

Program and Pedagogy

SpringBoard Integrated Mathematics I, II, and III is a comprehensive and flexible curriculum that supports student making the transition to the Common Core State Standards at the high school level. This three-course series provides the instructional content that students need to be prepared for future mathematical courses. The mission of the College Board is *clearing the path for all students to own their future*; this SpringBoard Integrated Math series stays true to this mission in providing students with a rigorous college- and career-ready curriculum that back maps from Advanced Placement (AP[®]) learning principles and design.

The SpringBoard Integrated Math series was developed around the Common Core State Standards for Mathematics (CCSS-M) with the Standards for Mathematical Practice (SMP) embedded within the instructional content throughout the program. In developing the SpringBoard Integrated Mathematics series, we aimed to design a scope & sequence and instructional materials that not only cover the scope of the CCSS-M as laid out in Appendix A but also provide opportunities for differentiation, building foundations, and enrichment within the core instruction and through supplementary instructional resources. As cited in the summary report, our program also addresses the plus (+) standards in the scope of the appropriate course where applicable. Using the Understanding-by-Design approach, SpringBoard provides teachers an instructional model to build and explicitly explain connections between strands of mathematics (see various Points of Integration callouts) while fostering student accountability for conceptual understanding.

Each Unit of instruction contains two to four Embedded Assessments (EAs), which are performance-based tasks. Using the Understanding-by-Design model, students and teachers collaboratively preview and unpack each EA prior to beginning that chunk (set of activities) of the Unit. During this unpacking process, students identify upcoming concepts/skills and connect them to previous topics, including those mastered in earlier grades. The unpacking exercise is further enhanced with student-created visual representations showing these concepts and connections to topics within the Unit and from previous grades or units. The unpacked EA allows students to focus on the knowledge and skills they will be responsible for throughout the unit and supports coherence within and among concepts. Support for students and teachers in meeting these objectives is provided in the Unit Overview, Professional Learning opportunities, and online modules. See the Planning the Unit pages in the Teacher Edition and the Unit Overview pages in the Student Edition and Teacher Edition for all Units, and connect these to the Assessment Focus noted on each Embedded Assessment.

SpringBoard agrees with the statements provided by the National Council of Teachers of Mathematics (NCTM) and supported by the National Council of Supervisors of Mathematics (NCSM): “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 CCSS-M.” (See <http://www.nctm.org/news-and-calendar/news/nctm-news-releases/nctm-calls-for-changes-to-edreports--reviews-of-common-core-instructional-materials/>.)

The following is in response to some of the scores received by EdReports based on their criteria.

Gateway 1: Focus and Coherence

Indicator 1a.i: The materials attend to the full intent of the mathematical content contained in the high school standards for all students. The standards that were seen as having not been met or only partially met due to lack of student opportunity to address certain aspects stated in the standards can be enhanced and enriched with the supplementary instructional resources, including Getting Ready Practice, Mini-Lessons, and Additional Unit Practice, that can be accessed on SpringBoard Digital. EdReports did not take into consideration all of the resources in the SpringBoard Integrated Mathematics program to evaluate each criterion.

Indicator 1a.ii: The materials attend to the full intent of the modeling process when applied to the modeling standards. The CCSS-M classify modeling as one of the SMP and as a conceptual category for high school, describing mathematical modeling as “the process of choosing and using appropriate mathematics and statistics to analyze empirical situations, to understand them better, and to improve decisions” (CCSS-M, 2010, p. 72). As EdReports notes, throughout the series students engage in a “variety of components of the modeling process” (p. 5). SpringBoard provides scaffolded instruction to help guide students through the mathematical modeling process. When we launch a revision of this series, we will have improved our approach to addressing modeling so that students do have the opportunity to authentically engage in the full mathematical modeling process.

Indicator 1b.ii: The materials, when used as designed, allow students to fully learn each standard. SpringBoard agrees with NCTM’s statement in *Principles to Action*: “standards do not teach; teachers teach...effective teaching is the nonnegotiable core that ensures that all students learn mathematics at high levels and that such teaching requires a range of actions at the state or provincial, district, school, and classroom levels” (2014, p. 4). The CCSS-M should not be attended to individually; rather, SpringBoard addresses the full intent of the standards through its balanced approach in which concepts are presented based on the most effective methods: Directed activities for foundational mathematics principles, including worked-out examples and practice; Guided activities for concepts that are best addressed through a combination of direct instruction and discovery learning, and; Investigative activities that allow students to explore and discover mathematics concepts through a contextual setting.

Indicator 1c: The materials require students to engage in mathematics at a level of sophistication appropriate to high school. SpringBoard provides students with scenario-based contexts in the instructional content, making connections to relevant, real-world applications. We intentionally do not use gratuitous labeling for teachers or students so as not to interrupt the flow of instruction.

Indicator 1e: The materials explicitly identify and build on knowledge from Grades 6-8 to the High School Standards. The examples EdReports cites are indeed present and built upon in the instructional content of the SpringBoard Integrated Mathematics series as intended by the CCSS-M. Simply, there is a lack of explicit citations of the middle school standards. SpringBoard focuses on grade-level content; when we launch a revision of this series, appropriate citations of the grades 6-8 standards will be included.

Gateway 2: Rigor and Mathematical Practices

Indicators 2a-2d: Rigor and Balance

SpringBoard prides itself for providing a rigorous and challenging curriculum. One positive result of the EdReports evaluation was earning 100% in scoring criteria for this section and achieving an overall rating of Meets Expectations in addressing and attending to all three aspects of rigor (conceptual understanding, procedural skill and fluency, and application).

Indicators 2e & 2g: The materials support the intentional development of overarching, mathematical practices (MPs 1 and 6, and MPs 4 and 5), in connection to the high school content standards, as required by the mathematical practice standards. The Standards for Mathematical Practice (SMP) are truly embedded with SpringBoard's instructional design. They are evident in the Problem Solving, Collaborative, Reading, and Writing Strategies that are called out in the Student and Teacher Editions for each lesson as well as at point of use in the problem sets, practice, Check Your Understanding items, and Embedded Assessments. In any given chunk of instruction and practice problems, students are provided with diverse questions that include open-ended opportunities to write, explain, reason, construct and critique arguments, and justify in each Directed, Guided, and Investigative activity. The Teacher Wrap provides support on implementation of these strategies, which align very closely with the SMP. Moreover, our Professional Learning opportunities provide guidance for teachers in effective implementation of the SMP.

SpringBoard writers and editors were very mindful in integrating and labeling the SMP to provide focused opportunities for students and teachers to emphasize application of each of the SMP. SpringBoard uses a pedagogically intrinsic model with the SMP; they should not be looked at in isolation, but rather as expectations for building positive habits of mind for engaging with the instructional content. Most of our embedded learning strategies embody the SMP, including Construct an Argument, Critique Reasoning, Create Representations, Visualization, Look for a Pattern, and Predict and Confirm, just to name a few.

Additionally, tools, representations, and manipulatives greatly enhance a student's conceptual understanding of the CCSS-M and support building proficiency and mastery of the SMP. SpringBoard Digital offers at point of use for every problem a suite of virtual tools categorized by domain: Algebra, Geometry, Number Concepts, and Probability & Statistics. Some tools that students can access and use strategically include algebra tiles, a protractor, the Desmos graphing calculator, various GeoGebra dynamic applications, and an array of data displays.

In summary, the SpringBoard Integrated Mathematics series was developed to meet the full intent of the CCSS-M and the SMP with a focus on developing conceptual understanding through rich problem-solving opportunities and embedded student-centered learning strategies. While we disagree with EdReports' methodologies and some of its conclusions, this evaluation has provided insight into areas where SpringBoard, in a spirit of continuous improvement, can enhance our instructional materials and resources for students and teachers.

If you would like more information about how the SpringBoard Integrated Mathematics series effectively addresses the CSSM-M and integrates the SMP in our instructional content, please visit <https://springboard.collegeboard.org/>.