

Many high school students at Mountain Heights Academy charter school in Utah were struggling in the new Common-Core aligned, third-year math course, Secondary Math III. Using EdReady as a foundation, they built an alternative full-year course, College Prep Math, to serve students who weren't ready for Secondary Math III.

### INSTITUTIONAL PROFILE

Mountain Heights Academy is a fully online public charter school serving students in grades 7-12 across the state of Utah. Following a traditional September-to-June academic calendar, the schoolwork is divided into weekly modules that students can access asynchronously, at any time during the week. Students have assignments due at the end of each week. Students can attend Mountain Heights either part time or full time.

### IMPLEMENTATION

When Utah implemented the Common Core State Standards in 2010, the state chose to integrate both beginning algebra and geometry into Secondary Math I and Secondary Math II, then cover much of intermediate algebra and some pre-calculus in Secondary Math III.

All students are required to take Secondary Math I and Secondary Math II, plus a third math class, in order to graduate. Students at Mountain Heights have several options for that third-year math course, including Secondary Math III, Pre-calculus, AP Calculus AB, and Math 1050 (a college-level, dual-enrollment course). Most students follow the sequence into Secondary Math III, but not all the Mountain Heights students had the math skills to succeed in that course (let alone the more difficult math courses), and yet those students still needed a course that would prepare them for college math.

During summer 2014, Mountain Heights Academy teachers built a new, year-long course called College Prep Math. EdReady with NROC math resources was at the center of the new course, which they built within the school's Moodle environment. The purpose of the course was to ensure that students had an option to fill in missing foundational math knowledge and ultimately prepare them to take the Accuplacer exam and score high enough to test into college-level math.

*"Students love these personalized study plans. They love the chance to be able to finally fill in the holes that they have been struggling with all of high school, all of elementary school, all of junior high..."*

—Crystal Van Ausdal, Math Department Chair, Mountain Heights Academy



Mountain Heights  
ACADEMY

### DETAILS

**WHO WAS SERVED:** High school students who barely passed Secondary Math I and II and needed to build foundational math skills before they were ready for Secondary Math III

**WHEN:** Academic Year 2014-2015

**NUMBER OF STUDENTS:** 75

**IMPLEMENTATION:** Year-long online math course for high school students (mostly juniors)

**RESULTS:** As of February 2015, the full-year course is still in progress, with two students having completed the entire course four months ahead of schedule

**INSTRUCTIONAL APPLICATION:** College Math Readiness (specifically preparing for the Accuplacer) as a credit-bearing course in a fully online high school

The College Prep Math course has three goals for students:

- 1) prepare for the Accuplacer arithmetic test
- 2) prepare for the Accuplacer elementary algebra test
- 3) prepare for the Accuplacer college-level math test

In the Mountain Heights course, students must pass each goal in sequence before they can move on to the next goal. They have from the start of the academic calendar (Sept 2014) until June 2015 to finish the course, and they are allowed to finish early. Students who meet all three goals of College Prep Math earn one full year of high school math credit.



EdReady has an Accuplacer-aligned initial diagnostic in place, but the Mountain Heights faculty decided to break that diagnostic into three sections to correspond to the three different goals. At the start of the course, each student took steps to meet the first goal by taking the initial diagnostic to determine which math topics that student had already mastered, which topics needed review, and which needed in-depth study time. EdReady then gave the student an individual study path that concentrated on those topics needing review and remediation, and skipped the topics the student had already mastered. The lessons, practice problems, and videos in EdReady allowed students the opportunity to build their knowledge and then demonstrate mastery of individual topics.

“EdReady Goal #1: Prep for the Accuplacer Arithmetic Test” is the first goal, covering math fundamentals such as fractions, mixed number, percents, and measurements. The Mountain Heights teachers set a target score of 100 (out of 100) for the students so that they would completely fill in any holes in their foundational learning.

“We needed all the students to get 100 [the EdReady target score] to be successful on the Accuplacer [arithmetic version],” said Crystal Van Ausdal, Chair of the Math Department at Mountain Heights Academy, “And instead

of just stopping there, we wanted to make sure that they retained that information, so we took questions from released Accuplacer tests and put them into a final exam. They have to get at least a 90% on the final Moodle test to move on to the next goal. We did give them two attempts on the test.”

“EdReady Goal #2: Prep for the Accuplacer Elementary Algebra Test” takes students through elementary algebra. This goal is more difficult, so the Mountain Heights faculty set the target score in EdReady to 80 (out of 100) and required a score of 80% on the final Elementary Algebra test needed to move on from this goal.

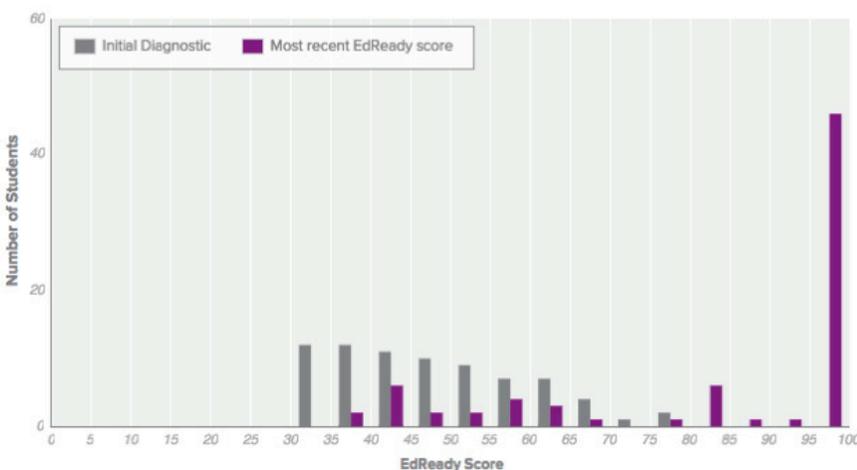
The last course goal, “EdReady Goal #3: Prep for the Accuplacer College Level Math Test,” contains the most difficult subject matter, so Mountain Heights set the EdReady target score to 60 (out of 100) and required a 60% score on the final test. These scores were selected based on how well the student would need to do on an Accuplacer exam to avoid developmental math in college, using minimum passing scores averaged from some of the most popular colleges in the state: Brigham Young University, University of Utah, and Utah State University.

## RESULTS

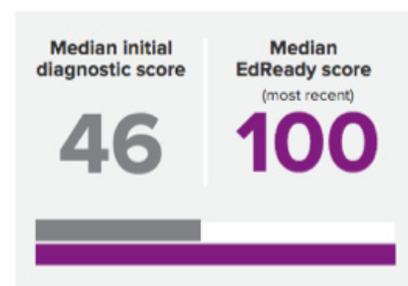
As of February 2015, Mountain Heights Academy is mid-way through the academic year, so data on final outcomes (the students’ scores on the actual Accuplacer tests) using EdReady for College Prep Math are not yet available. However, so far the EdReady reports show outstanding growth for these students.

For the first goal, “Prep for the Accuplacer Arithmetic Test,” 70 of 75 students have improved their EdReady scores, with an average score gain of 37 points (on a 100-point scale). The EdReady target score was 100\*:

### Score Distribution ?



### Summary ?

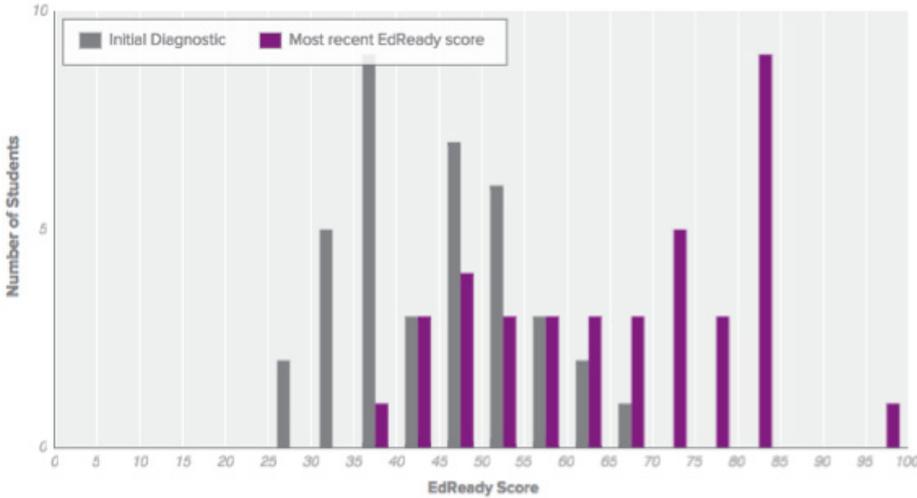


Students who have eclipsed their target score: **38 (50%)**  
Average score gain **37 points (+/- 2)**

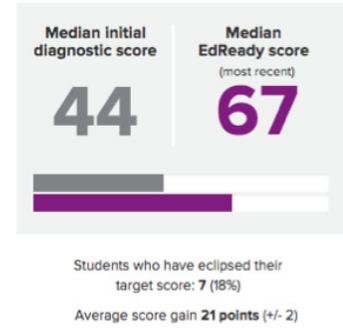
**FIGURES 1 & 2: Mountain Heights Student Score Progression and Average Score Gains for Goal #1 in EdReady**

Thirty-eight (38) of the 75 students have moved on to the second goal, “Prep for the Accuplacer Elementary Algebra Test,” and 35 of those have improved their EdReady scores, with an average gain of 21 points (on a 100-point scale). The EdReady target score was 80\*:

**Score Distribution** ?



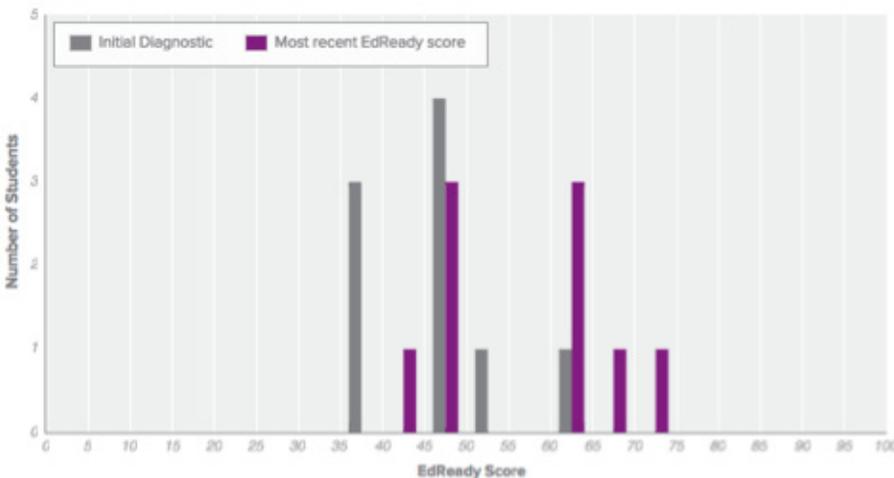
**Summary** ?



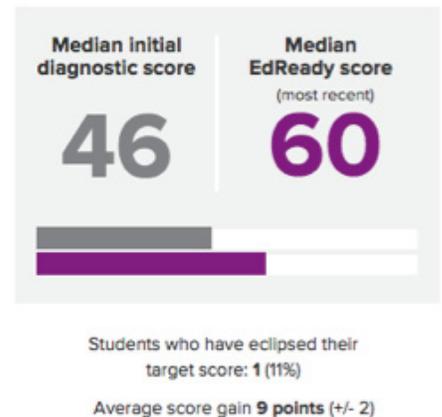
**FIGURES 3 & 4: Mountain Heights Student Score Progression and Average Score Gains for Goal #2 in EdReady**

Nine of the 75 students have already started the third and final goal, “Prep for the Accuplacer College Level Math Test,” and 7 of those students have improved their EdReady scores, with an average gain of 9 points (on a 100-point scale). The EdReady target score was 60. Two students have finished the course entirely (four months ahead of schedule) by passing the final exam for College Level Math.

**Score Distribution** ?



**Summary** ?



**FIGURES 5 & 6: Mountain Heights Student Score Progression and Average Score Gains for Goal #3 in EdReady**

Feedback from students is positive. According to Van Ausdal, “Students love these personalized study plans. They love the chance to be able to finally fill in the holes that they have been struggling with all of high school, all of elementary school, all of junior high. They’ve kind of been passed along, getting D’s every year, and they’re now to the point where they’ve got too many holes to go on to a more rigorous class. And they are finally able to go through and fill in these holes.”

### **WHAT’S NEXT**

Mountain Heights Academy has already modified the College Prep Math course requirements at the mid-year point. Students who need only one semester’s worth of math credit are now allowed to move directly into coursework at the Elementary Algebra level if they’ve demonstrated enough math skill to move beyond the arithmetic portion of the course. Students need to complete both the Elementary Algebra and the College Level Math goals to earn the semester of credit. Van Ausdal says they are planning to continue to teach the full-year and semester versions of the course next year and to modify as necessary for the best student success. ■

*\*If a student scores 100 points, he or she has achieved 100% mastery of all of the content in the curriculum for his or her class.*