practice and would be easily accessible to all but a few struggling students. So we created a menu option called Three Ways. To ensure that this option would serve the needs of all our students, even the strugglers, we created 40 problems that used different target numbers, ranging from 20 to 500, and were of varying levels of difficulty. We organized the problems into four sets—with the first set having the easiest problems and the fourth the most difficult—with 10 problems in each set, wrote each problem on an index card (using a different color card

FIGURE 1. Two Students Work on a "Three Ways" Task



Mikala



Brayon

Directions to this problem read, "The target number is 100. Figure out and record three different ways to add and subtract, using each number (40, 60, and 80) once, to reach the target number."

Student work used with permission.

for each set), and numbered the cards from 1 to 40 in order of difficulty.

Because we had two students who were sorely in need of the special intervention we were providing, we included problems with smaller numbers—for example, a target of 20 with 8, 2, and 14 as the three numbers to use. At the same time, we provided options for students who would benefit from challenging problems—for example, a target of 150 with 75, 95, and 130 as the numbers to use, or a target of 200 with 350, 100 and 250.

When we added Three Ways to the menu, we explained to students that it was an individual task that would help us learn how each of them was doing with adding and subtracting multi-digit numbers. We showed students how the problems were organized, and then told them that they had to solve 10 problems and could choose any problems from any of the sets we had prepared. I advised students, “You might choose some problems with smaller numbers to ease into the task, and then try some with greater numbers. Or jump into problems with greater numbers that give you more of a challenge. Be sure to let us know if you choose a problem that stumps you.”

Over the years of working with students in math classes, I’ve learned that giving students options for what to work on is wonderful for making them feel empowered and in control of their learning. Also, students’ choices reveal valuable information about their confidence, caution, willingness to take risks, and more.

Even though students choose their problems, I sometimes ask a student who I think could handle more of a challenge to try a particular activity. Or I suggest something to the whole class. For the Three Ways task, I suggested that if any students wanted a challenge even greater than trying the

Giving students options for what to work on is wonderful for making them feel empowered and in control of their learning.

most difficult problem set, they could try to solve all the problems. This option was especially interesting to a few students. For instance, Carl wrote for his daily reflection, “I’m wondering how many days, weeks, or months it would take us to finish the Three Ways.” No student completed all 40 problems, but several did more than the minimum of 10.


The students enjoyed the Three Ways problems, and we enjoyed watching them get much-needed practice with addition and subtraction. Although a worksheet of straightforward problems to solve would have provided practice, this task gave students more opportunities to reason numerically as they tried different ways to add and subtract the numbers.

A Caveat—and an Added Benefit

Although math menus are a great way to address The Big Three, like any organizing system for managing instruction, they will only be as effective as the quality of the math lessons you teach and the tasks you create for menus. Our litmus test for both math lessons and menu options is that they involve students in thinking, reasoning, and making sense. And on math menus, we strive to include tasks that are accessible to all students but have the potential to challenge the most able and confident.

As an extra benefit, math menus

are a terrific help when you have to miss a day of school and make lesson plans for a substitute. We all know how tough it is to make plans for a sub—who might be unfamiliar with your class and the work the students have been doing—that will result in effective use of students’ learning time. When I taught middle school math to five different classes each day, I prepared my students for days when I would be away by using math menus. Students knew there was a folder in my desk labeled “For the Sub,” which included a brief description of our math menu and the names of students in each class assigned to help get work on the menus going. Students understood the routine and enjoyed the opportunity. It was always a positive experience for both the students and the subs.

This school year, I’m working with Sara Liebert’s class again as 5th graders, essentially the same class as last year with a few new students. Sara introduced a menu to begin the year, to help students become familiar with the routine. She taught several math games students could play with partners, included a problem for them to tackle, and gave some routine practice problems. While students worked on the menu, Sara spent time interviewing the new students to find out more about their understanding and skills, and worked with learners she knew needed more support. I’m excited about helping these students continue their math learning. 

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RETHINK

LEADERSHIP

GROWTH

SELF-EFFICACY

SELF-AWARENESS

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Pursuing the **DEPTHS** *of Knowledge*

Whether students are engaging in deep learning or just recalling facts, rigorous instruction should be part of the plan.

Nancy Boyles

Good teachers resist the idea of “teaching to the test.” But aligning literacy instruction with assessment isn’t teaching to the test if that assessment is a valid measure of our students’ performance. If the test is rigorous—if it demands deep levels of knowledge—then alignment means asking ourselves, “How can we plan for this rigor in our instruction?”

There’s plenty of rigor in today’s standards-based literacy assessments to challenge both our students and ourselves. It hasn’t always been this way; an analysis of state assessments by Yuan and Le (2012) found that, in both reading and writing, nearly 80 percent of test items assessed students’ ability to recall details and apply skills instead of asking them to analyze, critique, or extend their thinking. But the situation is changing. Since 2011, 45 states have revised

their standards and raised the levels at which students are considered “proficient” on the state assessments (Peterson, Barrows, & Gift, 2016).

That means more rigor and deeper levels of knowledge. It also means more stress for teachers and students.

Where Planning for Depth of Knowledge Has Gone Off Track

When teachers ask “What does depth of knowledge look like on these new, more rigorous assessments? How do we prepare students for this kind of thinking?” they are often referred to well-known models like Bloom’s Taxonomy, with its six cognitive process levels—*remember, understand, apply, analyze, evaluate, and create* (Armstrong, n.d.).

But guidance based on such models has often been too general in nature, and sometimes even misleading. For



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instance, some schools have expanded the use of projects in the belief that projects automatically require higher-level skills, such as “creating” and “evaluating.” Teachers have found themselves asking students to complete tasks like “Draw a map of your dream bedroom” or “Create a life-size model of Sarah from *Sarah Plain and Tall*.” Such tasks are substantially off base when it comes to increasing the kind of rigor that the new assessments demand.

Other teachers have been advised to use “verb wheels” (which sort verbs into the various cognitive domains) and to design learning tasks that tap into “high-level” verbs (*assess, plan, justify*) instead of “low-level” verbs (*identify, list, locate*). But this advice isn’t very helpful either. For example, *describing* doesn’t fit neatly into one category. We might ask students to describe a character based on details retrieved directly from a text; such a task would represent

a low level of knowledge. Or we could ask them to describe similarities and differences in the way an author portrays characters in two different texts, a much more robust, high-level task.

We need a better way to teach for depth of knowledge and prepare our students for today’s standards-based assessments.

Plumbing the Depths of Knowledge

We might begin by familiarizing ourselves with the types of questions students are likely to encounter on these assessments, and reflecting on the different levels of thinking that these questions demand. Here, I’ll draw on a sampling of questions from the Partnership for Assessment of Readiness for College and Careers (PARCC) and the Smarter Balanced Assessment Consortium (SBAC)¹ and consider how these test items represent four depth-of-knowledge levels identified by Norman Webb (Aungst, 2014): *recall and reproduction, skills and concepts, strategic thinking and reasoning, and extended thinking*.

Level 1: Recall and Reproduction

Tasks at this level require recalling facts and locating information in the text to answer questions about *who, what, when, where, why, and how*. Students either know the answer or they don’t. The answer is either right or wrong. Sample multiple-choice assessment items reflecting this level include

- What is the meaning of *trudged* as it is used in paragraph 10 of the folk tale?
- Which sentence from the folk tale helps the reader understand the meaning of *trudged*?

Two-part questions like this one can relate to any aspect of literary or informational text—character analysis, plot

development, text structure, and so on.

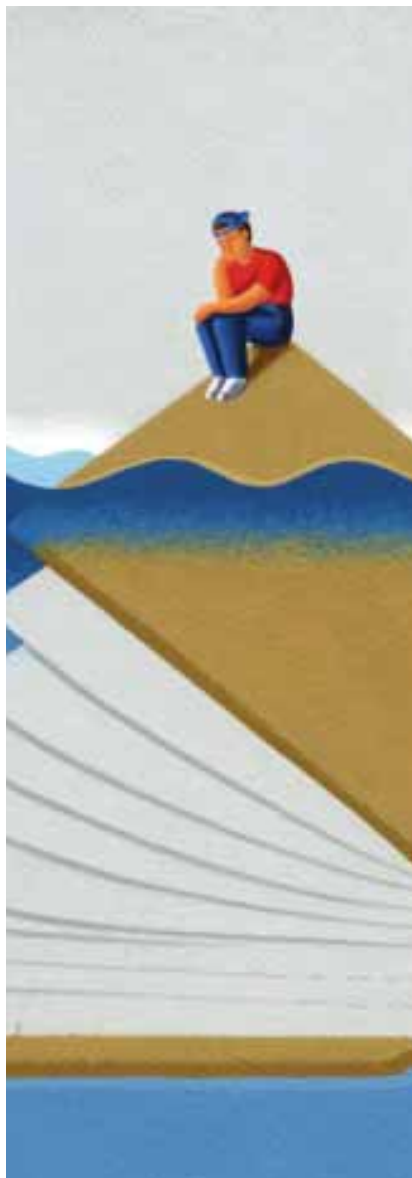
When we engage students in instruction at Level 1, it may seem that responding correctly is almost too low an expectation. All the student needs to do is go back to the text and pick out the right words. But therein lies the problem—going back to the text. Too many students rely on their memory or prior knowledge rather than taking the time needed to revisit the passage to ensure accuracy. The result is wrong answers or answers with evidence that's too vague or general. When this happens, I send students back to their seats with feedback and the perhaps surprising news that their goal wasn't just getting the job done, but getting it done *correctly*.

So where's the rigor in instruction at Level 1? For teachers, it's in maintaining high expectations for all learners and in providing honest, specific, and immediate feedback. For students, the rigor is in holding themselves accountable for spot-on accuracy, choosing the very *best* evidence. If we don't convey to students that literacy expertise is founded upon precision rather than "close enough," students will have little to build on for deeper levels of thinking.

Above all, it's important to give Level 1 the respect it deserves. Recall and reproduction are components of all depth-of-knowledge levels because all reading comprehension must be based on textual evidence.

Level 2: Skills and Concepts

Assessment tasks at Level 2 ask students to make some decisions about how to approach the problem or activity. Questions still tend to have one correct answer, although for open-ended questions the responses might be stated in different ways. Assessment



items at this level might include

- What is the meaning of the quote, "One small step for man, one giant leap for mankind"?

- Which words *best* describe the character ___?

This level is most familiar to teachers because it's about skills, and skills have been the focus of our literacy instruction forever. "We've

got this!" we think. But there's some rigor here we may not anticipate, and without careful planning, we won't be able to maximize our students' capacity to handle this level of knowledge.

The rigor for teachers in building students' literacy skills is in the masterful delivery of each instructional step—explaining, modeling, and practicing. The rigor of the explanation tends to fall off our teacher radar. We think we've explained well if we've clearly describe an objective at the outset of our lesson: "Today we're going to work on *summarizing*. A summary is a brief account of a story or informational selection that includes only the main points."

This is a reasonable start—we've identified the *what*. But students also need the *how*: How will they find the evidence that should go into their summary? To unpack this process, we might teach students the following steps:

1. Include only the *actions* throughout the story.

2. Do not include details that are just *descriptive* (like what a character looks like).

3. Make sure all the actions you include connect the problem to the solution.

The rigor for students at Level 2 lies in achieving independence with the skill. It's essential, therefore, that teachers provide explicit instruction that gradually releases responsibility. Too often we provide the same level of skill support day after day, as if more practice with "main idea" or "author's purpose" will eventually cause the idea to sink in. This mistake accounts for the disconnect between what students can do during a lesson when they're heavily guided by their teacher and what they can do on assessments, when teacher scaffolding is no longer

available. We will plan more effectively for skill instruction if, at the end of every lesson, we ask ourselves, What can students do more independently today than they could do yesterday?

Bottom line—students need to master Level 2 (literacy skills) because they'll need to use these skills when they move on to the deeper levels of knowledge

Level 3: Strategic Thinking and Reasoning

Assessment tasks at this level ask students to use logic as well as evidence and to think more abstractly about a text. Questions have more than one possible answer, and students must justify their responses. Examples include

- What is the theme (or main idea) of the passage? Use details from the passage to support your answer.
- What effect does the author create by using the phrase ___?
- What is the most likely reason the author included a map of ___?
- Which details from the text are irrelevant to the author's claim?

When we argue that the new assessments are “really hard,” we're recognizing that there are many items that fall within depth-of-knowledge Levels 3 and 4—and yes, right now these may be hard for our students. But there's much we can do in our instructional planning to make sure students become more comfortable with seriously deep thinking.

To plan effectively for instruction at Level 3, we need to first understand what we're planning *for*. A few guiding principles stand out:

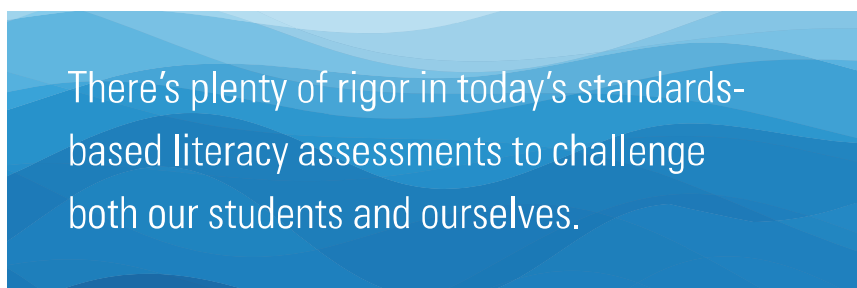
- Students will need to do a lot of inferring. For planning purposes, you may want to encourage students to look for the theme (or central idea) of a text right from the beginning, rather than waiting until they get to the last

paragraph and then asking: “What's the theme?” Teach students that a theme is evident throughout a text.

- Students will need to think like an author, pondering why the author made particular choices in crafting a text: Why did the author repeat that line or include this flashback? This is what we mean by “reading like a writer,” and if you teach it well, it will

fewer worksheets and more conversations. Are we making time for students to talk about texts in small groups where the focus is on evaluating meaning through dialogue? Are we pushing students to explain how they arrived at a particular answer?

For students, the rigor at this level is in the quality of their insights. In some ways, the Common Core has led us



improve students' writing as well as their reading.

- Students will need to understand both the external structure of a text (why it was organized in a particular way, such as *problem/solution* or *compare/contrast*) and its internal structure (how various parts of a text fit together). Guide students to ask questions like, What is the purpose of this paragraph? Does it introduce a problem? Show a contrasting point of view? What is the author trying to show?

- Students will need to think critically about what they read: What is relevant and irrelevant, what is the *best* evidence, and what could the author have explained more clearly? Teach students to become text critics: What works for them, and what doesn't, as critical consumers of information?

Depth-of-knowledge Level 3 is a tall order. Rigor for teachers lies in providing ample opportunity for close reading of complex text that's rich in meaning as well as craft. It's about

down a path where the evidence itself has become the main reading goal. But evidence alone will never define a great reader. The very best readers *use* evidence to achieve their own personal “aha!” moments.

Level 4: Extended Thinking

Assessment tasks at this level ask students to integrate information from multiple sources. Sample items include

- Explain what Source #1 and Source #2 say about ____, putting ideas into your own words to avoid plagiarism.

- A central idea of these articles is ____. Provide two pieces of evidence from different sources that support this idea and explain how each example supports it.

- Which source most likely has the most useful information about ___? Explain why this source is likely to be the most helpful.

- Which source does a better job of explaining ___? Provide three pieces of evidence from the source to

support your answer.

■ Compare and contrast the way the author develops the central idea of ____ in the two texts we read. Use details from both sources to support your explanation.

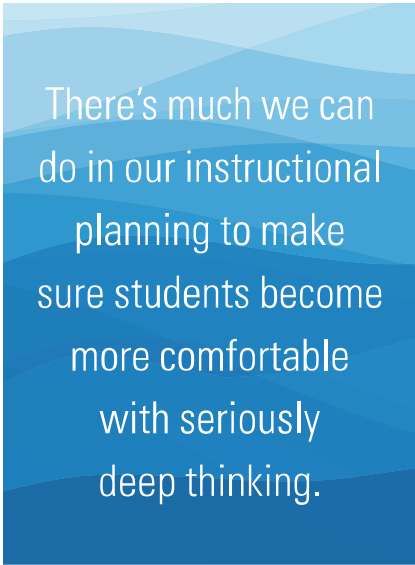
■ Explain how each of the selections you read about [topic] could be useful to someone writing about this topic.

To prepare students for mastery of this deepest level, teachers need to plan more lessons that ask students to make connections among different sources (which could include not only print materials, but also videos, audio recordings, illustrations, and so on). Ideally, teachers will plan for the close reading of Source 1, a similar analysis of Source 2, and then a lesson on the integration of both sources.

But just including text-to-text lessons is not enough. A good text connection lesson will ask students to tap into a key similarity or difference between sources, raising a question that brings students to a deeper knowledge of both texts through that connection point. For example, a teacher may present two articles about the importance of clean drinking water: a news article with graphs and charts of places in the world that lack sufficient clean water; and a journal entry, which includes a photo, from a child who walks miles each day to collect clean water in heavy buckets for her family's use. To generate thoughtful comparisons of these texts, the teacher might ask questions like,

■ Which source would have been more likely to convince you to contribute money to a clean-water campaign? Why? How did the author make his argument convincing?

■ Which source would you use if you were writing a report and wanted to show how lack of clean water is a global problem? What details would be the strongest to prove your point?



There's much we can do in our instructional planning to make sure students become more comfortable with seriously deep thinking.

■ Source 2 (the journal entry) contains a photograph of a child carrying water in heavy buckets. How could including this same photograph in Source 1 (the news article) have added to that author's message?

For teachers, the rigor of Level 4 lies in inventing the best connection points to bring students to a deeper level of understanding. For students, the rigor of Level 4 may be achieved when meaning leaps off the page and inspires a call to action: How can I use my new knowledge to help solve this problem? Depth-of-knowledge Level 4 will enable both teachers and students to flex thinking muscles they didn't even know they had, well beyond the demands of any test. Imagine the possibilities if we could teach all our students to read their world with such depth.

A New Lens

I suggest a new lens for examining rigor within instruction. If we view rigor as applying only to higher-level thinking, we're overlooking foundational textual knowledge that students need to fully grasp the deeper com-

plexities of a text. As we reflect on our instruction, we should make sure we're not only including all four levels of depth of knowledge—*recall and reproduction, skills and concepts, strategic thinking, and extended thinking*—but also holding ourselves and our students accountable for rigor at every level. ■

¹Although several states have now abandoned PARCC and SBAC, the items on newly designed alternative assessments are likely to follow the format and specifications of these tests. Additional sample items are available at SBAC Scoring Guides for Sample Assessment Items (<http://sbac.portal.airast.org/practice-test/resources/#scoring>) and PARCC English Language Arts/Literacy Practice Tests (<http://parcc.pearson.com/practice-tests/english>).

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What is the Biggest Difference Between Typical and Exemplary Schools?

Overwhelmingly, there is one key factor that defines whether a school will remain a typical school or will reach the top level of schools and become exemplary. It all comes down to a simple task that should be at the heart of every school - the lesson planning process.

That's right! The single biggest difference between typical schools and exemplary schools is how and when teachers plan lessons. So how do exemplary schools plan? And, how can the strategies and processes be replicated so that your school will be exemplary?

strategies are purposefully and consistently used in every lesson!

What is the impact when your teachers include one of the top 8 high yield strategies in their lessons?




How and when teachers plan is the #1 difference between typical and exemplary schools.

Student achievement increases by 25, 33, or even 45 percent on average! I think most would agree that would definitely be something worth including in all lessons.

The secret the top 1600 schools (called Exemplary Schools) have discovered is an instructional framework that purposefully connects the top high yield learning strategies in their lessons. Not sometimes. Not randomly. The most effective

But just think... what would happen if you had an instructional framework that ensures ALL EIGHT of the most effective practices are included and connected in every lesson? That is how you get achievement to really skyrocket!

What are the top 8 high yield learning strategies connected in exemplary instructional frameworks?

	Rank	Strategy	Percentile Gain
	#1	Higher Order Thinking	45% gain
	#4	Vocabulary in Context	33% gain
	#8	Non-Verbal Representations	25% gain

*Compiled from research conducted between 1998 and 2001 by the Mid-continent Research for Education and Learning (McREL), the 90/90/90 school research by Douglas Reeves, the 2004-2005 Evaluation Consortium, Graham and Perin (2007), D.W. Rowe (1985), and John Hattie (2009).

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By planning to provide scaffolding within each lesson, we can empower students to stay in the game and experience success.

Suzy Pepper Rollins

Ohm's law, Boyle's law, and Newton's laws. Pascal's law and Pascal's triangle. Momentum and monarchies. Iambic pentameter and the area of a pentagon. Metaphors are not similes. Past participles, particles, and the future is perfect. Homer . . . but not that Homer. Ovid and osmosis. And someone killed a mockingbird. And, speaking of birds, why exactly was that caged bird singing?

How do students possibly keep up with it all? Many don't.

And while their brains desperately search for dim recollections of formulas, figurative language, or which axis is *y*, more information is incoming—information they must sort, organize, and put somewhere. Gaps in basic skills and in important background information that just didn't stick in long-term memory can make learning new concepts seem impossible.

Scaffolding can help students be more successful—and we don't need to wait until students falter midway through a lesson. Instead,

teachers can plan in advance to provide the support students may need to fill in the gaps.

Why Plan for Scaffolding?

Scaffolding is a process of providing assistance to students so that they can perform a task today that would otherwise be out of reach. Like a physical scaffold that's built on a construction site to enable workers to reach high places they could not normally reach, instructional scaffolding is meant to lift students to a higher level of performance.

Consider two students in the same classroom with the same lesson introducing a new concept, *probability*. Both students are highly engaged in flipping coins. Class is off to a great start! Now the teacher says, "We're going to be using fractions today."

Student A is undaunted. But Student B freezes. His thoughts go immediately to his many unsuccessful experiences with fractions. "I'm terrible at fractions; don't they know that by now? Some number gets flipped—



I remember that much. But is that with multiplication or division? Wait—something about common denominators. I hate fractions! I wonder if I can get a pass to the nurse. . . .”

But suppose the teacher inserts scaffolding into this scenario: “Because we’re working with fractions today, I’ve put a little bookmark on your desks with reminders about fractions, including examples that are correctly worked. It’s been a while since you’ve used fractions, so tape one of these in your notebook for easy access. Look at it and take a moment to highlight things that are important to you.”

Student B: “Whew! Some other kids don’t remember all of this either.”

The teacher has not given up on students who haven’t mastered fractions yet. She has inserted a scaffolding device so that these students have a place to go for help. Instead of desperately searching their memories for information they missed before, they can now focus on the new concept, probability. Some students won’t need the scaffolding; others will rely on it heavily; and some may use it for a while and then reference it less and less.

Scaffolding is a tactical instructional tool that helps students commit their

mental resources to a new task. Why? Because with supports in place for gaps from the past, they sense that they have a better chance of success. Learning is risky business. Trying means going out on a limb and risking possible failure. Scaffolding can take some of the stress out of learning new concepts.

deal of scaffolding before the lesson begins by reflecting on what hurdles may exist for some students. During the planning process, first create a unit concept map and list the learning targets that students must reach to master the big goal. Next, step back and create a list of prerequisite skills required for student success.

With supports in place for gaps from the past, students sense that they have a better chance of success.

Looking Backward and Moving Forward

When gaps are present from past learning, we should try very hard not to add even more gaps. If Student B had been left to struggle through the lesson on probability without support, probability may have ended up as another concept the student hadn’t mastered. And next year’s teacher would have been faced with having to reteach both fractions and probability.

As a teacher, you can plan a great

It might be helpful to complete this sentence: My students could be successful on this upcoming unit if they only knew _____. For example, when planning a unit on writing, you may decide that students are more likely to master new learning targets if they understand the use of figurative language and know comma and capitalization rules. Now, reflect on the list. What supports can you put into place to reduce barriers to new learning for students who haven’t mastered

commas or capitalization? How could you help those for whom figurative language is a blur? Plan ways to provide such supports before the lesson even begins.

This doesn't mean that other needs for support won't develop. They will. But by anticipating some of our students' needs and creating bridges to new learning, we've proactively begun the work. Planning for scaffolding requires looking backward to recognize gaps from the past that could interfere with mastering the new learning target, and then looking forward to foresee hurdles in upcoming tasks.

For example, if students are going to do something new and more complex with calculators, you might provide a flow chart or list of steps. If they're going to read an especially dense passage of text, providing annotations of unfamiliar vocabulary will keep some students reading who might otherwise shut down. Marking certain paragraphs "important" or "skip this" can help students prioritize their efforts. In sum, we are providing supports for past gaps and heading off new ones.

And although scaffolding varies according to student and learning situation, experienced educators realize that there are patterns in gaps. There will always be students who battle with fractions, integer rules, or parts of speech. The expectation that every student will memorize multiplication tables or spelling rules at the same rate is unrealistic.

In sum, scaffolding preparation begins during the lesson planning process. The tweaking is done during class.

Examples of Scaffolding

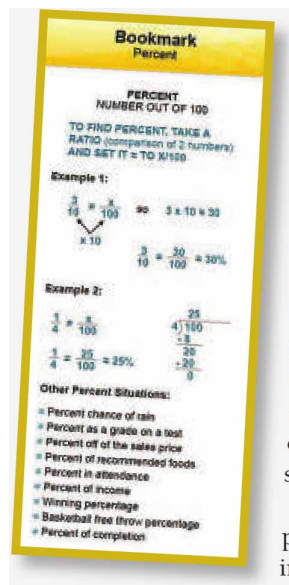
There are as many examples of scaffolding as there are needs of students.

Here are some staples to consider.

■ **Bookmarks** are easy to create and use. They can be teacher- or student-made, and students can use them as a reference during class and then take them home for homework help. If the teacher makes the bookmark, it's important to give students time to examine it and perhaps highlight or underline items of particular importance for them. Grammar rules, verb conjugations, multiplication tables, perfect squares, integer rules, formulas, parts of speech, parts of a cell, types of government, food groups, vocabulary—bookmarks are perfect for memory-related items. Students can tuck them right into their books, minimizing any potential awkwardness an individual student might feel about having something different from his or her neighbor. Having said that, a case can be made for every student having one—just place them out on tables so that all students have access.

■ **Cheat sheets** provided on a sticky note are perfect for small amounts of information requiring quick access, such as latitude and longitude, capitalization rules the class is using today, or the difference between area and perimeter. Teachers might anticipate the need for specific cheat sheets during planning, but this technique is typically implemented midlesson. Students should be encouraged to create their own cheat sheets.

■ **Chunking** (breaking a concept down into steps) is a valuable scaffolding technique. In math, students who follow the steps exactly will land



on the correct answer.

Teachers might provide a flow chart or numbered list giving the steps for solving a math problem, writing an essay, completing a science lab, or creating a project. Breaking information into pieces can reduce cognitive load, make work more doable, and create a sense of accomplishment as the student reaches small goals.

■ **Graphic organizers** can provide larger amounts of information that may not fit on a bookmark—for example, comparisons of mean, median, and mode; branches of government; or types of economies. Students may create graphic organizers for themselves, but teachers may also provide them or may partially create them and require students to fill in missing pieces.

■ **Mnemonic devices** use novelty to help students remember surface-level information. Just about every math student has memorized "Please Excuse My Dear Aunt Sally" to remember the order of operations—parentheses, exponents, multiplication, division, addition, and subtraction. Teachers can create a sense of fun by teaching students mnemonic phrases for taxonomy order ("King Phillip Came Over From Great Spain"—kingdom, phylum, class, order, family, genus, species), the Great Lakes, the order of planets, colors in a rainbow, or trigonometry functions.

■ **Text marking** allows teachers to annotate text for some students before the students read. For example, margin notes can provide definitions for important vocabulary words (if the word *pervasive* is used, the note might read "widespread"). In mathematics word problems, teachers can highlight,

annotate, or underline key words. Stars can alert students to important sections or paragraphs. If students are reading a social studies chapter about four causes of the Great Depression, the teacher can insert numbers in the text where each cause is introduced. As learners get better at identifying text features and their purposes in reading, they will take these tasks more into their own hands.


Keeping Students in the Game

Life would be easier for students if they arrived in class every day with exactly what they needed to grasp the day's lesson. But in real life, students will always differ in background knowledge, basic skills, and the ability to memorize items at a prescribed time. Frustration looms as they get

How do students possibly keep up with it all? Many don't.

excited about a new math or physics concept but falter in doing the necessary calculations because they still haven't mastered multiplication or even subtraction. Discouragement weighs them down as they try to write about original ideas they want to share, but get bogged down on punctuation or the proper structure of a paragraph.

Scaffolding in context gives students

an opportunity to stay in the game and experience success today. Although reteaching every concept missed along the way is impossible, scaffolding provides an opportunity to lift students up to the next level by providing what they need to move ahead right now. The good news is that teachers can often anticipate the instructional supports students will need and integrate these supports into the lesson—just in time for new learning. 

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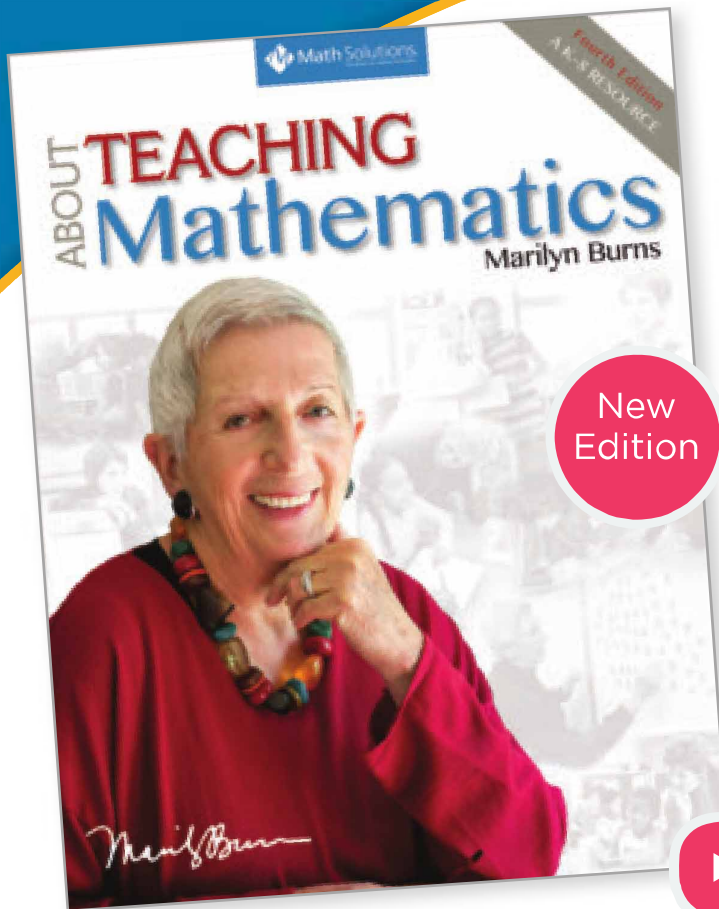
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The Promise of Collaboration

When teachers plan lessons together, the benefits are many.



Michelle Bauml

Long before Stephen Covey pointed out that effective people practice the habit of beginning with the end in mind, teachers were already in the know. When it comes to teaching effective lessons, we know that if you fail to plan, then you plan to fail.

For many teachers, lesson planning is a welcome aspect of teaching. They find satisfaction in exercising creativity and solving problems as they plan lessons that meet diverse learning needs while maintaining students' interest. For other teachers, planning is a dreaded chore. These teachers have little enthusiasm for connecting lessons to standards, making decisions about teaching materials, and figuring out how to scaffold students toward mastery of skills and concepts.

Regardless of how teachers feel about lesson planning, it's a crucial step in the teaching process. Collaborative lesson planning, in which teachers work together to design lessons, is a promising approach that



can make planning less dreaded and more effective.

What Does It Mean to Plan Collaboratively?

A collaborative lesson plan is jointly developed by more than one person. This type of collaboration typically takes place among pairs or groups of teachers on a grade-level or content team. Instructional specialists, paraprofessionals, school administrators, and special educators may also be

involved. Interdisciplinary teams sometimes collaborate to design cross-curricular projects. Ideally, teachers who plan together will not only produce lesson plans, but also jointly evaluate the outcomes of those lessons and plan further instruction accordingly.

The highest level of collaborative lesson planning requires more commitment from teachers than the common practice of *shared* lesson planning. To save time, many grade-

level or content teams use a shared, “divide and conquer” approach. A team of four kindergarten teachers might assign each teacher a specific content area in which to specialize. One teacher will write mathematics lesson plans for the entire team, while the other teachers write and share lesson plans for science, social studies, and language arts. After sharing their plans with one another, the teachers might collectively discuss or critique these plans before implementing them.

Although shared lesson planning is a form of collaboration, when teachers plan lessons in isolation and then distribute them to fellow teachers, they don't realize the full potential of doing the work *with* other teachers.

Effective collaboration is generally characterized by shared goals, good communication, and equitable contributions by all participants. But it's important to note that planning with others doesn't automatically yield effective lessons. Collaboration isn't a proxy for thoughtful, intelligent planning. To reap the benefits, teachers must follow the principles of effective lesson design, such as using assessment data to inform lesson plans.

Two Teachers, Two Experiences

Collaborative planning can be especially helpful for new teachers. Consider two first-year teachers who had very different experiences with lesson planning. Lucy was hired by a school that prioritized collaborative planning. Each week, Lucy met with two other teachers on her 2nd grade team to plan math lessons for all eight of the 2nd grade teachers at the school. This small planning team discussed difficulties students were having and decided how to reteach concepts, what to introduce next, and which materials to use. The senior teacher on Lucy's team also offered teaching tips and suggestions to make the lessons run smoothly. Meanwhile, the other 2nd grade teachers jointly planned other subject areas.

After plans for all the subjects had been created, all eight teachers met to review and discuss them. The process of generating math lesson plans alongside more experienced teachers and then sharing and discussing plans for the other subjects was extremely significant for Lucy's professional life. When asked to identify the highlight of her first year of teaching,

she responded emphatically, "Team planning. Doing it together. Because I would be lost without it."

By the end of the school year, Lucy felt particularly confident as a math teacher. She could look at her lesson plans and recall what her team discussed as they wrote the lesson, knowing, she explained, "how it's supposed to look."

In contrast, Kim was the only new 1st grade teacher at her school. Kim's grade-level team decided to excuse her from lesson-planning responsibilities

**Just as students
don't automatically
know how to work
in groups, teachers
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to magically make
collaboration work.**

so she could focus on teaching and classroom management. Her team practiced shared lesson planning (dividing the work by subject), but Kim wasn't part of this process. By the end of the school year, Kim's students hadn't met expectations for academic progress. Kim reflected,

I think I missed out because I was hand-fed [all my lesson plans]. I wasn't involved in any of it, and so I couldn't visually picture . . . what it's going to look like. It was just like, OK, pull out page 221.

Although the other 1st grade teachers meant well by providing Kim with ready-made lesson plans, Kim was never asked to think deeply about lesson organization, teaching materials, or pedagogy. Sadly, she moved to a different campus the following year,

and then left the teaching profession altogether. It's worth asking whether Kim's first years of teaching would have been different if she had taught in a context like Lucy's.

An Abundance of Benefits

Collaborative lesson planning benefits experienced teachers, too. Joint planning brings teachers together to talk about their work and their students; thus, it fulfills one of the conditions identified as necessary for school improvement (Jalongo, Rieg, & Helterbran, 2007). When teachers have regularly scheduled, productive lesson-planning conversations, they learn from one another, feel less isolated and more empowered, and design better lessons.

Professional learning. As Lucy's story illustrates, collaborative lesson planning leads to teacher learning. It provides teachers with new ways of thinking about pedagogy, materials, standards, assessments, and classroom management. Teachers at all levels of experience attend seminars, read articles in professional journals, take graduate courses, or learn to use instructional technology. Planning with colleagues gives them opportunities to share what they learn from these experiences.

Job satisfaction. Collaborative lesson planning may contribute to teacher retention by helping novice teachers like Kim feel more confident and fulfilled in their careers. In a recent survey, teachers who worked at schools with high levels of collaboration reported higher levels of job satisfaction (MetLife Survey of the American Teacher, 2010). When teachers work together in teams, feelings of stress and isolation can be reduced (Johnson, Reinhorn, & Simon, 2015). These findings shouldn't be surprising; we know from Maslow (1943) that a sense of belonging is a basic human need.

Because planning lessons together is a type of collaboration, it's logical to conclude that engaging in such planning might help teachers experience job satisfaction. Teachers who dislike or are indifferent to lesson planning will appreciate having others share the workload, and teachers who enjoy designing lessons will feel satisfaction as they participate in creating high-quality lessons. One middle school history teacher explained that when her subject team collaborates and "something great comes out of it," she feels excited about her work.

Better lesson plans. The adage "two heads are better than one" holds true with planning. When teachers plan lessons together, they can help one another refine their ideas and draw on one another's strengths. There are many examples of special educators and general education teachers collaborating to plan and co-teach differentiated lessons for students with special needs.

Anne Benninghof and Mandy Leensvaart (2016) describe how an elementary school in Colorado rapidly improved student achievement after adopting a model in which pairs of classroom teachers and English Language Development (ELD) teachers planned and taught lessons together. For instance, an ELD teacher and a classroom teacher collaborated to develop a 5th grade reading comprehension lesson, each drawing on their expertise. The ELD teacher taught key vocabulary terms "with visuals, gestures, oral rehearsal, and kid-friendly synonyms" (p. 73) and the classroom teacher assigned students to teams and developed an activity to practice the skill of sequencing events from the story.

Challenges—and Meeting Them

Collaborative lesson planning poses challenges for both teachers and administrators. Two significant



barriers are lack of time and teacher resistance to collaboration.

Teachers are incredibly busy; time is a precious commodity for them. Setting aside time to plan lessons with colleagues means taking time away from other responsibilities. Even when teachers in the same grade level or content area have a common planning period during the day, those hours are often needed for parent communication, tutoring, making copies, setting up labs, interpreting assessment results, and countless other activities. Unless the school makes collaboration a priority, teachers will spend their time planning lessons alone.

Resistance can be strong. Individualism is deeply embedded in the culture of teaching. Teachers like having freedom to do—or not do—what they want, and many teachers resist collaborative lesson planning because it means surrendering autonomy. In a study of teacher teams in high-poverty schools, Johnson

and colleagues (2015) reported how several teachers lamented their loss of autonomy when principals expected them to plan lessons together. One teacher called co-planning "rough and tough and exhausting" because her colleagues had very different teaching styles that made coming to agreement difficult (p. 22).

Collaborative lesson planning also forces teachers to expose themselves to critique and to change their routines. This can make even the most experienced or acclaimed teachers feel uncomfortable. And some teachers simply don't get along. When personalities clash or values are incompatible, it can be difficult for teachers to work through their differences.

School leaders can address these barriers by strategically introducing, implementing, and supporting collaborative lesson planning. Many principals are now encouraging their faculty to try collaborative planning, and reports of successful

and unsuccessful attempts consistently point to three essential elements for success: time, training and support, and trust.

Time. If collaborative planning is to flourish at a school, teachers must have adequate time to work together. Scheduling the school day to give grade-level or content-area teams regular, predictable, common planning periods is a start. Many schools and districts also bring teachers together during paid summer planning meetings, early dismissal days, and in periods freed through block scheduling. Principals can make collaboration worth teachers' time by crediting time spent planning together toward required professional development hours or offering stipends to teacher leaders who facilitate planning meetings.

Training and support. When school administrators don't provide sufficient training and support for collaborative lesson planning, such planning will either fail to reach its potential or fail altogether. Just as students don't automatically know how to work in groups, teachers can't be expected to magically make collaboration work. Collaborative planning demands strong teacher leaders who can facilitate planning meetings and talented administrators who help reluctant or weak teachers develop collaboration skills.

Teacher buy-in is also crucial. Teachers need a reason to collaborate besides "My principal makes me do it." A clear purpose for collaborative planning—such as improving students' learning—must be established and understood by everyone involved.

The work of Alicia Pérez-Katz (2007), principal of Baruch High School in New York, provides an example of effective training and support. Before pairing teachers for collaborative curriculum decision making and lesson planning, Pérez-

Katz met with teachers during the summer to discuss the idea and listen to teachers' concerns. She sent the staff on an overnight retreat, where all teachers studied a chapter about shared responsibility and teacher pairs got to know each other as they developed "working relationship plans." Pérez-Katz cautioned that when pairing teachers, "it is important to think about who needs support and who will work well together" (p. 40). She saw positive results when she paired beginning teachers with more experienced teachers. However, one

Collaboration isn't a proxy for thoughtful, intelligent planning.

pair of teachers who had very different planning styles had to learn that they wouldn't always agree.

During the school year, Pérez-Katz met regularly with lesson-planning pairs to discuss how the partnerships were going. She provided professional development opportunities to build trust and consensus among partners. When teacher pairs are having a difficult time working together, school leaders should become involved. Rick DuFour (2011) recommends that in addition to providing time for collaboration, leaders must also provide support, clarity of purpose, resources, and guidelines.

Trust. Trust between principals and teachers is key. If the goal of planning lessons collaboratively is to improve student learning, for example, teachers need to know they can take risks with instructional approaches without fearing reprimands from their principal if things don't go as expected. Teachers need principals to check in with them regularly in ways

that establish accountability for collaboration without micromanaging teachers' every decision. Regular, ongoing dialogue with teachers helps them become productive partners and experience the benefits of the collaborative approach.

Whether a teacher is a novice or a veteran, a planning enthusiast or an avoider, collaborating with colleagues to plan lessons is a promising endeavor. When teachers plan collaboratively, with support from their principals, they make professional learning, higher job satisfaction, and better lessons plans possible. [EL](#)

Author's note: All teachers' names are pseudonyms.

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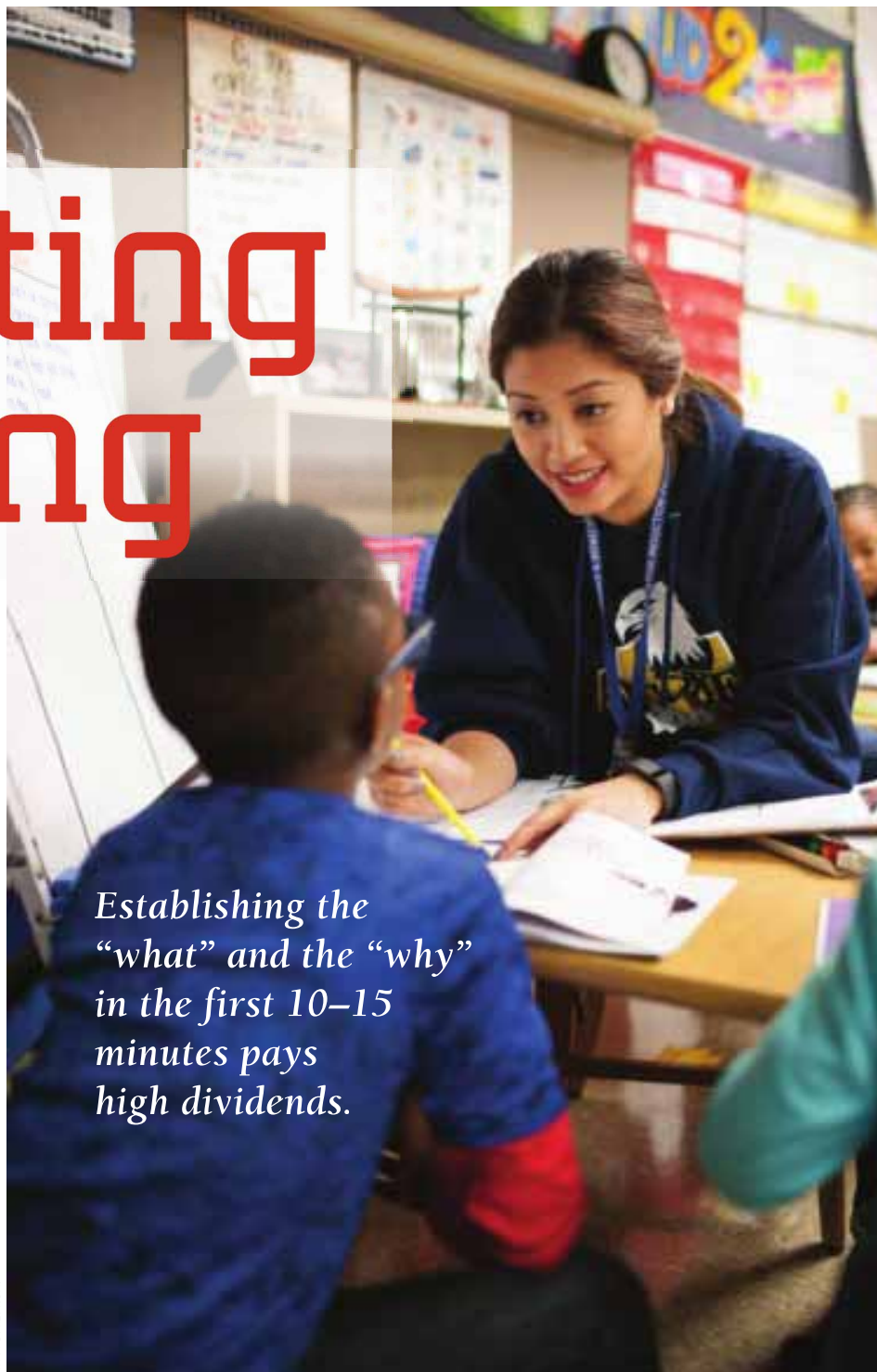
Starting Strong

Ben Curran

My high school biology teacher had a sign taped to her desk that read “Failure to plan on your part does not constitute an emergency on mine.” After becoming a teacher, I realized that when it came to lessons, failure to plan on my part *did* constitute an emergency. And that emergency resulted in feelings of confusion, misunderstanding, frustration, and boredom on the part of my students. That’s not a formula for academic achievement.

Careful and thoughtful planning is a formula for academic achievement. This type of planning involves a great deal of instructional decision making. What to say, when to say it, what to have students do—the number of decisions that go into a single lesson is almost limitless. The effort can feel overwhelming. I find it helps to think of a lesson plan in terms of three parts—beginning, middle, and end—each with its own intricacies and decisions to make. Let’s focus on the part that doesn’t always get much attention when it comes to developing strong lesson plans: the beginning.

Although no one-size-fits-all approach will work in every lesson-



Establishing the “what” and the “why” in the first 10–15 minutes pays high dividends.

planning scenario, teachers should consider several big ideas when preparing the first 10 to 15 minutes of a lesson. Let’s dig into the decisions a teacher needs to make in planning these valuable initial minutes.

“The What” and “The Why”

Because time is short or because we make assumptions about our students’

levels of understanding, teachers often skip the brief but important exercise of clarifying what I call “the what” and “the why” of the work. It’s important that students know exactly what they are learning and why they’re learning it before instruction begins.

The “what” refers to the content, context, and, more specifically, the learning objective for the day.

Teachers learn early in their careers that a learning target represents the end goal of a lesson, but we often miss opportunities to clarify this target for students. Effective lessons begin by unpacking this objective.

Discussing “the what” is also an opportunity to provide context by making connections between the day’s content and earlier work—connections that activate students’ background knowledge and reinforce the idea that what they’re learning doesn’t exist in isolation. Students should see their learning as a series of interrelated

main points you’ll say and key questions you’ll ask. Some general questions (“In your own words, what are we going to be learning about today?”) will become habit; you’ll use them without needing to note them in your plan. But prepare in advance questions more specific to the goals of the lesson and those that connect to previous learning (“Remember how we looked at the parts of stories last month?”).

“What” and “Why” in Action

Consider a 4th grade teacher’s plan for a lesson on comparing fractions, with

What to say, when to say it—
the number of decisions that go into
a single lesson is almost limitless.

concepts and ideas linked together to create meaning.

The “why” simply refers to the purpose. Why is the work important? Why is it relevant? Think about your own life: When you’re called on to engage in a task or attend a meeting with an unclear purpose, how do you feel? Probably disengaged, confused, or bored—not emotions we want students to feel. Taking just a minute to remind learners why the day’s work is worth spending time on and its role in the bigger picture of their learning goes a long way toward helping everyone master the lesson’s objective.

It’s worth tightly planning your introduction to the what and why. A quick class discussion, with the teacher making statements about the content and purpose and asking questions to prompt students’ thinking, does the trick nicely. Write down the

the learning target “I can compare fractions with different numerators and different denominators using benchmark fractions.” His script might look like this (with anticipated student responses in italics):

TEACHER: Students, today we’re building on yesterday’s work with fractions. What did we learn about fractions yesterday? *We used models to compare two different fractions.*

TEACHER: And when we were comparing two fractions, how did we decide which one was bigger? *The fraction whose model was more completely shaded was bigger.*

TEACHER: Now turn and talk to your partner about *how* we made our models and decided which fraction was greater. *We drew a model for each fraction and divided it into the number of parts that equaled the denominator. Then we shaded the number of parts that*

equaled the numerator.

TEACHER: Right, and remember, when we compare fractions, we use the same size whole. Today we’ll explore another way to compare fractions. Let’s read our learning target. Talk to your partner about what words here seem important or unfamiliar. *Compare, different numerators/denominators, benchmark fractions.*

At this point, the teacher might note in his planning sheet to be sure to define *benchmark fraction* (“a familiar fraction that we can easily locate on a number line in our mind, such as one-half”) during class discussion after students’ partner talk. Note how this plan and script connect to students’ earlier learning and give students time to unpack the learning target. The teacher’s final planned comment connects the work to a sense of purpose so students will see where they’re headed—and why.

TEACHER: We’re doing this work today so we can become stronger mathematicians! When we use benchmark fractions, we can work more quickly and can compare fractions in our minds. When we’re quick with mental math, we can solve more challenging problems that involve adding, subtracting, multiplying, and even dividing fractions.

Direct or Indirect? That Is the Question

Once you’ve planned how you’ll ground students in their learning objective and purpose, it’s time to plan the next 7–10 minutes of the lesson, when students start working on “the how.” Depending on what you’re trying to accomplish, you’ll need to either show them how to do the work or set up a way they can figure out how to do it on their own. Let’s explore two possible instructional methods of many: direct instruction



and indirect instruction.

If your goal is to teach students a discrete skill, such as diagramming a sentence, direct instruction may be the best choice. Direct instruction involves “all eyes on you,” the teacher, as you model, demonstrate, and talk through your own thinking. Such a presentation is often referred to as a mini-lesson or called the “I do” portion of an “I Do-We Do-You Do” approach. Throughout the lesson, the responsibility of thinking and working shifts gradually to the students, but in the beginning, you’re doing the work.

However, if you want students to synthesize different information and draw on multiple skills—to put the pieces together themselves—a more indirect approach, in which students

To decide between direct and indirect instruction, ask yourself whether you’re teaching a discrete skill.

engage with content to construct understanding on their own, is best. This type of lesson often begins with a task that students engage in, usually collaboratively, and then moves into

a group discussion, with students sharing their answers and synthesizing what they learned.

To decide between direct and indirect instruction, ask yourself whether you’re teaching a discrete skill. If so, direct instruction may be more useful; if not, use an indirect approach.

Consider a 6th grade language arts teacher planning a unit that emphasizes comparing and contrasting texts in different genres but with similar themes. Early in the unit, she wants to teach the explicit skills of identifying a theme and finding details in a text that convey that theme. Opening the first lessons in the unit with direct instruction will build students’ ability with these skills. Toward the end of



PHOTO BY KEVIN DAVIS

points you want to mention in your think-aloud that will cover the important concepts you want students to understand. These talking points might include questions that students should ask themselves and ideas you want to be clear in their minds. Just keep in mind that this is a *mini-lesson*. It should be helpful to students, but brief.

Direct Instruction in Action

Let's go back to our 6th grade language arts teacher. She's decided to teach a lesson that revolves around the skill of identifying how a poem's theme is conveyed through particular details. The basics of her plan might look like this:

Text: "If—" by Rudyard Kipling

Skill to model: How to identify details and phrases in a poem that support your decision about its theme. (Yesterday we determined that the theme of "If—" is that self-awareness and control are necessary for success.)

Explanation: To identify elements of a poem that support its overall theme, read each line carefully. Consider how the ideas, images, or language of that line connect to the theme.

Think-aloud: Explicitly note how each quoted portion supports and connects to the theme—and show students how this task is relevant to their lives—saying things like,

■ "In the line 'If you can dream—and not make dreams your master,' I think the speaker is reinforcing

the unit, she'll want students, on their own, to identify a theme common to multiple texts and compare and contrast texts that share that theme. So she should plan for a more indirect approach.

Essentials for Direct Instruction

Direct instruction is an opportunity to let students see into your brain to help them better understand the concepts they will be working on and prepare them to do the work. It also allows you to develop students' metacognition. If direct instruction suits your needs best, keep the following essentials in mind. During a mini-lesson, you should be modeling, thinking aloud, and demonstrating. Your talk should be declarative, rather than interrogatory; this is your chance to explain things to students. Too often, teachers jump into asking students questions about how to solve a problem or com-

plete a task before they have explained how to do it. How can students explain how to do something when we haven't yet shown them how? You can ask me what the first step in repairing a lawn mower engine is, but I'm not going to know the answer unless you show me what to do first.

It's important to decide exactly what discrete skill you will demonstrate to students, what example of using that skill you'll model, and what you'll say during the 7–10 minutes (no longer) that you'll be giving direct instruction. Select an example that will clearly show your students how to apply this skill and that ties to your lesson's objective. Write this example as part of your plan, including key talking

EL Online

For more on launching an inquiry lesson, see the online article "Off to the Duck Races: Planning for Inquiry in STEM" by Michelle Stephan at www.ascd.org/el1016stephan.

the idea of self-control because a person with self-control will not let their dreams take over; this would lead to not achieving success, only thinking about success.”

■ “Think about what we’re doing here in terms of making an argument or supporting an opinion. Have you ever tried to convince someone of something? You have to give details to support your opinion, right? This is the same thing: These lines support the theme.”

Essentials for Indirect Instruction

Often, you’ll want to start a lesson with students launching into a task without much (if any) instruction, applying skills they’ve learned through previous direct instruction. Such lessons are often structured with an introduction to the task, followed by students doing the task and then discussing and reflecting on what they learned. It may seem that this type of lesson requires no planning: Just provide the task and let kids dig in. You certainly could execute the lesson that way, but planning in advance will increase its effectiveness.

Task selection is key. A high-quality task—one that ensures students will learn what you want them to—should be aligned to standards, intellectually engaging, and accessible to all. Try for tasks that have more than one solution and more than one “entry point” so all learners can engage with the task on some level.

Once you’ve identified your task, plan how to introduce or frame it for students. Write down key things you want students to know and be thinking about as they begin their work. It’s important to not say too much, however, so that students will still think on their own. The more you say about the task, the more you’ll be thinking for students. Frame it just

Students should see their learning as a series of interrelated concepts linked together to create meaning.

enough so students can get started.

If students are going to work on the task in pairs or small groups, think about how to set up these groups. Being strategic about grouping can go a long way toward ensuring that all students are successful. Some teachers like to mix groups by ability level; others prefer more homogeneous groups. Consider carefully what’s best for your class and this project.

Finally, identify scaffolds or supports you can provide for students (or groups) who struggle as they begin the task. What prompts might you ask the strugglers? What points of clarification might support their work? Thinking about which misconceptions might arise, where students might get off track, and what parts of the task might be especially challenging will help you plan scaffolds in advance.

Indirect Instruction in Action

Imagine that our language arts teacher wants a later lesson in her unit about theme to center around a student task. Here’s what might be in her plan:

Frame: “Today we’ll work in groups to put together all this learning we’ve been doing. You will have two texts, a story and a poem. Your job is to answer this prompt: *What are the themes of these two texts? How are the themes similar? How are they different? Use particular details from each text to support your answer.* Remember, the key is to use details to support and explain your answer. Be sure to answer all parts of the prompt.”

Groupings: Mix students by their comfort level with identifying theme and details.

Scaffolds: If students can’t find a difference between two identified themes, have them phrase the themes differently and then find differences. If students struggle to explain how particular details support a theme, talk with them to help clarify their thinking, or encourage them to find different details.

Three Simple Questions

If these suggestions for planning seem overwhelming, you might simplify things at first by thinking about three questions as you consider an upcoming lesson:

■ How can I ground students in the lesson’s context and purpose?

■ Is a direct or indirect approach best?

■ What few statements or questions do I need to script in advance so that the first 10–15 minutes of this lesson are productive?

You’ll quickly find that you become more efficient with each lesson beginning that you plan. And you’ll find your students more engaged and accomplishing more—thanks to a solid start. **EL**

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When Curriculum

A passionate debate is raging among a group of 8th grade students in the Metropolitan Museum of Art's European Paintings galleries. The students are discussing Artemisia Gentileschi's painting *Esther before Ahasuerus*, which depicts Jewish heroine Esther at the dramatic moment when she appeals to her husband to save her people from being massacred. In their English language arts classroom, these students are reading Shakespeare's *Romeo and Juliet*, and their spirited conversation weaves together strands from the play's narrative,

details from the painting, and stories from students' own experiences. Their teacher has selected this work of art to deepen and extend the students' engagement with a central question of Shakespeare's play: Are our lives determined by fate, or do we have free will? As students share their responses, the class informally splits between those who argue that people must take responsibility for their own actions and those who believe that individuals are powerless against the pull of fate.

After their discussion about this painting, the students will visit two other works of art at the Met



PHOTOS COURTESY OF FILIPVOLAK

that align with this theme. They'll engage with the art by sketching, role playing, and taking part in inquiry-based discussions. Upon returning to the classroom, students will write an essay that argues whether life is defined by fate or free will, incorporating evidence from the literature and art they've explored together.

Snapshots at the Museum

On another day, a class of 18–21-year-old students enrolled in an alternative diploma program is carefully sketching *La Capresse des Colonies*, a 19th century marble and bronze bust of a glamorous woman of African descent. Their teacher has chosen this object to illuminate themes of freedom, self-concept, and race in Toni Morrison's *The Bluest Eye*. After completing their sketches and sharing their observations with one another, students write a letter from the statue's subject to Pecola, the traumatized young black girl in Morrison's novel. In their letters, students encourage Pecola to love herself and be comfortable in her own skin, reminding her that "black is beautiful."

This rich conversation continues as students examine the next object, a painting by Harlem Renaissance artist Aaron Douglas titled *Let My People Go*. The class draws parallels between the exodus of enslaved people in Egypt and the struggle for freedom that black people faced in America. Students identify symbolic imagery in the painting and consider how these symbols play into the overall theme of the work. As the class shares thoughtful interpretations, one student enthusiastically comments, "The more we look at art, the deeper it gets!"

The same can be said as a 6th grade social studies teacher invites her students to look closely at Jonas Lie's 1913 painting *The Conquerors (Culebra Cut, Panama Canal)*, which documents the construction of the Panama Canal. The teacher's goal for this lesson—as part of a unit on citizenship and public policy—is for students to explore how artists engage in social activism. After examining details of the painting through a rolled-up sheet of paper, students share their initial ideas. In small groups, they examine historical documents that detail the positive and negative impacts of the canal's construction and synthesize this information with their observations of the painting. Together, they speculate about the artist's intent and the larger meaning of the work of art. Following the museum visit, students will identify community issues, brainstorm ways to solve those problems, and create persuasive artworks to advance their causes.

These diverse approaches to integrating art into curriculum and instruction are just a few ways that educators

Meets Art

A step-by-step planning process helps teachers integrate visual art into any content area.

Nicola Giardina



from the Astor Educator professional learning community are using the Metropolitan Museum’s collection to enliven their teaching practice and inspire students. Through object-based inquiry discussions, these teachers invite students to make connections among their lives, the curriculum, and works of art from across time and place. Their lessons fulfill the Common Core’s demands for rigorous content and application of knowledge through higher-order thinking skills, while also inspiring joy, curiosity, and imagination.

About the Program

The Astor Educator Initiative is a three-year, grant-funded project supporting K–12 educators and students in low-income communities, special education schools, and alternative schools in New York City. Through

this initiative, we seek to leverage the unique context of the museum and the skills of classroom educators to increase student learning in underserved schools. Our professional learning community includes social studies, English language arts, visual arts, and special education teachers.

Using the museum as our laboratory, we collaborate to generate, test, reflect on, and refine object-based teaching strategies that deepen critical-thinking skills and illuminate classroom curriculum. We advance our teaching practice through peer coaching, video-based reflection, and analysis of student data gathered during class trips to the museum.

Over the course of this project, we plan to develop a toolkit that educators can use to support teaching and learning from works of art.

The Pyramid of Inquiry

One of the products of our collaboration is a framework for planning arts-integrated lessons. The Pyramid of Inquiry is a flexible tool that can be used with any work of art to facilitate

inquiry experiences that develop critical-thinking skills. The pyramid is based on data collected during 60 hour-long student museum visits that I observed over one year (15 classes each participated in four hour-long visits).

By listening carefully to students’

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To read more about inquiry-based learning, see the online article “Of Swallowtails and Swallows” by Samantha Bennett at www.ascd.org/el1016bennett.

conversations about works of art and tallying and categorizing their thoughts, we identified the arc of an object-based inquiry discussion from initial observation (“I see a person”) to evidence-based inference (“He looks sad because his head is hanging down”) to interpretation (“I think this work is about the suffering of mankind”). From this data, we mapped backward to identify the types of questions and activities teachers employed to elicit each of these types of responses. We then generated a framework that can help educators plan successful object-based inquiry discussions. The conversation can be structured as follows.

The foundation of the pyramid is *observation*. After being asked an open-ended prompt (such as “What do you notice?”), students begin by looking closely at the object or taking a multimodal approach like sketching the object. This is a crucial first step because the information gathered will support the development of inferences and interpretations that are grounded in visual evidence.

The next level of the pyramid is *evidence-based inference*. Teachers might prompt students with a question along the lines of “What’s going on in this painting?” Or students might participate in a movement activity that imitates the pose of a painting’s character and then infer how the character feels, using evidence from the artwork.

Finally, the conversation builds to the *interpretation* phase. The teacher could ask a big question (for instance, “What do you think the artist’s message or intent is?”) or engage students in an art-making activity that expresses the meaning of the artwork in another way.

Note that information about the object can be inserted at any point during the conversation to give

context about the work of art and to scaffold students’ understanding as they form interpretations.

How to Plan with the Pyramid

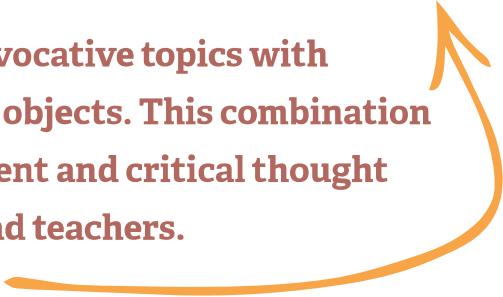
Although the Pyramid of Inquiry was developed as a lesson planning tool for a museum visit, teachers can also use this approach to plan lessons for the classroom.

Step One: Begin with the curriculum, and select works of art. Choose a topic, theme, or essential question from your curriculum. For example,

art by developing your own questions, researching, and engaging in the inquiry process that students will undergo. You will need to know some basic information about the objects to facilitate meaningful discussion with students. (Museum websites often provide rich resources for the study of objects.)

A caveat about the role of information in an inquiry-based lesson: The information you share with students should deepen the discussion by providing context and additional

Teachers paired provocative topics with visually captivating objects. This combination led to deep engagement and critical thought among students—and teachers.



a social studies teacher who’s teaching world religions may focus his art-infused lesson around sculptures from different religions. An art teacher may focus her lesson on a particular process, such as relief carving. Connections to curriculum may be very specific, as in the social studies example, or they may be more conceptual.

After you have decided on a topic, select the objects that you’ll teach. Successful objects connect with the curriculum while also sparking students’ curiosity. In the school visits mentioned earlier, teachers paired provocative topics (fate vs. free will, Black Lives Matter, art and activism) with visually captivating objects. This combination led to deep engagement and critical thought among students—and teachers.

Step Two: Get to know the works of art. Spend time with the works of

perspectives about the object—not provide an answer or “correct” interpretation. I suggest selecting just a few key points of information about the work of art, and following up with a question, such as, “What new ideas do you have now that you know this information?” This approach will promote synthesis and ensure that your conversation remains open-ended.

Step Three: Develop an inquiry plan by following the Pyramid of Inquiry framework. Using the Pyramid of Inquiry, develop a plan that engages students in close looking and discussion about each object. Include one or more open-ended questions or activities from each category of the pyramid: observation, evidence-based inference, and interpretation, using this sequence to scaffold the discussion and nurture critical thinking.

For example, in looking at the

Aaron Douglas painting *Let My People Go*, the teacher used the pyramid of inquiry to scaffold her students' experience of the work, guiding their thinking from observation to interpretation. She facilitated their investigation of the painting with "I See, I Think, I Wonder," a simple tool for gathering ideas. Using this strategy, students divide a paper into three columns and list their observations, inferences, and questions about the painting in each column. They then identify symbolic elements in the painting and infer what larger ideas the elements might represent, supporting their inferences with visual evidence from the artwork. Finally, the teacher guides the conversation to the interpretation level by asking, *What do you think is the overall message*

"The more we look at art, the deeper it gets!"

of this painting?, prompting students to synthesize their observations and inferences.

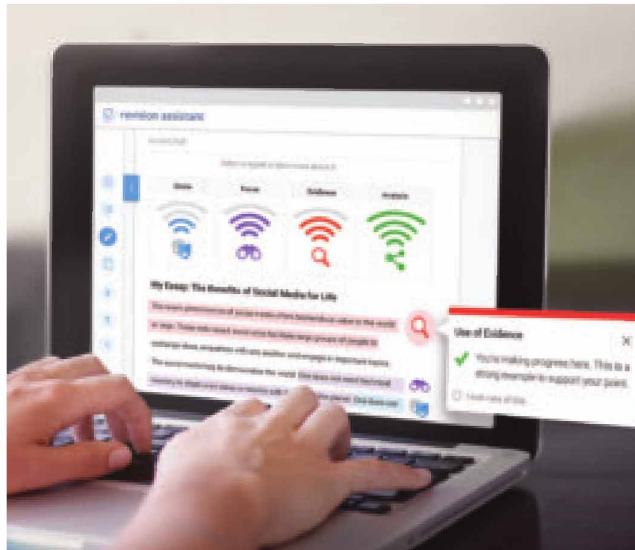
Learning through Art

Integrating art into the curriculum has been transformative for students and teachers taking part in this program. Christine Sugrue, a middle school social studies teacher in an arts-integrated co-teaching classroom, says, "I've moved toward focusing instruction around an artifact or work

of art, and allowing students to be the driving force behind what they explore. As a result, students are more invested in learning for learning's sake versus just looking for the right answer."

As teachers like Christine have found, the benefits of incorporating art into the curriculum are manifold. I encourage teachers of all disciplines to adopt the Pyramid of Inquiry framework to revitalize their practice and deepen student learning through art. **EL**

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Bryan Goodwin

Novice Teachers Benefit from Lesson Plans

Model lesson plans can be a new teacher's lifeline.

Shortly into my first year of teaching high school, a foul odor permeating the tropical air of my classroom sent me poking around a previously unexplored filing cabinet, where I discovered that a mouse had found its way into the bottom drawer and died. After disposing of the creature, I discovered something else in the drawer: a treasure trove of well-crafted lesson plans left behind by the previous teacher.

For a moment, I debated whether I should use them—would it be shirking my duties or plagiarizing? My doubt quickly subsided, however, as I felt a tremendous weight lifting from my shoulders. No longer would I have to go it alone, muddling through a full year of lesson planning for five classes at this school on the isolated Caribbean island of St. Croix (in pre-Internet days).

I never met my benefactor, but her plans got me through my first year of teaching. Sure, I wove my own lesson plans around hers, but each week, I'd open that file drawer and feel like I was uncorking new messages in a bottle from my unseen colleague, as if she were saying things like, "Hey, try introducing the lesson this way" or "Don't forget to check for kids' understanding of this concept."

My experience reflects new (and old) research findings—namely, that unburdening teachers, especially novice teachers, of lesson planning can be a simple yet powerful way to improve their classroom performance.

Support Makes Quite a Difference

In a recent study (Jackson & Makarin, 2016), 363 middle school math teachers in three Virginia school districts were given varying levels of access to lesson plans from Mathalicious.com. The lessons (and units, as many were taught over several lesson periods) engaged students in inquiry-based learning around intriguing, real-life problems, such as "How long do you think LeBron



James would have to play basketball to burn off all the calories in a Big Mac?"

One group of teachers was given access to the plans along with membership in an online learning community that provided webinars and opportunities to network with other teachers and the plans' developers. A second group received the model lesson plans with no online support community. A third (control) group proceeded with business as usual, presumably writing their own lesson plans.

Teachers' use of the lessons remained voluntary, so there were varying levels of uptake. Teachers in the *access-only* group hardly touched the plans and demonstrated no differences in student achievement from the control group. Teachers in the *access-plus-online-support* group, however, downloaded enough plans to cover roughly one-third of a year's worth of material, and their students showed higher achievement than the control group—a 0.08 effect size, the equivalent of moving

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these students from a classroom with an average teacher (at the 50th percentile of quality) to one at the 80th percentile of quality.

Perhaps most important, the lesson plans seemed particularly beneficial for weaker teachers. Access to the lessons and online support community were *doubly* beneficial for teachers whose quality was judged to be in the bottom quartile than for teachers of average quality.

Throwing Teachers a Lifeline

In her profiles of “dispelling the myth” schools—high-poverty schools with significant and sustained improvements in student performance—Karin Chenoweth (2009) found that some of these schools compiled and gave teachers three-ring binders full of well-designed lesson plans at the beginning of the year. Teachers seemed to welcome the support because it allowed them to focus on *delivering* the lessons well and managing behavior. In the words of one teacher at Lockhart Junior High, “It was very overwhelming my first year. There was just a lot to keep up with and keep track of.” Striking lesson planning from her list of first-year worries removed some creases from her brow and made her feel “like I had support” (p. 101).

Helping New Teachers Get to Expertise

Left to their own devices, novice teachers often struggle to write effective lessons. An examination of the lesson plans of 67 teacher interns in Kentucky (Sultana, 2001), for example, found that 41.3 percent of those lessons primarily engaged students in basic knowledge—the lowest

level of cognitive demand—and only 3.2 percent engaged students in the highest level of cognition on Bloom’s taxonomy: evaluation.

Despite the seeming benefits of giving teachers access to high-quality lesson plans, doing so seems to be far from standard practice for schools or districts. A few years ago, *Washington Post* columnist Jay Mathews (2011) reported that when Teach for America surveyed its teachers in 31 states, only 15 percent of them said they had

access to high-quality instructional tools like lesson plans. Mathews quoted a first-year Teach for America teacher in Baltimore puzzling over why he was allowed to make so many “beginner’s mistakes” in his first year of teaching: “There were no exemplary lesson plans, no recommended class activities, nothing.”

My point isn’t that teachers should be spoon-fed lesson plans and forced to check their professional expertise at the classroom door. Rather, it’s that high-quality lesson plans can give new or struggling teachers in particular an important lifeline. This may be the best way to think of packaged or borrowed lesson plans—as a support for teachers, not a mandatory “teacher-proof” curriculum. As performance researchers Anders Ericsson and Neil Charness (1994) noted, the best way to develop expertise is often to copy others’ expertise—which, for teachers,

can come from an online resource, colleagues, or someone kind enough to leave us their professional wisdom in a filing cabinet drawer. ■

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Unburdening teachers, especially novices, of lesson planning can be a simple yet powerful way to improve their classroom performance.

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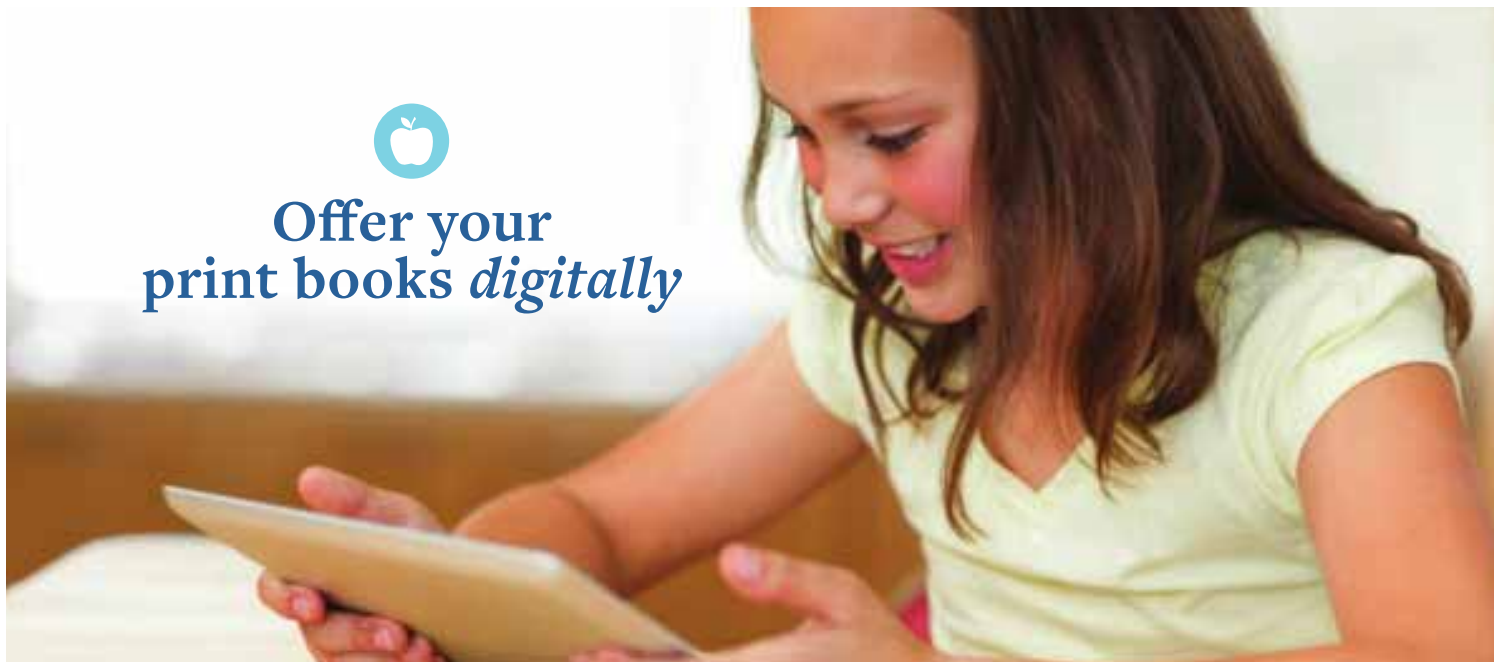
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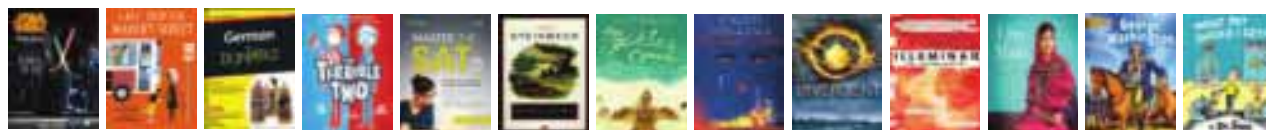


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SHOW & TELL: A VIDEO COLUMN

Doug Fisher and Nancy Frey

Sponge Activities— Make Every Minute Count

When the lesson runs short, soak up that precious time.

Lisa Forehand's 5th grade students have been reading *Fish in a Tree* by Lynda Mullaly Hunt (Nancy Paulson Books, 2015). It's the story of Ally, a girl who is good at math and a great artist, but who has a secret: She can't read.

As part of Ms. Forehand's lesson, she reads sections of a chapter aloud and then shares her thinking with students. For example, at one point in the chapter, Ms. Forehand shares a question she has for the author, "How can Ally's teacher let her know that he knows her secret without embarrassing her?" She then invites students to talk with one another in small groups about additional questions they would like the author to answer. Generating questions while reading is a habit that good readers use to remain engaged in the text.

At another point, she summarizes her understanding of the text, saying "There's a lot of important information about Ally in this section. I'm going to take some notes on my character map so that I can remember how she changes."

Ms. Forehand is an experienced teacher who knows that lessons combining teacher modeling with student participation are important for developing students' habits of mind. She also knows that it's hard to plan for exactly how much time these lessons will take because students will need different amounts of time to generate and discuss their questions. Fortunately, whenever there's time to spare, Ms. Forehand can draw on her collection of *sponge activities*—"learning activities that soak up precious time that would otherwise be lost" (Hunter, 2004, p. 117).



Using Four Corners

In the video that accompanies this column, you'll see Ms. Forehand's 5th grade students engaged in a Four Corners activity. They've completed their shared reading lesson on *Fish in a Tree* with 10 minutes to spare before recess. Ms. Forehand is ready. She has prepared five statements that she could use to review content from the book.

Students start in the center of the room. After Ms. Forehand reads a statement about the book, they consider whether or not they agree and then move to the corner that best represents their thinking: strongly agree, agree, disagree, or strongly disagree. Ms. Forehand has time for two discussion prompts:



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Click here to see a 5th grade teacher lead a Four Corners sponge activity to extend instruction in the short time remaining before recess.

■ The friendship bracelets are true symbols of friendship.

■ Mr. Daniels knows Ally's secret.

For each statement, the students move to their chosen corner and then talk with others there about the reasons for their choice. Ms. Forehand joins various groups as they talk. She pauses their discussions periodically to invite specific students to share the thinking of their group. Students can move from corner to corner as they consider the information presented by others and their opinions change.

With this strategy, Ms. Forehand has ensured that her students' time is not wasted just because the planned part of the lesson ended early. The Four Corners activity gives students the opportunity to review information from the book and to practice making claims and supporting their claims with evidence from the text.

Two More Sponge Activities

In addition to Four Corners, Ms. Forehand has other sponge activities in her toolbox to soak up those valuable minutes when the need arises. Here are two examples.

Daily Tweet asks students to write a message of 140 characters or fewer from the perspective of a person or character they are learning about. For example, early in the book *Fish in a Tree*, readers discover that the main character is bullied. Ms. Forehand includes in her lesson plans opportunities for students to write tweets of support to the character, if and when there is spare time in her schedule. These tweets further engage students with the book and also allow Ms. Forehand a quick glimpse into students' understanding.

RAFT Writing Frames (Santa & Havens, 1995; Simon, 2016) are most often used to help students prepare for writing assignments. RAFT stands for

■ **Role.** Who are you as the writer? (A movie star? The president? A plant?)

■ **Audience.** To whom are you writing? (A senator? Yourself? A company?)

■ **Format.** In what format are you writing? (A diary entry? A newspaper? A letter?)

■ **Topic.** What are you writing about?

RAFT prompts can also be a great sponge activity because they're easy to complete and they enable teachers to check for understanding. For example, in preparation for her students' study of *Fish in a Tree*, Ms. Forehand conducts a read-aloud of a picture book, *The Day of Ahmed's Secret* by Florence Parry Heide, Judith Heide Gilliland, and Ted Lewin (HarperCollins, 1995). This book tells the story of a boy in Cairo who is making his daily delivery rounds on a donkey cart, all the while anticipating the end of the day when he will share a special secret with his family—that he has learned to write his name in Arabic. Ms. Forehand believes that reading this book will sensitize her students to a central theme of *Fish in a Tree*—the importance of learning to read and write even when we're older.

In case the reading doesn't require as much time as she anticipated, Ms. Forehand has planned a RAFT prompt, which invites students to decide how they believe Ahmed will tell his family. Students respond to the prompt individually and share their thinking with their teacher in a Google Doc. A sample response might be

Role—Ahmed

Audience—his family

Format—a note on the kitchen table

Topic—I have a secret to tell you!

Ms. Forehand uses the students' work as a formative assessment to plan lessons that will address their writing needs as well as their understandings about texts.

This RAFT task will engage students in thinking more about the character of Ahmed and the theme of the book.

At the same time, it's not essential to the goal of the lesson—so if Ms. Forehand doesn't have time to use this sponge activity, students will not miss it.

Lest We Forget

Sponge activities can be planned as part of powerful lessons. They shouldn't be left to chance. It's simply too hard to invent relevant and valuable experiences for students on the spur of the moment when teachers discover that there are a few minutes remaining.

Even skilled teachers can't always predict how long a given lesson will last. What makes some teachers amazing, even when lessons run short, is their ability to ensure that powerful learning happens every minute that students are in class. ■

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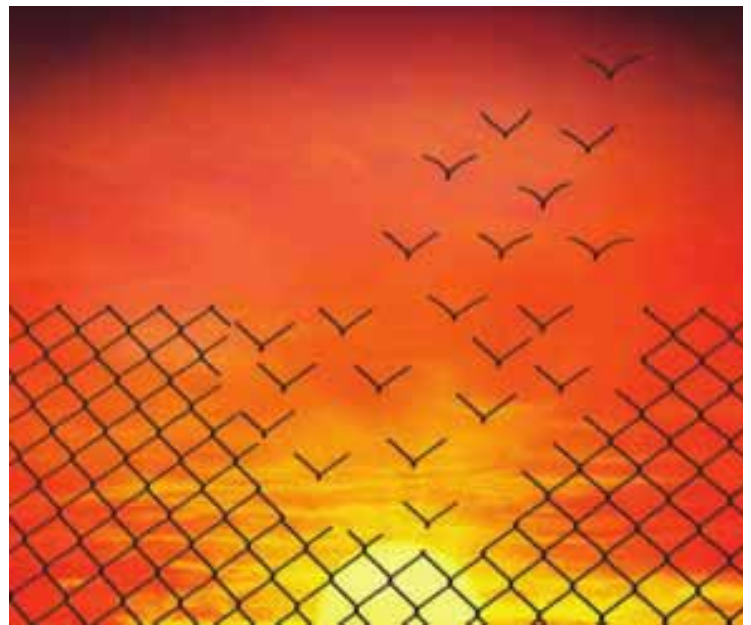
This may leave us feeling drained of the energy and creativity needed to design thoughtful and engaging lessons. However, lesson design should trump all of these other tasks because it's essential to maintaining student interest and engagement.

Find Inspiration on Social Media

It's easy to get stuck in the lesson planning doldrums. Many teachers who are short on time revert to a stand-and-deliver model that relegates students to the role of passive observers. I encourage my fellow teachers to seek inspiration by connecting with other educators on social media. Many teachers will read that and sigh, "I don't have time to be on social media!" I understand that reaction, but being on social media can actually *save* you time when it comes to lesson design.

We live in an era when we can easily learn from and share with educators all over the world. If I'm teaching a new book, I post a question on Twitter asking other educators on #engchat and #edchat what writing prompts and project ideas they've successfully used to teach that book. Within minutes, I get a half dozen links to blogs and online resources detailing lesson ideas. If I'm looking for a way to build community at the beginning of the school year, I can check out "team-building activities" on Pinterest and view hundreds of ideas complete with pictures and directions.

There are tons of places online where you can connect beyond Twitter and Pinterest. Some teachers prefer Google+, Facebook, Periscope, or Voxer. Any of these avenues can help build personal learning networks (PLNs) full of innovative educators who generously share their ideas. The limitless amounts of information, ideas, and inspiration shared on social media are worth the time it takes to create a profile and maintain an account.



Design Lessons That Break the Mold

It's easy to teach the way we ourselves were taught, but it's unlikely to excite our increasingly connected and tech-savvy students. Their interest in all things digital can be leveraged for learning by teachers willing to think outside the box, beyond their traditional lesson plans.

For instance, if my students are learning how to vividly describe the setting for a story they are writing, I *could* ask them to describe the time, place, and mood using paper and pen, as I was assigned to do in high school. That strategy, however, is unlikely to yield narratives that effectively "convey a vivid picture" as stated in the Common Core writing standards for high school.

Instead, I create a Google Map that can be edited by anyone with the link, and I share that link with my students. I drop pins in different locations on the Google Map. Each pin has a creative writing prompt or the first line of a story that students

need to complete—for example, “The dark shadows lengthened as the sun sank behind the mountains. He decided to ____” or “She dashed down the alley glancing quickly behind her. Out of the corner of her eye, she saw ____.” I either assign each student to a specific pin or allow each student to select the pin he or she wants. Some students gravitate to famous cities, like Paris or Rome; others prefer to write stories set in rural areas, on small islands, or at specific historical landmarks. After students select their pins on the map, I encourage them to explore the area around their pins by using street view or Google Earth to get detailed visual information about their locations. Students use these explorations to develop rich setting descriptions as they begin writing their stories.

Because the Google Map is shared with everyone, students also have the opportunity to read and learn from what their peers are writing. This level of transparency is an added bonus of using collaborative online tools.

Put the Play Back into Practice

Learning and refining any skill requires practice. Unfortunately, practice becomes mundane quickly. Too often, students are faced with lengthy sets of math problems or asked to complete pages in a workbook to hone a specific skill. Fortunately for students today, technology opens the door to practice that is fun, varied, and personalized.

Instead of asking students to complete a set of math problems, you can use real-life math challenges to infuse meaning and fun into practice.

YummyMath.com presents students with questions like, “How much will movie tickets cost in the future?” or “How much is a tweet worth?” This website has questions related to sports, food, science, art, and current events. Each question is tagged with the Common Core standards it addresses, and you can search by specific grade level or domain. These math challenges are ideal for both collaborative

and individual practice.

Personalizing practice to make it more meaningful is also becoming easier to do with technology. Teachers today can use tools like NoRedInk.com for grammar practice, which allows students to select topics of interest, like books, movies, and celebrities, so that all of the grammar practice is wrapped in topics they enjoy.

Websites like Vocabulary.com use adaptive software to personalize vocabulary review. Sophisticated algorithms determine which words students have mastered and which words they should continue to practice. You can also track how individual students are performing with the data provided. These technology tools not only make practice more interesting and engaging for students, but also provide teachers with important information about individual student progress.

Become an Architect of Learning Experiences

New technology tools can give teachers new energy when it comes to designing curriculum and planning lessons. Connecting with other educators online via social media is an important first step that can supply the inspiration for planning lessons that place students at the center of learning. As students shift from passive observers to active participants, teachers must also shift from being founts of knowledge to becoming architects of learning experiences—with the goal of designing lessons that are exciting, engaging and student-centered. [a](#)

Catlin Tucker is a teacher, international trainer, speaker, and best-selling author. Her most recent books are *Blended Learning in Action* (Corwin, 2016) and *Creatively Teach the Common Core Literacy Standards with Technology* (Corwin, 2015). She blogs at Catlintucker.com. Follow her on Twitter @Catlin_Tucker.

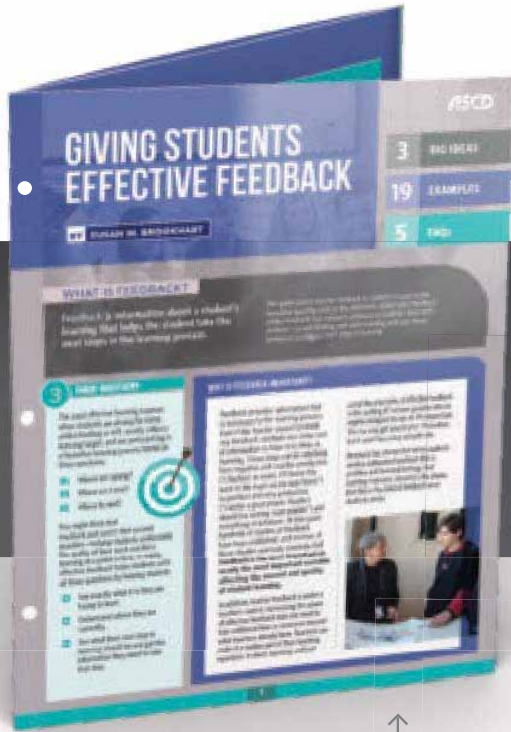


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Thomas R. Hoerr

How Principals Spark Engagement

We know it when we see it—and we need it!

When I walk into a classroom, I can tell within one minute whether or not students are learning.

The teacher might be in the front of the classroom, or it may take me a few seconds to find him or her. The lesson might be on higher-level mathematics, the causes of the U.S. Civil War, or the differences between active and passive verbs. Regardless of the subject matter or age of the students, in a good lesson the students are engaged in their learning.

When students are engaged, they often don't notice me as I enter their class. Their noses could be burrowed in books or affixed to screens. They might be working in teams to erect Greek temples from construction paper or record reactions when chemicals are mixed. Possibly they are painting, practicing speeches, or staging a play. Whatever the task, students who are engaged are focused on learning. They aren't learning so they can pass a test or achieve a high grade—although engaged students perform better. They're learning because the content or activity feels *relevant* and *interesting*, and they're achieving *success* in whatever they're doing. Those three factors come together to create student engagement.

Engagement doesn't happen by chance. It happens when talented teachers help students understand the importance of what they're learning and why it's relevant to them. It happens when teachers have students work in ways that spark interest, with students actively constructing meaning, often working in teams and learning from mistakes. It happens when instruction is differentiated so everyone can succeed—and when success comes with an expectation to stretch beyond your comfort zone.

When relevance, high interest, and success are in place, students want to learn. They invest more energy and are more resilient in their learning. The classroom becomes a place of inquiry, active



learning, and collaboration; even when learning is difficult, it can be joyful. Such engagement is obvious to anyone who enters a classroom.

Helping Teachers Value Engagement

As principals, we have two tasks connected to student engagement: First, we must help our teachers see the value of this engagement, and we must give them the autonomy and resources to create it in their classrooms. That's not easy. It can be hard for teachers to appreciate the value of engaging classrooms and to understand the components of such classrooms. Often, teachers feel tied to a set curriculum, and they're uncomfortable with allowing students to collaborate with one another or giving them autonomy to choose how they want to learn.

One way to help teachers see the importance of engagement is to ask them how *they* learn best. Usually, they'll mention relevance, interest, and

success (even if they don't use those exact terms). Then, ask whether they think those elements might help students learn, too, and discuss what should happen in classrooms so students can also experience active, joyful learning.

Ensuring Teachers Are Engaged

Our second task is to make sure that our teachers are also engaged in their learning. Too often principals focus only on student learning—and that's an oversight. Of course, the purpose of school is for students to learn, but students' learning will be constrained unless their teachers are also learning. And, like students, teachers learn best when they are engaged.

So we should ask whether our professional development efforts, teacher evaluations, and goal-setting processes are leading to engaged faculty learning, using the criteria of relevance, interest, and success. How relevant are our PD efforts to what our teachers want and need? Do teachers see the merit in what they're doing? Have we shared with teachers the rationale of this year's PD plan and solicited their input? It's easier to embrace a plan if you were involved in creating it.


Because administrators should model what we want teachers to do, we should present the professional development content in an interesting, learner-friendly way. Faculty meetings should be *learning* meetings. Information about housekeeping matters can be distributed earlier so that meetings can be interactive events in which teachers trade ideas, find new ways to meet students' needs, solve problems together, and generally learn from one another. And we need to make sure there's time for teachers to have fun.

It shouldn't be a high bar, but our faculty meetings should be so engaging that teachers want to attend them. For example, once I asked teachers

to share during our meeting how they created the "joyful learning" mentioned in our mission statement. Teachers got so engaged in the discussions that I had difficulty getting everyone to stop talking. I've also asked teachers to share what strategies worked for them in teaching students who struggle.

Principals also need to help teachers succeed. We do this by differentiating—on the basis of teachers' levels of expertise and their interests—what we look for as we observe and evaluate teachers and the goals we expect them to set. We should ask ourselves questions like, How can we design teacher observations and evaluations so that successes evolve into challenges? After our teachers succeed, we want them to look for different, higher goals to pursue. How might a new teacher set and pursue professional goals

differently than a seasoned veteran? Can teams of teachers pursuing similar goals share ideas and feedback throughout the year?

If teachers are engaged in their learning, their classrooms will be places where students achieve, push themselves, and experience joyful learning. How engaged is your faculty? 

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Carol Ann Tomlinson

Lesson Plans Well Served

How to create lessons that invite students to the table.

I'm a worrier at heart, fretting about odd things that probably don't stalk folks who have a less porous filter. One of my worries has to do with our obsession with standards (or, perhaps more accurately, standardized tests) and where it's taking us in terms of curriculum design. I feel pretty sure this obsession makes it hard to remember that we teach young humans first. If we forget the learner as we crank out lessons solely focused on goals that young people don't care much about, we've forgotten what teaching really is.

The Objectives of Lessons

I recently revisited Nel Noddings's 2005 book *The Challenge to Care in Schools*.¹ Although I don't subscribe to all of her ideas, I find power in many of them. They remind me that teaching is a deeply human enterprise.

She bemoans the reality that schooling seems designed "to make the individual teacher, the individual student, and their relationship irrelevant to the success of instruction." Once objectives are chosen, she observes, "teachers are not supposed to deviate from them." Rather,

Teachers are supposed to seek means within a narrowly defined standard form to reach the objectives and, further, the objectives now established are almost entirely cognitive. The purposes and objectives of students are ignored (indeed denied, as random behavior) unless they happen to coincide with those of the teacher.

She notes that "the demand is for every lesson to be driven by a 'standard' and evaluated on the basis of whether students meet it. The pervasive goal is control, control of teachers, of students, and of content." Ouch.

I understand her conclusion—and her concern, especially as I work with teachers in varied contexts. Pacing guides too frequently hold far more sway in curricular and instructional



decision-making than do the realities of the young people. Students' worth will often be judged on the basis of their skill and their mastery of the canon of what matters, determined by adults whom they have never met.

Thinking Forward

Complex issue. Lots of thoughts. Not much space. So here are four assertions for your consideration.

First, if we actually believe it doesn't matter whether learners care about what we ask them to learn, we've lost our way. At the university, I teach many bright young adults who intend to learn anything that's put in front of them—as long as all they have to do is commit it to memory and for the purpose of a grade. Sad as that is, they are likely better off than the multitude of K–12 students who halfheartedly poke at the plates full of disconnected and distant information we serve up each day—and the multitude who simply push those plates away. To create real learners, teachers have

to reach the hearts, souls, and minds of students. Teaching a list of standards won't get us there.

Second, there's wisdom in teaching with clarity of outcome—nothing wrong (and potentially much right) in declaring what we value. What's wrong is that we've allowed a list of standards to *become* the curriculum. My own bias is that the Common Core standards are potentially more beneficial to students than many sets of standards in the United States that preceded them. Still, like all standards, they are simply ingredients for curriculum—not the curriculum itself. To generate compelling curriculum, teachers have to embed the standards in learning contexts that enliven the curiosity and thinking of students and that represent with validity the nature and intent of the disciplines they teach. Right now, we often dish out raw ingredients when we

should be making dinner.

Third, teaching “invitationally” does not necessitate abandoning important information, skills, and ideas. Rather, it calls on teachers, as Steven Levy² says, to steer students' enthusiasms to the shore of the required curriculum. Take the middle school teacher who asks students to write autobiographically as they read biographies, conduct and record interviews with key people in their lives, and compare perspectives in StoryCorps interviews. This teacher focuses students on a wide range of Common Core reading and writing standards without making the work feel sterile or remote. Teaching invitationally is not a choice between standards and meaningful learning, but rather a choice to ensure that students experience the worth of ideas and skills.

Fourth, we are wise to see any set of standards as starting points

for learning rather than boxes that define the perimeters of learning. The new British Columbia curriculum framework has a limited number of “big ideas” or essential understandings clearly articulated for the content areas. In addition to fundamental skills of literacy and mathematics, the framework includes skills in communication, critical thinking, creative thinking, positive personal and cultural identity, personal awareness and responsibility, and social responsibility. I like how the big ideas and skills are delineated and how the skills integrate meaningfully with the content. I particularly like that teachers are encouraged to “make dinner” that will invite learners to the table of learning, not to serve ingredients.

Here's the thing. If I understand that my job is to make dinner, to create learning fare that's both nourishing and appetizing, and if I accept that any set of standards is just a starting point, then I'm free to integrate elements from other sources into my curriculum framework—with the end goal of enlivening learning for my students, and enlivening them as learners. ■

¹ Noddings, N. (2005). *The challenge to care in school* (2nd ed.). New York: Teachers College Press.

² Levy, S. (1996). *Starting from scratch: One classroom builds its own curriculum*. Portsmouth, NH: Heinemann.

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Depression	17%	Down
Bullying	51%	Down
Absenteeism	28%	Down
Discipline	85%	Down
Aggressive Problem-Solving	81%	Down
Obesity	23%	Down

Carol Ann Tomlinson

(cat3y@virginia.edu) is William Clay Parrish Jr. Professor and Chair of Educational Leadership, Foundation, and Policy at the Curry School of Education, University of Virginia in Charlottesville. She is the author of *The Differentiated Classroom: Responding to the Needs of All Learners* (2nd ed., ASCD, 2014) and, with Michael Murphy, *Leading for Differentiation: Growing Teachers Who Grow Kids* (ASCD, 2015).



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Tell Me About . . .

What You Learned from a Lesson Plan That Flopped

Learning from History

During my first year of teaching, I attempted to conduct a Virginia History Living Museum in my classroom. The students would research historical figures, create talking points, and then dress up in colonial garb to impersonate historical figures. Visitors to the classroom would walk around the museum and listen to the talking points.

I was so excited about this lesson that instead of carefully planning the entire project, I got students started on the research component right away—before I could ensure that it was feasible to implement the project effectively. As you might guess, I could not secure the right clothing, and I did not account for the instruction students

would need to conduct appropriate research. After day two, the entire project flopped. The students were disappointed, and I was embarrassed.

As teachers, we often get excited about our great ideas. But what sounds like a great project can be light on learning and content. What I learned from this project is to plan as many details as possible and to ensure that the idea does not get in the way of actual instruction.

—Adam Brown, principal,
Southeastern Cooperative Educational
Programs, Virginia Beach, Virginia

A Lesson for the Teacher

“Mrs. Platt, your mini-lessons aren’t that mini,” a 4th grader told me.

I had carefully prepared a lesson

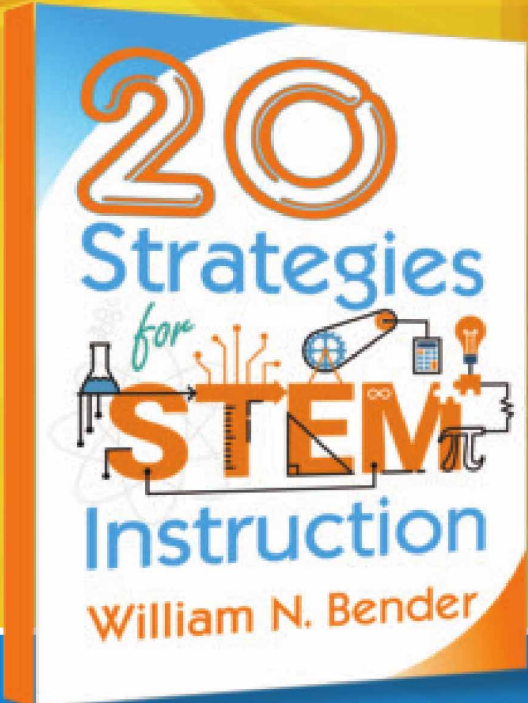
about how to write a knock-your-socks-off opening for personal narratives. There were slides, examples, counterexamples, charts, and color-coded notes. Despite the admonishment, I forged on with the “mini-lesson.”

I saw glazed-over faces, wistful looks at the clock, and furtive reaches for pencils lying neglected on desks.

When I finished the lesson half an hour later, I asked, “Any questions?” The same gutsy girl asked, “Yeah, can we write?”

I looked at the charts and the interactive whiteboard displaying examples and sighed, “Yes, but we only have a few minutes of class left.”

As students worked, I noticed that some tried my techniques, but most



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completely ignored them. Even worse, I didn't have time to coach them. Class was over. My lesson had bombed!

Although thorough and carefully planned, my lesson was too long. I learned a lesson that day. Sometimes less is more. Mini-lessons have to be short, and when a longer lesson is needed, it doesn't help anyone to claim that it's mini when it's not.

—Rita Platt, library media specialist,
St. Croix Falls School District,
St. Croix Falls, Wisconsin

Caught on Camera

My biggest lesson flop—a disaster, actually—was a 90-minute grammar lesson during my first year of teaching. On the advice of my assistant principal, I videotaped the lesson, which ended up providing me with a powerful learning experience. Watching the lesson from my students' perspective, I noticed students' disengagement and became aware of my tendency to talk to the left side of the

room. It was clear that the lesson had fallen flat.

I have never watched the entire lesson (20 minutes was enough) and have never shown anyone the video. But since then, I've never taught more than a mini-lesson of a necessary grammar skill.

Capturing video of a lesson isn't for the faint of heart. It requires vulnerability, a growth mindset, and humility, but it can be meaningful for the teacher and students alike.

—Ara Nelson-Mercer,
assistant principal,
Noblesville West Middle School,
Noblesville, Indiana

Preparation Counts


During my first year as a teacher, I taught a section of AP calculus. Although I had been a math major in college, it had been a few years since I took calculus. One day, I planned to teach a lesson about small-angle approximation. When I arrived at school that morning, I looked over my

teaching notes. I was not feeling very confident, but I felt I had no other choice but to teach the lesson. By the end of class, I had convinced most of my students how this worked, even though I was still extremely fuzzy on the topic myself. Then, one of my best students raised her hand and said, "I still don't understand this."

I promised my students that I would review the concept at home that evening and revisit the topic the next day. After class, I immediately searched online, only to discover that I had taught the concept completely wrong! It was humbling to go back to class the next day and apologize to my students. I learned that you never, ever go into a lesson unprepared!

—Sarah Donovan, curriculum and
assessment coordinator,
Concordia International School,
Shanghai, China

For more reader stories, see the
online version of this article at
www.ascd.org/el1016tellmeabout.

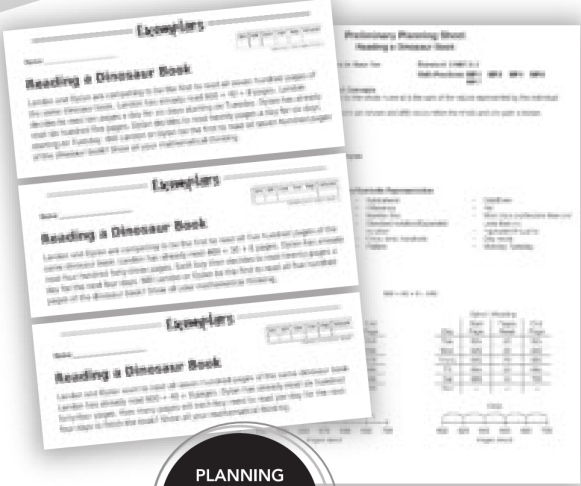


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The enactment of a new federal education law last year provides educators with a unique opportunity to exercise their voice in education policy. Decision makers are now developing federal regulations, and state and district leaders are planning implementation policies. What can educators do?

- *Get informed.* ESSA information and details are available on ASCD's webpage, www.ascd.org/essa, including webinars, FAQs, and links to U.S. Department of Education resources. Know the implementation timeline and when key decisions will be made.

- *Get involved.* Share information with your colleagues about the law and its impact on your state. Let policy-makers know what is happening in your school and district so that what is put in place helps—not hinders—your ongoing efforts.

- *Make a difference.* Help redefine student success and promote positive professional development. As state accountability measures are expanded, offer your expertise about the non-academic indicators of student success that are most valuable. Similarly, provide your input about what makes effective professional development.

The decisions made during the next six months will have long-lasting consequences for state and local education systems. You can make important contributions to this decision-making process for your school, colleagues, and students.

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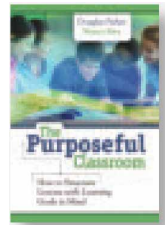
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Resources for Powerful Lesson Planning

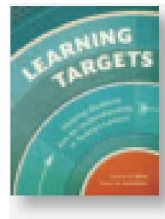
The Purposeful Classroom: How to Structure Lessons with Learning Goals in Mind (ASCD, 2011) by Douglas Fisher and Nancy Frey. Stock No. 112007. \$18.95 (member); \$24.95 (non-member).

In this practical guide, authors Douglas Fisher and Nancy Frey offer a variety of strategies that K–12 teachers can use to craft effective, standards-based purpose statements, assignments, and tests across grade levels and content areas.



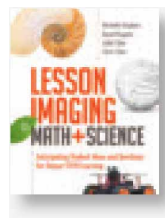
Learning Targets: Helping Students Aim for Understanding in Today's Lesson (ASCD, 2012) by Connie M. Moss and Susan M. Brookhart. Stock No. 112002. \$19.95 (member); \$26.95 (non-member).

Instruction and assessment experts Connie M. Moss and Susan M. Brookhart explain how student-centered learning targets can raise student achievement and create a culture of evidence-based, results-oriented practice.



Lesson Imaging in Math and Science: Anticipating Student Ideas and Questions for Deeper STEM Learning (ASCD, 2016) by Michelle Stephan, David Pugalee, Julie Cline, and Chris Cline. Stock No. 117008. \$21.95 (member); \$29.95 (non-member).

From respected voices in STEM education comes lesson imaging: an innovative lesson planning approach to help turn students into problem solvers.



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EL Takeaways

If we forget the learner as we crank out lessons solely focused on goals, we've forgotten what teaching really is.

—Carol Ann Tomlinson, p. 89

Giving students options for what to work on makes them feel empowered. Plus, students' choices reveal valuable information about their confidence and willingness to take risks.

—Marilyn Burns, p. 40



The most important question you can ask when you plan a lesson is this: How will I infuse higher-order thinking into this lesson?

—Susan M. Brookhart, p. 10

7 Lessons on Lesson Planning

When it comes to effective lessons, if you fail to plan, then you plan to fail.

—Michelle Bauml, p. 58



"Activity" and "engagement" are too often the primary drivers of lessons in U.S. classrooms.

—Bradley A. Ermeling and Genevieve Graff-Ermeling, p. 22

Although some for-sale lessons are tested with students, there's no guarantee they will be effective tools for all students. Even the best ideas need tailoring.

—Kim Greene, p. 28

A good lesson plan is a living document. It is not set in stone, but rather a guide that keeps you—the classroom practitioner—thinking about what you are teaching.

—Otis Kriegel, online



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Source: The collective wisdom of authors published in the October 2016 issue of *Educational Leadership*, "Powerful Lesson Planning" (Volume 74, Issue 2).



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