



Publisher's Response to EdReports.org

Evaluation of Mathematics Vision Project Integrated High School
Submitted June 15, 2017

The Mathematics Vision Project (MVP) is an Open Education Resource designed from the ground up by educators for educators.

Our curriculum is FREE and available online (<http://www.mathematicsvisionproject.org/>) and we are grateful for the thorough review of our High School Integrated materials by EdReports. We believe that each and every student can achieve at high levels in mathematics when teachers are properly supported and students have access to quality curriculum. We are not a textbook company but rather educators who believe “what students learn is fundamentally connected with how they learn it” (Deborah Ball). We have created materials designed with both teachers and students in mind. Since our materials are available online, we have been able to respond to feedback from users to improve materials in a timely manner and to increase relevant supports for teachers that promote student success.

Over the past five years, MVP has created high school curriculum that meets the needs of all students and utilizes high quality tasks and practice sets that build student understanding over time. The Comprehensive Mathematics Instruction Framework, developed by the Brigham Young University Public School Partnership, is at the core of the design and sequencing of MVP materials. The analysis by EdReports in the first two gateways highlights many attributes of our materials, including coherence, balance, and rigor. The focus on coherence occurs both within each course as well as across all high school courses. The balance of conceptual, procedural and real-world modeling and application is found as part of in-class tasks (conceptual/procedural and application) and Ready-Set-Go practice sets (procedural, interleaving, spaced practice). The rigor of MVP materials allows each and every student to achieve a depth of knowledge regarding important content within and across all courses. As with any set of materials, the implementation by teachers plays a significant role. The MVP team believes in and supports teachers in this important work.

We would like to again thank EdReports for the in-depth review of our materials. We appreciate the feedback from the reviewers and are already making improvements as a result. For example, indicator 1e states “The materials explicitly identify and build on knowledge from grades 6-8 to the High School Standards” with the reviewers noting that “prior standards are used in MVP materials to support the progression into high school standards; however, the materials do not consistently cite the standards on which they are building.” MVP materials access student background knowledge and often refer to prior concepts, however, the standards connected to what students have learned previously will be added for better support. Mathematics Vision Project Integrated High School received “meets expectations” scores on the first two gateways, with many perfect subscores. This is significant and exciting to us, especially since we are just getting started. We look forward to continuing our work and improving the materials to increasingly improve their quality. The following responses address the indicators for which MVP did not receive full credit.

For further information regarding the Mathematics Vision Project FREE online materials, please visit us at <http://www.mathematicsvisionproject.org/>. We encourage you to contact us for professional learning

opportunities and to ask any questions you may have. The remainder of this document responds to aspects of the EdReports review.

Gateway 1: Focus and Coherence

Meets expectation. Score 15/18. The three points missing came from indicators 1b.ii and 1e.

Indicator 1b.ii: The materials, when used as designed, allow students to fully learn each standard.

Reviewers note: The following standards are noted as existing, yet incomplete: F-IF.7b, S-ID.2, S-ID.4, S-ID.9, S-IC.2.

MVP Response: In connection with the publishers criteria and the vision of the core standards authors, the materials provided by MVP allow for a “multi-tasking approach.” For us this means that the rich MVP tasks allow for multiple standards to be addressed in one task and that understanding of standards progresses over time and through the work of multiple tasks and Ready, Set, Go problems.

For example, the reviewers stated the following for standard S-ID.2: “In Secondary Math One, Module 9, Task 8, Ready problems 1 and 2 students are given one opportunity to compare the interquartile range of a data set.” This standard also shows up in Secondary Math One, Module 9 several other times. Locations S-ID.2 shows up is in Module 9, tasks one and two, then in several Ready, Set, Go exercises throughout the module, including the Ready problems in 9.8 of the Ready, Set, Go mentioned by the reviewers.

Indicator 1e: The materials explicitly identify and build on knowledge from grades 6-8 to the High School Standards.

Reviewers note: Prior standards are used in MVP materials to support the progression into high school standards; however, the materials do not consistently cite the standards on which they are building.

MVP response: MVP materials access student background knowledge and often refer to prior concepts throughout the materials, however, the standards connected to what students have learned previously will be added for better support in the near future.

Gateway 2

Score: 15/16. The one point missing for this section came from indicator 2b.

Indicator 2b: Attention to Procedural Skill and Fluency: The materials provide intentional opportunities for students to develop procedural skills and fluencies, especially where called for in specific content standards or clusters.

Reviewers note: The instructional materials reviewed for Mathematics Vision Project Integrated series partially meet the expectation that the materials provide intentional opportunities for students to develop procedural skill and fluencies, especially where called for in specific content standards or clusters.

MVP Response: The materials embrace what research suggests is essential for building procedural skill from conceptual understanding. The Learning Cycle component of the Comprehensive Mathematics Instruction Framework allows students to engage in mathematics as they move through different levels of sophistication as they move from Develop (conceptualizing mathematics and surfacing strategies))to

Solidify (examining, extending, and justifying why procedures work conceptually) and then to Practice (applying procedures fluently and transferring to new contexts) tasks. Additionally, the Ready-Set-Go problem sets reinforce procedural skills which are addressed multiple times throughout the Learning Cycle, the Module, and the course. The Power of a Module informs teachers where specific skills are reinforced throughout the year.

Gateway 3

3a - 3e: Use and Design Facilitate Learning-- Perfect score

3f - 3l: Teacher Planning and Learning for Success

Reviewers note: The instructional materials provide questions that support teachers in delivering quality instruction, and the teacher's edition is easy to use and consistently organized and annotated. However, the teacher edition for the instructional materials does not contain adult-level discussions of the mathematics, and the teacher edition does not explain the role of the specific mathematics standards in the context of the overall series.

MVP Response:

Supporting teachers in delivering quality instruction: The Teacher Edition of the instructional materials provide support for teachers throughout the lesson for effective implementation. The purpose statement provides mathematical goals to focus the learning of the task. The content and mathematics practice standards are listed to show intended outcomes for students as related to the phase of the Learning Cycle in which the task is set. The Teaching Cycle(Launch, Explore, Discuss) descriptions in the teacher notes include information to assist teachers in making decisions of how to Launch the task, monitor discussions during the Explore phase, and how to elicit and use evidence of student thinking to move the learning forward during the Discuss phase.

Adult level discussions and the role of specific mathematics standards in the context of the overall series: MVP trainings provide adult-level engagement in doing and learning mathematics. Teachers report that they deepen their mathematical content and pedagogical knowledge while building a conceptual foundation for the mathematics they teach. Professional learning opportunities are available from the MVP team and can be requested on our website. Likewise, the MVP authors look forward to working on the recommendation of the reviewers by capturing the work that takes place in professional learning and incorporating these aspects in the teacher edition. In addition, the MVP team is currently finalizing a module-by-module overview that explains the role of the specific mathematics standards in the context of the overall series.

Indicator 3m - 3q: Assessment

Reviewers note: The instructional materials reviewed for Mathematics Vision Project Integrated series partially meet the expectation that they provide materials for gathering information about student's prior knowledge within and across grade levels/courses. The Ready exercises within a task are intended to help students review and prepare for the skills and concepts that will be needed for the task. However, there is no guidance for the teacher as to how to interpret these exercises, nor is there discussion of possible strategies for remediation.

MVP Response: One of the most meaningful aspects of MVP materials is that it is a task-based curriculum where formative assessment opportunities are abundant and embedded in the work of implementation. Silver and Smith have provided further insight into this means of embedded assessment in “Integrating Powerful Practices: Formative Assessment and Cognitively Demanding Mathematics Tasks” (NCTM, 2015).

MVP offers a multitude of assessment opportunities which include student self-assessments, Learning Cycle Quick quizzes, Module Assessments and Performance Assessments. In addition, every task provides informal formative assessment every day.

All assessments are aligned to standards, however, the standards are not explicitly stated next to each item. Student self-assessments and quick quizzes are aligned to Learning Cycles and Learning Cycles are aligned to a set of standards. Some of our assessment items, especially in the Performance Assessments, align to a cluster of standards. This is intentional, as we want students to show understanding of individual standards as well as the connection between standards to demonstrate deeper understanding. Recognizing the concerns of the reviewers, the MVP authors will revise the materials to be more explicit regarding standards addressed within assessments without losing the importance of coherence between standards.

In addition, MVP will incorporate more explicit language to show how the Ready, Set, Go assignments can be used as a formative assessment.

Differentiation:

Indicators 3r, 3s, 3t, 3u:

Reviewers response:

3r, 3s: The instructional materials reviewed for Mathematics Vision Project Integrated series partially meet the expectation for providing strategies to help teachers sequence or scaffold lessons so that the content is accessible to all learners and for providing teachers with strategies for meeting the needs of a range of learners.

3t, 3u: Most tasks do not provide multiple entry points and, in general, do not provide support, accommodations, and modifications for English Language Learners and other special populations that will support their regular and active participation in learning mathematics (e.g., modifying vocabulary words within word problems).

MVP Response:

The Mathematics Vision Project materials use Learning Cycles to sequence tasks and scaffold student learning so that students build procedural fluency from conceptual understanding, over time. Each Learning Cycle includes intentionally sequenced tasks that progressively build student understanding of an important concept. Learning Cycles include *Develop Understanding*, *Solidify Understanding*, and *Practice Understanding* tasks as ways to distinguish how students engage in the mathematics. At the beginning of a Learning Cycle, Develop Understanding Tasks are designed to meet a wide range of learners, inviting students to use their own logic to make sense of the problems. This allows for multiple entry points as students use their own observations, background knowledge, and self-selected representation. On the other hand, Solidify tasks may be purposefully constrained to allow students to examine a particular strategy or concept. Over time, as students move through the Learning Cycle, the

tasks move students from their own foundational understandings towards fluency and flexibility with the procedures and representation of the mathematics community.

For every task, the Enhanced Teacher Notes provide a purpose statement to establish the goals of the task as they relate to the Learning Cycle. The purpose statements provide teachers with expectations so that a wide range of learners can be successful in accomplishing the goals of the lesson. The Teacher Notes also includes the Teaching Cycle, which incorporates suggestions on how to facilitate the task so that the content is accessible to all learners (low threshold, high ceiling). The Enhanced Teacher Notes provide supports for teachers to engage students in implementing the Standards for Mathematics Practice and also includes Instructional Adaptations for students who are struggling (Intervention Activities) as well as for students who need enrichment (Challenge Activities).

For more information about the Teaching and Learning Cycle of the CMI Framework, please see the User's Guide Document located on the MVP website.

Each task corresponds to a *Ready, Set, Go* assignment that reviews foundational skills and activates background knowledge (*Ready*), provides independent practice connected to current learning (*Set*), and solidifies recently learned concepts via spaced practice (*Go*). Throughout the module, the tasks become more complex while the *Ready, Set, Go* problems are intentionally spiraling the content and reinforcing concepts. To assist struggling learners, there are other additional supports to ensure the content is accessible. There are Help, Hints, and Explanations (HHE's) print materials as well as rsgsupport.org videos that show examples with explanations for solving every problem type. Each task has an aligned *Ready, Set, Go* and every *Ready, Set, Go* has an aligned support video and corresponding HHE.

The Power of a Module is a resource for teachers that demonstrates how the materials develop mastery of the standards over several tasks and *Ready, Set, Go* assignments. An example is Secondary Math One, Module 1, Tasks 1 – 11 (see POM Math 1 Module 1). The Module is sequenced to compare arithmetic and geometric sequences and scaffolds student learning by beginning with simple patterns, then growing more complex over time by changing start values, incorporating decreasing functions, finding unknowns when given various pieces of information, solidifying recursive vs explicit thinking, and identifying arithmetic or geometric sequences when given any representation.

While all modules have all of the components listed above, Math One, Module 1 is an example of how tasks are scaffolded and sequenced to provide multiple opportunities for a wide range of learners to be successful and master concepts. This same module shows that there are multiple entry points for almost every task, from low threshold (counting dots/squares in the first four tasks) to choice (selecting representations that makes the most sense for the students in almost every task) to high ceiling (Challenge Activities and students predicting situations that have calculus underpinnings. For example, predicting when Gustus would run out of candy if he consistently gave 60% away each day).

The Mathematics Vision Project provides supports for English Learners in several ways. First, the Sentence Frame cards are part of the MVP resources that are intentional and correspond to the Eight Standards of Mathematics Practice. Teachers can use the Sentence Frame cards to provide scaffolding for student learning by incorporating the cards with the corresponding SMPs described in each task. Another component of the MVP materials is the attention to student discourse. English Learners make the most progress in learning the language and content when provided opportunities to speak, read, write, and listen. EVERY task provides students individual think time to write, then small group time to speak and listen.