EVALUATION OF TEXTBOOK EXHIBIT

NAMES OF EVALUATORS: Susan Amey, Lynne Menechella, Rosemarie Rutherford, Nancy Simons

SUBJECT: Math GRADE: 7-8 LEVEL: Middle

School

TEXTBOOK TITLE: ***Glencoe Math*** (CCSS Edition, Course 2 and Course 3)

AUTHORS: Carter, Cuevas, Day, Malloy, Kersaint, Luchin, McClain, Molix-Bailey, Price, Reynosa, Silbey, Vielhaber, and Willard

EDITION: First

PUBLISHING CO.: McGraw-Hill COPYRIGHT DATE: 2013

COST PER BOOK: $19.98 NO. OF BOOKS REQUIRED: 770*
*Includes 55 Accelerated Math 7 students who will need both Course 2 and Course 3 books

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I. METHODS OF EVALUATING (Yes or No Response or NA - Not Appropriate) (3 out of 5 must be employed)

Yes 1. SELECTION CRITERIA – Identify and document the prioritized criteria used in the selection process.
Priority Criteria: The textbook covers the new NYS Math Common Core Standards to be implemented in September 2012 for Grades 7 and 8 and also addresses the Common Core Mathematical Processes.

Yes 2. Was a TOPIC COMPARISON employed with this text and others?
See comments in sections below.

Yes 3. Was a CONCEPT TRACE conducted with this textbook?
Traced content focusing on the topics under the "Major Clusters" of the "Emphases in Common Core Standards for Mathematical Content" document, published 3/12/12, for Grades 7 and 8.
(http://engageny.org/wp-content/uploads/2012/03/nys-math-emphases-k-hs.pdf, pp. 2, 10-11)

No 4. Was a VERTICAL TRACE done with this book as part of a series?

No 5. Was a "KID RATING" employed with this text (grades 6-12)? (Attach summary)

II. A LOOK AT THE TOTAL BOOK (Use a scale of 1 - 5 with 1=low, 5=high)

5 1. Is the content as up to date as possible and relevant to your students?

5 2. Does the book contain helpful organizational features such as:

- [X] Table of contents
- [X] Index
- [X] Glossary
- [X] Appendices *(Foldables, graphic organizers)*
- [X] Other (specify: *Reference tables, selected answers, bilingual glossary*)

5 3. Is the book logically and clearly organized?

III. LOOK AT EACH CHAPTER (1 - 5 RATING)

5 1. Is a helpful introduction provided for each chapter or most chapters?

4 2. Is sufficient background knowledge provided for each chapter or most chapters so that students can link new knowledge with information previously learned?

"Are You Ready" pages in student text; diagnostic and pretest in assessment package.

5 3. Is there a clearly recognizable pattern for each chapter?

5 4. Is the organizational pattern signaled by:

- [X] Headings
- [X] Bold print
- [X] Transition words
- [X] Italics
- [X] Other (specify: ***color-coding***)

5 5. Do questions encourage thoughtful responses? Is critical thinking encouraged?

Each homework set includes "H.O.T.S." (higher-order thinking skills) problems and "Building on the Essential Question" reflection.

5 6. Does the text suggest activities for students to practice using new concepts or procedures?

Each chapter includes at least one "Inquiry Lab".

5 7. Do the pictures, graphic aids, charts or graphs clearly relate to the important concepts/ideas of the chapter and promote visual literacy?

5 8. Are there summaries that clarify?

"Reflect" graphic organizers at the end of chapters allow students to summarize their learning and tie to the Essential Questions.

5 9. Does the text match curriculum goals and objectives?

This product was written specifically, from scratch, for the Math Common Core Standards. Specific standards and mathematical practices addressed by each lesson are made transparent in the student text.

IV. EXAMINE THE WAY THE BOOK IS WRITTEN (1 - 5 Responses)

5 1. Does the textbook use clear, readable language?

The Flesch-Kincaid Grade Level measured by Microsoft Word is 7.0 for pp. 45-46 of Course 2 Volume 1.

5 2. Is the level of vocabulary appropriate for the background of your students? (Challenging is better than too low!)

5 3. Does the text introduce new vocabulary or terminology using direct definitions and/or examples?

New vocabulary is highlighted at the beginning of each chapter and

and/or examples?

New vocabulary is highlighted at the beginning of each chapter and within each lesson.

5 4. Is the level of sentence complexity appropriate for your students?

Sentence complexity is rich and varied.

5 5. Does the text stick to the topic and avoid irrelevant details?

5 6. Does the text relate content to students' lives?

Makes links to applications in "Real World Connections" at the beginning of each lesson, motivating and giving purpose for the learning. Each unit ends with a "21st Century Career" application.

5 7. Does the text provide positive models for both sexes and for different ethnic or cultural groups?

5 8. Does it provide materials in alternative formats? (i.e., any medium or format for the presentation of instructional materials, other than a traditional print textbook, that is needed as an accommodation for a disabled student enrolled in the district, including, but not limited to, Braille, large print, open and closed captioned, audio, or an electronic file in an approved format).

Consumable student textbook; online textbook has audio capability so students can listen to the text; interactive features such as self-correcting quizzes, virtual manipulatives and vocabulary cards; online teacher and student resources tab (e.g. video lessons and virtual tutor, selected answers to textbook problems with step-by-step solutions).

V. SUMMARY OF WEAKNESS AND STRENGTHS

1. What are the chief weaknesses of this text?

Not all of the pre-made assessments are as rigorous as teachers would like.

2. What are the major strengths of this text?

Was written from scratch specifically for the Math Common Core Standards and the Mathematical Practices. The consumable student text is very engaging and interactive. Lesson presentations are clear and many topics are developed in a concrete -> representational -> abstract manner. Most guided and independent practice problems are rigorous. Each lesson offers standardized test and Common Core Review problems. Online resources for students and teachers provide extra support and facilitate differentiation, remediation and enrichment.

Evaluation completed May 2012.

EVALUATION OF TEXTBOOK EXHIBIT

NAMES OF EVALUATORS: Susan Amey, Lynne Menechella, Rosemarie Rutherford, Nancy Simons

SUBJECT: Math GRADE: 7-8 LEVEL: Middle

School

TEXTBOOK TITLES: ***Big Ideas Math*** (Red and Blue editions)
Big Ideas Math Accelerated Grade 7

AUTHORS: Ron Larson and Laurie Boswell EDITION: First

PUBLISHING CO.: Big Ideas Learning

COPYRIGHT DATE: 2012

COST PER BOOK: $59.70 NO. OF BOOKS REQUIRED: 660 (Red and Blue editions)
COST PER BOOK: $65.70 NO. OF BOOKS REQUIRED: 55 (Accelerated Math 7)

I. METHODS OF EVALUATING (Yes or No Response or NA - Not Appropriate) (3 out of 5 must be employed)

Yes 1. SELECTION CRITERIA – Identify and document the prioritized criteria used in the selection process.
Priority Criteria: The textbook covers the new NYS Math Common Core Standards to be implemented in September 2012 for Grades 7 and 8 and also addresses the Common Core Mathematical Processes.

Yes 2. Was a TOPIC COMPARISON employed with this text and others?
See comments in sections below.

Yes 3. Was a CONCEPT TRACE conducted with this textbook?
Traced content focusing on the topics under the "Major Clusters" of the "Emphases in Common Core Standards for Mathematical Content" document, published 3/12/12, for Grades 7 and 8.
(http://engageny.org/wp-content/uploads/2012/03/nys-math-emphases-k-hs.pdf, pp. 2, 10-11)

No 4. Was a VERTICAL TRACE done with this book as part of a series?

No 5. Was a "KID RATING" employed with this text (grades 6-12)? (Attach summary)

II. A LOOK AT THE TOTAL BOOK (Use a scale of 1 - 5 with 1=low, 5=high)

5 1. Is the content as up to date as possible and relevant to your students?
5 2. Does the book contain helpful organizational features such as:

☒ Table of contents ☒ Index
☒ Glossary ☒ Appendices
☒ Other (specify: ***Reference Tables***)

4 3. Is the book logically and clearly organized?
We felt the student edition was user-friendly but the teacher's edition was organized in a way that did not flow well.

III. LOOK AT EACH CHAPTER (1 - 5 RATING)

5 1. Is a helpful introduction provided for each chapter or most chapters?
4 2. Is sufficient background knowledge provided for each chapter or most chapters so that students can link new knowledge with information previously learned?
Provided at the beginning of each chapter but not integrated into lessons.
5 3. Is there a clearly recognizable pattern for each chapter?
5 4. Is the organizational pattern signaled by:
☒ Headings ☒ Bold print
☒ Transition words ☒ Italics
☒ Other (specify: ***color-coding***)
4 5. Do questions encourage thoughtful responses? Is critical thinking encouraged?
Extended-response questions seem more skill-based instead of conceptual.
4 6. Does the text suggest activities for students to practice using new concepts or procedures?
These types of activities are not in the student text but are available in the teacher assessment package.
5 7. Do the pictures, graphic aids, charts or graphs clearly relate to the important concepts/ideas of the chapter and promote visual literacy?
1 8. Are there summaries that clarify?
None evident.
4 9. Does the text match curriculum goals and objectives?
This product was written specifically, from scratch, for the Math Common Core Standards. Specific standards addressed by each lesson are not documented in the student text.

IV. EXAMINE THE WAY THE BOOK IS WRITTEN (1 - 5 Responses)

5 1. Does the textbook use clear, readable language?
The Flesch-Kincaid Grade Level measured by Microsoft Word is 5.7 for pp. 110-111 of Red (Grade 7) book.
4 2. Is the level of vocabulary appropriate for the background of your students? (Challenging is better than too low!)
5 3. Does the text introduce new vocabulary or terminology using direct definitions

and/or examples?

3 4. Is the level of sentence complexity appropriate for your students?

Sentence complexity is not rich and varied.

5 5. Does the text stick to the topic and avoid irrelevant details?

4 6. Does the text relate content to students' lives?

Each lesson has a "Real-Life Application" example and the independent practice includes some problems that connect to other subjects, but the lessons do not start with a context that motivates and gives purpose to the learning.

3 7. Does the text provide positive models for both sexes and for different ethnic or cultural groups?

Contains very few pictures of people.

5 8. Does it provide materials in alternative formats? (i.e., any medium or format for the presentation of instructional materials, other than a traditional print textbook, that is needed as an accommodation for a disabled student enrolled in the district, including, but not limited to, Braille, large print, open and closed captioned, audio, or an electronic file in an approved format).

Consumable student journal; online textbook has audio files so students can listen to some of the text; online teacher and student resources (e.g. video tutorials).

V. SUMMARY OF WEAKNESS AND STRENGTHS

1. What are the chief weaknesses of this text?

Textbook is not very engaging - not rich in language or visuals. Online text has few interactive features. References to Math Common Core standards and practices are not made transparent for students.

2. What are the major strengths of this text?

Was written from scratch specifically for the Math Common Core Standards. Topics found in the Major Cluster portion of the CCSS Content Emphases document are strongly addressed. Online resources for students and teachers provide extra support and facilitate differentiation. An Accelerated Math 7 text, which covers all of the Grade 7 topics and integrates some Grade 8 topics, is available with this series.

Evaluation completed May 2012.

Horseheads Middle School Math Department

Textbook Search Summary and Adoption Recommendation

May 2012

As we look forward to September 2012 and a new math curriculum for Grades K-8, the Middle School Math Department has determined that our current textbook series, *Holt Middle School Math* (2004), will not support student needs in terms of content coverage, depth, or rigor. A search committee consisting of four math teachers was formed. This report will summarize our search process and support our recommendation.

The committee began by collecting samples of five textbook series that were promoted as being aligned to the NYS Math Common Core Standards. The descriptions quoted are taken from each publisher's website:

Math Connects (Glencoe McGraw-Hill, 2012)

> "*Glencoe Math Connects* is a series that connects your classroom to the Common Core! This program ensures student success with rigorous content specifically designed to meet the Common Core State Standards."

Glencoe Math (Glencoe McGraw-Hill, 2013)

> "Built around the Common Core State Standards, *Glencoe Math* is a robust toolkit designed to support your unique teaching style, your ideas, and the needs of your students."

Big Ideas Math (Holt McDougal, 2012)

> "*Big Ideas Math* by Ron Larson and Laurie Boswell is the only comprehensive program developed for the Common Core State Standards that delivers instruction for all students."

Holt McDougal Mathematics (Holt McDougal, 2012)

> "The new *Holt McDougal Mathematics* for middle school provides complete and comprehensive coverage of the Common Core State Standards with content and standards of mathematical practices documented throughout every lesson."

digits (Pearson Education, 2012)

> "The only interactive whiteboard-based middle grades math curriculum built to and from the Common Core State Standards."

The committee also determined criteria and methods for evaluating the selected textbooks. We need a series that addresses the Common Core Math Content Standards for Grades 7 and 8 with a strong emphasis on those topics identified under "Major Clusters" in the "*Emphases in Common Core Standards for Mathematical Content*" document, published 3/12/12, for Grades 7 and 8 (copy attached). We also need a series that specifically addresses the Common Core Mathematical Practices in its problem sets and assessments.

Three of the above textbook series were eliminated rather quickly. The *digits* series is a completely digital, web-based product that we felt could not be supported at this time. Both the *Math Connects* and *Holt McDougal Mathematics* series did not strongly meet our selection criteria. These two textbook-based series appear to largely take instructional content and problem sets from previous editions, rearranging them to follow the new Common Core content strands at each grade level. Specific development of the Mathematical Practices was not clearly evident in the majority of lessons, problem

sets, or assessments. This left the committee with two strong textbook series which had been written from scratch to meet the needs of the new math curriculum.

To decide between the *Big Ideas* and the *Glencoe Math* series, topic comparisons of textbook elements and concept traces of content in the "Major Clusters" for each grade level were conducted. Results of each analysis, with supporting comments, can be found on the completed "*Evaluation of Textbook Exhibit*" form for each series (attached). The major strengths of both series include strong coverage of the emphasized math content areas, logical and clear organizational features in the student texts, "Inquiry Labs" that aid in the development of conceptual understanding, and numerous student and teacher online resources that are part of a comprehensive program strongly supporting the teaching-learning process.

The *Big Ideas Math* series is unique in offering a textbook specifically designed for the Accelerated Math 7 program. It covers all Grade 7 topics and integrates some Grade 8 topics. Content coverage in all three textbooks is presented in a very clear, direct manner which effectively develops many topics following a concrete -> representational -> abstract approach. Some weaknesses noted include many extended-response questions that seem to be more skill-based rather than rigorous, a lack of opportunities to assess student conceptual understanding, student textbook language and visuals which are not relatively rich or engaging, the online textbook has relatively fewer interactive features, and the teacher manual was deemed not very user-friendly.

The *Glencoe Math* series is unique in that the student texts at each grade level consist of two consumable volumes. Student notes, learning activities, guided/independent practice, and reflection can all take place in the textbook. Each lesson begins with a "Real World Connection" which motivates learning by giving it purpose. Textbook lessons are relatively more engaging in terms of language and visuals. There is a good balance between activities and tasks that require conceptual understanding, procedural skills, and a combination of both. Every practice set includes rigorous "H.O.T.S." problems (higher-order thinking skills) that are correlated to the Common Core Mathematical Practices as well as "Building on the Essential Question" connection opportunities. "Reflect" graphic organizers assist students in summarizing their learning and making further connections to the essential questions for the unit. Each chapter ends with a "21st Century Application" which furthers purpose for learning. The online student textbook and teacher manual are both highly interactive and the supplemental online resources are easy to access. One weakness we noted is that some of the stand-alone assessments provided in the teacher resource package are not as rigorous as we would like. In addition, there is not a ready-made resource available to meet the needs of the Accelerated Math 7 course.

As a result of the committee's extensive analysis of these two original series written specifically to address the Math Common Core standards, we are recommending adoption of the *Glencoe Math* series for Grades 7 and 8. It addresses the Common Core Math Practices in a complete, rigorous manner. Engaging text and real-world applications give strong context for applying developing concepts and skills. The consumable nature of the text makes it a cost-effective choice in the face of probable updates over the next few years as we become more knowledgeable about content and assessment expectations. The needs of Accelerated Math 7 will be met by purchasing copies of both levels for those students. We feel *Glencoe Math* is the best product currently available to meet the needs of all students and to support our teachers in implementing the new NYS Common Core Math curriculum.

Attachments: *Big Ideas Math* and *Glencoe Math* textbook evaluation forms
Copies of the Grades 7-8 "Content Emphases" and "Mathematical Practices" documents

Emphases in Common Core Standards for Mathematical Content

March 12, 2012 Document

Source: http://engageny.org/wp-content/uploads/2012/03/nys-math-emphases-k-8.pdf, pp. 10-11

Grade 7

Major	Supporting	Additional
Ratios and Proportional Relationships ■ Analyze proportional relationships and use them to solve real-world and mathematical problems. **The Number System** ■ Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers. **Expressions and Equations** ■ Use properties of operations to generate equivalent expressions. ■ Solve real-life and mathematical problems using numerical and algebraic expressions and equations.	**Statistics and Probability** ☐ Use random sampling to draw inferences about a population. [8] ☐ Investigate chance processes and develop, use, and evaluate probability models. [9]	**Statistics and Probability** Draw informal comparative inferences about two populations. **Geomtetry** Solve real-life and mathematical problems involving angle measure, area, surface area, and volume. Draw, construct and describe geometrical figures and describe the relationships between them.
Depth Opportunities: RP 2; NS 3; EE 3, 4; G 6		

Grade 8

Major	Supporting	Additional
Expressions and Equations ▪ Work with radicals and integer exponents. ▪ Understand the connections between proportional relationships, lines, and linear equations. ▪ Analyze and solve linear equations and pairs of simultaneous linear equations. **Functions** ▪ Define, evaluate, and compare functions. **Geometry** ▪ Understand and apply the Pythagorean Theorem. ▪ Understand congruence and similarity using physical models, transparencies, or geometry software.	**The Number System** ☐ Know that there are numbers that are not rational, and approximate them by rational numbers. [10] **Functions** ☐ Use functions to model relationships between quantities. [11] **Statistics and Probability** ☐ Investigate patterns of association in bivariate data.[12]	**Geometry** Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.

Depth Opportunities:
EE 5, 7, 8; F 2; G 7

From the "NYS Common Core Learning Standards for Mathematics" document
http://www.p12.nysed.gov/ciai/common_core_standards/pdfdocs/nysp12cclsmath.pdf,
pp. 5-7

Mathematics: Standards for Mathematical Practice

The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students. These practices rest on important "processes and proficiencies" with longstanding importance in mathematics education. The first of these are the NCTM process standards of problem solving, reasoning and proof, communication, representation, and connections. The second are the strands of mathematical proficiency specified in the National Research Council's report *Adding It Up*: adaptive reasoning, strategic competence, conceptual understanding (comprehension of mathematical concepts, operations and relations), procedural fluency (skill in carrying out procedures flexibly, accurately, efficiently and appropriately), and productive disposition (habitual inclination to see mathematics as sensible, useful, and worthwhile, coupled with a belief in diligence and one's own efficacy).

1. 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.

2. 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.

3. 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.

4. 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.

5. 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.

6. 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.

7. 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 $x2 + 9x + 14$, 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.

8. 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 $(y - 2)/(x - 1) = 3$. Noticing the regularity in the way terms cancel when expanding $(x - 1)(x + 1)$, $(x - 1)(x2 + x + 1)$, and $(x - 1)(x3 + x2 + x + 1)$ 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.

Connecting the Standards for Mathematical Practice to the Standards for Mathematical Content

The Standards for Mathematical Practice describe ways in which developing student practitioners of the discipline of mathematics increasingly ought to engage with the subject matter as they grow in mathematical maturity and expertise throughout the elementary, middle and high school years. Designers of curricula, assessments, and professional development should all attend to the need to connect the mathematical practices to mathematical content in mathematics instruction.

The Standards for Mathematical Content are a balanced combination of procedure and understanding. Expectations that begin with the word "understand" are often especially good opportunities to connect the practices to the content. Students who lack understanding of a topic may rely on procedures too heavily. Without a flexible base from which to work, they may be 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. In short, a lack of understanding effectively prevents a student from engaging in the mathematical practices. In this respect, 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. These points of intersection are intended to be weighted toward central and generative concepts in the school mathematics curriculum that most merit the time, resources, innovative energies, and focus necessary to qualitatively improve the curriculum, instruction, assessment, professional development, and student achievement in mathematics.

School Education Group

Price Quote For:

Horseheads Middle School
Susan Amey (samey@horseheadsdistrict.com)
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HORSEHEADS, NY 14845

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Sales Representative: Steven Ladd
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GLENCOE MATH COURSE 2 STUDENT BUNDLE 1YR SUBSCRIPTION	978-0-07-662924-4	325	$19.98	$0.00	$6,493.50
GLENCOE MATH COURSE 2 TEACHER EDITION VOLUME 1	978-0-07-661927-6	4	$39.99	$159.96	*Free Materials
GLENCOE MATH COURSE 2 TEACHER EDITION VOLUME 2	978-0-07-661928-3	4	$39.99	$159.96	*Free Materials
GLENCOE MATH COURSE 3 STUDENT BUNDLE 1YR SUBSCRIPTION	978-0-07-662925-1	320	$19.98	$0.00	$6,393.60
GLENCOE MATH COURSE 3 TEACHER EDITION VOLUME 1	978-0-07-661929-0	4	$39.99	$159.96	*Free Materials
GLENCOE MATH COURSE 3 TEACHER EDITION VOLUME 2	978-0-07-662018-0	4	$39.99	$159.96	*Free Materials

VALUE OF ALL MATERIALS	$13,526.94
FREE MATERIALS	($639.84)
PRODUCT TOTAL*	**$12,887.10**
ESTIMATED SHIPPING & HANDLING**	$2,192.44
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