digits™

Program Overview Guide

Updated Edition

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ISBN-13: 978-0-13-329162-9
ISBN-10: 0-13-329162-6
2 3 4 5 6 7 8 9 10 V064 18 17 16 15 14

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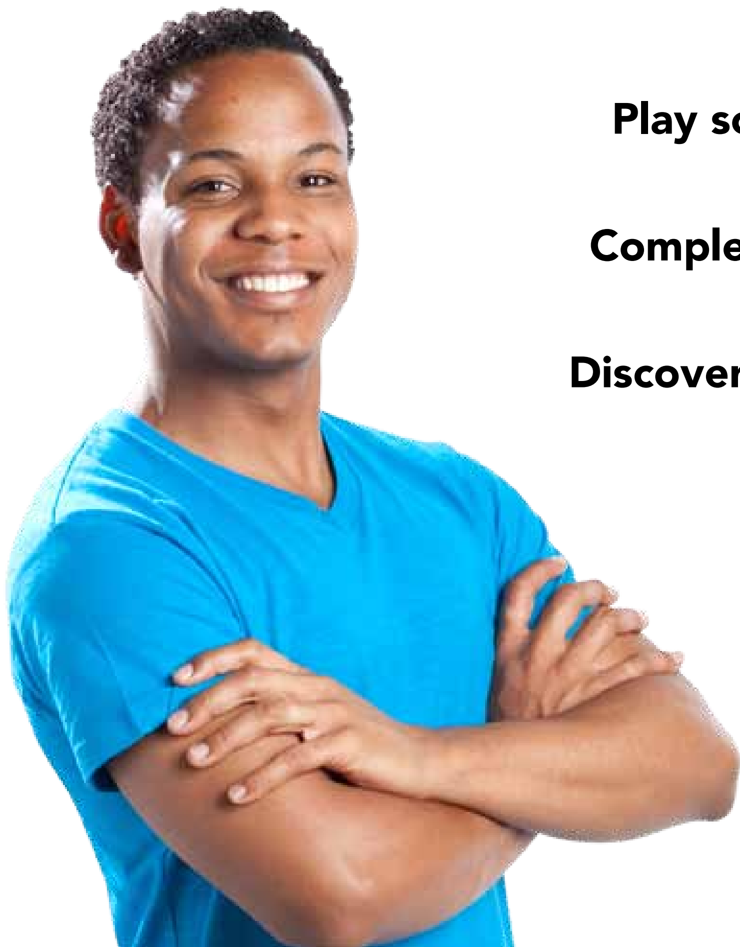

Play some cool math games!

Complete homework online!

Discover math tricks and tips!

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Authors and Advisors

Francis (Skip) Fennell
***digits* Author**

Approaches to mathematics content and curriculum, educational policy, and support for intervention

Dr. Francis (Skip) Fennell is Professor of Education at McDaniel College, and a senior author with Savvas. He is a past president of the National Council of Teachers of Mathematics (NCTM) and a member of the writing team for the Curriculum Focal Points from the NCTM, which influenced the work of the Common Core Standards Initiative. Skip was also one of the writers of the Principles and Standards for School Mathematics.

Art Johnson
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Approaches to mathematical content and support for English Language Learners

Art Johnson is a Professor of Mathematics at Boston University who taught in public school for over 30 years. He is part of the author team for Pearson's high school mathematics series. Art is the author of numerous books, including Teaching Mathematics to Culturally and Linguistically Diverse Students published by Allyn & Bacon, Teaching Today's Mathematics in the Middle Grades published by Allyn & Bacon, and Guiding Children's Learning of Mathematics, K–6 published by Wadsworth.

Helene Sherman
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Teacher education and support for struggling students

Helene Sherman is Associate Dean for Undergraduate Education and Professor of Education in the College of Education at the University of Missouri in St. Louis, MO. Helene is the author of Teaching Learners Who Struggle with Mathematics, published by Merrill.

Stuart J. Murphy
***digits* Author**

Visual learning and student engagement

Stuart J. Murphy is a visual learning specialist and the author of the MathStart series. He contributed to the development of the Visual Learning Bridge in enVisionMATH™ as well as many visual elements of the Prentice Hall Algebra 1, Geometry, and Algebra 2 high school program.

Janie Schielack
***digits* Author**

Approaches to mathematical content, building problem solvers,and support for intervention

Janie Schielack is Professor of Mathematics and Associate Dean for Assessment and PreK–12 Education at Texas A&M University. She chaired the writing committee for the NCTM Curriculum Focal Points and was part of the nine-member NCTM feedback and advisory team that responded to and met with CCSSCO and NGA representatives during the development of various drafts of the Common Core State Standards.

Eric Milou
***digits* Author**

Approaches to mathematical content and the use of technology in middle grades classrooms

Eric Milou is Professor in the Department of Mathematics at Rowan University in Glassboro, NJ. Eric teaches pre-service teachers and works with in-service teachers, and is primarily interested in balancing concept development with skill proficiency. He was part of the nine-member NCTM feedback/advisory team that responded to and met with Council of Chief State School Officers (CCSSCO) and National Governors Association (NGA) representatives during the development of various drafts of the Common Core State Standards. Eric is the author of Teaching Mathematics to Middle School Students, published by Allyn & Bacon.

William F. Tate

***digits* Author**

Approaches to intervention, and use of efficacy and research

William Tate is the Edward Mallinckrodt Distinguished University Professor in Arts & Sciences at Washington University in St. Louis, MO. He is a past president of the American Educational Research Association. His research focuses on the social and psychological determinants of mathematics achievement and attainment as well as the political economy of schooling.

> *“Savvas tapped leaders in mathematics education to develop **digits**. This esteemed author team—from diverse areas of expertise including mathematical content, Understanding by Design, and Technology Engagement—came together to construct a highly interactive and personalized learning experience.”*

Grant Wiggins

***digits* Consulting Author**

Understanding by Design

Grant Wiggins is a cross-curricular Savvas consulting author specializing in curricular change. He is the author of Understanding by Design published by ASCD, and the President of Authentic Education in Hopewell, NJ. Over the past 20 years, he has worked on some of the most influential reform initiatives in the country, including Vermont's portfolio system and Ted Sizer's Coalition of Essential Schools.

Randall I. Charles

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Dr. Randall I. Charles is Professor Emeritus in the Department of Mathematics at San Jose State University in San Jose, CA, and a senior author with Savvas. Randall served on the writing team for the Curriculum Focal Points from NCTM. The NCTM Curriculum Focal Points served as a key inspiration to the writers of the Common Core Standards in bringing focus, depth, and coherence to the curriculum.

Jim Cummins

***digits* Advisor**

Supporting English Language Learners

Dr. Jim Cummins is Professor and Canada Research Chair in the Centre for Educational Research on Languages and Literacies at the University of Toronto. His research focuses on literacy development in multilingual school contexts as well as on the potential roles of technology in promoting language and literacy development.

Jacquie Moen

***digits* Advisor**

Digital Technology

Jacquie Moen is a consultant specializing in how consumers interact with and use digital technologies. Jacquie worked for AOL for 10 years, and most recently was VP & General Manager for AOL's kids and teen online services, reaching over seven million kids every month. Jacquie has worked with a wide range of organizations to develop interactive content and strategies to reach families and children, including National Geographic, PBS, Savvas Education, National Wildlife Foundation, and the National Children's Museum.

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“If we teach **today** as we taught **yesterday**, we rob our children of **tomorrow**.”

–John Dewey

Overview

The Role of Classroom Technology

Today is both an exciting and chaotic time. As never before, teachers can choose from many new classroom technologies to engage and motivate students.

Pearson's new comprehensive and coherent middle grades math program ***digits*** offers integrated instructional content designed both to optimize teachers' and students' time and to personalize learning. Created with the teacher in mind, the program simplifies typically laborious tasks and enables teachers to focus on teaching and interacting with students.

The ***digits*** program helps teachers leverage the classroom technology that they have, whether that includes a projector, an interactive whiteboard, student response systems, or devices that support one-to-one computing. More important, the program can grow with classrooms as technology is introduced. To use ***digits***, a classroom needs only a computer and a projector.

Research and Policy

The development of ***digits*** has been driven by the Common Core State Standards for Mathematics (CCSSM), Understanding by Design®, and foundational research in instruction, data-driven intervention, and motivation. Each driver has provided fundamental, unique, and interlinking contributions to the program.

The CCSSM have identified the instructional goals and the achievement expectations of students at each grade level. They do not necessarily outline how to achieve those goals, but rather establish a common framework to prepare students and gauge success. Prior to the initiative, state standards varied widely and curriculum conversations often did not cross state lines, as if each state had its own "language" when talking about and making decisions about math instruction. With the CCSSM, states are beginning to use one language and gain an ability to achieve long-term goals across many states.

The Understanding by Design® principles, on the other hand, have provided guidance on how to structure units and lessons in ***digits*** to achieve the content and practice goals of the Common Core State Standards. With a research-based approach for curriculum planning, Understanding by Design® focuses on achieving the desired learning outcomes with coherence, and provides specific guidance on how to "unpack" the various layers in a standard.

While the Common Core State Standards identifies what students need to know and develop and the Understanding by Design® framework provides guidance on how to structure the lessons to achieve the instructional goals, foundational research in instruction, data-driven intervention, and motivation provides the inspiration for the actual learning activities. The convergence of these three factors has resulted in the ground breaking and unique approach in ***digits*** that is not only instructionally effective but also fun to teach!

Common Core State Standards

The Common Core State Standards provide a consistent, clear understanding of what students are expected to learn, so teachers and parents know what they need to do to help them. The standards are designed to be robust and relevant to the real world, reflecting the knowledge and skills that our young people need for success in college and careers. With American students fully prepared for the future, our communities will be best positioned to compete successfully in the global economy.

The Common Core State Standards were developed through a state-led effort coordinated by the National Governors Association Center for Best Practices and the Council of Chief State School Officers. The standards were informed and influenced by state standards, teachers, school administrators, content experts, international models, and the general public.

Generally, the CCSSM define the knowledge and skills students should have in order to be successful in college and in workforce training programs. For middle grades, the standards prepare students well for an Algebra 1 course in Grade 9. Further, students who have completed Grade 7 and mastered the content, skills, and understandings of the CCSSM through Grade 7 are prepared for an algebra course in Grade 8.

The standards stress not only procedural skill but also conceptual understanding. Combined, these emphases ensure that students are prepared for higher level mathematics in high school.

Each grade has a specific set of focused and coherent standards organized in clusters and domains.

Focus Areas of the Grade 6 CCSSM

- connecting ratio and rate to whole number multiplication and division and using concepts of ratio and rate to solve problems
- completing understanding of division of fraction and extending the notion of number to the system of rational numbers, including negative numbers
- writing, interpreting, and using expressions and equations
- developing understanding of statistical thinking

Focus Areas of the Grade 7 CCSSM

- developing understanding of and applying proportional relationships
- developing understanding of operations with rational numbers and working with expressions and linear equations
- solving problems involving scale drawings and informal geometric constructions, and working with two- and three-dimensional shapes to solve problems involving area, surface area, and volume
- drawing inferences about populations based on samples

Focus Areas of the Grade 8 CCSSM

- formulating and reasoning about expressions and equations, including modeling an association in bivariate data with a linear equation, and solving linear equations and systems of linear equations
- grasping the concept of a function and using functions to describe quantitative relationships
- analyzing two- and three-dimensional space and figures using distance, angle, similarity, and congruence, and understanding and applying the Pythagorean Theorem

In addition to Standards for Mathematical Content, the Common Core State Standards include Standards for Mathematical Practice, which describe habits that enable the development of deep mathematical understanding and expertise.

The Common Core Standards for Mathematical Practice focus on the processes and proficiencies that all mathematics educators should seek to develop in their students. The eight standards were informed by the National Council of Teachers of Mathematics Process Standards (2000) and the strands of mathematical proficiency outlined in Adding It Up by the National Research Council (2001).

References for Common Core State Standards

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National Research Council. (2001). Adding It Up: Helping Children Learn Mathematics (J. Kilpatrick, J. Swafford, & B. Findell, Eds.) Washington, DC: National Academy Press.

Understanding by Design® Principles

Understanding by Design® is a curriculum-planning framework that focuses on helping students understand important ideas in a meaningful way. The research-based approach of Understanding by Design® aims to have students demonstrate understanding through sense making and transfer of learning through authentic performance.

The Understanding by Design® framework involves a three-stage "backward-design" process that uses the desired learning outcomes and the evidence that learning has occurred as the main drivers. During Stage 1, the desired results are identified, which include the targeted goals, the essential questions that students should consider, and the knowledge and skills that the students will need. In Stage 2, developers and curriculum planners determine the acceptable evidence such as what performances and products students will need to demonstrate or create, as well as the acceptable assessment criteria. Lastly, in Stage 3, the learning experiences and instruction are planned accordingly.

References for Understanding by Design®

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Foundational Research

The inspiration of ***digits*** was driven by three foundational pillars of research: *Instruction*, *Data-Driven Intervention*, and *Motivation*. Key elements of each of these pillars are described below.

Instruction

Research based on students who struggle with math indicates that **successful programs include a balance of explicit instruction and guided explorations**. Explicit instruction is most effective for presentation of factual content; guided explorations are most effective for content that is conceptual, procedural, or problem-based.

Positive results have been found by preparing students prior to a formal learning structure. This preparation involves introducing them to concepts through active learning.

A **differentiated classroom** provides multiple avenues for acquiring information and processing and making sense of ideas enabling each student to learn effectively.

Whole-class instruction is most feasible for middle grades teachers and allows for direct instruction of content followed by engaging discussions and sharing a variety of methods.

Small-group work enables students to provide mutual feedback and engage in debates that motivate students to abandon misconceptions and search for better solutions.

Peer-assisted learning allows students to quickly compare and correct understandings by working with classmates who may have insight into areas of struggle.

Research clearly emphasizes that for learning to occur, new information must be integrated with what the learner already knows. By **activating prior knowledge** before an assessment, students can draw on what they already know for a more accurate assessment picture.

Online tools provide significant functionality in transmitting information to the student, providing forums for exchange, increased opportunities for learning, and alternative formats for information gathering. This type of environment permits the instructor to build one course while implementing a variety of resources to best meet student needs.

Data-Driven Intervention

Diagnostic tests yield strengths and weaknesses about students' mathematics learning and provide information for teachers to plan appropriate instruction and to group students.

Research indicates that **formative assessment followed by feedback** during learning activities is the most effective instructional strategy. In fact, consistent and ongoing formative assessment has been found to increase learning effectiveness by as much as seventy-five percent.

Research recommends that a **strong technology infrastructure** can make formative assessment feasible by enabling students to take assessments online and providing immediate feedback to both the student and the teacher.

Motivation

Findings from the National Math Panel report together with Savvas-sponsored research suggest that one of teachers' greatest challenges in helping students succeed in mathematics is **working with unmotivated students**.

The **transition for children from elementary school to middle school** is most often a challenging one, and this has a negative impact on motivation in academic classes.

Developmental changes in students' intrinsic motivation are generally accompanied by declining confidence and by increasing anxiety.

Intrinsic motivation can be increased by challenging students, giving them some control, letting them use technology, and helping them meet success.

Cognitive neuroscience research indicates that **positive mood triggered by humor** enhances insight and the ability to solve problems.

Differentiated assignments enable students to draw on their own readiness levels and learning modes, thereby drawing on students' interests and strengths. Students can grow from appropriate challenges while the teacher retains focus on the key content that is essential to all learners.

Students who work with a visual organizer are better able to follow the flow of a lecture. This type of tool can help students focus on key ideas and information.

Educational research shows that if information is conveyed to the students in a combination of text, color, graphics, animation, sound, moving pictures, and a degree of interactivity, the **interactive multimedia approach may result in a significant increase in retention and improvement in the learning rate**.

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Developing *digits*

Taking ***digits*** from conception to reality has been an exciting process that involved teachers and students nationwide. Advances in technology enabled us to have greater transparency, engage with more educators than ever before, field test prototypes with hundreds of students, and respond agilely to student and teacher feedback.

Gathering Input

In addition to observing middle grades teachers nationwide to internalize their daily challenges and victories, we also invited teachers to Savvas IdeaShare, where they could express specific desires to be incorporated in a new middle grades math program. Teachers who joined Savvas IdeaShare could contribute ideas, read ideas from others, and vote on ideas in the categories of best practices and real world mathematical contexts. All ideas were carefully considered and over 90% of the ideas were incorporated into ***digits***.

Iterative Field Testing

Early in the development process, we field tested Grade 6 and Grade 7 lessons with approximately 600 students in order to gain insight on implementation challenges, lesson flow, and degree of teacher fidelity. Adjustments were made following each field test cycle to respond to gathered feedback and observations. The following materials were included in the field tests:

- Readiness Assessment administered to students prior to instruction.
  A teacher report with recommended student differentiation groups for the Readiness Lesson was generated from the results of the assessment.
- Instruction on Ratios and Patterns and Functions, including the Readiness Lesson and on-level lessons (delivered online with back-up CD-ROM).
- Printed copies of teacher notes for each day's lesson.
- Student booklet containing the accompanying student companion pages.
- Student Dashboard and homework powered by Math XL for School.

Highlights from the iterative field tests that informed our thinking include:

- Overall program approach and key components were well received.
- In-class presentation was effective for presenting the instruction and keeping students engaged.
- Online homework with immediate feedback was motivating for students and time-saving for teachers.
- Online homework with supportive learning aids improved homework completion rates.
- Built-in differentiation informed by an objective assessment allowed teachers to spend more time with struggling students while providing on-level and advanced students authentic math experiences.
- Strong teacher materials helped support fidelity of implementation.

Evaluation

To increase teacher contribution, national teleconferences were conducted. In advance of the teleconferences, participants reviewed a self-guided presentation of the instructional model, the daily lesson routine, differentiation options, program components, and online homework. Participants were also able to interact with digital samples of the interactive whiteboard lessons as well as samples of pages from the student companion. Highlights from the teleconferences that informed our thinking include:

- Teachers believe mathematics education needs to integrate technology to keep up with the way students learn.
- Teachers praised the increased focus on differentiation and personalization found in ***digits***.
- Teachers have heard promises of differentiation and time savings from other programs, but they believe this program would actually deliver on the promise.
- Teachers are concerned about technology reliability in schools and access at home. They found the available implementation options of *digits* helpful.
- Teachers want an ability to customize the materials to match their teaching style or to match class pacing needs. They found that *digits* provides this ability.

Ongoing evaluation includes a third party, multiple year, longitudinal efficacy study at sites nationwide beginning September 2011.

digits™ delivers

- ☑ Integrated technology
- ☑ Differentiation and personalization
- ☑ Flexible technology implementation options for school and home
- ☑ Readily customizable materials

Mathematics Content

Building to the Common Core State Standards

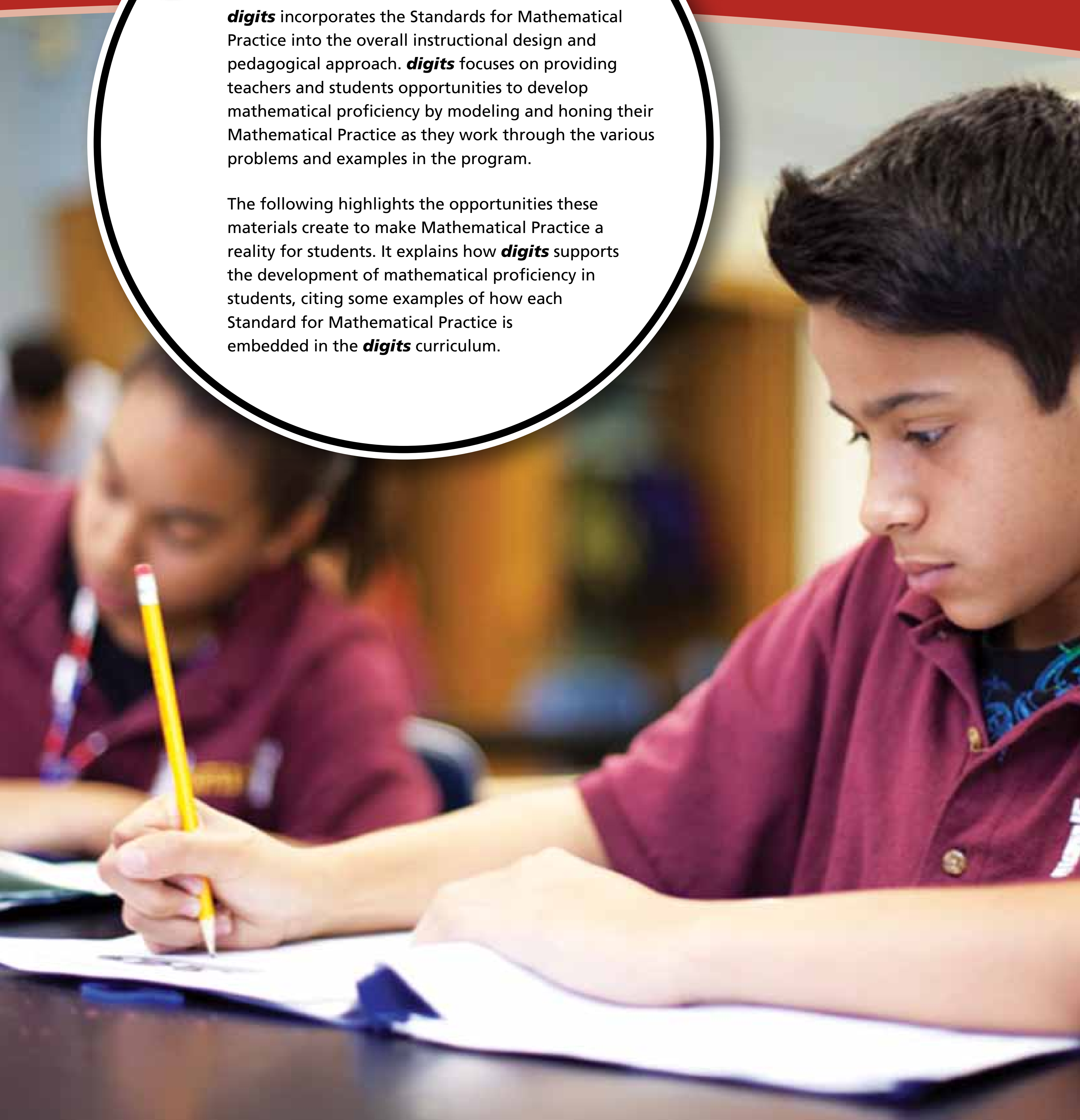
Building to the Common Core State Standards requires a synthesis of both the Standards for Mathematical Content and the Standards for Mathematical Practice. While the content standards identify the core knowledge and skills that students are expected to possess at each grade level, the Standards for Mathematical Practice identify the attributes of mathematical thinking that teachers of all grades need to reinforce.

Consequently, building to the Common Core State Standards is more than just an alignment to the content standards. The ***digits*** program has been built to incorporate the Standards for Mathematical Practice in the overall instructional design. Multiple opportunities are provided daily to engage students in the use of the Standards for Mathematical Practice.

Common Core Standards for Mathematical Practice

digits incorporates the Standards for Mathematical Practice into the overall instructional design and pedagogical approach. ***digits*** focuses on providing teachers and students opportunities to develop mathematical proficiency by modeling and honing their Mathematical Practice as they work through the various problems and examples in the program.

The following highlights the opportunities these materials create to make Mathematical Practice a reality for students. It explains how ***digits*** supports the development of mathematical proficiency in students, citing some examples of how each Standard for Mathematical Practice is embedded in the ***digits*** curriculum.

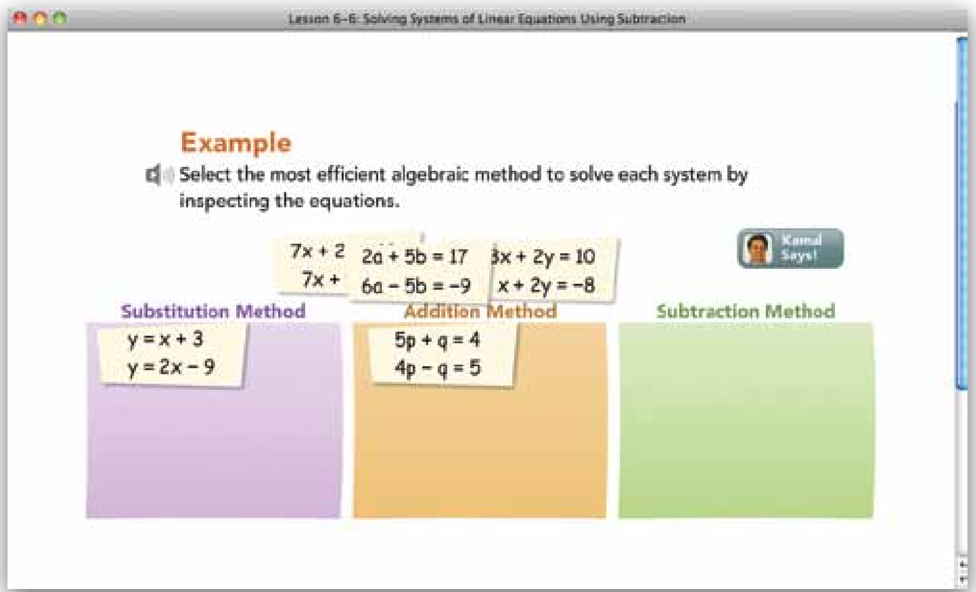


Common Core State Standards for Mathematical Practice

MP1 Make sense of problems and persevere in solving them.

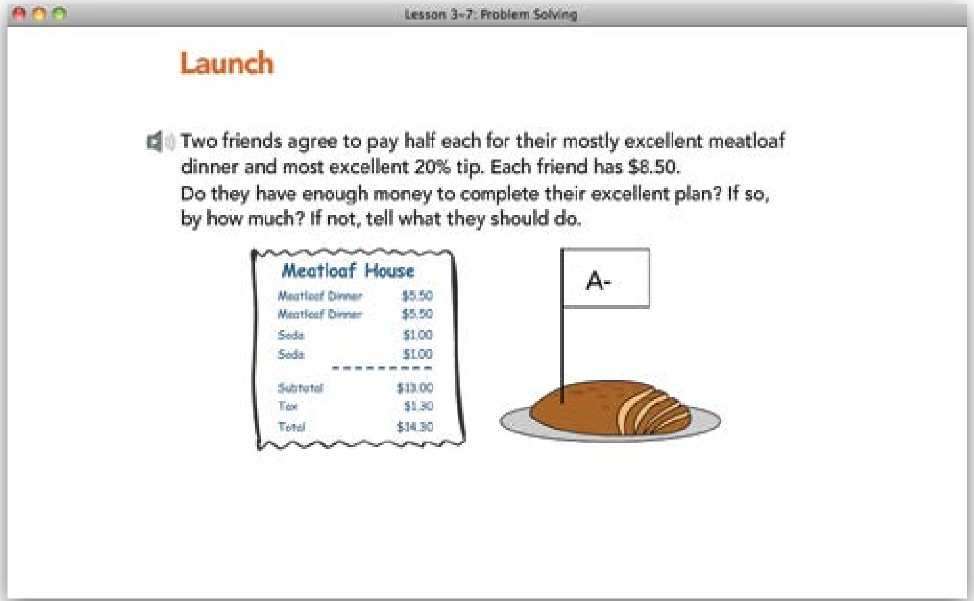
Mathematically proficient students start by explaining to themselves the meaning of a problem and looking for entry points to its solution. They analyze givens, constraints, relationships, and goals. They make conjectures about the form and meaning of the solution and plan a solution pathway rather than simply jumping into a solution attempt. They consider analogous problems, and try special cases and simpler forms of the original problem in order to gain insight into its solution. They monitor and evaluate their progress and change course if necessary. Older students might, depending on the context of the problem, transform algebraic expressions or change the viewing window on their graphing calculator to get the information they need. Mathematically proficient students can explain correspondences between equations, verbal descriptions, tables, and graphs or draw diagrams of important features and relationships, graph data, and search for regularity or trends. Younger students might rely on using concrete objects or pictures to help conceptualize and solve a problem. Mathematically proficient students check their answers to problems using a different method, and they continually ask themselves, "Does this make sense?" They can understand the approaches of others to solving complex problems and identify correspondences between different approaches.

Through dynamic instructional tools, students evaluate various solution pathways to promote sense-making and critical thinking. Many of the Examples are presented using the **Drag and Drop** feature of ***digits***, which gives students feedback that **confirms thinking** or **redirects when appropriate**. This kind of feedback fosters independence and perseverance.

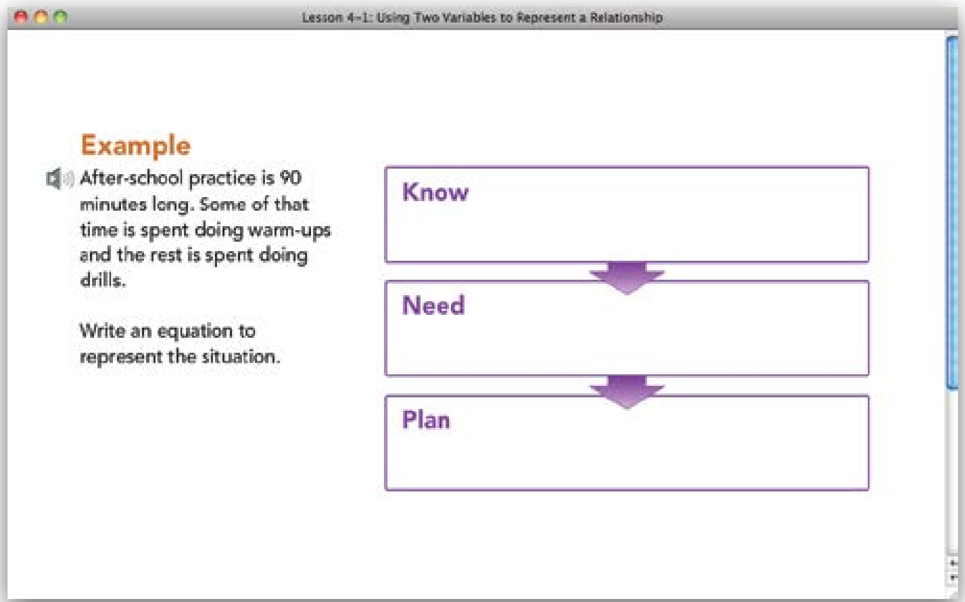


Additionally, learning aids in the **Online Homework** powered by MathXL provide support only when students want and need it so that students can develop into confident and independent problem-solvers.

Every lesson in ***digits*** engages students with the mathematical concept through problems designed to enable multiple entry points. Every lesson starts with a **Launch**, which provides students with an opportunity to **make sense of problems** and **persevere in solving them**.



Flexible digital tools enable the teacher to model Mathematical Practices and draw comparisons across student solution methods. One feature, known as the **"Know-Need-Plan"** organizer, helps students **analyze the givens** in a problem and **develop a workable solution plan**.



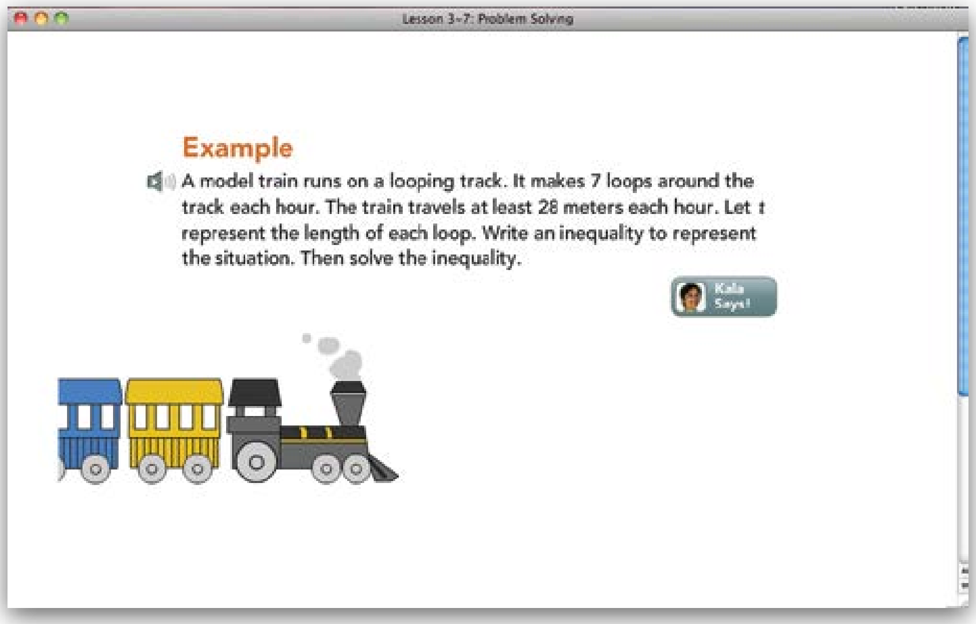
As you work through the lessons, consider asking these questions to help your students develop proficiency with this standard:

- What is the problem that you are solving for?
- How will you go about solving the problem? (that is, What's your plan?)
- Did you check your solution by using a different method?

MP2 Reason abstractly and quantitatively.

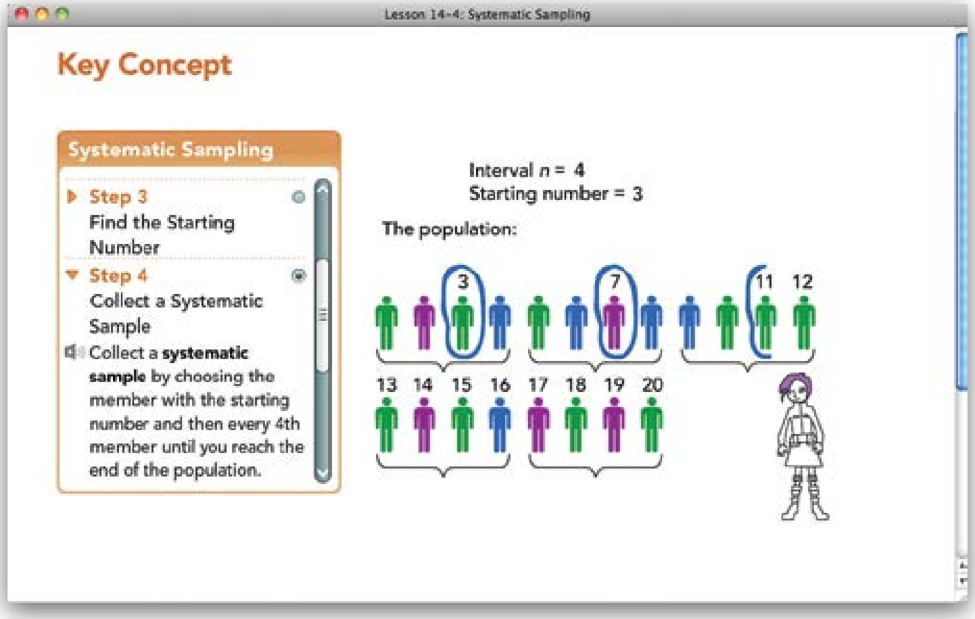
Mathematically proficient students make sense of quantities and their relationships in problem situations. They bring two complementary abilities to bear on problems involving quantitative relationships: the ability to decontextualize—to abstract a given situation and represent it symbolically and manipulate the representing symbols as if they have a life of their own, without necessarily attending to their referents—and the ability to contextualize, to pause as needed during the manipulation process in order to probe into the referents for the symbols involved. Quantitative reasoning entails habits of creating a coherent representation of the problem at hand; considering the units involved; attending to the meaning of quantities, not just how to compute them; and knowing and flexibly using different properties of operations and objects.

Problems in ***digits*** are presented in a blend of both concrete and abstract representations to support abilities to decontextualize and contextualize. As students work with a concrete representation, they discover efficiencies by abstracting the given situation into symbolic representation that supports pursuit of a solution strategy. Animations and other visuals facilitate understanding of the problem situations so students can connect to mathematical models more easily.

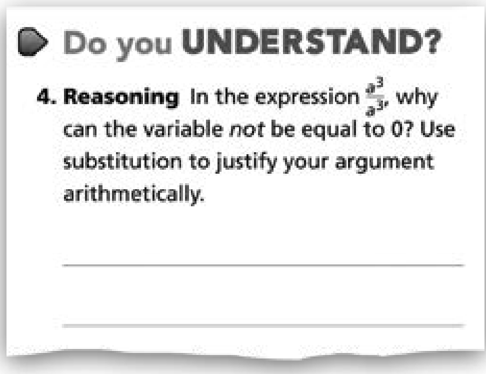


Conversely, abstract problems are also presented in ***digits*** which require dissection in order to understand the problem situation.

Key Concepts also make thoughtful use of technology including visual and auditory cues such as movement and colorcoding to assist students in the transfer between concrete and abstract. The dynamic visual and auditory presentation tangibly helps students develop their own mathematical thought processes.



The **Do You UNDERSTAND?** feature, found in the Student Companion, contains exercises that ask students to **explain their thinking** related to the concepts in the lesson. Many of the **Reasoning** exercises focus students' attention on the **structure or meaning of an operation** rather than the solution.



Do you **UNDERSTAND?**

4. **Reasoning** In the expression $\frac{a^3}{a^3}$, why can the variable *not* be equal to 0? Use substitution to justify your argument arithmetically.

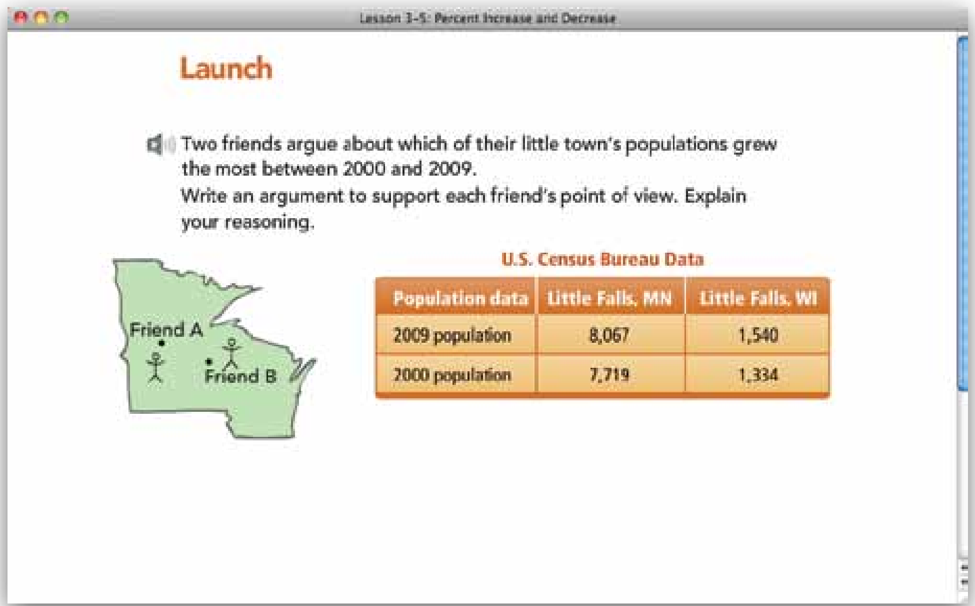
As you work through the lessons, consider asking these questions to help your students develop proficiency with this standard:

- Can you write or recall an expression or equation to match the problem situation?
- What do the numbers or variables in the equation refer to?
- What's the connection among the numbers and variables in the equation?

MP3 Construct viable arguments and critique the reasoning of others.

Mathematically proficient students understand and use stated assumptions, definitions, and previously established results in constructing arguments. They make conjectures and build a logical progression of statements to explore the truth of their conjectures. They are able to analyze situations by breaking them into cases, and can recognize and use counterexamples. They justify their conclusions, communicate them to others, and respond to the arguments of others. They reason inductively about data, making plausible arguments that take into account the context from which the data arose. Mathematically proficient students are also able to compare the effectiveness of two plausible arguments, distinguish correct logic or reasoning from that which is flawed, and—if there is a flaw in an argument—explain what it is. Elementary students can construct arguments using concrete referents such as objects, drawings, diagrams, and actions. Such arguments can make sense and be correct, even though they are not generalized or made formal until later grades. Later, students learn to determine domains to which an argument applies. Students at all grades can listen or read the arguments of others, decide whether they make sense, and ask useful questions to clarify or improve the arguments.

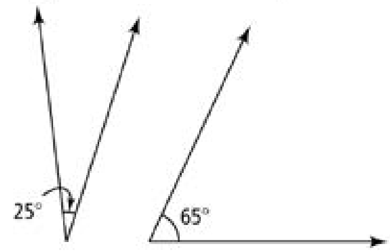
digits supports class discourse with interactive whiteboard lessons. Throughout ***digits*** students are asked to explain their solutions and the thinking that led them to these solutions. Students present solution strategies, defend them, and draw comparisons to other strategies by utilizing interactive presentation tools. **Launch** activities always ask students to **justify their conclusions** or **explain their reasoning**.



Error Analysis and **Reasoning** exercises ask students to argue for or against a statement.

An exercise might ask students to **identify the error in logic, if it exists . . .**

5. Error Analysis Your friend says that the angles below are not complementary because they are not adjacent. Is she correct? Explain.



. . . or to **use counterexamples** to respond to arguments that are flawed . . .

7. Error Analysis A classmate writes the solution to $-10r - 2r - 2 < 22$. Use a counterexample to show that she is incorrect and explain her error.

$$r < -2$$

. . . or ask students to **formulate an argument** to support their conclusions.

4. Reasoning Is the coefficient of b in the expression below 2 or -2? Explain.

$$5c - 2b$$

As you work through the lessons, consider asking these questions to help your students develop proficiency with this standard:

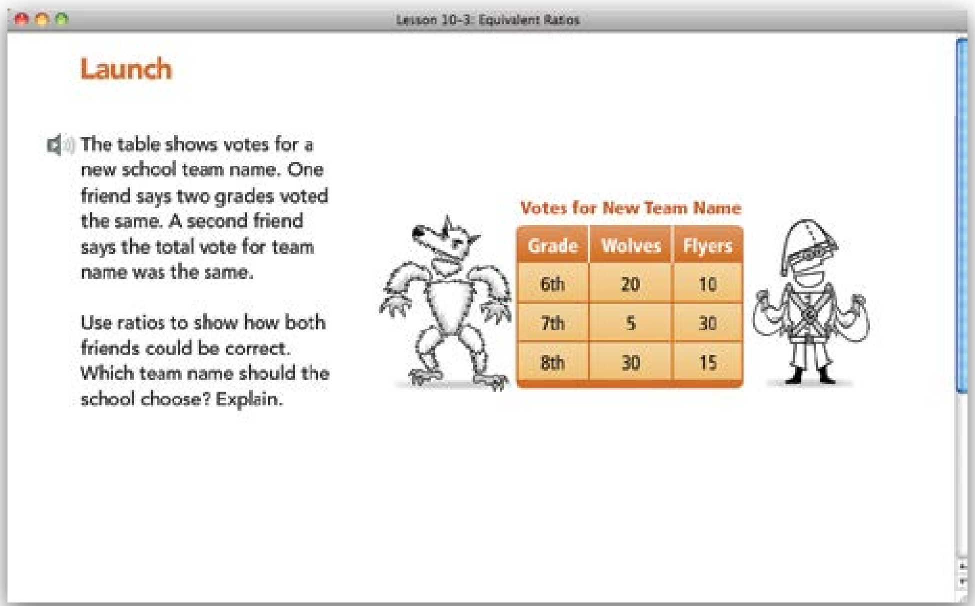
- What does your answer mean?
- How do you know that your answer is correct?
- If I told you I think the answer should be [a wrong answer], how would you explain to me why I'm wrong?

MP4 Model with mathematics.

Mathematically proficient students can apply the mathematics they know to solve problems arising in everyday life, society, and the workplace. In early grades, this might be as simple as writing an addition equation to describe a situation. In middle grades, a student might apply proportional reasoning to plan a school event or analyze a problem in the community. By high school, a student might use geometry to solve a design problem or use a function to describe how one quantity of interest depends on another. Mathematically proficient students who can apply what they know are comfortable making assumptions and approximations to simplify a complicated situation, realizing that these may need revision later. They are able to identify important quantities in a practical situation and map their relationships using such tools as diagrams, two-way tables, graphs, flowcharts, and formulas. They can analyze those relationships mathematically to draw conclusions. They routinely interpret their mathematical results in the context of the situation and reflect on whether the results make sense, possibly improving the model if it has not served its purpose.

Because ***digits*** uses real-world mathematical contexts, students recognize the inherent nature of mathematics as a means for modeling our world. Mathematics is purposefully used to deepen our understanding of the problem situation and provide opportunities to predict or solve for alternate scenarios or changes to conditions. Students routinely evaluate their mathematical results against the context of the situation to promote sense making. The interactive nature of ***digits*** allows students to experiment on their own with mathematical models in different forms. Thus students see the interrelationships among multiple representations.

Launches provide students with opportunities to use mathematical models to solve real-world problems. Students can interpret their results in **context of the situation** and **improve their model if it has not served its purpose**.



Focus Questions in ***digits*** ask students to reflect on when and how different types of models are helpful.

Focus Question

In this topic you have studied different ways to represent proportional relationships. In what ways can you represent proportional relationships? How can knowing how to represent proportional relationship in different ways be useful in solving problems?

The Student Companion contains **Compare and Contrast** exercises that ask students to reflect on the meaning of the numbers in a model. These types of exercises help students to see how one model could be interpreted in multiple correct ways.

4. Compare and Contrast Two friends analyze this equation. One friend says the volume of water increases $\frac{3}{4}$ ft^3 every minute. The other says the volume of water increases 3 ft^3 every 4 minutes. Which friend is correct? Explain.

$$y = \frac{3}{4}x$$

x = minutes

y = volume of water in cubic feet

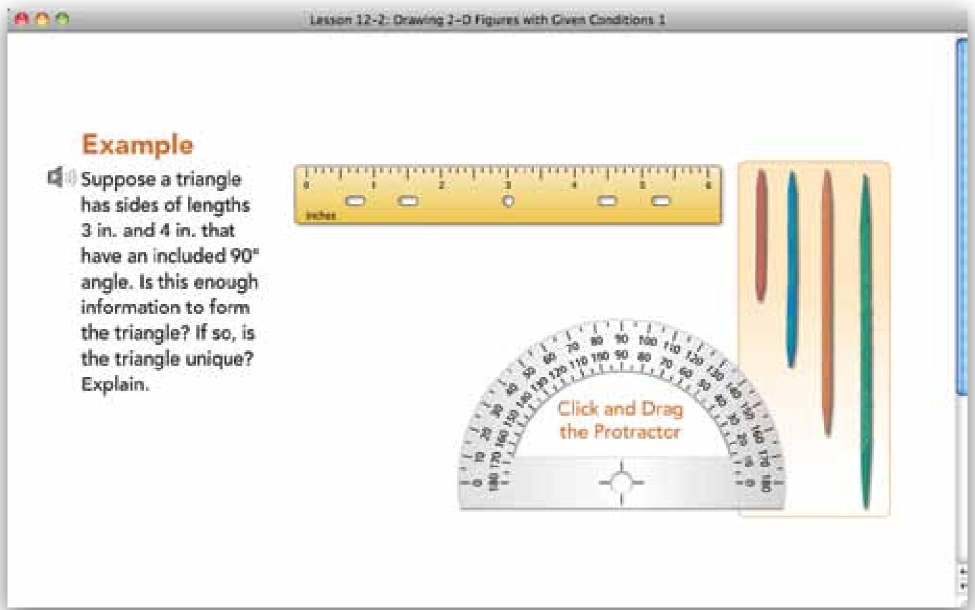
As you work through the lessons, consider asking these questions to help your students develop proficiency with this standard:

- What formula or relationship can you think of that fits this problem situation?
- What is the connection among the numbers in the problem?
- Is your answer reasonable? How do you know?
- What do the numbers in your solution refer to?

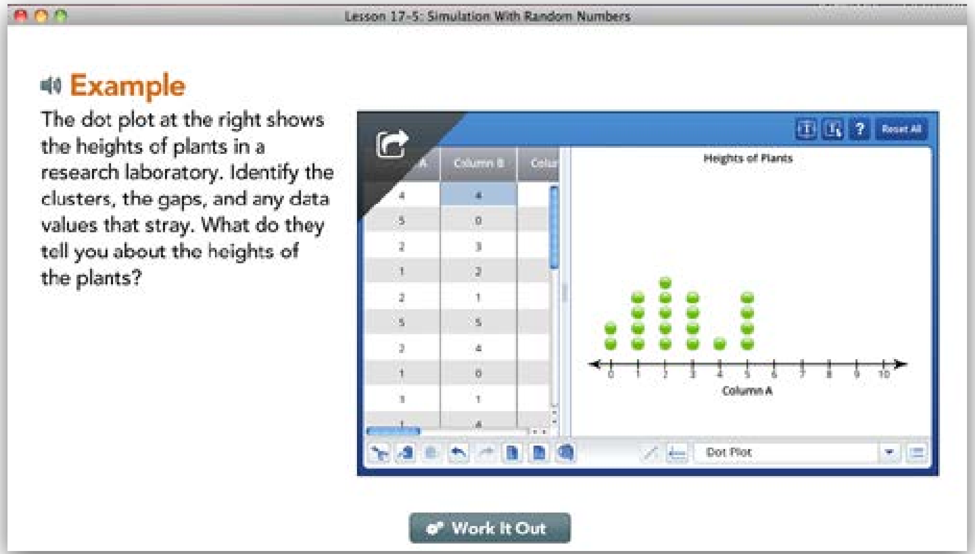
MP5 Use appropriate tools strategically.

Mathematically proficient students consider the available tools when solving a mathematical problem. These tools might include pencil and paper, concrete models, a ruler, a protractor, a calculator, a spreadsheet, a computer algebra system, a statistical package, or dynamic geometry software. Proficient students are sufficiently familiar with tools appropriate for their grade or course to make sound decisions about when each of these tools might be helpful, recognizing both the insight to be gained and their limitations. For example, mathematically proficient high school students analyze graphs of functions and solutions generated using a graphing calculator. They detect possible errors by strategically using estimation and other mathematical knowledge. When making mathematical models, they know that technology can enable them to visualize the results of varying assumptions, explore consequences, and compare predictions with data. Mathematically proficient students at various grade levels are able to identify relevant external mathematical resources, such as digital content located on a website, and use them to pose or solve problems. They are able to use technological tools to explore and deepen their understanding of concepts.

In ***digits***, students work with a wide array of math tools when solving problems. From simple pencil and paper in the Student Companion to digital tools on the interactive whiteboard or computer, students are constantly manipulating tools to support their construction of mathematical knowledge. Because ***digits*** supports the display of multiple tools, students can compare solution pathways and validate solutions using different tools and strategies. Through this ability to compare the effectiveness and efficiency of different tools for each problem situation, students are able to critically determine the most strategic application. Students must **make decisions about which tools are most appropriate** for a given problem situation and how to apply them.



digits offers an array of interactive **Math Tools** students can access at any time. Sometimes a **Math Tool** is embedded within an Example to help students develop an understanding of when a certain **tool might be useful**.



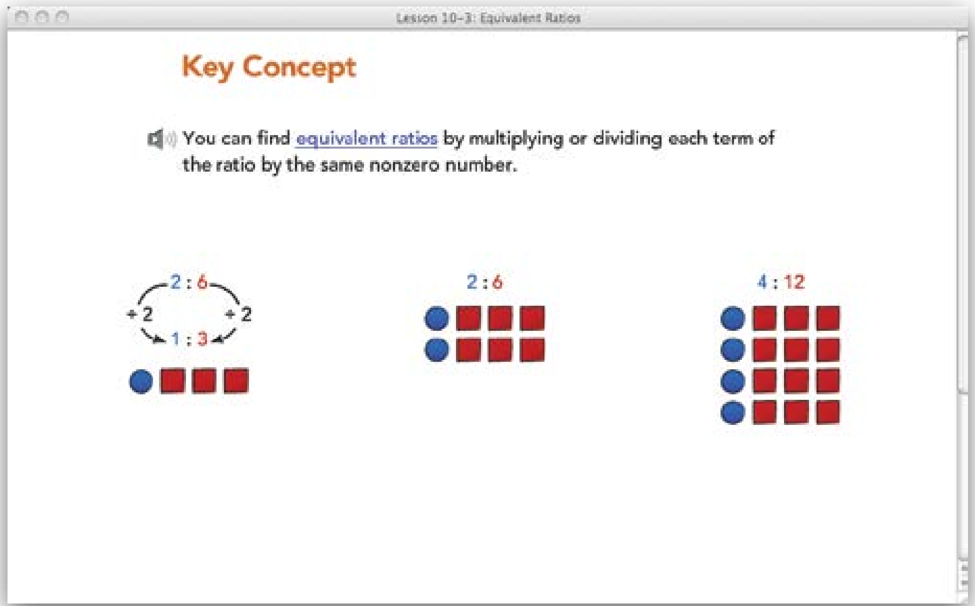
As you work through the lessons, consider asking these questions to help your students develop proficiency with this standard:

- What tools could you use to solve this problem? How can each one help you?
- Which tool is more useful for this problem? Explain your choice.
- Why is this tool better than [another tool mentioned]?
- Before you solve the problem, can you estimate the solution?

MP6 Attend to precision.

Mathematically proficient students try to communicate precisely to others. They try to use clear definitions in discussion with others and in their own reasoning. They state the meaning of the symbols they choose, including using the equal sign consistently and appropriately. They are careful about specifying units of measure, and labeling axes to clarify the correspondence with quantities in a problem. They calculate accurately and efficiently, express numerical answers with a degree of precision appropriate for the problem context. In the elementary grades, students give carefully formulated explanations to each other. By the time they reach high school they have learned to examine claims and make explicit use of definitions.

Since presentation and defense of solution strategies is foundational to the instructional design of ***digits***, students are expected to communicate precisely and with clarity. To support communication and comprehension, **Vocabulary** and **Key Concepts** can be accessed at any time with precise definitions, explanations, and supporting visuals. Vocabulary in context is also hyperlinked to its definitions so that students and teachers have immediate access at point of use. Additionally, lessons include a **Key Concept** review to reinforce and summarize the instructional intent of the lesson. As students communicate to others, these reference resources scaffold the **development of precision and clarity**.



The Student Companion contains **Vocabulary** exercises that ask students to **use clear definitions** or explanations of terms and concepts from the lesson.

> **Do you UNDERSTAND?**
>
> **4. Vocabulary** Explain the difference between rational numbers and integers.

There are also **Writing** and **Compare and Contrast** exercises where students are asked to **provide clear, concise explanations** of terms, concepts, or processes.

> **4. Writing** An airplane descends from 35,000 ft at a rate of 33 feet per second. Explain how to use this information to find the altitude of the airplane after 12 minutes.

> **5. Compare and Contrast** Explain how the coordinates of a point and its reflection across the *x*-axis are the same and how they are different.

As you work through the lessons, consider asking these questions to help your students develop proficiency with this standard:

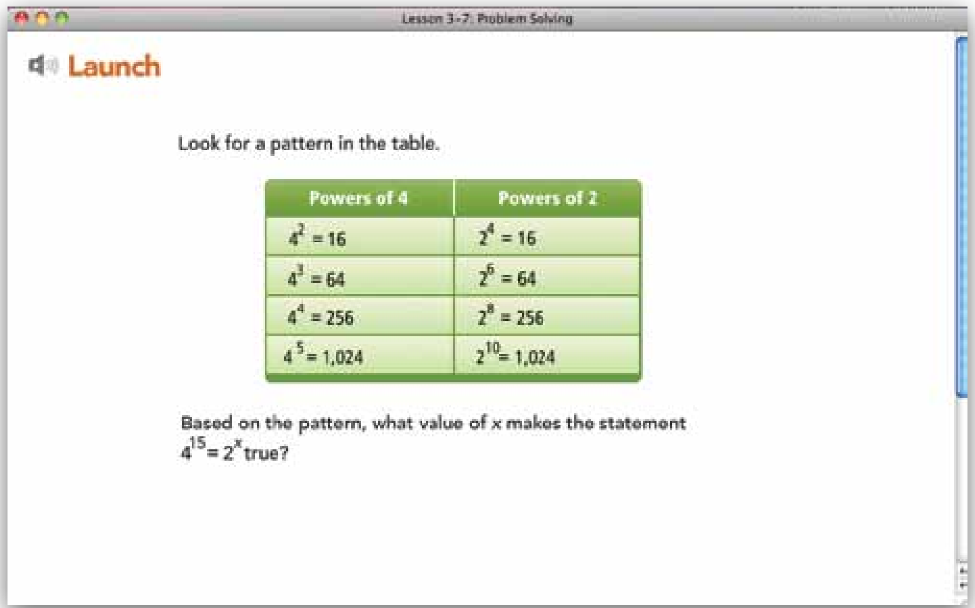
- What do the symbols that you used mean?
- What units of measure are you using (for measurement problems)?
- What concepts or theorems did you use to solve the problem? How exactly do these relate to the problem?

MP7 Look for and make use of structure.

Mathematically proficient students look closely to discern a pattern or structure. Young students, for example, might notice that three and seven more is the same amount as seven and three more, or they may sort a collection of shapes according to how many sides the shapes have. Later, students will see 7×8 equals the well remembered $7 \times 5 + 7 \times 3$, in preparation for learning about the distributive property. In the expression $x^2 + 9x + 14$, older students can see the 14 as 2×7 and the 9 as $2 + 7$. They recognize the significance of an existing line in a geometric figure and can use the strategy of drawing an auxiliary line for solving problems. They also can step back for an overview and shift perspective. They can see complicated things, such as some algebraic expressions, as single objects or as being composed of several objects. For example, they can see $5 - 3(x - y)^2$ as 5 minus a positive number times a square and use that to realize that its value cannot be more than 5 for any real numbers x and y.

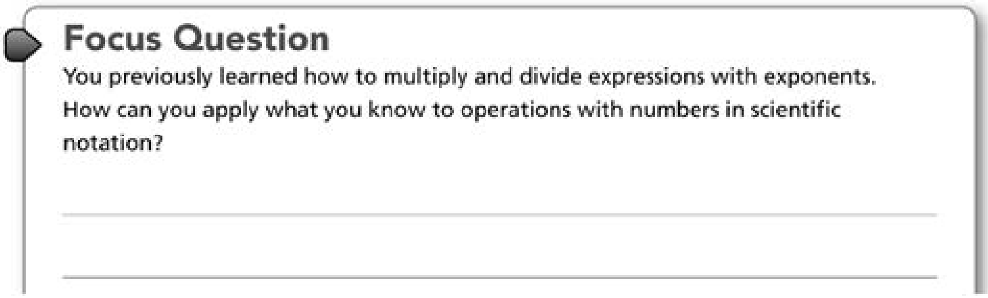
Through a balanced approach of exploration, explicit instruction, and class collaboration, ***digits*** supports the discovery and application of structure as a means for deepening understanding of a mathematical context.

Focus on mathematical properties and their application through successive topics provides extensive transferability opportunities. Students gain deep understanding of the structure behind the properties with concrete patterns before making general, abstract conclusions. **Launches** provide opportunities for students to **look for patterns** they can use to solve problems.



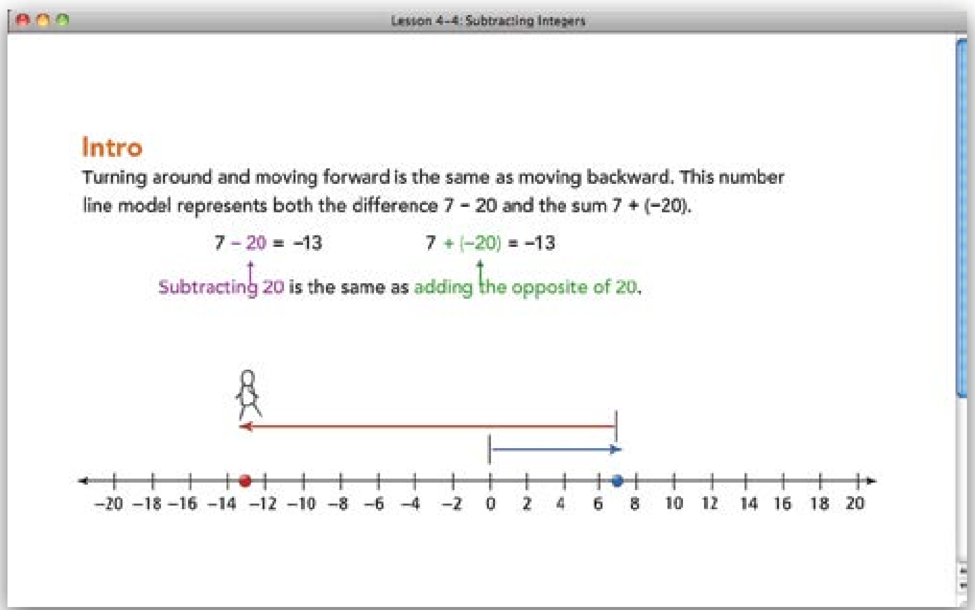
Featuring Understanding by Design® principles as the pedagogical framework, ***digits*** consistently asks students to make connections between what they are currently learning and what they have learned previously and to construct content relationships.

Each lesson features a **Focus Question** that does not ask students to just summarize the content of the lesson, but to explain how the content of the lesson **builds on prior knowledge**.


Focus Question

You previously learned how to multiply and divide expressions with exponents. How can you apply what you know to operations with numbers in scientific notation?

Throughout ***digits*** new concepts are presented in multiple ways, providing opportunities for students to step back and shift perspective. **Shifting perspective** provides an **opportunity to see a problem in a new light**, and a previously unnoticed underlying structure may become apparent.



As you work through the lessons, consider asking these questions to help your students develop proficiency with this standard:

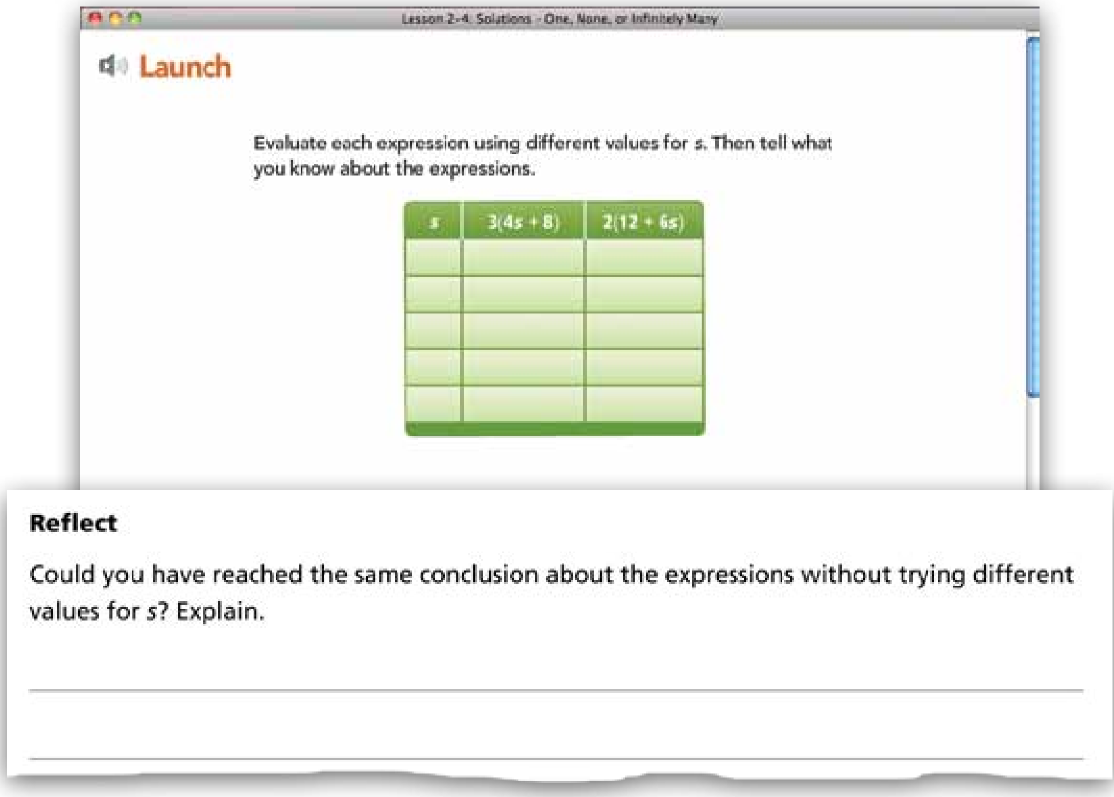
- What do the different parts of the expression or the equation you are using tell you about possible correct answers?
- What do you notice about the answers to these exercises?

MP8 Look for and express regularity in repeated reasoning.

Mathematically proficient students notice if calculations are repeated, and look both for general methods and for shortcuts. Upper elementary students might notice when dividing 25 by 11 that they are repeating the same calculations over and over again, and conclude they have a repeating decimal. By paying attention to the calculation of slope as they repeatedly check whether points are on the line through (1, 2) with slope 3, middle school students might abstract the equation $\frac{(y - 2)}{(x - 1)} = 3$. Noticing the regularity in the way terms cancel when expanding $(x - 1)(x + 1)$, $(x - 1)(x^2 + x + 1)$, and $(x - 1)(x^3 + x^2 + x + 1)$ might lead them to the general formula for the sum of a geometric series. As they work to solve a problem, mathematically proficient students maintain oversight of the process, while attending to the details. They continually evaluate the reasonableness of their intermediate results.

The Understanding by Design® pedagogical framework of ***digits*** exposes students to a regularity and "sameness" of reasoning across topics and grades. Special features called **"Know-Need-Plan"** and **"Think-Write"** highlight how the same type of reasoning is applicable in many different mathematical contexts.

Reflect Questions in the Student Companion ask students to consider their work on the Launch and look for repetition in calculations.



Reasoning and **Compare and Contrast** exercises prompt students to think about **similar problems** they have previously solved or to **generalize results** to other problem situations.

> **4. Reasoning** Would the relationship between the vertices of any figure rotated 360° and its image always be true regardless of the point of rotation? Explain.

Students look for **general methods or shortcuts** that can make the problem solving process more efficient.

> **5. Compare and Contrast** Explain how to determine whether the addition method or the subtraction method is most efficient for solving a system of equations.

As you work through the lessons, consider asking these questions to help your students develop proficiency with this standard:

- What patterns do you see? Can you make a generalization?
- What relationships do you see in the problem?

Grade 6 Standards Correlation

Number	Standard for Mathematical Content	Lesson(s)
6.RP Ratios and Proportional Relationships		
Understand ratio concepts and use ratio reasoning to solve problems.		
6.RP.A.1	Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.	10-1 thru 10-6
6.RP.A.2	Understand the concept of a unit rate $\frac{a}{b}$ associated with a ratio $a : b$ with $b \neq 0$, and use rate language in the context of a ratio relationship.	11-1 thru 11-6, 12-2
6.RP.A.3	Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.	10-6, 11-5, 11-6, 12-5
6.RP.A.3a	Make tables of equivalent ratios relating quantities with whole number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.	10-2, 10-3, 10-6, 12-1, 12-2
6.RP.A.3b	Solve unit rate problems including those involving unit pricing and constant speed.	7-2, 7-3, 7-4, 11-2, 11-3, 11-5
6.RP.A.3c	Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means $\frac{30}{100}$ times the quantity); solve problems involving finding the whole, given a part and the percent.	12-3, 12-4, 12-5
6.RP.A.3d	Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.	11-4, 11-5, 11-6
6.NS The Number System		
Apply and extend previous understandings of multiplication and division to divide fractions by fractions.		
6.NS.A.1	Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem.	Topics 5 and 6
Compute fluently with multi-digit numbers and find common factors and multiples.		
6.NS.B.2	Fluently divide multi-digit numbers using the standard algorithm.	7-3, 7-4
6.NS.B.3	Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.	7-1 thru 7-4, 7-7
6.NS.B.4	Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor.	2-4 thru 2-7

Number	Standard for Mathematical Content	Lesson(s)
6.NS The Number System *(continued)*		
Apply and extend previous understandings of numbers to the system of rational numbers.		
6.NS.C.5	Understand that positive and negative numbers are used together to describe quantities having opposite directions or values; use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.	8-1, 9-1
6.NS.C.6	Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.	8-1, 8-4, 9-1, 9-2, 9-3, 9-4
6.NS.C.6a	Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself.	8-1, 9-1
6.NS.C.6b	Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes.	8-4, 8-6, 9-4, 9-6
6.NS.C.6c	Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.	8-1, 8-2, 8-4, 9-1, 9-3, 9-4 15-2 thru 15-6
6.NS.C.7	Understand ordering and absolute value of rational numbers.	8-3, 9-3
6.NS.C.7a	Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram.	8-2, 9-2, 9-3
6.NS.C.7b	Write, interpret, and explain statements of order for rational numbers in real-world contexts.	8-2, 9-2, 9-3, 9-6
6.NS.C.7c	Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation.	8-3, 8-6, 9-2, 9-3
6.NS.C.7d	Distinguish comparisons of absolute value from statements about order.	8-3, 9-3
6.NS.C.8	Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.	4-2, 8-4, 8-5, 9-5
6.EE Expressions and Equations		
Apply and extend previous understandings of arithmetic to algebraic expressions.		
6.EE.A.1	Write and evaluate numerical expressions involving whole-number exponents.	1-5
6.EE.A.2	Write, read, and evaluate expressions in which letters stand for numbers.	1-3, 1-4
6.EE.A.2a	Write expressions that record operations with numbers and with letters standing for numbers.	1-2, 1-3, 2-1, 2-2

Grade 6 Standards Correlation *continued*

Number	Standard for Mathematical Content	Lesson(s)
6.EE Expressions and Equations (*continued*)		
Apply and extend previous understandings of arithmetic to algebraic expressions.		
6.EE.A.2b	Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity.	1-2, 2-1, 2-2, 2-3, 2-5, 2-6
6.EE.A.2c	Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations).	1-4, 1-5, 1-6, 7-3, Topic 13, 14-3 thru 14-6
6.EE.A.3	Apply the properties of operations to generate equivalent expressions.	Topic 2
6.EE.A.4	Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them).	1-1, 2-1, 2-2, 3-1
Reason about and solve one-variable equations and inequalities.		
6.EE.B.5	Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.	3-1, 3-2, 3-6, 3-7
6.EE.B.6	Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.	1-2, 1-3
6.EE.B.7	Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p, q, and x are all nonnegative rational numbers.	3-3, 3-4, 3-7
6.EE.B.8	Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions; represent solutions of such inequalities on number line diagrams.	3-5, 3-6, 3-7
Represent and analyze quantitative relationships between dependent and independent variables.		
6.EE.C.9	Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.	4-1, 4-2, 4-3, 4-4, 12-1
6.G Geometry		
Solve real-world and mathematical problems involving area, surface area, and volume.		
6.G.A.1	Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.	13-1, 13-2, 13-3, 13-4, 13-5, 13-6

Number	Standard for Mathematical Content	Lesson(s)
6.G Geometry *(continued)*		
Solve real-world and mathematical problems involving area, surface area, and volume.		
6.G.A.2	Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas $V = lwh$ and $V = bh$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.	14-5, 14-6
6.G.A.3	Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.	8-5, 8-6, 9-5, 9-6
6.G.A.4	Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.	14-1, 14-2, 14-3, 14-4, 14-6
6.SP Statistics and Probability		
Develop understanding of statistical variability.		
6.SP.A.1	Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers.	15-1, 15-6
6.SP.A.2	Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.	15-2, 15-3, 16-2, 16-3
6.SP.A.3	Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.	16-1, 16-2, 16-3, 16-4, 16-5, 16-6
Summarize and describe distributions.		
6.SP.B.4	Display numerical data in plots on a number line, including dot plots, histograms, and box plots.	15-2, 15-3, 15-4
6.SP.B.5	Summarize numerical data sets in relation to their context, such as by:	15-6, 16-6
6.SP.B.5a	Reporting the number of observations.	15-6
6.SP.B.5b	Describing the nature of the attribute under investigation, including how it was measured and its units of measurement.	15-1
6.SP.B.5c	Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered.	16-1, 16-2, 16-3, 16-4, 16-5, 16-6
6.SP.B.5d	Summarize numerical data sets in relation to their context, such as by: Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.	16-1, 16-2, 16-3, 16-4, 16-5, 16-6

Grade 6 Lesson Correlation

	Standards of Mathematical Content	Standards of Mathematical Practice
Unit A: Expressions and Equations		
Topic 1: Variables and Equations		
Lesson 1-1: Numerical Expressions	6.EE.A.2, 6.EE.A.2c, 6.EE.A.4	MP2, MP3, MP6, MP7, MP8
Lesson 1-2: Algebraic Expressions	6.EE.A.2, 6.EE.A.2a, 6.EE.A.2b, 6.EE.B.6	MP2, MP4, MP6, MP7
Lesson 1-3: Writing Algebraic Expressions	6.EE.A.2, 6.EE.A.2a, 6.EE.B.6	MP1, MP2, MP4, MP5, MP6
Lesson 1-4: Evaluating Algebraic Expressions	6.EE.A.2, 6.EE.A.2c	MP1, MP3, MP4, MP5
Lesson 1-5: Expressions with Exponents	6.EE.A.1, 6.EE.A.2c	MP1, MP2, MP4, MP5, MP6
Lesson 1-6: Problem Solving	6.EE.A.2, 6.EE.A.2a	MP2, MP3, MP4, MP5, MP7
Topic 2: Equivalent Expressions		
Lesson 2-1: The Identity and Zero Properties	6.EE.A.2c, 6.EE.A.3, 6.EE.A.4	MP1, MP2, MP3, MP7
Lesson 2-2: The Commutative Properties	6.EE.A.3, 6.EE.A.4	MP2, MP4, MP5, MP7, MP8
Lesson 2-3: The Associative Properties	6.EE.A.3, 6.EE.A.4	MP1, MP3, MP4, MP7, MP8
Lesson 2-4: Greatest Common Factor	6.NS.B.4	MP1, MP2, MP3, MP7
Lesson 2-5: The Distributive Property	6.NS.B.4, 6.EE.A.3, 6.EE.A.4	MP4, MP5, MP6, MP8
Lesson 2-6: Least Common Multiple	6.NS.B.4	MP2, MP3, MP4, MP6, MP7
Lesson 2-7: Problem Solving	6.NS.B.4, 6.EE.A.3	MP1, MP4, MP5, MP6, MP7
Topic 3: Equations and Inequalities		
Lesson 3-1: Expressions to Equations	6.EE.A.2, 6.EE.B.5	MP1, MP2, MP6, MP7
Lesson 3-2: Balancing Equations	6.EE.A.2	MP2, MP3, MP5, MP6, MP7
Lesson 3-3: Solving Addition and Subtraction Equations	6.EE.B.7	MP2, MP3, MP4, MP7, MP8
Lesson 3-4: Solving Multiplication and Division Equations	6.EE.B.7	MP2, MP3, MP4, MP5, MP7
Lesson 3-5: Equations to Inequalities	6.EE.B.8	MP2, MP3, MP4, MP5
Lesson 3-6: Solving Inequalities	6.EE.B.5, 6.EE.B.8	MP2, MP4, MP5, MP8
Lesson 3-7: Problem Solving	6.EE.B.5, 6.EE.B.7	MP1, MP2, MP4, MP5, MP6
Topic 4: Two-Variable Relationships		
Lesson 4-1: Using Two Variables to Represent a Relationship	6.EE.C.9	MP1, MP2, MP4, MP8
Lesson 4-2: Analyzing Patterns Using Tables and Graphs	6.NS.C.8, 6.EE.C.9	MP2, MP3, MP5, MP6, MP8
Lesson 4-3: Relating Tables and Graphs to Equations	6.EE.C.9	MP1, MP4, MP5, MP6, MP7
Lesson 4-4: Problem Solving	6.EE.A.2c, 6.EE.C.9	MP1, MP2, MP4, MP5, MP7

	Standards of Mathematical Content	Standards of Mathematical Practice
Unit B: Number System, Part 1		
Topic 5: Multiplying Fractions		
Lesson 5-1: Multiplying Fractions and Whole Numbers	6.NS.A.1	MP4, MP5, MP6, MP8
Lesson 5-2: Multiplying Two Fractions	6.NS.A.1	MP4, MP5, MP6, MP7
Lesson 5-3: Multiplying Fractions and Mixed Numbers	6.NS.A.1	MP2, MP3, MP4, MP6
Lesson 5-4: Multiplying Mixed Numbers	6.NS.A.1	MP1, MP2, MP5, MP6, MP7
Lesson 5-5: Problem Solving	6.NS.A.1	MP1, MP2, MP4, MP6
Topic 6: Dividing Fractions		
Lesson 6-1: Dividing Fractions and Whole Numbers	6.NS.A.1	MP2, MP3, MP4, MP8
Lesson 6-2: Dividing Unit Fractions by Unit Fractions	6.NS.A.1	MP1, MP2, MP6, MP7
Lesson 6-3: Dividing Fractions by Fractions	6.NS.A.1	MP1, MP2, MP4, MP5, MP6
Lesson 6-4: Dividing Mixed Numbers	6.NS.A.1	MP1, MP2, MP4, MP7, MP8
Lesson 6-5: Problem Solving	6.NS.A.1	MP1, MP2, MP3, MP4, MP8
Topic C: Number System, Part 2		
Topic 7: Fluency with Decimals		
Lesson 7-1: Adding and Subtracting Decimals	6.NS.B.3	MP1, MP2, MP4, MP7
Lesson 7-2: Multiplying Decimals	6.RP.A.3b, 6.NS.B.3	MP1, MP3, MP4, MP6, MP8
Lesson 7-3: Dividing Multi-Digit Numbers	6.RP.A.3b, 6.NS.B.2, 6.EE.A.2c	MP2, MP3, MP4, MP6, MP7
Lesson 7-4: Dividing Decimals	6.RP.A.3b, 6.NS.B.3	MP2, MP3, MP4, MP6, MP7
Lesson 7-5: Decimals and Fractions	6.NS.C.7a	MP1, MP2, MP3, MP6, MP8
Lesson 7-6: Comparing and Ordering Decimals and Fractions	6.NS.C.7	MP2, MP3, MP4, MP6
Lesson 7-7: Problem Solving	6.NS.B.2, 6.NS.B.3, 6.EE.B.7	MP1, MP2, MP5, MP7, MP8
Topic 8: Integers		
Lesson 8-1: Integers and the Number Line	6.NS.C.5, 6.NS.C.6a, 6.NS.C.6c	MP1, MP2, MP4, MP5, MP8
Lesson 8-2: Comparing and Ordering Integers	6.NS.C.7, 6.NS.C.7a, 6.NS.C.7b	MP1, MP2, MP4, MP6, MP7
Lesson 8-3: Absolute Value	6.NS.C.7, 6.NS.C.7b, 6.NS.C.7c, 6.NS.C.7d	MP1, MP3, MP4, MP5, MP6
Lesson 8-4: Integers and the Coordinate Plane	6.NS.C.6b, 6.NS.C.6c, 6.NS.C.8	MP2, MP3, MP5, MP6, MP7
Lesson 8-5: Distance	6.NS.C.8, 6.G.B.3	MP1, MP2, MP5, MP6, MP8
Lesson 8-6: Problem Solving	6.NS.C.6b, 6.NS.C.7, 6.NS.C.7c, 6.G.B.3	MP1, MP2, MP4, MP5, MP7
Topic 9: Rational Numbers		
Lesson 9-1: Rational Numbers and the Number Line	6.NS.C.5, 6.NS.C.6a, 6.NS.C.6c	MP1, MP3, MP5, MP6

Grade 6 Lesson Correlation *continued*

	Standards of Mathematical Content	Standards of Mathematical Practice
Topic 9: Rational Numbers *(continued)*		
Lesson 9-2: Comparing Rational Numbers	6.NS.C.7, 6.NS.C.7a, 6.NS.C.7b, 6.NS.C.7c	MP1, MP2, MP3, MP6, MP7
Lesson 9-3: Ordering Rational Numbers	6.NS.C.7, 6.NS.C.7a, 6.NS.C.7b	MP1, MP2, MP5, MP7, MP8
Lesson 9-4: Rational Numbers and the Coordinate Plane	6.NS.C.6b, 6.NS.C.6c	MP2, MP5, MP6, MP7
Lesson 9-5: Polygons in the Coordinate Plane	6.NS.C.6c, 6.NS.C.8, 6.G.B.3	MP4, MP5, MP6, MP7, MP8
Lesson 9-6: Problem Solving	6.NS.C.6b, 6.NS.C.7, 6.NS.C.7b, 6.G.B.3	MP1, MP2, MP6, MP7, MP8
Unit D: Ratios and Proportional Relationships		
Topic 10: Ratios		
Lesson 10-1: Ratios	6.RP.A.1	MP1, MP2, MP3, MP4, MP7
Lesson 10-2: Exploring Equivalent Ratios	6.RP.A.3	MP2, MP4, MP5, MP6, MP8
Lesson 10-3: Equivalent Ratios	6.RP.A.3	MP2, MP4, MP5, MP8
Lesson 10-4: Ratios as Fractions	6.RP.A.1, 6.RP.A.3	MP1, MP2, MP4, MP6
Lesson 10-5: Ratios as Decimals	6.RP.A.1, 6.RP.A.3	MP1, MP2, MP3, MP6
Lesson 10-6: Problem Solving	6.RP.A.1, 6.RP.A.3	MP1, MP4, MP6, MP7, MP8
Topic 11: Rates		
Lesson 11-1: Unit Rates	6.RP.A.2, 6.RP.A.3	MP2, MP4, MP6, MP7
Lesson 11-2: Unit Prices	6.RP.A.3b	MP1, MP2, MP4, MP5
Lesson 11-3: Constant Speed	6.RP.A.3b	MP3, MP4, MP5, MP6, MP7
Lesson 11-4: Measurements and Ratios	6.RP.A.3d	MP2, MP3, MP4, MP6, MP7
Lesson 11-5: Choosing the Appropriate Rate	6.RP.A.3, 6.RP.A.3d, 6.RP.A.3d	MP2, MP3, MP4, MP6, MP7
Lesson 11-6: Problem Solving	6.RP.A.3, 6.RP.A.3d	MP2, MP3, MP6, MP7, MP8
Topic 12: Ratio Reasoning		
Lesson 12-1: Plotting Ratios and Rates	6.RP.A.3a, 6.EE.C.9	MP2, MP4, MP5, MP6, MP7
Lesson 12-2: Recognizing Proportionality	6.RP.A.2, 6.RP.A.3, 6.RP.A.3a	MP2, MP4, MP5, MP6, MP8
Lesson 12-3: Introducing Percents	6.RP.A.3c	MP2, MP3, MP4, MP7
Lesson 12-4: Using Percents	6.RP.A.3c	MP3, MP4, MP5, MP6, MP7
Lesson 12-5: Problem Solving	6.RP.A.3, 6.RP.A.3c	MP1, MP2, MP3, MP6, MP7
Unit E: Geometry		
Topic 13: Area		
Lesson 13-1: Rectangles and Squares	6.EE.A.2c, 6.G.A.1	MP1, MP2, MP5, MP7, MP8
Lesson 13-2: Right Triangles	6.EE.A.2c, 6.G.A.1	MP4, MP6, MP7, MP8
Lesson 13-3: Parallelograms	6.EE.A.2c, 6.G.A.1	MP2, MP5, MP6, MP7
Lesson 13-4: Other Triangles	6.EE.A.2c, 6.G.A.1	MP2, MP3, MP6, MP7
Lesson 13-5: Polygons	6.EE.A.2c, 6.G.A.1	MP1, MP3, MP5, MP6, MP8
Lesson 13-6: Problem Solving	6.EE.A.2c, 6.G.A.1	MP1, MP2, MP4, MP5, MP6

	Standards of Mathematical Content	Standards of Mathematical Practice
Topic 14: Surface Area and Volume		
Lesson 14-1: Analyzing Three-Dimensional Figures	6.G.A.1, 6.G.B.4	MP1, MP2, MP3, MP5, MP8
Lesson 14-2: Nets	6.G.B.4	MP2, MP4, MP5, MP6
Lesson 14-3: Surface Areas of Prisms	6.EE.A.2c, 6.G.B.4	MP1, MP2, MP5, MP6, MP7
Lesson 14-4: Surface Areas of Pyramids	6.EE.A.2c, 6.G.B.4	MP2, MP4, MP5, MP6, MP7
Lesson 14-5: Volumes of Rectangular Prisms	6.EE.A.2c, 6.G.B.2	MP2, MP4, MP7, MP8
Lesson 14-6: Problem Solving	6.EE.A.2c, 6.G.B.2, 6.G.B.4	MP1, MP2, MP3, MP4, MP6
Unit F: Statistics		
Topic 15: Data Displays		
Lesson 15-1: Statistical Questions	6.NS.C.6c, 6.SP.A.1, 6.SP.B.5b	MP2, MP3, MP6, MP8
Lesson 15-2: Dot Plots	6.NS.C.6c, 6.SP.B.4, 6.SP.B.5, 6.SP.B.5c	MP1, MP2, MP5, MP6, MP7
Lesson 15-3: Histograms	6.NS.C.6c, 6.SP.B.4, 6.SP.B.5, 6.SP.B.5c	MP2, MP3, MP4, MP5
Lesson 15-4: Box Plots	6.NS.C.6c, 6.SP.B.4, 6.SP.B.5, 6.SP.B.5c	MP2, MP4, MP5, MP6
Lesson 15-5: Choosing an Appropriate Display	6.NS.C.6c, 6.SP.B.4	MP1, MP3, MP6, MP7
Lesson 15-6: Problem Solving	6.NS.C.6c, 6.SP.B.4, 6.SP.B.5, 6.SP.B.5a	MP1, MP2, MP3, MP4, MP7
Topic 16: Measures of Center and Variation		
Lesson 16-1: Median	6.SP.A.3, 6.SP.B.4, 6.SP.B.5, 6.SP.B.5c, 6.SP.B.5d	MP2, MP3, MP4, MP5, MP6
Lesson 16-2: Mean	6.SP.A.3, 6.SP.B.5, 6.SP.B.5c, 6.SP.B.5d	MP2, MP5, MP6, MP7
Lesson 16-3: Variability	6.SP.A.2, 6.SP.A.3, 6.SP.B.5, 6.SP.B.5c, 6.SP.B.5d	MP3, MP4, MP5, MP6
Lesson 16-4: Interquartile Range	6.SP.A.3, 6.SP.B.5, 6.SP.B.5c, 6.SP.B.5d	MP1, MP2, MP6, MP7, MP8
Lesson 16-5: Mean Absolute Deviation	6.SP.A.3, 6.SP.B.5, 6.SP.B.5c, 6.SP.B.5d	MP2, MP3, MP4, MP6, MP8
Lesson 16-6: Problem Solving	6.SP.A.3, 6.SP.B.5, 6.SP.B.5c, 6.SP.B.5d	MP2, MP3, MP4, MP5, MP6

Grade 7 Standards Correlation

Number	Standard for Mathematical Content	Lesson(s)
7.RP Ratios and Proportional Relationships		
Analyze proportional relationships and use them to solve real-world and mathematical problems.		
7.RP.A.1	Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.	Topic 1
7.RP.A.2	Recognize and represent proportional relationships between quantities.	2-1 thru 2-4, 2-6, 3-1, 3-2, 3-3, 3-5
7.RP.A.2a	Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.	2-1, 2-2, 2-6
7.RP.A.2b	Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.	2-3, 2-4, 2-6, 3-1
7.RP.A.2c	Represent proportional relationships by equations.	2-4, 2-6, 3-1
7.RP.A.2d	Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and $(1, r)$ where r is the unit rate.	2-2, 2-3, 2-6, 14-2 thru 14-5, 14-7
7.RP.A.3	Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.	3-2, 3-3, 3-5, 3-6, 3-7, 6-6, 14-2 thru 14-5, 14-7, 17-7
7.NS The Number System		
Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.		
7.NS.A.1	Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.	4-1, 4-2, 4-4, 4-5
7.NS.A.1a	Describe situations in which opposite quantities combine to make 0. For example, a hydrogen atom has 0 charge because its two constituents are oppositely charged.	4-1
7.NS.A.1b	Understand $p + q$ as the number located a distance $\lvert q \rvert$ from p, in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts.	4-2, 4-3, 4-5, 4-7
7.NS.A.1c	Understand subtraction of rational numbers as adding the additive inverse, $p - q = p + (-q)$. Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts.	4-4, 4-6, 4-7

Number	Standard for Mathematical Content	Lesson(s)
7.NS The Number System *(continued)*		
Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.		
7.NS.A.1d	Apply properties of operations as strategies to add and subtract rational numbers.	4-3
7.NS.A.2	Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.	5-1 thru 5-5
7.NS.A.2a	Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as $(-1)(-1) = 1$ and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.	5-1, 5-2
7.NS.A.2b	Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then $\left(\frac{p}{q}\right) = \frac{(-p)}{q} = \frac{p}{(-q)}$. Interpret quotients of rational numbers by describing real-world contexts.	5-3, 5-4, 6-1, 6-2, 6-5
7.NS.A.2c	Apply properties of operations as strategies to multiply and divide rational numbers.	5-1, 5-5
7.NS.A.2d	Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.	6-1, 6-2, 6-5
7.NS.A.3	Solve real-world and mathematical problems involving the four operations with rational numbers.	5-5, 6-3, 6-4, 6-5
7.EE Expressions and Equations		
Use properties of operations to generate equivalent expressions.		
7.EE.A.1	Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.	Topic 7
7.EE.A.2	Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related. *For example, $a + 0.05a = 1.05a$ means that "increase by 5%" is the same as "multiply by 1.05."*	Topic 7
Solve real-life and mathematical problems using numerical and algebraic expressions and equations.		
7.EE.B.3	Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.	4-7, 5-6, 8-3, 8-4, 8-5, 11-2 thru 11-5, Topic 13, 14-2 thru 14-5, 14-7, 16-1, 16-3 thru 16-6, 17-4, 17-6, 17-7
7.EE.B.4	Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.	Topic 8, Topic 9 10-1, Topic 11, 12-6, Topic 13

Grade 7 Standards Correlation *continued*

Number	Standard for Mathematical Content	Lesson(s)
7.EE Expressions and Equations (*continued*)		
Solve real-life and mathematical problems using numerical and algebraic expressions and equations.		
7.EE.B.4a	Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach.	8-1, 8-2, 8-3, 8-4, 8-5, 10-1, 10-3 thru 10-6, 11-1
7.EE.B.4b	Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem.	9-1, 9-2, 9-3, 9-4, 9-5
7.G Geometry		
Draw, construct, and describe geometrical figures and describe the relationships between them.		
7.G.A.1	Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.	2-5, 2-6
7.G.A.2	Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.	Topic 10, 11-1, 11-2, 11-3, 12-1, 12-2, 12-3, 12-6
7.G.A.3	Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.	12-4, 12-5, 12-6
Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.		
7.G.B.4	Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.	11-1, 11-2, 11-3, 11-4, 11-5
7.G.B.5	Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.	10-2, 10-3, 10-4, 10-5, 10-6
7.G.B.6	Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.	12-6, 13-1, 13-2, 13-3, 13-4, 13-5
7.SP Statistics and Probability		
Use random sampling to draw inferences about a population.		
7.SP.A.1	Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.	14-1, 14-2, 14-3, 14-4, 14-5, 14-6, 14-7, 15-1, 15-2

Number	Standard for Mathematical Content	Lesson(s)
7.SP Statistics and Probability *(continued)*		
Use random sampling to draw inferences about a population.		
7.SP.A.2	Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions.	14-2, 14-5, 14-7
Draw informal comparative inferences about two populations.		
7.SP.B.3	Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability.	15-2, 15-5
7.SP.B.4	Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations.	15-1, 15-2, 15-3, 15-4, 15-5, 15-6
Investigate chance processes and develop, use, and evaluate probability models.		
7.SP.C.5	Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around $\frac{1}{2}$ indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.	16-1
7.SP.C.6	Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability.	16-1, 16-3, 17-4
7.SP.C.7	Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy.	16-2, 16-4, 16-5, 16-6, 17-7
7.SP.C.7a	Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events.	16-4, 16-5, 16-6
7.SP.C.7b	Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process.	16-5, 16-6
7.SP.C.8	Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.	17-1, 17-2, 17-3, 17-4, 17-5, 17-6, 17-7
7.SP.C.8a	Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs.	17-3, 17-4
7.SP.C.8b	Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams. For an event described in everyday language (e.g., "rolling double sixes"), identify the outcomes in the sample space which compose the event.	17-1, 17-2, 17-3
7.SP.C.8c	Design and use a simulation to generate frequencies for compound events. *For example, use random digits as a simulation tool to approximate the answer to the question: If 40% of donors have type A blood, what is the probability that it will take at least 4 donors to find one with type A blood?*	17-5

Grade 7 Lesson Correlation

	Standards of Mathematical Content	Standards of Mathematical Practice
Unit A: Ratios and Proportional Relationships		
Topic 1: Ratios and Rates		
Lesson 1-1: Equivalent Ratios	7.RP.A.1	MP1, MP2, MP4, MP6, MP8
Lesson 1-2: Unit Rates	7.RP.A.1	MP1, MP4, MP5, MP8
Lesson 1-3: Ratios With Fractions	7.RP.A.1	MP2, MP6, MP7, MP8
Lesson 1-4: Unit Rates With Fractions	7.RP.A.1	MP1, MP2, MP3, MP4
Lesson 1-5: Problem Solving	7.RP.A.1	MP1, MP2, MP3, MP4, MP7
Topic 2: Proportional Relationships		
Lesson 2-1: Proportional Relationships and Tables	7.RP.A.2, 7.RP.A.2a	MP2, MP4, MP5, MP6, MP7
Lesson 2-2: Proportional Relationships and Graphs	7.RP.A.2a, 7.RP.A.2d	MP2, MP4, MP5, MP6, MP7
Lesson 2-3: Constant of Proportionality	7.RP.A.2, 7.RP.A.2b, 7.RP.A.2d	MP1, MP2, MP3, MP4, MP8
Lesson 2-4: Proportional Relationships and Equations	7.RP.A.2, 7.RP.A.2b, 7.RP.A.2c	MP1, MP2, MP4, MP6
Lesson 2-5: Maps and Scale Drawings	7.G.A.1	MP2, MP3, MP4, MP5, MP7
Lesson 2-6: Problem Solving	7.RP.A.2, 7.RP.A.2a, 7.RP.A.2b, 7.RP.A.2c, 7.RP.A.2d, 7.G.A.1	MP2, MP3, MP4, MP6, MP8
Topic 3: Percents		
Lesson 3-1: The Percent Equation	7.RP.A.2, 7.RP.A.2b, 7.RP.A.2c	MP1, MP2, MP3, MP6, MP7
Lesson 3-2: Using the Percent Equation	7.RP.A.2, 7.RP.A.3	MP1, MP3, MP4, MP6, MP7
Lesson 3-3: Simple Interest	7.RP.A.2, 7.RP.A.3	MP4, MP5, MP7, MP8
Lesson 3-4: Compound Interest	7.NS.A.3	MP4, MP5, MP7, MP8
Lesson 3-5: Percent Increase and Decrease	7.RP.A.2, 7.RP.A.3	MP2, MP3, MP4, MP7
Lesson 3-6: Markups and Markdowns	7.RP.A.3	MP1, MP2, MP5, MP7, MP8
Lesson 3-7: Problem Solving	7.RP.A.3	MP1, MP3, MP4, MP6, MP7
Unit B: Rational Numbers		
Topic 4: Adding and Subtracting Rational Numbers		
Lesson 4-1: Rational Numbers, Opposites, and Absolute Value	7.NS.A.1, 7.NS.A.1a	MP2, MP3, MP5, MP6, MP7
Lesson 4-2: Adding Integers	7.NS.A.1, 7.NS.A.1b	MP2, MP4, MP5, MP6, MP7
Lesson 4-3: Adding Rational Numbers	7.NS.A.1b, 7.NS.A.1d	MP1, MP2, MP4, MP5, MP6
Lesson 4-4: Subtracting Integers	7.NS.A.1, 7.NS.A.1c	MP2, MP4, MP5, MP6, MP7
Lesson 4-5: Subtracting Rational Numbers	7.NS.A.1, 7.NS.A.1b, 7.NS.A.1c, 7.NS.A.1d	MP1, MP2, MP5, MP6
Lesson 4-6: Distance on a Number Line	7.NS.A.1c	MP2, MP4, MP5, MP6, MP8
Lesson 4-7: Problem Solving	7.NS.A.1 7.NS.A.1b, 7.NS.A.1c, 7.NS.A.1d, 7.EE.B.3	MP1, MP2, MP4, MP5, MP6

	Standards of Mathematical Content	Standards of Mathematical Practice
Topic 5: Multiplying and Dividing Rational Numbers		
Lesson 5-1: Multiplying Integers	7.NS.A.2, 7.NS.A.2a, 7.NS.A.2c	MP2, MP3, MP4, MP5, MP7
Lesson 5-2: Multiplying Rational Numbers	7.NS.A.2, 7.NS.A.2a	MP1, MP2, MP3, MP6, MP8
Lesson 5-3: Dividing Integers	7.NS.A.2, 7.NS.A.2b	MP2, MP3, MP4, MP8
Lesson 5-4: Dividing Rational Numbers	7.NS.A.2, 7.NS.A.2b	MP2, MP3, MP6, MP7
Lesson 5-5: Operations with Rational Numbers	7.NS.A.2, 7.NS.A.2c, 7.NS.A.3	MP2, MP4, MP6, MP7
Lesson 5-6: Problem Solving	7.NS.A.3, 7.EE.B.3	MP3, MP4, MP5, MP6, MP7
Topic 6: Decimals and Percents		
Lesson 6-1: Repeating Decimals	7.NS.A.2b, 7.NS.A.2d	MP2, MP3, MP4, MP6
Lesson 6-2: Terminating Decimals	7.NS.A.2b, 7.NS.A.2d	MP2, MP3, MP6, MP8
Lesson 6-3: Percents Greater Than 100	7.NS.A.3	MP2, MP3, MP4, MP6, MP7
Lesson 6-4: Percents Less Than 1	7.NS.A.3	MP2, MP3, MP4, MP6, MP7
Lesson 6-5: Fractions, Decimals, and Percents	7.NS.A.2b, 7.NS.A.2d, 7.NS.A.3	MP1, MP2, MP3, MP4, MP5
Lesson 6-6: Percent Error	7.RP.A.3	MP2, MP3, MP4, MP5, MP7
Lesson 6-7: Problem Solving	7.NS.A.3	MP1, MP3, MP4, MP6, MP8
Topic C: Expressions and Equations		
Topic 7: Equivalent Expressions		
Lesson 7-1: Expanding Algebraic Expressions	7.EE.A.1, 7.EE.A.2	MP2, MP3, MP4, MP7, MP8
Lesson 7-2: Factoring Algebraic Expressions	7.EE.A.1, 7.EE.A.2	MP2, MP3, MP6, MP7, MP8
Lesson 7-3: Adding Algebraic Expressions	7.EE.A.1, 7.EE.A.2	MP2, MP4, MP6, MP7
Lesson 7-4: Subtracting Algebraic Expressions	7.EE.A.1, 7.EE.A.2	MP1, MP2, MP6, MP7, MP8
Lesson 7-5: Problem Solving	7.EE.A.1, 7.EE.A.2	MP1, MP2, MP4, MP5, MP7
Topic 8: Equations		
Lesson 8-1: Solving Simple Equations	7.EE.B.4, 7.EE.B.4a	MP2, MP5, MP6, MP7, MP8
Lesson 8-2: Writing Two-Step Equations	7.EE.B.4, 7.EE.B.4a	MP1, MP2, MP4, MP6, MP8
Lesson 8-3: Solving Two-Step Equations	7.EE.B.3, 7.EE.B.4, 7.EE.B.4a	MP1, MP3, MP4, MP5, MP8
Lesson 8-4: Solving Equations Using the Distributive Property	7.EE.B.3, 7.EE.B.4, 7.EE.B.4a	MP1, MP2, MP4, MP6, MP7
Lesson 8-5: Problem Solving	7.EE.B.3, 7.EE.B.4, 7.EE.B.4a	MP2, MP4, MP5, MP6, MP7
Topic 9: Inequalities		
Lesson 9-1: Solving Inequalities Using Addition or Subtraction	7.EE.B.4, 7.EE.B.4b	MP1, MP2, MP3, MP4, MP5
Lesson 9-2: Solving Inequalities Using Multiplication or Division	7.EE.B.4, 7.EE.B.4b	MP1, MP2, MP5, MP7, MP8

Grade 7 Lesson Correlation *continued*

	Standards of Mathematical Content	Standards of Mathematical Practice
Topic 9: Inequalities *(continued)*		
Lesson 9-3: Solving Two-Step Inequalities	7.EE.B.4, 7.EE.B.4b	MP1, MP3, MP4, MP6, MP7
Lesson 9-4: Solving Multi-Step Inequalities	7.EE.B.4, 7.EE.B.4b	MP1, MP3, MP4, MP6, MP8
Lesson 9-5: Problem Solving	7.EE.B.4, 7.EE.B.4b	MP2, MP3, MP4, MP6, MP8
Unit D: Geometry		
Topic 10: Angles		
Lesson 10-1: Measuring Angles	7.EE.B.4, 7.EE.B.4a, 7.G.A.2	MP1, MP3, MP5, MP6, MP7
Lesson 10-2: Adjacent Angles	7.G.A.2, 7.G.B.5	MP1, MP2, MP3, MP6, MP8
Lesson 10-3: Complementary Angles	7.EE.B.4a, 7.G.A.2, 7.G.B.5	MP2, MP3, MP5, MP6, MP7
Lesson 10-4: Supplementary Angles	7.EE.B.4a, 7.G.A.2, 7.G.B.5	MP2, MP3, MP5, MP6, MP7
Lesson 10-5: Vertical Angles	7.EE.B.4a, 7.G.A.2, 7.G.B.5	MP2, MP3, MP4, MP6, MP8
Lesson 10-6: Problem Solving	7.EE.B.4a, 7.G.B.5	MP2, MP3, MP6, MP7, MP8
Topic 11: Circles		
Lesson 11-1: Center, Radius, and Diameter	7.EE.B.4, 7.EE.B.4a, 7.G.A.2, 7.G.B.4	MP1, MP2, MP6, MP7, MP8
Lesson 11-2: Circumference of a Circle	7.EE.B.4, 7.G.A.2, 7.G.B.4	MP3, MP4, MP5, MP6, MP7
Lesson 11-3: Area of a Circle	7.EE.B.3, 7.EE.B.4, 7.G.A.2, 7.G.B.4	MP2, MP4, MP6, MP7, MP8
Lesson 11-4: Relating Circumference and Area of a Circle	7.EE.B.3, 7.EE.B.4, 7.G.B.4	MP1, MP3, MP6, MP7, MP8
Lesson 11-5: Problem Solving	7.EE.B.3, 7.EE.B.4, 7.G.B.4	MP2, MP3, MP4, MP6, MP7
Topic 12: 2- and 3-Dimensional Shapes		
Lesson 12-1: Geometry Drawing Tools	7.G.A.2	MP1, MP3, MP5, MP6, MP7
Lesson 12-2: Drawing Triangles with Given Conditions 1	7.G.A.2	MP1, MP3, MP5, MP6, MP7
Lesson 12-3: Drawing Triangles with Given Conditions 2	7.G.A.2	MP2, MP3, MP5, MP6, MP7
Lesson 12-4: 2-D Slices of Right Rectangular Prisms	7.G.A.3	MP3, MP5, MP6, MP7, MP8
Lesson 12-5: 2-D Slices of Right Rectangular Pyramids	7.G.A.3	MP2, MP3, MP5, MP6, MP7
Lesson 12-6: Problem Solving	7.EE.B.4, 7.G.A.2, 7.G.A.3, 7.G.B.6	MP2, MP3, MP4, MP5, MP7
Topic 13: Surface Area and Volume		
Lesson 13-1: Surface Areas of Right Prisms	7.NS.A.3, 7.EE.B.3, 7.EE.B.4, 7.G.B.6	MP2, MP4, MP5, MP6, MP7
Lesson 13-2: Volumes of Right Prisms	7.NS.A.3, 7.EE.B.3, 7.EE.B.4 7.G.B.6	MP2, MP3, MP4, MP7, MP8
Lesson 13-3: Surface Areas of Right Pyramids	7.NS.A.3, 7.EE.B.3, 7.EE.B.4, 7.G.B.6	MP2, MP3, MP4, MP5, MP7
Lesson 13-4: Volumes of Right Pyramids	7.NS.A.3, 7.EE.B.3, 7.EE.B.4, 7.G.B.6	MP2, MP4, MP5, MP6, MP8
Lesson 13-5: Problem Solving	7.NS.A.3, 7.EE.B.3, 7.EE.B.4 7.G.B.6	MP1, MP2, MP4, MP6, MP7

	Standards of Mathematical Content	Standards of Mathematical Practice
Unit E: Statistics		
Topic 14: Sampling		
Lesson 14-1: Populations and Samples	7.SP.A.1	MP3, MP4, MP7, MP8
Lesson 14-2: Estimating a Population	7.RP.A.2b, 7.RP.A.3, 7.EE.B.3, 7.SP.A.1, 7.SP.A.2	MP1, MP3, MP4, MP5, MP7
Lesson 14-3: Convenience Sampling	7.RP.A.2b, 7.RP.A.3, 7.EE.B.3, 7.SP.A.1	MP2, MP4, MP6, MP7, MP8
Lesson 14-4: Systematic Sampling	7.RP.A.2b, 7.RP.A.3, 7.EE.B.3, 7.SP.A.1	MP2, MP3, MP4, MP5, MP7
Lesson 14-5: Simple Random Sampling	7.RP.A.2b, 7.RP.A.3, 7.EE.B.3, 7.SP.A.1, 7.SP.A.2	MP2, MP4, MP5, MP7
Lesson 14-6: Comparing Sampling Methods	7.SP.A.1	MP2, MP3, MP4, MP6, MP7
Lesson 14-7: Problem Solving	7.RP.A.2b, 7.RP.A.3, 7.EE.B.3, 7.SP.A.1, 7.SP.A.2	MP1, MP2, MP3, MP6
Topic 15: Comparing Two Populations		
Lesson 15-1: Statistical Measures	7.SP.A.1, 7.SP.B.4	MP2, MP3, MP4, MP6, MP7
Lesson 15-2: Multiple Populations and Inferences	7.SP.A.1, 7.SP.B.3, 7.SP.B.4	MP1, MP3, MP4, MP5, MP6
Lesson 15-3: Using Measures of Center	7.SP.B.4	MP2, MP3, MP4, MP5, MP6
Lesson 15-4: Using Measures of Variability	7.SP.B.4	MP2, MP3, MP4, MP5
Lesson 15-5: Exploring Overlap in Data Sets	7.SP.B.3, 7.SP.B.4	MP2, MP3, MP4, MP6, MP7
Lesson 15-6: Problem Solving	7.SP.B.4	MP1, MP2, MP3, MP4, MP6
Unit F: Probability		
Topic 16: Probability Concepts		
Lesson 16-1: Likelihood and Probability	7.EE.B.3, 7.SP.C.5, 7.SP.C.6	MP1, MP3, MP4, MP5, MP6
Lesson 16-2: Sample Space	7.SP.C.7	MP1, MP2, MP3, MP5, MP7
Lesson 16-3: Relative Frequency and Experimental Probability	7.EE.B.3, 7.SP.C.6	MP2, MP4, MP5, MP7
Lesson 16-4: Theoretical Probability	7.EE.B.3, 7.EE.B.4, 7.SP.C.7a	MP2, MP3, MP4, MP6, MP7
Lesson 16-5: Probability Models	7.EE.B.3, 7.EE.B.4, 7.SP.C.7a, 7.SP.C.7b	MP3, MP4, MP6, MP7
Lesson 16-6: Problem Solving	7.EE.B.3, 7.EE.B.4, 7.SP.C.7a, 7.SP.C.7b	MP3, MP4, MP5, MP7, MP8
Topic 17: Compound Events		
Lesson 17-1: Compound Events	7.SP.C.8, 7.SP.C.8b	MP3, MP4, MP5, MP6, MP8
Lesson 17-2: Sample Spaces	7.SP.C.8, 7.SP.C.8b	MP4, MP5, MP6, MP7
Lesson 17-3: Counting Outcomes	7.SP.C.8, 7.SP.C.8a, 7.SP.C.8b	MP2, MP3, MP4, MP5
Lesson 17-4: Finding Theoretical Probabilities	7.EE.B.3, 7.SP.C.6, 7.SP.C.8, 7.SP.C.8a	MP1, MP2, MP3, MP4, MP7
Lesson 17-5: Simulation With Random Numbers	7.SP.C.8, 7.SP.C.8c	MP2, MP4, MP5, MP6
Lesson 17-6: Finding Probabilities by Simulation	7.EE.B.3, 7.SP.C.8	MP2, MP4, MP5, MP6, MP7
Lesson 17-7: Problem Solving	7.RP.A.3, 7.EE.B.3, 7.SP.C.7, 7.SP.C.8	MP1, MP3, MP4, MP7, MP8

Grade 8 Standards Correlation

Number	Standard for Mathematical Content	Lesson(s)
8.NS The Number System		
Know that there are numbers that are not rational, and approximate them by rational numbers.		
8.NS.A.1	Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion which repeats eventually into a rational number.	1-1, 1-2, 1-5
8.NS.A.2	Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., π^2). *For example, by truncating the decimal expansion of $\sqrt{2}$, show that $\sqrt{2}$ is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations.*	1-3, 1-4, 1-5
8.EE Expressions and Equations		
Work with radicals and integer exponents.		
8.EE.A.1	Know and apply the properties of integer exponents to generate equivalent numerical expressions. *For example,* $3^2 \times 3^{(-5)} = 3^{(-3)} = \frac{1}{(3^3)} = \frac{1}{27}$.	3-3, 3-4, 3-5, 3-6, 3-7, 4-5
8.EE.A.2	Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that $\sqrt{2}$ is irrational.	1-2, 1-4, 1-5, 3-1, 3-2, 13-2, 13-4, 13-5, 13-6, 13-7
8.EE.A.3	Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. *For example, estimate the population of the United States as 3×10^8 and the population of the world as 7×10^9, and determine that the world population is more than 20 times larger.*	4-1, 4-2, 4-3, 4-4
8.EE.A.4	Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.	4-1, 4-4, 4-5
Understand the connections between proportional relationships, lines, and linear equations.		
8.EE.B.5	Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. *For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.*	5-1, 5-2, 5-3, 5-4, 5-7
8.EE.B.6	Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation $y = mx$ for a line through the origin and the equation $y = mx + b$ for a line intercepting the vertical axis at b.	5-2, 5-5, 5-6, 5-7, 10-3

Number	Standard for Mathematical Content	Lesson(s)
8.EE Expressions and Equations *(continued)*		
Analyze and solve linear equations and pairs of simultaneous linear equations.		
8.EE.C.7	Solve linear equations in one variable.	2-1, 2-2, 2-4, 2-5
8.EE.C.7a	Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form $x = a$, $a = a$, or $a = b$ results (where a and b are different numbers).	2-4, 2-5
8.EE.C.7b	Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.	2-1, 2-2, 2-3
8.EE.C.8	Analyze and solve pairs of simultaneous linear equations.	6-1, 6-2, 6-4, 6-5, 6-6, 6-7
8.EE.C.8a	Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously.	6-1, 6-3, 6-5, 6-6
8.EE.C.8b	Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. *For example,* $3x + 2y = 5$ *and* $3x + 2y = 6$ *have no solution because* $3x + 2y$ *cannot simultaneously be 5 and 6.*	6-2, 6-3, 6-4, 6-5, 6-6, 6-7
8.EE.C.8c	Solve real-world and mathematical problems leading to two linear equations in two variables. *For example, given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair.*	6-1, 6-3, 6-4, 6-5, 6-6, 6-7
8.F Functions		
Define, evaluate, and compare functions.		
8.F.A.1	Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output.	7-1, 7-2, 7-4, 8-1
8.F.A.2	Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.	8-4
8.F.A.3	Interpret the equation $y = mx + b$ as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. *For example, the function* $A = s^2$ *giving the area of a square as a function of its side length is not linear because its graph contains the points (1,1), (2,4) and (3,9), which are not on a straight line.*	7-3, 7-4, 8-1, 8-3

Grade 8 Standards Correlation *continued*

Number	Standard for Mathematical Content	Lesson(s)
8.F Functions (*continued*)		
Use functions to model relationships between quantities.		
8.F.B.4	Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.	8-1, 8-2, 8-3, 8-5, 8-6, 14-5, 14-6, 14-7
8.F.B.5	Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.	7-3, 7-4, 7-5, 7-6, 7-7, 8-1, 8-2, 8-3, 14-5, 14-6, 14-7
8.G Geometry		
Understand congruence and similarity using physical models, transparencies, or geometry software.		
8.G.A.1	Verify experimentally the properties of rotations, reflections, and translations:	9-1, 9-2, 9-3, 10-1
8.G.A.1a	Verify experimentally the properties of rotations, reflections, and translations: Lines are taken to lines, and line segments to line segments of the same length.	9-1, 9-2, 9-3
8.G.A.1b	Verify experimentally the properties of rotations, reflections, and translations: Angles are taken to angles of the same measure.	9-1, 9-2, 9-3
8.G.A.1c	Verify experimentally the properties of rotations, reflections, and translations: Parallel lines are taken to parallel lines.	9-1, 9-2, 9-3
8.G.A.2	Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.	9-4, 9-5
8.G.A.3	Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.	10-1, 10-2, 10-3, 10-4
8.G.A.4	Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.	10-2, 10-3, 10-4, 11-5
8.G.A.5	Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles.	11-1, 11-2, 11-3, 11-4, 11-5, 11-6

Number	Standard for Mathematical Content	Lesson(s)
8.G Geometry *(continued)*		
Understand and apply the Pythagorean Theorem.		
8.G.B.6	Explain a proof of the Pythagorean Theorem and its converse.	12-1, 12-2, 12-4
8.G.B.7	Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.	12-2, 12-3, 12-6, 13-7
8.G.B.8	Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.	12-5, 12-6
Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.		
8.G.C.9	Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.	13-1, 13-2, 13-3, 13-4, 13-5, 13-6, 13-7
8.SP Statistics and Probability		
Investigate patterns of association in bivariate data.		
8.SP.A.1	Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.	14-1, 14-2, 14-3, 14-4
8.SP.A.2	Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.	14-5, 14-6, 14-7
8.SP.A.3	Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept.	14-6
8.SP.A.4	Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables.	15-1, 15-2, 15-3, 15-4, 15-5, 15-6, 15-7

Grade 8 Lesson Correlation

	Standards of Mathematical Content	Standards of Mathematical Practice
Unit A: The Number System		
Topic 1: Rational and Irrational Numbers		
Lesson 1-1: Expressing Rational Numbers with Decimal Expansions	8.NS.A.1	MP1, MP2, MP3, MP4, MP6
Lesson 1-2: Exploring Irrational Numbers	8.NS.A.1, 8.EE.A.2	MP2, MP3, MP5, MP6, MP7
Lesson 1-3: Approximating Irrational Numbers	8.NS.A.2	MP1, MP2, MP3, MP5, MP8
Lesson 1-4: Comparing and Ordering Rational and Irrational Numbers	8.NS.A.2, 8.EE.A.2	MP2, MP3, MP5, MP6, MP7
Lesson 1-5: Problem Solving	8.NS.A.1, 8.NS.A.2, 8.EE.A.2	MP2, MP3, MP4, MP7, MP8
Unit B: Expressions and Equations, Part 1		
Topic 2: Linear Equations in One Variable		
Lesson 2-1: Solving Two-Step Equations	8.EE.C.7, 8.EE.C.7b	MP1, MP2, MP4, MP6, MP7
Lesson 2-2: Solving Equations with Variables on Both Sides	8.EE.C.7, 8.EE.C.7b	MP4, MP5, MP6, MP8
Lesson 2-3: Solving Equations Using the Distributive Property	8.EE.C.7b	MP1, MP2, MP3, MP7
Lesson 2-4: Solutions – One, None, or Infinitely Many	8.EE.C.7, 8.EE.C.7a	MP2, MP3, MP6, MP7, MP8
Lesson 2-5: Problem Solving	8.EE.C.7, 8.EE.C.7a	MP1, MP2, MP4, MP6, MP8
Topic 3: Integer Exponents		
Lesson 3-1: Perfect Squares, Square Roots, and Equations of the form $x^2 = p$	8.EE.A.2	MP1, MP2, MP6, MP7, MP8
Lesson 3-2: Perfect Cubes, Cube Roots, and Equations of the form $x^3 = p$	8.EE.A.2	MP2, MP3, MP6, MP7, MP8
Lesson 3-3: Exponents and Multiplication	8.EE.A.1	MP2, MP3, MP6, MP7
Lesson 3-4: Exponents and Division	8.EE.A.1	MP1, MP2, MP3, MP6, MP7
Lesson 3-5: Zero and Negative Exponents	8.EE.A.1	MP3, MP5, MP6, MP8
Lesson 3-6: Comparing Expressions with Exponents	8.EE.A.1	MP2, MP3, MP6, MP7, MP8
Lesson 3-7: Problem Solving	8.EE.A.1	MP2, MP3, MP4, MP6, MP7
Topic 4: Scientific Notation		
Lesson 4-1: Exploring Scientific Notation	8.EE.A.3, 8.EE.A.4	MP2, MP3, MP5, MP7
Lesson 4-2: Using Scientific Notation to Describe Very Large Quantities	8.EE.A.3	MP1, MP2, MP3, MP4, MP6
Lesson 4-3: Using Scientific Notation to Describe Very Small Quantities	8.EE.A.3	MP1, MP2, MP4, MP6, MP7
Lesson 4-4: Operating with Numbers Expressed in Scientific Notation	8.EE.A.3, 8.EE.A.4	MP1, MP4, MP6, MP7, MP8
Lesson 4-5: Problem Solving	8.EE.A.3, 8.EE.A.4	MP1, MP2, MP3, MP4, MP7

	Standards of Mathematical Content	Standards of Mathematical Practice
Unit C: Expressions and Equations, Part 2		
Topic 5: Proportional Relationships, Lines, and Linear Equations		
Lesson 5-1: Graphing Proportional Relationships	8.EE.B.5	MP2, MP4, MP5, MP6, MP8
Lesson 5-2: Linear Equations: $y = mx$	8.EE.B.5, 8.EE.B.6	MP4, MP5, MP6, MP7, MP8
Lesson 5-3: The Slope of a Line	8.EE.B.5	MP1, MP2, MP3, MP6
Lesson 5-4: Unit Rates and Slope	8.EE.B.5	MP2, MP4, MP5, MP6, MP7
Lesson 5-5: The *y*-intercept of a Line	8.EE.B.6	MP1, MP3, MP5, MP6
Lesson 5-6: Linear Equations: $y = mx + b$	8.EE.B.6	MP1, MP4, MP6, MP7
Lesson 5-7: Problem Solving	8.EE.B.5, 8.EE.B.6	MP2, MP3, MP4, MP6, MP7
Topic 6: Systems of Two Linear Equations		
Lesson 6-1: What is a System of Linear Equations in Two Variables?	8.EE.C.8, 8.EE.C.8a, 8.EE.C.8c	MP1, MP2, MP4, MP5, MP7
Lesson 6-2: Estimating Solutions of Linear Systems by Inspection	8.EE.C.8, 8.EE.C.8b	MP2, MP3, MP4, MP6, MP7
Lesson 6-3: Solving Systems of Linear Equations by Graphing	8.EE.C.8a, 8.EE.C.8b, 8.EE.C.8c	MP1, MP2, MP4, MP5, MP7
Lesson 6-4: Solving Systems of Linear Equations Using Substitution	8.EE.C.8, 8.EE.C.8b, 8.EE.C.8c	MP1, MP2, MP6, MP7
Lesson 6-5: Solving Systems of Linear Equations Using Addition	8.EE.C.8, 8.EE.C.8a, 8.EE.C.8b, 8.EE.C.8c	MP4, MP6, MP7, MP8
Lesson 6-6: Solving Systems of Linear Equations Using Subtraction	8.EE.C.8, 8.EE.C.8a, 8.EE.C.8b, 8.EE.C.8c	MP3, MP4, MP6, MP7
Lesson 6-7: Problem Solving	8.EE.C.8, 8.EE.C.8b, 8.EE.C.8c	MP1, MP3, MP4, MP5, MP7
Topic D: Functions		
Topic 7: Defining and Comparing Functions		
Lesson 7-1: Recognizing a Function	8.F.A.1	MP3, MP5, MP6, MP7
Lesson 7-2: Representing a Function	8.F.A.1	MP2, MP4, MP5, MP6, MP8
Lesson 7-3: Linear Functions	8.F.A.3, 8.F.B.5	MP2, MP4, MP5, MP7
Lesson 7-4: Nonlinear Functions	8.F.A.1, 8.F.A.3, 8.F.B.5	MP2, MP3, MP6, MP7, MP8
Lesson 7-5: Increasing and Decreasing Intervals	8.F.B.5	MP2, MP5, MP6, MP7
Lesson 7-6: Sketching a Function Graph	8.F.B.5	MP1, MP3, MP4, MP5, MP7
Lesson 7-7: Problem Solving	8.F.B.5	MP1, MP3, MP4, MP6, MP7
Topic 8: Linear Functions		
Lesson 8-1: Defining a Linear Function Rule	8.F.A.1, 8.F.A.3, 8.F.B.4, 8.F.B.5	MP1, MP2, MP6, MP7
Lesson 8-2: Rate of Change	8.F.B.4, 8.F.B.5	MP2, MP4, MP5, MP6, MP8
Lesson 8-3: Initial Value	8.F.A.3, 8.F.B.4, 8.F.B.5	MP2, MP4, MP6, MP7, MP8
Lesson 8-4: Comparing Two Linear Functions	8.F.A.2	MP2, MP3, MP5, MP7

Grade 8 Lesson Correlation *continued*

	Standards of Mathematical Content	Standards of Mathematical Practice
Topic 8: Linear Functions *(continued)*		
Lesson 8-5: Constructing a Function to Model a Linear Relationship	8.F.B.4	MP1, MP2, MP4, MP5, MP6
Lesson 8-6: Problem Solving	8.F.B.4	MP2, MP4, MP5, MP6, MP7
Unit E: Geometry		
Topic 9: Congruence		
Lesson 9-1: Translations	8.G.A.1, 8.G.A.1a, 8.G.A.1b, 8.G.A.1c, 8.G.A.3	MP2, MP4, MP5, MP6, MP7
Lesson 9-2: Reflections	8.G.A.1, 8.G.A.1a, 8.G.A.1b, 8.G.A.1c, 8.G.A.3	MP2, MP3, MP5, MP6, MP7
Lesson 9-3: Rotations	8.G.A.1, 8.G.A.1a, 8.G.A.1b, 8.G.A.1c, 8.G.A.3	MP2, MP3, MP4, MP5, MP7
Lesson 9-4: Congruent Figures	8.G.A.2	MP1, MP3, MP5, MP6, MP8
Lesson 9-5: Problem Solving	8.G.A.2	MP1, MP2, MP3, MP5, MP7
Topic 10: Similarity		
Lesson 10-1: Dilations	8.G.A.1, 8.G.A.1a, 8.G.A.1b, 8.G.A.1c, 8.G.A.3	MP1, MP2, MP5, MP6, MP7
Lesson 10-2: Similar Figures	8.G.A.3, 8.G.A.4	MP2, MP3, MP5, MP6, MP7
Lesson 10-3: Relating Similar Triangles and Slope	8.EE.B.6, 8.G.A.3, 8.G.A.4	MP1, MP3, MP5, MP7, MP8
Lesson 10-4: Problem Solving	8.G.A.3, 8.G.A.4	MP4, MP5, MP6, MP7, MP8
Topic 11: Reasoning in Geometry		
Lesson 11-1: Angles, Lines, and Transversals	8.G.A.5	MP2, MP3, MP4, MP6, MP7
Lesson 11-2: Reasoning and Parallel Lines	8.G.A.5	MP1, MP3, MP6, MP8
Lesson 11-3: Interior Angles of Triangles	8.G.A.5	MP2, MP3, MP5, MP6
Lesson 11-4: Exterior Angles of Triangles	8.G.A.5	MP2, MP5, MP6, MP7, MP8
Lesson 11-5: Angle-Angle Triangle Similarity	8.G.A.3, 8.G.A.4, 8.G.A.5	MP1, MP2, MP3, MP5, MP6
Lesson 11-6: Problem Solving	8.G.A.5	MP2, MP3, MP5, MP6, MP7
Topic 12: Using the Pythagorean Theorem		
Lesson 12-1: Reasoning and Proof	8.G.B.6	MP3, MP5, MP6, MP7, MP8
Lesson 12-2: The Pythagorean Theorem	8.G.B.6, 8.G.B.7	MP2, MP3, MP6, MP7, MP8
Lesson 12-3: Finding Unknown Leg Lengths	8.G.B.7	MP2, MP3, MP4, MP6, MP7
Lesson 12-4: The Converse of the Pythagorean Theorem	8.G.B.6	MP2, MP3, MP5, MP6, MP8
Lesson 12-5: Distance in the Coordinate Plane	8.G.B.8	MP1, MP2, MP4, MP5, MP6
Lesson 12-6: Problem Solving	8.G.B.7, 8.G.B.8	MP1, MP2, MP3, MP4, MP6
Topic 13: Surface Area and Volume		
Lesson 13-1: Surface Areas of Cylinders	8.G.C.9	MP2, MP5, MP6, MP7
Lesson 13-2: Volumes of Cylinders	8.EE.A.2, 8.G.C.9	MP2, MP3, MP5, MP6, MP7
Lesson 13-3: Surface Areas of Cones	8.G.C.9	MP4, MP5, MP6, MP7

	Standards of Mathematical Content	Standards of Mathematical Practice
Topic 13: Surface Area and Volume *(continued)*		
Lesson 13-4: Volumes of Cones	8.EE.A.2, 8.G.C.9	MP1, MP3, MP5, MP6
Lesson 13-5: Surface Areas of Spheres	8.EE.A.2, 8.G.C.9	MP2, MP4, MP6, MP7, MP8
Lesson 13-6: Volumes of Spheres	8.EE.A.2, 8.G.C.9	MP3, MP4, MP6, MP7
Lesson 13-7: Problem Solving	8.EE.A.2, 8.G.B.7, 8.G.C.9	MP1, MP2, MP6, MP8
Topic F: Statistics		
Topic 14: Scatter Plots		
Lesson 14-1: Interpreting a Scatter Plot	8.SP.A.1	MP1, MP4, MP5, MP7
Lesson 14-2: Constructing a Scatter Plot	8.SP.A.1	MP2, MP4, MP5, MP6
Lesson 14-3: Investigating Patterns – Clustering and Outliers	8.SP.A.1	MP4, MP6, MP7, MP8
Lesson 14-4: Investigating Patterns – Association	8.SP.A.1	MP2, MP4, MP5, MP7, MP8
Lesson 14-5: Linear Models – Fitting a Straight Line	8.F.B.4, 8.SP.A.2	MP2, MP5, MP7, MP8
Lesson 14-6: Using the Equation of a Linear Model	8.F.B.4, 8.SP.A.2, 8.SP.A.3	MP3, MP4, MP5, MP7, MP8
Lesson 14-7: Problem Solving	8.F.B.4, 8.SP.A.2	MP1, MP2, MP4, MP6, MP7
Topic 15: Analyzing Categorical Data		
Lesson 15-1: Bivariate Categorical Data	8.SP.A.4	MP1, MP3, MP6, MP7
Lesson 15-2: Constructing Two-Way Frequency Tables	8.SP.A.4	MP1, MP3, MP4, MP6, MP7
Lesson 15-3: Interpreting Two-Way Frequency Tables	8.SP.A.4	MP2, MP4, MP6, MP7, MP8
Lesson 15-4: Constructing Two-Way Relative Frequency Tables	8.SP.A.4	MP2, MP4, MP5, MP6, MP7
Lesson 15-5: Interpreting Two-Way Relative Frequency Tables	8.SP.A.4	MP1, MP3, MP5, MP6, MP7
Lesson 15-6: Choosing a Measure of Frequency	8.SP.A.4	MP1, MP2, MP4, MP5, MP8
Lesson 15-7: Problem Solving	8.SP.A.4	MP2, MP4, MP5, MP6, MP7

digits Accelerated Grade 7

The CCSS begins developing students' algebraic thinking as early as Kindergarten. Some students are able to progress more quickly through their mathematics education. Students who have completed Grade 7 and mastered the content, skills, and understanding of the CCSSM through Grade 7 are prepared for an algebra class in Grade 8. However, students who do this will skip over many concepts in Grade 8 that will better prepare students for later mathematics courses.

The Achieve Pathways Group recommends that students not move directly from a Grade 7 math class to an algebra class, but instead be placed in an Accelerated Grade 7 math class that covers all of the Grade 7 standards in addition to specific Grade 8 standards. By compressing Grade 7 CCSS and some of Grade 8 CCSS standards into one class, students will go into their Algebra I course better prepared to succeed in both Algebra I and later mathematics courses.

The ***digits*** **Accelerated Grade 7** course is designed for students who are ready to take Algebra 1 in the 8th grade. It follows the Appendix A (the Achieve Pathways) recommendation for an Accelerated Grade 7 course that covers all of Grade 7 standards along with Grade 8 CCSS 8.NS.A.1–2, 8.EE.A.1–4, 8.EE.B.5–6, 8.EE.C.7, 8.EE.C.7a, 8.EE.C.7b, 8.G.A.1–5, and 8.G.C.9. After completing the Accelerated Grade 7 course, students are prepared for either an Algebra 1 course or an Integrated Mathematics 1 course.

As this course features all of the Grade 7 content plus additional content from Grade 8, the pacing is by necessity faster. Careful consideration should be given to make sure students will be able to handle the quicker pace. An Algebra Readiness Test is available in ***digits*** that can help teachers determine which students are prepared for the challenges of the Accelerated Grade 7 course. The test is provided digitally and can be found with the other *Diagnostic Assessments* in the *Progress Monitoring* folder.

Accelerated Grade 7 Standards Correlation

Number	Standard for Mathematical Content	Lesson(s)
7.RP Ratios and Proportional Relationships		
Analyze proportional relationships and use them to solve real-world and mathematical problems.		
7.RP.A.1	Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.	7-1, 7-2, 7-3, 7-4, 7-5
7.RP.A.2	Recognize and represent proportional relationships between quantities.	8-1, 8-2, 8-3, 8-4, 8-6, 9-1, 9-2, 9-3, 9-5
7.RP.A.2a	Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.	8-1, 8-2, 8-6
7.RP.A.2b	Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.	8-3, 8-6, 9-1, 15-2, 15-3, 15-4, 15-5, 15-7
7.RP.A.2c	Represent proportional relationships by equations.	8-4, 8-6, 9-1
7.RP.A.2d	Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and $(1, r)$ where r is the unit rate.	8-2, 8-3, 8-6
7.RP.A.3	Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.	9-2, 9-3, 9-5, 9-6, 9-7, 15-2 thru 15-7, 18-7
7.NS The Number System		
Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.		
7.NS.A.1	Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.	1-1, 1-2, 1-4, 1-5
7.NS.A.1a	Describe situations in which opposite quantities combine to make 0. For example, a hydrogen atom has 0 charge because its two constituents are oppositely charged.	1-1
7.NS.A.1b	Understand $p + q$ as the number located a distance $\|q\|$ from p, in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts.	1-2, 1-3, 1-5, 1-7
7.NS.A.1c	Understand subtraction of rational numbers as adding the additive inverse, $p - q = p + (-q)$. Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts.	1-4, 1-6, 1-7

Accelerated Grade 7 Standards Correlation *continued*

Number	Standard for Mathematical Content	Lesson(s)
7.NS The Number System (*continued*)		
Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.		
7.NS.A.1d	Apply properties of operations as strategies to add and subtract rational numbers.	1-3
7.NS.A.2	Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.	2-1, 2-2, 2-3, 2-4, 2-5
7.NS.A.2a	Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as $(-1)(-1) = 1$ and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.	2-1, 2-2
7.NS.A.2b	Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If *p* and *q* are integers, then $\left(\frac{p}{q}\right) = \frac{(-p)}{q} = \frac{p}{(-q)}$. Interpret quotients of rational numbers by describing real-world contexts.	2-3, 2-4, 3-1, 3-2, 3-5
7.NS.A.2c	Apply properties of operations as strategies to multiply and divide rational numbers.	2-1, 2-5
7.NS.A.2d	Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.	3-1, 3-2, 3-5
7.NS.A.3	Solve real-world and mathematical problems involving the four operations with rational numbers.	2-5, 3-3, 3-4, 3-5, Topic 22
7.EE Expressions and Equations		
Use properties of operations to generate equivalent expressions.		
7.EE.A.1	Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.	10-1 thru 10-5
7.EE.A.2	Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related. *For example, $a + 0.05a = 1.05a$ means that "increase by 5%" is the same as "multiply by 1.05."*	10-1, 10-2, 10-3, 10-4, 10-5
Solve real-life and mathematical problems using numerical and algebraic expressions and equations.		
7.EE.B.3	Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.	1-7, 2-6, 11-3, 11-4, 11-5
7.EE.B.4	Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.	Topic 11, Topic 13, 19-1, Topic 20, 21-6, Topic 22

Number	Standard for Mathematical Content	Lesson(s)
7.EE Expressions and Equations *(continued)*		
Solve real-life and mathematical problems using numerical and algebraic expressions and equations.		
7.EE.B.4a	Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach.	Topic 11, 19-1, 19-3, 19-4, 19-5, 19-6, 20-1
7.EE.B.4b	Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem.	13-1, 13-2, 13-3, 13-4, 13-5
7.G Geometry		
Draw, construct, and describe geometrical figures and describe the relationships between them.		
7.G.A.1	Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.	8-5, 8-6
7.G.A.2	Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.	Topic 19, 20-1, 20-2, 20-3, 21-1, 21-2, 21-3, 21-6
7.G.A.3	Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.	21-6
Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.		
7.G.B.4	Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.	20-1, 20-2, 20-3, 20-4, 20-5
7.G.B.5	Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.	19-2.19-3, 19-4, 19-5, 19-6
7.G.B.6	Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.	21-6, 22-1, 22-2, 22-3, 22-4, 22-5
7.SP Statistics and Probability		
Use random sampling to draw inferences about a population.		
7.SP.A.1	Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.	15-1, 15-2, 15-3, 15-4, 15-5, 15-6, 15-7, 16-1, 16-2

Accelerated Grade 7 Standards Correlation *continued*

Number	Standard for Mathematical Content	Lesson(s)
7.SP Statistics and Probability *(continued)*		
Use random sampling to draw inferences about a population.		
7.SP.A.2	Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions.	15-2, 15-5, 15-7
Draw informal comparative inferences about two populations.		
7.SP.B.3	Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability.	16-2, 16-5
7.SP.B.4	Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations.	16-1, 16-2, 16-3, 16-4, 16-5, 16-6
Investigate chance processes and develop, use, and evaluate probability models.		
7.SP.C.5	Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around $\frac{1}{2}$ indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.	17-1
7.SP.C.6	Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability.	17-1, 17-2, 17-4
7.SP.C.7	Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy.	17-2, 17-4, 17-5, 17-6, 18-7
7.SP.C.7a	Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events.	17-4, 17-5, 17-6
7.SP.C.7b	Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process.	17-5, 17-6
7.SP.C.8	Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.	Topic 18
7.SP.C.8a	Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs.	18-3, 18-4
7.SP.C.8b	Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams. For an event described in everyday language (e.g., "rolling double sixes"), identify the outcomes in the sample space which compose the event.	18-1, 18-2, 18-3
7.SP.C.8c	Design and use a simulation to generate frequencies for compound events. *For example, use random digits as a simulation tool to approximate the answer to the question: If 40% of donors have type A blood, what is the probability that it will take at least 4 donors to find one with type A blood?*	18-5

Number	Standard for Mathematical Content	Lesson(s)
8.NS The Number System		
Know that there are numbers that are not rational, and approximate them by rational numbers.		
8.NS.A.1	Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion which repeats eventually into a rational number.	4-1, 4-2, 4-5
8.NS.A.2	Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., π^2). *For example, by truncating the decimal expansion of* $\sqrt{2}$, *show that* $\sqrt{2}$ *is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations.*	4-3, 4-4, 4-5
8.EE Expressions and Equations		
Work with radicals and integer exponents.		
8.EE.A.1	Know and apply the properties of integer exponents to generate equivalent numerical expressions. *For example,* $3^2 \times 3^{(-5)} = 3^{(-3)} = \frac{1}{(3^3)} = \frac{1}{27}$.	5-3 thru 5-7, 6-5
8.EE.A.2	Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that $\sqrt{2}$ is irrational.	4-2, 4-4, 4-5, 5-1, 5-2, 26-2, 26-4, 26-5, 26-6, 26-7
8.EE.A.3	Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. *For example, estimate the population of the United States as* 3×10^8 *and the population of the world as* 7×10^9, *and determine that the world population is more than 20 times larger.*	6-1, 6-2, 6-3, 6-4
8.EE.A.4	Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.	6-1, 6-4, 6-5
Understand the connections between proportional relationships, lines, and linear equations.		
8.EE.B.5	Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. *For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.*	14-1, 14-2, 14-3, 14-4, 14-7
8.EE.B.6	Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation $y = mx$ for a line through the origin and the equation $y = mx + b$ for a line intercepting the vertical axis at b.	14-2, 14-5, 14-6, 14-7

Accelerated Grade 7 Standards Correlation *continued*

Number	Standard for Mathematical Content	Lesson(s)
8.EE Expressions and Equations (*continued*)		
Analyze and solve linear equations and pairs of simultaneous linear equations.		
8.EE.C.7	Solve linear equations in one variable.	12-1, 12-2, 12-4, 12-5
8.EE.C.7a	Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form $x = a$, $a = a$, or $a = b$ results (where a and b are different numbers).	12-4, 12-5
8.EE.C.7b	Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.	12-1, 12-2, 12-3
8.G Geometry		
Understand congruence and similarity using physical models, transparencies, or geometry software.		
8.G.A.1	Verify experimentally the properties of rotations, reflections, and translations:	23-1, 23-2, 23-3, 24-1
8.G.A.1a	Verify experimentally the properties of rotations, reflections, and translations: Lines are taken to lines, and line segments to line segments of the same length.	23-1, 23-2, 23-3
8.G.A.1b	Verify experimentally the properties of rotations, reflections, and translations: Angles are taken to angles of the same measure.	23-1, 23-2, 23-3
8.G.A.1c	Verify experimentally the properties of rotations, reflections, and translations: Parallel lines are taken to parallel lines.	23-1, 23-2, 23-3
8.G.A.2	Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.	23-4, 23-5
8.G.A.3	Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.	24-1, 24-2, 24-3, 24-4
8.G.A.4	Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.	24-2, 24-3, 24-4, 24-5
8.G.A.5	Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles.	25-1, 25-2, 25-3, 25-4, 25-5, 25-6
Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.		
8.G.C.9	Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.	Topic 26

Accelerated Grade 7 Lesson Correlation

	Standards of Mathematical Content	Standards of Mathematical Practice
Unit I: Rational Numbers and Exponents		
Topic 1: Adding and Subtracting Rational Numbers		
Lesson 1-1: Rational Numbers, Opposites, and Absolute Value	7.NS.A.1, 7.NS.A.1a	MP2, MP3, MP5, MP6, MP7
Lesson 1-2: Adding Integers	7.NS.A.1, 7.NS.A.1b	MP2, MP4, MP5, MP6, MP7
Lesson 1-3: Adding Rational Numbers	7.NS.A.1b, 7.NS.A.1d	MP1, MP2, MP4, MP5, MP6
Lesson 1-4: Subtracting Integers	7.NS.A.1, 7.NS.A.1c	MP2, MP4, MP5, MP6, MP7
Lesson 1-5: Subtracting Rational Numbers	7.NS.A.1, 7.NS.A.1b, 7.NS.A.1c, 7.NA.A.1d	MP1, MP2, MP5, MP6
Lesson 1-6: Distance on a Number Line	7.NS.A.1c	MP2, MP4, MP5, MP6, MP8
Lesson 1-7: Problem Solving	7.NS.A.1, 7.NS.A.1b, 7.NS.A.1c, 7.NS.A.1d, 7.EE.B.3	MP1, MP2, MP4, MP5, MP6
Topic 2: Multiplying and Dividing Rational Numbers		
Lesson 2-1: Multiplying Integers	7.NS.A.2, 7.NS.A.2a, 7.NS.A.2c	MP2, MP3, MP4, MP5, MP7
Lesson 2-2: Multiplying Rational Numbers	7.NS.A.2, 7.NS.A.2a	MP1, MP2, MP3, MP6, MP8
Lesson 2-3: Dividing Integers	7.NS.A.2, 7.NS.A.2b	MP2, MP3, MP4, MP8
Lesson 2-4: Dividing Rational Numbers	7.NS.A.2, 7.NS.A.2b	MP2, MP3, MP6, MP7
Lesson 2-5: Operations with Rational Numbers	7.NS.A.2, 7.NS.A.2c, 7.NS.A.3	MP2, MP4, MP6, MP7
Lesson 2-6: Problem Solving	7.NS.A.3, 7.EE.B.3	MP3, MP4, MP5, MP6, MP7
Topic 3: Decimals and Percents		
Lesson 3-1: Repeating Decimals	7.NS.A.2b, 7.NS.A.2d	MP2, MP3, MP4, MP6
Lesson 3-2: Terminating Decimals	7.NS.A.2b, 7.NS.A.2d	MP2, MP3, MP6, MP8
Lesson 3-3: Percents Greater Than 100	7.NS.A.3	MP2, MP3, MP4, MP6, MP7
Lesson 3-4: Percents Less Than 1	7.NS.A.3	MP2, MP3, MP4, MP6, MP7
Lesson 3-5: Fractions, Decimals, and Percents	7.NS.A.2b, 7.NS.A.2d, 7.NS.A.3	MP1, MP2, MP3, MP4, MP5
Lesson 3-6: Percent Error	7.RP.A.3	MP2, MP3, MP4, MP5, MP7
Lesson 3-7: Problem Solving	7.NS.A.3	MP1, MP3, MP4, MP6, MP8
Topic 4: Rational and Irrational Numbers		
Lesson 4-1: Expressing Rational Numbers with Decimal Expansions	8.NS.A.1	MP1, MP2, MP3, MP4, MP6
Lesson 4-2: Exploring Irrational Numbers	8.NS.A.1, 8.EE.A.2	MP2, MP3, MP5, MP6, MP7
Lesson 4-3: Approximating Irrational Numbers	8.NS.A.2	MP1, MP2, MP3, MP5, MP8
Lesson 4-4: Comparing and Ordering Rational and Irrational Numbers	8.NS.A.2, 8.EE.A.2	MP2, MP3, MP5, MP6, MP7
Lesson 4-5: Problem Solving	8.NS.A.1, 8.NS.A.2, 8.EE.A.2	MP2, MP3, MP4, MP7, MP8

Accelerated Grade 7 Lesson Correlation *continued*

	Standards of Mathematical Content	Standards of Mathematical Practice
Topic 5: Integer Exponents		
Lesson 5-1: Perfect Squares, Square Roots, and Equations of the form $x^2 = p$	8.EE.A.2	MP1, MP2, MP6, MP7, MP8
Lesson 5-2: Perfect Cubes, Cube Roots, and Equations of the form $x^3 = p$	8.EE.A.2	MP2, MP3, MP6, MP7, MP8
Lesson 5-3: Exponents and Multiplication	8.EE.A.1	MP2, MP3, MP6, MP7
Lesson 5-4: Exponents and Division	8.EE.A.1	MP1, MP2, MP3, MP6, MP7
Lesson 5-5: Zero and Negative Exponents	8.EE.A.1	MP3, MP5, MP6, MP8
Lesson 5-6: Comparing Expressions with Exponents	8.EE.A.1	MP2, MP3, MP6, MP7, MP8
Lesson 5-7: Problem Solving	8.EE.A.1	MP2, MP3, MP4, MP6, MP7
Topic 6: Scientific Notation		
Lesson 6-1: Exploring Scientific Notation	8.EE.A.3, 8.EE.A.4	MP1, MP2, MP3, MP5, MP7
Lesson 6-2: Using Scientific Notation to Describe Very Large Quantities	8.EE.A.3	MP1, MP2, MP3, MP4, MP6
Lesson 6-3: Using Scientific Notation to Describe Very Small Quantities	8.EE.A.3	MP2, MP4, MP6, MP7
Lesson 6-4: Operating with Numbers Expressed in Scientific Notation	8.EE.A.3, 8.EE.A.4	MP1, MP4, MP6, MP7, MP8
Lesson 6-5: Problem Solving	8.EE.A.3, 8.EE.A.4	MP1, MP2, MP3, MP4, MP7
Unit II: Proportionality and Linear Relationships		
Topic 7: Ratios and Rates		
Lesson 7-1: Equivalent Ratios	7.RP.A.1	MP1, MP2, MP4, MP6, MP8
Lesson 7-2: Unit Rates	7.RP.A.1	MP1, MP4, MP5, MP8
Lesson 7-3: Ratios With Fractions	7.RP.A.1	MP2, MP6, MP7, MP8
Lesson 7-4: Unit Rates With Fractions	7.RP.A.1	MP1, MP2, MP3, MP4
Lesson 7-5: Problem Solving	7.RP.A.1	MP1, MP2, MP3, MP4, MP7
Topic 8: Proportional Relationships		
Lesson 8-1: Proportional Relationships and Tables	7.RP.A.2, 7.RP.A.2a	MP2, MP4, MP5, MP6, MP7
Lesson 8-2: Proportional Relationships and Graphs	7.RP.A.2a, 7.RP.A.2d	MP2, MP4, MP5, MP6, MP7
Lesson 8-3: Constant of Proportionality	7.RP.A.2, 7.RP.A.2b, 7.RP.A.2d	MP1, MP2, MP4, MP5, MP8
Lesson 8-4: Proportional Relationships and Equations	7.RP.A.2, 7.RP.A.2b, 7.RP.A.2c	MP1, MP2, MP4, MP6
Lesson 8-5: Maps and Scale Drawings	7.G.A.1	MP2, MP3, MP4, MP5, MP7
Lesson 8-6: Problem Solving	7.RP.A.2, 7.RP.A.2a, 7.RP.A.2b, 7.RP.A.2c, 7.RP.A.2d, 7.G.A.1	MP2, MP3, MP4, MP6, MP8

	Standards of Mathematical Content	Standards of Mathematical Practice
Topic 9: Percents		
Lesson 9-1: The Percent Equation	7.RP.A.2, 7.RP.A.2b, 7.RP.A.2c	MP1, MP2, MP3, MP6, MP7
Lesson 9-2: Using the Percent Equation	7.RP.A.2, 7.RP.A.3	MP1, MP3, MP4, MP6, MP7
Lesson 9-3: Simple Interest	7.RP.A.2, 7.RP.A.3	MP4, MP5, MP7, MP8
Lesson 9-4: Compound Interest	7.NS.A.3	MP4, MP5, MP7, MP8
Lesson 9-5: Percent Increase and Decrease	7.RP.A.2, 7.RP.A.3	MP2, MP3, MP4, MP7
Lesson 9-6: Markups and Markdowns	7.RP.A.3	MP1, MP2, MP5, MP7, MP8
Lesson 9-7: Problem Solving	7.RP.A.3	MP1, MP3, MP4, MP6, MP7
Topic 10: Equivalent Expressions		
Lesson 10-1: Expanding Algebraic Expressions	7.EE.A.1, 7.EE.A.2	MP2, MP3, MP4, MP7, MP8
Lesson 10-2: Factoring Algebraic Expressions	7.EE.A.1, 7.EE.A.2	MP2, MP3, MP6, MP7, MP8
Lesson 10-3: Adding Algebraic Expressions	7.EE.A.1, 7.EE.A.2	MP2, MP4, MP6, MP7
Lesson 10-4: Subtracting Algebraic Expressions	7.EE.A.1, 7.EE.A.2	MP1, MP2, MP6, MP7, MP8
Lesson 10-5: Problem Solving	7.EE.A.1, 7.EE.A.2	MP1, MP2, MP4, MP5, MP7
Topic 11: Equations		
Lesson 11-1: Solving Simple Equations	7.EE.B.4, 7.EE.B.4a	MP2, MP5, MP6, MP7, MP8
Lesson 11-2: Writing Two-Step Equations	7.EE.B.4, 7.EE.B.4a	MP1, MP2, MP4, MP6, MP8
Lesson 11-3: Solving Two-Step Equations	7.EE.B.3, 7.EE.B.4, 7.EE.B.4a	MP1, MP3, MP4, MP5, MP8
Lesson 11-4: Solving Equations Using the Distributive Property	7.EE.B.3, 7.EE.B.4, 7.EE.B.4a	MP1, MP2, MP4, MP6, MP7
Lesson 11-5: Problem Solving	7.EE.B.3, 7.EE.B.4, 7.EE.B.4a	MP2, MP4, MP5, MP6, MP7
Topic 12: Linear Equations in One Variable		
Lesson 12-1: Solving Two-Step Equations	8.EE.C.7, 8.EE.C.7b	MP1, MP2, MP4, MP6, MP7
Lesson 12-2: Solving Equations with Variables on Both Sides	8.EE.C.7, 8.EE.C.7b	MP4, MP5, MP6, MP8
Lesson 12-3: Solving Equations Using the Distributive Property	8.EE.C.7b	MP1, MP2, MP3, MP7
Lesson 12-4: Solutions – One, None, or Infinitely Many	8.EE.C.7, 8.EE.C.7a	MP2, MP3, MP6, MP7, MP8
Lesson 12-5: Problem Solving	8.EE.C.7, 8.EE.C.7a	MP1, MP2, MP4, MP6, MP8

Accelerated Grade 7 Lesson Correlation *continued*

	Standards of Mathematical Content	Standards of Mathematical Practice
Topic 13: Inequalities		
Lesson 13-1: Solving Inequalities Using Addition or Subtraction	7.EE.B.4, 7.EE.B.4b	MP1, MP2, MP3, MP4, MP5
Lesson 13-2: Solving Inequalities Using Multiplication or Division	7.EE.B.4, 7.EE.B.4b	MP1, MP2, MP5, MP7, MP8
Lesson 13-3: Solving Two-Step Inequalities	7.EE.B.4, 7.EE.B.4b	MP1, MP3, MP4, MP6, MP7
Lesson 13-4: Solving Multi-Step Inequalities	7.EE.B.4, 7.EE.B.4b	MP1, MP3, MP4, MP6, MP8
Lesson 13-5: Problem Solving	7.EE.B.4, 7.EE.B.4b	MP2, MP3, MP4, MP6, MP8
Topic 14: Proportional Relationships, Lines, and Linear Equations		
Lesson 14-1: Graphing Proportional Relationships	8.EE.B.5	MP2, MP4, MP5, MP6, MP8
Lesson 14-2: Linear Equations: $y = mx$	8.EE.B.5, 8.EE.B.6	MP4, MP5, MP6, MP7, MP8
Lesson 14-3: The Slope of a Line	8.EE.B.5	MP1, MP2, MP3, MP6
Lesson 14-4: Unit Rates and Slope	8.EE.B.5	MP2, MP4, MP5, MP6, MP7
Lesson 14-5: The *y*-intercept of a Line	8.EE.B.6	MP1, MP3, MP5, MP6
Lesson 14-6: Linear Equations: $y = mx + b$	8.EE.B.6	MP1, MP4, MP6, MP7
Lesson 14-7: Problem Solving	8.EE.B.5, 8.EE.B.6	MP2, MP3, MP4, MP6, MP7
Unit III: Introduction to Sampling and Inference		
Topic 15: Sampling		
Lesson 15-1: Populations and Samples	7.SP.A.1	MP3, MP4, MP7, MP8
Lesson 15-2: Estimating a Population	7.RP.A.2b, 7.RP.A.3, 7.EE.B.3, 7.SP.A.1, 7.SP.A.2	MP1, MP3, MP4, MP5, MP7
Lesson 15-3: Convenience Sampling	7.RP.A.2b, 7.RP.A.3, 7.EE.B.3, 7.SP.A.1	MP2, MP4, MP6, MP7, MP8
Lesson 15-4: Systematic Sampling	7.RP.A.2b, 7.RP.A.3, 7.EE.B.3, 7.SP.A.1	MP2, MP3, MP4, MP5, MP7
Lesson 15-5: Simple Random Sampling	7.RP.A.2b, 7.RP.A.3, 7.EE.B.3, 7.SP.A.1, 7.SP.A.2	MP2, MP4, MP5, MP7
Lesson 15-6: Comparing Sampling Methods	7.SP.A.1	MP2, MP3, MP4, MP6, MP7
Lesson 15-7: Problem Solving	7.RP.A.2b, 7.RP.A.3, 7.EE.B.3, 7.SP.A.1, 7.SP.A.2	MP2, MP3, MP6
Topic 16: Comparing Two Populations		
Lesson 16-1: Statistical Measures	7.SP.A.1, 7.SP.B.4	MP2, MP3, MP4, MP6, MP7
Lesson 16-2: Multiple Populations and Inferences	7.SP.A.1, 7.SP.B.3, 7.SP.B.4	MP1, MP3, MP4, MP5, MP6
Lesson 16-3: Using Measures of Center	7.SP.B.4	MP2, MP3, MP4, MP5, MP6
Lesson 16-4: Using Measures of Variability	7.SP.B.4	MP2, MP3, MP4, MP5
Lesson 16-5: Exploring Overlap in Data Sets	7.SP.B.3, 7.SP.B.4	MP2, MP3, MP4, MP6, MP7
Lesson 16-6: Problem Solving	7.SP.B.4	MP1, MP2, MP3, MP4, MP6

	Standards of Mathematical Content	Standards of Mathematical Practice
Topic 17: Probability Concepts		
Lesson 17-1: Likelihood and Probability	7.EE.B.3, 7.SP.C.5, 7.SP.C.6	MP1, MP3, MP4, MP5, MP6
Lesson 17-2: Sample Space	7.SP.C.7	MP1, MP2, MP3, MP5, MP7
Lesson 17-3: Relative Frequency and Experimental Probability	7.EE.B.3, 7.SP.C.6	MP2, MP4, MP5, MP7
Lesson 17-4: Theoretical Probability	7.EE.B.3, 7.EE.B.4, 7.SP.C.7a	MP2, MP3, MP4, MP6, MP7
Lesson 17-5: Probability Models	7.EE.B.3, 7.EE.B.4 7.SP.C.7a, 7.SP.C.7b	MP3, MP4, MP6, MP7
Lesson 17-6: Problem Solving	7.EE.B.3, 7.EE.B.4 7.SP.C.7a, 7.SP.C.7b	MP3, MP4, MP5, MP7, MP8
Topic 18: Compound Events		
Lesson 18-1: Compound Events	7.SP.C.8, 7.SP.C.8b	MP3, MP4, MP5, MP6, MP8
Lesson 18-2: Sample Spaces	7.SP.C.8, 7.SP.C.8b	MP4, MP5, MP6, MP7
Lesson 18-3: Counting Outcomes	7.SP.C.8, 7.SP.C.8a, 7.SP.C.8b	MP2, MP3, MP4, MP5
Lesson 18-4: Finding Theoretical Probabilities	7.EE.B.3, 7.SP.C.6, 7.SP.C.8, 7.SP.C.8a	MP1, MP2, MP3, MP4, MP7
Lesson 18-5: Simulation With Random Numbers	7.SP.C.8, 7.SP.C.8c	MP2, MP4, MP5, MP6
Lesson 18-6: Finding Probabilities by Simulation	7.EE.B.3, 7.SP.C.8	MP2, MP4, MP5, MP6, MP7
Lesson 18-7: Problem Solving	7.RP.A.3, 7.EE.B.3, 7.SP.C.7, 7.SP.C.8	MP1, MP3, MP4, MP7, MP8
Unit IV: Creating, Comparing, and Analyzing Geometric Figures		
Topic 19: Angles		
Lesson 19-1: Measuring Angles	7.EE.B.4, 7.EE.B.4a, 7.G.A.2	MP1, MP3, MP5, MP6, MP7
Lesson 19-2: Adjacent Angles	7.G.A.2, 7.G.B.5	MP1, MP2, MP3, MP6, MP8
Lesson 19-3: Complementary Angles	7.EE.B.4a, 7.G.A.2, 7.G.B.5	MP2, MP3, MP5, MP6, MP7
Lesson 19-4: Supplementary Angles	7.EE.B.4a, 7.G.A.2, 7.G.B.5	MP2, MP3, MP5, MP6, MP7
Lesson 19-5: Vertical Angles	7.EE.B.4a, 7.G.A.2, 7.G.B.5	MP2, MP3, MP4, MP6, MP8
Lesson 19-6: Problem Solving	7.EE.B.4a, 7.G.B.5	MP2, MP3, MP6, MP7, MP8
Topic 20: Circles		
Lesson 20-1: Center, Radius, and Diameter	7.EE.B.4, 7.EE.B.4a, 7.G.A.2, 7.G.B.4	MP1, MP2, MP6, MP7, MP8
Lesson 20-2: Circumference of a Circle	7.EE.B.4, 7.G.A.2, 7.G.B.4	MP3, MP4, MP5, MP6, MP7
Lesson 20-3: Area of a Circle	7.EE.B.3, 7.EE.B.4, 7.G.A.2, 7.G.B.4,	MP2, MP4, MP6, MP7, MP8
Lesson 20-4: Relating Circumference and Area of a Circle	7.EE.B.3, 7.EE.B.4, 7.G.B.4	MP1, MP3, MP6, MP7, MP8
Lesson 20-5: Problem Solving	7.EE.B.3, 7.EE.B.4, 7.G.B.4	MP2, MP3, MP4, MP6, MP7

Accelerated Grade 7 Lesson Correlation *continued*

	Standards of Mathematical Content	Standards of Mathematical Practice
Topic 21: 2- and 3-Dimensional Shapes		
Lesson 21-1: Geometry Drawing Tools	7.G.A.2	MP1, MP3, MP5, MP6, MP7
Lesson 21-2: Drawing Triangles with Given Conditions 1	7.G.A.2	MP1, MP3, MP5, MP6, MP7
Lesson 21-3: Drawing Triangles with Given Conditions 2	7.G.A.2	MP2, MP3, MP5, MP6, MP7
Lesson 21-4: 2-D Slices of Rectangular Prisms	7.G.A.3	MP3, MP5, MP6, MP7, MP8
Lesson 21-5: 2-D Slices of Right Rectangular Pyramids	7.G.A.3	MP2, MP3, MP5, MP6, MP7
Lesson 21-6: Problem Solving	7.EE.B.4, 7.G.A.2, 7.G.A.3, 7.G.B.6	MP2, MP3, MP4, MP5, MP7
Topic 22: Surface Area and Volume		
Lesson 22-1: Surface Areas of Right Prisms	7.NS.A.3, 7.EE.B.3, 7.EE.B.4, 7.G.B.6	MP2, MP4, MP5, MP6, MP7
Lesson 22-2: Volumes of Right Prisms	7.NS.A.3, 7.EE.B.3, 7.EE.B.4, 7.G.B.6	MP2, MP3, MP4, MP7, MP8
Lesson 22-3: Surface Areas of Right Pyramids	7.NS.A.3, 7.EE.B.3, 7.EE.B.4, 7.G.B.6	MP2, MP3, MP4, MP5, MP7
Lesson 22-4: Volumes of Right Pyramids	7.NS.A.3, 7.EE.B.3, 7.EE.B.4, 7.G.B.6	MP2, MP4, MP5, MP6, MP8
Lesson 22-5: Problem Solving	7.NS.A.3, 7.EE.B.3, 7.EE.B.4, 7.G.B.6	MP1, MP2, MP4, MP6, MP7
Topic 23: Congruence		
Lesson 23-1: Translations	8.G.A.1, 8.G.A.1a, 8.G.A.1b, 8.G.A.1c, 8.G.A.3	MP2, MP4, MP5, MP6, MP7
Lesson 23-2: Reflections	8.G.A.1, 8.G.A.1a, 8.G.A.1b, 8.G.A.1c, 8.G.A.3	MP2, MP3, MP5, MP6, MP7
Lesson 23-3: Rotations	8.G.A.1, 8.G.A.1a, 8.G.A.1b, 8.G.A.1c, 8.G.A.3	MP2, MP3, MP4, MP5, MP7
Lesson 23-4: Congruent Figures	8.G.A.2	MP1, MP3, MP5, MP6, MP8
Lesson 23-5: Problem Solving	8.G.A.2	MP1, MP2, MP3, MP5, MP7
Topic 24: Similarity		
Lesson 24-1: Dilations	8.G.A.1, 8.G.A.1a, 8.G.A.1b, 8.G.A.1c, 8.G.A.3	MP1, MP2, MP5, MP6, MP7
Lesson 24-2: Similar Figures	8.G.A.3, 8.G.A.4	MP2, MP3, MP5, MP6, MP7
Lesson 24-3: Relating Similar Triangles and Slope	8.EE.B.6, 8.G.A.3, 8.G.A.4	MP1, MP3, MP5, MP7, MP8
Lesson 24-4: Problem Solving	8.G.A.3, 8.G.A.4	MP4, MP5, MP6, MP7, MP8

	Standards of Mathematical Content	Standards of Mathematical Practice
Topic 25: Reasoning in Geometry		
Lesson 25-1: Angles, Lines, and Transversals	8.G.A.5	MP2, MP3, MP4, MP6, MP7
Lesson 25-2: Reasoning and Parallel Lines	8.G.A.5	MP1, MP3, MP6, MP8
Lesson 25-3: Interior Angles of Triangles	8.G.A.5	MP2, MP3, MP5, MP6
Lesson 25-4: Exterior Angles of Triangles	8.G.A.5	MP2, MP5, MP6, MP7, MP8
Lesson 25-5: Angle-Angle Triangle Similarity	8.G.A.3, 8.G.A.4, 8.G.A.5	MP1, MP2, MP3, MP5, MP6
Lesson 25-6: Problem Solving	8.G.A.5	MP2, MP3, MP5, MP6, MP7
Topic 26: Surface Area and Volume		
Lesson 26-1: Surface Areas of Cylinders	8.G.C.9	MP2, MP5, MP6, MP7
Lesson 26-2: Volumes of Cylinders	8.EE.A.2, 8.G.C.9	MP2, MP3, MP5, MP6, MP7
Lesson 26-3: Surface Areas of Cones	8.G.C.9	MP4, MP5, MP6, MP7
Lesson 26-4: Volumes of Cones	8.EE.A.2, 8.G.C.9	MP1, MP3, MP5, MP6
Lesson 26-5: Surface Areas of Spheres	8.EE.A.2, 8.G.C.9	MP2, MP4, MP6, MP7, MP8
Lesson 26-6: Volumes of Spheres	8.EE.A.2, 8.G.C.9	MP3, MP4, MP6, MP7
Lesson 26-7: Problem Solving	8.EE.A.2, 8.G.B.7, 8.G.C.9	MP1, MP2, MP6, MP8

Intervention Scope and Sequence

Intervention Lessons	Prerequisite for Units	CCSSM	MP
Cluster 1: Place Value			
Lesson 1: Place Value	6A, 7E	4.NBT.A.1, 4.NBT.A.2	MP2, MP4, MP6, MP7
Lesson 2: Comparing and Ordering Whole Numbers	6A, 6F	4.NBT.A.2	MP4, MP5, MP6
Cluster 2: Multiplication Number Sense			
Lesson 1: Addition and Multiplication Properties	6A, 7C	3.OA.B.5	MP2, MP6, MP7, MP8
Lesson 2: Distributive Property	6A, 7C	3.OA.B.5, 3.MD.C.7	MP4, MP6, MP7, MP8
Lesson 3: Multiplying by Multiples of 10, 100, and 1,000	6A	5.NBT.A.2	MP2, MP7, MP8
Lesson 4: Using Mental Math to Multiply	6B, 6D	3.OA.B.5	MP1, MP3, MP6, MP8
Lesson 5: Estimating Products	6A	4.OA.A.3	MP2, MP5, MP7
Cluster 3: Multiplying Whole Numbers			
Lesson 1: Multiplying by 1-Digit Numbers: Expanded	6A	4.NBT.A.3, 4.NBT.B.5	MP2, MP4, MP7, MP8
Lesson 2: Multiplying by 1-Digit Numbers	6A, 6B, 6E	4.NBT.B.5	MP2, MP4, MP5, MP7
Lesson 3: Using Patterns to Multiply and Estimate	6C, 6E	4.OA.A.3, 5.NBT.A.2	MP2, MP4, MP7, MP8
Lesson 4: Multiplying by 2-Digit Numbers: Expanded	6C, 6E	4.NBT.B.5, 5.NBT.B.5	MP2, MP4, MP5, MP8
Lesson 5: Multiplying by 2-Digit Numbers	6C, 6E	4.NBT.B.5, 5.NBT.B.5	MP1, MP2, MP7, MP8
Cluster 4: Dividing by 1-Digit Numbers			
Lesson 1: Dividing Multiples of 10 and 100	6A, 6D, 6F	4.NBT.B.6, 4.OA.A.3	MP2, MP5, MP6, MP8
Lesson 2: Estimating Quotients with 1-Digit Divisors	6A	4.OA.A.3	MP4, MP6, MP7, MP8
Lesson 3: Dividing: 1-Digit Divisors, 2-Digit Dividends	6A, 6D, 6F, 7E	4.NBT.B.6	MP2, MP5, MP7
Lesson 4: Dividing: 1-Digit Divisors, 3-Digit Dividends	6A, 6D, 6F	4.NBT.B.6	MP2, MP4, MP5, MP8
Lesson 5: Dividing: 1-Digit Divisors, 4-Digit Dividends	6F	4.NBT.B.6	MP2, MP6, MP7
Lesson 6: Divisibility Rules	6A, 6B, 7F	4.OA.B.4	MP2, MP3, MP4, MP8
Cluster 5: Dividing by 2-Digit Numbers			
Lesson 1: Using Patterns to Divide	6C, 6F	5.NBT.B.6	MP2, MP4, MP7, MP8
Lesson 2: Estimating Quotients with 2-Digit Divisors	6F	5.NBT.B.6, 4.OA.A.3	MP4, MP5, MP7, MP8
Lesson 3: Dividing: 2-Digit Divisors, 1-Digit Quotients	6C, 6F, 7E	5.NBT.B.6	MP2, MP4, MP5
Lesson 4: Dividing: 2-Digit Divisors, 2-Digit Quotients	6C, 6F, 7E	5.NBT.B.6	MP2, MP5, MP6, MP7
Cluster 6: Decimal Number Sense			
Lesson 1: Understanding Decimals	6C, 6D, 6F	4.NF.C.6, 5.NBT.A.1, 5.NBT.A.3	MP4, MP5, MP6
Lesson 2: Comparing and Ordering Decimals	6C, 6F, 7E	4.NF.C.7, 5.NBT.A.3	MP2, MP6
Lesson 3: Rounding Decimals	6C, 6D	5.NBT.A.4	MP2, MP4, MP7, MP8

Intervention Lessons	Prerequisite for Units	CCSSM	MP
Cluster 7: Adding and Subtracting Decimals			
Lesson 1: Estimating Sums and Differences of Decimals	6C, 6F	5.NBT.B.7	MP2, MP4, MP7, MP8
Lesson 2: Adding and Subtracting Decimals	6C, 6F	5.NBT.B.7	MP2, MP4, MP6
Cluster 8: Multiplying and Dividing Decimals			
Lesson 1: Patterns in Multiplying and Dividing Decimals	7A, 8F	5.NBT.A.2	MP5, MP6, MP8
Lesson 2: Multiplying Decimals	6D, 6E, 7B, 7D, 7E, 7F, 8E, 8F	5.NBT.B.7	MP4, MP6, MP7
Lesson 3: Dividing Decimals by Whole Numbers	6C, 6D, 6F, 7B, 7E, 8F	5.NBT.B.7	MP4, MP5, MP6, MP8
Lesson 4: Estimating Decimal Products and Quotients	6D	5.NBT.B.7, 7.EE.B.3	MP2, MP4, MP7
Lesson 5: Dividing Decimals	7A, 7E, 8F	5.NBT.B.7, 6.NS.B.3	MP5, MP6, MP7
Cluster 9: Fraction Number Sense			
Lesson 1: Equivalent Fractions	6B, 6D, 7A, 7F, 8F	4.NF.A.1	MP2, MP6, MP7, MP8
Lesson 2: Fractions in Simplest Form	6B, 6D, 7A, 7F	4.NF.A.1	MP1, MP2, MP6, MP7
Lesson 3: Comparing and Ordering Fractions	6C, 7E, 7F, 8A	4.NF.A.2	MP2, MP4, MP5, MP6
Lesson 4: Fractions and Division	6B, 7B	5.NF.B.3	MP2, MP4, MP8
Lesson 5: Fractions and Decimals	6C, 6D, 7F, 8F	4.NF.C.6	MP4, MP5, MP6, MP7
Cluster 10: Adding and Subtracting Fractions			
Lesson 1: Adding Fractions with Like Denominators	7B	4.NF.B.3	MP2, MP5, MP6, MP7
Lesson 2: Subtracting Fractions with Like Denominators	7B	4.NF.B.3	MP4, MP6, MP7, MP8
Lesson 3: Adding Fractions with Unlike Denominators	7B	5.NF.A.1, 5.NF.A.2	MP4, MP6, MP7, MP8
Lesson 4: Subtracting with Unlike Denominators	7B	5.NF.A.1, 5.NF.A.2	MP2, MP4, MP5, MP7
Cluster 11: Multiplying and Dividing Fractions			
Lesson 1: Multiplying a Whole Number and a Fraction	6B, 6E, 7F	4.NF.B.4, 5.NF.B.4, 5.NF.B.6	MP2, MP6, MP8
Lesson 2: Multiplying Fractions	6B, 6E, 7A	5.NF.B.4, 5.NF.B.6	MP2, MP4, MP5, MP7
Lesson 3: Dividing a Unit Fraction by a Whole Number	7B	5.NF.B.7, 6.NS.A.1	MP4, MP7, MP8
Lesson 4: Dividing a Whole Number by a Unit Fraction	7B	5.NF.B.7, 6.NS.A.1	MP2, MP5, MP6, MP7
Lesson 5: Dividing Fractions	7B	6.NS.A.1	MP1, MP6, MP8
Cluster 12: Mixed Numbers			
Lesson 1: Mixed Numbers and Improper Fractions	6B, 6E, 7B	4.NF.B.4, 5.NF.B.6	MP2, MP6, MP7
Lesson 2: Adding Mixed Numbers	7B	4.NF.B.3, 5.NF.A.1	MP4, MP6, MP7, MP8
Lesson 3: Subtracting Mixed Numbers	7	4.NF.B.3, 5.NF.A.1	MP5, MP7, MP8
Lesson 4: Multiplying Mixed Numbers	6B, 6E	5.NF.B.6	MP2, MP3, MP6, MP7
Lesson 5: Dividing Mixed Numbers	8B	6.NS.A.1, 7.NS.A.3	MP2, MP4, MP6, MP8

Intervention Scope and Sequence *continued*

Intervention Lessons	Prerequisite for Units	CCSSM	MP
Cluster 13: Ratios			
Lesson 1: Ratios	7A, 7F, 8D, 8F	6.RP.A.1	MP2, MP4, MP6, MP8
Lesson 2: Equivalent Ratios	7A, 8D, 8F	6.RP.A.3	MP2, MP5, MP7
Cluster 14: Rates and Measurements			
Lesson 1: Unit Rates	7A, 8C, 8D	6.RP.A.2, 6.RP.A.3b	MP6, MP7, MP8
Lesson 2: Converting Customary Measurements	7A	6.RP.A.3	MP2, MP4, MP6, MP7
Lesson 3: Converting Metric Measurements	7A	6.RP.A.3	MP4, MP5, MP7, MP8
Cluster 15: Proportional Relationships			
Lesson 1: Graphing Ratios	7A, 8C, 8D, 8	6.RP.A.3	MP2, MP5, MP6, MP7
Lesson 2: Recognizing Proportional Relationships	8C, 8E	7.RP.A.2	MP3, MP6
Lesson 3: Constant of Proportionality	8E	7.RP.A.2	MP2, MP4, MP7, MP8
Cluster 16: Number Sense with Percents			
Lesson 1: Understanding Percent	7A, 7E, 7F, 8F	6.RP.A.3c	MP1, MP2, MP4, MP5
Lesson 2: Estimating Percent	7E, 7F	6.RP.A.3c	MP2, MP4, MP7
Cluster 17: Computations with Percents			
Lesson 1: Finding a Percent of a Number	7A, 7E, 7F, 8F	6.RP.A.3	MP1, MP4, MP5, MP6
Lesson 2: Finding a Percent	7E, 8	6.RP.A.3	MP1, MP2, MP6, MP7
Lesson 3: Finding the Whole Given a Percent	7E	6.RP.A.3	MP1, MP4, MP8
Lesson 4: Sales Tax, Tips, and Simple Interest	8C	7.RP.A.3	MP2, MP6
Lesson 5: Markdowns	8C	7.RP.A.3	MP6, MP7, MP8
Cluster 18: Exponents			
Lesson 1: Exponents	7C, 7D, 8B, 8E	6.EE.A.1, 5.NBT.A.2	MP4, MP5, MP6, MP7
Lesson 2: Multiplying Decimals by Powers of Ten	8B	5.NBT.A.2	MP4, MP6, MP7, MP8
Cluster 19: Geometry			
Lesson 1: Classifying Triangles	6E, 7D	4.G.A.2, 5.G.B.3, 5.G.B.4	MP2, MP3, MP6, MP7
Lesson 2: Classifying Quadrilaterals	6E, 7D	4.G.A.2, 5.G.B.3, 5.G.B.4	MP5, MP7, MP8
Cluster 20: Measuring 2- and 3-Dimensional Objects			
Lesson 1: Perimeter	6E	4.MD.A.3	MP4, MP5, MP7, MP8
Lesson 2: Area of Rectangles and Squares	6E, 7D, 8E	4.MD.A.3	MP2, MP5, MP6, MP7
Lesson 3: Area of Parallelograms and Triangles	7D, 8E	6.G.A.1	MP2, MP7, MP8
Lesson 4: Nets and Surface Area	7D, 8E	6.G.A.3	MP4, MP5, MP6, MP7
Lesson 5: Volume of Prisms	6E, 7D, 8E	5.MD.C.3, 5.MD.C.4, 5.MD.C.5	MP4, MP6, MP7

Intervention Lessons	Prerequisite for Units	CCSSM	MP
Cluster 21: Integers			
Lesson 1: Understanding Integers	7B, 8A, 8D	6.NS.C.5, 6.NS.C.6, 6.NS.C.7	MP4, MP5, MP6, MP7
Lesson 2: Comparing and Ordering Integers	8A	6.NS.C.7	MP2, MP5, MP6, MP7
Lesson 3: Adding Integers	8B	7.NS.A.1	MP2, MP4, MP5, MP7
Lesson 4: Subtracting Integers	8B	7.NS.A.1	MP2, MP4, MP5, MP6
Lesson 5: Multiplying Integers	8B	7.NS.A.2	MP1, MP2, MP6, MP8
Lesson 6: Dividing Integers	8B	7.NS.A.2	MP1, MP2, MP7
Cluster 22: Graphing and Rational Numbers			
Lesson 1: Graphing in the First Quadrant	6D, 7A, 8D, 8E, 8F	5.G.A.1, 5.G.A.2	MP5, MP6, MP7
Lesson 2: Graphing in the Coordinate Plane	8C, 8D, 8E, 8F	6.NS.C.6	MP5, MP6, MP7, MP8
Lesson 3: Distance When There's a Common Coordinate	8E	6.G.A.3	MP2, MP6, MP7, MP8
Lesson 4: Rational Numbers on the Number Line	8A	6.NS.C.6	MP4, MP5, MP6, MP8
Lesson 5: Comparing and Ordering Rational Numbers	8A	6.NS.C.7	MP1, MP2, MP5, MP6
Cluster 23: Numerical and Algebraic Expressions			
Lesson 1: Order of Operations	7C, 7D, 8D, 8E	5.OA.A.1, 6.EE.A.2c	MP2, MP6, MP7
Lesson 2: Variables and Expressions	7C, 8D	6.EE.A.2, 6.EE.B.6	MP4, MP5, MP6, MP7
Lesson 3: Patterns and Expressions	8D, 8F	6.EE.A.2, 6.EE.B.6	MP5, MP7, MP8
Lesson 4: Evaluating Expressions: Whole Numbers	7D, 8D, 8E	6.EE.A.2	MP2, MP6, MP7, MP8
Cluster 24: More Algebraic Expressions			
Lesson 1: Evaluating Expressions: Rational Numbers	8D, 8E	6.EE.A.2	MP2, MP6, MP7, MP8
Lesson 2: Equivalent Expressions	7C, 8B, 8C	6.EE.A.3, 6.EE.A.4	MP2, MP5, MP6, MP7
Lesson 3: Simplifying Expressions	7C, 8B, 8C	6.EE.A.3	MP2, MP6, MP7
Cluster 25: Equations			
Lesson 1: Writing Equations	7C, 8D	6.EE.B.7	MP1, MP2, MP4, MP7
Lesson 2: Principles of Solving Equations	7C, 7D, 8B, 8C	6.EE.B.5	MP6, MP7, MP8
Lesson 3: Solving Addition and Subtraction Equations	7C, 7D, 8B, 8C	6.EE.B.7	MP1, MP2, MP5, MP6
Lesson 4: Solving Multiplication and Division Equations	7C, 8C	6.EE.B.7	MP5, MP6, MP7, MP8
Lesson 5: Solving Rational-Number Equations, Part 1	8B, 8C	6.EE.B.7	MP2, MP4, MP6, MP7
Lesson 6: Solving Rational-Number Equations, Part 2	8B, 8C	6.EE.B.7	MP2, MP4, MP6, MP7
Lesson 7: Solving Two-Step Equations	8C	7.EE.B.4	MP2, MP4, MP5, MP6

Correlation of Readiness Assessments and Intervention Lessons

Three questions in each Readiness Assessment correlate to an Intervention Lesson. If a student submits an incorrect answer for two of the three questions, that Intervention Lesson is assigned in the student's Study Plan.

	CCSS Standard	Readiness Assessment Question Number	Assigned Intervention Lesson
	Grade 6		
6A	**3.OA.B.5, 2.NBT.B.6**	1, 8, 11	2-1
6A	**4.NBT.A.1, 4.NBT.A.2**	2, 6, 7	1-1
6A	**3.OA.B.5, 3.MD.C.7**	3, 12, 13	2-2
6A	**4.NBT.A.2**	4, 5, 9	1-2
6A	**4.OA.A.3**	10, 14, 16	2-5
6A	**4.NBT.B.5**	15, 18, 19	3-2
6A	**4.OA.A.3**	17, 20, 22	4-2
6A	**4.NBT.B.6**	21, 23, 25	4-3
6A	**4.NBT.B.6**	24, 26, 29	4-4
6A	**4.OA.B.4**	27, 28, 30	4-6
6B	**4.NBT.B.5**	1, 5, 6	3-2
6B	**3.OA.B.5**	2, 4, 7	2-4
6B	**4.OA.B.4**	3, 8, 10	4-6
6B	**4.NF.A.1**	9, 11, 13	9-1
6B	**4.NF.A.1**	12, 14, 16	9-2
6B	**5.NF.B.3**	15, 17, 19	9-4
6B	**4.NF.B.4, 5.NF.B.4, 5.NF.B.6**	18, 20, 23	11-1
6B	**5.NF.B.4, 5.NF.B.6**	21, 24, 27	11-2
6B	**4.NF.B.4, 5.NF.B.6**	22, 26, 29	12-1
6B	**5.NF.B.6**	25, 28, 30	12-4
6C	**4.NBT.B.5, 5.NBT.B.5**	1, 4, 10	3-4
6C	**5.NBT.B.6**	2, 5, 7	5-4
6C	**4.NBT.B.5, 5.NBT.B.5**	3, 6, 8	3-5
6C	**4.NF.C.6, 5.NBT.A.1, 5.NBT.A.3**	9, 11, 14	6-1
6C	**4.NF.C.7, 5.NBT.A.3**	12, 13, 16	6-2
6C	**5.NBT.B.7**	15, 17, 21	7-1
6C	**4.NF.C.6**	18, 20, 28	9-5
6C	**5.NBT.B.7**	19, 24, 29	7-2
6C	**5.NBT.B.7**	22, 25, 30	8-3
6C	**4.NF.A.2**	23, 26, 27	9-3
6D	**5.NBT.B.7**	1, 9, 21	8-2
6D	**4.NF.A.1**	2, 10, 30	9-1
6D	**4.NF.C.6, 5.NBT.A.1, 5.NBT.A.3**	3, 15, 19	6-1
6D	**5.G.A.1, 5.G.A.2**	4, 13, 23	22-1
6D	**4.NF.C.6**	5, 12, 26	9-5
6D	**4.NBT.B.6**	6, 11, 27	4-4
6D	**4.NF.A.1**	7, 17, 28	9-2
6D	**3.OA.B.5**	8, 16, 24	2-4
6D	**5.NBT.B.7, 7.EE.B.3**	14, 20, 22	8-4
6D	**5.NBT.B.7**	18, 25, 29	8-3

CCSS Standard	Readiness Assessment Question Number	Assigned Intervention Lesson
6E		
4.NBT.B.5	1, 2, 3	3-2
4.NBT.B.5, 5.NBT.B.5	4, 5, 6	3-5
5.NBT.B.7	7, 29, 30	8-2
5.NF.B.4, 5.NF.B.6	8, 9, 10	11-2
5.NF.B.6	11, 12, 13	12-4
4.G.A.2, 5.G.B.3, 5.G.B.4	14, 15, 16	19-1
4.G.A.2, 5.G.B.3, 5.G.B.4	17, 18, 19	19-2
4.MD.A.3	20, 21, 22	20-1
4.MD.A.3	23, 24, 25	20-2
5.MD.C.3, 5.MD.C.4, 5.MD.C.5	26, 27, 28	20-5
6F		
4.NBT.A.2	1, 2, 3	1-2
4.NBT.B.6	4, 5, 6	4-4
4.NBT.B.6	7, 8, 9	4-5
5.NBT.B.6	10, 11, 12	5-3
5.NBT.B.6	13, 14, 15	5-4
4.NF.C.6, 5.NBT.A.1, 5.NBT.A.3	16, 17, 18	6-1
4.NF.C.7, 5.NBT.A.3	19, 20, 21	6-2
5.NBT.B.7	22, 23, 24	7-1
5.NBT.B.7	25, 26, 27	7-2
5.NBT.B.7	28, 29, 30	8-3

Grade 7		
7A		
5.NF.B.4, 5.NF.B.6	1, 5, 7	11-2
6.RP.A.1	2, 4, 8	13-1
6.RP.A.3	3, 9, 11	13-2
6.RP.A.2, 6.RP.A.3b	6, 10, 13	14-1
6.RP.A.3	12, 14, 16	14-2
6.RP.A.3	15, 17, 19	14-3
6.RP.A.3	18, 20, 22	15-1
6.RP.A.3c	21, 25, 30	16-1
5.NBT.B.7, 6.NS.B.3	23, 27, 29	8-5
6.RP.A.3	24, 26, 28	17-1
7B		
5.NBT.B.7	1, 4, 7	8-2
5.NBT.B.7	2, 5, 8	8-3
5.NF.B.3	3, 6, 10	9-4
5.NF.A.1, 5.NF.A.2	9, 11, 13	10-3
5.NF.A.1, 5.NF.A.2	12, 14, 16	10-4
6.NS.A.1	15, 17, 18	11-5
4.NF.B.4, 5.NF.B.6	19, 22, 30	12-1
4.NF.B.3, 5.NF.A.1	20, 23, 26	12-2
4.NF.B.3, 5.NF.A.1	21, 24, 28	12-3
6.NS.C.5, 6.NS.C.6, 6.NS.C.7	25, 27, 29	21-1

Correlation of Readiness Assessments and Intervention Lessons

continued

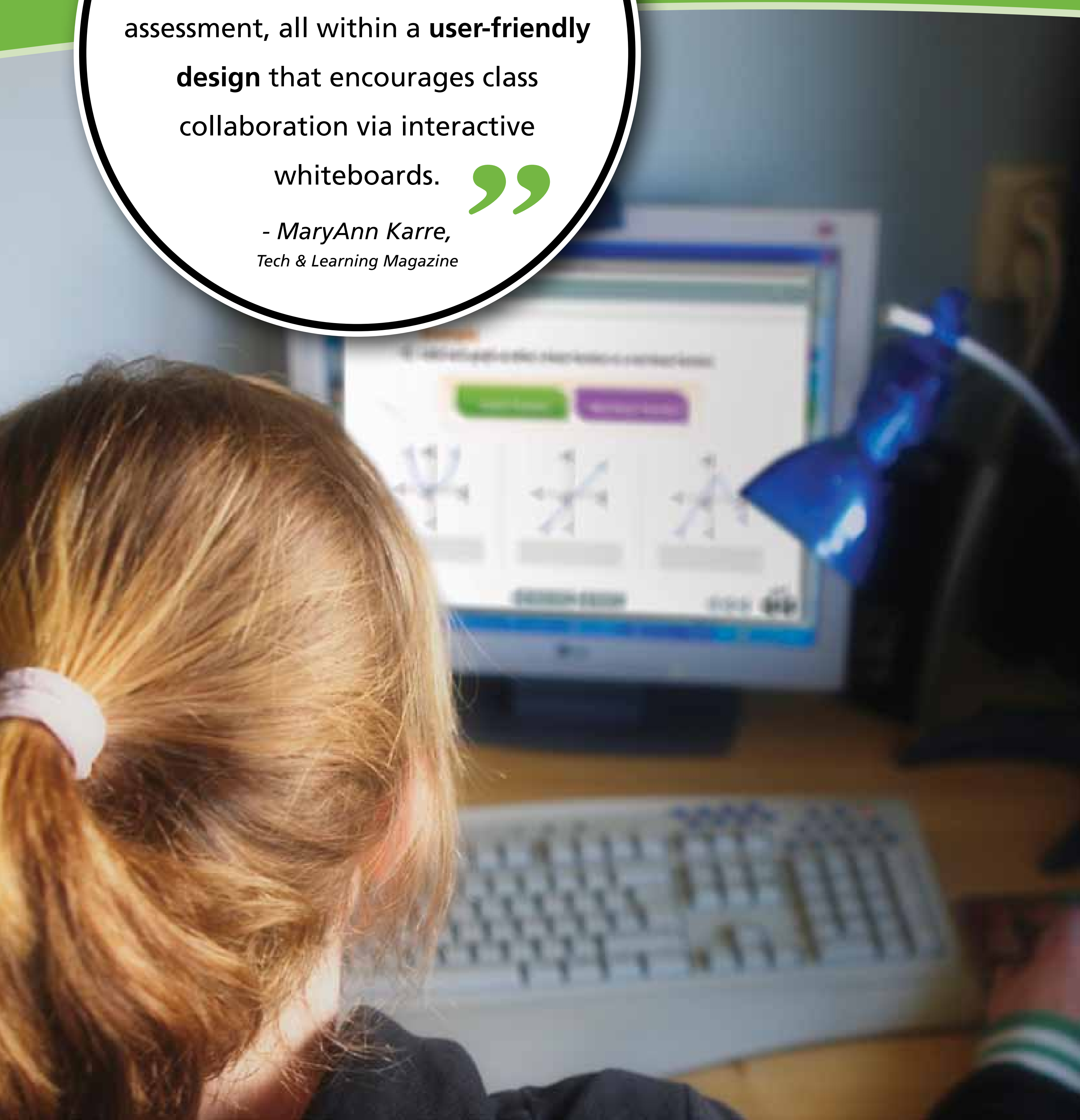
	CCSS Standard	Readiness Assessment Question Number	Assigned Intervention Lesson
7C	**3.OA.B.5**	1, 12, 14	2-1
	3.OA.B.5, 3.MD.C.7	2, 4, 9	2-2
	5.OA.A.1, 6.EE.A.2c	3, 5, 7	23-1
	6.EE.A.2, 6.EE.B.6	6, 8, 10	23-2
	6.EE.A.3, 6.EE.A.4	11, 13, 16	24-2
	6.EE.A.3	15, 17, 19	24-3
	6.EE.B.7	18, 20, 22	25-1
	6.EE.B.5	21, 23, 25	25-2
	6.EE.B.7	24, 26, 28	25-3
	6.EE.B.7	27, 29, 30	25-4
7D	**5.NBT.B.7**	1, 2, 3	8-2
	4.G.A.2, 5.G.B.3, 5.G.B.4	4, 5, 6	19-1
	4.G.A.2, 5.G.B.3, 5.G.B.4	7, 8, 9	19-2
	4.MD.A.3	10, 11, 12	20-2
	6.G.A.1	13, 14, 15	20-3
	6.G.A.3	16, 17, 18	20-4
	5.MD.C.3, 5.MD.C.4, 5.MD.C.5	19, 20, 21	20-5
	6.EE.A.2	22, 23, 24	23-4
	6.EE.B.5	25, 26, 27	25-2
	6.EE.B.7	28, 29, 30	25-3
7E	**4.NBT.A.2**	1, 2, 3	1-2
	5.NBT.B.6	4, 5, 6	5-4
	4.NF.C.7, 5.NBT.A.3	7, 8, 9	6-2
	5.NBT.B.7	10, 11, 12	8-3
	4.NF.A.2	13, 14, 15	9-3
	6.RP.A.3c	16, 17, 18	16-2
	6.RP.A.3	19, 20, 21	17-1
	6.RP.A.3	22, 23, 24	17-2
	6.RP.A.3c	25, 26, 27	16-1
	6.RP.A.3	28, 29, 30	17-3
7F	**5.NBT.B.7**	1, 29, 30	8-2
	4.NF.A.1	2, 3, 4	9-1
	4.NF.A.1	5, 6, 7	9-2
	4.NF.A.2	8, 9, 10	9-3
	4.NF.C.6	11, 12, 13	9-5
	4.NF.B.4, 5.NF.B.4, 5.NF.B.6	14, 15, 16	11-1
	6.RP.A.1	17, 18, 19	13-1
	6.RP.A.3c	20, 21, 22	16-1
	6.RP.A.3c	23, 24, 25	16-2
	6.RP.A.3	26, 27, 28	17-1

	Grade 8		
8A	**4.NF.A.2**	1, 2, 3	9-3
	6.NS.B.5, 6.NS.B.6, 6.NS.B.7	4, 5, 7	21-1
	6.NS.B.7	6, 8, 9	21-2
	6.NS.B.6	10, 11, 15	22-4
	6.NS.B.7	12, 13, 14	22-5

	CCSS Standard	Readiness Assessment Question Number	Assigned Intervention Lesson
8B	6.NS.A.1, 7.NS.A.3	1, 2, 3	12-5
	6.EE.A.1, 5.NBT.A.2	4, 5, 6	18-1
	5.NBT.A.2	7, 8, 9	18-2
	7.NS.A.1	10, 11, 12	21-3
	7.NS.A.1	13, 14, 15	21-4
	7.NS.A.2	16, 17, 18	21-5
	6.EE.A.3	19, 20, 21	24-3
	6.EE.B.5	22, 23, 24	25-2
	6.EE.B.7	25, 26, 27	25-5
	6.EE.B.7	28, 29, 30	25-6
8C	6.RP.A.2, 6.RP.A.3b	1, 6, 12	14-1
	6.RP.A.3	2, 4, 8	15-1
	7.RP.A.2	3, 5, 7	15-2
	7.RP.A.3	9, 10, 13	17-4
	7.EE.B.4	11, 14, 16	22-2
	6.EE.A.3	15, 17, 19	24-3
	6.EE.B.5	18, 20, 22	25-2
	6.EE.B.7	21, 23, 25	25-5
	6.EE.B.7	24, 26, 28	25-6
	7.EE.B.4	27, 29, 30	25-7
8D	6.RP.A.3	1, 6, 11	13-2
	6.RP.A.2, 6.RP.A.3b	2, 4, 12	14-1
	6.RP.A.3	3, 5, 7	15-1
	5.G.A.1, 5.G.A.2	8, 10, 13	22-1
	6.NS.C.6	9, 14, 16	22-2
	6.EE.A.2, 6.EE.B.6	15, 17, 18	23-2
	6.EE.A.2, 6.EE.B.6	19, 21, 30	23-3
	6.EE.A.2	20, 22, 24	23-4
	6.EE.A.2	23, 25, 27	24-1
	6.EE.B.7	26, 28, 29	25-1
8E	5.NBT.B.7	1, 2, 3	8-2
	7.RP.A.2	4, 5, 6	15-2
	7.RP.A.2	7, 8, 9	15-3
	6.EE.A.1, 5.NBT.A.2	10, 11, 12	18-1
	6.G.A.4	13, 14, 15	20-4
	5.MD.C.3, 5.MD.C.4, 5.MD.C.5	16, 17, 18	20-5
	6.NS.C.6	19, 20, 21	22-2
	6.G.A.3	22, 23, 24	22-3
	6.EE.A.2	25, 26, 27	23-4
	6.EE.A.2	28, 29, 30	24-1
8F	4.NF.C.6	1, 2, 3	9-5
	6.RP.A.1	4, 5, 6	13-1
	6.RP.A.3	7, 8, 9	13-2
	6.RP.A.3	10, 11, 12	15-1
	6.RP.A.3c	13, 14, 15	16-1
	6.RP.A.3	16, 17, 18	17-1
	6.RP.A.3	19, 20, 21	17-2
	5.G.A.1, 5.G.A.2	22, 23, 24	22-1
	6.NS.C.6	25, 26, 27	22-2
	6.EE.A.2, 6.EE.B.6	28, 29, 30	23-3

[***digits***] integrates lesson planning, homework management, intervention, and assessment, all within a **user-friendly design** that encourages class collaboration via interactive whiteboards.

- MaryAnn Karre,
Tech & Learning Magazine



Instructional Framework

interACTIVE Learning

Supported with Understanding by Design principles, all on-level lessons facilitate interACTIVE Instruction. Students engage with the mathematics through exploration, learn concepts explicitly to formalize the knowledge, and connect newly acquired knowledge to prior knowledge. Multimedia elements provide engaging visual, audio, and kinesthetic support to reach all learners.

Differentiation and individualized intervention is integrated in ***digits*** through the interACTIVE Learning Cycle™. All instruction focuses on helping students achieve success with on-level content the first time they see it. Unlike other intervention systems, the ***digits*** system is preventative. Instead of providing remediation after students fail on-level content, intervention in ***digits*** provides support for necessary prerequisites in advance. By addressing weaknesses up front, students are better prepared to succeed with on-level work. Additionally, unit-based Readiness Assessments enable targeted intervention determined by up-to-date performance data so that students receive exactly the support they need. All differentiation and intervention in ***digits*** is coherent with and supportive of core on-level instruction.

interACTIVE Instruction

Elements of Understanding by Design®

Every on-level lesson has a Focus Question that directs students towards deeper mathematical understanding. The Focus Question helps students think about how various math concepts are interconnected and how they are relevant to students' lives. **Hosts** introduce the Focus Question and appear throughout the lesson to give students additional information about why the specific mathematical concept is important as well as make explicit mathematical relationships.

Each on-level lesson has three parts: Launch, Examples, and Close and Check. The Launch introduces the Focus Question and incorporates problem-based interactive learning to encourage connections to prior knowledge; the Close and Check provides students with an opportunity to answer the Focus Question, complete more practice problems, and record their mathematical thinking. Both parts of the lesson are supported with companion pages for students to record their reasoning and work.

digits Hosts

Fostering Understanding

Monograph by Grant Wiggins

It should seem obvious that the point of instruction in mathematics is **understanding** as reflected in effective problem-solving. Alas, too often mathematics instruction is focused on topic coverage and "plug and chug" work rather than genuine student connections and transfer of learning. Students too often spend valuable instructional time completing computational exercises with a goal of procedural fluency and sparse attention on developing deeper conceptual understanding or strategic competence that would help them become effective and efficient problem-solvers.

The recently released Common Core State Standards for Mathematics (CCSSM) have articulated the goal of **deep mathematical understanding**. This goal is made clear in at least two ways: the focus of understanding is stressed in the Introduction; and curriculum, instruction, and assessment are expected to mesh the Standards for Mathematical Practice with the Standards for Mathematical Content. "Those content standards, which set an expectation of understanding are potential "points of intersection" between the Standards for Mathematical Content and the Standards for Mathematical Practice." (CCSSM, 2010, p. 8)

The Understanding by Design® principles are built on this purpose, and thus can provide a useful strategy and set of tools for honoring the spirit and letter of the Common Core State Standards for Mathematics. What's the key? The authors of the CCSSM astutely clarify the aim by focusing on the **assessment** implications (just as we demand in Understanding by Design®):

> ***Asking a student to understand something means asking a teacher to assess whether the student has understood it. . . One hallmark of mathematical understanding is the ability to justify, in a way appropriate to the student's mathematical maturity, why a particular mathematical statement is true or where a mathematical rule comes from. (CCSSM, 2010, p. 4)***

A steady dose of only simple lessons and questions results in students who "rely on procedures too heavily." With only inflexible recall of skill at their disposal, students are "less likely to consider analogous problems, represent problems coherently, justify conclusions, apply the mathematics to practical situations, use technology mindfully to work with the mathematics, explain the mathematics accurately to other students, step back for an overview, or deviate from a known procedure to find a shortcut." (CCSSM, 2010, p. 8)

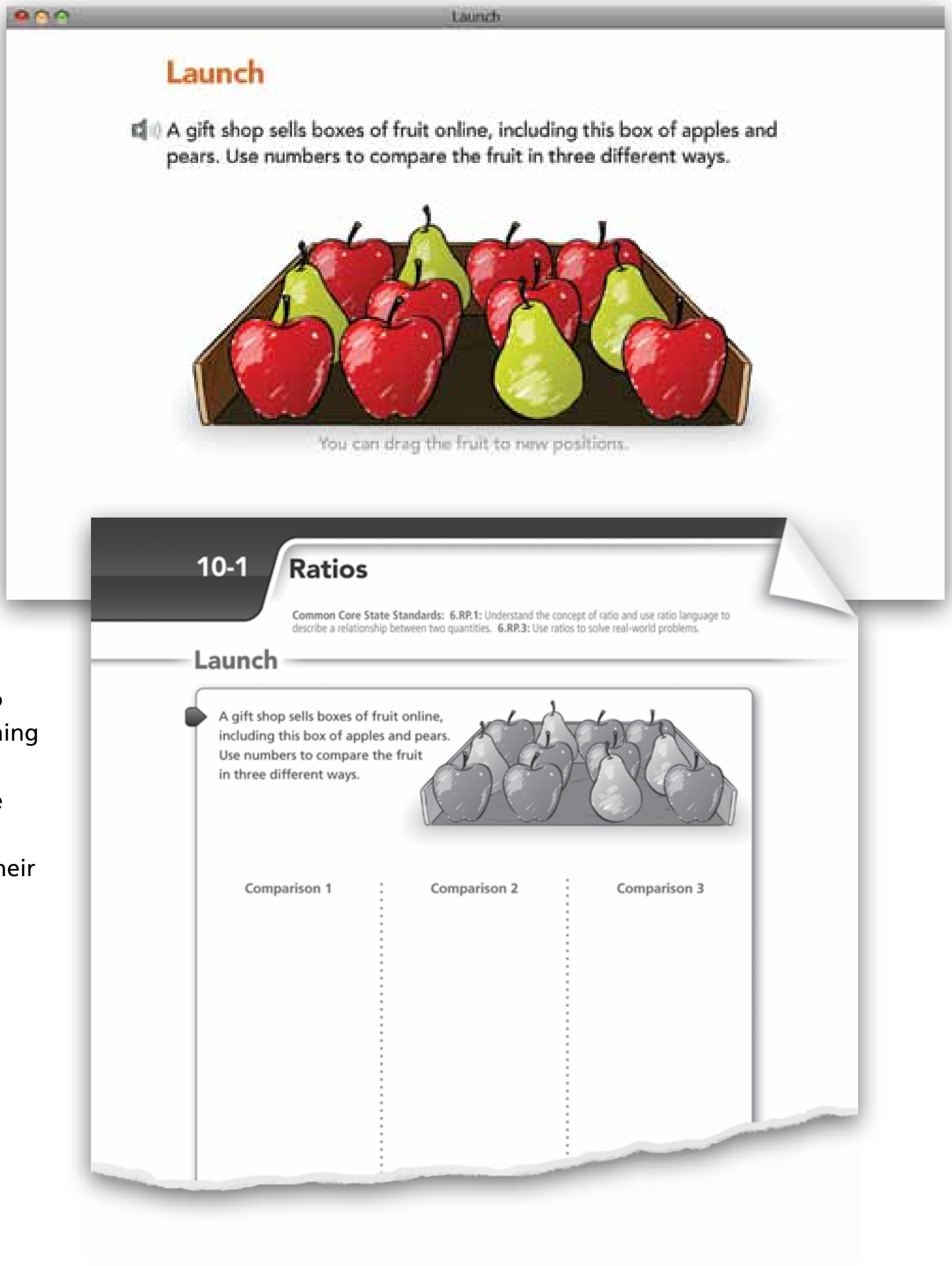
Know-how is necessary but insufficient. Real understanding and problem-solving requires knowing why. Only then can you adapt prior learning—transfer your learning—to future problems. Students who understand can apply their learning flexibly and creatively; they are good at using content, not just recalling math facts.

Pearson's ***digits*** focuses on helping students develop **deep conceptual understanding** of the mathematics they encounter and **strong problem-solving and reasoning abilities**, with the goal of ensuring that students understand and are able to do mathematics. When students are grounded in conceptual understanding, problem-solving, and reasoning, students can achieve true mathematical proficiency.

Launch

In ***digits***, students engage with mathematical content at the start of class through Problem-Based Interactive Learning. Students work on a real-world problem that enables them to make use of and build on prior knowledge in order to construct new knowledge.

The **Launch** is supported with a **Companion page** and content for the interactive whiteboard or projector screen. Teachers can invite students to the interactive whiteboard to share their solutions and strategies, including using the interactive whiteboard tools or manipulating objects on the screen.



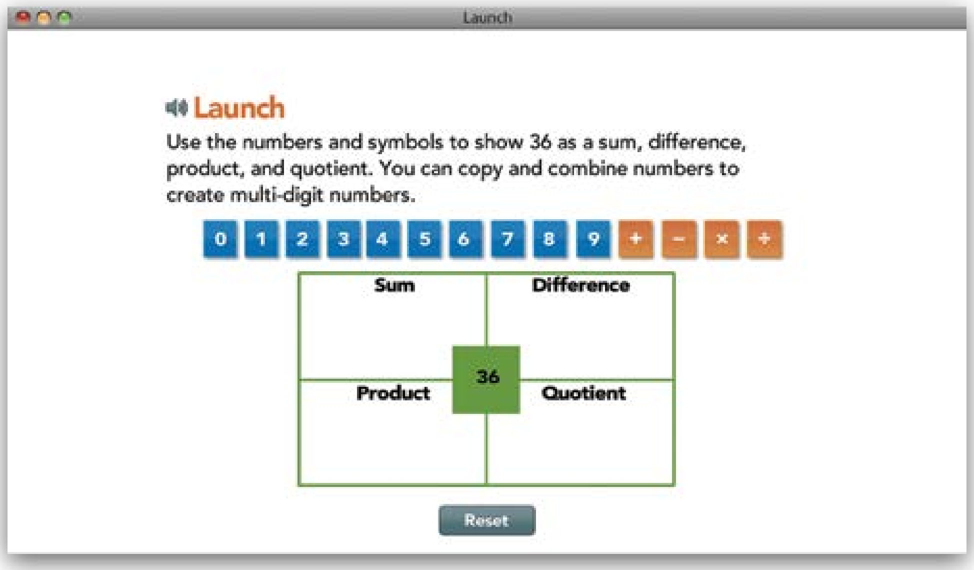
Each **Companion Page** provides work space to capture student reasoning and a Reflect question that either extends the problem or asks the student to reflect on their method of solving.

The **Launch** problem is designed to:

- engage students immediately in math
- draw out prior knowledge
- and introduce the lesson concept.

Teachers can use the Launch as a "warm-up" that students complete independently or have the class work on it together using strategies that are most comfortable to the students. Launch problems are designed to enable student-oriented mathematical exploration and discourse for deeper conceptual understanding, both of which are proven to enhance understanding.

After students complete the Launch problem, they are asked the **Focus Question** which they are to consider as they move through each Example. The Focus Question is introduced by a host. The hosts are real, young, successful students who middle-graders can look up to. This allows young learners to engage with the math on a new, relatable level. The hosts guide students through the lesson by providing context and reasons for why learning the concept is important, and they do this sincerely and authentically, in their own words.

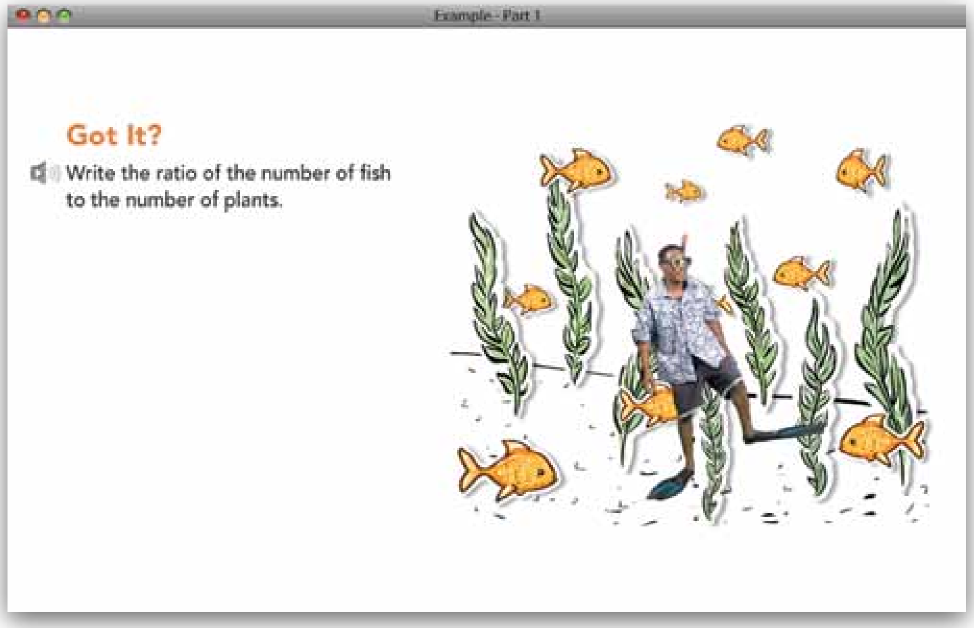


Examples

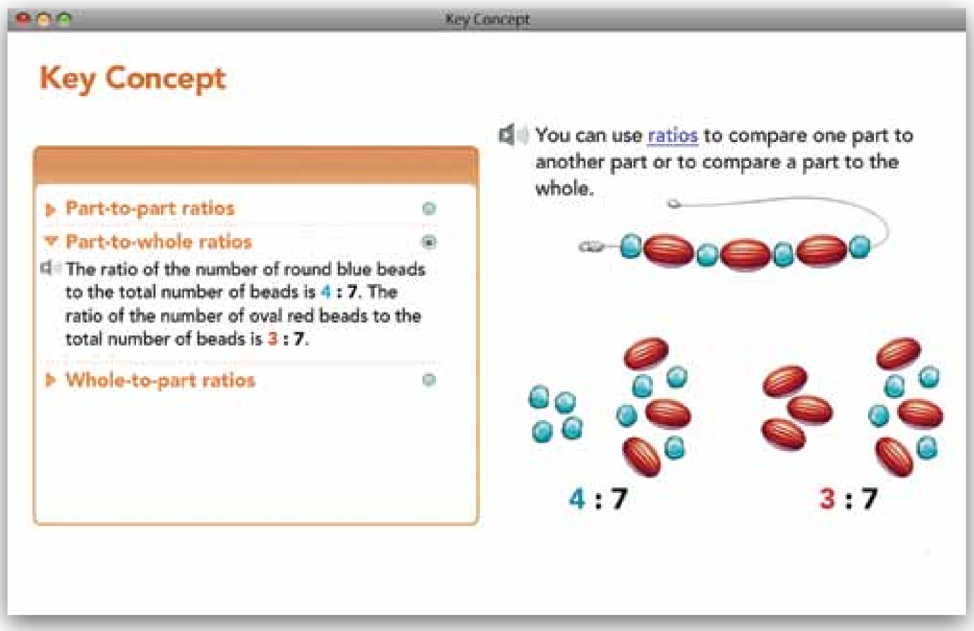
The examples in ***digits*** provide direct, explicit instruction of the lesson's concept. The examples build on one another in difficulty and conceptual development to ensure understanding.

Various **animations** are built in to support comprehension and engagement. Visual elements such as color-coding, pulsing, and movement draw students' attention to the important details of the concept. Teachers can have students complete the Examples collaboratively or independently.

Each Example concludes with a "**Got It?**" The "Got It?" feature is instructional assessment that teachers can use to determine whether or not the class understood the Example. Teachers can administer the "Got It?" in a variety of ways. On entry, the screen is designed with whitespace so that teachers can model a solution or invite students to the board. If the class has student response devices (clickers), the teacher can display multiple choice options. The Student Companion includes the "Got It?" and provides the student space to work out the answer.



The **Key Concept** summarizes the content of the lesson to support understanding.

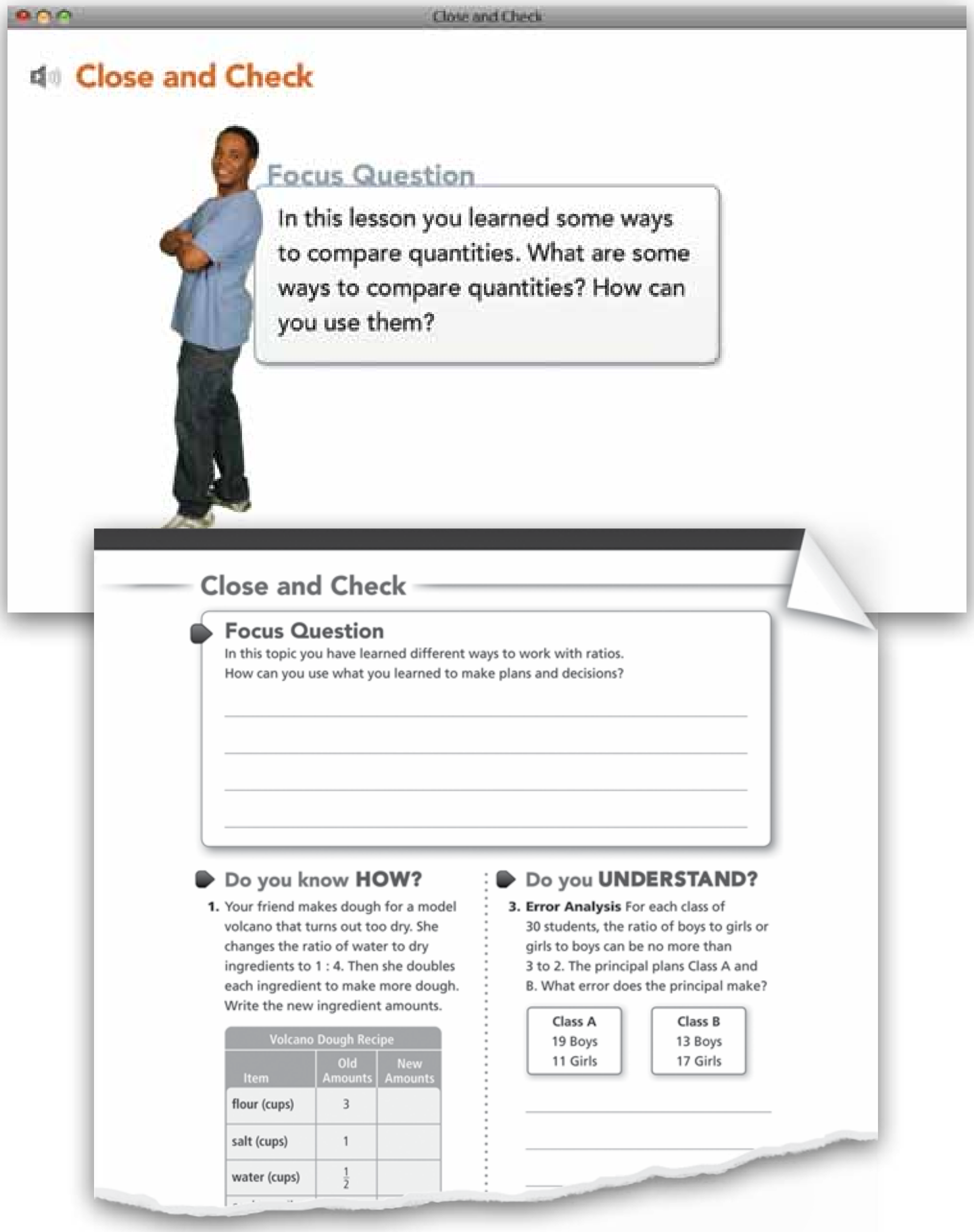


Close and Check

The Close and Check brings students back to the **Focus Question**, which they now answer in their write-in student companion. The Focus Question is designed to enable students to think about the Launch problem and Examples coherently. Additionally, students complete **practice problems** that are similar to the Examples and answer higher-order questions that require interpretation and analysis.

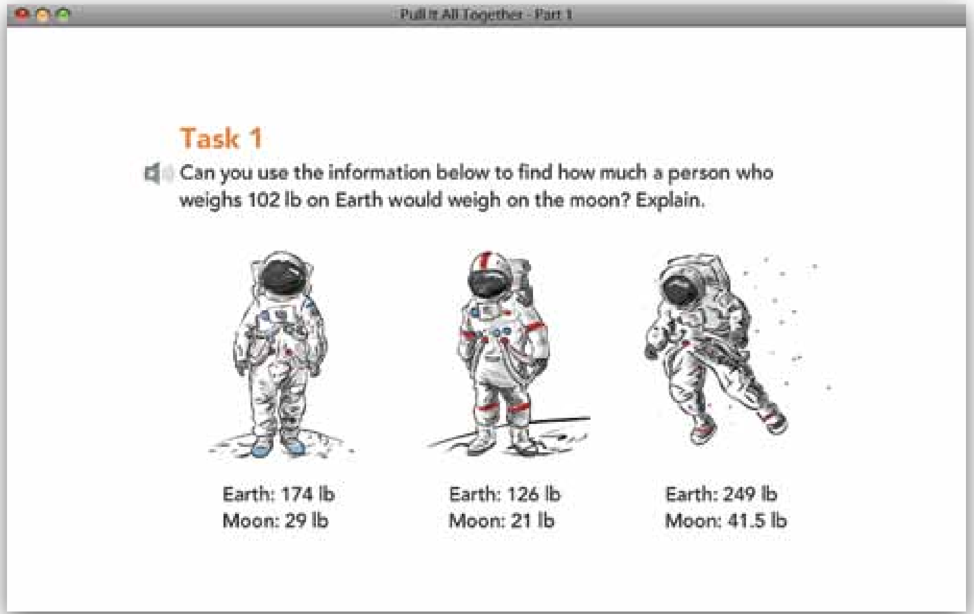
The accompanying **Companion Page** includes "Do You Know How?," which are additional problems similar to the Examples and "Do You Understand?" for higher order thinking.

Thus, the Student Companion becomes a student-created reference resource for when students are completing problems outside of class.

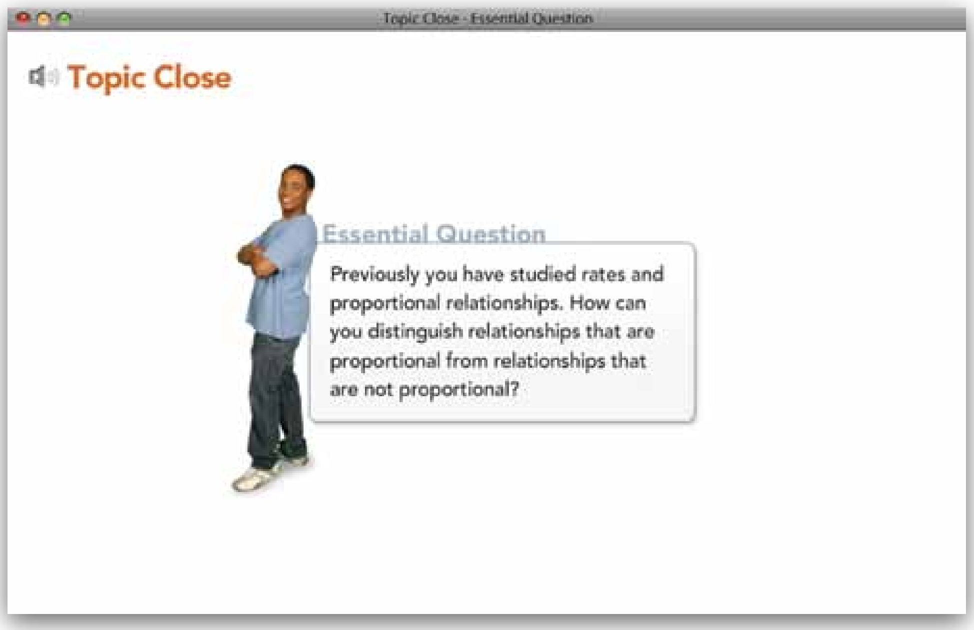


Topic Review

In the Topic Review, students work on **Pull It All Together**, a rich performance task that provides an authentic problem-solving experience.

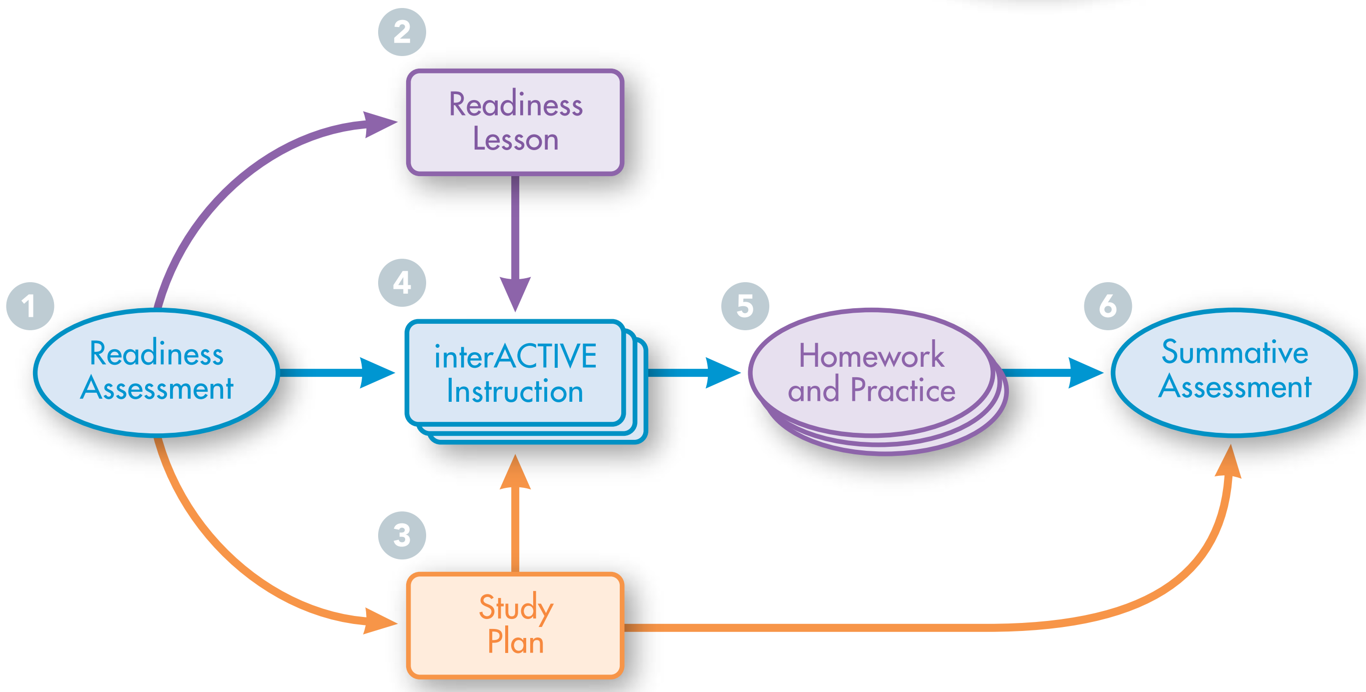


At the end of each Topic, students revisit the **Essential Question** for the Topic. This activity is a summary point in Understanding by Design principles—students answer the larger questions of when, how, and why to use the skills and concepts they have learned in the Topic.



interACTIVE Learning Cycle

The interACTIVE Learning Cycle integrates ***core instruction, differentiation,*** and ***intervention*** to support individual students in achieving grade-level standards.



- **Blue** - whole class
- **Purple** - differentiated
- **Orange** - individualized

1 Readiness Assessment

The Readiness Assessment screens every student on their understanding of the pre-requisite content of the unit.

2 Readiness Lesson

The Readiness Lesson incorporates small group work driven by the data of the Readiness Assessment. Students who are deficient in the pre-requisites are provided with additional instruction while other students work on extending their understanding.

3 Personalized Study Plans

Personalized Study Plans are generated from the results of the Readiness Assessment. Each student receives a study plan with additional instruction and practice tailored to their specific areas of deficiency.

4 interACTIVE Instruction

Core on-level instruction is interactive with visual learning supports and multimedia to engage students. Formative assessment is integrated to inform pacing and other instruction decisions during class.

5 Differentiated Homework/Practice

On-level instruction is supported with homework and practice differentiated according to the results of the Readiness Assessment.

6 Summative Assessment

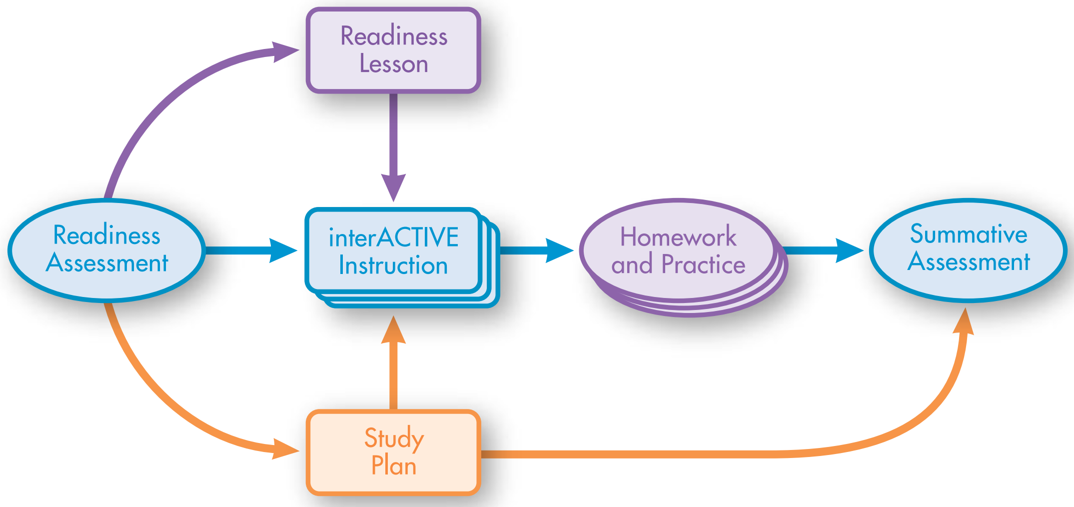
Summative Assessments at the end of a topic and at the end of a unit provide on-going progress monitoring of students' comprehension of instruction.

Enrichment Projects

Teachers can elect to assign enrichment projects to students who demonstrate no or little deficiencies in prerequisites. Topic projects and Unit projects are available, all of which focus on higher-order thinking.

Response to Intervention

digits applies both prevention and remediation in its unique approach to intervention. By addressing prerequisite deficiencies prior to grade-level content instruction, students are more likely to be successful with new material the first time around. Ongoing progress monitoring synchronized with adaptive intervention instruction serves students precisely at point of need and clarifies misconceptions and areas of confusion before they accumulate.



- **Blue** - whole class
- **Purple** - differentiated
- **Orange** - individualized

Tier 1: Core Instruction

Recommendation	in *digits*
Universal screener assesses students and identifies areas of weakness	Readiness Assessments for each unit screen students regularly
Universal design principles address the needs of specialized populations while benefiting all	• Visual and kinesthetic learning engage students • Explicit cognitive guidance for solving problems, structured problems, and prompts aid comprehension
Ongoing progress monitoring gauges students' response to instruction	• Topic and Unit Assessments monitor student progress on content acquisition • Benchmark Assessments monitor student progress against grade-level expectations

Tier 2: Prevention

Recommendation	in *digits*
Prerequisite deficiencies are identified and addressed within the classroom routine prior to new content instruction	Readiness Lessons provide pre-requisite instruction for students with deficiencies and extension for students without deficiencies
Prevention activities are not disruptive to the target children and nonintrusive to classmates	• Small group activities support Team-Assisted Instruction • Differentiated practice and homework with student triggered learning aids meet cognitive needs appropriately

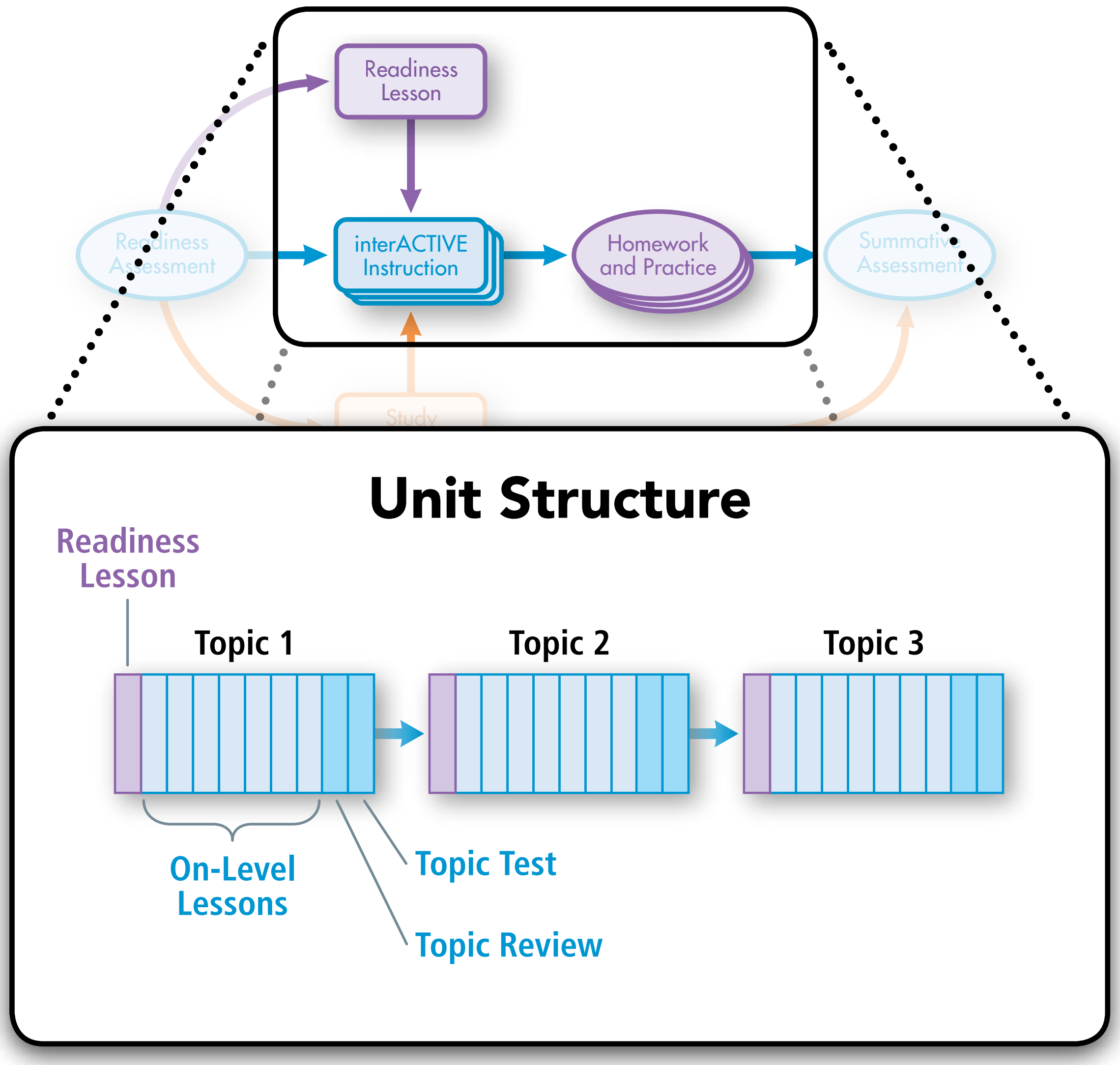
Tier 3: Strategic Intervention

Recommendation	in *digits*
Strategic intervention enables success with grade-level content	Data-driven individualized Study Plans provide intensive instruction for specific areas of weakness as it relates to grade-level content
Strategic intervention is individualized or provided in small groups	Digital lessons support independent study, one-on-one tutoring, or small group instruction

Program Structure

The interACTIVE Learning Cycle provides a simplified view of the program's instructional pathway with data-driven branching for differentiation and personalization at the unit level.

Units in ***digits*** are subdivided into topics. Each topic includes a Readiness Lesson, approximately six to ten on-level lessons, a Topic Review, and a Topic Test. Topic resources represented in the interACTIVE Learning Cycle are circled and expanded below.



Grade 6
Traditional Scheduling Pacing Guide

This Pacing Guide is a suggested pacing to help you plan your course. The total of 154 days allows for spending additional time on particular lessons, for completing enrichment activities, or for special events that vary from school to school.

UNIT A

Topic 1: Variables and Expressions

DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7	DAY 8	DAY 9	DAY 10
Readiness Assessment for Unit A	Readiness Lesson for Topic 1	Numerical Expressions	Algebraic Expressions	Writing Algebraic Expressions	Evaluating Algebraic Expressions	Expressions With Exponents	Problem Solving	Topic Review	Topic Assessment

Topic 2: Equivalent Expressions

DAY 11	DAY 12	DAY 13	DAY 14	DAY 15	DAY 16	DAY 17	DAY 18	DAY 19	DAY 20
Readiness Lesson for Topic 2	The Identity and Zero Properties	The Commutative Properties	The Associative Properties	Greatest Common Factor	The Distributive Property	Least Common Multiple	Problem Solving	Topic Review	Topic Assessment

Topic 3: Equations and Inequalities

DAY 21	DAY 22	DAY 23	DAY 24	DAY 25	DAY 26	DAY 27	DAY 28	DAY 29	DAY 30
Readiness Lesson for Topic 3	Expressions to Equations	Balancing Equations	Solving Addition and Subtraction Equations	Solving Multiplication and Division Equations	Equations to Inequalities	Solving Inequalities	Problem Solving	Topic Review	Topic Assessment

Topic 4: Two-Variable Relationships

DAY 31	DAY 32	DAY 33	DAY 34	DAY 35	DAY 36	DAY 37	DAY 38	DAY 39
Readiness Lesson for Topic 4	Using Two Variables to Represent a Relationship	Analyzing Patterns Using Tables and Graphs	Relating Tables and Graphs to Equations	Problem Solving	Topic Review	Topic Assessment	Readiness Assessment for Unit B	Unit Assessment for Unit A

UNIT B

Topic 5

DAY 40
Readiness Lesson for Topic 5

Topic 5: Multiplying Fractions

DAY 41	DAY 42	DAY 43	DAY 44	DAY 45	DAY 46	DAY 47
Multiplying Fractions and Whole Numbers	Multiplying Two Fractions	Multiplying Fractions and Mixed Numbers	Multiplying Mixed Numbers	Problem Solving	Topic Review	Topic Assessment

Topic 6: Dividing Fractions

DAY 48	DAY 49	DAY 50
Readiness Lesson for Topic 6	Dividing Fractions and Whole Numbers	Dividing Unit Fractions by Unit Fractions

Grade 6 Traditional Scheduling Pacing Guide *continued*

UNIT C — **Topic 7: Fluency with Decimals** (begins Day 58)

DAY 51	DAY 52	DAY 53	DAY 54	DAY 55	DAY 56	DAY 57	DAY 58	DAY 59	DAY 60
Dividing Fractions by Fractions	Dividing Mixed Numbers	Problem Solving	**Topic Review**	**Topic Assessment**	**Readiness Assessment for Unit C**	**Unit Assessment for Unit B**	**Readiness Lesson for Topic 7**	Adding and Subtracting Decimals	Multiplying Decimals

Topic 8: Integers (begins Day 68)

DAY 61	DAY 62	DAY 63	DAY 64	DAY 65	DAY 66	DAY 67	DAY 68	DAY 69	DAY 70
Dividing Multi-Digit Numbers	Dividing Decimals	Decimals and Fractions	Comparing and Ordering Decimals and Fractions	Problem Solving	**Topic Review**	**Topic Assessment**	**Readiness Lesson for Topic 8**	Integers and the Number Line	Comparing and Ordering Integers

Topic 9: Rational Numbers (begins Day 77)

DAY 71	DAY 72	DAY 73	DAY 74	DAY 75	DAY 76	DAY 77	DAY 78	DAY 79	DAY 80
Absolute Value	Integers and the Coordinate Plane	Distance	Problem Solving	**Topic Review**	**Topic Assessment**	**Readiness Lesson for Topic 9**	Rational Numbers and the Number Line	Comparing Rational Numbers	Ordering Rational Numbers

UNIT D — **Topic 10: Ratios** (begins Day 88)

DAY 81	DAY 82	DAY 83	DAY 84	DAY 85	DAY 86	DAY 87	DAY 88	DAY 89	DAY 90
Rational Numbers and the Coordinate Plane	Polygons in the Coordinate Plane	Problem Solving	**Topic Review**	**Topic Assessment**	**Readiness Assessment for Unit D**	**Unit Assessment for Unit C**	**Readiness Lesson for Topic 10**	Ratios	Exploring Equivalent Ratios

Topic 11: Rates (begins Day 97)

DAY 91	DAY 92	DAY 93	DAY 94	DAY 95	DAY 96	DAY 97	DAY 98	DAY 99	DAY 100
Equivalent Ratios	Ratios as Fractions	Ratios as Decimals	Problem Solving	**Topic Review**	**Topic Assessment**	**Readiness Lesson for Topic 11**	Unit Rates	Unit Prices	Constant Speed

Topic 12: Ratio Reasoning (begins Day 106)

DAY 101	DAY 102	DAY 103	DAY 104	DAY 105	DAY 106	DAY 107	DAY 108	DAY 109	DAY 110
Measurement and Ratios	Choosing the Appropriate Rate	Problem Solving	**Topic Review**	**Topic Assessment**	**Readiness Lesson for Topic 12**	Plotting Ratios and Rates	Recognizing Proportionality	Introducing Percents	Using Percents

UNIT E

DAY 111	DAY 112	DAY 113	DAY 114	DAY 115	DAY 116	DAY 117	DAY 118	DAY 119	DAY 120
					Topic 13: Area				
Problem Solving	**Topic Review**	**Topic Assessment**	**Readiness Assessment for Unit E**	**Unit Assessment for Unit D**	**Readiness Lesson for Topic 13**	Rectangles and Squares	Right Triangles	Parallelograms	Other Triangles

DAY 121	DAY 122	DAY 123	DAY 124	DAY 125	DAY 126	DAY 127	DAY 128	DAY 129	DAY 130
				Topic 14: Surface Area and Volume					
Polygons	Problem Solving	**Topic Review**	**Topic Assessment**	**Readiness Lesson for Topic 14**	Analyzing Three-Dimensional Figures	Nets	Surface Areas of Prisms	Surface Areas of Pyramids	Volumes of Rectangular Prisms

UNIT F

DAY 131	DAY 132	DAY 133	DAY 134	DAY 135	DAY 136	DAY 137	DAY 138	DAY 139	DAY 140
					Topic 15: Data Displays				
Problem Solving	**Topic Review**	**Topic Assessment**	**Readiness Assessment for Unit F**	**Unit Assessment for Unit E**	**Readiness Lesson for Topic 15**	Statistical Questions	Dot Plots	Histograms	Box Plots

DAY 141	DAY 142	DAY 143	DAY 144	DAY 145	DAY 146	DAY 147	DAY 148	DAY 149	DAY 150
				Topic 16: Measures of Center and Variation					
Choosing an Appropriate Display	Problem Solving	**Topic Review**	**Topic Assessment**	**Readiness Lesson for Topic 16**	Median	Mean	Variability	Interquartile Range	Mean Absolute Deviation

DAY 151	DAY 152	DAY 153	DAY 154
Problem Solving	**Topic Review**	**Topic Assessment**	**Unit Assessment for Unit F**

Grade 7
Traditional Scheduling Pacing Guide

This Pacing Guide is a suggested pacing to help you plan your course. The total of 164 days allows for spending additional time on particular lessons, for completing enrichment activities, or for special events that vary from school to school.

UNIT A

Topic 1: Ratios and Rates									Topic 2
DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7	DAY 8	DAY 9	DAY 10
Readiness Assessment for Unit A	Readiness Lesson for Topic 1	Equivalent Ratios	Unit Rates	Ratios With Fractions	Unit Rates With Fractions	Problem Solving	Topic Review	Topic Assessment	Readiness Lesson for Topic 2

Topic 2: Proportional Relationships								Topic 3: Percents	
DAY 11	DAY 12	DAY 13	DAY 14	DAY 15	DAY 16	DAY 17	DAY 18	DAY 19	DAY 20
Proportional Relationships and Tables	Proportional Relationships and Graphs	Constant of Proportionality	Proportional Relationships and Equations	Maps and Scale Drawings	Problem Solving	Topic Review	Topic Assessment	Readiness Lesson for Topic 3	The Percent Equation

DAY 21	DAY 22	DAY 23	DAY 24	DAY 25	DAY 26	DAY 27	DAY 28	DAY 29	DAY 30
Using the Percent Equation	Simple Interest	Compound Interest	Percent Increase and Decrease	Markups and Markdowns	Problem Solving	Topic Review	Topic Assessment	Readiness Assessment for Unit B	Unit Assessment for Unit A

UNIT B

Topic 4: Adding and Subtracting Rational Numbers									
DAY 31	DAY 32	DAY 33	DAY 34	DAY 35	DAY 36	DAY 37	DAY 38	DAY 39	DAY 40
Readiness Lesson for Topic 4	Rational Numbers, Opposites, and Absolute Value	Adding Integers	Adding Rational Numbers	Subtracting Integers	Subtracting Rational Numbers	Distance on a Number Line	Problem Solving	Topic Review	Topic Assessment

Topic 5: Multiplying and Dividing Rational Numbers									Topic 6
DAY 41	DAY 42	DAY 43	DAY 44	DAY 45	DAY 46	DAY 47	DAY 48	DAY 49	DAY 50
Readiness Lesson for Topic 5	Multiplying Integers	Multiplying Rational Numbers	Dividing Integers	Dividing Rational Numbers	Operations with Rational Numbers	Problem Solving	Topic Review	Topic Assessment	Readiness Lesson for Topic 6

Topic 6: Decimals and Percents

DAY 51	DAY 52	DAY 53	DAY 54	DAY 55	DAY 56	DAY 57	DAY 58	DAY 59	DAY 60
Repeating Decimals	Terminating Decimals	Percents Greater Than 100	Percents Less Than 1	Fractions, Decimals, and Percents	Percent Error	Problem Solving	**Topic Review**	**Topic Assessment**	**Readiness Assessment for Unit C**

UNIT C

Topic 7: Equivalent Expressions / Topic 8

DAY 61	DAY 62	DAY 63	DAY 64	DAY 65	DAY 66	DAY 67	DAY 68	DAY 69	DAY 70
Unit Assessment for Unit B	**Readiness Lesson for Topic 7**	Expanding Algebraic Expressions	Factoring Algebraic Expressions	Adding Algebraic Expressions	Subtracting Algebraic Expressions	Problem Solving	**Topic Review**	**Topic Assessment**	**Readiness Lesson for Topic 8**

Topic 8: Equations / Topic 9: Inequalities

DAY 71	DAY 72	DAY 73	DAY 74	DAY 75	DAY 76	DAY 77	DAY 78	DAY 79	DAY 80
Solving Simple Equations	Writing Two-Step Equations	Solving Two-Step Equations	Solving Equations Using the Distributive Property	Problem Solving	**Topic Review**	**Topic Assessment**	**Readiness Lesson for Topic 9**	Solving Inequalities Using Addition or Subtraction	Solving Inequalities Using Multiplication or Division

UNIT D

Topic 10: Angles

DAY 81	DAY 82	DAY 83	DAY 84	DAY 85	DAY 86	DAY 87	DAY 88	DAY 89	DAY 90
Solving Two-Step Inequalities	Solving Multi-Step Inequalities	Problem Solving	**Topic Review**	**Topic Assessment**	**Readiness Assessment for Unit D**	**Unit Assessment for Unit C**	**Readiness Lesson for Topic 10**	Measuring Angles	Adjacent Angles

Topic 11: Circles

DAY 91	DAY 92	DAY 93	DAY 94	DAY 95	DAY 96	DAY 97	DAY 98	DAY 99	DAY 100
Complementary Angles	Supplementary Angles	Vertical Angles	Problem Solving	**Topic Review**	**Topic Assessment**	**Readiness Lesson for Topic 11**	Center, Radius, and Diameter	Circumference of a Circle	Area of a Circle

Topic 12: 2- and 3-Dimensional Shapes

DAY 101	DAY 102	DAY 103	DAY 104	DAY 105	DAY 106	DAY 107	DAY 108	DAY 109	DAY 110
Relating Circumference and Area of a Circle	Problem Solving	**Topic Review**	**Topic Assessment**	**Readiness Lesson for Topic 12**	Geometry Drawing Tools	Drawing Triangles with Given Conditions 1	Drawing Triangles with Given Conditions 2	2-D Slices of Right Rectangular Prisms	2-D Slices of Right Rectangular Pyramids

Grade 7 Traditional Scheduling Pacing Guide *continued*

			Topic 13: Surface Area and Volume						
DAY 111	DAY 112	DAY 113	DAY 114	DAY 115	DAY 116	DAY 117	DAY 118	DAY 119	DAY 120
Problem Solving	**Topic Review**	**Topic Assessment**	**Readiness Lesson for Topic 13**	Surface Areas of Right Prisms	Volumes of Right Prisms	Surface Areas of Right Pyramids	Volumes of Right Pyramids	Problem Solving	**Topic Review**

UNIT E

			Topic 14: Sampling						
DAY 121	DAY 122	DAY 123	DAY 124	DAY 125	DAY 126	DAY 127	DAY 128	DAY 129	DAY 130
Topic Assessment	**Readiness Assessment for Unit E**	**Unit Assessment for Unit D**	**Readiness Lesson for Topic 14**	Populations and Samples	Estimating a Population	Convenience Sampling	Systematic Sampling	Simple Random Sampling	Comparing Sampling Methods

			Topic 15: Comparing Two Populations						
DAY 131	DAY 132	DAY 133	DAY 134	DAY 135	DAY 136	DAY 137	DAY 138	DAY 139	DAY 140
Problem Solving	**Topic Review**	**Topic Assessment**	**Readiness Lesson for Topic 15**	Statistical Measures	Multiple Populations and Inferences	Using Measures of Center	Using Measures of Variability	Exploring Overlap in Data Sets	Problem Solving

UNIT F

				Topic 16: Probability Concepts					
DAY 141	DAY 142	DAY 143	DAY 144	DAY 145	DAY 146	DAY 147	DAY 148	DAY 149	DAY 150
Topic Review	**Topic Assessment**	**Readiness Assessment for Unit F**	**Unit Assessment for Unit E**	**Readiness Lesson for Topic 16**	Likelihood and Probability	Sample Space	Relative Frequency and Experimental Probability	Theoretical Probability	Probability Models

			Topic 17: Compound Events						
DAY 151	DAY 152	DAY 153	DAY 154	DAY 155	DAY 156	DAY 157	DAY 158	DAY 159	DAY 160
Problem Solving	**Topic Review**	**Topic Assessment**	**Readiness Lesson for Topic 17**	Compound Events	Sample Spaces	Counting Outcomes	Finding Theoretical Probabilities	Simulation with Random Numbers	Finding Probabilities by Simulation

DAY 161	DAY 162	DAY 163	DAY 164
Problem Solving	**Topic Review**	**Topic Assessment**	**Unit Assessment for Unit F**

Grade 8
Traditional Scheduling Pacing Guide

This Pacing Guide is a suggested pacing to help you plan your course. The total of 148 days allows for spending additional time on particular lessons, for completing enrichment activities, or for special events that vary from school to school.

UNIT A

Topic 1: Rational and Irrational Numbers									
DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7	DAY 8	DAY 9	DAY 10
Readiness Assessment for Unit A	Readiness Lesson for Topic 1	Expressing Rational Numbers with Decimal Exponents	Exploring Irrational Numbers	Approximating Irrational Numbers	Comparing and Ordering Rational and Irrational Numbers	Problem Solving	Topic Review	Topic Assessment	Readiness Assessment for Unit B

UNIT B

	Topic 2: Linear Equations in One Variable								Topic 3
DAY 11	DAY 12	DAY 13	DAY 14	DAY 15	DAY 16	DAY 17	DAY 18	DAY 19	DAY 20
Unit Assessment for Unit A	Readiness Lesson for Topic 2	Solving Two-Step Equations	Solving Equations with Variables on Both Sides	Solving Equations Using the Distributive Property	Solutions – One, None, or Infinitely Many	Problem Solving	Topic Review	Topic Assessment	Readiness Lesson for Topic 3

Topic 3: Integer Exponents									Topic 4
DAY 21	DAY 22	DAY 23	DAY 24	DAY 25	DAY 26	DAY 27	DAY 28	DAY 29	DAY 30
Perfect Squares, Square Roots, and Equations of the Form $x^2 = p$	Perfect Cubes, Cube Roots, and Equations of the Form $x^3 = p$	Exponents and Multiplication	Exponents and Division	Zero and Negative Exponents	Comparing Expressions with Exponents	Problem Solving	Topic Review	Topic Assessment	Readiness Lesson for Topic 4

UNIT C

Topic 4: Scientific Notation									Topic 5
DAY 31	DAY 32	DAY 33	DAY 34	DAY 35	DAY 36	DAY 37	DAY 38	DAY 39	DAY 40
Exploring Scientific Notation	Using Scientific Notation to Describe Very Large Quantities	Using Scientific Notation to Describe Very Small Quantities	Operating with Numbers Expressed in Scientific Notation	Problem Solving	Topic Review	Topic Assessment	Readiness Assessment for Unit C	Unit Assessment for Unit B	Readiness Lesson for Topic 5

Topic 5: Proportional Relationships, Lines, and Linear Equations									Topic 6
DAY 41	DAY 42	DAY 43	DAY 44	DAY 45	DAY 46	DAY 47	DAY 48	DAY 49	DAY 50
Graphing Proportional Relationships	Linear Equations: $y = mx$	The Slope of a Line	Unit Rates and Slope	The y-intercept of a Line	Linear Equations: $y = mx + b$	Problem Solving	Topic Review	Topic Assessment	Readiness Lesson for Topic 6

Grade 8 Traditional Scheduling Pacing Guide *continued*

Topic 6: Systems of Two Linear Equations

DAY 51	DAY 52	DAY 53	DAY 54	DAY 55	DAY 56	DAY 57	DAY 58	DAY 59	DAY 60
What is a System of Linear Equations in Two Variables?	Estimating Solutions of Linear Systems by Inspection	Solving Systems of Linear Equations by Graphing	Solving Systems of Linear Equations Using Substitution	Solving Systems of Linear Equations Using Addition	Solving Systems of Linear Equations Using Subtraction	Problem Solving	**Topic Review**	**Topic Assessment**	**Readiness Assessment for Unit D**

UNIT D

Topic 7: Defining and Comparing Functions

DAY 61	DAY 62	DAY 63	DAY 64	DAY 65	DAY 66	DAY 67	DAY 68	DAY 69	DAY 70
Unit Assessment for Unit C	**Readiness Lesson for Topic 7**	Recognizing a Function	Representing a Function	Linear Functions	Nonlinear Functions	Increasing and Decreasing Intervals	Sketching a Function Graph	Problem Solving	**Topic Review**

Topic 8: Linear Functions

DAY 71	DAY 72	DAY 73	DAY 74	DAY 75	DAY 76	DAY 77	DAY 78	DAY 79	DAY 80
Topic Assessment	**Readiness Lesson for Topic 8**	Defining a Linear Function Rule	Rate of Change	Initial Value	Comparing Two Linear Functions	Constructing a Function to Model a Linear Relationship	Problem Solving	**Topic Review**	**Topic Assessment**

UNIT E

Topic 9: Congruence

DAY 81	DAY 82	DAY 83	DAY 84	DAY 85	DAY 86	DAY 87	DAY 88	DAY 89	DAY 90
Readiness Assessment for Unit E	**Unit Assessment for Unit D**	**Readiness Lesson for Topic 9**	Translations	Reflections	Rotations	Congruent Figures	Problem Solving	**Topic Review**	**Topic Assessment**

Topic 10: Similarity / Topic 11

DAY 91	DAY 92	DAY 93	DAY 94	DAY 95	DAY 96	DAY 97	DAY 98	DAY 99	DAY 100
Readiness Lesson for Topic 10	Dilations	Similar Figures	Relating Similar Triangles and Slope	Problem Solving	**Topic Review**	**Topic Assessment**	**Readiness Lesson for Topic 11**	Angles, Lines, and Transversals	Reasoning and Parallel Lines

Topic 11: Reasoning in Geometry / Topic 12: Using the Pythagorean Theorem

DAY 101	DAY 102	DAY 103	DAY 104	DAY 105	DAY 106	DAY 107	DAY 108	DAY 109	DAY 110
Interior Angles of Triangles	Exterior Angles of Triangles	Angle-Angle Triangle Similarity	Problem Solving	**Topic Review**	**Topic Assessment**	**Readiness Lesson for Topic 12**	Reasoning and Proof	The Pythagorean Theorem	Finding Unknown Leg Lengths

Topic 13: Surface Area and Volume

DAY 111	DAY 112	DAY 113	DAY 114	DAY 115	DAY 116	DAY 117	DAY 118	DAY 119	DAY 120
The Converse of the Pythagorean Theorem	Distance in the Coordinate Plane	Problem Solving	**Topic Review**	**Topic Assessment**	**Readiness Lesson for Topic 13**	Surface Areas of Cylinders	Volumes of Cylinders	Surface Areas of Cones	Volumes of Cones

UNIT F

Topic 14: Scatter Plots

DAY 121	DAY 122	DAY 123	DAY 124	DAY 125	DAY 126	DAY 127	DAY 128	DAY 129	DAY 130
Surface Areas of Spheres	Volumes of Spheres	Problem Solving	**Topic Review**	**Topic Assessment**	**Readiness Assessment for Unit F**	**Unit Assessment for Unit E**	**Readiness Lesson for Topic 14**	Interpreting a Scatter Plot	Constructing a Scatter Plot

Topic 15: Relative Frequency

DAY 131	DAY 132	DAY 133	DAY 134	DAY 135	DAY 136	DAY 137	DAY 138	DAY 139	DAY 140
Investigating Patterns – Clustering and Outliers	Investigating Patterns – Association	Linear Models – Fitting a Straight Line	Linear Models – Using the Equation of a Linear Model	Problem Solving	**Topic Review**	**Topic Assessment**	**Readiness Lesson for Topic 15**	Bivariate Categorical Data	Constructing Two-Way Frequency Tables

DAY 141	DAY 142	DAY 143	DAY 144	DAY 145	DAY 146	DAY 147	DAY 148
Interpreting Two-Way Frequency Tables	Constructing Two-Way Relative Frequency Tables	Interpreting Two-Way Relative Frequency Tables	Choosing a Measure of Frequency	Problem Solving	**Topic Review**	**Topic Assessment**	**Unit Assessment for Unit F**

Accelerated Grade 7
Traditional Scheduling Pacing Guide

This Pacing Guide is a suggested pacing to help you plan your course. The total of 162 days allows for spending additional time on particular lessons, for completing enrichment activities, or for special events that vary from school to school.

UNIT I

	Topic 1						**Topic 2**		
DAY 1	**DAY 2**	**DAY 3**	**DAY 4**	**DAY 5**	**DAY 6**	**DAY 7**	**DAY 8**	**DAY 9**	**DAY 10**
Readiness Assessment for Unit I	Rational Numbers, Opposites and Absolute Value	Adding Integers, Adding Rational Numbers	Subtracting Integers, Subtracting Rational Numbers	Distance on a Number Line	Problem Solving, Topic Review	**Topic Assessment**	Multiplying Integers	Mulltiplying Rational Numbers	Dividing Integers, Dividing Rational Numbers
		Topic 3					**Topic 4**		
DAY 11	**DAY 12**	**DAY 13**	**DAY 14**	**DAY 15**	**DAY 16**	**DAY 17**	**DAY 18**	**DAY 19**	**DAY 20**
Problem Solving, Topic Review	**Topic Assessment**	Percents Greater Than 100, Percents Less Than 1	Fractions, Decimals, and Percents	Percent Error	Problem Solving, Topic Review	**Topic Assessment**	Expressing Rational Numbers with Decimal Expansions	Exploring Irrational Numbers	Approximating Irrational Numbers, Compare and Order Numbers
		Topic 5							
DAY 21	**DAY 22**	**DAY 23**	**DAY 24**	**DAY 25**	**DAY 26**	**DAY 27**	**DAY 28**	**DAY 29**	**DAY 30**
Problem Solving, Topic Review	**Topic Assessment**	Perfect Squares, Square Roots, and Equations	Perfect Cubes, Cube Roots, and Equations	Exponents and Multiplication	Exponents and Division	Zero and Negative Exponents	Comparing Expressions with Exponents	Problem Solving, Topic Review	**Topic Assessment**

UNIT II

Topic 6							**Topic 7**		
DAY 31	**DAY 32**	**DAY 33**	**DAY 34**	**DAY 35**	**DAY 36**	**DAY 37**	**DAY 38**	**DAY 39**	**DAY 40**
Exploring Scientific Notation	Using Scientific Notation to Describe Quantities	Operating with Numbers Expressed in Scientific Notation	Problem Solving, Topic Review	**Topic Assessment**	**Unit Assessment for Unit I**	**Readiness Assessment for Unit II**	Equivalent Ratios	Unit Rates	Ratios with Fractions
			Topic 8						
DAY 41	**DAY 42**	**DAY 43**	**DAY 44**	**DAY 45**	**DAY 46**	**DAY 47**	**DAY 48**	**DAY 49**	**DAY 50**
Unit Rates with Fractions	Problem Solving, Topic Review	**Topic Assessment**	Proportional Relationships and Tables	Proportional Relationships and Graphs	Constant of Proportionality	Proportional Relationships and Equations	Maps and Scale Drawings	Problem Solving, Topic Review	**Topic Assessment**

Topic 9								Topic 10	
DAY 51	**DAY 52**	**DAY 53**	**DAY 54**	**DAY 55**	**DAY 56**	**DAY 57**	**DAY 58**	**DAY 59**	**DAY 60**
The Percent Equation	Using the Percent Equation	Simple Interest	Compound Interest	Percent Increase and Decrease	Markups and Markdowns	Problem Solving, Topic Review	**Topic Assessment**	Expanding Algebraic Expressions	Factoring Algebraic Expressions

				Topic 11		Topic 12			
DAY 61	**DAY 62**	**DAY 63**	**DAY 64**	**DAY 65**	**DAY 66**	**DAY 67**	**DAY 68**	**DAY 69**	**DAY 70**
Adding Algebraic Expressions	Subtracting Algebraic Expressions	Problem Solving, Topic Review	**Topic Assessment**	Writing Two-Step Equations	Solving Two-Step Equations	Solving Equations with Variables on Both Sides	Solving Equations Using the Distributive Property	Solutions — One, None, or Infinitely Many	Problem Solving, Topic Review

	Topic 13					Topic 14			
DAY 71	**DAY 72**	**DAY 73**	**DAY 74**	**DAY 75**	**DAY 76**	**DAY 77**	**DAY 78**	**DAY 79**	**DAY 80**
Topic Assessment	Solving Inequalities Using, Addition or Subtraction	Solving Inequalities Using Multiplication or Division	Solving Multi-Step Inequalities	Problem Solving, Topic Review	**Topic Assessment**	Graphing Proportional Relationships	Linear Equations: $y = mx$	The Slope of a Line	Unit Rates and Slope

					UNIT III				
					Topic 15				
DAY 81	**DAY 82**	**DAY 83**	**DAY 84**	**DAY 85**	**DAY 86**	**DAY 87**	**DAY 88**	**DAY 89**	**DAY 90**
The y-intercept of a Line	Linear Equations: $y = mx + b$	Problem Solving, Topic Review	**Topic Assessment**	**Unit Assessment for Unit II**	**Readiness Assessment for Unit III**	Populations and Samples	Estimating a Population	Convenience Sampling	Systematic Sampling

				Topic 16					
DAY 91	**DAY 92**	**DAY 93**	**DAY 94**	**DAY 95**	**DAY 96**	**DAY 97**	**DAY 98**	**DAY 99**	**DAY 100**
Simple Random Sampling	Comparing Sampling Methods	Problem Solving, Topic Review	**Topic Assessment**	Statistical Measures	Multiple Populations and Inferences	Using Measures of Center	Using Measures of Variability	Exploring Overlap in Data Sets	Problem Solving, Topic Review

	Topic 17							Topic 18	
DAY 101	**DAY 102**	**DAY 103**	**DAY 104**	**DAY 105**	**DAY 106**	**DAY 107**	**DAY 108**	**DAY 109**	**DAY 110**
Topic Assessment	Likelihood and Probability	Sample Space	Relative Frequency and Experimental Probability	Theoretical Probability	Probability Models	Problem Solving, Topic Review	**Topic Assessment**	Compound Events	Sample Spaces

Accelerated Grade 7 Traditional Scheduling Pacing Guide *continued*

							UNIT IV — Topic 19		
DAY 111	DAY 112	DAY 113	DAY 114	DAY 115	DAY 116	DAY 117	DAY 118	DAY 119	DAY 120
Counting Outcomes	Finding Theoretical Probabilities	Simulation With Random Numbers	Finding Probabilities by Simulation	Problem Solving, Topic Review	**Topic Assessment**	**Unit Assessment for Unit III**	**Readiness Assessment for Unit IV**	Measuring Angles, Adjacent Angles	Complementary Angles, Supplementary Angles

			Topic 20					Topic 21	
DAY 121	DAY 122	DAY 123	DAY 124	DAY 125	DAY 126	DAY 127	DAY 128	DAY 129	DAY 130
Vertical Angles	Problem Solving, Topic Review	**Topic Assessment**	Center, Radius, and Diameter, Circumference of a Circle	Area of a Circle	Relating Circumference and Area of a Circle	Problem Solving, Topic Review	**Topic Assessment**	Drawing Triangles with Given Conditions 1	Drawing Triangles with Given Conditions 2

			Topic 22						Topic 23
DAY 131	DAY 132	DAY 133	DAY 134	DAY 135	DAY 136	DAY 137	DAY 138	DAY 139	DAY 140
2-D Slices of Right Rectangular Prisms, Rectangular Pyramids	Problem Solving, Topic Review	**Topic Assessment**	Surface Areas of Right Prisms	Volume of Right Prisms	Surface Areas of Right Pyramids	Volumes of Right Pyramids	Problem Solving, Topic Review	**Topic Assessment**	Translations

					Topic 24				
DAY 141	DAY 142	DAY 143	DAY 144	DAY 145	DAY 146	DAY 147	DAY 148	DAY 149	DAY 150
Reflections	Rotations	Congruent Figures	Problem Solving, Topic Review	**Topic Assessment**	Dilations	Similar Figures	Relating Similar Triangles and Slope	Problem Solving, Topic Review	**Topic Assessment**

Topic 25							Topic 26		
DAY 151	DAY 152	DAY 153	DAY 154	DAY 155	DAY 156	DAY 157	DAY 158	DAY 159	DAY 160
Angles, Lines, and Transversals	Reasoning and Parallel Lines	Interior Angles of Triangles	Exterior Angles of Triangles	Angle-Angle Triangle Similarity	Problem Solving, Topic Review	**Topic Assessment**	Surface Areas of Cylinders, Volumes of Cylinders	Surface Areas of Cones, Volumes of Cones	Problem Solving, Topic Review

DAY 161	DAY 162
Topic Assessment	**Unit Assessment for Unit IV**

Grade 6
Block Scheduling Pacing Guide

This Pacing Guide is a suggested pacing to help you plan your course. The total of 77 days allows for spending additional time on particular lessons, for completing enrichment activities, or for special events that vary from school to school.

UNIT A

Topic 1: Variables and Expressions

DAY 1		DAY 2		DAY 3		DAY 4		DAY 5	
Readiness Assessment for Unit A	Readiness Lesson for Topic 1	Numerical Expressions	Algebraic Expressions	Writing Algebraic Expressions	Evaluating Algebraic Expressions	Expressions With Exponents	Problem Solving	Topic Review	Readiness Lesson for Topic 2

Topic 2: Equivalent Expressions

DAY 6		DAY 7		DAY 8		DAY 9		DAY 10	
Topic Assessment	The Identity and Zero Properties	The Commutative Properties	The Associative Properties	Greatest Common Factor	The Distributive Property	Least Common Multiple	Problem Solving	Topic Review	Readiness Lesson for Topic 3

Topic 3: Equations and Inequalities

DAY 11		DAY 12		DAY 13		DAY 14		DAY 15	
Topic Assessment	Expressions to Equations	Balancing Equations	Solving Addition and Subtraction Equations	Solving Multiplication and Division Equations	Equations to Inequalities	Solving Inequalities	Problem Solving	Topic Review	Readiness Lesson for Topic 4

Topic 4: Two-Variable Relationships

UNIT B

Topic 5:

DAY 16		DAY 17		DAY 18		DAY 19		DAY 20	
Topic Assessment	Using Two Variables to Represent a Relationship	Analyzing Pattern Using Tables and Graphs	Relating Tables and Graphs to Equations	Problem Solving	Topic Review	Topic Assessment	Readiness Lesson for Topic 4	Unit Assessment for Unit A	Readiness Lesson for Topic 5

Topic 5: Multiplying Fractions

Topic 6

DAY 21		DAY 22		DAY 23		DAY 24		DAY 25	
Multiplying Fractions and Whole Numbers	Multiplying Two Fractions	Multiplying Fractions and Mixed Numbers	Multiplying Mixed Numbers	Problem Solving	Topic Review	Topic Assessment	Readiness Lesson for Topic 6	Dividing Fractions and Whole Numbers	Dividing Unit Fractions by Unit Fractions

Grade 6 Block Scheduling Pacing Guide *continued*

Topic 6: Dividing Fractions		
DAY 26	Dividing Fractions by Fractions	Dividing Mixed Numbers
DAY 27	Problem Solving	**Topic Review**
DAY 28	**Topic Assessment**	**Readiness Assessment for Unit C**
DAY 29	**Unit Assessment for Unit B**	
UNIT C		
Topic 7: Fluency with Decimals		
DAY 29		**Readiness Lesson for Topic 7**
DAY 30	Adding and Subtracting Decimals	Multiplying Decimals
DAY 31	Dividing Multi-Digit Numbers	Dividing Decimals
DAY 32	Decimals and Fractions	Comparing and Ordering Decimals and Fractions
DAY 33	Problem Solving	**Topic Review**
DAY 34	**Topic Assessment**	
Topic 8: Integers		
DAY 34		**Readiness Lesson for Topic 8**
DAY 35	Integers and the Number Line	Comparing and Ordering Integers
DAY 36	Absolute Value	Integers and the Coordinate Plane
DAY 37	Distance	Problem Solving
DAY 38	**Topic Review**	**Readiness Lesson for Topic 9**
DAY 39	**Topic Assessment**	
Topic 9: Rational Numbers		
DAY 39		Rational Numbers and the Number Line
DAY 40	Comparing Rational Numbers	Ordering Rational Numbers
DAY 41	Rational Numbers and the Coordinate Plane	Polygons in the Coordinate Plane
DAY 42	Problem Solving	**Topic Review**
DAY 43	**Topic Assessment**	**Readiness Assessment for Unit D**
DAY 44	**Unit Assessment for Unit C**	
UNIT D		
Topic 10: Ratios		
DAY 44		**Readiness Lesson for Topic 10**
DAY 45	Ratios	Exploring Equivalent Ratios
DAY 46	Equivalent Ratios	Ratios as Fractions
DAY 47	Ratios as Decimals	Problem Solving
DAY 48	**Topic Review**	**Readiness Lesson for Topic 11**
DAY 49	**Topic Assessment**	
Topic 11: Rates		
DAY 49		Unit Rates
DAY 50	Unit Prices	Constant Speed
DAY 51	Measurement and Ratios	Choosing the Appropriate Rate
DAY 52	Problem Solving	**Topic Review**
DAY 53	**Topic Assessment**	
Topic 12: Ratio Reasoning		
DAY 53		**Readiness Lesson for Topic 12**
DAY 54	Plotting Ratios and Rates	Recognizing Proportionality
DAY 55	Introducing Percents	Using Percents

UNIT E

Topic 13: Area

DAY 56		DAY 57		DAY 58		DAY 59		DAY 60	
Problem Solving	**Topic Review**	**Topic Assessment**	**Readiness Assessment for Unit E**	**Unit Assessment for Unit D**	**Readiness Lesson for Topic 13**	Rectangles and Squares	Right Triangles	Parallelograms	Other Triangles

Topic 14: Surface Area and Volume

DAY 61		DAY 62		DAY 63		DAY 64		DAY 65	
Polygons	Problem Solving	**Topic Review**	**Readiness Lesson for Topic 14**	**Topic Assessment**	Analyzing Three-Dimensional Figures	Nets	Surface Areas of Prisms	Surface Areas of Pyramids	Volumes of Rectangular Prisms

UNIT F

Topic 15: Data Displays

DAY 66		DAY 67		DAY 68		DAY 69		DAY 70	
Problem Solving	**Topic Review**	**Topic Assessment**	**Readiness Assessment for Unit F**	**Unit Assessment for Unit E**	**Readiness Lesson for Topic 15**	Statistical Questions	Dot Plots	Histograms	Box Plots

Topic 16: Measures of Center and Variation

DAY 71		DAY 72		DAY 73		DAY 74		DAY 75	
Choosing an Appropriate Display	Problem Solving	**Topic Review**	**Readiness Lesson for Topic 16**	**Topic Assessment**	Median	Mean	Variability	Interquartile Range	Mean Absolute Deviation

DAY 76		DAY 77	
Problem Solving	**Topic Review**	**Topic Assessment**	**Unit Assessment for Unit F**

Grade 7
Block Scheduling Pacing Guide

This Pacing Guide is a suggested pacing to help you plan your course. The total of 82 days allows for spending additional time on particular lessons, for completing enrichment activities, or for special events that vary from school to school.

UNIT A

Topic 1: Ratios and Rates | Topic 2

DAY 1		DAY 2		DAY 3		DAY 4		DAY 5	
Readiness Assessment for Unit A	Readiness Lesson for Topic 1	Equivalent Ratios	Unit Rates	Ratios With Fractions	Unit Rates With Fractions	Problem Solving	Topic Review	Topic Assessment	Readiness Lesson for Topic 2

Topic 2: Proportional Relationships | Topic 3

DAY 6		DAY 7		DAY 8		DAY 9		DAY 10	
Proportional Relationships and Tables	Proportional Relationships and Graphs	Constant of Proportionality	Proportional Relationships and Equations	Maps and Scale Drawings	Problem Solving	Topic Review	Readiness Lesson for Topic 3	Topic Assessment	The Percent Equation

Topic 3: Percents

DAY 11		DAY 12		DAY 13		DAY 14		DAY 15	
Using the Percent Equation	Simple Interest	Compound Interest	Percent Increase and Decrease	Markups and Markdowns	Problem Solving	Topic Review	Readiness Assessment for Unit B	Topic Assessment	Readiness Lesson for Topic 4

UNIT B

Topic 4: Adding and Subtracting Rational Numbers

DAY 16		DAY 17		DAY 18		DAY 19		DAY 20	
Unit Assessment for Unit A	Rational Numbers, Opposites, and Absolute Value	Adding Integers	Adding Rational Numbers	Subtracting Integers	Subtracting Rational Numbers	Distance on a Number Line	Problem Solving	Topic Review	Readiness Lesson for Topic 5

Topic 5: Multiplying and Dividing Rational Numbers

DAY 21		DAY 22		DAY 23		DAY 24		DAY 25	
Topic Assessment	Multiplying Integers	Multiplying Rational Numbers	Dividing Integers	Dividing Rational Numbers	Operations with Rational Numbers	Problem Solving	Topic Review	Topic Assessment	Readiness Lesson for Topic 6

Topic 6: Decimals and Percents

DAY 26		DAY 27		DAY 28		DAY 29		DAY 30	
Repeating Decimals	Terminating Decimals	Percents Greater Than 100	Percents Less Than 1	Fractions, Decimals, and Percents	Percent Error	Problem Solving	**Topic Review**	**Topic Assessment for Unit B**	**Readiness Assessment for Unit C**

UNIT C

Topic 7: Equivalent Expressions

Topic 8

DAY 31		DAY 32		DAY 33		DAY 34		DAY 35	
Unit Assessment	**Readiness Lesson for Topic 7**	Expanding Algebraic Expressions	Factoring Algebraic Expressions	Adding Algebraic Expressions	Subtracting Algebraic Expressions	Problem Solving	**Topic Review**	**Topic Assessment**	**Readiness Lesson for Topic 8**

Topic 8: Equations

Topic 9: Inequalities

DAY 36		DAY 37		DAY 38		DAY 39		DAY 40	
Solving Simple Equations	Writing Two-Step Equations	Solving Two-Step Equations	Solving Equations Using the Distributive Property	Problem Solving	**Topic Review**	**Topic Assessment**	**Readiness Lesson for Topic 9**	Solving Inequalities Using Addition or Subtraction	Solving Inequalities Using Multiplication or Division

UNIT D

Topic 10: Angles

DAY 41		DAY 42		DAY 43		DAY 44		DAY 45	
Solving Two-Step Inequalities	Solving Multi-Step Inequalities	Problem Solving	**Topic Review**	**Topic Assessment**	**Readiness Assessment for Unit D**	**Unit Assessment for Unit C**	**Readiness Lesson for Topic 10**	Measuring Angles	Adjacent Angles

Topic 11: Circles

DAY 46		DAY 47		DAY 48		DAY 49		DAY 50	
Complementary Angles	Supplementary Angles	Vertical Angles	Problem Solving	**Topic Review**	**Readiness Lesson for Topic 11**	**Topic Assessment**	Center, Radius, and Diameter	Circumference of a Circle	Area of a Circle

Topic 12: 2- and 3-Dimensional Shapes

DAY 51		DAY 52		DAY 53		DAY 54		DAY 55	
Relating Circumference and Area of a Circle	Problem Solving	**Topic Review**	**Readiness Lesson for Topic 12**	**Topic Assessment**	Geometry Drawing Tools	Drawing Triangles with Given Conditions 1	Drawing Triangles with Given Conditions 2	2-D Slices of Right Rectangular Prisms	2-D Slices of Right Rectangular Pyramids

Grade 7 Block Scheduling Pacing Guide *continued*

Topic 13: Surface Area and Volume

DAY 56		DAY 57		DAY 58		DAY 59		DAY 60	
Problem Solving	Topic Review	Topic Assessment	Readiness Lesson for Topic 13	Surface Areas of Right Prisms	Volumes of Right Prisms	Surface Areas of Right Pyramids	Volumes of Right Pyramids	Problem Solving	Topic Review

UNIT E

Topic 14: Sampling

DAY 61		DAY 62		DAY 63		DAY 64		DAY 65	
Topic Assessment	Readiness Assessment for Unit E	Unit Assessment for Unit D	Readiness Lesson for Topic 14	Populations and Samples	Estimating a Population	Convenience Sampling	Systematic Sampling	Simple Random Sampling	Comparing Sampling Methods

Topic 15: Comparing Two Populations

DAY 66		DAY 67		DAY 68		DAY 69		DAY 70	
Problem Solving	Topic Review	Topic Assessment	Readiness Lesson for Topic 15	Statistical Measures	Multiple Populations and Inferences	Using Measures of Center	Using Measures of Variability	Exploring Overlap in Data Sets	Problem Solving

UNIT F

Topic 16: Probability Concepts

DAY 71		DAY 72		DAY 73		DAY 74		DAY 75	
Topic Review	Readiness Assessment for Unit F	Topic Assessment	Readiness Lesson for Topic 16	Unit Assessment for Unit E	Likelihood and Probability	Sample Space	Relative Frequency and Experimental Probability	Theoretical Probability	Probability Models

Topic 17: Compound Events

DAY 76		DAY 77		DAY 78		DAY 79		DAY 80	
Problem Solving	Topic Review	Topic Assessment	Readiness Lesson for Topic 17	Compound Events	Sample Spaces	Counting Outcomes	Finding Theoretical Probabilities	Simulation With Random Numbers	Finding Probabilities by Simulation

DAY 81		DAY 82	
Problem Solving	Topic Review	Topic Assessment	Unit Assessment for Unit F

Grade 8
Block Scheduling Pacing Guide

This Pacing Guide is a suggested pacing to help you plan your course.The total of 74 days allows for spending additional time on particular lessons, for completing enrichment activities, or for special events that vary from school to school.

UNIT A

Topic 1: Rational and Irrational Numbers

DAY 1		DAY 2		DAY 3		DAY 4		DAY 5	
Readiness Assessment for Unit A	Readiness Lesson for Topic 1	Expressing Rational Numbers with Decimal Expansions	Exploring Irrational Numbers	Approximating Irrational Numbers	Comparing and Ordering Rational and Irrational Numbers	Problem Solving	Topic Review	Topic Assessment	Readiness Assessment for Unit B

UNIT B

Topic 2: Linear Equations in One Variable

Topic 3

DAY 6		DAY 7		DAY 8		DAY 9		DAY 10	
Unit Assessment for Unit A	Readiness Lesson for Topic 2	Solving Two-Step Equations	Solving Equations with Variables on Both Sides	Solving Equations Using the Distributive Property	Solutions – One, None, or Infinitely Many	Problem Solving	Topic Review	Topic Assessment	Readiness Lesson for Topic 3

Topic 3: Integer Exponents

Topic 4

DAY 11		DAY 12		DAY 13		DAY 14		DAY 15	
Perfect Squares, Square Roots, and Equations of the Form $x^2 = p$	Perfect Cubes, Cube Roots, and Equations of the Form $x^3 = p$	Exponents and Multiplication	Exponents and Division	Zero and Negative Exponents	Comparing Expressions with Exponents	Problem Solving	Topic Review	Topic Assessment	Readiness Lesson for Topic 4

UNIT C

Topic 4: Scientific Notation

Topic 5

DAY 16		DAY 17		DAY 18		DAY 19		DAY 20	
Exploring Scientific Notation	Using Scientific Notation to Describe Very Large Quantities	Using Scientific Notation to Describe Very Small Quantities	Operating with Numbers Expressed in Scientific Notation	Problem Solving	Topic Review	Topic Assessment	Readiness Assessment for Unit C	Unit Assessment for Unit B	Readiness Lesson for Topic 5

Topic 5: Proportional Relationships, Lines, and Linear Equations

Topic 6

DAY 21		DAY 22		DAY 23		DAY 24		DAY 25	
Graphing Proportional Relationships	Linear Equations: $y = mx$	The Slope of a Line	Unit Rates and Slope	The y-intercept of a Line	Linear Equations: $y = mx + b$	Problem Solving	Topic Review	Topic Assessment	Readiness Lesson for Topic 6

Grade 8 Block Scheduling Pacing Guide *continued*

Topic 6: Systems of Two Linear Equations

DAY 26		DAY 27		DAY 28		DAY 29		DAY 30	
What is a System of Linear Equations in Two Variables?	Estimating Solutions of Linear Systems by Inspection	Solving Systems of Linear Equations by Graphing	Solving Systems of Linear Equations Using Substitution	Solving Systems of Linear Equations Using Addition	Solving Systems of Linear Equations Using Subtraction	Problem Solving	**Topic Review**	**Topic Assessment**	**Readiness Assessment for Unit D**

UNIT D

Topic 7: Defining and Comparing Functions

DAY 31		DAY 32		DAY 33		DAY 34		DAY 35	
Unit Assessment for Unit C	**Readiness Lesson for Topic 7**	Recognizing a Function	Representing a Function	Linear Functions	Nonlinear Functions	Increasing and Decreasing Intervals	Sketching a Function Graph	Problem Solving	**Topic Review**

Topic 8: Linear Functions

DAY 36		DAY 37		DAY 38		DAY 39		DAY 40	
Topic Assessment	**Readiness Lesson for Topic 8**	Defining a Linear Function Rule	Rate of Change	Initial Value	Comparing Two Linear Functions	Constructing a Function to Model a Linear Relationship	Problem Solving	**Topic Review**	**Readiness Assessment for Unit E**

UNIT E

Topic 9: Congruence

DAY 41		DAY 42		DAY 43		DAY 44		DAY 45	
Topic Assessment	**Readiness Lesson for Topic 9**	**Unit Assessment for Unit D**	Translations	Reflections	Rotations	Congruent Figures	Problem Solving	**Topic Review**	**Readiness Lesson for Topic 10**

Topic 10: Similarity | Topic 11

DAY 46		DAY 47		DAY 48		DAY 49		DAY 50	
Topic Assessment	Dilations	Similar Figures	Relating Similar Triangles and Slope	Problem Solving	**Topic Review**	**Topic Assessment**	**Readiness Lesson for Topic 11**	Angles, Lines, and Transversals	Reasoning and Parallel Lines

Topic 11: Reasoning in Geometry | Topic 12

DAY 51		DAY 52		DAY 53		DAY 54		DAY 55	
Interior Angles of Triangles	Exterior Angles of Triangles	Angle-Angle Triangle Similarity	Problem Solving	**Topic Review**	**Readiness Lesson for Topic 12**	**Topic Assessment**	Reasoning and Proof	The Pythagorean Theorem	Finding Unknown Leg Lengths

Topic 12: Using the Pythagorean Theorem

Topic 13: Surface Area and Volume

DAY 56		DAY 57		DAY 58		DAY 59		DAY 60	
The Converse of the Pythagorean Theorem	Distance in the Coordinate Plane	Problem Solving	**Topic Review**	**Topic Assessment**	**Readiness Lesson for Topic 13**	Surface Areas of Cylinders	Volumes of Cylinders	Surface Areas of Cones	Volumes of Cones

UNIT F

Topic 14: Scatter Plots

DAY 61		DAY 62		DAY 63		DAY 64		DAY 65	
Surface Areas of Spheres	Volumes of Spheres	Problem Solving	**Topic Review**	**Topic Assessment**	**Readiness Assessment for Unit F**	**Unit Assessment for Unit E**	**Readiness Lesson for Topic 14**	Interpreting a Scatter Plot	Constructing a Scatter Plot

Topic 15: Relative Frequency

DAY 66		DAY 67		DAY 68		DAY 69		DAY 70	
Investigating Patterns – Clustering and Outliers	Investigating Patterns – Association	Linear Models – Fitting a Straight Line	Linear Models – Using the Equation of a Linear Model	Problem Solving	**Topic Review**	**Topic Assessment**	**Readiness Lesson for Topic 15**	Bivariate Categorical Data	Constructing Two-Way Frequency Tables

DAY 71		DAY 72		DAY 73		DAY 74	
Interpreting Two-Way Frequency Tables	Constructing Two-Way Relative Frequency Tables	Interpreting Two-Way Relative Frequency Tables	Choosing a Measure of Frequency	Problem Solving	**Topic Review**	**Topic Assessment**	**Unit Assessment for Unit F**

Accelerated Grade 7
Block Scheduling Pacing Guide

This Pacing Guide is a suggested pacing to help you plan your course. The total of 81 days allows for spending additional time on particular lessons, for completing enrichment activities, or for special events that vary from school to school.

UNIT I

Topic 1 **Topic 2**

DAY 1	DAY 2	DAY 3	DAY 4	DAY 5
Readiness Assessment for Unit I	Adding Integers, Adding Rational Numbers	Distance on a Number Line	**Topic Assessment**	Mulltiplying Rational Numbers
Rational Numbers, Opposites and Absolute Value	Subtracting Integers, Subtracting Rational Numbers	Problem Solving, Topic Review	Multiplying Integers	Dividing Integers, Dividing Rational Numbers

Topic 3 **Topic 4**

DAY 6	DAY 7	DAY 8	DAY 9	DAY 10
Problem Solving, Topic Review	Percents Greater Than 100, Percents Less Than 1	Percent Error	**Topic Assessment**	Exploring Irrational Numbers
Topic Assessment	Fractions, Decimals, and Percents	Problem Solving, Topic Review	Expressing Rational Numbers with Decimal Expansions	Approximate-ing Irrational Numbers, Compare and Order Numbers

Topic 5

DAY 11	DAY 12	DAY 13	DAY 14	DAY 15
Problem Solving, Topic Review	Perfect Squares, Square Roots, and Equations	Exponents and Multiplica-tion	Zero and Negative Exponents	Problem Solving, Topic Review
Topic Assessment	Perfect Cubes, Cube Roots, and Equations	Exponents and Division	Comparing Expressions with Exponents	**Topic Assessment**

UNIT II

Topic 6 **Topic 7**

DAY 16	DAY 17	DAY 18	DAY 19	DAY 20
Exploring Scientific Notation	Operating with Numbers Expressed in Scientific Notation	**Topic Assessment**	**Readiness Assessment for Unit II**	Unit Rates
Using Scientific Notation to Describe Quantities	Problem Solving, Topic Review	**Unit Assessment for Unit I**	Equivalent Ratios	Ratios with Fractions

Topic 8

DAY 21	DAY 22	DAY 23	DAY 24	DAY 25
Unit Rates with Fractions	**Topic Assessment**	Proportional Relationships and Graphs	Proportional Relationships and Equations	Problem Solving, Topic Review
Problem Solving, Topic Review	Proportional Relationships and Tables	Constant of Proportiona-lity	Maps and Scale Drawings	**Topic Assessment**

Day	Topic	Session 1	Session 2
DAY 26	Topic 9	The Percent Equation	Using the Percent Equation
DAY 27	Topic 9	Simple Interest	Compound Interest
DAY 28	Topic 9	Percent Increase and Decrease	Markups and Markdowns
DAY 29	Topic 9	Problem Solving, Topic Review	**Topic Assessment**
DAY 30	Topic 10	Expanding Algebraic Expressions	Factoring Algebraic Expressions
DAY 31	Topic 10	Adding Algebraic Expressions	Subtracting Algebraic Expressions
DAY 32	Topic 10	Problem Solving, Topic Review	**Topic Assessment**
DAY 33	Topic 11	Writing Two-Step Equations	Solving Two-Step Equations
DAY 34	Topic 12	Solving Equations with Variables on Both Sides	Solving Equations Using the Distributive Property
DAY 35	Topic 12	Solutions — One, None, or Infinitely Many	Problem Solving, Topic Review
DAY 36	Topic 12 / Topic 13	**Topic Assessment**	Solving Inequalities Using Addition or Subtraction
DAY 37	Topic 13	Solving Inequalities Using Multiplication or Division	Solving Multi-Step Inequalities
DAY 38	Topic 13	Problem Solving, Topic Review	**Topic Assessment**
DAY 39	Topic 14	Graphing Proportional Relationships	Linear Equations: $y = mx$
DAY 40	Topic 14	The Slope of a Line	Unit Rates and Slope
DAY 41	Topic 14	The y-intercept of a Line	Linear Equations: $y = mx + b$
DAY 42	Topic 14	Problem Solving, Topic Review	**Topic Assessment**
DAY 43	Topic 14 / UNIT III Topic 15	**Unit Assessment for Unit II**	**Readiness Assessment for Unit III**
DAY 44	Topic 15	Populations and Samples	Estimating a Population
DAY 45	Topic 15	Convenience Sampling	Systematic Sampling
DAY 46	Topic 15	Simple Random Sampling	Comparing Sampling Methods
DAY 47	Topic 15	Problem Solving, Topic Review	**Topic Assessment**
DAY 48	Topic 16	Statistical Measures	Multiple Populations and Inferences
DAY 49	Topic 16	Using Measures of Center	Using Measures of Variability
DAY 50	Topic 16	Exploring Overlap in Data Sets	Problem Solving, Topic Review
DAY 51	Topic 16 / Topic 17	**Topic Assessment**	Likelihood and Probability
DAY 52	Topic 17	Sample Space	Relative Frequency and Experimental Probability
DAY 53	Topic 17	Theoretical Probability	Probability Models
DAY 54	Topic 17	Problem Solving, Topic Review	**Topic Assessment**
DAY 55	Topic 18	Compound Events	Sample Spaces

Accelerated Grade 7 **Block Scheduling Pacing Guide** *continued*

Day	Unit / Topic	Lesson
DAY 56		Counting Outcomes
DAY 56		Finding Theoretical Probabilities
DAY 57		Simulation With Random Numbers
DAY 57		Finding Probabilities by Simulation
DAY 58		Problem Solving, Topic Review
DAY 58		**Topic Assessment**
DAY 59		**Unit Assessment for Unit III**
DAY 59	UNIT IV, Topic 19	**Readiness Assessment for Unit IV**
DAY 60	Topic 19	Measuring Angles, Adjacent Angles
DAY 60	Topic 19	Complementary Angles, Supplementary Angles
DAY 61	Topic 19	Vertical Angles
DAY 61	Topic 19	Problem Solving, Topic Review
DAY 62	Topic 19	**Topic Assessment**
DAY 62	Topic 20	Center, Radius, and Diameter, Circumference of a Circle
DAY 63	Topic 20	Area of a Circle
DAY 63	Topic 20	Relating Circumference and Area of a Circle
DAY 64	Topic 20	Problem Solving, Topic Review
DAY 64	Topic 20	**Topic Assessment**
DAY 65	Topic 21	Drawing Triangles with Given Conditions 1
DAY 65	Topic 21	Drawing Triangles with Given Conditions 2
DAY 66	Topic 21	2-D Slices of Right Rectangular Prisms, Rectangular Pyramids
DAY 66	Topic 21	Problem Solving, Topic Review
DAY 67	Topic 21	**Topic Assessment**
DAY 67	Topic 22	Surface Areas of Right Prisms
DAY 68	Topic 22	Volume of Right Prisms
DAY 68	Topic 22	Surface Areas of Right Pyramids
DAY 69	Topic 22	Volumes of Right Pyramids
DAY 69	Topic 22	Problem Solving, Topic Review
DAY 70	Topic 22	**Topic Assessment**
DAY 70	Topic 23	Translations
DAY 71	Topic 23	Reflections
DAY 71	Topic 23	Rotations
DAY 72	Topic 23	Congruent Figures
DAY 72	Topic 23	Problem Solving, Topic Review
DAY 73	Topic 23	**Topic Assessment**
DAY 73	Topic 24	Dilations
DAY 74	Topic 24	Similar Figures
DAY 74	Topic 24	Relating Similar Triangles and Slope
DAY 75	Topic 24	Problem Solving, Topic Review
DAY 75	Topic 24	**Topic Assessment**
DAY 76	Topic 25	Angles, Lines, and Transversals
DAY 76	Topic 25	Reasoning and Parallel Lines
DAY 77	Topic 25	Interior Angles of Triangles
DAY 77	Topic 25	Exterior Angles of Triangles
DAY 78	Topic 25	Angle-Angle Triangle Similarity
DAY 78	Topic 25	Problem Solving, Topic Review
DAY 79	Topic 25	**Topic Assessment**
DAY 79	Topic 26	Surface Areas of Cylinders, Volumes of Cylinders
DAY 80	Topic 26	Surface Areas of Cones, Volumes of Cones
DAY 80	Topic 26	Problem Solving, Topic Review
DAY 81	Topic 26	**Topic Assessment**
DAY 81	Topic 26	**Unit Assessment for Unit IV**

Grade 6
Year-Long Curriculum Guide

***digits* Grade 6** is a comprehensive curriculum, designed to be taught over the course of a full school year. This Year-Long Curriculum Guide offers a suggested pacing for the teaching of the course. The suggested number of days for each topic is based on a 45-minute class period. The number of days spent on each topic will vary from class to class and from year to year depending on the learning needs of the students.

August/September	October	November
Topic 1: Variables and Expressions	**Topic 3: Equations and Inequalities**	**Topic 5: Multiplying Fractions**
Pacing: 10 days	**Pacing:** 10 days	**Pacing:** 9 days
Focus Concepts/Skills: numeric and algebraic expressions; exponents; order of operations	**Focus Concepts/Skills:** solving one-variable equations; solving one-variable inequalities; graphing solutions of one-variable inequalities	**Focus Concepts/Skills:** multiplying fractions
Key Math Terms: numerical expression, term, variable, algebraic expression, coefficient, constant, power, base, exponent	**Key Math Terms:** equation, equivalent expressions, equivalent equations, inverse operations, inequality	**Key Math Terms:** denominator, numerator, proper fraction, mixed number, improper fraction
Topic 2: Equivalent Expressions	**Topic 4: Two-Variable Relationships**	**Topic 6: Dividing Fractions**
Pacing: 10 days	**Pacing:** 8 days	**Pacing:** 9 days
Focus Concepts/Skills: Identity Property; Zero Property; Commutative Properties; Associative Properties; Distributive Properties	**Focus Concepts/Skills:** representing algebraic relationships using tables, graphs, and equations	**Focus Concepts/Skills:** dividing fractions
Key Math Terms: factor, greatest common factor, prime number, prime factorization, Distributive Property, least common multiple	**Key Math Terms:** dependent variable, independent variable, variable	**Key Math Terms:** reciprocals, proper fraction, quotient, unit fraction, improper fraction, mixed number

Grade 6 Year-Long Curriculum Guide *continued*

December	January	February
Topic 7: Fluency with Decimals	**Topic 8: Integers**	**Topic 10: Ratios**
Pacing: 11 days	**Pacing:** 9 days	**Pacing:** 10 days
Focus Concepts/Skills: operating with decimals and fractions; comparing decimals and fractions	**Focus Concepts/Skills:** representing integers; comparing and ordering integers; solving problems involving absolute value	**Focus Concepts/Skills:** ratios; solving problems involving ratios
Key Math Terms: compatible numbers	**Key Math Terms:** opposites, integer, absolute value, coordinate plane, quadrant, transformation, ordered pair	**Key Math Terms:** ratio, terms of a ratio, part-to-part ratio, part-to-whole ratios, whole-to-part ratio, equivalent ratio
Winter Break	**Topic 9: Rational Numbers**	**Topic 11: Rates**
	Pacing: 10 days	**Pacing:** 9 days
	Focus Concepts/Skills: representing rational numbers; comparing and ordering rational numbers; solving problems involving polygons in the coordinate plane	**Focus Concepts/Skills:** rates; unit rates; solving problems involving rates
	Key Math Terms: rational number, polygon, vertex of a polygon	**Key Math Terms:** rate, unit rate, unit price, conversion factor

March	April	May
Topic 12: Ratio Reasoning	**Topic 14: Surface Area and Volume**	**Topic 16: Measures of Center and Variation**
Pacing: 9 days	**Pacing:** 10 days	**Pacing:** 10 days
Focus Concepts/Skills: proportional relationships; percents; solving problems involving proportional relationships and percents	**Focus Concepts/Skills:** nets; analyzing three-dimensional figures; solving surface area and volume problems	**Focus Concepts/Skills:** summarizing data sets using measures of center and variability
Key Math Terms: proportion, proportional relationship, percent, circle graph	**Key Math Terms:** three-dimensional figure, prism, pyramid, net, surface area of a three-dimensional figure, volume of a prism	**Key Math Terms:** measure of center, median, mean, variability, measure of variability, range, interquartile range, deviate, mean absolute deviation
Topic 13: Area	**Topic 15: Data Displays**	
Pacing: 10 days	**Pacing:** 10 days	
Focus Concepts/Skills: solving area problems involving polygons	**Focus Concepts/Skills:** describing and displaying numerical data sets	
Key Math Terms: area, right triangle, vertex of a polygon, area of a triangle, area of a parallelogram, acute triangle, obtuse triangle, polygon	**Key Math Terms:** statistical question, data, dot plot, frequency, distribution of a data set, histogram, box plot	

Grade 7
Year-Long Curriculum Guide

***digits* Grade 7** is a comprehensive curriculum, designed to be taught over the course of a full school year. This Year-Long Curriculum Guide offers a suggested pacing for the course. The suggested number of days for each topic is based on a 45-minute class period. The number of days spent on each topic will vary from class to class and from year to year depending on the learning needs of the students.

August/September	October	November
Topic 1: Ratios and Rates	**Topic 3: Percents**	**Topic 5: Multiplying and Dividing Rational Numbers**
Pacing: 9 days	**Pacing:** 11 days	**Pacing:** 9 days
Focus Concepts/Skills: unit rates; solving problems involving ratios and rates	**Focus Concepts/Skills:** solving mathematical and real-world problems involving percents; simple interest; compound interest	**Focus Concepts/Skills:** multiplying and dividing rational numbers
Key Math Terms: ratio, terms of a ratio, equivalent ratios, unit rate, unit price, least common multiple	**Key Math Terms:** commission, interest, simple interest, compound interest, markup, markdown, percent of increase, percent of decrease	**Key Math Terms:** reciprocals, complex fraction
Topic 2: Proportional Relationships	**Topic 4: Adding and Subtracting Rational Numbers**	**Topic 6: Decimals and Percents**
Pacing: 9 days	**Pacing:** 11 days	**Pacing:** 11 days
Focus Concepts/Skills: recognizing and representing proportional relationships; identifying a constant of proportionality; solving problems involving scale drawings	**Focus Concepts/Skills:** adding and subtracting rational numbers; absolute value	**Focus Concepts/Skills:** repeating and terminating decimals; percents greater than 100 and less than 1; percent error
Key Math Terms: proportional relationship, constant of proportionality, dependent variable, independent variable, scale drawing	**Key Math Terms:** absolute value, integers, rational numbers, whole numbers, additive inverses	**Key Math Terms:** repeating decimals, terminating decimals, percent error

December	January	February
Topic 7: Equivalent Expressions	**Topic 8: Equations**	**Topic: 10 Angles**
Pacing: 9 days	**Pacing:** 8 days	**Pacing:** 10 days
Focus Concepts/Skills: add, subtract, factor, and expand algebraic expressions	**Focus Concepts/Skills:** writing and solving two-step equations	**Focus Concepts/Skills:** acute angles; obtuse angles; right angles; straight angles; adjacent angles; complementary and supplementary angles; solving problems involving angle measures
Key Math Terms: expand an algebraic expression, like terms, factor an algebraic expression, coefficients, constants, simplify an algebraic expression	**Key Math Terms:** isolate, two-step equation	**Key Math Terms:** angle, vertex of an angle, straight angle, obtuse angle, right angle, acute angle, adjacent angles, complementary angles, supplementary angles, vertical angles
Winter Break	**Topic 9: Inequalities**	**Topic 11: Circles**
	Pacing: 9 days	**Pacing:** 8 days
	Focus Concepts/Skills: writing and solving inequalities	**Focus Concepts/Skills:** circles; solving problems involving the area and circumference of circles
	Key Math Terms: inequality, solution of an inequality, solution set, equivalent inequalities	**Key Math Terms:** circle, center of a circle, radius, diameter, circumference of a circle, area of a circle

Grade 7 Year-Long Curriculum Guide *continued*

March	April	May
Topic 12: 2- and 3-Dimensional Shapes	**Topic 14: Sampling**	**Topic 16: Probability Concepts**
Pacing: 9 days	**Pacing:** 11 days	**Pacing:** 10 days
Focus Concepts/Skills: constructing triangles given certain conditions; describing cross-sections of 3-D figures	**Focus Concepts/Skills:** sampling methods; drawing inferences about a population; generalizing about a population	**Focus Concepts/Skills:** probability models; experimental and theoretical probabilities of simple events
Key Math Terms: quadrilateral, parallel, perpendicular, included side, included angle, net, pyramid, cross-section	**Key Math Terms:** population, sample of a population, representative sample, biased sample, inference, valid inference, convenience sampling, systematic sampling, simple random sampling	**Key Math Terms:** probability of an event, outcome, sample space, event, relative frequency, experimental probability, theoretical probability, probability model, uniform probability model
Topic 13: Surface Area and Volume	**Topic 15: Comparing Two Populations**	**Topic 17: Compound Events**
Pacing: 9 days	**Pacing:** 10 days	**Pacing:** 11 days
Focus Concepts/Skills: solving surface area and volume problems involving right prisms and right pyramids	**Focus Concepts/Skills:** measures of center; measures of variability	**Focus Concepts/Skills:** find theoretical and experimental probabilities of compound events; use simulations to find probabilities
Key Math Terms: lateral area of a prism, surface area of a prism, prism, lateral face, volume of a prism, volume of a cube, pyramid, height of a pyramid, lateral area of a pyramid, surface area of a pyramid, slant height of a pyramid, volume of a pyramid	**Key Math Terms:** median, mean, range, interquartile range, comparative inference, mean absolute deviation	**Key Math Terms:** action, compound event, independent events, dependent events, sample space, the Counting Principle

Grade 8
Year-Long Curriculum Guide

digits **Grade 8** is a comprehensive curriculum, designed to be taught over the course of a full school year. This Year-Long Curriculum Guide offers a suggested pacing for the teaching the entire course. The suggested number of days for each topic is based on a 45 minute class period. The number of days spent on each topic will vary from class to class and from year to year depending on the learning needs of the students.

August/September	October	November
Topic 1: Rational and Irrational Numbers	**Topic 3: Integer Exponents**	**Topic 5: Proportional Relationships, Lines, and Linear Equations**
Pacing: 10 days	**Pacing:** 10 days	**Pacing:** 10 days
Focus Concepts/Skills: irrational numbers; approximating irrational numbers; ordering rational and irrational numbers	**Focus Concepts/Skills:** radicals; integer exponents	**Focus Concepts/Skills:** graphing proportional relationships; writing and graphing linear equations
Key Math Terms: rational number, repeating decimal, terminating decimal, irrational number, perfect square, real numbers, square root	**Key Math Terms:** perfect square, square root, perfect cube, cube root, power of a power, power of a product, power of a quotient, Zero Exponent Property, Negative Exponent Property	**Key Math Terms:** linear equation, slope of a line, *y*-intercept, slope-intercept form
Topic 2: Linear Equations in One Variable	**Topic 4: Scientific Notation**	**Topic 6: Systems of Two Linear Equations**
Pacing: 9 days	**Pacing:** 9 days	**Pacing:** 11 days
Focus Concepts/Skills: solving multi-step equations; solving equations with variables on both sides of the equal sign	**Focus Concepts/Skills:** expressing numbers in scientific notation; solving problems involving scientific notation	**Focus Concepts/Skills:** solving systems of linear equations
Key Math Terms: isolate, like terms, Distributive Property, least common multiple, no solution, infinitely many solutions	**Key Math Terms:** scientific notation, standard form	**Key Math Terms:** system of linear equations, solution of a system of linear equations, ordered pair, substitution method, addition method, subtraction method

Grade 8 Year-Long Curriculum Guide *continued*

December	January	February
Topic 7: Defining and Comparing Functions	**Topic 8: Linear Functions**	**Topic 10: Similarity**
Pacing: 11 days	**Pacing:** 10 days	**Pacing:** 7 days
Focus Concepts/Skills: linear and nonlinear functions; identifying functions using mapping diagrams and the vertical-line test; rate of change	**Focus Concepts/Skills:** linear functions; constructing linear functions to model real-world situations	**Focus Concepts/Skills:** similar figures; dilations; relating similar triangles and slope; solving problems using indirect measure
Key Math Terms: relation, function, input, output, mapping diagram, vertical line test, rate of change, linear function, nonlinear function, interval	**Key Math Terms:** linear function, linear function rule, rate of change, initial value, dependent variable, independent variable	**Key Math Terms:** dilation, enlargement, reduction, scale factor, similar figures, indirect measurement, scale drawing
Winter Break	**Topic 9: Congruence**	**Topic 11: Reasoning in Geometry**
	Pacing: 9 days	**Pacing:** 9 days
	Focus Concepts/Skills: transformations; rigid motions; congruence	**Focus Concepts/Skills:** angles formed by two parallel lines cut by a transversal; interior and exterior angles of a triangle; angle-angle triangle similarity
	Key Math Terms: image, rigid motion, transformation, translation, line of reflection, reflection, angle of rotation, center of rotation, rotation, congruent figures	**Key Math Terms:** transversal, corresponding angles, alternate interior angles, deductive reasoning, exterior angle of a triangle, remote interior angles

March	April	May
Topic 12: Using the Pythagorean Theorem	**Topic 14: Scatter Plots**	**Topic 15: Analyzing Categorical Data**
Pacing: 9 days	**Pacing:** 11 days	**Pacing:** 11 days
Focus Concepts/Skills: Pythagorean Theorem; Converse of the Pythagorean Theorem	**Focus Concepts/Skills:** constructing and interpreting scatter plots; finding an equation of a line of best fit for a scatter plot	**Focus Concepts/Skills:** two-way relative frequency tables; investigating patterns of association in bivariate categorical data
Key Math Terms: proof, theorem, leg of a right triangle, hypotenuse, Pythagorean Theorem, Converse of the Pythagorean Theorem	**Key Math Terms:** scatter plot, cluster, gap, outlier, trend line, median-median line	**Key Math Terms:** bivariate data, categorical data, bivariate categorical data, measurement data, two-way frequency table, two-way table, two-way relative frequency table
Topic 13: Surface Area and Volume		
Pacing: 11 days		
Focus Concepts/Skills: solving surface area and volume problems involving cylinders, cones, and spheres		
Key Math Terms: cylinder, lateral area of a cylinder, surface area of a cylinder, volume of a cylinder, cone, lateral area of a cone, surface area of a cone, volume of a cone, sphere, surface area of a sphere, volume of a sphere		

Accelerated Grade 7
Year-Long Curriculum Guide

***digits* Accelerated Grade 7** is a comprehensive curriculum, designed to be taught over the course of a full school year. This Year-Long Curriculum Guide offers a suggested pacing for the teaching of the course. The suggested number of days for each topic is based on a 45-minute class period. The number of days spent on each topic will vary from class to class and from year to year depending on the learning needs of the students.

August/September	October	November
Topic 1: Adding and Subtracting Rational Numbers	**Topic 4: Rational and Irrational Numbers**	**Topic 7: Ratios and Rates**
Pacing: 7 days	**Pacing:** 5 days	**Pacing:** 7 days
Focus Concepts/Skills: adding and subtracting rational numbers; absolute value	**Focus Concepts/Skills:** approximating irrational numbers; ordering rational and irrational numbers	**Focus Concepts/Skills:** unit rates; solving problems involving ratios and rates
Key Math Terms: absolute value, integers, rational numbers, whole numbers, additive inverses	**Key Math Terms:** irrational number, perfect square, real numbers, square root	**Key Math Terms:** ratio, terms of a ratio, equivalent ratios, unit rate, unit price, least common multiple
Topic 2: Multiplying and Dividing Rational Numbers	**Topic 5: Integer Exponents**	**Topic 8: Proportional Relationships**
Pacing: 5 days	**Pacing:** 8 days	**Pacing:** 7 days
Focus Concepts/Skills: multiplying and dividing rational numbers	**Focus Concepts/Skills:** radicals; integer exponents	**Focus Concepts/Skills:** recognizing and representing proportional relationships; identifying a constant of proportionality; solving problems involving scale drawings
Key Math Terms: reciprocals, complex fraction	**Key Math Terms:** perfect cube, cube root, power of a power, power of a product, power of a quotient, Zero Exponent Property, Negative Exponent Property	**Key Math Terms:** proportional relationship, constant of proportionality, dependent variable, independent variables, scale drawing
Topic 3: Decimals and Percents	**Topic 6: Scientific Notation**	**Topic 9: Percents**
Pacing: 5 days	**Pacing:** 6 days	**Pacing:** 8 days
Focus Concepts/Skills: repeating and terminating decimals; percents greater than 100 and less than 1; percent error	**Focus Concepts/Skills:** expressing numbers in scientific notation; solving problems involving scientific notation	**Focus Concepts/Skills:** solving mathematical and real-world problems involving percents; simple interest; compound interest
Focus Concepts/Skills: repeating decimals, terminating decimals, percent error	**Focus Concepts/Skills:** scientific notation, standard form	**Focus Concepts/Skills:** commission, interest, simple interest, compound interest, markup, markdown, percent of increase, percent of decrease

December	January	February
Topic 10: Equivalent Expressions	**Topic 12: Linear Equations in One Variable**	**Topic 15: Sampling**
Pacing: 6 days	**Pacing:** 5 days	**Pacing:** 9 days
Focus Concepts/Skills: add, subtract, factor, and expand algebraic expressions	**Focus Concepts/Skills:** solving multi-step equations; solving equations with variables on both sides of the equal sign	**Focus Concepts/Skills:** sampling methods; drawing inferences about a population; generalizing about a population
Key Math Terms: expand an algebraic expression, like terms, factor an algebraic expression, coefficients, constants, simplify an algebraic expression	**Key Math Terms:** like terms, Distributive Property, least common multiple, no solution, infinitely many solutions	**Key Math Terms:** population, sample of a population, representative sample, biased sample, inference, valid inference, convenience sampling, systematic sampling, simple random sampling
Topic 11: Equations	**Topic 13: Inequalities**	**Topic 16: Comparing Two Populations**
Pacing: 3 days	**Pacing:** 5 days	**Pacing:** 6 days
Focus Concepts/Skills: writing and solving two-step equations	**Focus Concepts/Skills:** writing and solving inequalities	**Focus Concepts/Skills:** measures of center; measures of variability
Key Math Terms: isolate, two-step equation	**Key Math Terms:** inequality, solution of an inequality, solution set, equivalent inequalities	**Key Math Terms:** median, mean, range, interquartile range, comparative inference, mean absolute deviation
Winter Break	**Topic 14: Proportional Relationships, Lines, and Linear Equations**	**Topic 17: Probability Concepts**
	Pacing: 9 days	**Pacing:** 7 days
	Focus Concepts/Skills: graphing proportional relationships; writing and graphing linear equations	**Focus Concepts/Skills:** probability models; experimental and theoretical probabilities of simple events
	Key Math Terms: linear equation, slope of a line, *y*-intercept, slope-intercept form	**Key Math Terms:** probability of an event, outcome, sample space, event, relative frequency, experimental probability, theoretical probability, probability model, uniform probability model

Accelerated Grade 7 Year-Long Curriculum Guide *continued*

March	April	May
Topic 18: Compound Events	**Topic 21: 2- and 3-Dimensional Shapes**	**Topic 24: Similarity**
Pacing: 9 days	**Pacing:** 5 days	**Pacing:** 5 days
Focus Concepts/Skills: theoretical and experimental probabilities of compound events; using simulations to find probabilities	**Focus Concepts/Skills:** constructing triangles given certain conditions; describing cross-sections of 3-D figures	**Focus Concepts/Skills:** similar figures; dilations; relating similar triangles and slope
Key Math Terms: action, compound event, independent events, dependent events, sample space, the Counting Principle	**Key Math Terms:** quadrilateral, parallel, perpendicular, included side, included angle, net, pyramid, cross-section	**Key Math Terms:** dilation, enlargement, reduction, scale factor, similar figures, indirect measurement, scale drawing
Topic 19: Angles	**Topic 22: Surface Area and Volume**	**Topic 25: Reasoning in Geometry**
Pacing: 6 days	**Pacing:** 6 days	**Pacing:** 7 days
Focus Concepts/Skills: acute angles; obtuse angles; right angles; straight angles; adjacent angles; complementary and supplementary angles; solving problems involving angle measures	**Focus Concepts/Skills:** solving surface area and volume problems involving right prisms and right pyramids	**Focus Concepts/Skills:** angles formed by two parallel lines cut by a transversal; interior and exterior angles of a triangle; angle-angle triangle similarity
Key Math Terms: angle, vertex of an angle, straight angle, obtuse angle, right angle, acute angle, adjacent angles, complementary angles, supplementary angles, vertical angles	**Key Math Terms:** lateral area of a prism, surface area of a prism, prism, lateral face, volume of a prism, volume of a cube, pyramid, height of a pyramid, lateral area of a pyramid, surface area of a pyramid, slant height of a pyramid, volume of a pyramid	**Key Math Terms:** transversal, corresponding angles, alternate interior angles, deductive reasoning, exterior angle of a triangle, remote interior angles
Topic 20: Circles	**Topic 23: Congruence**	**Topic 26: Surface Area and Volume**
Pacing: 5 days	**Pacing:** 7 days	**Pacing:** 6 days
Focus Concepts/Skills: circles; solving problems involving the area and circumference of circles	**Focus Concepts/Skills:** transformations; rigid motions; congruence	**Focus Concepts/Skills:** solving volume and surface area problems involving cylinders, cones, and spheres
Key Math Terms: circle, center of a circle, radius, diameter, circumference of a circle, area of a circle	**Key Math Terms:** image, rigid motion, transformation, translation, line of reflection, reflection, angle of rotation, center of rotation, rotation, congruent figures	**Key Math Terms:** cylinder, lateral area of a cylinder, surface area of a cylinder, volume of a cylinder, cone, lateral area of a cone, surface area of a cone, volume of a cone, sphere, surface area of a sphere, volume of a sphere

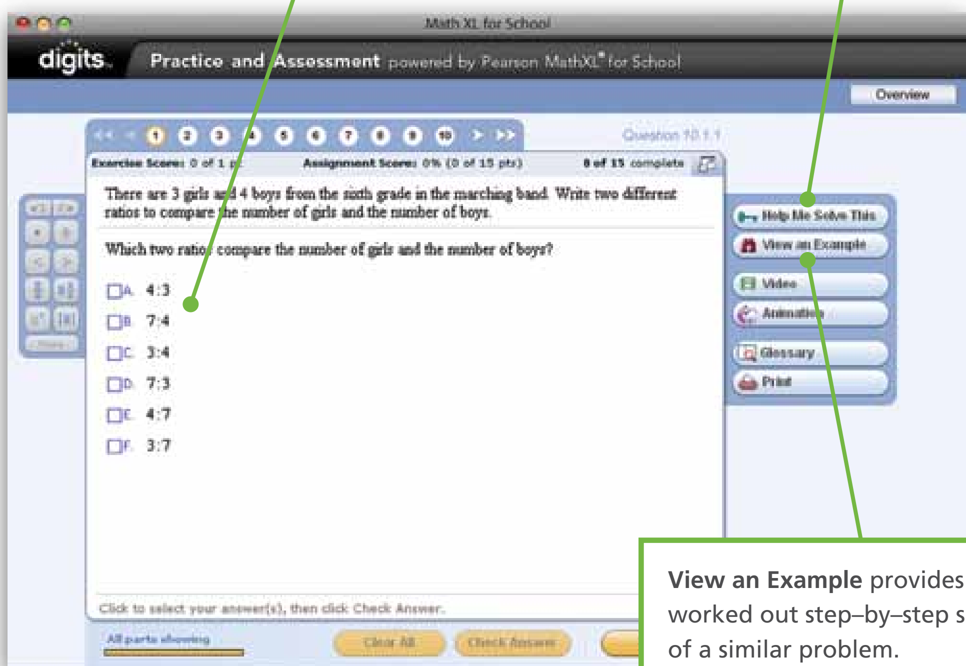
Progress Monitoring

Homework and Practice

Homework and practice in ***digits*** is powered by MathXL for School, an award-winning program used by over 5 million students nationwide. Assignments are differentiated according to the results of the Readiness Assessment. Students with prerequisite deficiencies are provided with supportive practice problems that help develop mathematical thinking and students with little or no deficiencies are provided additional challenge to extend their understanding. Homework has 2 parts: **Lesson Practice** and **Mixed Review**. Lesson practice includes problems that support the instruction of the corresponding lesson. Mixed Review contains exercises that address previously taught content.

Items are presented in a variety of formats including multiple choice, gridded response, and open response. Additionally, they are algorithmically generated, which provides students with unlimited practice.

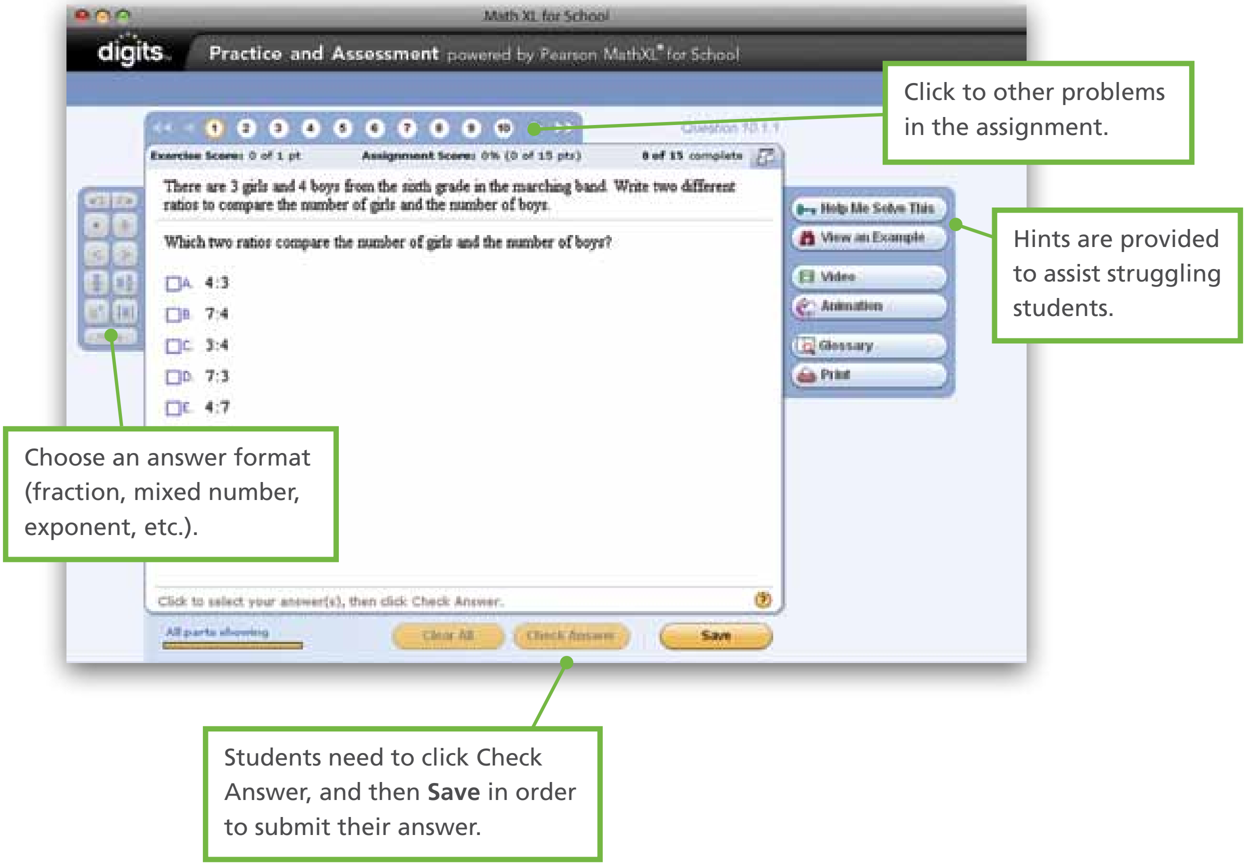
Help Me Solve This scaffolds the problem by breaking it down into individual steps. Students are provided with instant feedback for each step in order to address any misconceptions at the source.



View an Example provides a fully worked out step–by–step solution of a similar problem.

The homework and practice in ***digits*** provides teachers with daily formative assessment data to drive instruction. Because teachers can view results, they can adapt instruction for the very next lesson. Paired with the lesson's Close and Check, teachers have both qualitative student data with work shown in the Student Companion and quantitative student data with homework and practice results tabulated in the gradebook.

Homework online includes learning aids and auto-reporting. The learning aids have been shown to have significant impact on student performance. **Powered by MathXL, *digits*** learning aids include access to another example that is similar to the assigned problem, and an ability to step out the problem.



Assessments

Diagnostic assessments include a Beginning of Year test as well as Readiness Assessments at the start of each unit.

Summative assessments in ***digits*** are comprehensive.

- Topic Tests assess a collection of related lessons
- Unit Tests assess a group of related topics
- Mid-year Test assesses the first half of the course
- Full-year Test assess the entire course

Additionally, Topic Tests are available with or without study plans. The Topic Test Study Plan will assign to students a review of the Key Concepts associated to the assessment items answered incorrectly.

Four benchmark assessments are also available to measure students' progress against grade-level standards.

Assessing the Standards for Mathematical Practice

The rubric on the following pages can help teachers to assess their students' progress towards becoming proficient mathematical thinkers. The rubric is based on the Standards for Mathematical Practice and can be used as a formative assessment tool to monitor students' progress towards becoming proficient mathematical thinkers.

Rubric For Formative Assessment

	Sense-Making and Solution Plan MP1, MP6	Reasoning and Argumentation MP2, MP3
4	Student's solution suggests a thorough understanding of the problem situation and the mathematics required to solve the problem. The solution plan presented suggests a comprehensive understanding of the mathematical concepts required to solve the problem.	Student's explanations show logical and appropriate connections among concepts; they also show the thinking of a highly proficient problem-solver. Student defends claims with well-reasoned, valid, and thoughtful arguments.
3	Student's solution suggests an adequate understanding of the problem situation and the mathematics required to solve the problem. The solution plan presented suggests an adequate understanding of the mathematical concepts required to solve the problem.	Student's explanations show some appropriate connections among concepts; they also show the thinking of a good problem-solver. Student defends claims with valid and appropriate arguments.
2	Student's solution suggests a limited understanding of the problem situation and the mathematics required to solve the problem. The solution plan presented suggests a limited understanding of the mathematical concepts required to solve the problem.	Student's explanations show limited connections among concepts; they also show the thinking of an underdeveloped problem-solver. Student presents weak arguments to defend claims.
1	Student's solution suggests a very limited understanding of the problem situation and the mathematics required to solve the problem. The solution plan presented suggests a tentative understanding of the mathematical concepts required to solve the problem.	Student's explanations show minimal connections among concepts; they also show the thinking of an inefficient problem-solver. Student minimally defends claims; arguments are not grounded in mathematical understanding.
0	Student's solution suggests minimal understanding of the problem situation and the mathematics required to solve the problem. The solution plan presented suggests no understanding of the mathematical concepts required to solve the problem.	Student's explanations show no connections among concepts; they also show the thinking of an ineffective problem-solver. Student is unable to defend claims.

Throughout ***digits*** there are many opportunities to students to demonstrate their progress towards becoming proficient mathematical thinkers. Teachers may want to use this rubric to assess students' answers to a **Launch, Close and Check** exercises in the Student Companion, or a **Pull It All Together**. Teachers may also want to use this rubric to assess students' written answers to homework such as Reasoning, Error Analysis, or Open-Ended exercises. Teachers can use this rubric to track students' progress throughout the year and adjust teaching to help students develop their mathematical thinking.

	Models MP4, MP5	Precision MP6	Structure of Mathematics MP7, MP8
4	Student's solution shows relevant and appropriate mathematical modeling of the problem situation. Student proposes and uses tools that suggest comprehensive understanding of math concepts.	Student's solution and explanation shows precise and appropriate mathematical terminology and notation.	Student's explanation suggests a deep understanding of concepts and the structure of mathematics.
3	Student's solution shows appropriate mathematical modeling of the problem situation. Student proposes and uses appropriate tools.	Student's solution and explanation show appropriate mathematical terminology and notation.	Student's explanation suggests an adequate understanding of concepts and the structure of mathematics.
2	Student's solution shows limited, but appropriate mathematical modeling of the problem situation. Student proposes and uses tools, but does not adequately justify or explain their use.	Student's solution and explanation shows some imprecision or errors in use of mathematical terminology and notation.	Student's explanation suggests a limited understanding of concepts and the structure of mathematics.
1	Student's solution shows limited and at time inappropriate mathematical modeling of the problem situation. Student proposes and uses tools that are minimally relevant to the problem situation.	Student's solution and explanation shows many errors in the use of mathematical terminology and notation.	Student's explanation suggests a minimal understanding of concepts and the structure of mathematics.
0	Student's solution shows no mathematical modeling of the problem situation. Student proposes and uses tools that are not appropriate to solve the problem situation or student does not propose tools.	Student's solution and explanation shows an absence of mathematical terminology and notation.	Student's explanation suggests no understanding of concepts and/or the structure of mathematics.

Components

Components in ***digits*** are streamlined to minimize materials management.

During class, teachers access and present the digital lessons through the online teacher site **MathDashboard.com/digits**, or from the Teacher Resources DVD-ROM while students utilize their Write-in Student Companions.

Outside of class, teachers complete planning activities, manage student assignments, and review student performance through the online teacher site **MathDashboard.com/digits**. Students access differentiated homework through the online student site **www.MyMathUniverse.com**. Students can reference class lessons on the website as well as through the Write-in Student Companion. Students also access their personal study plans through the online student site.

Please see the table on the opposite page for additional details.

Student Package

MyMathUniverse.com

- class lessons
- differentiated homework
- personal study plan
- automatic software updates
  - *performance improvements*
  - *feature enhancements*
- digital content updates
  - *state standards revisions*
  - *other revisions or additions*

Write-in Student Companion

- approximately four worktext pages per on-level lesson
- approximately two worktext pages per on-level topic review
- annual printed content updates
  - *state standards revisions*
  - *other revisions or additions*

Teacher Package

MathDashboard.com/digits

- class lessons
- lesson planning tools
- student and assignment management tools
- assessment and data management tools
- automatic software updates
  - *performance improvements*
  - *feature enhancements*
- digital content updates
  - *state standards revisions*
  - *other revisions or additions*

Resource Kit

- Program Overview Guide
- Teacher Resources DVD-ROM
  - *class lessons*
  - *lesson plans*
  - *reproducible masters*
  - *answer keys*

Differentiating Instruction

Instruction in ***digits*** is automatically differentiated with Readiness Lessons designed for small groups, daily differentiated homework, and Intervention Lessons assigned through personalized study plans. All differentiation is driven by the results of the Readiness Assessments.

Learner Levels and Study Plans

The Readiness Assessment determines a student's proficiency with pre-requisite content for a unit of instruction. The overall score sets the student's Learner Level for the unit. By default, the Learner Level threshold is 70%. Students with scores at or above 70% are identified as proficient with the pre-requisite content and are assigned G for the Learner Level. Students with scores below 70% are identified as weak with the pre-requisite content and are assigned K for the Learner Level. Teachers can change the Learner Level threshold if desired. Additionally, teachers can change an individual student's Learner Level assignment.

The Learner Level is used to determine how to group students for the Readiness Lesson. The teacher provides pre-requisite instruction to students assigned the K Learner Level (and may include G Learner Level students as well) and distributes the Readiness Lesson activity sheets according to the Learner Level assignments.

The Learner Level also enables the automatic assignment of differentiated online homework throughout the unit. Students assigned the G Learner Level automatically receive homework that includes exercises with increased challenge. Students assigned the K Learner Level automatically receive homework that includes exercises that help them develop mathematical thinking.

In addition to setting the Learner Levels, the Readiness Assessment data is also evaluated to identify specific areas of prerequisite weakness for each student. Personalized study plans with intervention content are generated according to this evaluation.

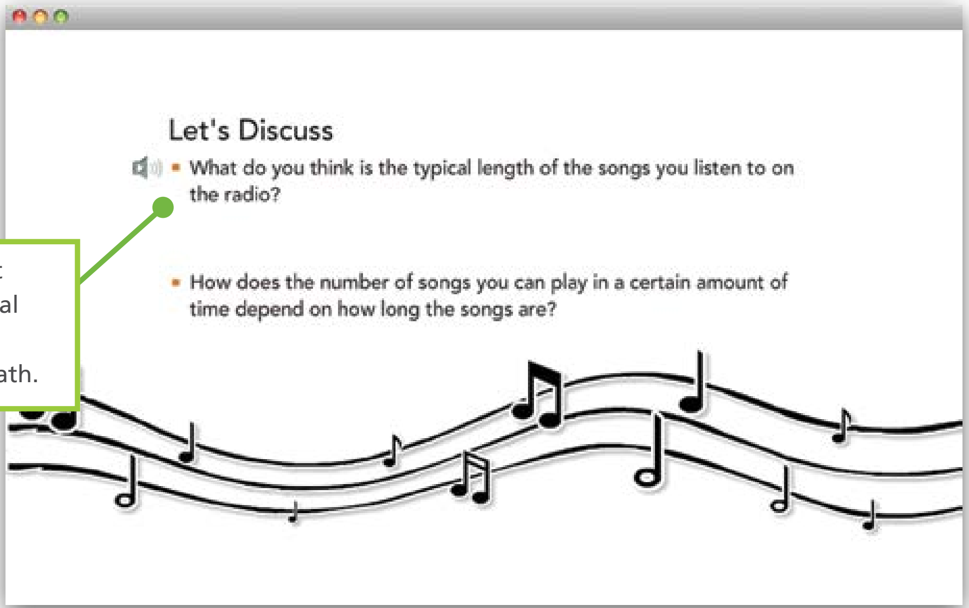
The **Learner Level Settings** can be reviewed and modified through the gradebook. If the Readiness Assessment is not assigned to students, all students are assigned to Learner Level G.

Delivering Readiness Lessons

Prior to delivering the Readiness Lesson, teachers should review the Learner Level assignments for the class, group students accordingly, and duplicate the appropriate quantities of G and K Activity Sheets. Students assigned the K Learner Level should be situated together in close proximity to the interactive whiteboard or screen.

The **Readiness Lesson** has three major parts: **Intro**, **Learn**, and **Close**. The Intro and Close are whole class exchanges, whereas Learn provides additional instruction on the unit's pre-requisites for students assigned Learner Level K. Teachers may use the Learn section with the whole class if desired.

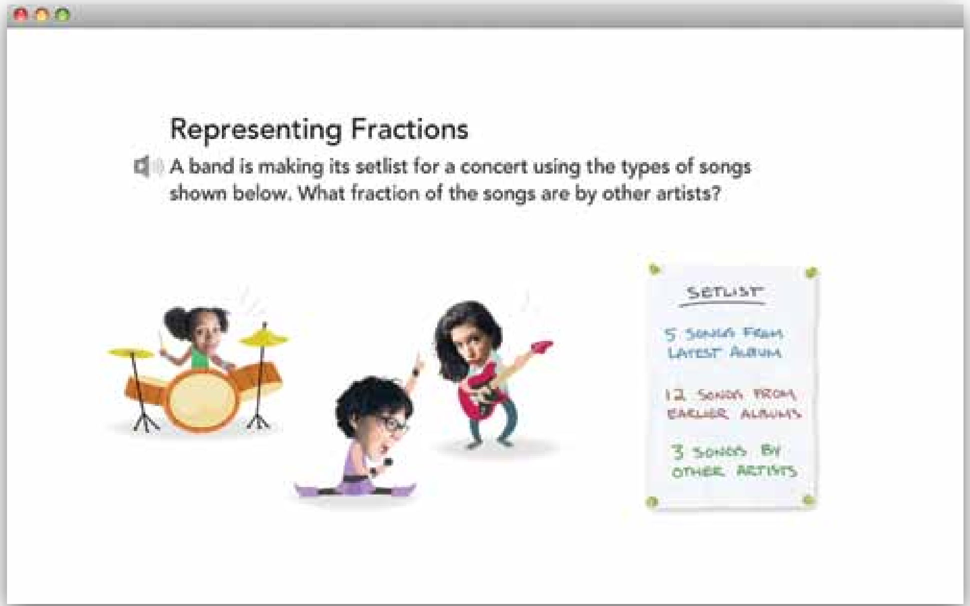
During the **Intro**, a real-world context is established, including its relationship to math, and the lesson's activity is introduced. Students have the opportunity to ask questions about the activity and share personal experiences related to the context. After reviewing the activity, the teacher distributes the activity sheets according to the Learner Level assignments. Students assigned the K Learner Level continue on to the Learn segment of the lesson with the teacher. Students assigned the G Learner Level may also work with the teacher, or they may begin work independently or in pairs on their activity sheets.



Students reflect on their personal experiences to relate to the math.

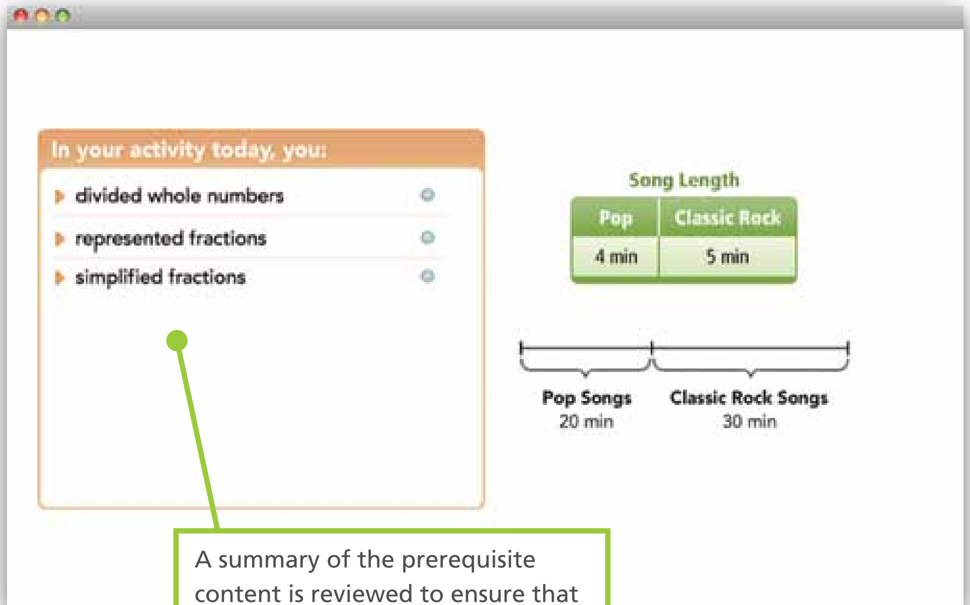
Learn provides additional explicit instruction on the pre-requisite content. Examples illustrate the use of various mathematical concepts and skills in the world context of the lesson. Teachers can model solutions, invite students to the board to solve using various strategies, or display fully worked out solutions.

After working through the examples, students work independently or in pairs within their Learner Level group on their activity sheets. Since students assigned the G Learner Level demonstrated proficiency on the pre-requisite content, the G activity sheet focuses on extending students' understanding with additional challenge. The K activity sheet provides additional scaffolding to support students with weakness in the pre-requisite content.



The whole class is brought together for the **Close**. Students share findings or solutions, discuss various strategies, and explain their reasoning. Because the real world context is common, all students are able to contribute and benefit from the discourse.

Students share and compare solutions and strategies and verbalize reasoning.



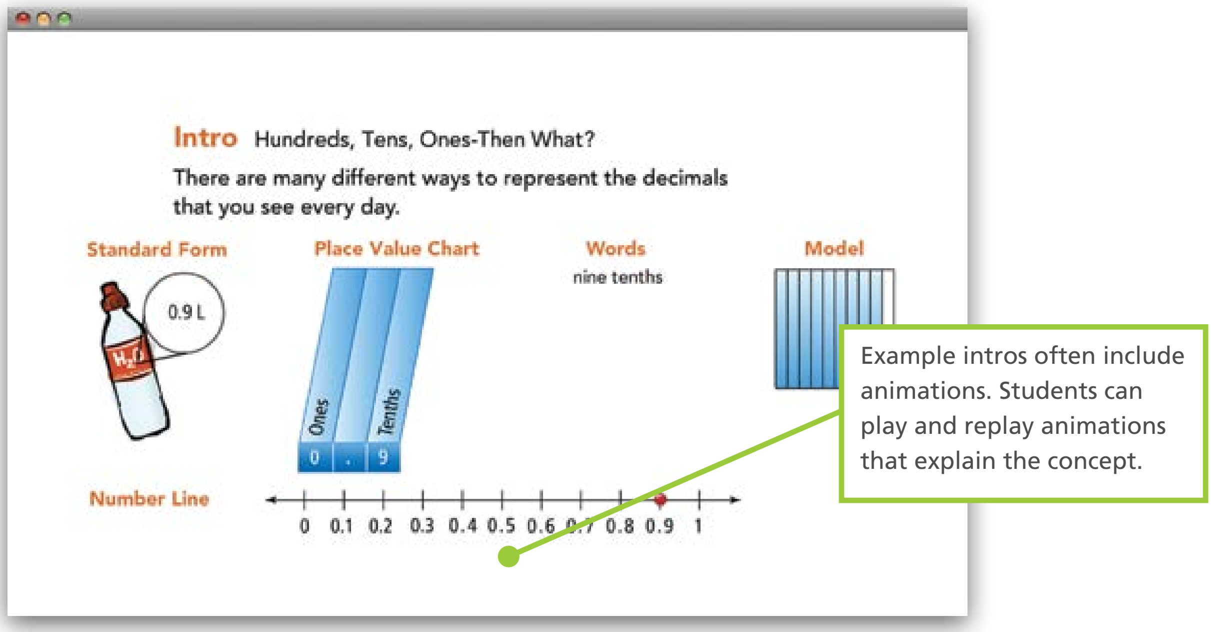
A summary of the prerequisite content is reviewed to ensure that all students are prepared for the upcoming unit of instruction.

Delivering Intervention Lessons

Intervention in ***digits*** is designed to support various implementation models. Intervention lessons can be completed by students independently or can be completed with the guidance of a teacher. Research indicates that students who are on grade level with occasional areas of weakness are able to complete intervention independently, whereas students with large gaps in understanding are best served with additional teacher guidance in a small group setting, such as in an intervention pull-out or a Title 1 class.

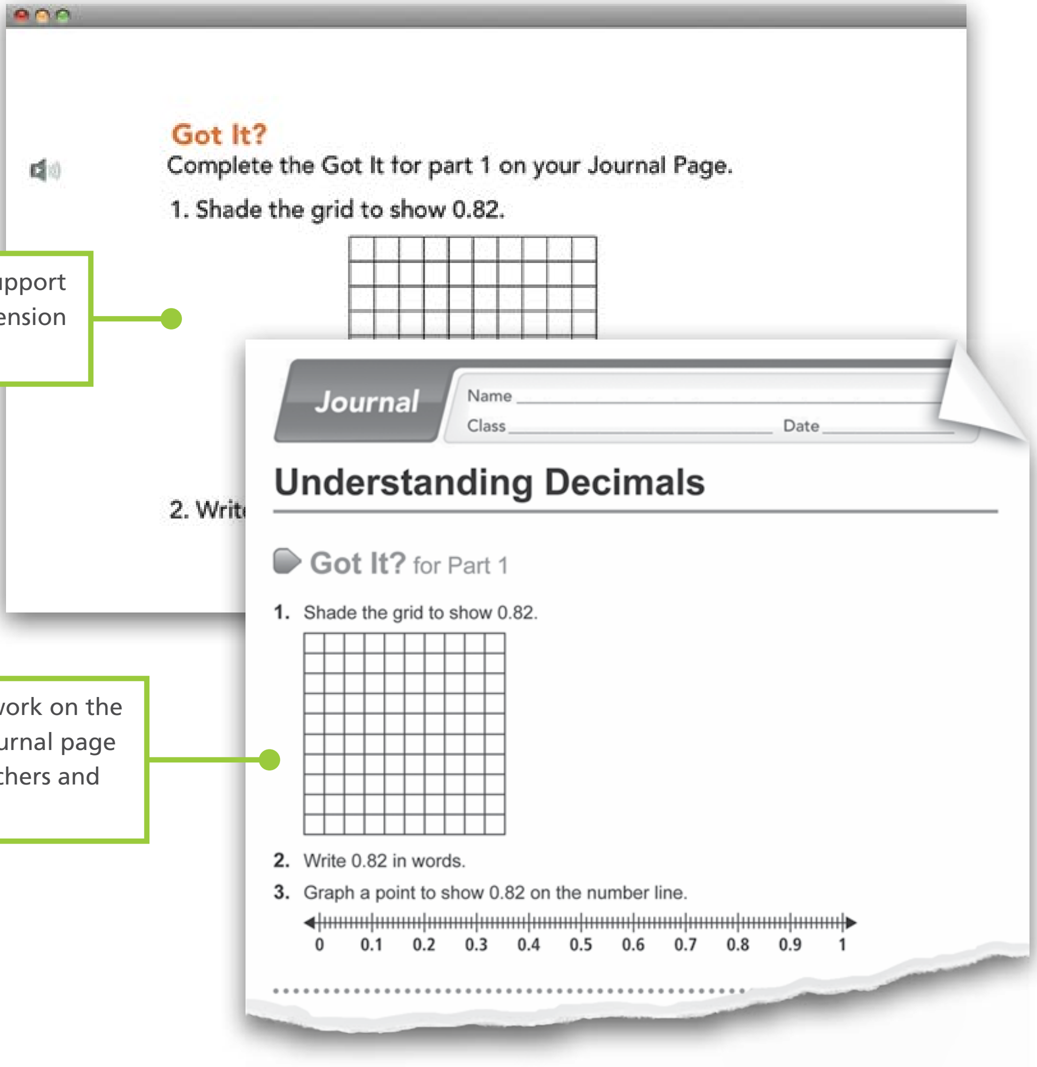
At the start of every unit, teachers should conference with each student to discuss the study plan and provide pacing guidance. Teachers may decide to provide students with incremental milestone dates to assist with pacing. To complete intervention lessons, students need to be online and have access to a printer. After students log in on My Math Universe, they can access an assigned Readiness Assessment. This assessment will generate a Study Plan with appropriate Intervention Lessons. Each Intervention Lesson has an accompanying **Journal page**, which provides students with a scaffolded resource to complete a Got It? for each example and to complete the Lesson Check. Students should print out the Journal page before entering the lesson.

Intervention Lessons have two parts: **Examples** and **Lesson Check**. The Examples provide explicit instruction, an opportunity to try a problem with scaffolding and a solution, and a Got It? problem to assess understanding.

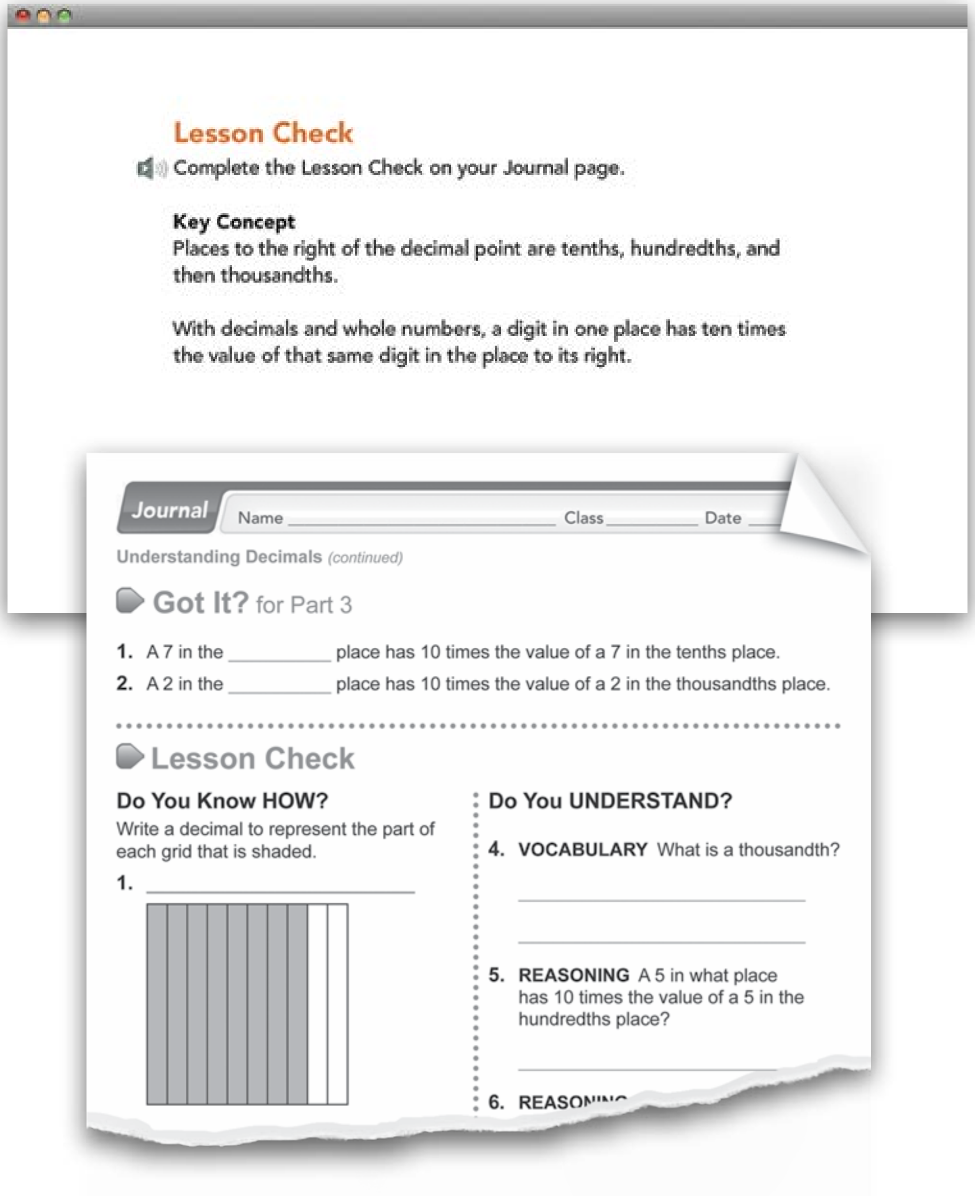


Visual scaffolds support student comprehension and indpendence

Students record work on the accompanying Journal page to share with teachers and for reference



The **Lesson Check** reviews the Key Concept and provides additional problems similar to the examples in the Do You Know How section, and questions that promote reasoning in the Do You Understand section.



Every Intervention Lesson is paired with automatically graded practice exercises that provide teachers with quantitative data on students' understanding of the intervention content.

Assigning a Topic Test with Study Plan

Summative Topic Tests are available with and without study plans. When students take a Topic Test with study plan, they are assigned Key Concepts and additional practice from the lessons that cover any areas of weakness in the topic. Before assigning a Topic Test with study plan, teachers should examine students' work load to ensure that they are not overwhelmed with assignments.

Challenging Gifted Students

Enrichment activities in ***digits*** are provided at both the topic and unit level. These provide opportunities to further assess students' understanding of the math concepts of a unit using research and creativity. Each activity presents a situation or problem to investigate. The student is expected to organize, plan, research, write, and present his or her results. The presentation of results is an extended written response, supported by visuals that may take the form of a game, a model, an interactive whiteboard presentation, a poster, or brochure. Each enrichment activity has a student support page to describe the situation, provide guidelines for each stage of the activity, a project checklist as the activity is completed, and a place for students to reflect on their own work. The teacher support page offers prompting questions to introduce the activity, suggestions for implementation, supporting questions for key stages in the activity, and additional challenge activities to further expand the project. The enrichment activities were designed to support various implementation models. Students can complete enrichment activities independently, by working in groups, or as a whole-class project with the guidance of a teacher. There is also flexibility on the timing of the activities. Enrichment activities can be assigned at the start of a topic or unit or at any time during the work in the topic or unit.

Supporting English Language Learners

English Language Learners in the Math Classroom

English language learners share many characteristics with other students, but they also need support and scaffolding that are specific to them. Why? Because they represent a highly diverse population. They come from many home language backgrounds and cultures. They have a wide range of prior educational and numeracy experiences in their home languages. And they come to school with varying levels of English language proficiency and experience with mainstream U.S. culture.

Helping English language learners acquire content mastery is not enough. English language learners are also expected to participate in yearly high-stakes tests. Research has consistently shown that ELLs usually require at least five years, on average, to catch up to native-speaker norms in academic language proficiency (Cummins, 1981).

The following pages have been designed to help you identify and respond appropriately to the varying needs of ELLs in your classroom. They provide insight on how to help ELLs develop fluency as readers, writers, listeners, and speakers of academic English, while learning mathematical concepts at the same time. In addition, they offer strategies and activities to help you scaffold and support ELL instruction so that all your students can learn in ways that are comprehensible and meaningful, and in ways that promote academic success and achievement.

English Language Learners

Dr. Jim Cummins

Dr. Jim Cummins is Professor and Canada Research Chair in the Centre for Educational Research on Languages and Literacies, part of the Ontario Institute for Studies in Education of the University of Toronto. His research focuses on literacy development in multilingual school contexts as well as on the potential roles of technology in promoting language and literacy development. Jim is actively working on two books that (hopefully) will appear in 2011. One is tentatively titled Pedagogies of Choice for English Language Learners and the other Identity Texts: The Collaborative Creation of Power in Multilingual School Contexts.

Mathematics and Language

Mathematics can legitimately be considered a language in itself in that it employs symbols to represent concepts and operations that facilitate our thinking about aspects of reality. However, mathematics is also intimately related to the natural language that we begin to acquire as infants, the language that we use to communicate in a variety of everyday and academic contexts. Mathematics and language are interconnected at several levels:

- Teachers use natural language to explain mathematical concepts and perform mathematical operations. Students who have limited proficiency in English require additional support in order to understand mathematical concepts and operations taught in English. Among the supports that teachers can use to make instruction comprehensible for English learners are demonstrations using concrete, hands-on manipulatives; graphic organizers; simplification and paraphrasing of instructional language; and direct teaching of key vocabulary.

- As is the case in other academic disciplines, mathematics uses a specialized technical vocabulary to represent concepts and describe operations. Students are required to learn the meanings of such words as *congruence*, *ratio*, *integer*, and *quotient*, words that are likely to be found only in mathematics discourse. Furthermore, other terms have specific meanings in mathematics discourse that differ from their meanings in everyday usage and in other subject areas. Examples of these kinds of terms include words such as *table*, *product*, *even*, and *odd*. Homophones such as sum and some may also be confusing for ELL students. Grade 6 students are required to learn concepts such as least common multiple when ELL students may not know the broader meanings of the words *least* and *common*.

- In addition to the technical vocabulary of mathematics, language intersects with mathematics at the broader level of general vocabulary, syntax, semantics, and discourse. Most mathematical problems require students to understand propositions and logical relations that are expressed through language. Consider this problem at the Grade 6 level:

  A baseball team won 36 games this season, 6 fewer games than last season. Solve the equation $n - 6 = 36$ to find n, the number of games they won last season.

  Here students need to understand (or be able to figure out) the meanings of such words as *equation* and *season*. They need to understand the logical relation expressed by the fewer … than … construction. And they need to infer that the team played more than 36 games last season, even though this fact is not explicitly included in the problem. Clearly, the language demands of the math curriculum increase as students progress through the grades, and these demands can cause particular difficulties for ELL students.

The Challenges of Academic Language

The intersection of language and content entails both challenges and opportunities in teaching English language learners. It is clearly challenging to teach complex math content to students whose knowledge of English academic language may be considerably below the level assumed by the curriculum and textbooks. In a typical math lesson, for example, several difficult words may be explained in the margins. However, there may be many more words in each lesson that are new to ELL students. These gaps in their knowledge of academic language are likely to seriously impede their understanding of the text.

Students may also be unfamiliar with grammatical constructions and typical conventions of academic writing that are present in the text. For example, academic texts frequently use passive voice, whereas we rarely use this construction in everyday conversation. Also, students are often given writing assignments to demonstrate their understanding.

- **Clarify Language (Paraphrase Ideas, Enunciate Clearly, Adjust Speech Rate, and Simplify Sentences)** This category includes a variety of strategies and language-oriented activities that clarify the meanings of new words and concepts. Teachers can modify their language to students by *paraphrasing ideas* and by *explaining new concepts and words*. They can explain new words by providing synonyms, antonyms, and definitions either in English or in the home language of students, if they know it. Important vocabulary can be repeated and recycled as part of the paraphrasing of ideas. Teachers should speak in a natural rhythm, but enunciate clearly and adjust their speech to a rate that ELL students will find easier to understand. Meaning can also be communicated and/or reinforced through gesture, body language, and demonstrations. Because of their common roots in Latin and Greek, much of the technical math vocabulary in English has cognates in Romance languages such as Spanish (e.g., *addition—adición*). Students who know these languages can be encouraged to make cross-linguistic linkages as a means of reinforcing the concept. Bilingual and English-only dictionaries can also be useful tools for language clarification, particularly for intermediate-grade students.

- **Give Frequent Feedback and Expand Student Responses** *Giving frequent feedback* means responding positively and naturally to all forms of responses. Teachers can let their students know how they are doing by responding to both their words and their actions. Teachers can also assess their students' understanding by asking them to give examples, or by asking them how they would explain a concept or idea to someone else. *Expanding student responses* often means using polar (either/or) questions with students who are just beginning to produce oral English and 5 W (who, what, when, where, why) questions with students who are more fluent. Teachers can easily, and casually, expand their students' one- and two-word answers into complete sentences ("Yes, a triangle has one base") and respond to grammatically incorrect answers by recasting them using standard English syntax (Student: "I gotted 4 and 19 thousandths"; Teacher: "That's right, you have 4 and 19 thousandths").

Opportunities for Extending Language

Content teachers are usually acutely aware of the challenges of teaching ELL students within the subject-matter classroom. However, they may be less aware of the opportunities that exist for extending students' knowledge of academic English. Students who are learning math are also learning the language of math. They are learning that there are predictable patterns in the ways we form abstract nouns that describe mathematical processes. For example, many of these nouns are formed by adding the suffix *-tion* to the verb, as in *add/addition, estimate/estimation,* etc.

Similarly, when students report back to the class on their observations of a problem-solving exercise or project, teachers have the opportunity to model the kinds of explicit formal language that is required to talk and write about mathematical operations. The feedback they provide to students on their oral or written assignments clarifies not only the mathematical concepts that students are learning but also the language forms, functions, and conventions that are required to discuss these concepts. Thus, math teachers are also language teachers and have significant opportunities to extend students' ability to understand and use academic language.

Without strong writing skills in English, ELL students will find it difficult to demonstrate content knowledge.

Obviously, teachers focus their instruction on explaining concepts to students, but ELL students may not yet have acquired the English proficiency to understand explanations that are accessible to native speakers of the language. Thus, a major challenge for teachers is to teach content effectively to *all* students, particularly those who are not yet fully proficient in English. Although this challenge is formidable, particularly at the intermediate level, teachers can draw on a knowledge base of recent research findings in order to implement instructional approaches that have proved highly effective in enabling ELL students to gain access to academic content.

“The number of **ELLs** has grown rapidly in the last 15 years to about **5 million students**. Estimates project this number **will increase 100%** to 10 million, **by 2015**.”

—NEA 2008

Access Content

Activating and building students' background knowledge is an essential part of the process of helping students to participate academically and gain access to meaning. When we activate students' prior knowledge, we attempt to modify the "soil" so that the seeds of meaning can take root. However, we can also support or *scaffold* students' learning by modifying the input itself. We provide this scaffolding by embedding the content in a *richly redundant context* wherein there are multiple routes to the mathematical meaning at hand in addition to the language itself. The following list presents a variety of ways of modifying the presentation of mathematical content to ELL students so that they can more effectively get access to the meaning in any given lesson.

- **Use Demonstration** Teachers can take students through a word problem in math, demonstrating step-by-step procedures and strategies in a clear and explicit manner.

- **Use Manipulatives (and Tools and Technology)** In the early grades, manipulatives may include counters and blocks that enable students to carry out a mathematical operation, literally with their hands, and actually see the concrete results of that operation. At the intermediate level, measuring tools, such as rulers and protractors, and technological aids, such as calculators and computers, will be used. The effectiveness of these tools will be enhanced, if they are used within the context of a project that students are intrinsically motivated to initiate and complete.

- **Use Small-Group Interactions and Peer Questioning** Working either as a whole class or in heterogeneous groups or pairs, students can engage in real-life or simulated projects that require application of a variety of mathematical skills.

- **Use Pictures, Real Objects, and Graphic Organizers** We commonly hear the expression "A picture is worth a thousand words." There is a lot of truth to this when it comes to teaching academic content. Visuals enable students to "see" the basic concept we are trying to teach much more effectively than if we rely only on words. Once students grasp the concept, they are much more likely to be able to figure out the meanings of the words we use to talk about it. Among the visuals we can use in presenting math content are these: *pictures/photographs, real objects, graphic organizers, drawings on overhead projectors, and blackline masters*. Graphic organizers are particularly useful because they can be used not only by teachers to present concepts but also by students to take notes, organize their ideas in logical categories, and summarize the results of group brainstorming on particular issues.

The Knowledge Base

There is considerable agreement among researchers about the general patterns of academic development among ELL students and the factors that support students in catching up academically. The following findings are well-established:

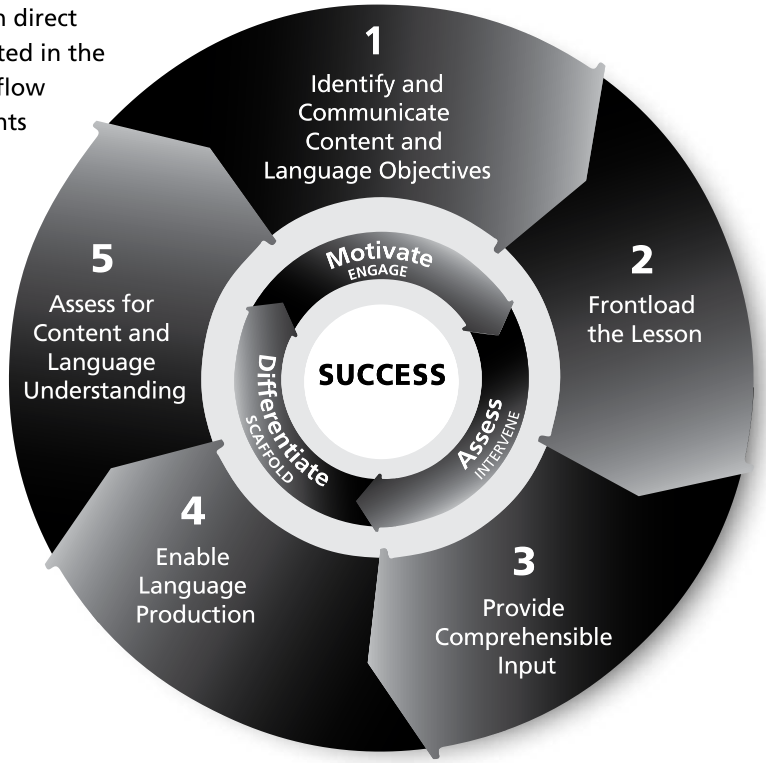
The language of academic success in school is very different from the language we use in everyday conversational interactions. Face-to-face conversational interactions are supported by facial expressions, eye contact, gestures, intonation, and the immediate concrete context. Conversational interactions among native-speakers draw on a core set of high-frequency words (approximately 2,000) and use a limited set of grammatical constructions and discourse conventions. Academic language, by contrast, draws on a much larger set of low-frequency words, including both general academic words and the specific technical vocabulary of a particular content area (e.g., *coordinate plane, triangular prism,* etc.). This language is found predominantly in two places—classrooms and texts (both printed and electronic).

ELL students typically require at least five years to catch up academically to native speakers; by contrast, basic conversational fluency is usually acquired within 1–2 years. These trajectories reflect both the increased linguistic complexity of academic language and the fact that ELL students are attempting to catch up to a moving target. Students whose first language is English are not standing still waiting for ELL students to catch up. Every year, they make gains in reading, writing, and vocabulary abilities. So, ELL students have to learn faster to bridge the gap. The fact that at least five years is typically required for ELL students to catch up academically highlights the urgency of providing academic and linguistic support to students *across the curriculum*. Ideally, ELL teachers and subject-matter teachers will work together to enable ELL students to develop the academic language skills they need to access subject-matter content and succeed academically.

All learning builds on a foundation of preexisting knowledge and skills. For ELL students in the early stages of learning English, this conceptual foundation is likely to be encoded predominantly in their home language (L1). This finding implies that students' L1 is potentially relevant to learning English academic skills and concepts. Students' L1 is the cognitive tool they have used to interact with the world and learn academic content. Thus, rather than ignoring students' L1, we should consider teaching for transfer across languages and encourage students to use their L1 as a stepping stone to higher performance in English academic tasks.

The Savvas ELL Curriculum Framework

The core principles of teaching ELL students across the curriculum are outlined in The Savvas ELL Curriculum Framework. This framework was designed to assist content-area teachers in addressing the needs of the growing and diverse English language learner population. The five principles in the outer circle of the framework represent the ways in which the teacher plans and organizes the delivery of instruction. The three processes in the inner circle highlight what teachers attempt to do in direct interaction with their students. As depicted in the diagram, these principles and processes flow into each other and represent components or phases of a dynamic whole.



1 Identify and Communicate Content and Language Objectives

In planning and organizing a lesson, teachers must first identify what content and language objectives they will attempt to communicate to students.

2 Frontload the Lesson

Frontloading refers to the use of prereading or preinstructional strategies that prepare English language learners to understand new academic content. It involves strategies such as activating prior knowledge, building background, previewing text, preteaching vocabulary, and making connections.

3 Provide Comprehensible Input

Language and content that students can understand is referred to as comprehensible input. Teachers make use of nonlinguistic supports to enable students to understand language and content that would otherwise have been beyond their comprehension. Typical supports or "scaffolds" include graphic organizers, photographs, illustrations, models, demonstrations, outlines, etc. Language clarification and use of paraphrasing also contribute to making the input comprehensible.

4 Enable Language Production Language production complements comprehensible input and is an essential element in developing expertise in academic language. Use of both oral and written language enables students to solve problems, generate insights, express their ideas and identities, and obtain feedback from teachers and peers.

5 Assess for Content and Language Understanding Finally, the instructional cycle flows into assessing what students have learned and then spiraling upwards into further development of students' content knowledge and language expertise.

Classroom Interactions

When we shift into the actual classroom interactions that this lesson cycle generates, a primary focus is on the extent to which teachers' interactions with students motivate them to engage academically. Promotion of motivation and engagement represents a process of negotiating identities between teachers and students. Students who feel their culture and personal identity validated in the classroom are much more likely to engage with academic content than those who perceive that their culture and identity are ignored or devalued.

Differentiation of instruction is widely accepted as necessary to address the learning needs of a diverse school population. One-size-fits-all programs typically exclude ELL students from meaningful participation. When applied to ELL students, differentiation involves scaffolding of input to students and output from students. Activating prior knowledge and building background knowledge is one example of a differentiation/scaffolding strategy.

Assessment and intervention are fused into the cycle of motivating students and providing differentiated instruction that addresses the background knowledge and learning needs of individual students. It is essential that teachers regularly assess the extent to which ELL students understand the content presented through classroom instruction and in the textbook. If not, many students who are still in the process of learning academic English may grasp only a fraction of this content. This formative assessment represents an ongoing process in the classroom and gives the teacher information that is relevant to intervention and further scaffolding of instruction.

Conclusion

The knowledge base that research has generated about ELL students' academic trajectories shows clearly that ELL students must be understanding instruction and learning English across the curriculum if they are to catch up in time to meet graduation requirements. Teaching mathematics affords opportunities for extending ELL students' academic language proficiency. The Savvas ELL Curriculum Framework incorporates the essential elements that teachers need to implement effective instruction for all students—English-language and native English-speaking learners alike.

Additional Savvas Resources

For additional and concentrated vocabulary support for ELLs and struggling students, schools might be interested in Pearson's *Language Central for Math*. This program was specifically developed by educators to provide better mathematics access to their ELL students. It incorporates the ELL instructional framework developed by Dr. Jim Cummins. *Language Central for Math* helps ELLs and struggling students in Grades 6–8 develop the academic vocabulary necessary to master math.

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Five Essential Principles for Building ELL Lessons

PRINCIPLE 1

Identify and Communicate Content and Language Objectives

Content Objectives

Effective educational practices, as well as state and federal mandates, require that English language learners meet grade-level standards. The first step in reaching these standards is clearly targeting and communicating the content objectives of a lesson. While the content objectives for English language learners are the same as for mainstream learners, the objectives must be presented in language that suits the students' levels of language proficiency. This involves using simpler sentence structures and vocabulary, paraphrasing, repeating, and avoiding idioms and slang.

Language Objectives

Language objectives focus on promoting English language development while learning content. They can be thought of as a scaffold to help students learn content objectives. Language objectives include: content vocabulary, academic vocabulary, and language form and function.

Content vocabulary These terms are the specialized vocabulary of a subject area. Content vocabulary can be particularly challenging for English language learners who come from a variety of school backgrounds. ELLs should receive explicit instruction of key vocabulary words. Studies show that with this instruction, students are more likely to understand new words encountered during reading.

Academic vocabulary These terms can be described as "school language," or the language that students encounter across all subjects as opposed to the informal English words and structures used in conversation. Academic vocabulary includes words such as *similar, demonstrate, explain*, and *survey*. Research indicates that acquiring a strong grasp of academic vocabulary is a vital factor distinguishing successful students from those who struggle in school. Becoming fluent in academic language will enable English language learners to understand and analyze, write clearly about their ideas, and comprehend subject-area material.

Language form and function Language *forms* include sentence structure and grammar. Language *functions* involve the purpose of language (such as identifying or comparing). The language forms and functions students need to complete academic tasks should be taught within the context of the lesson. To develop appropriate form and function objectives, teachers can use standards developed for ELLs or coordinate with staff who specialize in language development. For example, when teaching *greater than/less than*, the language objective might be the structures for comparison (*-er* and *less*) and the function of how to make comparisons.

Teaching Strategies and Support for Principle 1

There are a number of basic strategies teachers can implement to meet the needs of their English language learners. Many are commonsense, everyday strategies that teachers in all content areas already know and use. These strategies lay the foundation for a positive learning relationship between student and teacher.

- [ ] **Previous lesson objectives** Begin each lesson with a review of the previous lesson's objectives.

- [ ] **Content objectives** Present the content objectives using visual aids, graphic organizers, and paraphrasing. Write the objectives on the board.

- [ ] **Prior knowledge** Ask students to talk about the content based on their prior knowledge. Document the results of the discussion with a graphic organizer.

- [ ] **Content and academic vocabulary** Present content and academic vocabulary.
  - Pronounce the word and have students repeat.
  - Provide examples, descriptions, visuals, and explanations.
  - Clarify the part of speech and discuss cognates, synonyms, and antonyms.
  - Ask students to provide examples, descriptions, visuals, and explanations of their own to determine comprehension.

- [ ] **Vocabulary notebooks** Have students keep a vocabulary notebook. Suggest that they use their own words to define the terms and incorporate visuals whenever possible.

- [ ] **Word-analysis strategies** Teach students word-analysis strategies so that new words can be attacked independently. For example, teach the prefix and the root of a vocabulary word. Write the meaning of the prefix and the root word on the board and have students do the same in their vocabulary notebooks.

- [ ] **Academic vocabulary practice** Provide flashcards or flashcard frames for key academic vocabulary. Have students use them for paired or independent practice, both during the week and for subsequent reviews. Encourage students to add personal notes and pictures to their flashcards.

- [ ] **Vocabulary practice** Design assignments so that students practice using the new words.

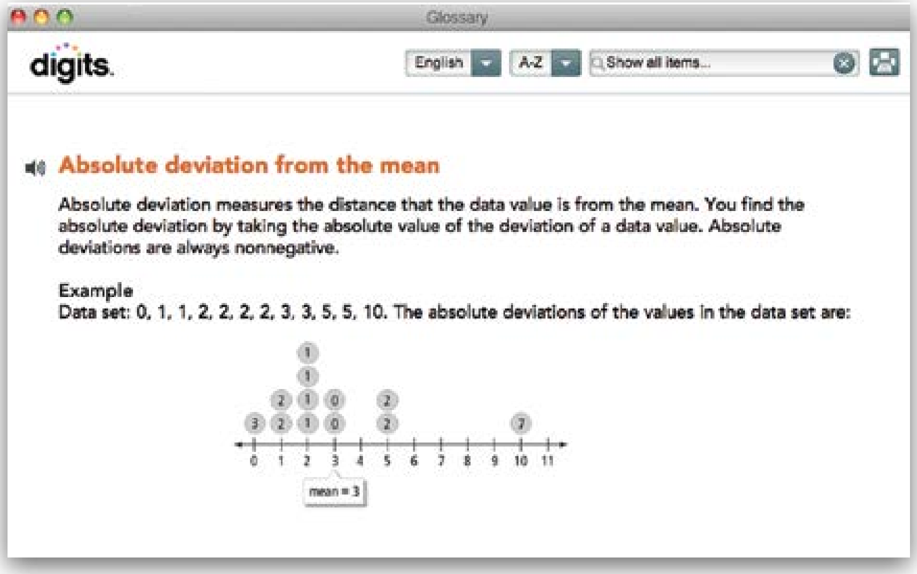
- [ ] **Language objectives** With the cooperation of an ESOL teacher, provide language objectives at different proficiency levels.

- [ ] **Opportunities for language objectives** If the lesson's content includes idioms or colloquialisms use these as opportunities to teach language objectives.

- [ ] **Lesson objectives review** End each lesson with a review of the lesson's content and language objectives and a preview of the next lesson's objectives.

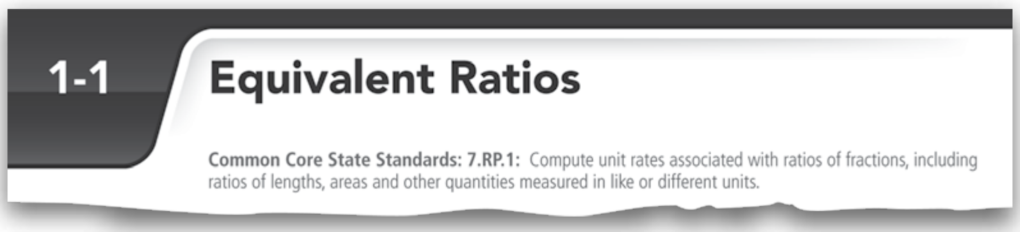
Applying Principle 1 in *digits*

In the Lessons Readiness lessons help teachers assess student preparedness, while other lessons introduce concepts and explain problem solving. Intervention lessons provide additional support. For each lesson, the Teacher Guide provides the lesson objectives. Present these objectives before beginning the lesson. If necessary, rewrite them in simpler language and post them on the board.



The **vocabulary words** pertinent to the lesson content can be found by clicking on the button. For each term, a written definition, example, audio presentation, and Spanish version of the term is provided. Teachers should check understanding of these words by having students provide their own sentence or example.

In the Teacher Resources The lesson objectives and key vocabulary for each lesson are also included in the Lesson Plan.



In the Student Resources Student Companion pages provide the **standards** that are addressed at the beginning of each lesson. Readiness Activity Sheets box the key vocabulary at the beginning of each Readiness Lesson.

PRINCIPLE 2
Frontload the Lesson

Frontloading is the use of strategies that prepare English language learners to learn new material. The goal of frontloading is to reach all ELLs by lessening the cognitive and language loads, thereby allowing them to take control of their learning process.

Frontloading involves the use of the following strategies:

Activating prior knowledge Instruction is most effective when it links knowledge and experiences students already have to new concepts. Experiences can be academic, cultural, and personal. Teachers can help students see the relationships between their prior knowledge and the new lesson through direct questioning techniques, the use of visuals and graphic organizers, and discussion. The more students know about the topic of a lesson, the more they will understand.

Building background knowledge In order to make a lesson's content accessible to ELLs, teachers may need to familiarize them with social or cultural facts and concepts of which mainstream learners are already aware. These facts and concepts may be brought out during the activating prior knowledge phase or through direct questioning and instruction.

Previewing text Previewing text serves the purpose of familiarizing students with what is to come in a lesson and putting them at ease. To preview text, teachers focus more closely on using visual supports such while walking through a lesson. In addition, English language learners should be taught discrete skills that are required for successfully reading content-area texts, such as how to read and interpret charts, tables, and graphs.

Setting a purpose for reading Teachers should help students realize that good readers focus on the message of the text. Teaching ELLs in the content areas also includes explicit instruction in the kinds of text structures they will encounter in content-area readings. In addition, it includes teaching reading strategies such as identifying the main idea and details, summarizing, and comparing and contrasting.

Making connections Teachers can extend the lesson by helping students see relationships between the lesson and other aspects of their lives. Connections can be made to other academic subjects, to current events, or to cultural traditions. By incorporating aspects of students' primary language and culture, teachers can ease the transition toward learning the content and language.

Integral to these frontloading strategies is the need for teachers to learn about the backgrounds of the English language learners. Learning about an ELL's experiences validates the student's sense of identity, increases the teacher's knowledge, and broadens the horizons of the English-speaking students in the class.

Teaching Strategies and Support for Principle 2

❑ **Prior knowledge** Determine English language learners' prior knowledge of a topic through a variety of activities. For example, have students:

- brainstorm aspects of the topic.
- construct a concept map.
- relate the topic to their personal lives through the use of examples.
- discuss a series of true-or-false statements.
- put steps of a process in a sequence chart.
- complete information in a chart.

❑ **Cultural background** Because there may be cultural or societal factors with which English language learners are unfamiliar, teachers should learn about the background of these students. Teachers can then use this knowledge to determine what additional background knowledge (facts and concepts) need to be presented. For example, before teaching a lesson using baseball statistics, teachers may need to provide some students with an explanation of the types of statistics kept in baseball, and what they mean.

❑ **Lesson feature preview** Preview the lesson by calling attention to key features: titles, visuals, captions, charts, bold or italicized words, and any special features.

❑ **Self-questioning strategies** When previewing the lesson, students should be taught to ask themselves questions such as:

- What do I think this lesson is about?
- What do I already know about this topic?
- What do the features tell me?

❑ **Predicting strategies** Have students use predicting strategies. They can predict what a word problem is going to be about by looking at its title and features. Students should always confirm any predictions after reading.

❑ **Note-taking organizers** Present a graphic organizer that students can use for taking notes. Show students how to use headings and subheadings to create an outline framework.

❑ **Set a purpose for reading** Have students set a purpose for reading so they take active control of their learning. After previewing a passage, students should ask themselves questions such as:

- What is this passage about?
- What is my purpose for reading the passage?
- How does this passage relate to the topic?

❑ **Make connections** At the end of a lesson, have students make a connection between what they have learned and with an aspect of their academic lives, or their personal lives. This activity can be done as a Think-Pair-Share exercise or in small groups.

Applying Principle 2 in *digits*

In the Lessons Opportunities for frontloading the lesson are built right into ***digits*** introductory presentations. The Launch or Intro features visuals, animations, and audio intended to spark students' interest in the lesson content. A host helps build background and presents the Focus Question, which can be used to informally determine what students know and whether they are ready to move on to new concepts. Themes are designed to connect to students' interests and life experience. Use the visuals, audio, and content to engage students in an introductory discussion. Guide them to talk about what they already know and to think about what they might learn.

The **Teacher Guide** that accompanies the lesson provides an explanation of how the presentation connects to student prior knowledge.

In the Teacher Resources Support for the **Topic Essential Question** and the Lesson Focus Question is found in the Lesson Plan of the Teacher Resources. It invites students to share prior experiences. It also provides a summary of the skills needed to successfully proceed with the lesson. ▼

Overview/Materials

Essential Question for Topic
Comparisons are helpful for making plans, predictions, and decisions. What math models can you use for making comparisons? Which models are helpful in which situations?

Author Intent
Many comparisons involve differences and ratios. Students with a solid grounding on the skills of dividing whole numbers, representing fractions, and simplifying fractions will have more success when they go to apply these skills to work with ratios.

Students need to master the skill of dividing by whole numbers before they can attempt to make equivalent ratios by scaling down. The skills of representing and simplifying fractions become important in the lesson "Ratios as Fractions."

This lesson prepares students for the standard listed below.

PRINCIPLE 3

Provide Comprehensible Input

Providing comprehensible input refers to making written and oral content accessible to English language learners, especially through the use of nonlinguistic supports.

Because English language learners are frequently overwhelmed by extraneous information and large blocks of text, they need help focusing on the most important concepts. With comprehensible input strategies, teachers make information and tasks clear by using step-by-step instructions, by making modifications to their speech, and by clearly defining objectives and expectations of the students.

Nonlinguistic supports teachers can use to accompany student reading include:

- photographs
- illustrations
- models
- cartoons
- graphs, charts, tables
- graphic organizers

Graphic organizers provide essential visual aids by showing at a glance the hierarchy and relationship of concepts.

Nonlinguistic supports teachers can use during class presentations include:

- gestures
- facial expressions
- props
- tone of voice
- realia (real-life visuals and objects)
- models
- demonstrations

Another effective form of comprehensible input is the "think-aloud," especially as modeled by the teacher. In a think-aloud, the teacher stops periodically and shares how to work out a problem by talking about his/her thought processes. The think-aloud shows how thinkers comprehend texts or solve difficult problems. ELLs can practice think-alouds, thereby learning to reflect and comprehend. Teachers can use the student's think-aloud to assess strengths and challenges.

A variety of comprehensible input techniques should be incorporated into lesson plans for English language learners as well as multiple exposures to new terms and concepts. Hands-on activities are particularly helpful to ELLs. The use of multimedia and other technologies will also enhance instruction.

Teaching Strategies and Support for Principle 3

- **Visuals** Provide meaningful visuals for English language learners. These may include pictures, images, diagrams, graphs, standard graphic organizers (e.g., Venn diagrams, charts, and concept maps), and outlines (filled-in or cloze).

- **Multimedia** Use a variety of media to reduce the reliance on language and place the information in a context that is more comprehensible.
  - Bring realia (real-life objects) into the lessons. Have visual displays (graphs, charts, photos), objects, visitors, and authentic materials (newspaper and magazine clippings, etc.).
  - Use video, audio, and CD/online interactive activities.

- **The five senses** Use teaching techniques that involve the other senses. For example:
  - When teaching about ratios, have students taste salt water mixtures with varying ratios of salt to water.
  - When teaching perimeter, have students trace the outlines of the objects being measured.

- **Hands-on learning** Provide hands-on experiences when appropriate to help students contextualize or personalize abstract concepts.

- **Demonstrations** Provide demonstrations of how something works, whether it is concrete (such as locating a point on a coordinate grid) or conceptual (absolute value).

- **Role-playing** Concepts can also be presented through role-playing or debates.

- **Think-alouds** Use think-alouds to model the kinds of question-asking strategies that students should use to construct meaning from mathematical problems. Remind students to use these questions and identify key mathematical vocabulary.

- **Delivery of instruction** Providing comprehensible input also refers to the delivery of instruction. For example:
  - Face students when speaking.
  - Speak clearly and slowly.
  - Pause frequently.
  - Use gestures, tone of voice, facial expressions, and emphasis as appropriate.
  - Avoid the use of idioms and slang.
  - Say and write instructions.

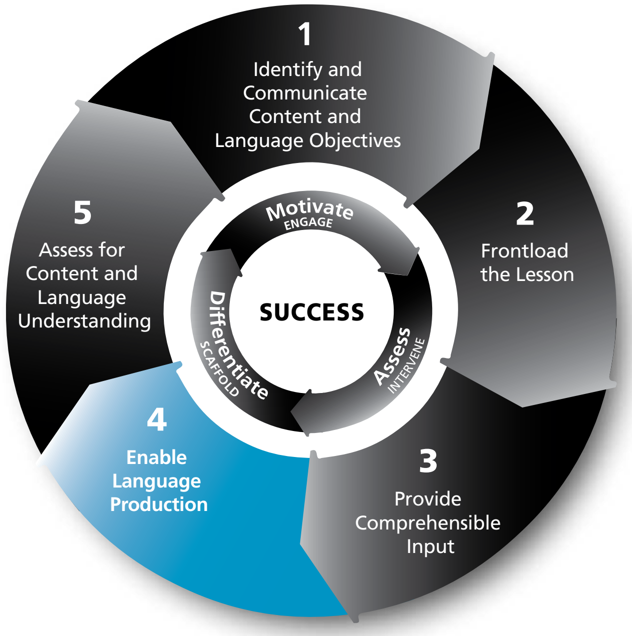
Applying Principle 3 in *digits*

In the Lessons Every lesson includes engaging animation, audio, numerous images, **charts, and tables** that will help English language learners acquire knowledge and skills. All visuals are accompanied by text and audio questions and explanations to ensure that students understand the concepts.

In the Teacher Resources The Teacher Guide for each lesson provides questions to help guide students to understanding.

In the Student Resources Companion Pages, Readiness Activity Sheets, and the Intervention Journal all provide visuals and text that further support the lesson presentations. These resources step students through mathematical processes and provide graphic organizers and questions that help further understanding of key concepts.

PRINCIPLE 4
Enable Language Production



Enabling language production for English language learners encompasses the four skills of listening, speaking, reading, and writing.

Because the language used by teachers and in content-area textbooks and assessment is sufficiently different from everyday spoken language, English language learners find themselves at a disadvantage in the classroom. Acquiring academic language in all four skill areas is challenging and requires at least five years of exposure to academic English to catch up with native-speaker norms. Therefore, particular attention should be paid to expanding ELLs' academic language so that they can access the learning materials and achieve success.

Brain research has ascertained that people under stress have difficulty learning and retaining new concepts. Students with limited language are naturally highly stressed. By promoting interaction among students where all contribute to a group effort, practice language, and develop relationships with one another, anxieties are reduced, thereby enabling more effective learning.

While the four language skills are intertwined, English language learners will likely not be at the same proficiency level in all four skills. Teachers will need to modify their instruction in response to students' strengths and needs in each area, keeping in mind the following concepts:

- When providing listening input to ELLs, the language must be understandable and should contain grammatical structures and vocabulary that are just beyond the current level of English language development.
- Teachers should provide appropriate "wait time" for students to respond to questions. ELLs need time to process the question and formulate an answer.
- For cultural reasons and/or due to lack of oral language skills, ELLs may not express themselves openly or may consider it disrespectful to disagree with authority figures.
- Teachers should encourage students to verbalize their understanding of the content.
- Think-alouds increase oral language production.
- In addition to frontloading and comprehensible input from the teacher, ELLs need to practice effective reading strategies, such as asking questions, predicting, and summarizing.
- There is a direct correlation between speaking and writing; by increasing oral language production, writing skills can be increased. For example, teachers can have ELLs say and write vocabulary to connect oral and written language.
- Opportunities for students to write in English in a variety of writing activities should be built into the lessons. For example, reading-response logs and journaling are activities that increase written language production.

Teaching Strategies and Support for Principle 4

- **Listening skills** Use audio recordings and read material aloud to develop English language learners' listening skills as well as fluency and accuracy.

- **Idioms, colloquialisms, and slang** Give explanations of any idioms, colloquialisms, or slang that arise.

- **Oral communication activities** Present specific oral communication activities. For example:
  - telling or retelling stories
  - role-playing
  - giving instructions
  - presenting a think-aloud
  - explaining a process
  - brainstorming
  - critiquing a solution

- **Speaking skills** Model summarizing information and reporting. Then have students summarize and report.

- **Reading comprehension skills** Provide explicit teaching of reading comprehension skills. For example, teach or review summarizing, sequencing, inferring, comparing and contrasting, asking questions, drawing conclusions, distinguishing between fact and opinion, or finding main idea and details.

- **Reading strategies practice** Have students practice using reading strategies. For example, ask them to:
  - develop their own questions.
  - write the facts and information in problems.
  - identify key mathematics vocabulary.

- **Paraphrase** Provide ELL-appropriate paraphrases of text questions.

- **Writing skills** Have students practice writing skills.
  - review or teach the steps of the writing process.
  - have students create dialogue journals for sharing problem-solving processes.

- **Note-taking support** Provide note-taking supports, such as writing templates, fill-in-the-blank guides, or other graphic organizers.

- **Self-monitoring** Provide students with checklists for monitoring their own writing, such as checklists for revising, editing, and peer editing.

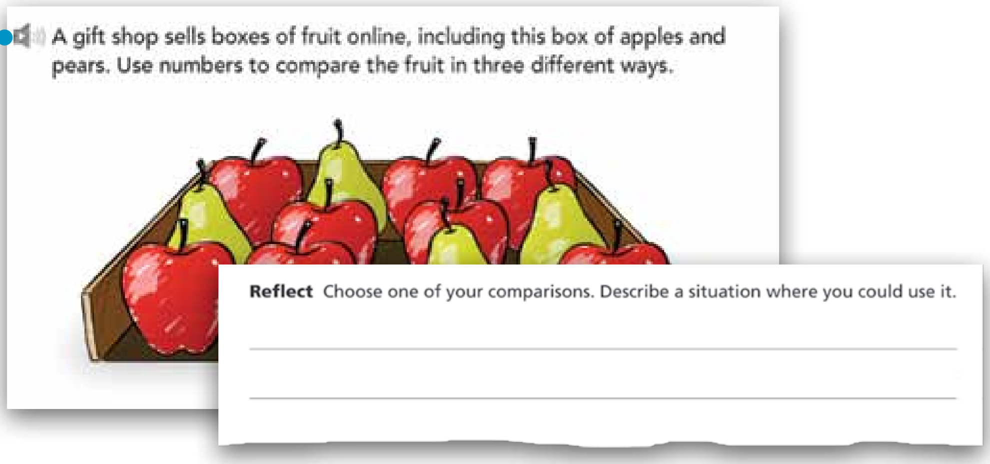
- **Peer review** Pair ELLs with partners for peer feedback on their problem-solving processes.

- **Scoring rubrics** Provide scoring rubrics for oral and written assignments and assessments. For example, students' writing can be evaluated for focus, ideas, order, writer's voice, word choice, and sentence structure. Students should be evaluated according to their proficiency levels.

Applying Principle 4 in *digits*

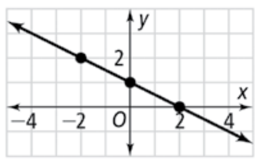
In the Lessons Enabling language production consists of students practicing their listening, speaking, reading, and writing skills. To develop English language learners' listening and speaking skills, use any lesson presentation. Have ELLs listen to the **audio presentation** as they read the text presented and then have them use the language of the presentation as they solve the problem.

Audio



In the Student Resources Each Launch activity includes opportunities for students to write (in their Companions) and report about their solutions.

4. Error Analysis A student looks at the graph below and says that the rate of change is $\frac{2}{1}$ and the initial value is 2. Explain why this is incorrect.



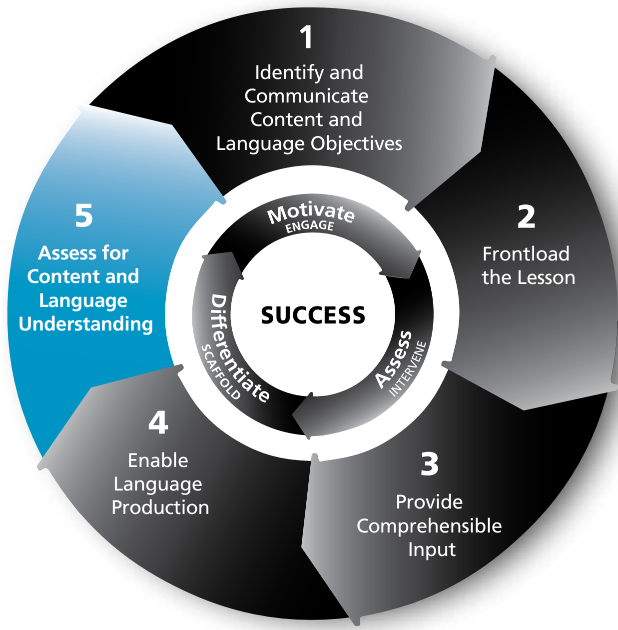
Companion pages also include writing opportunities to explain mathematical terms and to analyze work. Students are asked to answer questions, explain their processes, and show understanding of key vocabulary.

In the Teacher Resource Prompts found in the Teacher Guide provide students with the opportunity to present their work and thereby practice their speaking skills.

> **Connect Your Learning** Move to the Connect Your Learning screen. Use the Launch to talk about strategy. Some students may have written the equations first and then drawn the lines, while others did the reverse. Have students talk about the advantages and disadvantages of each approach. Students may benefit from hearing other opinions about how to approach a problem like this.

PRINCIPLE 5

Assess for Content and Language Understanding



An ever-increasing emphasis on assessment requires that all students—including English language learners—achieve the same high standards. Yet below-level language proficiency can have a negative impact on an ELL's success in the content areas. It is, therefore, essential to use assessment results as a way to identify an ELL's strengths and challenges.

Three types of assessments are key to instruction for all students, including ELLs: diagnostic assessment, formative assessment, and summative assessment.

Diagnostic assessment Diagnostic assessment is used for placing English language learners into the appropriate class, as well as for providing a diagnosis of strengths and challenges.

Formative assessment Formative assessment is part of the instructional process. It includes ongoing informal and formal assessment, reviews, and classroom observations. Informal assessments include class discussions, teacher observations, self- and peer-assessment, and teacher-student conversations. Formal assessments include quizzes, tests, and presentations.

Formative assessment is used to improve the teaching and learning process—which is particularly important in regards to English language learners. By using formative assessments, teachers can target an ELL's specific problem areas, adapt instruction, and intervene earlier rather than later.

Summative assessment Summative assessment occurs at the end of a specific period and evaluates student competency and the effectiveness of instruction. Examples are mid-year and final exams, state tests, and national tests.

Federal and state law requires that all students, including English language learners, be assessed in reading, math, and science.

Assessment accommodations Assessment accommodations for ELLs can minimize the negative impact of the lack of language proficiency when assessing in the content areas. These accommodations can be used for formal and informal assessments.

Possible assessment accommodations include: time extensions, use of bilingual dictionaries and glossaries, repeated readings of problems, use of dual-language assessments, allowing written responses in the native language, and separate testing locations.

Teaching Strategies and Support for Principle 5

- [ ] **Informal assessment** Use a variety of informal assessments for ELLs including retelling, demonstrating, and illustrating.

- [ ] **Content area log** Have students keep a "content area log." Use a two-column format with the headings *What I Understand* and *What I Don't Understand*. Follow up with students on the *What I Don't Understand* items so that they can move those items into the other column.

- [ ] **Portfolios** Portfolios are a practical way to assess student progress. Provide specific examples of what to include in a portfolio, including examples of speaking and writing. Some portfolio items might be:

  - written assignments
  - recordings of speaking samples, oral presentations, or think-alouds
  - exercise sheets
  - scoring rubrics and written evaluations by the teacher
  - tests and quizzes

- [ ] **Formal assessments** Use a variety of formal assessments such as practice tests, real tests, and oral and written assessments.

- [ ] **Assessment format** Create tests with a variety of assessment formats, including dictation, multiple choice, and open-response formats.

- [ ] **Standardized tests** Have students practice taking standardized tests by using released test items. These are often available online from your state department of education or district website.

- [ ] **Academic vocabulary** Explicitly teach the academic English words, phrases, and constructions that often appear in standardized test items. This might include *best*, *both*, *except*, and *probably*.

- [ ] **Restate directions** When giving directions, restate the directions in simplified English, repeat the directions, and emphasize key words.

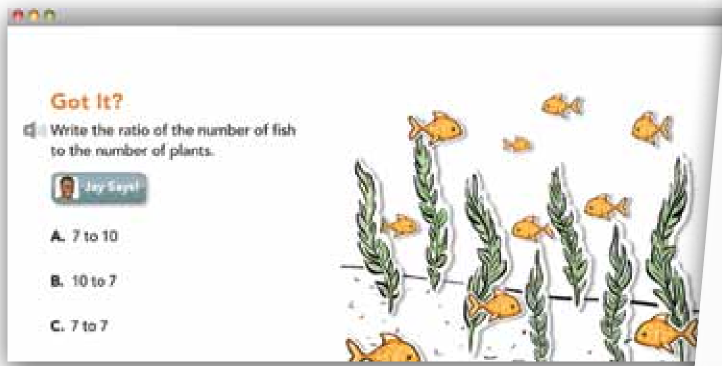
- [ ] **Repeat directions** Verify a student's understanding of the directions by having the student repeat the directions in his/her own words.

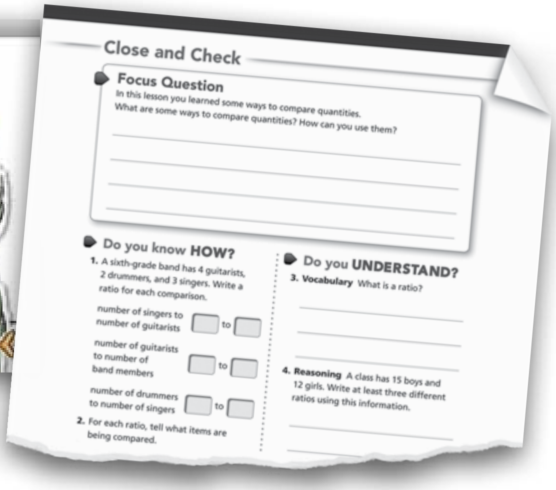
- [ ] **Bilingual glossaries** Provide students with bilingual glossaries of academic vocabulary.

- [ ] **Written assessments** Writing portions of assessments are generally the most difficult for English language learners. Therefore, the writing process should be practiced. Teachers should carefully guide students through the prewriting step with examples of brainstorming, outlining, using a graphic organizer, etc.

Applying Principle 5 in *digits*

In the Lessons Diagnostic and formative assessment are provided in the lesson presentations. Teachers can use the Readiness Lesson as an informal diagnostic assessment to determine if students have sufficient mastery of foundational concepts to proceed with new material. Within all On-level Lessons, each Example ends with a **Got It?** problem that serves as a formative assessment of understanding. For Intervention Lessons, the Journal pages provide formative assessment. ▼





In the Student Resources In the Student Companion, the **Close and Check** section for each lesson supports summative assessment of understanding for the lesson. Writing activities give students the opportunity to demonstrate understanding of key vocabulary. ▲

In the Teacher Resources Formal testing can be done electronically or on paper through exams generated by Math XL. Tests may be generated randomly or teachers can pick the specific problems to generate a customized test. When tests are taken electronically there is an automatic scoring feature.

In Homework The online option for homework provides students with **immediate feedback** on their work. When students provide a correct answer, they receive a message telling them so. When they are incorrect, they get a hint about what they may be doing wrong.

Appendix A

Student Access to the Online Curriculum

digits

Dear Parent or Guardian,

Your child is enrolled in a math class that is using a new digital curriculum program for classroom instruction and student assignments. This program, called ***digits***, is offered by Savvas Education, the world's leading education company. You and your child can access homework assignments and other materials through Pearson's online system.

The ***digits*** program offers teachers helpful tools for planning lessons, assigning student work, and tracking student progress. Students benefit from engaging, personalized digital lessons that build important math skills, provide feedback on progress, and offer the ability to complete school work from a computer with Internet access. We assure you in your role as parents and guardians that Savvas educational materials and the online system are safe and appropriate for students. If you have a home computer and Internet access, we encourage you to support your child in using this Savvas curriculum program while at home.

Getting started!

Accessing the program from home is simple and secure. Follow these steps to get started:

1. Go to www.mymathuniverse.com, which is the online student command center for ***digits***. You and your student can log in 24/7 to study, do homework, and most important, you can check on the progress and math mastery of your child.
2. Check the latest System Requirements to ensure that your home computer will run Pearson's online system. Simply click on the "Check your Computer Settings" hyperlink after you first log in through www.mymathuniverse.com.
3. Go to www.mymathuniverse.com and use the username and password the teacher gave your child to log in. Your child may have already written this information on page vi in their ***digits*** Student Companion write-in worktext. Remember, the class URL is always www.mymathuniverse.com.

Sincerely,
Pearson Education

Dear Parent or Guardian,

Recently, more than 40 states in the United States have developed and adopted a set of academic standards in mathematics based on the Common Core State Standards. These standards, called the **Common Core State Standards**, were developed in collaboration with teachers, school administrators, and mathematics and education experts under the auspices of the bipartisan National Governors' Association and the Council for Chief State School Officers (CCSSO).

What are the Common Core State Standards?

These standards will serve as important benchmarks to ensure that all students are receiving high quality education and are well prepared for success in post-secondary education and in the workforce. Students will be assessed on a regular basis throughout their school career to monitor their progress toward meeting these benchmarks.

As individual states have adopted these new standards, they have committed to a shared grade-by-grade sequence of topics to be taught. For many states, this requires a shift from the instructional materials they currently use to materials that match both the content skills and the mathematical understandings contained in the **Common Core State Standards.**

How will your student meet these standards?

Your child is using ***digits*** as his or her math program. This program was specially developed to provide comprehensive coverage of the **Common Core State Standards**. The ***digits*** program includes a Student Companion worktext. Take a look through it, and you'll notice that each lesson specifically targets one or more of the standards for mathematical content. (This is shown just below the lesson title.)

In addition to content standards, the **Common Core State Standards** include standards that describe the practices and abilities of very good math thinkers. Called *Standards for Mathematical Practice*, these standards develop particular mathematical skills and habits of mind. Because ***digits*** was developed specially for the **Common Core State Standards**, the program has the *Standards for Mathematical Practice* embedded in every lesson. You can help your child develop their mathematical practice by encouraging him or her to think about the questions found on the next pages of this letter. You will notice that each Launch and Focus Question specifically target one or more of the *Standards for Mathematical Practice.* However, others will be addressed throughout the lesson and homework.

Common Core State Standards

digits

A Parent's Guide to the Standards for Mathematical Practice

As your child works through homework exercises, you can help him or her develop skill with these standards by asking some of these questions:

1 Make sense of problems and persevere in solving them.

- What is the problem that you are solving for?
- Can you think of a problem that you recently solved that might be similar to this one?
- How will you go about solving the problem? (i.e., What's your plan?)
- Are you progressing toward a solution? How do you know? Should you try a different solution plan?
- How can you check your solution using a different method?

2 Reason abstractly and quantitatively.

- Can you write or recall an expression or equation to match the problem situation?
- What do the numbers or variables in the equation refer to?
- What's the connection among the numbers and variables in the equation?

3 Construct viable arguments and critique the reasoning of others.

- Tell me what your answer means.
- How do you know that your answer is correct?
- If I told you I think the answer should be [a wrong answer], how would you explain to me why I'm wrong?

4 Model with mathematics.

- Do you know a formula or relationship that fits this problem situation?
- What's the connection among the numbers in the problem?
- Is your answer reasonable? How do you know?
- What does the number—or the numbers—in your solution refer to?

digits

❺ Use appropriate tools strategically.

- What tools could you use to solve this problem? How can each one help you?
- Which tool is more useful for this problem? Explain your choice.
- Why is this tool [the one selected] better to use than [another tool mentioned]?
- Before you solve the problem, can you estimate the solution?

❻ Attend to precision.

- What do the symbols that you used mean?
- What units of measure are you using? (for measurement problems)
- Explain to me what [term from the lesson] is.

❼ Look for and make use of structure.

- What do you notice about the answers to the exercises you've just completed?
- What do different parts of the expression or equation you are using tell you about possible correct answers?

❽ Look for and express regularity in repeated reasoning.

- What shortcut can you think of that will always work for these kinds of problems?
- What pattern(s) do you see? Can you make a generalization?
- What relationships do you see in the problem?