Summit Math

Introducing
a New Math Experience
for 21st Century Learners

EdReports

Publisher Response

fueleducation™

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Fuel Education's Publisher Response

Fuel Education's Summit Math Florida for grades 6 – 11 was built to have an intentional design, integrated instructional approach, and an intuitive path. Courses include two semesters of content to cover Mathematics Formative Assessment System (MFAS) across the school year. Courses adapt and personalize to meet the needs of each student. Florida standards are displayed throughout the curriculum and tied to real-time reports for teachers to further differentiate learning.

Like other curriculum providers in the virtual and blended education industry, at Fuel Education, we are challenged to inform others how instructional resources can be used to enhance the modern classroom to improve academic performance and help students reach their highest potential.

There are several themes that we have identified in EdReports review that indicate EdReports reviewers may hold some misconceptions about effective online curriculum, similar to the misconceptions we encounter across the industry.

Focus and Coherence

Firstly, EdReports Reviewer comments represent a misunderstanding that focus and coherence are achieved solely by time spent on major clusters. This can lead to a drill & kill approach. Summit Math follows clear learning progressions to support coherence, as supported by authors of Florida standards. Florida standards documents indicate, repeatedly, *"Don't sort clusters from Major to Supporting and then teach them in that order. To do so would strip the coherence of the mathematical ideas and miss the opportunity to enhance the major work of the grade with the supporting clusters*." The authors appear to understand that the curriculum should be structured around clear learning progressions. In fact, the FLDOE site indicates "Focus means narrowing the scope of content in each grade or course, so students achieve higher levels of understanding and experience math concepts more deeply." Summit Math ensures that students are prepared to master priority standards by building a conceptual foundation to support depth of knowledge.

Summit Math Course Design and Learning Progressions

To fully reap the benefits of online learning, direct instruction and practice activities must do more than present students with text on a screen. Summit Math is carefully designed to match the interactivity level to the cognitive level of the task at hand, based on research-backed principles of cognitive science.

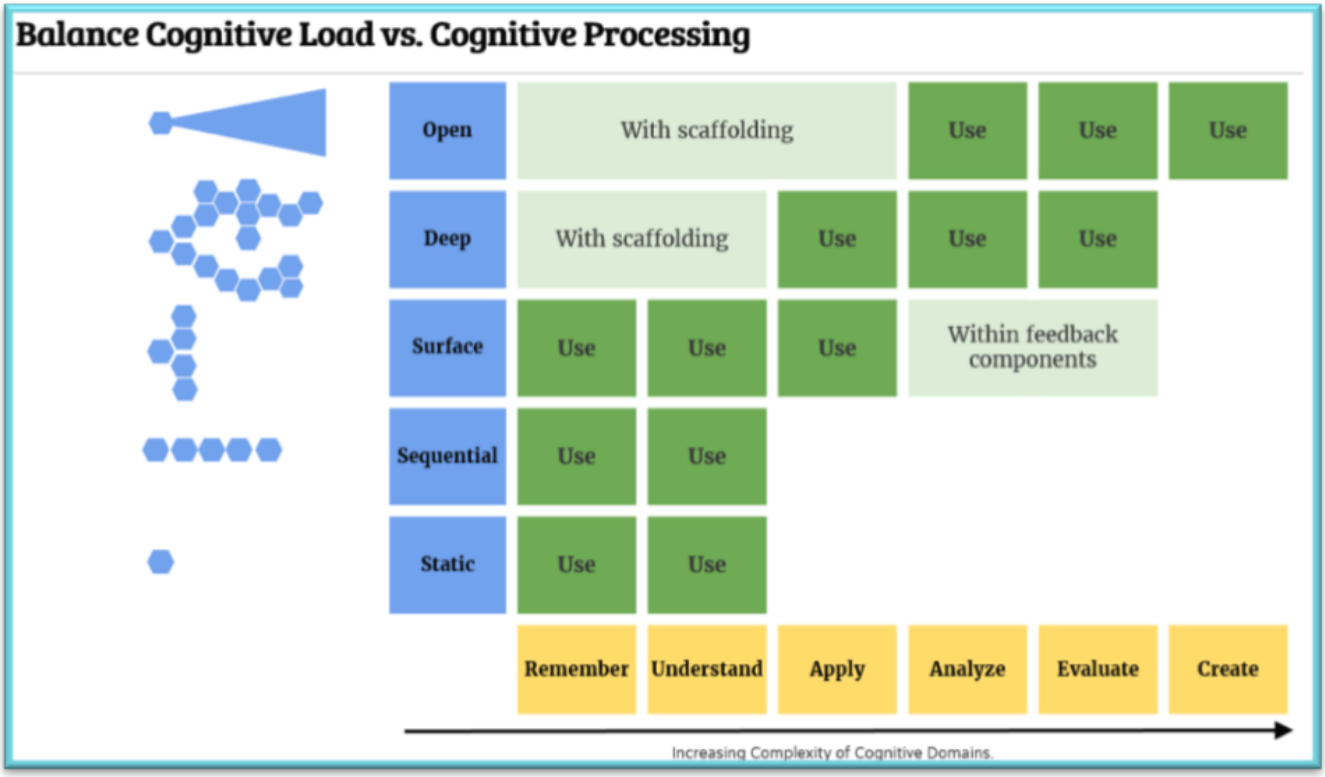

Figure 1 - Component Strategy

Summit Math is structured around learning objectives that are unpacked from standards language, paying close attention to the cognitive verb and the level of Bloom's taxonomy implied by that verb. The curriculum uses these master objectives as a skill spine for both instruction and assessment in order to create coherence. This ensures not only that the content meets the standards in a granular, precise way, but also that instruction and assessment are synchronized to support students in the tasks involved with demonstrating their knowledge. This balance of conceptual understanding and procedural ability lead students to efficient, fluent comprehension of on-level concepts.

Courses are carefully structured and sequenced to ensure that each standard is tested at least three times, whether through informal or formal assessments, yielding meaningful, actionable data to empower teachers. Meaningful practice with the same rigorous question types that students will likely see on high-stakes exams reduces cognitive load for students during exams. Embedding these experiences seamlessly and throughout the course, means teachers don't have to "teach to the test." Teachers can focus on teaching, knowing students are gaining familiarity and comfort with these item types in a built-in, non-disruptive way.

Teachers who implement the Summit digital-first math curriculum can further personalize and enhance instruction by providing remediation or enhancements for the more advanced learner.

Prerequisite Skill Relationships

Secondly, reviewers appear to lack insight into the critical prerequisite and on-target skill relationships required to build strong conceptual foundations. For example, a reviewer noted there was no connection to be made between prime factorization and dividing fractions-- the major work of the unit. Actually, prime factorization in support of student ability to identify greatest common factors is a critical component of efficiently dividing fractions. In the example pictured below, if students don't understand that 36 and 12 share a common factor, and that the problem can be simplified by "canceling out" before proceeding to divide, then students are going to increasingly encounter unnecessarily difficult arithmetic when dividing fractions. Students are likely to work less efficiently and may not build fluency. Deep understanding of this prerequisite concept supports efficiency with dividing fractions, without forcing rote procedural memorization.

$$5\frac{1}{7} \div 2\frac{2}{5} = \frac{36}{7} \div \frac{12}{5} = \frac{36}{7} \cdot \frac{5}{12} = \frac{\overset{3}{\cancel{36}} \cdot 5}{7 \cdot \underset{1}{\cancel{12}}} = \frac{3 \cdot 5}{7 \cdot 1} = \frac{15}{7}$$

Building a Strong Foundation

Summit Math ensures a strong foundation in a variety of ways. In fact, we use a preemptive approach to identify the need for extra support before the student begins the course.

The Readiness Checkpoint at the start of each course diagnoses a student's initial proficiency and places them on an initial path for learning. Throughout the course, as the student engages within the content, the system continually adapts the individualized instructional path to address each student's strengths and weaknesses and based on each learners' unique needs.

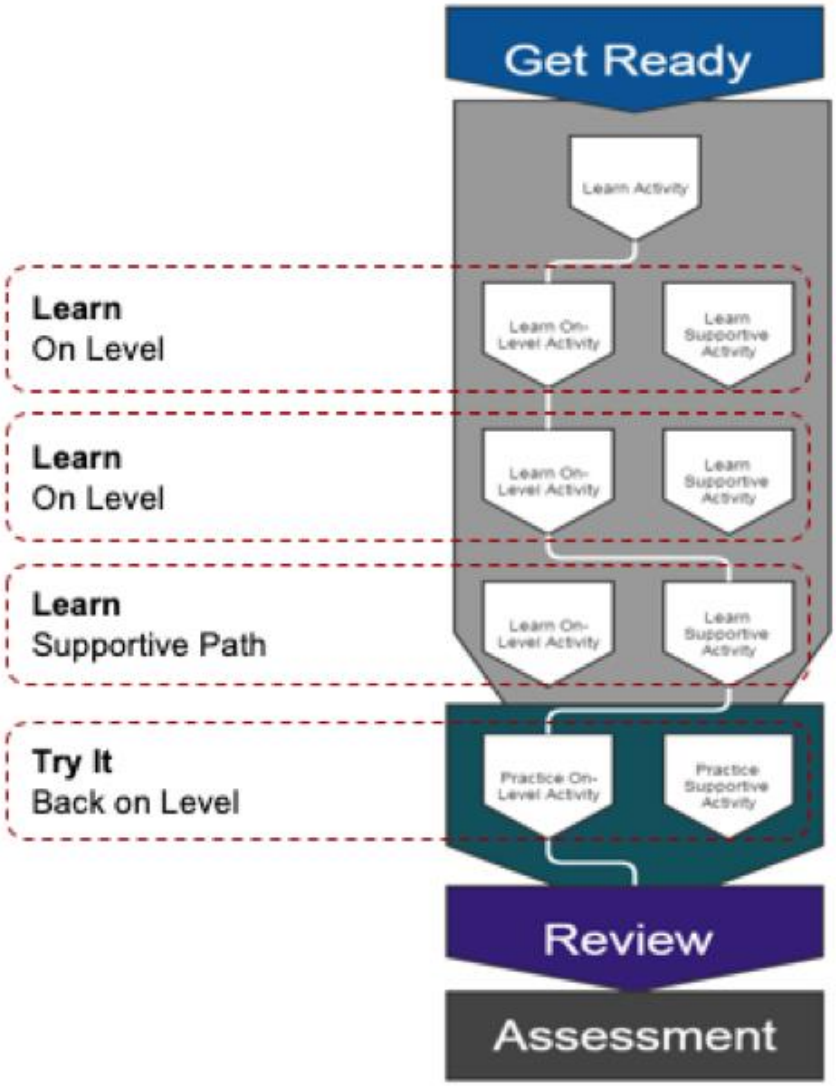

Figure 2 - Lesson structure - students may be receiving on-level or supportive content without ever knowing it.

“These adaptive paths include an on level or supportive path and include an optional manual path for ELL and Enrichment students. The on-level path includes learning activities at the skill level, whereas the supportive path provides additional support by increasing scaffolding to help the student get back on track while still maintaining the current course expected standards. Ongoing data collection refines the system's prescriptive abilities over time, providing teachers with data useful for monitoring student performance, and adjusting learning paths.

Embedded tools and accessibility features are always available throughout each lesson, including text-to-speech, translation tool, dictionary, masked readers, closed captioning and more, to appeal to the learning needs and styles of each student. Individualized and personalized content enable differentiated instruction at select points in the curriculum. Focus activities are designed to help English language learners incorporate new math vocabulary, and extension activities provide a deeper dive for students who benefit from enrichment.

Furthermore, the curriculum also features a learner-led feature – the Help Me button allows students to take ownership of their learning and request support when needed. When a student clicks on the Help Me button, in most lessons, they will receive recommended supplemental activities in real-time when the need arises for additional practice to sharpen skills. This innovative feature also gives students a virtual way to raise their hand in class.

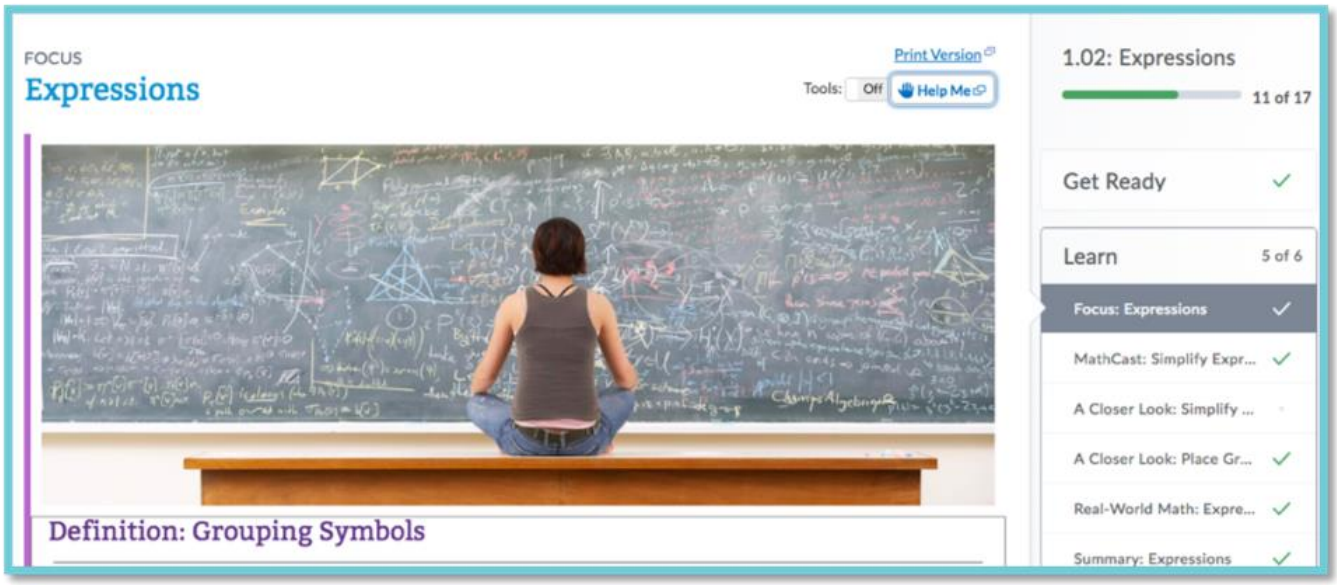

Figure 3 - Help Me Button (to the right of the toolbar) serves students supplemental activities based on their performance.

Courses are designed to build on prior knowledge while gradually adding new information in multiple representations, building strategic competence. For example, throughout the progression within Summit courses, robust feedback helps students to self-remediate at point-of-failure and provides critical feedback. This instant feedback can help students to resolve misunderstandings as they occur, preventing misconceptions from becoming entrenched. Students are first given a hint to help them try again. If students continue to complete the problem incorrectly, they review the full solution step. The goal at this point in the learning cycle is to ensure students self-correct and move on with accurate

understanding. You can find this throughout the practice section of every lesson when a student checks their answer it will populate the feedback.

Alignment for G12

Lastly, EdReports review of Summit Math included seeking alignment for G12 standards within Fuel Education's product for grades 9 – 11. This does not apply to this grade band and would therefore not be relevant to the review.