Publisher's Response to EdReports Evaluation of *Glencoe Algebra 1, Geometry, and Algebra 2* ©2014

McGraw-Hill Education (MHE) appreciates the opportunity to respond to the EdReports evaluation of *Glencoe Algebra 1, Geometry,* and *Algebra 2* (AGA) ©2014. The AGA series was designed to meet the needs of high school educators and students with the following core components.

- **Print Student and Teacher Editions:** Designed around the Common Core State Standards—both content and practice. Meets 100% of the standards.
- **Interactive Student Guide:** Works in conjunction with the print student edition to offer an in-depth exploration of concepts to support students in gaining a strong foundation in mathematical knowledge and thinking.
- **Digital Student and Teacher Centers:** Includes the eStudent and eTeacher Editions as well as a wealth of digital resources that focus on both the content and practice standards, such as: The Geometer's Sketchpad, StudySync videos that model the Standards for Mathematical Practice, the eToolkit, and ALEKS adaptive software.

MHE supports EdReports' intention to offer educators information to aid in the selection of instructional materials aligned with the Common Core Standards for Mathematics (CCSSM). However, the analysis of the AGA series appears to be focused primarily on the print student edition and has not fully taken into consideration the other core components of the program. This point has also been raised by the National Council of Teachers of Mathematics and National Council of Supervisors of Mathematics, who have noted the following in an open letter:

> "The EdReports methodology, including its evaluation tool and process, has produced reviews that fall short of providing useful and accurate information about many critical features of materials reviewed, such as how the materials address the Standards for Mathematical Practice and the quality of the instructional activities. As a result, the current ratings and reviews do not provide the types and quality of information needed to make informed choices about the extent to which particular materials support students' learning, or teachers' teaching, of CCSSM."

In the following responses, MHE has included additional insight, rationale, and examples for each indicator provided by EdReports. We believe that the AGA series meets the following indicators and have identified the location of those activities and opportunities that the reviewers may have overlooked.

Focus & Coherence

EdReports Indicator: The materials attend to the full intent of the modeling process when applied to the modeling standards.

MHE Response:
The AGA series provides an ample number of problems and exercises to engage students in meaningful and realistic problem-solving experiences that allow them to model real-life scenarios. Lessons begin with an application of the lesson content. Each lesson also includes examples and exercises that are applications of the lesson's core concept in contextual problem-solving scenarios. Additional applications in the print and online ancillaries offer more opportunities for real-world problem solving. ***Graphic Novels*** and ***Animations*** engage students in the mathematical content. For more in-depth and sophisticated problem-solving experiences based on application scenarios, the series includes online ***Chapter Projects*** that can be completed by individual students or in collaborative groups.

In addition, the ***Interactive Student Guide*** focuses on the content and practice standards. Because a strong emphasis on modeling helps students connect mathematics to the real world, students have the opportunity to develop, test, and refine models that represent real-world situations. The ***Interactive Student Guide*** also includes Performance Tasks that provide additional opportunities to engage in modeling. Please see page 20a for specific examples.

EdReports Indicator: The materials explicitly identify and build on knowledge from Grades 6-8 to the High School Standards.

MHE Response:
Interactive Classroom prebuilt presentations help teachers highlight prior knowledge, introduce new concepts, and give opportunities for practice. Teachers can edit the presentations to align to their goals for instructing their classes.

In the AGA series, prior knowledge is extended to accommodate new knowledge. Following are a few examples:

- Algebra 1: Students extend the understanding of proportional relationships and functions gained in middle school to master linear functions. (Chapters 3 and 4) Students then extend their knowledge to exponential and quadratic functions. (Chapters 7-9)
- Geometry: Students recall what they learned about transformations in Grade 8 to develop their understanding of precise definitions of congruence and similarity. (Chapters 4, 7, and 9) Additionally, skills of simplifying square roots developed in Algebra 1 are applied to problems involving distance, area, and the Pythagorean Theorem. (Chapter 8)

- Algebra 2: In Algebra 1, students solved quadratic equations with real roots. In Algebra 2, they learn that by extending the real number system to complex numbers, every quadratic equation has exactly two roots. (Chapter 4)

Additional Student Edition features that support relating course-level content to prior learning:

- Each chapter and lesson begins with a ***Then- Now-Why?*** section that highlights skills and concepts students have studied, and how they relate to the new content they are learning.
- Review of prerequisite content is provided for each lesson to aid in students' retention.
- Diagnostic chapter assessments alert teachers to missing or weak prerequisite skills prior to starting the chapter. The ***Quick Review*** and ***Quick Check*** portions of the ***Are You Ready?*** pages in the Student Edition prepare students for the chapter's core content. Student responses reveal which skills and understandings are secure and which need more support.

Additional teacher tools that support relating course-level content to prior learning:

- ***Vertical Alignment*** is highlighted in each chapter and lesson of the Teacher Editions to remind teachers of ways to connect prior knowledge to grade-level concepts.

EdReports Indicators:

- The materials, when used as designed, allow students to fully learn each standard.
- The plus (+) standards, when included, are explicitly identified and coherently support the mathematics which all students should study in order to be college and career ready.

MHE Response:

The AGA series is designed to guide students to completion of the Standards for Mathematical Content and Practice in order to be college and career ready. All of the standards with and without a (+) are addressed in the program. A deliberate progression of the standards is made both within and across courses to ensure student success. One example of the progression found in the Reasoning with Equations and Inequalities domain of the Algebra conceptual category is detailed below.

Algebra 1:

- Students solve linear equations, explaining each step as following from the equality of numbers at the previous step. (A.REI.1, Chapter 2)
- The principles of solving equations are extended to solve linear inequalities. (A.REI.3, Chapter 5)
- Students solve systems of equations algebraically. (A.REI.6, Chapter 6)
- Quadratic equations in one variable are solved. (A.REI.4, Chapters 8 and 9)
- Students represent and solve linear, exponential, and quadratic equations and inequalities graphically. (A.REI.10, 11, 12, Chapters 3, 5, 7, and 9)

Geometry: Students use their experience solving equations as it applies to proof, comparing the progression of steps to building proofs about lines and angles. (Preparation for G.CO.9, Chapter 2)

Algebra 2: Students extend their understanding by solving radical and rational equations. (A.REI.2, Chapters 6 and 8)

In Closing

As educators and supervisors know, when considering Common Core Standards alignment, it is important to consider a holistic view that includes focus on the Standards for Mathematical Content as well as the Standards for Mathematical Practice. The AGA series not only focuses on the CCSSM, but also provides flexible materials for educators to meet the specific needs of their students—and supporting student success will always be our primary goal. We appreciate the opportunity to share the full AGA solution with educators and will continue to partner with our customers to create impactful, research-based solutions for high school mathematics instruction.