
# Response to St. Tammany Parish School Board

## RFP on Assessment and Instructional Software for Students




www.AscendMath.com
302 Albany Avenue • Shreveport, LA 71105
Toll Free (877) 843-0277 • Fax (318) 865-6227


© Ascend Math

**Ascend methodology, design, program components, as well as usage are supported by the following white papers as described below.**

**Six Critical Components of a Strong Math Intervention Program**

Six Critical Components draws upon findings published by the National Center on Response to Intervention, National Council of Teachers of Mathematics and others. It provides a clear understanding of tiered intervention, universal screening, individualized instruction, progress monitoring, data based decision making, and intervention fidelity and integrity and shows how one program Ascend Math meets or exceeds all this criteria.

**Effective Mathematics Instruction and The Ascend Math Solution**

This paper explores scientifically-based research that has yielded important insight into effective mathematics instruction in a variety of areas. Research presented was conducted at major universities throughout the United States and appears in peer-reviewed journals. The paper also demonstrates how The Ascend Math Solution's instructional, assessment, and reporting resources align with scientifically-based research to provide a comprehensive solution for improving mathematics proficiency.

**The Ascend Math Solution Use Model: Remediation and Enrichment**

In its publication, Creating or Selecting an Intervention Program, the National Council of Teachers of Mathematics (NCTM) describes the essential characteristics of an effective mathematics intervention program and provides questions educators should ask about an intervention program before selecting it. To demonstrate the Ascend Mathematics Solution's appropriateness for Tier II Intervention, we have provided responses below to each of the aforementioned NCTM characteristics.

**The Ascend Math Solution Use Model: Tier 2 Intervention**

The Ascend Math Solution is appropriate as a Tier II intervention—meaning that students lagging behind using the school's "standard curriculum" can and will catch up to (and even surpass) their better-performing peers by utilizing Ascend. One of the important distinctions of Ascend—particularly in relation to RTI—is that it can be used extremely flexibly, depending on the needs and resources of individual schools and districts. This use model describes some of the ways the program can be used and the benefits it affords teachers, students, and administrators.

# 6 Critical Components of a Strong Math Intervention Program

## The Ascend Math Model

Developed By:

Strategic Education Solutions
6718 Rustling Oaks Trail
Austin, TX 78759
www.strategicedsolutions.com

## Background

In 2004, the Individuals with Disabilities Education Improvement Act (IDEA) emphasized the use of Response to Intervention (RTI) as a more accurate way of diagnosing students with learning disabilities. Both the IDEA and its counterpart, the No Child Left Behind Act (NCLB) sought to minimize the number of students incorrectly classified as learning disabled by providing a tiered system of diagnosis and intervention for students. If student learning deficiencies could be corrected through instructional intervention, then (according to IDEA and NCLB) those deficiencies had likely been the result of poor instruction rather than a true disability. In addition, RTI has come to represent for educators an end to the "wait to fail" model, in which academic deficiencies remain un-diagnosed and un-mediated until the student reaches a critical level of failure (Ogonosky, 2008; McInerney & Elledge, 2013; Al Otaiba, 2014; "Essential components," 2010).

RTI provides a tiered model for student instruction and assessment. The law does not stipulate a particular configuration, number of hours, or delivery method for any intervention tier, leaving such decisions to individual schools and/or districts. This flexibility is important because each school may operate somewhat differently based on a variety of factors, such as state and local education regulations, class schedules, staff configurations, and administrative policies and procedures (McInerney & Elledge, 2013; Fuchs, Fuchs, & Compton 2012). While this flexibility is needed, it has also has created some confusion as to the "optimal" configuration and frequency of assessment and interventions within a specific RTI framework. This white paper presents an approach to RTI that reflects the general consensus found in research on effective Response to Intervention programs.

## Essential Components of an Effective RTI System

As previously stated, the specifics of RTI may appear slightly different from state to state, district to district, and even school to school. However, researchers generally agree on several essential components that must be present in an effective RTI system.

### 1. Tiered Intervention

Researchers agree that a tiered system of intervention is critical to an effective RTI system (Ogonosky, 2008; Ogonosky, 2013; McInerney & Elledge, 2013; Fuchs, Fuchs, & Compton 2012; "Tiered interventions," 2010; "Essential components," 2010; Smith & Okolo, 2010; "Student assessment," 2011; Gersten, et al, 2009). What is often called Tier 1, Level 1, or Primary Intervention is, in essence, regular classroom instruction. Teachers deliver research-based, differentiated instruction to all students (Ogonosky, 2008; McInerney & Elledge, 2013; Fuchs, Fuchs, & Compton 2012; "Essential components," 2010; Gersten, et al, 2009).

Based on Universal Screening implemented in Tier 1 (described below), students that do not respond adequately to core classroom instruction are moved to Tier 2 Intervention. At this Tier, the intensity of both assessment and instruction intensifies. In Tier 2, significant baseline data collection/diagnostic assessment occurs to pinpoint specific areas in which additional, differentiated, individualized instruction is needed (Ogonosky, 2008; Fuchs, Fuchs, & Compton 2012). As the student progresses through the intervention, curriculum-based and other measures are used frequently to determine whether the student is



© Ascend Math - Exhibits Page 3 of 145

progressing faster than expected, as expected, or slower than expected compared to clearly-defined student outcome measures. Based on this data, students may be moved back to Tier 1 (general classroom instruction), may remain in Tier 2, or may be moved to Tier 3 for more intensive intervention.

Perhaps one of the most important aspects of Ascend Math is its ability to empower teachers and administrators to engage in detailed analysis of student progress and make timely decisions about placement. State assessments are given yearly (and frequently, the results of those assessments are not available to schools until late in the first semester). With Ascend Math, teachers and administrators can view student progress much more frequently and make decisions about which students may need more or less time on Ascend to fill in skill gaps or achieve desired progress goals.

Ascend Math's adaptive level recommendation assessment properly places students at their individual functional level. While some mathematics interventions require students to progress through a preset, full course of instruction, regardless of whether particular concepts have or have not been mastered by the individual student, Ascend Math is fully individualized. Students are placed at their appropriate place of difficulty and because Ascend Math focuses only on those key areas, students begin to see success immediately. As students progress through their continuously adapted learning plans, Ascend Math automatically removes learning objectives for which they demonstrate mastery on a pre assessment—infusing an ever-greater level of individualization.

Students who do not respond to Tier 2 Intervention as illustrated by routine and frequent progress monitoring may be moved to Tier 3 Intervention. Tier 3 Intervention is characterized by an increase in both frequency and duration of assessments and interventions implemented at Tier 2 ("Essential components," 2010). Typically, failure to respond to Tier 3 Intervention results in a referral for Special Education Services. Thus, it is critical that, as in Tier 2, intervention is implemented with absolute fidelity and that this fidelity is clearly supported through documentation (Ogonosky, 2008; "Essential components," 2010). As in Tier 2, instruction is individualized to meet the specific needs of the individual student. Of note, Tier 3 Intervention may require significant flexibility on the part of the school to implement in terms of class scheduling and staff availability in order to accommodate the increased intensity of the intervention (Ogonosky, 2008).

Ascend Math is completely individualized, enabling students to move seamlessly between intervention tiers as needed. Ascend Math's computer-based instruction greatly reduces challenges associated with increasing/decreasing intervention intensity as needed and with managing groups of students needing multiple levels of intensity simultaneously.

For example, students in Tier 2 may utilize Ascend Math two to three times per week. Tier 3 students may have a full class period each day dedicated to math intervention. Tier 3 students who respond well to the intervention may be moved to a Tier 2 class without any disruption in their individual study plans. Those students requiring an increase in intensity may be assigned to the daily intervention class.

Ascend Math offers a variety of means of support to ensure the program is implemented with fidelity. Ascend Math reports provide real time student usage and growth data. Teachers can track student progress and usage and set progress goals according to Tier. For example, Tier 2 students may have a goal



© Ascend Math - Exhibits Page 4 of 145

to complete one to two learning objectives per hour worked; while Tier 3 students may complete one to two learning objectives per two hours worked.

The student interface also provides motivational features that allow students to set goals and track progress. Teacher reporting and progress monitoring is designed to facilitate open communication between students and teachers in order to more effectively and efficiently gauge progress.

In addition, Ascend can be accessed anytime, anywhere—within the classroom, in computer labs, before/after school, and even from home, providing school staff significant flexibility to ensure that students receive the intensity needed to meet progress goals without over-taxing the school schedule and staff.

## 2. Universal Screening

Universal screening is seen as a critical part of any RTI program (Ogonosky, 2008; Ogonosky, 2013; McInerney & Elledge, 2013; Fuchs, Fuchs, & Compton 2012; "Tiered interventions," 2010; "Essential components," 2010; Smith & Okolo, 2010; "Student assessment," 2011; Gersten, et al, 2009). It is implemented as part of Tier 1 Intervention with *all* students to identify current and/or potential academic deficits ("Essential components," 2010; Smith & Okolo, 2010; Witzel, 2010).

Universal screening instruments may include Curriculum-Based Measures (CBMs), state assessments, district assessments, and other assessments as determined by the school's RTI team (Ogonosky, 2008). Some researchers suggest that a single-stage screening may result in a high level of false-positives or false-negatives, unnecessarily increasing a school's investment in RTI or under-identifying students and unacceptably delaying their access to needed interventions. To avoid this challenge, these researchers recommend a two-stage screening, in which the cut point is set sufficiently high so as to eliminate students who clearly are not in need of intervention. This is followed by a second, more detailed assessment of students who did not meet the cut point on the first assessment (Fuchs, Fuchs, & Compton, 2012; "Essential components," 2010; "Student assessment," 2011).

An effective Universal Screening process should *quickly* and *accurately* determine which students to target for intervention and identify *specific* gaps between student performance and expected instructional outcomes (Ogonosky, 2008; McInerney & Elledge, 2013; Gersten, et al, 2009). Universal Screening instruments should also be easy to administer and analyze, presenting data in a way that facilitates instructional decisions. This also ensures that universal screening occurs with *fidelity*—that teachers and/or school staff are consistent and timely in their screening (Ogonosky, 2008; McInerney & Elledge, 2013; "Tiered interventions," 2010).

Ascend Math can play an important role in multi-stage universal screening. Following a stage 1 "high level" screening, schools can administer Ascend's adaptive Level Recommendation assessment to identify quickly and efficiently students performing significantly below grade level. Because Ascend is aligned to each state's chosen standards and/or assessment objectives, teachers and administrators can view students' proficiency status in terms of standards in their state. Diagnostic assessments then pinpoint students' performance across mathematics domains and objectives to provide a comprehensive, accurate



© Ascend Math - Exhibits Page 5 of 145

picture of current levels of performance and to automatically create a fully-individualized intervention plan for each student.

For example, in a Maryland middle school, administrators selected a set of students who had not made adequate progress on the state mathematics test in previous years. These students were administered Ascend's diagnostic assessment, which found that 97% of the students tested at least one grade below grade level, and that 70% of those students tested three or more grades below their current academic grade. (See Appendix B, Holabird STEM Program) This data supported the accuracy of Ascend's diagnostic assessment in confirming the need for intervention in the majority of students selected. The results of the assessment allow districts to place students in Tier 2 or Tier 3 according to results and begin targeted, individualized intervention in a "time is of the essence" manner.

### 3. Individualized Instruction

At Tier 1, it is assumed that regular classroom instruction incorporates *differentiated* learning—specific strategies, tools, or approaches that meet the varied needs present within a typical heterogeneous classroom (Ogonosky, 2008; McInerney & Elledge, 2013; Fuchs, Fuchs, & Compton 2012; "Essential components," 2010; Gersten, et al, 2009). Tier 2 Interventions typically feature *individualized* instruction. Whereas differentiation at Tier 1 assumes that a variety of instructional strategies will meet the needs of most students, at Tier 2, intervention becomes specifically tailored *to each individual student*. Individualization includes attention to both learning style—how a student learns best—and content—what a student needs to learn (Ogonosky, 2008).

Tier 2 Interventions should be targeted to the student's actual level of performance rather than his/her grade level, and should reflect the reality that a single student may be functioning at a variety of instructional levels within and across subject areas and across domains within a subject area (Fuchs, Fuchs, & Compton 2012). If a student does not respond to Tier 2 intervention (despite fidelity of implementation), he/she progresses to Tier 3. Tier 3 intervention require significantly more individualized intervention, combining some aspects of Tier 2 intervention with additional instructional content and/or strategies based on specific student needs, as well as increased intervention time (Fuchs, Fuchs, & Compton 2012; "Essential components," 2010).

Ascend Math is one of the few math intervention programs to provide a truly individualized study plan for each student. Based on the results of the diagnostic assessment, Ascend teachers may address multiple levels of intervention within a single classroom. A single Ascend Math classroom of 8$^{th}$ graders may at one time have 67% of students working at a third grade level in math, 19% at a grade fourth grade level, and the remaining students spread out between fifth and seventh. (See Appendix B, Holabird STEM Program.) Ascend Math reaches each student at his or her functional grade level, addressing individual skill gaps.

Once the student has been assigned to a level, he or she takes a pre assessment over the first unit of instruction. Ascend automatically removes learning objectives in which the student is proficient. Any non-mastered objectives indicated by the student's pre assessment scores will become the student's personal learning study plan. Therefore, using the appropriate state standards, Ascend Math automatically individualizes instruction and assigns each student a carefully-articulated study plan based on pre



© Ascend Math - Exhibits Page 6 of 145

assessment results. The ability to automatically guide students through an individual study plan addresses each student's unique response to intervention requirements.

Each student receives a rich, differentiated learning experience through Ascend's technology. Lessons include:

- video-based direct instruction by mathematics education experts;
- motivational, audio-supported examples of mathematics concepts;
- interactive exploration using visually-rich manipulative tools;
- traditional practice with opportunity for re teaching;
- assessment to ensure generalization of skills.

Ascend Math's variety of instructional experiences addresses the needs of visual learners, auditory learners, kinesthetic learners, English Language Learners, and special education students. Students progress at their own pace through the program, and learning pathways are adjusted automatically as skills and concepts are mastered. Ascend meets students at their actual level of mastery—identifying skill gaps and tailoring instruction to focus on the most-needed content.

### 4. Progress Monitoring

Progress monitoring refers to the process of frequently gathering student achievement data, analyzing the data in a timely, repeatable manner, and making sound instructional/intervention decisions based on the data. As students move through the tiers of intervention, the frequency and intensity of progress monitoring intensifies (Ogonosky, 2008; McInerney & Elledge, 2013; "Tiered interventions," 2010; "Essential components," 2010; Smith & Okolo, 2010; Gersten, et al, 2009).

To support the frequency and intensity of progress monitoring, assessments should be brief, repeatable, reliable, valid, and highly sensitive to even small changes in proficiency. They should enable the presentation of data in visual representations that are quickly and easily understood by stakeholders to facilitate agile instructional decisions. They should also use readily-available materials, feature standardized administration and scoring techniques, and be easy to implement in order to facilitate fidelity (Ogonosky, 2008).

Using embedded, continual assessment, student progress can be captured on demand at any point in the student's learning plan. In addition, the frequency of data collection and analysis can be customized for each student and based on each school's specific staff and schedule limitations. Ascend's formative and summative assessments require no special materials or time consuming set up and are fully automated to ensure uniform administration, and present results in easy-to-understand visuals that are consistent for students, classes and schools.

Another critical factor in progress monitoring is that the data collected clearly illustrate student performance at its actual level—not at the level where the core curriculum is being taught (Ogonosky, 2008). That is, assessments must illustrate, within and across subject areas and domains within subject areas the student's actual level of performance—be it one or more levels below grade level, at grade level, or one or more levels above grade level.



© Ascend Math - Exhibits Page 7 of 145

Beginning with its diagnostic assessment, Ascend Math identifies the grade level at which each student is actually performing. Once the student has been assigned to a level, he/she takes a pre assessment over the first unit of instruction. Ascend automatically removes learning objectives in which the student is proficient. Any non-mastered objectives indicated by the student's pre assessment results become the student's individual study plan. As the student progresses through his or her study plan, the embedded assessments continually monitor progress within math objectives and across grade levels, automatically adjusting the student's learning plan to focus instruction on advancing the student as efficiently as possible. Ascend Math automatically advances students through functional levels. Comprehensive reports allow administrators to gauge level advancement and determine the effectiveness of the intervention. For example, in Crisp County Middle School 41% of the students using Ascend Math completed two or more levels and forty-five students out of 112 attained their grade level goal within one year. (See Appendix B: Crisp County Middle School.)

### 5. Data-Based Decision Making

As previously discussed, an effective RTI system incorporates frequent assessment and progress monitoring at each phase of implementation. However, it is also critical to *use* the data to inform decisions made at multiple points within the intervention process and, conversely, to ensure that every decision made is supported with clear and comprehensive data (Ogonosky, 2008; McInerney & Elledge, 2013; "Tiered interventions," 2010; "Essential components," 2010; Smith & Okolo, 2010; Gersten, et al, 2009). This is one of the most challenging aspects of RTI to implement with fidelity, as it requires schools to create a clear statement of outcome measures and a comprehensive system of coordinated assessments used to track outcomes over time prior to implementing the intervention system (Ogonosky, 2008). This type of comprehensive framework facilitates the consistent and effective implementation of RTI within and across schools and districts and creates a mechanism by which assessment and intervention fidelity can be measured and documented (Ogonosky, 2008; McInerney & Elledge, 2013). In order for data-based decision making to be effective and consistent, it is critical that assessments used be uniform—teacher-to-teacher variations in assessment procedures can undermine the integrity of data used to make decisions about the RTI process and the interventions used (Ogonosky, 2008).

Ascend Math provides a variety of mechanisms by which achievement of outcome measures and fidelity of implementation can be measured and documented. Easy-to-use reports compare student time on task and learning objectives mastered. This report ensures proper usage. Other formative reports track post test versus pre test scores to ensure that students achieve math competency as described in individualized learning plans. Summative assessments are aligned to local and state standards and high-stakes assessment objectives, allowing Ascend Math to be integrated seamlessly into a school's or district's overall RTI program. The automaticity of administration ensures that the data gathered are accurate, consistent and descriptive. Further, Ascend's reporting tools enable school staff to view and document student progress to make productive, agile decisions about student placement and intervention effectiveness.

Data-based decision making often focuses on Responsiveness to Intervention, defined as the rate of improvement a student achieves through an intervention that is delivered with fidelity (Ogonosky, 2013; Fuchs, Fuchs, & Compton 2012; "Essential components," 2010). It can be seen as a slope, which, when overlaid with the clearly-defined expected outcomes of the student, can aid teachers in evaluating whether



© Ascend Math - Exhibits Page 8 of 145

the student is making sufficient progress. If the student does not respond as expected, further individualization/differentiation must be implemented ("Essential components," 2010). Responsiveness to intervention is an essential component of data-based decision making.

Ascend Math enables school staff to view individual student and group progress and compare it with the goals of the RTI program. For example, a school may set student usage guidelines for students who are borderline between Tier 1 and Tier 2 intervention, another for Tier 2 students, and yet another for Tier 3 students. At any time, the Ascend Math Activity Report enables school staff to monitor and document each student's (and groups of students') status with respect to these guidelines.

### 6. Intervention Fidelity/Integrity

Fidelity of implementation, sometimes referred to as "Intervention Integrity" simply means that the intervention is implemented in the way it was designed. Researchers emphasize the importance of fidelity at all tiers of intervention and throughout all essential components of the RTI system (Ogonosky, 2008; Ogonosky, 2013; McInerney & Elledge, 2013; "Essential components," 2010). If an intervention has a research base supporting, for example, a particular duration, frequency, length of session, etc., then the intervention must be conducted as it was in the research studies in order to meet the "fidelity" criterion ("Essential components," 2010).

Intervention Integrity is important because failure to implement with fidelity can result in a number of undesired/unintended outcomes. For example, failure to implement with fidelity may unintentionally impede the progress of the student through the intervention. It may also falsely implicate the student's learning ability—rather than the implementation of the intervention—in his/her failure to progress (Ogonosky, 2008). In addition, placements, decisions, and outcomes of an RTI program as a whole cannot be supported unless fidelity of implementation is clearly documented (Ogonosky, 2013).

Ascend Math has been successfully implemented with consistent results in a variety of use models. Some schools use Ascend as the cornerstone of a second math elective. Others use Ascend in regularly-scheduled math labs or in block periods. Ascend has tracked and documented the success of students using any of these instructional configurations (See Appendix B). For example:

- In a middle school in which students use Ascend as a second math elective 67% of sixth graders, 56% of seventh graders, and 75% of eighth graders gained a full grade level of progress within a single quarter.
- In a high school in which students use Ascend in math labs approximately four hours per week, numerous students progressed through two grade levels and some students progressed through three within a single school year.
- In a middle school in which students use Ascend in block periods approximately two to three hours per week, 41% of students completed 2 or more levels within a single school year; 45 students using Ascend reached their grade level.

The automaticity of Ascend's progress recording and reporting also facilitates schools' ability to implement with fidelity and to document the implementation. School staff are able to retrieve and analyze hours worked and levels gained by individual students, classes/groupings, grade levels, and schools.



© Ascend Math - Exhibits Page 9 of 145

## Challenges in RTI Implementation

In addition to highlighting essential components and critical characteristics of successful RTI implementation, researchers have found consistent challenges, even in the most experienced schools and districts.

### 1. Cost

A significant challenge to the development and implementation of a comprehensive RTI program is its cost. One source of cost savings could be the use of a multi-stage universal screening process, which is designed to more accurately identify students truly at risk and in need of intervention. It has also been suggested that "fast tracking" students from Tier 1 to Tier 3 intervention based on the significance of academic deficit may reduce cost by eliminating a likely-ineffective (and expensive) Tier 2 intervention (Fuchs, Fuchs, & Compton 2012). In addition, carefully considering efficiency/cost effectiveness when selecting assessments and interventions can reduce cost.

A key benefit of Ascend Math is its cost effectiveness. Because it is technology-based, it requires no additional materials to implement (either in terms of assessment or instruction). In addition, the program is easily scalable—allowing students to accelerate or decelerate as needed and to move among intervention tiers without financial or logistical impact.

### 2. Time

Staff time—to receive adequate training, implement assessments, provide instruction, and monitor progress within an RTI program—is also a significant challenge for schools (Fuchs, Fuchs, & Compton, 2012; "Tiered interventions," 2010; Louie, et al, 2008). Compounding this challenge, some schools may not have dedicated intervention staff, requiring instructional staff to pull "double-duty" ("Tiered interventions," 2010; Louie, et al, 2008). Some researchers have indicated that the use of technology-based instruction can reduce the amount of direct instructional time staff spend, freeing up more time for progress monitoring and focused data analysis (Smith & Okolo, 2010).

Ascend Math is an easy-to-use system, requiring little start-up training for teachers and school staff. The automaticity of the Ascend Math reporting system significantly reduces the amount of time needed to view, analyze, and act on data, increasing response time to student progress and maximizing instructional resources. In addition, the system can be accessed from a variety of locations at any time, and students can complete instruction independently, significantly reducing the time burden on school staff.

### 3. Class Configuration

Researchers also indicate that finding flexibility in the class schedule to accommodate Tier 2 and Tier 3 intervention alongside regular classroom instruction is a significant challenge. This challenge is particularly acute at the high school level ("Tiered interventions," 2010). In addition, when a Tier 2 or Tier 3 intervention is allocated as a separate elective (typically for a semester), some students may progress *beyond* their targets on one or more outcome measures prior to the end of the semester. This



© Ascend Math - Exhibits Page 10 of 145

either results in an unintentional slow-down of the student's progress/potential, or requires the teacher to gather additional materials to teach to the student's level until the semester is finished ("Tiered interventions," 2010).

One of the important distinctions of Ascend—particularly in relation to RTI—is that it can be used extremely flexibly, depending on the needs and resources of individual schools and districts. Schools have used Ascend in second math electives, math labs, and block periods, among other models. In the event that students do move beyond their actual level, Ascend Math also allows students to accelerate learning. Appendix B describes three such implementations to illustrate how consistent results can be achieved across a wide variety of use models. In addition, because Ascend is entirely individualized and self-paced, students' progress is not dependent on the progress of other students, the available time and resources of the teacher, or the availability of a particular class configuration.



© Ascend Math - Exhibits Page 11 of 145

## Appendix A: References

Al Otaiba, S. (2014). "Waiting to fail" redux: Understanding inadequate response to intervention. *Learning Disability Quarterly*, 37(3), 129-133.

Fuchs, D., Fuchs, L. S., & Compton, D. L. (2012). Smart RTI: A next-generation approach to multilevel prevention. *Exceptional Children*, 78(3), 263-279.

Gersten, R., Beckmann, S., Clarke, B., Foegen, A., Marsh, L., Star, J. R., & Witzel, B. (2009). *Assisting students struggling with mathematics: Response to Intervention (RtI) for elementary and middle schools* (NCEE 2009-4060). Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education. Retrieved from http://ies.ed.gov/ncee/wwc/publications/practiceguides/.

Louie, J., Brodesky, A., Brett, J., Yang, L.-M., and Tan, Y. (2008). *Math education practices for students with disabilities and other struggling learners: case studies of six schools in two Northeast and Islands Region states* (Issues and Answers Report, REL 2008–No. 053). Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Northeast and Islands. Retrieved from http://ies.ed.gov/ncee/edlabs.

McInerney, M. & Elledge, A. (2013). *Using a response to intervention framework to improve student learning: A pocket guide for state and district leaders*. Washington, DC: American Institutes for Research.

National Association of Elementary School Principals. (2011). *Student assessment: Response to intervention in elementary-middle math* [White paper]. Retrieved from: http://www.naesp.org/sites/default/files/Math_Intervention_0.pdf

National Center on Response to Intervention. (March 2010). *Essential components of RTI: A closer look at response to intervention*. Washington, DC: U.S. Department of Education, Office of Special Education Programs, National Center on Response to Intervention.

National Council of Teachers of Mathematics. (2007). *Effective strategies brief: Effective strategies for teaching students with difficulties in mathematics*. [White paper]. Downloaded from: http://www.nctm.org/uploadedFiles/Research_News_and_Advocacy/Research/Clips_and_Briefs/Research_brief_02_-_Effective_Strategies.pdf

National High School Center, National Center on Response to Intervention, and Center on Instruction. (2010). *Tiered interventions in high schools: Using preliminary "lessons learned" to guide ongoing discussion.* Washington, DC: American Institutes for Research.

Ogonosky, A. (2008). *The response to intervention handbook: Moving from theory to practice*. Austin, TX: Park Place Publications.

Ogonosky, A. (2013, May). *RtI: what schools dream for; what schools need*. Session presented at D.R.E.A.M: Discovering the Reality of Educating All Minds.

Smith, S. J. & Okolo, C. (2010). *Response to intervention and evidence-based practices: Where does technology fit?* Learning Disability Quarterly, 33(4), 257-272.

Witzel, B. S. (2010) *Fitting the response to intervention framework with mathematics education*. LD Online, http://www.ldonline.org/article/41282/.

## Appendix B: RTI Standard Protocols: Ascend Mathematics

The use of standard protocols with specific interventions can facilitate their implementation with fidelity. A standard protocol clearly defines critical factors, such as the intensity and duration of the intervention and the setting in which it is implemented. When implemented with fidelity, replication of this protocol should yield results commensurate with past implementations (Ogonosky, 2008).

Ascend Mathematics has carefully monitored and documented the implementation of its intervention in three specific settings: Second Math Elective, Block Periods, and Math Labs. The following protocols illustrate the configuration, duration, and intensity of the intervention and the results achieved.

### 1. Second Math Elective

Overview

Students requiring intervention are placed in a second mathematics elective, using Ascend Math as the intervention curriculum. Some schools use para-professionals to monitor students. Some students will return to other electives after posting desired gains.

Intervention Intensity

Intervention periods range from nine to eighteen weeks; students use Ascend Math for one full class period up to three times per week.

Resources Required

Students may be monitored by classroom teachers, intervention specialists, or para-professionals. A one-to-one student-to-computer ratio is required.

***Implementation Snapshot: Holabird STEM Program, Baltimore County, MD***

Number of Students Using Ascend: 222 Number of Teachers Using Ascend: 3

Core Program Goal: Students exhibited significant mathematics knowledge gaps, particularly those in special education. Most were missing foundational knowledge from which to build more advanced mathematics concepts. The school adopted Ascend to provide students an opportunity to rebuild functional skills and make them more competitive with their grade level peers.

Screening Process:

1. School staff analyzed results from Maryland School Assessment (MSA) and Measures of Academic Progress (MAP) data during the spring of 2013, identifying 200 students scoring *Basic* on the MSA. These students were targeted for intervention.

2. Students targeted for intervention completed Ascend's Level Recommendation Test to diagnose current mathematics level. Approximately 97% of the students tested at least one grade below grade level, with about 70% of those students testing three or more grades below their current academic grade.



© Ascend Math - Exhibits Page 14 of 145

Intervention Grouping: Thirteen sections of sixth, seventh, and eighth grade students with an average class size of twenty students were created.

Intervention Intensity: Students used Ascend between 100 and 150 minutes per week.

Progress Monitoring/Data-Based Decision Making Process:

- Intervention leader reviews current status of student achievement and identifies individual needs daily. Intervention leader meets with students biweekly to review dashboard reports and identify additional interventions needed based on objectives.
- Intervention leader collaborates with other math teachers implementing the program several times a week.
- Intervention leader collaborates with general instruction math teachers throughout the quarter to discuss progress and review intervention impact.
- Students that remain stagnant on a particular grade level receive additional small-group instruction, peer collaboration, or one-to-one instruction.
- Students self-assess during each month by creating a SMART goals data sheet.

Responsiveness to Intervention: Intervention Period: 1 Quarter

| Level | Grade 6 Pre | | Grade 6 Post | | % Change |
|---|---|---|---|---|---|
| 3 | 40 | 78% | 6 | 11% | - 85% |
| 4 | 6 | 12% | 40 | 73% | + 567% |
| 5 | 4 | 8% | 8 | 15% | + 100% |
| 6 | 1 | 2% | 1 | 2% | 0 |
| 7 | 0 | 0% | 0 | 0% | 0 |
| 8 | 0 | 0% | 0 | 0% | 0 |
| TOTAL | 51 | | 55 | | |

| Level | Grade 7 Pre | | Grade 7 Post | | % Change |
|---|---|---|---|---|---|
| 3 | 54 | 67% | 4 | 4% | - 83% |
| 4 | 15 | 19% | 50 | 51% | + 149% |
| 5 | 5 | 6% | 19 | 19% | + 270% |
| 6 | 2 | 2% | 2 | 2% | 0 |
| 7 | 5 | 6% | 5 | 5% | 0 |
| 8 | 0 | 0% | 0 | 0% | 0 |
| TOTAL | 81 | | 98 | | |

| Level | Grade 8 Pre | | Grade 8 Post | | % Change |
|---|---|---|---|---|---|
| 3 | 30 | 65% | 0 | 0% | - 100% |
| 4 | 8 | 17% | 35 | 74% | + 338% |
| 5 | 3 | 7% | 7 | 15% | + 133% |
| 6 | 0 | 0% | 0 | 0% | 0 |
| 7 | 5 | 11% | 5 | 5% | 0 |
| 8 | 0 | 0% | 0 | 0% | 0 |
| TOTAL | 46 | | 47 | | |

## 2. Block Periods

Overview

Students requiring intervention are divided into small groups and rotated through whole group instruction (grade level instruction), Ascend Math (intervention), and independent, paper and pencil practice (combination of homework and Ascend Math study guides).

Intervention Intensity

Intervention period is typically a full school year; students use Ascend Math is used for thirty minutes per day.

Resources Required

Students may be monitored by classroom teachers, intervention specialists, or para-professionals. A three-to-one student-to-computer ratio is required.

***Implementation Snapshot: Snowy Peaks High School, Frisco, CO***

Number of Students Using Ascend: 36 Number of Teachers Using Ascend: 1

Core Program Goals:

1. Students began school year below grade level in mathematics and were unable to succeed in traditional Algebra and Geometry classes as a result of this deficiency. Ascend Math provided individualization in their math lessons to support specific learning gaps, preparing them to succeed in a more traditional math class.

2. Students were significantly deficient in mathematics credit, with little time to accrue. Ascend allowed them to work at a faster pace, thus giving them the opportunity to earn credits faster than in a typical, traditional math class.

Intervention Intensity: Students used Ascend approximately 4 hours and 10 minutes per week, with additional access at home or at school after hours.

Responsiveness to Intervention:

Intervention Period: 1 Year

- Students advanced between and two and three grade levels within one year.
- Students solidified/gained knowledge and skills in Geometry, translating into successful completion of Algebra II.
- Enabled students to graduate who otherwise would not due to credit deficiency.
- Students taking the NWEA test to measure student achievement in both the fall and winter session grew by an average of 5.7 points in one semester. On the NWEA, a year's worth of growth is estimated at 3 points. Thus, students who were using Ascend Math, demonstrated nearly 2 years of growth within a single semester.



© Ascend Math - Exhibits Page 16 of 145

## 3. Math Labs

Overview

Students use Ascend Math in a computer lab several times per week, and may accommodate small group break outs with teacher.

Intervention Intensity

Intervention period is typically a full school year; students use Ascend Math 30-50 minutes per session, between two and three sessions per week.

Resources Required

Students may be monitored by classroom teacher or computer lab teacher. A one-to-one student-to-computer ratio is required.

***Implementation Snapshot: Crisp County Middle School, Cordele, GA***

Number of Students Using Ascend: 112 Number of Teachers Using Ascend: 2

Core Program Goals:

1. Meet the needs of middle school students who have consistently failed the Georgia Math CRCT state assessment.
2. Provide students the math remediation instruction needed to be successful in regular math classes and to move successfully into High School Math coursework.
3. Impact the high school dropout rate, which is significantly affected by students' inability to handle high school Algebra requirements.

Intervention Intensity: Students used Ascend between three and four hours per week.

Responsiveness to Intervention:

Intervention Period: 1 School Year

- Of the students using Ascend, 41% completed two or more levels. Forty-five students attained their goal grade level within one year.

- CRCT Passing Rates

| Grade Level | % Passed Math CRCT Pre | % Passed Math CRCT Post | Increase |
|---|---|---|---|
| 6 | 25% | 62% | 37% |
| 7 | 10% | 83% | 73% |
| 8 | 0% | 42% | 42% |



© Ascend Math - Exhibits Page 17 of 145

# Effective Mathematics Instruction and The Ascend Math Solution

Developed By:


6718 Rustling Oaks Trail
Austin, TX 78759
www.strategicedsolutions.com

## Introduction

The United States continues to lag behind the economically-competitive countries that participated in the Trends in International Mathematics and Science Study (TIMMS) of 2003. Although higher than the international average of 495, the U.S. score of 518 was significantly lower than several of its economic and political counterparts such as Hong Kong (575), Japan (565), Chinese Tapei (564), The Russian Federation (532) and England (531).

Furthermore, the American scores for fourth graders remained unchanged from 1995 when the test had been previously administered. Additionally, during the same time period five out of seven countries leading the U.S. improved; three of them significantly. Eighth graders included in the testing showed some improvement from 1995-1999, but then stagnated and showed no further improvement between 1999 and 2003.

In 2006, the average U.S. score in mathematics literacy on the Program for International Student Assessment among 15 year olds was 474, lower than the Organization for Economic Cooperation and Development (OECD) average score of 498. Moreover, students scoring in the 90$^{th}$ percentile scored lower (593) than other comparatively high achieving OECD students (615). The TIMMS and PISA reports show alarming downward trends in American mathematics aptitude and skills.

To remain economically competitive, the United States needs to regain lost ground in mathematics education. To achieve this end, mathematics instruction needs to evolve; to engage students in a way that compels them to learn and enjoy the material they are learning. “Students who are engaged with school are more likely to learn, to find the experience rewarding, to graduate and to pursue higher education” (Marks, 154).

**The Ascend Math Solution** uses state-of-the-art educational technology to build critical math skills. The program develops consistent, individualized course plans for students based on state and NCTM standards. These course plans target student skill gaps and aim to teach exactly what a student needs based on identified strengths and weaknesses. Instructional options are rich and varied, including video tutorials presented by award-winning mathematics instructors, multimedia explorations including technology-based manipulatives, and ample practice. Frequent assessments enable learning paths to be continually updated to reflect students’ current level of mastery. Ascend also includes reporting tools to save time for teachers and facilitate effective communication between teachers, parents and administrators.

This paper explores scientifically-based research that has yielded important insight into effective mathematics instruction in a variety of areas. Research presented was conducted at major universities throughout the United States and appears in peer-reviewed journals. The paper also demonstrates how **The Ascend Math Solution**’s instructional, assessment, and reporting resources align with scientifically-based research to provide a comprehensive solution for improving mathematics proficiency.



© Ascend Math - Exhibits Page 19 of 145

## Mathematics Instructional Considerations

### *Foundational Nature of Math*

Mathematics education depends heavily on foundational learning. Nevertheless, math education traditionally follows the "spiral method" where numerous, varied topics are presented in units and students may not explore the same topic for several months or possibly until the next grade level. As a result, students never truly master a concept and therefore lack a foundation for connecting concepts and transferring basic knowledge to more complex math. Without basic, complete mastery, students encounter a compounding effect—falling further and further behind as mathematics tasks progress in complexity (Schmidt, McKnight, & Raizen, 1997; Crawford, Snider 2000).

Karen Smith of the University of Texas and Carol Gellar of Radford University in Virginia compiled effective research-based instructional techniques in their article "Essential Principles of Effective Mathematics Instruction: Methods to Reach All Students." Their work recognizes the critical importance of having a basic knowledge of key mathematics concepts prior to teaching more advanced concepts. This includes both assessing students' mastery of foundational concepts and providing remediation in concepts students may not have mastered (Smith, Gellar, 2004).

The Ascend Math Solution provides a critical resource for students not mastering the traditional mathematics curriculum. First, the product assesses student mastery of specific math concepts, providing focused, individualized instruction only in areas of deficiency. Ongoing assessments continually update student learning paths. In addition, Ascend's reporting mechanism enables teachers to know very quickly exactly where their students' competencies lie, and where they may need additional instruction. In this way, Ascend shores up the traditional, spiraled mathematics curriculum, providing a solid foundation of mathematical proficiency for students.

### *Student Self-Confidence in Mathematical Ability*

Philip Griswold of Eastern Montana College conducted a 2 year longitudinal study that focused on student attitudes and their participation in computer aided instruction (CAI). His study raises two points of particular worth. First, students who participated in CAI showed significantly higher academic self-confidence as a result of their participation in the CAI. They perceived themselves as better equipped for their academic tasks.

Second, students considered educationally disadvantaged showed "greater levels of attributing their success internally and of viewing themselves as good readers who do well in school" (Griswold, 1984). These students gained confidence in their own ability to succeed and learn rather than attributing their successes only to external factors such as teachers or tutors. This internalization—seeing oneself as an inherently capable student—is both a powerful motivator and a powerful influencer on academic achievement.



© Ascend Math - Exhibits Page 20 of 145

One of **The Ascend Math Solution**'s distinguishing characteristics is its ability to provide students with immediate academic success. Through careful diagnostic assessment, students are provided instruction *at their beginning skill level*, resulting in immediate success. In addition, students are able to continually monitor their own progress throughout the instructional process, enabling them to continue to be motivated by their success.

### *Student Engagement in Learning*

"Engagement is an important facet of students' school experience because of its logical relationships to achievement and to optimal human development" (Marks, 2000). Numerous studies consistently demonstrate correlation between engagement and achievement. The more engaged the student, the more readily the student learns and the better he or she performs.

A study conducted by Katerina Bodovski and George Farkas at Pennsylvania State University underscores the critical importance of student engagement in increasing achievement. The results of their study are consistent with previous studies. "Student engagement has a positive effect on mathematics achievement gains at all grade levels tested. Further, engagement has the largest effect on achievement growth for students whose beginning achievement falls in the lowest category" (Bodovski, Farkas 2007).

Additionally, the researchers found "instructional efforts with [students who have the least amount of mathematics knowledge] should focus on innovative attempts to improve their engagement with learning." Marks encountered similar results in her earlier research and wrote, "Among slow-starting students, those whose engagement was high were capable of showing dramatic achievement growth in subsequent grades" (Marks, 2000).

**The Ascend Math Solution** predicates its approach on the fact that students need to be engaged to learn and achieve. In addition to high-quality video instruction, Ascend includes technology-based manipulatives and interesting and relevant explorations of mathematics concepts to capture and maintain students' attention. Student learning pathways are highly individualized and continually updated, providing a "customized learning experience" that speaks to individual students' levels of mastery.

In addition, The Ascend Math Solution was designed to speak to the needs of today's students—"digital natives" whose everyday experience have led them to expect immediate access to relevant feedback.

## Effective Intervention/Remediation Approaches

### *The Importance of Diagnostic Assessment*

Teachers recognize the need to understand a student's knowledge base. Placement tests are regularly used in the classroom to allocate instructional resources and group students based on levels of proficiency. Additionally, "the No Child Left Behind legislation



© Ascend Math - Exhibits Page 21 of 145

carries the implicit assumption that the availability of data will inform and initiate improvements in educational practice" (Wayman, Stringfield, 2006).

Educators are increasingly responsible for providing individualized learning opportunities that ensure students gain valuable math skills necessary for future success. Cognitive diagnosis through assessment provides data that can be used to direct additional instruction to the areas needed most by the individual student (McGlohen, Chang, 2008). Through customized assessments, teachers can teach exactly what a student needs to strengthen mathematics foundation skills and experience consistent gains in mathematics achievement.

The Ascend Math Solution uses a robust diagnostic assessment based on state and NCTM standards to prescribe individual learning paths. Students skip material they have already mastered and focus only on the core areas needed. Continual, ongoing assessments automatically update students' instructional path, enabling students to connect their foundational knowledge to new concepts.

***Data-Driven Decision-Making and the Teacher/Student***

Gathering and analyzing student achievement data is necessary (based on No Child Left Behind legislation) and significantly and positively impacts teacher decisions and ultimately students' learning experience. Research conducted by Jeffrey Wayman and Sam Stringfield of the University of Texas at Austin indicates that teachers are often frustrated by data they deem to be "too old" to be relevant. The study cited teachers terming data more than a few weeks old as "dead data," and another said, "I need to know what my students are doing now" (Wayman, Stringfield, 2008). They also found that teachers were able to give numerous examples as to how student data allowed them to differentiate instruction to better support and meet students' needs.

Among the eight criteria for effective mathematics instruction, Smith and Gellar wrote that the instructional plan must include "an error analysis of the student's work as well as verbal description of the student's strategy in order to determine the next step in instruction" (Smith, Gellar, 2004). The readily available, real-time data produced by **The Ascend Math Solution** meets both the needs of students and teachers in creating and sustaining a viable, flexible learning environment.

***The Impact of Accelerated Instruction***

The concept of "accelerated instruction" is traditionally associated with gifted students who respond well when allowed to progress more quickly through school curricula. In 1984, a study by Kulik and Kulik of the University of Michigan examined 21 different reports encompassing 26 different studies that tested the affects of acceleration in academics. Acceleration is defined in their meta-analysis as compressed curriculum, grade skipping, and similar practices that speed up the learning process for capable students (those who score well on standardized tests.) Thirteen of the studies Kulik and Kulik reviewed focused on same-age control groups. Their analysis stated, "The overall



© Ascend Math - Exhibits Page 22 of 145

message from the 13 studies therefore seemed unequivocal: acceleration contributes to student achievement" (Kulik, Kulik, 1984).

However, in recent years, a great deal of emphasis has been placed on the use of accelerated instruction for low-performing students. In *Using Online Learning for At-Risk Students and Credit Recovery*, the North American Council for Online Learning states "Some of the early online programs that initially focused on high-achieving students, such as the Kentucky Virtual High School, have expanded offerings, and are finding success with a much broader range of students. As online learning moves past the early adopter phase, the growth of online programs focused on at-risk students or credit recovery has redefined how educational technology can be used to address the needs of all students" (Watson & Gemin 2008). And in the recent Urban Institute report *The Dropout Crisis: Promising Approaches in Prevention and Recovery*, Steinberg and Almeida cite as a key dropout prevention/recovery strategy "Opportunities for youth to catch up and accelerate knowledge and skills" (Steinberg & Almeida 2004).

Teaching children at their level of understanding and proceeding at the pace they set, rather than a pace dictated to them by a generic curriculum, significantly factors into achievement and better performance. **The Ascend Math Solution** supports accelerated instruction—for all students—by prescribing a focused instructional pathway for each student. Students skip material they have mastered and focus only on material they need to learn. Thus, instruction is accelerated beyond the confines of the traditional curriculum—which requires every student to learn math topics in the same order and at the same pace.

**Technology-Based Instruction and the Student**

Overwhelming evidence gathered over 30 years supports claims that Computer-Aided Instruction (CAI) increases educational achievement across all grade levels and subject areas (Fletcher, et al, 1990). A multimedia approach such as Ascend's creates a multisensory learning experience that research demonstrates will help all students, including those considered "at-risk," improve mathematics performance.

For example, in 1998 a study using data from the National Assessment of Educational Progress (NAEP) examined differences in mathematics achievement of fourth- and eighth-graders based on how and how frequently students used technology in their mathematics classroom. The study found that, particularly in eighth grade, the relationship between uses of instructional technology (particularly for higher-order activities as opposed to simple drill-and-practice) was substantially positive (Wenglinsky 1998).

Another study conducted by Fletcher, Hawley and Piele at the University of Oregon determined that students who received CAI "scored significantly higher" than the students learning the same material through traditional instruction (Fletcher, et al, 1990). This achievement held true for grades 3 and 5 across all tests and subtests. Furthermore,



© Ascend Math - Exhibits Page 23 of 145

the results of this and similar studies have held true over decades, and technology has continually improved during this time.

Clearly, research offers resounding support for the use of multimedia technology in the classroom. Research conducted by Ascend shows similar positive effects. A pilot study in which Ascend was used for intervention in a Florida middle school showed that 34% of all students advanced two or more grade levels and 43% of 7th and 8th grade students advanced two or more grade levels during a 5 month intervention period. Pre-test assessments indicated many students were behind several grade levels when they began.

In *Teachers, Computer Tutors, and Teaching: The Artificially Intelligent Tutor as an Agent for Classroom Change*, researchers at the University of Pittsburgh examined what appeared to be a paradox between student claims and student behaviors. Students claimed to prefer a teacher's assistance in learning, but demonstrated a preference for CAI, using a tutoring program. The results of this study indicates students were more motivated to learn, more engaged in instruction, and enjoyed CAI over traditional instruction.

However, as much as the students enjoyed and wanted to use the instructional technology, they still expressed a desire to have a teacher available to offer insight and help when a computer generated response was insufficient (Schofield, et al, 1994).

**The Ascend Math Solution** provides the best of both worlds in terms of student engagement and motivation. First, because students receive immediate—and private—feedback on their work, they are inherently motivated to continue moving through the instructional pathway. Second, detailed explorations, examples, and practice activities are augmented with outstanding video-based instruction delivered by an award-winning mathematics teacher.

**Technology-Based Instruction and the Teacher**

In addition to significant impact on student learning and motivation, Schofield found that CAI enabled students and teachers to collaborate better. Teachers were able to offer specific, individualized attention, while students had more control over the input they needed from the teacher (Schofield, et al, 1994). **The Ascend Math Solution** provides significant, frequent feedback to students—allowing them to seek additional instructional assistance only when needed. In turn, teachers are freed up to work with individual on specific areas of deficit.

Ascend's individualized instruction enables teachers to meet each student's specific needs rather than taking a "blanket approach" to mathematics instruction. Empowering students to pursue individualized study plans on their own ensures that interaction between teacher and student becomes focused and meaningful. One teacher who has used the program notes, "What I like about Ascend is that it keeps the entire class occupied. All of my students are not raising their hands at the exact same time. Ascend gives me a chance to have one-to-one interaction with the students when they need it at the exact time they need it."



© Ascend Math - Exhibits Page 24 of 145

Teachers and administrators also benefit from using Ascend because its automated reporting saves instructors time by eliminating the need to grade or scan papers or compile time-consuming reports. Ascend automatically guides students through individual study plans, provides frequent and ongoing assessment, and automatically reports progress. These tools allow teachers and administrators to access real-time data to measure achievements of an individual, class or the school and communicate this information more effectively with each other and students' parents.

**Conclusion**

It is clear that American students continue to struggle in mathematics. A "scattershot" curriculum approach, limited instructional resources, and a general sentiment that "math is hard" all contribute to students' low achievement levels. **The Ascend Math Solution** exemplifies instructional and administrative strategies proven by scientifically-based research to improve mathematics outcomes for students. Ascend's focused, individualized instruction—closely and constantly developed and adapted using diagnostic and ongoing assessments—ensures students quickly gain proficiency in basic mathematical concepts. Ascend is highly engaging and motivational, providing high-quality video instruction and engaging mathematical explorations that empower students to direct, assess, and internalize their mathematics proficiency. Teachers and administrators, in turn, have immediate access to achievement data, enabling them to make sound instructional decisions quickly and easily.



© Ascend Math - Exhibits Page 25 of 145

## Bibliography

Bodovski, Katerina, Farkas, George. *Mathematics Growth in Early Elementary School: The Roles of Beginning Knowledge: Student Engagement and Instruction*. The Elementary School Journal, 2007 108:2.

Crawford, Donald B.; Snider, Vicki E. *Effective Mathematics Instruction The Importance of Curriculum*. Education & Treatment of Children, May2000, Vol. 23 Issue 2.

Fletcher, J. D., Hawley, David E., Piele, Philip K. *Costs, Effects, and Utility of Microcomputer Assisted Instruction in the Classroom*. American Educational Research Journal, Vol. 27, No. 4 (Winter, 1990).

Griswold, Philip A. *Elementary Students' Attitudes during 2 Years of Computer-Assisted Instruction*. American Educational Research Journal, Vol. 21, No. 4 (Winter, 1984).

Kulik, James A., Kulik, Chen-Lin C. *Effects of Accelerated Instruction on Students*. Review of Educational Research, Vol. 54, No. 3 (Autumn, 1984).

Marks, Helen M. *Student Engagement in Instructional Activity: Patterns in the Elementary, Middle, and High School Years*. American Educational Research Journal, Vol. 37, No. 1 (Spring, 2000).

McGlohen, Meghan, Hua-Hua Chang. *Combining Computer Adaptive Testing Technology with Cognitively* Diagnostic Assessment. Behavior Research Methods, Aug 2008, Vol. 40 Issue 3.

Schmidt, W. H., McKnight, C., Raizen, S. *A Splintered Vision: An Investigation of U.S. Science and Mathematics Education*. Dordrecht, Netherlands: Kluwer, 1997.

Schofield, Janet Ward, Eurich-Fulcer, Rebecca, Britt, Cheri L. *Teachers, Computer Tutors, and Teaching: The Artificially Intelligent Tutor as an Agent for Classroom Change*. American Educational Research Journal, Vol. 31, No. 3 (Autumn, 1994).

Smith, Karen S.; Geller, Carol. *Essential Principles of Effective Mathematics Instruction: Methods to Reach All Students*. Preventing School Failure, Summer 2004, Vol. 48 Issue 4.

Steinberg, Adria & Almeida, Cheryl. The *Dropout Crisis: Promising Approaches in Prevention and Recovery*. Jobs for the Future, June 2004.

Watson, John; Gemin, Butch. *Using Online Learning for At-Risk Students and Credit Recovery*. North American Council for Online Learning, June 2008.

Wayman, Jeffrey C., Stringfield, Sam, *Data Use for School Improvement: School Practices and Research Perspectives.* American Journal of Education, 2006 112:4.



© Ascend Math - Exhibits Page 26 of 145

Wenglinsky, Harold. *Does It Compute? The Relationship between Educational Technology and Student Achievement in Mathematics*. Policy Information Center, Educational Testing Service: Princeton, NJ, 1998.

## About Strategic Education Solutions

## About Strategic Education Solutions

Strategic Education Solutions provides comprehensive research, development, evaluation, and marketing services to public and private education entities, with expertise in:

- At-Risk Students;
- Dropout Prevention and Recovery;
- Scientifically-Based Research Practices;
- No Child Left Behind Policy and Compliance;
- Technology-Based Education;
- Curriculum and Instruction.

Led by Cynthia Burrow, an education professional with over 15 years of experience, Strategic Education Solutions has completed large-scale research and evaluation projects for state and regional education agencies, and has provided market research and curriculum development support for educational publishers in a variety of content areas.



© Ascend Math - Exhibits Page 28 of 145

# The Ascend Math Solution Use Model:

# Remediation and Enrichment

Developed By:

Strategic
Education Solutions
6718 Rustling Oaks Trail
Austin, TX 78759
www.strategicedsolutions.com

## Background

In April of 2006, the President of the United States issued an Executive order establishing the National Mathematics Advisory Panel (NMAP). The panel was charged with reviewing research and hearing public testimony to establish a "state of mathematics instruction" and to provide broad recommendations for ensuring mathematical competency for American students.

According to the NMAP's final report, issued in March of 2008, while the National Assessment of Educational Progress (NAEP) shows positive trends in math achievement at elementary and middle grades, only 32% of 8$^{th}$ grade students and 23% of 12$^{th}$ grade students scored at or above proficient in mathematics. In addition, the demand for remedial math courses in colleges and universities is growing—a sign that students who are able to graduate from high school are still entering college unprepared to achieve in mathematics.

At the same time, the NMAP found that there is a tendency to hold some students back from engaging in mathematics concepts deemed "too sophisticated" for their age group. That is, children who have a natural aptitude for and curiosity about math may not be pushed beyond the limits of their grade level curriculum, thus preventing them from advanced achievement (NMAP 2008).

Thus, educators are tasked with addressing the needs of incredibly diverse learners, from low- to high-performing, of varying levels of English language proficiency, and attuned to various learning styles. **The Ascend Math Solution** enables schools to provide anytime, anywhere learning opportunities for students from the most behind to the most advanced by developing customized learning pathways based on rigorous diagnostic and periodic assessment. The result is a single solution for remediation and enrichment of all students. At its core, Ascend enables educators to fulfill the intent of the NMAP's findings—to provide individualized instruction that leaves no child behind and holds no child back.

*A brief description of Ascend's approach to some of the 45 individual NMAP recommendations is provided at the end of this document.*

## Instructional Use

One of the key challenges for educators is to find a way to meet the individual needs of very diverse learners without investing in a multitude of products. Within a given school, there may be students who:

- Are performing below grade level and need targeted remediation to bring them on par with their peers;
- Have a basic foundation of mathematics proficiency but have low English proficiency that prevents them from succeeding on high stakes assessments;



© Ascend Math - Exhibits Page 30 of 145

- Have attendance problems that prevent them from keeping up with the rest of the class;
- Are above proficiency in mathematics and are being held back from even greater enrichment and advancement due to a lack of instructional time, resources, or both.

The Ascend Math Solution's flexible instructional use allows educators to address the needs of all of these students using a single product. Ascend automatically guides students through student-centered learning containing multi-modality instructional activities. The automated study plans are directly tied to assessments, and the assessments automatically follow and are directly linked to the prescribed learning activities. The result is a fully-customized learning experience for each student.

***Frequency & Duration***

Because of the incredible flexibility of **The Ascend Math Solution**, it can be used in any number of configurations. Ascend is fully automated and student-driven, therefore the schedule on which each student receives instruction can be different. Further, based on the initial diagnostic assessment, each student's instruction is fully personalized, enabling them to progress regardless of how little (or much) time is available for remediation and enrichment.

In a Florida middle school, for example, students used Ascend in the following configuration:

- Duration per session: 45 minutes
- Sessions per week: 5
- Total duration: 1 semester

Within a single semester of intervention, students performing approximately four years below grade level achieved the following results:

- 32% of students gained one to two grade levels;
- 45% of students gained two to three grade levels;
- 13% of students gained three to four grade levels;
- 10% of students gained more than four grade levels.

In a Colorado high school, students used Ascend in the following configuration:

- Duration per session: flexible
- Sessions per week: minimum of one 1-hour session (students used Ascend in class, study hall, home, or a combination)
- Total duration: 13 – 31 hours



© Ascend Math - Exhibits Page 31 of 145

Students using Ascend in this configuration increased their ACT test scores by approximately 7%. In addition:

- 32% of students gained half a grade level of mathematics proficiency;
- 28% of students gained one grade level;
- 21% of students gained one and a half levels;
- 13% of students gained two levels.

In addition to the use models described above, the Ascend Mathematics Solution is highly appropriate for:

- Before- or after-school tutoring sessions;
- Summer school programs;
- Computer lab or study period use;
- Distance learning;
- Gifted student camps, clinics, or special programs.

**Administrative Use**

Coordinating the effective instruction of a variety of learners can be overwhelming from an administrative standpoint. Frequent assessment and the analysis of assessment results to determine student progress can tax teachers and take away from time they might otherwise spend on instruction. **The Ascend Math Solution** automates many of these tasks, minimizing teachers' and administrators' paper burden. In fact, the product's built in reports are so simple to create and review that parents and students can easily run and analyze their own reports, taking control of student achievement.

***Teacher/Administrator Use***

At the start of the program, students are given a diagnostic assessment keyed to the instructional content of the program to determine areas of mastery and gaps in skills. Ascend's alignment to local or state standards and/or assessment objectives enables teachers and administrators to view students' proficiency status in terms of high-stakes assessments as well.

Based on the results of the diagnostic assessment, the Ascend system develops individualized learning pathways for each student. Students progress at their own pace through the program, and the learning pathways are adjusted automatically as skills and concepts are mastered.

Using embedded, continual assessment, student progress can be captured virtually at any point in the program. Again, aligning Ascend to local and state standards enables teachers and administrators to quickly and easily view individual, group, and class progress in terms of mastery of high-stakes assessment objectives.



© Ascend Math - Exhibits Page 32 of 145

Perhaps one of the most important aspects of the Ascend Math Solution is its ability to empower teachers and administrators to engage in detailed analysis of student progress and make timely decisions about placement. With Ascend, teachers and administrators can view student progress much more frequently and make decisions about which students may need more or less time on Ascend to fill in skill gaps or achieve desired progress goals. The automaticity of the reporting system significantly reduces the amount of time needed to view, analyze, and act on data, increasing response time to student progress and maximizing instructional resources.

***Student/Parent Use***

One of the key benefits of the Ascend Mathematics Solution is that students themselves are able to monitor their own progress throughout the remediation/enrichment process. The National Mathematics Advisory Panel noted in its final report, "When children believe that their efforts to learn make them "smarter," they show greater persistence in mathematics learning" (NMAP 2008). At any given time when using Ascend, students can access achievement data and visualize the progress they have made. By putting control of learning in the hands of students, the Ascend MathSolution motivates them to continue in the program.

This student-centered, technology-based learning experience is particularly beneficial when working with today's generation of students. These "digital natives," says Marc Prensky in his article *Digital Immigrants, Digital Natives*, simply think differently than students of previous generations. With daily and lifelong access to digital input, these students are used to receiving information immediately, to using on graphics as well as (or instead of) text to assimilate information, and to receiving immediate feedback (Prensky 2001). Instructional materials and methods must meet the particular needs of these students in order to be successful. The Ascend Math Solution is fully responsive to today's generation of students, providing video-based instruction and high-interest graphics, providing immediate and private feedback on progress, and putting students in the "driver's seat."

Similarly, because Ascend can be accessed anytime/anywhere, parents are afforded significant access to student progress. Being able to watch their children improve and achieve not only provides motivation for parents to become more active in their children's learning, it empowers them to make good decisions about how, when, and how frequently their children should use the program.

**National Mathematics Advisory Panel Recommendations**

In its final report, the NMAP issued 45 individual findings over a wide range of domains. The following describes how Ascend's approach meets the intent of several of these findings.



© Ascend Math - Exhibits Page 33 of 145

13) Mathematics performance and learning of groups that have traditionally been underrepresented in mathematics fields can be improved by interventions that address social, affective, and motivational factors.

*Ascend's approach enables students to take control of their own learning. At any time, students can view the progress they have made and the lessons they need to cover. The program is inherently motivational to students. In addition, because it is available anytime/anywhere, students who struggle with attendance, discipline, or other social challenges can use the program to continue mathematics instruction when they are not able to be in the regular classroom. The program is also designed to minimize student failure based on English language proficiency (as opposed to mathematics proficiency) through a multi-modal approach that minimizes the need to read text, providing video-based instruction and high-interest graphics.*

14) Children's goals and beliefs about learning are related to their mathematics performance. Experimental studies have demonstrated that changing children's beliefs from a focus on ability to a focus on effort increases their engagement in mathematics learning, which in turn improves mathematics outcomes: When children believe that their efforts to learn make them "smarter," they show greater persistence in mathematics learning.

*Ascend's approach is inherently rewarding. First, the program meets students at their current level of mastery, enabling them to experience immediate success in the program. As students master new concepts, they can clearly view the progress they are making. The more students use the program, the more apparent their ability to succeed becomes to them.*

15) Teachers and developers of instructional materials sometimes assume that students need to be a certain age to learn certain mathematical ideas. However, a major research finding is that what is developmentally appropriate is largely contingent on prior opportunities to learn. Claims based on theories that children of particular ages cannot learn certain content because they are "too young," "not in the appropriate stage," or "not ready" have consistently been shown to be wrong.

*Just as Ascend allows students below proficiency to progress quickly regardless of their age or grade level, the program allows more advanced students to push beyond the boundaries of their textbooks, classroom syllabi, and grade levels as necessary.*

23) All-encompassing recommendations that instruction should be entirely "student centered" or "teacher directed" are not supported by research. If such recommendations exist, they should be rescinded. If they are being considered, they should be avoided. High-quality research does not support the exclusive use of either approach.



© Ascend Math - Exhibits Page 34 of 145

*One of the unique aspects of the Ascend approach is that while student learning is entirely self-paced based on mastery of skills and concepts, instruction is given in part using videos of an award-winning mathematics instructor. In addition, the system's administrative functions allow teachers to quickly hone in on individual students' needs, and to group students according to ability level to ensure that instruction is as tailored as possible.*

25) Teachers' regular use of formative assessment improves their students' learning, especially if teachers have additional guidance on using the assessment to design and to individualize instruction.

*Assessment is embedded and continual, enabling teachers to have immediate access to students' proficiency status. As students progress through the program, the embedded assessments continually individualize instruction based on concepts mastered and identified gaps in skills.*

28) Research on instructional software has generally shown positive effects on students' achievement in mathematics as compared with instruction that does not incorporate such technologies.

*Ascend seamlessly integrates GraspMath™ content with video-based instruction delivered by an award-winning mathematics teacher. Students have access to technology-based manipulatives, interactive mathematics explorations, and ample practice filled with high-interest, informative graphics. Ascend capitalizes on the full benefits of technology-based instruction to improve students' mathematics proficiency.*

33) Publishers must ensure the mathematical accuracy of their materials. Those involved with developing mathematics textbooks and related instructional materials need to engage mathematicians, as well as mathematics educators, at all stages of writing, editing, and reviewing these materials.

*Developed by one of the leading mathematics instructors in the country, the Ascend Math Solution provides accurate, well-crafted mathematics content. An award-winning instructor and best-selling author, Elayn Martin-Gay has taught mathematics at the University of New Orleans for over 25 years. She has received the* University Alumni Association's Award for Excellence in Teaching, *and was named* Outstanding Developmental Educator at University of New Orleans. *Martin-Gay has authored dozens of best-selling mathematics textbooks and professional development resources.*



© Ascend Math - Exhibits Page 35 of 145

**References**

*Foundations for Success: The Final Report of the National Mathematics Advisory Panel*. United States Department of Education, 2008. http://www.ed.gov/about/bdscomm/list/mathpanel/report/final-report.pdf.

Prensky, Marc. "Digital Natives, Digital Immigrants." *On the Horizon*. MCB University Press, Vol. 9, No. 5, October 2001. http://www.marcprensky.com/writing/Prensky%20-%20Digital%20Natives,%20Digital%20Immigrants%20-%20Part1.pdf.

**About Strategic Education Solutions**

Strategic Education Solutions provides comprehensive research, development, evaluation, and marketing services to public and private education entities, with expertise in:

- At-Risk Students;
- Dropout Prevention and Recovery;
- Scientifically-Based Research Practices;
- No Child Left Behind Policy and Compliance;
- Technology-Based Education;
- Curriculum and Instruction.

Led by Cynthia Burrow, an education professional with over 15 years of experience, Strategic Education Solutions has completed large-scale research and evaluation projects for state and regional education agencies, and has provided market research and curriculum development support for educational publishers in a variety of content areas.



© Ascend Math - Exhibits Page 37 of 145

# The Ascend Math Solution Use Model:

# Tier II Intervention

Developed By:


6718 Rustling Oaks Trail
Austin, TX 78759
www.strategicedsolutions.com

## Background

In 2004, the Individuals with Disabilities Education Improvement Act (IDEA) emphasized the use of Response to Intervention (RTI) as a more accurate way of diagnosing students with learning disabilities. Both the IDEA and its counterpart, the No Child Left Behind Act (NCLB) sought to minimize the number of students incorrectly classified as learning disabled by providing a tiered system of diagnosis and intervention for students. If student learning deficiencies can be corrected through instructional intervention, then (according to IDEA and NCLB) those deficiencies had likely been the result of poor instruction rather than a true disability.

RTI provides a tiered model for student instruction and assessment. It assumes that the curriculum used in a school is research-based and that it is being implemented by highly qualified teachers. Based on diagnostic assessments delivered at key points during the school year (not just determined by previous year state achievement test scores), students who are found not to be responding to the curriculum are given focused intervention in one or more academic areas, and are monitored much more frequently (Tier II intervention). Typically, students will respond to this intervention and be returned to general classroom instruction. Students who do not respond to the initial intervention are given even more frequent, sustained, and intensive instructional intervention and are monitored even more frequently (Tier III Intervention). Those that do not respond to this more intensive intervention may be referred to special education (Lehigh University).

The law does not stipulate a particular configuration, number of hours, or delivery method for any intervention tier, leaving such decisions to individual schools and/or districts. This flexibility is important because each school may operate somewhat differently based on a variety of factors, such as state and local education regulations, class schedules, staff configuration, and administrative policies and procedures. While this flexibility is needed, it has also has created some confusion as to the “optimal” configuration and frequency of assessment and intervention within a specific RTI framework.

The Ascend Math Solution is appropriate as a Tier II intervention—meaning that students lagging behind using the school’s “standard curriculum” can and will catch up to (and even surpass) their better-performing peers by utilizing Ascend. One of the important distinctions of Ascend—particularly in relation to RTI—is that it can be used extremely flexibly, depending on the needs and resources of individual schools and districts. This use model describes some of the ways the program can be used and the benefits it affords teachers, students, and administrators.

## Instructional Use

There is no prescribed number or frequency of intervention sessions, or total number of hours, that should be provided for students requiring Tier II intervention. In summarizing the RTI approach, Fuchs et al (frequently cited as the founders of the RTI approach) describe one study performed by Vellutino in which two thirds of the students receiving



© Ascend Math - Exhibits Page 39 of 145

30-minute reading intervention sessions delivered by highly-trained teachers five days per week caught up to their better-performing peers within about a semester. While the gains described by Vellutino were impressive, the authors asked the question "how many schools have the resources to provide all their poor readers with 70–80 sessions of one-to-one tutorials conducted by highly trained personnel?" (Fuchs, et al 2003).

Therefore, it is up to school personnel to determine when, how, and for how long Tier II Intervention sessions should occur. The Ascend MathSolution makes developing an effective Tier II Intervention easy for educators by:

- Automatically directing students to instructional activities as prescribed by assessments.
- Providing anytime, anywhere access to instruction, which allows students to engage in instruction before, during, or after school; from a classroom, computer lab, or library; for as little or as much time as is available.
- Solving the "high quality instructor" problem by providing video-based instruction from award-winning math teachers such as Elayn Martin-Gay.
- Using multi-modality instructional approaches.
- Administering on-going formative assessments.
- Generating easy to read progress reports for teachers, administrators and parents.

***Frequency & Duration***

Because of the incredible flexibility of The Ascend Math Solution, it can be used in any number of configurations. Optimally, students would receive approximately two to three hours per week of instruction in increments of 30 minutes to one hour. Because Ascend is fully self-contained and student-driven, the schedule on which each student receives the intervention can be different.

In a Florida middle school, for example, students used Ascend in the following configuration:

- Duration per session: 45 minutes
- Sessions per week: 5
- Total duration of intervention: 1 semester

Within a single semester of intervention, students performing approximately four years below grade level achieved the following results:

- 32% of students gained one to two grade levels;
- 45% of students gained two to three grade levels;



© Ascend Math - Exhibits Page 40 of 145

- 13% of students gained three to four grade levels;
- 10% of students gained more than four grade levels.

***Student Self-Monitoring***

One of the key benefits of the Ascend Math Solution is that students themselves are able to monitor their own progress throughout the program. The National Mathematics Advisory Panel noted in its final report, "When children believe that their efforts to learn make them "smarter," they show greater persistence in mathematics learning" (NMAP 2008). At any given time when using Ascend, students can access achievement data and visualize the progress they have made. By putting control of learning in the hands of students, the Ascend Math Solution motivates them to continue in the program—a critical factor in the success of at-risk students.

This student-centered, technology-based learning experience is particularly beneficial when working with today's generation of students. These "digital natives," says Marc Prensky in his article *Digital Immigrants, Digital Natives*, simply think differently than students of previous generations. With daily and lifelong access to digital input, these students are used to receiving information immediately, to using on graphics as well as (or instead of) text to assimilate information, and to receiving immediate feedback (Prensky 2001). Instructional materials and methods must meet the particular needs of these students in order to be successful. The Ascend Math Solution is fully responsive to today's generation of students, providing video-based instruction and high-interest graphics, providing immediate and private feedback on progress, and putting students in the "driver's seat."

**Administrative Use**

Effectively implementing an RTI program can be time-consuming. Frequent assessment, and the frequent analysis of assessment results to determine student progress can tax teachers and take away from time they might otherwise spend on instruction. The Ascend Math Solution automates many of these tasks, minimizing teachers' and administrators' paper burden.

***Diagnostic Assessment***

At the start of the program, students are given a diagnostic assessment keyed to the instructional content of the program to determine areas of mastery and gaps in skills. Aligning Ascend to local or state standards and/or assessment objectives enables teachers and administrators to view students' proficiency status in terms of high-stakes assessments as well.

Based on the results of the diagnostic assessment, Ascend develops individualized learning pathways for each student. Students progress at their own pace through the program, and the learning pathways are adjusted automatically as skills and concepts are mastered.



© Ascend Math - Exhibits Page 41 of 145

***Periodic Assessment***

Using embedded, continual assessment, student progress can be captured virtually on demand at any point in the student's course plan. Since Ascend's scope and sequence are aligned to local and state standards, it enables teachers and administrators to quickly and easily view individual, group, and class progress in terms of mastery of high-stakes assessment objectives. Ascend offers both formative and summative assessments.

***Data-Driven Decision Making***

Perhaps one of the most important aspects of The Ascend Math Solution is its ability to empower teachers and administrators to engage in detailed analysis of student progress and make timely decisions about placement. State assessments are given yearly (and frequently, the results of those assessments are not available to schools until late in the first semester), and district assessments are typically given every six weeks. With Ascend, teachers and administrators can view student progress much more frequently and make decisions about which students may need more or less time on Ascend to fill in skill gaps or achieve desired progress goals. The automaticity of the reporting system significantly reduces the amount of time needed to view, analyze, and act on data, increasing response time to student progress and maximizing instructional resources.

**NCTM's Mathematics Intervention Criteria**

In its publication, *Creating or Selecting an Intervention Program*, the National Council of Teachers of Mathematics (NCTM) describes the essential characteristics of an effective mathematics intervention program and provides questions educators should ask about an intervention program before selecting it. To demonstrate the Ascend Mathematics Solution's appropriateness for Tier II Intervention, we have provided responses below to each of the NCTM questions.

***1. Diagnostic assessment***

1.1. Does the intervention program include diagnostic assessments that identify students' specific strengths and weaknesses with respect to both conceptual understanding and procedures?

*Ascend's student experience begins with a diagnostic assessment designed to identify skill gaps at or below grade level. This assessment is predicated upon state, local, or other standards to ensure that diagnostics are tied to what students will need to know and be able to do on high-stakes assessments.*



© Ascend Math - Exhibits Page 42 of 145

1.2. Do the assessments investigate students' knowledge of key mathematics concepts that are grade appropriate?

*One of the distinguishing features of Ascend is that study plans are arranged in scope and sequence by grade level according to state standards. At the same time, the diagnostic and periodic assessments meet students at their skill level, making it immediately clear whether students are performing below, at, or above grade level. This ensures that students are given significant instruction in areas where they are below proficiency while preventing wasted time on grade-level concepts the student has already mastered.*

1.3. Does the content that is assessed align with the school's prescribed curriculum?

*Ascend's assessments and content can be aligned with state and/or local standards. In addition, Ascend can be aligned with the core instructional content—such as a mathematics textbook or syllabus—to ensure that both assessment and instruction are closely tied to the instructional priorities of the school.*

1.4. Do the assessments communicate students' strengths and weaknesses in ways that teachers and parents can understand?

*Ascend's reporting tools are clear and concise, facilitating frequent and focused communication among teachers, administrators, and parents. Further, students are able to access progress reports anytime, anywhere, putting them in control of their learning—a strategy that is proven effective in motivating students to achieve.*

***2. Instructional activities***

2.1. Does the intervention program include a series of instructional activities that are carefully linked with the diagnostic assessments?

*The hallmark of Ascend's approach is the creation of automatically-prescribed, individualized learning pathways for each students based on the results of diagnostic and periodic assessments. From there, students are guided through instructional activities in a logical math sequence. Learning paths are adjusted through continual assessments ensuring that instructional activities are directly tied to diagnostics. This enables students to quickly close skill gaps without spending additional time on concepts they have already mastered.*

2.2. Do the program's instructional activities support and enhance, but not supplant or duplicate, regular classroom instruction?

*By aligning Ascend to the core curriculum while maintaining an independent, targeted assessment of skills, the Ascend Mathematics Solution provides intervention where needed. In addition, Ascend's use of rich technology to teach math concepts, and the use of video-based instruction delivered by an award-winning educator, provide*



© Ascend Math - Exhibits Page 43 of 145

*opportunities to differentiate instruction for students who have skill gaps at previous grade levels or are unable to learn concepts through traditional pencil-and-paper instruction.*

2.3. Are tools for ongoing, formative assessment embedded in the instructional activities?

*Ascend uses embedded, frequent assessment to continually develop and adjust individualized instructional pathways. The program's reporting tools provide access to student assessment data in a "time is of the essence" manner—a critical ingredient of effective intervention.*

2.4. Is the mathematics in the instructional activities correct?

*Developed by some of the leading mathematics instructors in the country,* ***The Ascend Math Solution*** *provides accurate, well-crafted mathematics content. For example, the primary video presenter and author is award-winning instructor and best-selling author Elayn Martin-Gay. Martin-Gay has taught mathematics at the University of New Orleans for over 25 years. She has received the* University Alumni Association's Award for Excellence in Teaching*, and was named* Outstanding Developmental Educator at University of New Orleans*. Martin-Gay has authored dozens of best-selling mathematics textbooks and extensive professional development resources.*

2.5. Do the instructional activities advance the school's curriculum and promote reasoning and conceptual understanding?

***The Ascend Math Solution*** *scope and sequence is arranged according to state and national standards and can be tailored to the school's curriculum, ensuring seamless integration and advancements of the school's instructional priorities.*

2.6. Do the instructional activities contain challenging tasks that are appropriate for students' interests and backgrounds?

*Ascend's instructional activities are rich and varied, taking advantage of technology-based instruction to provide inherently-motivational learning opportunities. In addition, Ascend's use of technology and video instruction provides differentiated learning opportunities for a variety of learning styles and abilities, including visual learners, auditory learners, kinesthetic learners, and English Language Learners.*



© Ascend Math - Exhibits Page 44 of 145

***3. Postassessment***

3.1. Does the intervention program contain postassessments that indicate whether the instructional activities have been effective?

*Ascend's ongoing assessments clearly and frequently illustrate student mastery of concepts. In addition, by aligning the system to state or local standards and assessments, teachers, administrators, and parents can clearly and consistently see how students are responding to the intervention in terms of high-stakes assessments.*

3.2. Are follow-up assessments administered in a timely fashion?

*Ascend uses ongoing, embedded assessments to continually track acquisition of concepts and skills and to adjust student learning pathways accordingly.*

3.3. Do the assessments communicate students' growth or need for further instruction in ways that teachers and parents can understand?

*Ascend's reporting tools are clear and easy to create and read, eliminating the need to grade and scan individual tests and papers or to compile time-consuming reports. Progress reports clearly demonstrate individual, group, and class mastery of learning objectives, and clearly identify objectives that need to be mastered.*

***4. Organizational structure of the intervention***

4.1. Is the structure of the intervention program feasible, given the organizational structure of the school?

*Ascend's anytime, anywhere use model enables individual schools to tailor the intervention to available time and material resources. The program can be used before, during, and after school, or from home, in blocks of time from thirty minutes to several hours.*

4.2. Does the school have the necessary resources to implement the intervention program as designed?

*Ascend is a fully-automated, web-based, student-centered intervention solution. Diagnostic and periodic assessments are built in and individualized learning pathways are automatically created for each student based on his or her level of mastery. Reporting is automatic. Ascend requires no specialized equipment—such as scanners, printers, or other equipment.*



© Ascend Math - Exhibits Page 45 of 145

4.3. Does the intervention program include adequate and ongoing professional development to ensure effective implementation?

*Ascend Education provides training with high-quality staff to ensure a quick, easy, and successful implementation.*

***5. Research supporting the intervention***

5.1. Have rigorous and appropriate methods been used to evaluate the intervention program, and determine it to be successful?

*The Ascend Mathematics Solution is grounded in scientifically-based research. (See Ascend Mathematics Solution: Scientifically-Based Research Base.) In addition, Ascend Education is committed to evaluating the program in a variety of settings. To access case studies describing Ascend's research base, visit http://www.ascendedu.com/research.html.*

5.2. Does theoretical and empirical evidence support the efficacy of the intervention program in a setting that is similar to your school?

*The Ascend Mathematics Solution has been implemented in a variety of grade levels, school settings, and instructional configurations, including middle and high schools, regular schools and alternative education programs, and in intervention, remediation, before- and after-school, and other settings.*

## References

Berkas, Nancy; Pattison, Cyntha. *Creating or Selecting an Intervention Program*. NCTM News Bulletin, March 2008. http://www.nctm.org/news/release_list.aspx?id=13834.

*The Elementary and Secondary Education Act as reauthorized by the No Child Left Behind Act of 2001*. United States Department of Education. http://www.ed.gov/policy/elsec/leg/esea02/index.html.

*Foundations for Success: The Final Report of the National Mathematics Advisory Panel*. United States Department of Education, 2008. http://www.ed.gov/about/bdscomm/list/mathpanel/report/final-report.pdf.

Fuchs, Douglas; Mock, Devery; Morgan, Paul L.; Young, Caresa L. *Responsiveness-to-Intervention: Definitions, Evidence, and Implications for the Learning Disabilities Construct*. Learning Disabilities Research & Practice (Blackwell Publishing Limited), Aug 2003, Vol. 18 Issue 3.

*The Individuals with Disabilities Act of 2004*. United States Department of Education. http://idea.ed.gov/download/statute.html.

Lehigh University, Center for Promoting Research to Practice, *Project MP3*: *What is RTI?* http://www.lehigh.edu/collegeofeducation/mp3/rti/rti.htm.

Prensky, Marc. "Digital Natives, Digital Immigrants." *On the Horizon*. MCB University Press, Vol. 9, No. 5, October 2001. http://www.marcprensky.com/writing/Prensky%20-%20Digital%20Natives,%20Digital%20Immigrants%20-%20Part1.pdf.



© Ascend Math - Exhibits Page 47 of 145

**About Strategic Education Solutions**

Strategic Education Solutions provides comprehensive research, development, evaluation, and marketing services to public and private education entities, with expertise in:

- At-Risk Students;
- Dropout Prevention and Recovery;
- Scientifically-Based Research Practices;
- No Child Left Behind Policy and Compliance;
- Technology-Based Education;
- Curriculum and Instruction.

Led by Cynthia Burrow, an education professional with over 15 years of experience, Strategic Education Solutions has completed large-scale research and evaluation projects for state and regional education agencies, and has provided market research and curriculum development support for educational publishers in a variety of content areas.

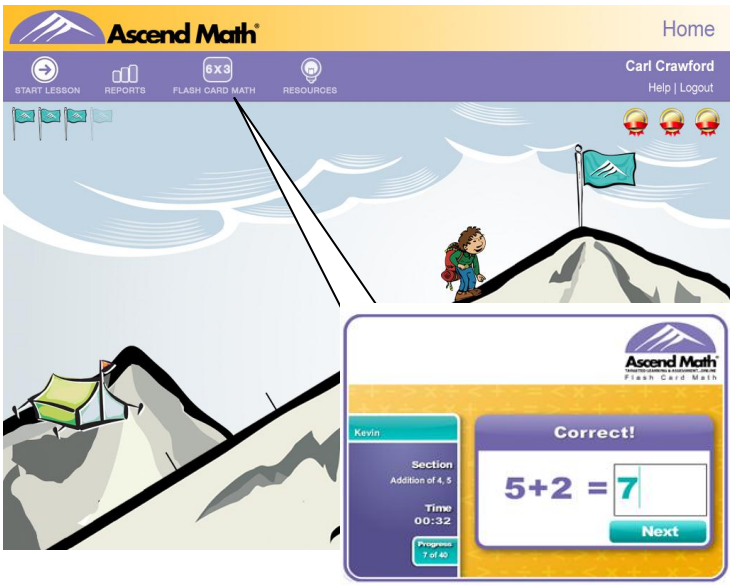


© Ascend Math - Exhibits Page 48 of 145

Ascend Math®

| School Name | District Name | Test Group | 3rd Party Reference | Results | Source of Results/Relevant Studies |
|---|---|---|---|---|---|
| Emmet Belknap Middle School | Lockport City School District | High Risk Students Who Received Intervention: Tier II Students 2011/20012 School Year | Grade Level Growth as measured by third party test assessment - STAR Math Assessments | • Before using Ascend Math for their RTI needs students averaged .5 grade levels of growth per year.<br>• After using Ascend Math for 7 months, these same students improved 2 grade levels (on average); Therefore they achieved four times the previous growth in less than a school year | Lynn Hewitt, Emmet Belknap Middle School |
| Fort Stockton Middle School | Fort Stockton ISD | High Risk Students Who Received Intervention: Tier II and Tier III Students 2010/2011 School Year | State TAKs Results | During the 2010/2011 School Year :Of the 6th, 7th and 8th grade students who were expected to fail TAKS based on state benchmark results, 45% of 6th graders, 65% of 7th graders and 65% of 8th graders passed TAKs | Dr. Ralph Traynham, Gil-Rey Madrid *"Effects of Intensive Math Intervention" Exhibit* |
| Henderson Elementary School | Powell River | Students Who Received Intervention: 56 4th through 6th Grade Students | Post Test vs. Pre Test Results | Overall the average increase in test scores after two months of using Ascend Math was 8.10 %. A higher average gain in the grade 4/5 class of 10.89% as compared to 5.07% for the grade 5/6 class is understandable looking at where the gains occurred. The grade 4/5 class improved from 49% to 59% while the grade 5/6 class improved from 81% to 86%. What is promising is that 36 students who completed the pre and post trial tests made average gains of 12.73%. | Steve Boettger, Henderson Elementary *"Ascend Math Pilot Project Henderson Elementary School, Powell River, BC" Exhibit* |
| Snowy Peaks High School | Summit County | Students Placed in Intervention | NWEA Goals | Students taking the NWEA test to measure student achievement in both the fall and winter session grew by an average of 5.7 points in one semester. On the NWEA, a year's worth of growth is estimated at 3 points. Thus, students who were using Ascend Math, demonstrated nearly 2 years of growth within a single semester. | *"Six Critical Components of a Strong Math Intervention Program: The Ascend Math Model"* |
| Crisp County Middle School | Crisp County School District | Students who received intervention during second math elective | CRCT Results | • 64% passed the CRCT (Georgia State Test) with a score in the Level 2 range.<br>• Passing rates for 6th graders improved from 25% to 63%<br>• Passing rates for 7th graders improved from 10% to 83%<br>• Passing rates for 8th graders improved from 0% to 42% | Dr. April Garner, Crisp County Middle School *"Six Critical Components of a Strong Math Intervention Program: The Ascend Math Model"* |
| Holabird Middle School | Baltimore County Schools | Students 3 or more grade levels behind in math | NWEA and Ascend Math | Prior to using Ascend, 97% of the students tested at least one grade below grade level, with about 70% of those students testing three or more grades below their current academic grade. Holabird saw dramatic improvement with students quickly moving up in grade level. The number of students testing at 3rd grade level decreased by 92%. 6th graders testing at 5th grade level increased by 100%. 7th graders testing at 5th grade level increased 280%. 60% of students gained 2-3 grade levels in less than one school year. | Amy Boyd, Mathematics Department Chair |
| Crosby Middle School | Crosby ISD | Seventh grade students who had not previously passed the Texas state test in math the past two years | Criteria STAAR results 2015 | Students achieved a 0% to 38% improvement in STAAR pass rate. These same students had not been successful in passing the STAAR for the past two years | Todd Hicks, Crosby Middle School |
| Banks Stephens Middle School | Monroe County Schools | Students who received intervention – Middle Schools Students 2009/2010 | CRCT Results - Students advancing from Level II to Level III | Percentage of students scoring Level III on CRCT increased appreciatively<br>- 29% of 6th grade students scored at Level III in 2009-2010, compared to 25% in 2008-2009<br>- 46% of 7th grade students scored at Level III in 2009-2010, compared to 35% in 2008-2009<br>- 38% of 8th grade students scored at Level III in 2009-2010, compared to 33% in 2008-2009 | Ronnie Shipman, Banks Stephens Middle School |
| Glenbrook Middle School | Longmeadow Public Schools | Each student identified for Tier 2 intervention | Target scores on the MCAP and MCOMP probes | • 80% of 6th graders met or surpassed their target goal on MCAP and MCOMP probes.<br>• 85% of 7th graders met or surpassed their target goal on MCAP and MCOMP probes | Dorian Jones, Glenbrook Middle School |
| Kenwood High School | Baltimore County Schools | 100 grade nine students identified as below grade level in mathematics as determined by middle school Maryland State Assessment scores | Ascend Math Growth | 74% gained one grade level or more.<br>38% gained two or more grade levels.<br>11% of students demonstrated gains of 3 or more grade levels. | Angela Adams, Kennwood High School |
| Brazoswood High School | Brazosport ISD | Students who received intervention – Ninth grade General Ed and Special Ed students | TAKS and Ascend Grade Level Gains | 45% of students at risk for not passing TAKS, passed the high stakes test | Judy Senter, Brazoswood High School |
| Calcasieu Parish Schools | Calcasieu Parish School System | Students who received intervention: Special Ed Students Algebra I Pass Rate 2009/2010 | Algebra I Scores | A sample of 100 of the 800 students who utilized Ascend Math achieved the following results:<br>• Of those records, 87% passed the coursework.<br>• Of the 13% that did not pass the courses, 67% qualified to participate in Credit Recovery to complete the courses | Dr. Betty Washington, Calcasieu Parish Schools |
| Aspen Valley High School | Academy School District 20 | Students who received intervention – 9th and 10th Graders at Aspen Valley High School | Scantron and CSAP Results | On the 3rd party test (Scantron), Math Lab 10th graders almost tripled the growth of other 10th graders in the district | Kymn Van Dyken, Aspen Valley High School |
| Glendale Union High School District | Glendale Union High School District #205 | Algebra I Failure rates 2009/2010 | Algebra I Scores | • School 1: Failure Rates declined from 140 to 61 students<br>• School 2: Failure Rate declined from 90 to 30 students<br>• School 3: Failure rates decreased from 30% to 4% of the student population!<br>• Aggregate Results of all 9 High Schools: district wide Algebra I failure rates decreased from 40% to 17% during the first 9 weeks of school! | John Croteau, Glendale Union High School District |
| Taylor County Elementary | Taylor County School District | | Baseline Testing - Scale Score | Mid-year testing in Dec. showed:<br>• 86% of the 4th grade intervention students grew in their scale scores, with 57% moving up one level.<br>• 83% of the 5th students had an increase in their scale score with 32% moving up one level. | Kathy Kreidler Taylor County Elementary |

# Ascend Math® Flash Card Math

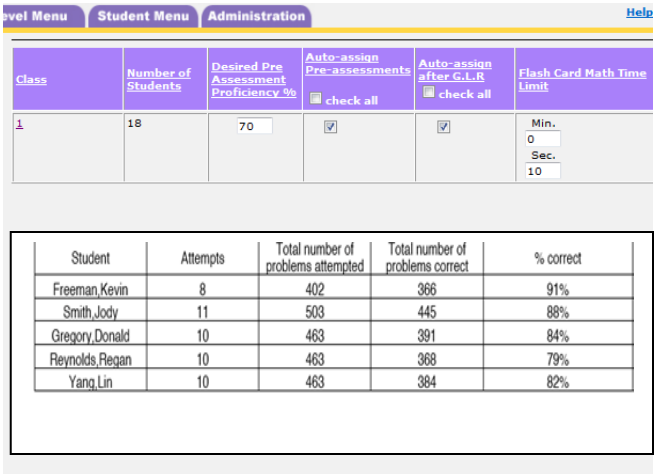



## Flash Card Math is included with all subscriptions to Ascend Math

- Comprehensive reinforcement in basic addition, subtraction, multiplication and division skills
- Practice in whole numbers from 0-10
- Optional motivating self-timer helps students gain confidence
- Self-guided review allowing learners to work independently and at their own pace

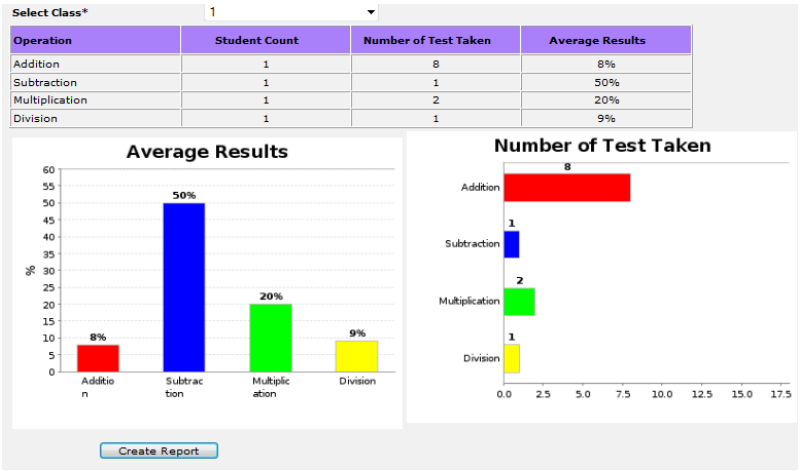
## Students access Flash Card Math through their home page.

- Time of quiz can be limited by teacher
- Teachers may review student activity within the Flash Card Math Dashboard.




Teachers can limit the amount of time allotted for students to take the quiz, down to the minute and second.

Easy to pull reporting tracks student gains.




Teachers can use the Flash Card Math Dashboard to track student attempts by operation. The average of the attempts is also listed to help teachers monitor student growth per attempt.



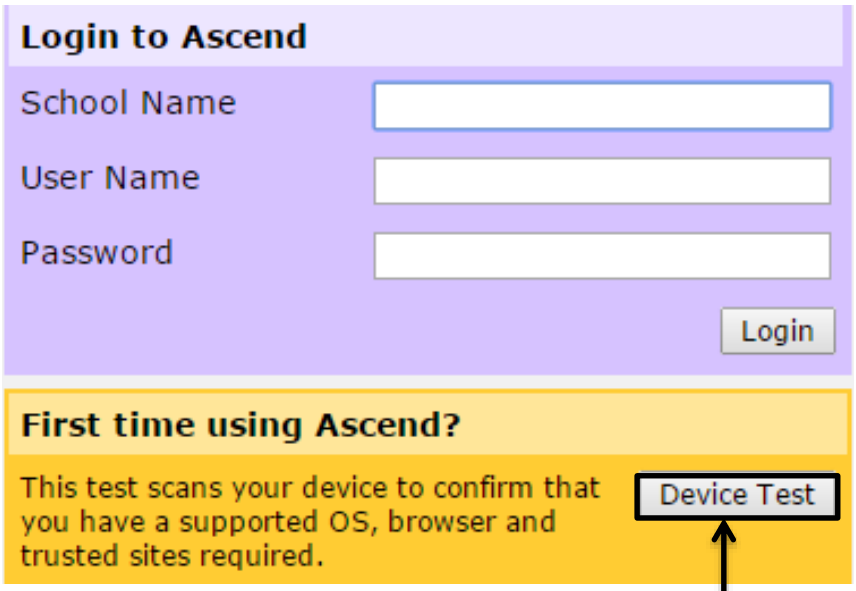
Ascend Math®
TARGETED LEARNING & ASSESSMENT...ONLINE

Ascend offers instruction in multiple modalities to address a variety of learning styles and preferences by combining:

1. Video instruction
2. Multimedia explorations to reinforce learning
3. Manipulatives to support the learning of difficult concepts
4. Guided interactive practice supported by immediate feedback to re-teach concepts and skills and reinforce new knowledge
5. Printable resources to extend learning and practice and support constructed response
6. Flash Card Math to build math fact literacy

Initial Setup

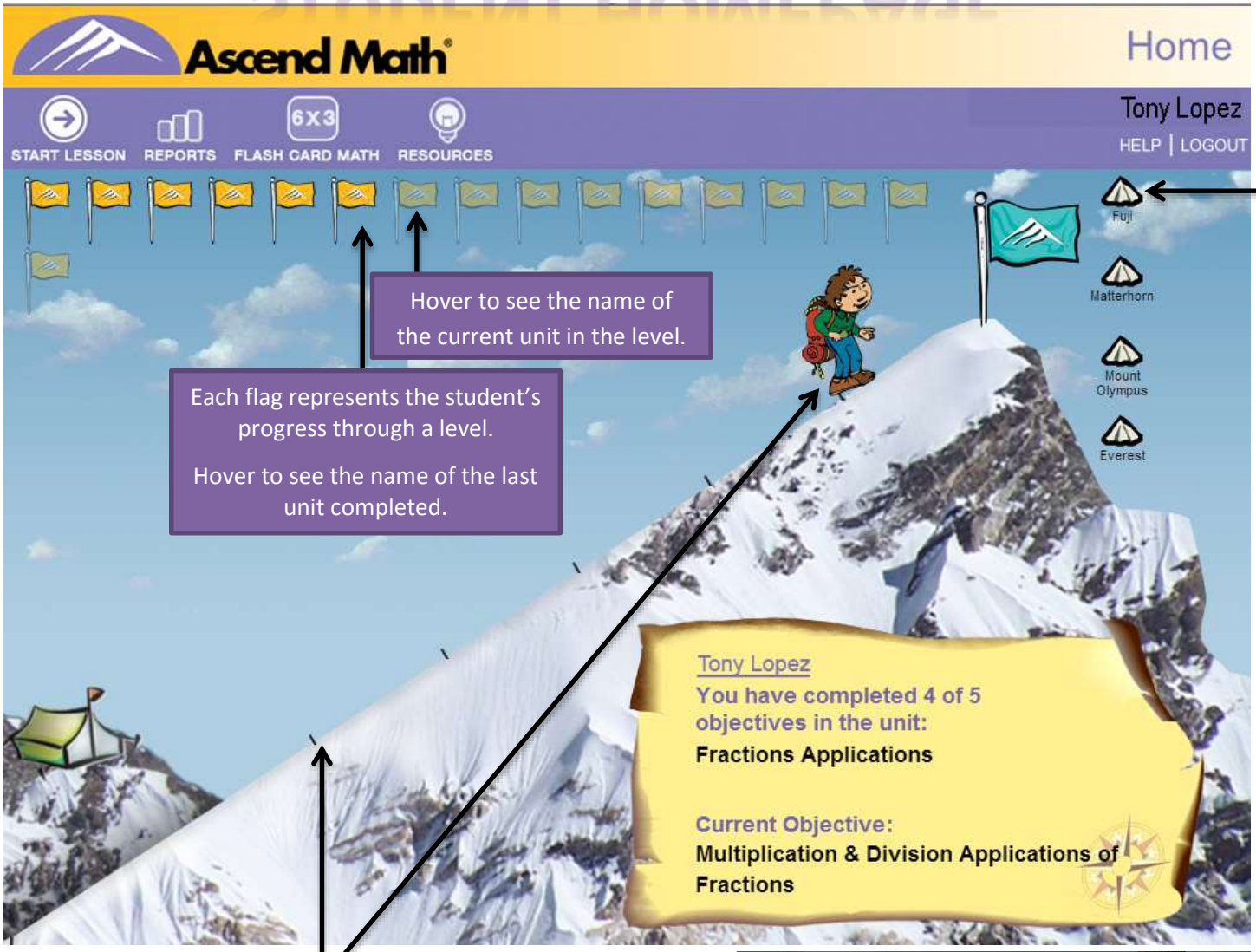
# "RUN TEST" AND LOGIN AS A STUDENT




- Launch a browser and go to:
  - myascendmath.com
- Click "Device Test"
- After completing technical setup, login as a student.

Let's Get Started!

# STUDENT HOMEPAGE

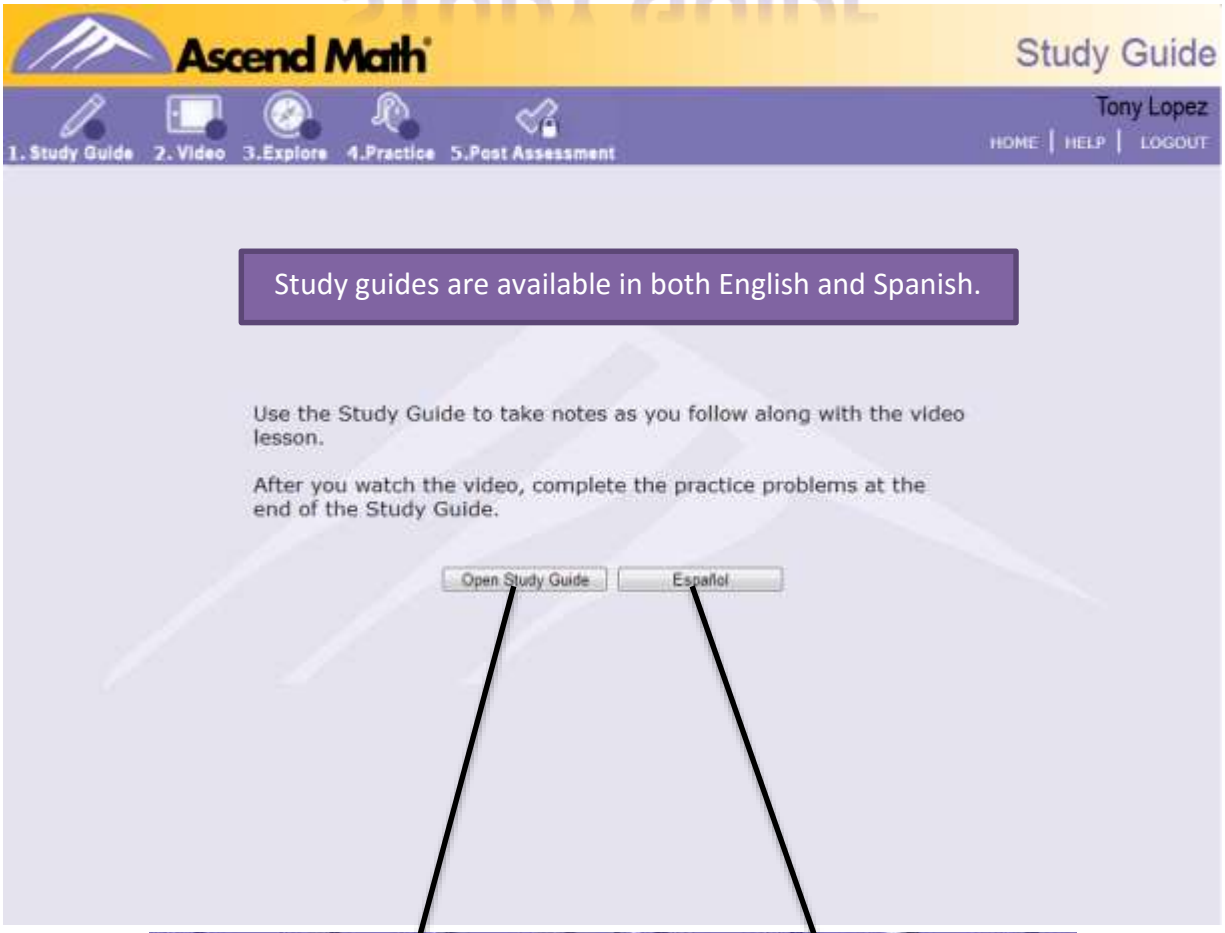



Each point on the mountain represents an objective in the current unit. The climber ascends to the next objective each time the student completes one.


The mountain icons indicate each level the student has completed.

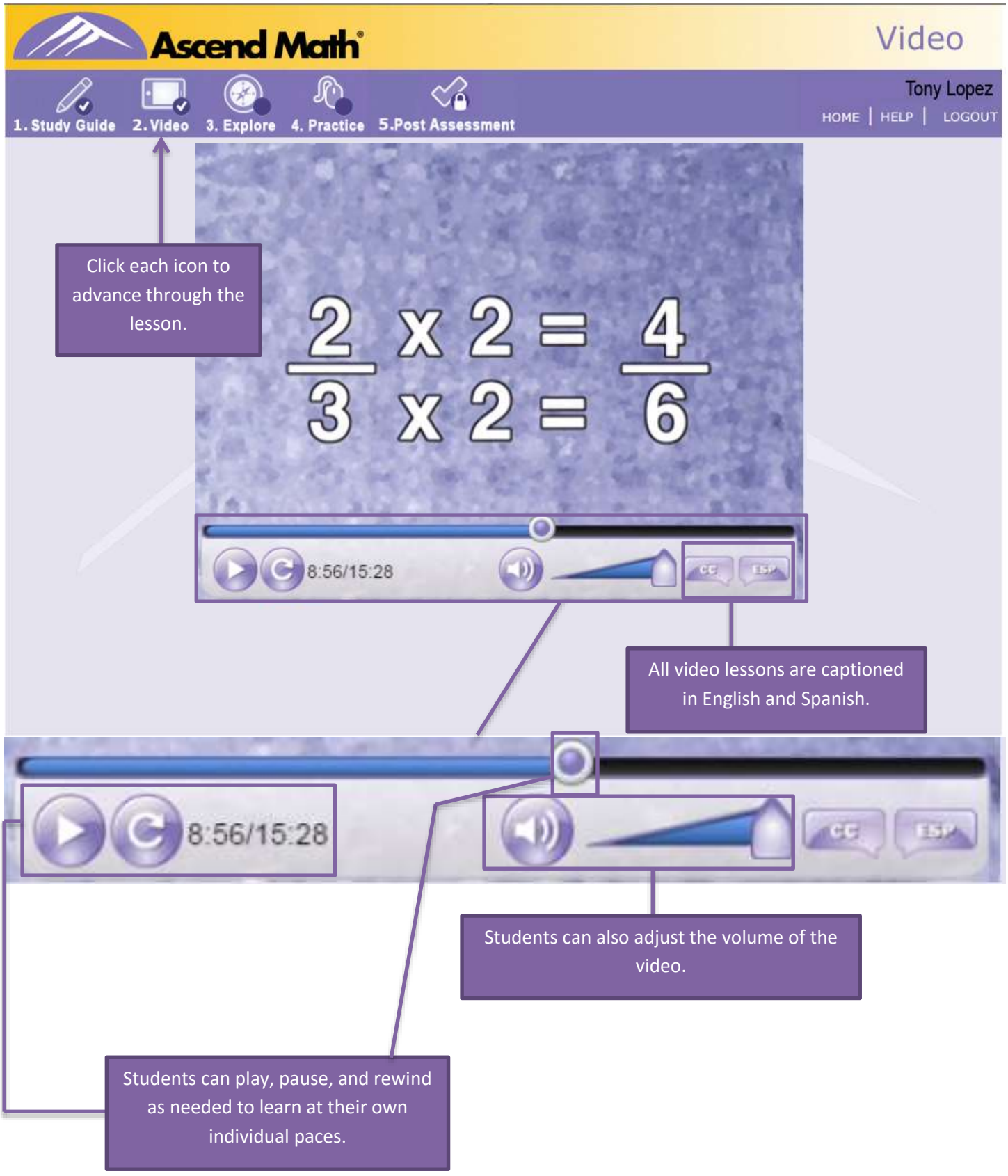
Student Lesson

# STUDY GUIDE



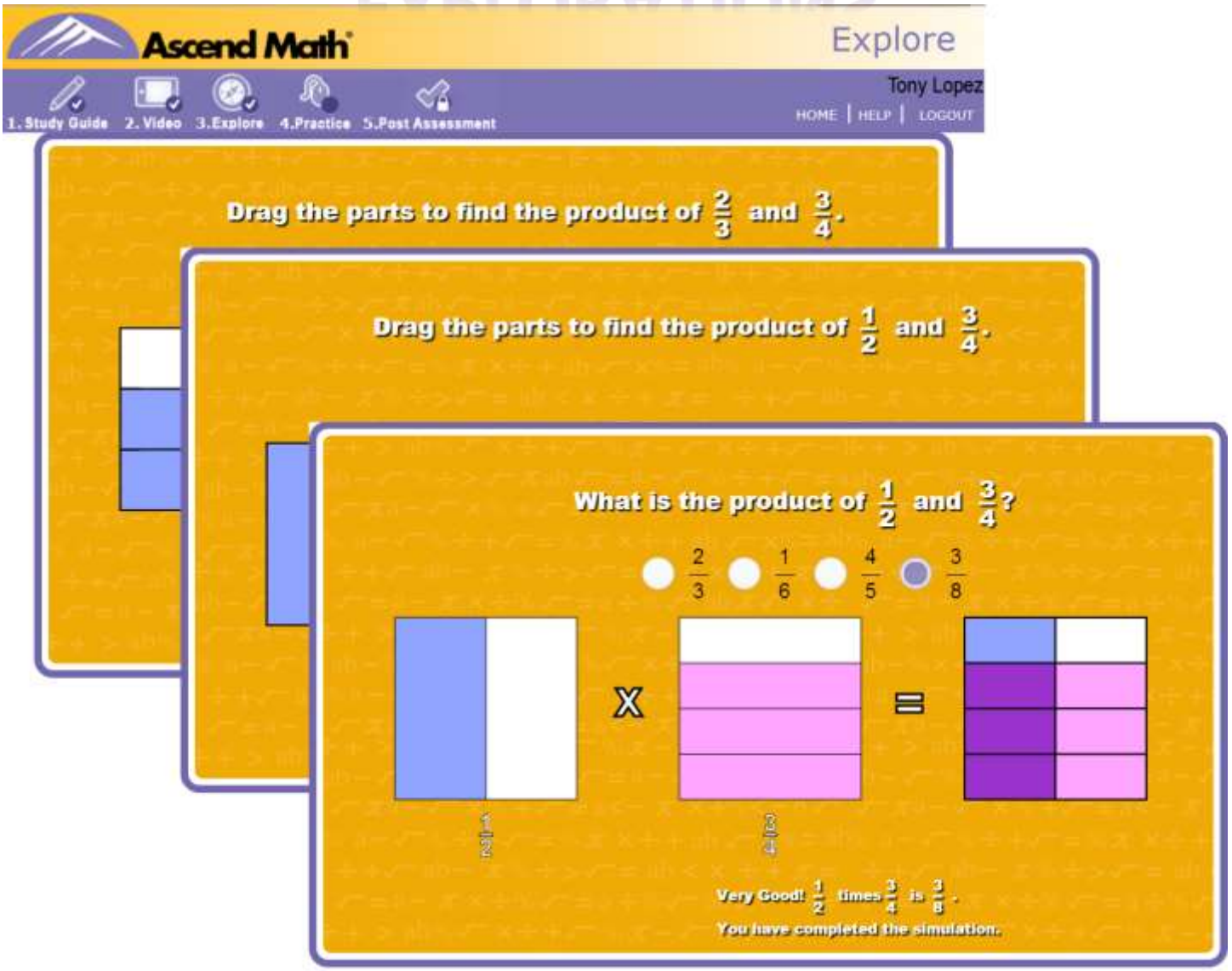

Student Lesson

# VIDEO INSTRUCTION



Student Lesson

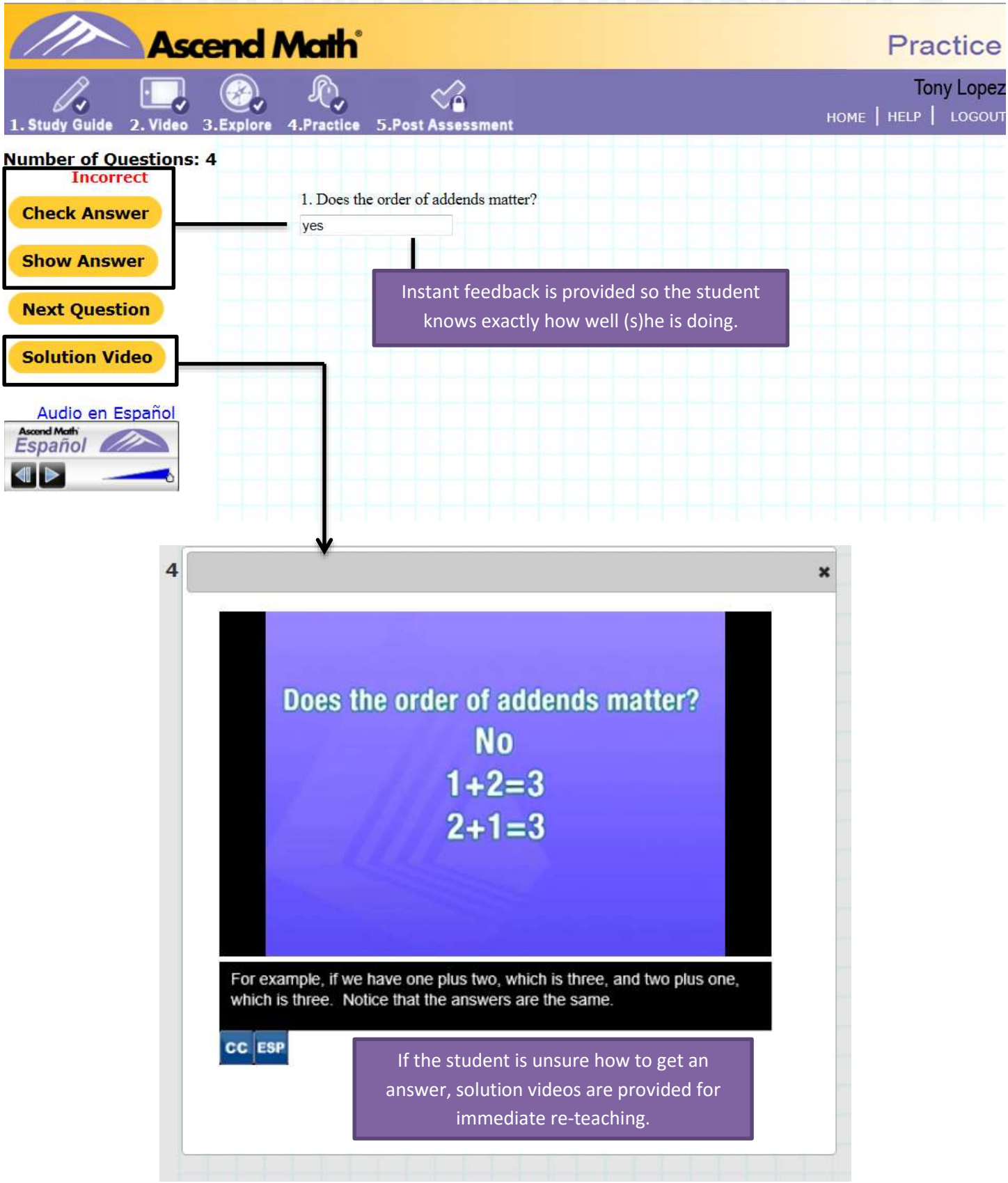
# EXPLORATIONS




Interactive manipulatives lead students through exploratory exercises, providing instant feedback and positive reinforcement.

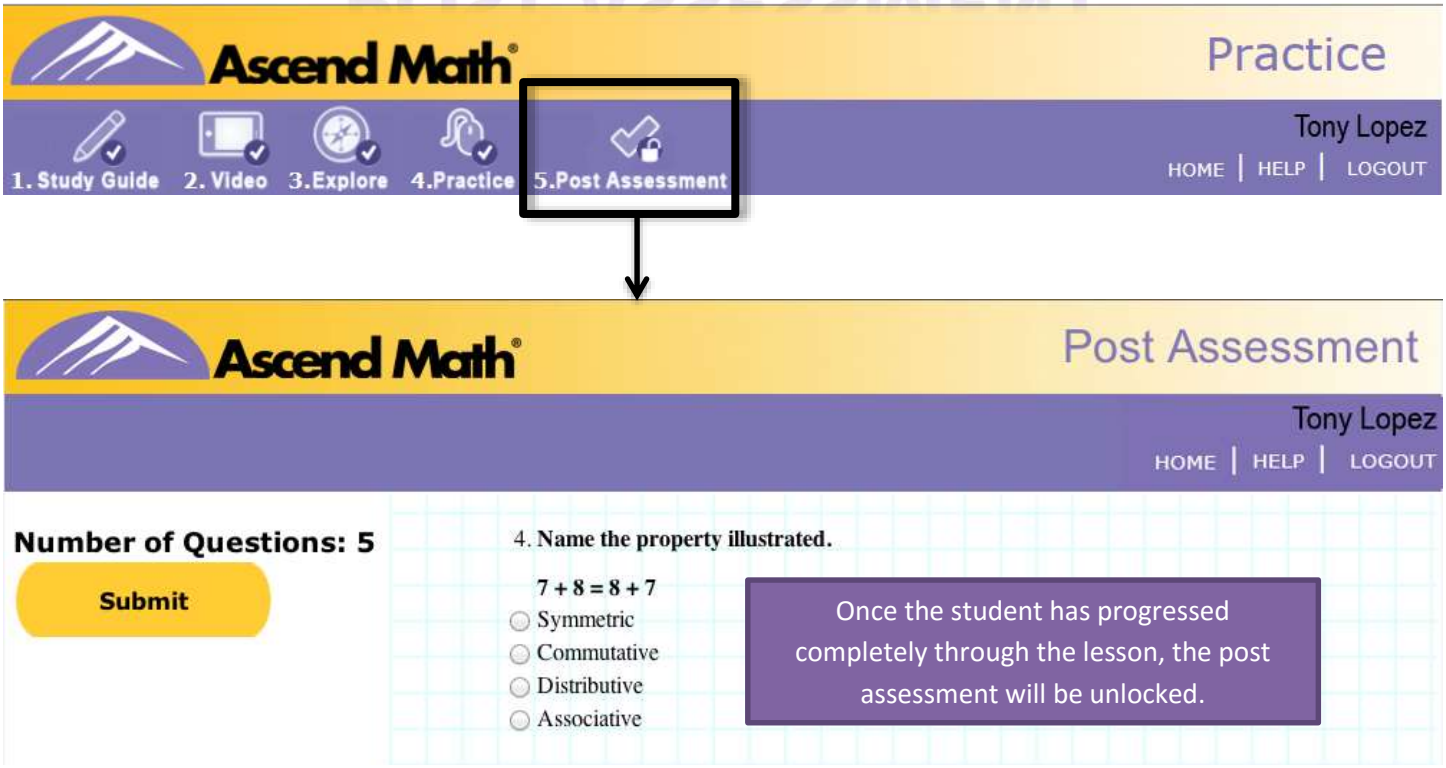
Student Lesson

# GUIDED INTERACTIVE PRACTICE



Student Lesson

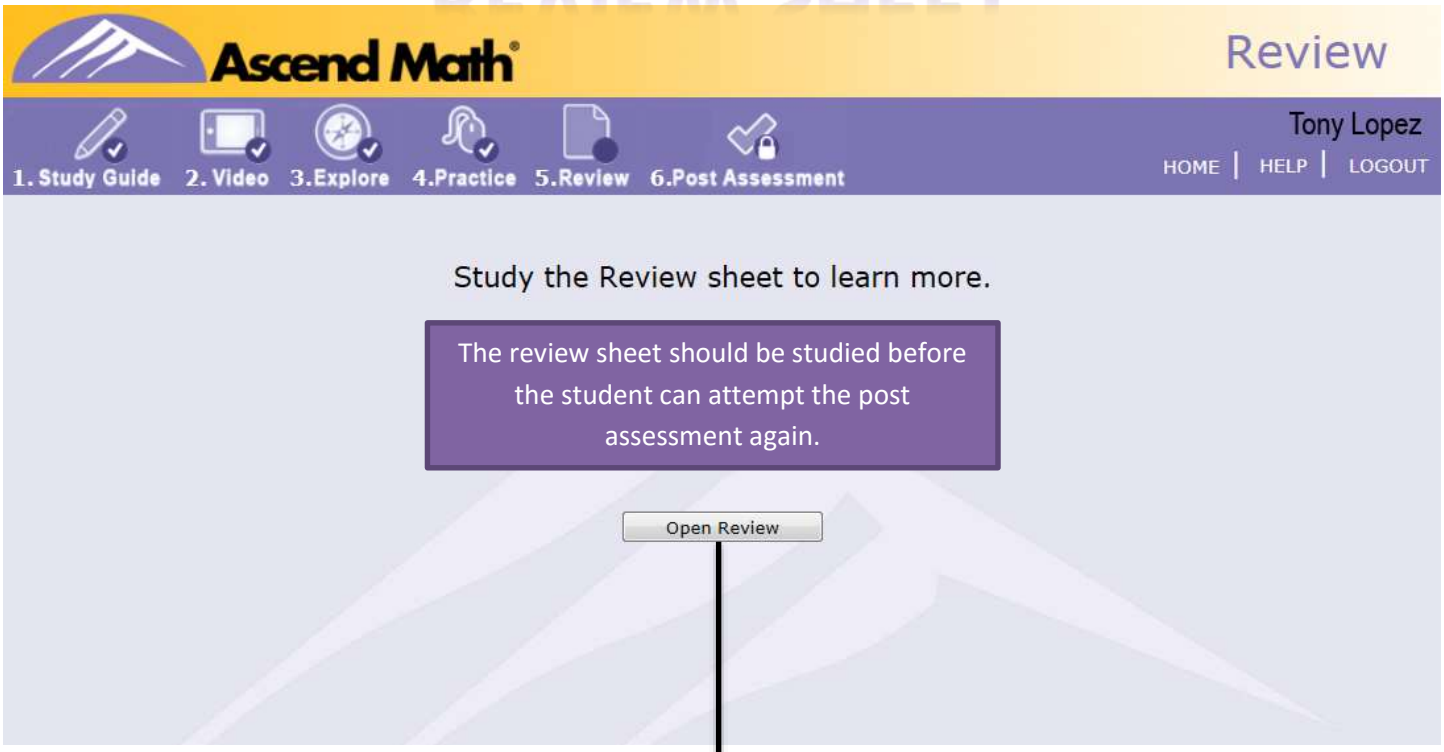
# POST ASSESSMENT

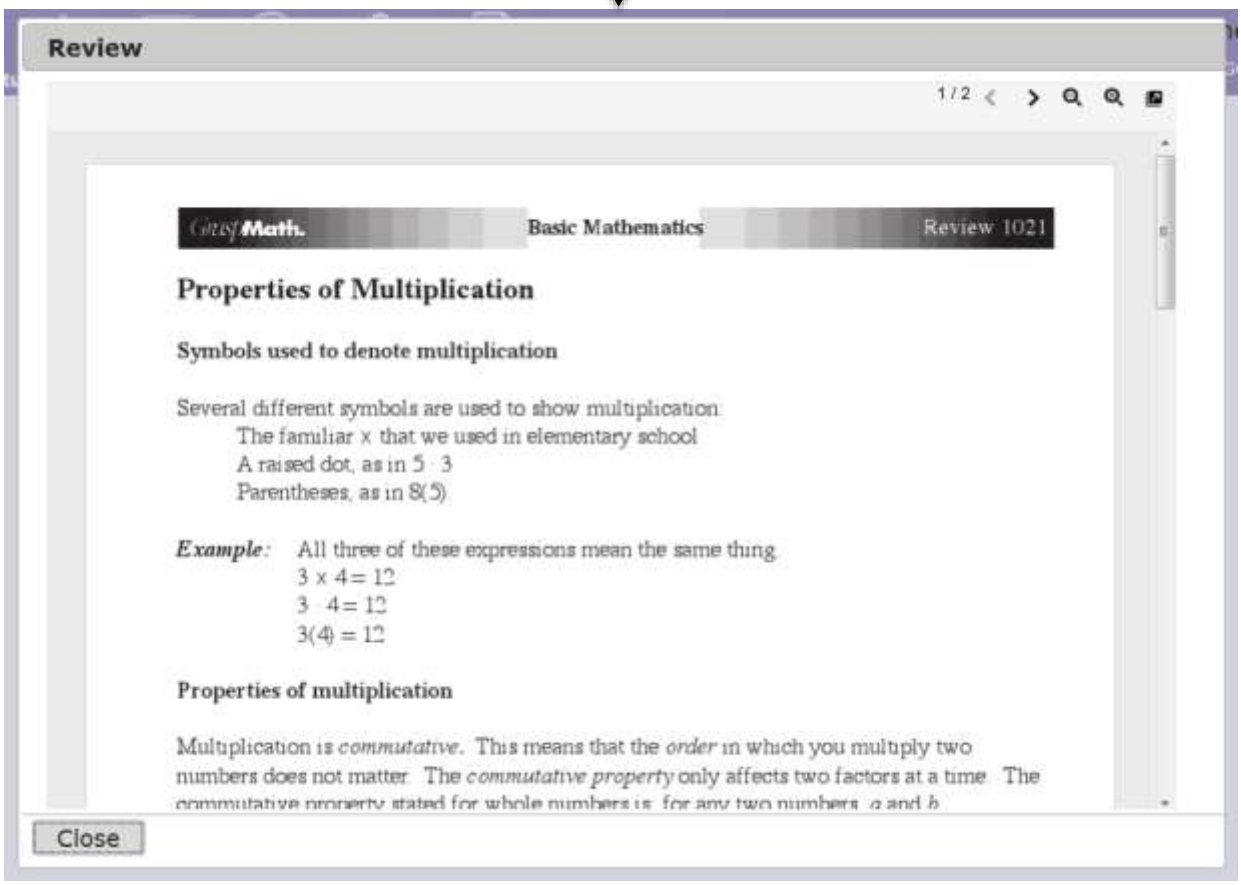



Upon successful completion of a learning objective, the student will advance to the next objective in sequence.

If a student does not pass the post assessment, (s)he will be directed back to the beginning of the lesson.

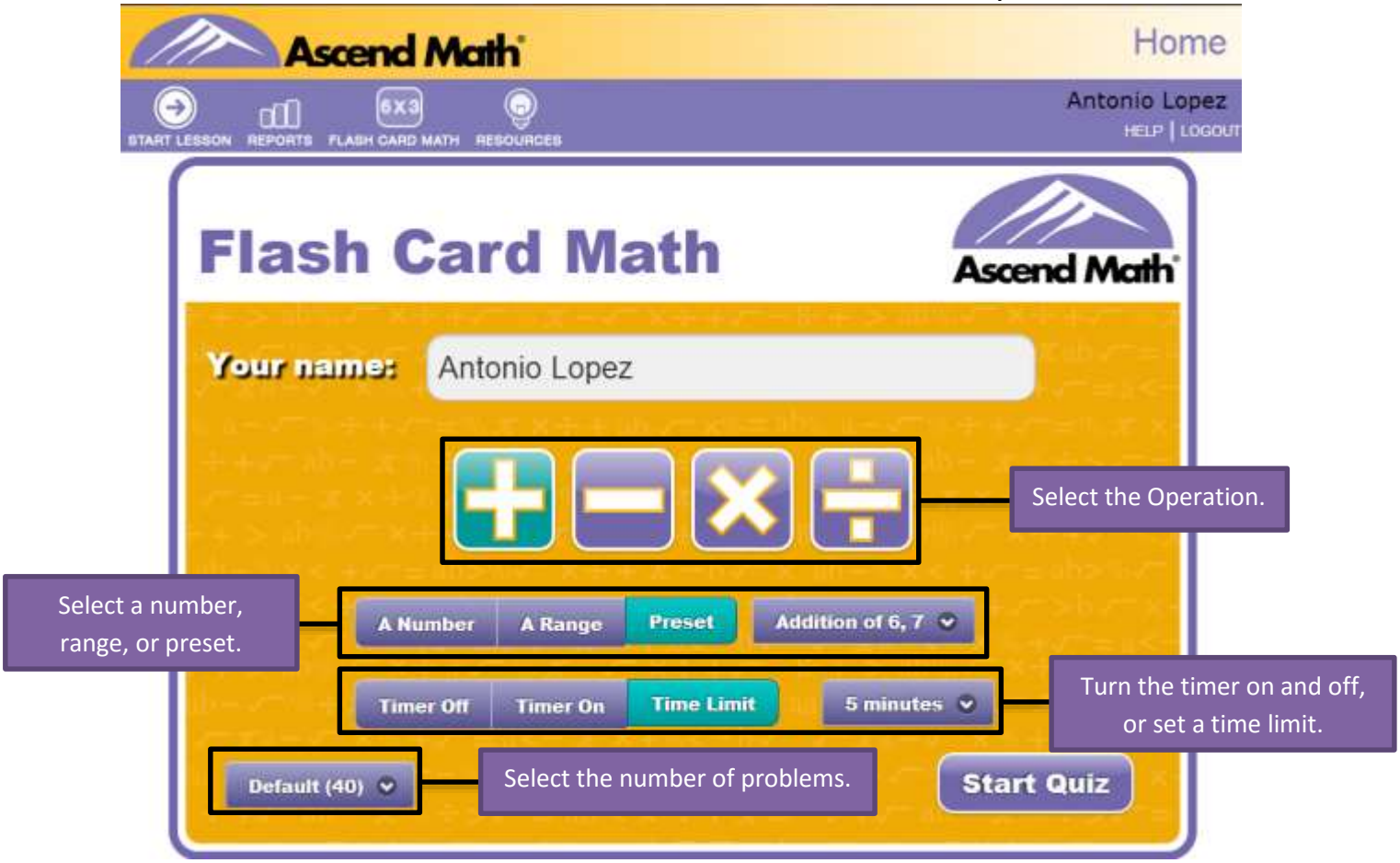
# Lesson Completion
# REVIEW SHEET

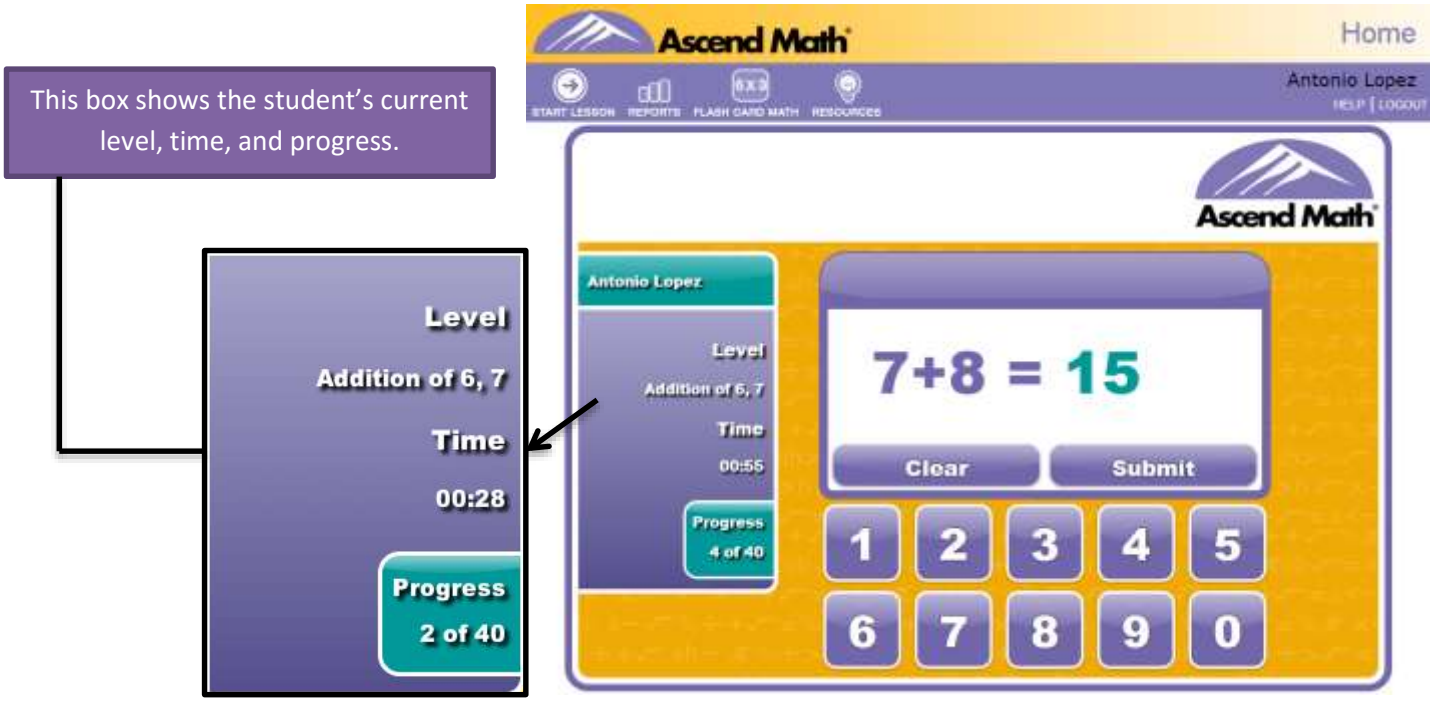


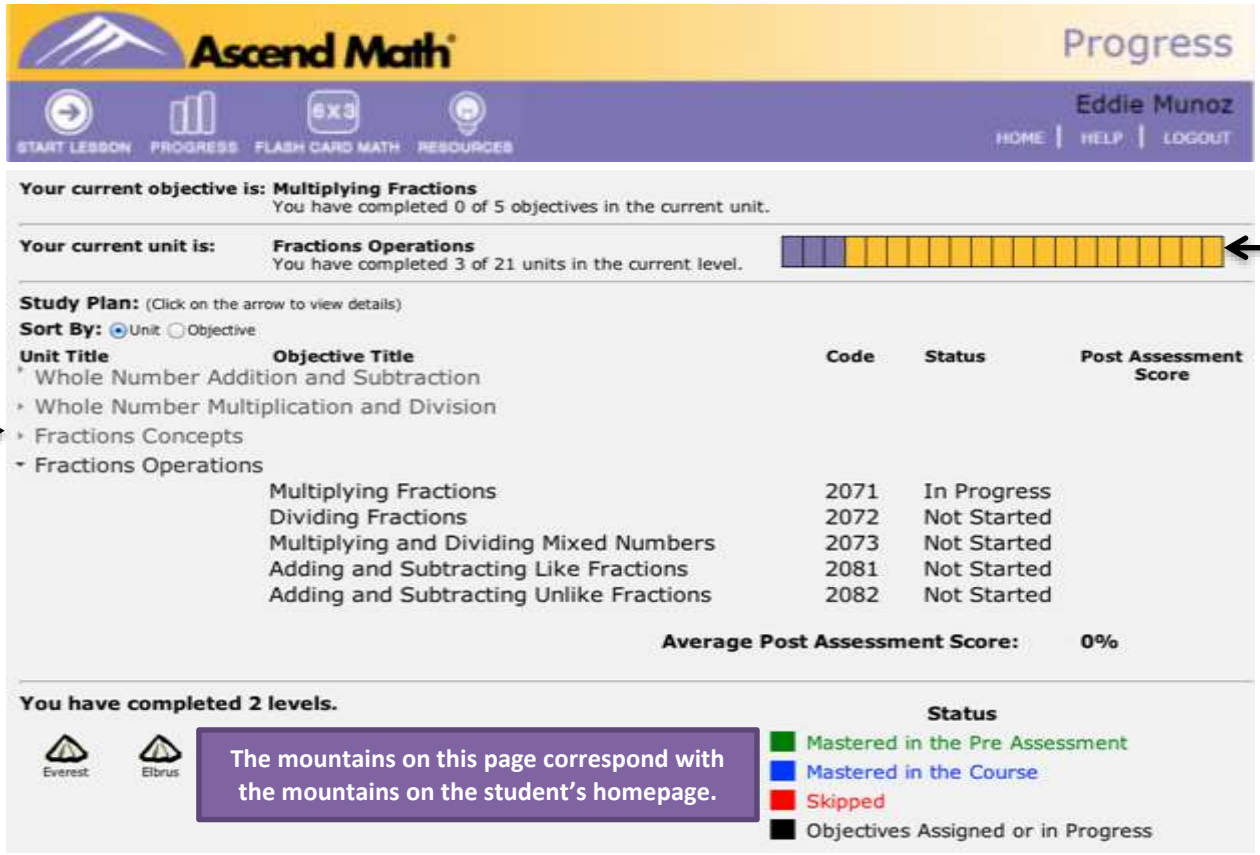
# FLASH CARD MATH

Flash Card Math is included with each subscription.



# STUDENT PROGRESS PAGE




The mountains on this page correspond with the mountains on the student's homepage.

Learning Objectives for each unit will display when students open the Unit.

Unit Progress Bar: Units completed within the level

El programa Ascend ofrece diferentes modalidades de enseñanza dirigidas a una variedad de estilos y preferencias de aprendizaje combinando:

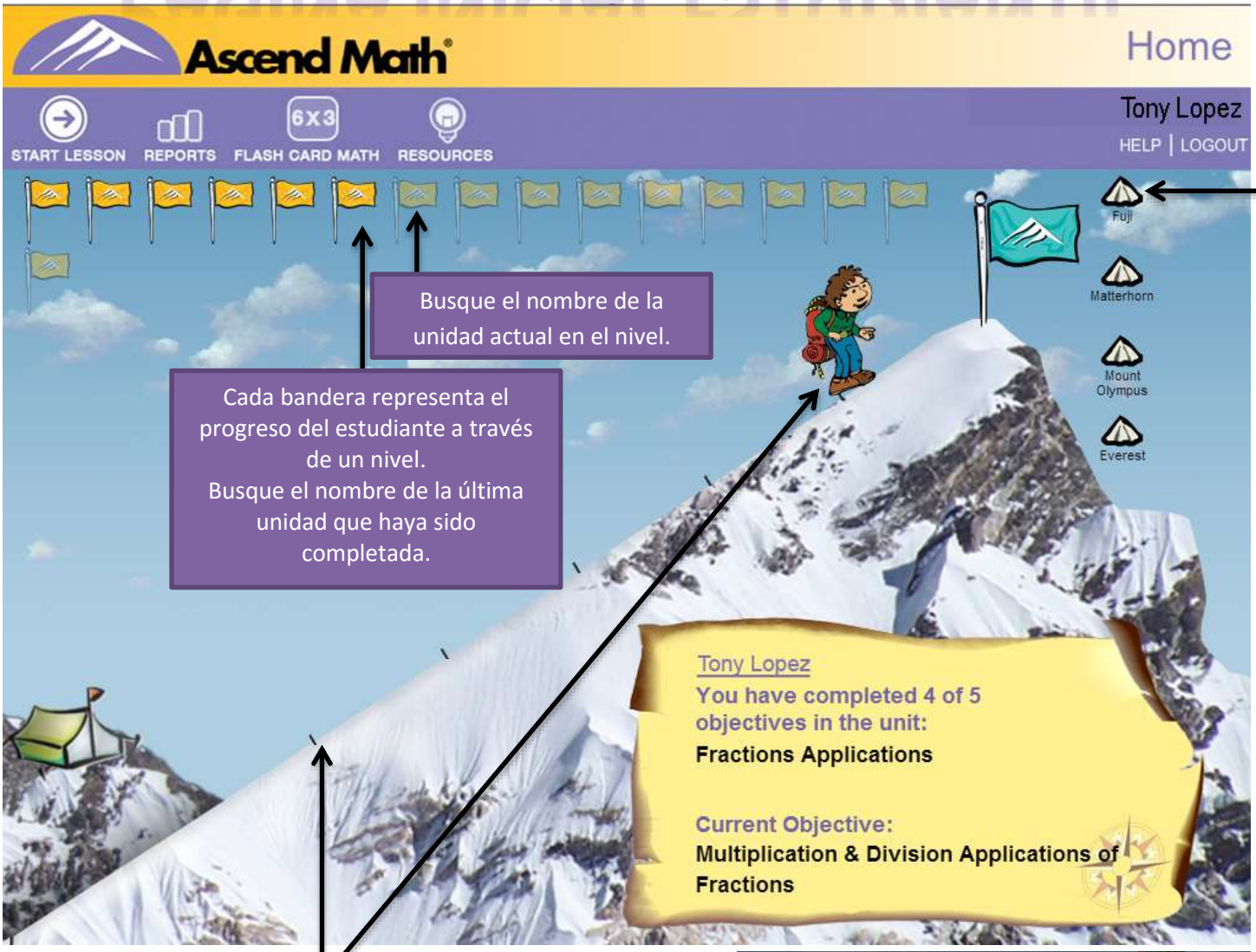
1. Videos de Instrucción
2. Exploraciones de Multimedia para reforzar la enseñanza
3. Manipulativos para apoyar la enseñanza de conceptos difíciles
4. Prácticas interactivas guiadas apoyadas por una retroalimentación inmediata para volver a enseñar conceptos y habilidades y reforzar nuevos conocimientos
5. Recursos imprimibles para expandir el aprendizaje y la práctica y para apoyar respuestas construidas
6. Flash Card Math (Tarjetas de Memoria Matemática) para mejorar la alfabetización matemática

# EJECUTE LA PRUEBA (“RUN TEST”) E INICIE LA SESIÓN COMO UN ESTUDIANTE

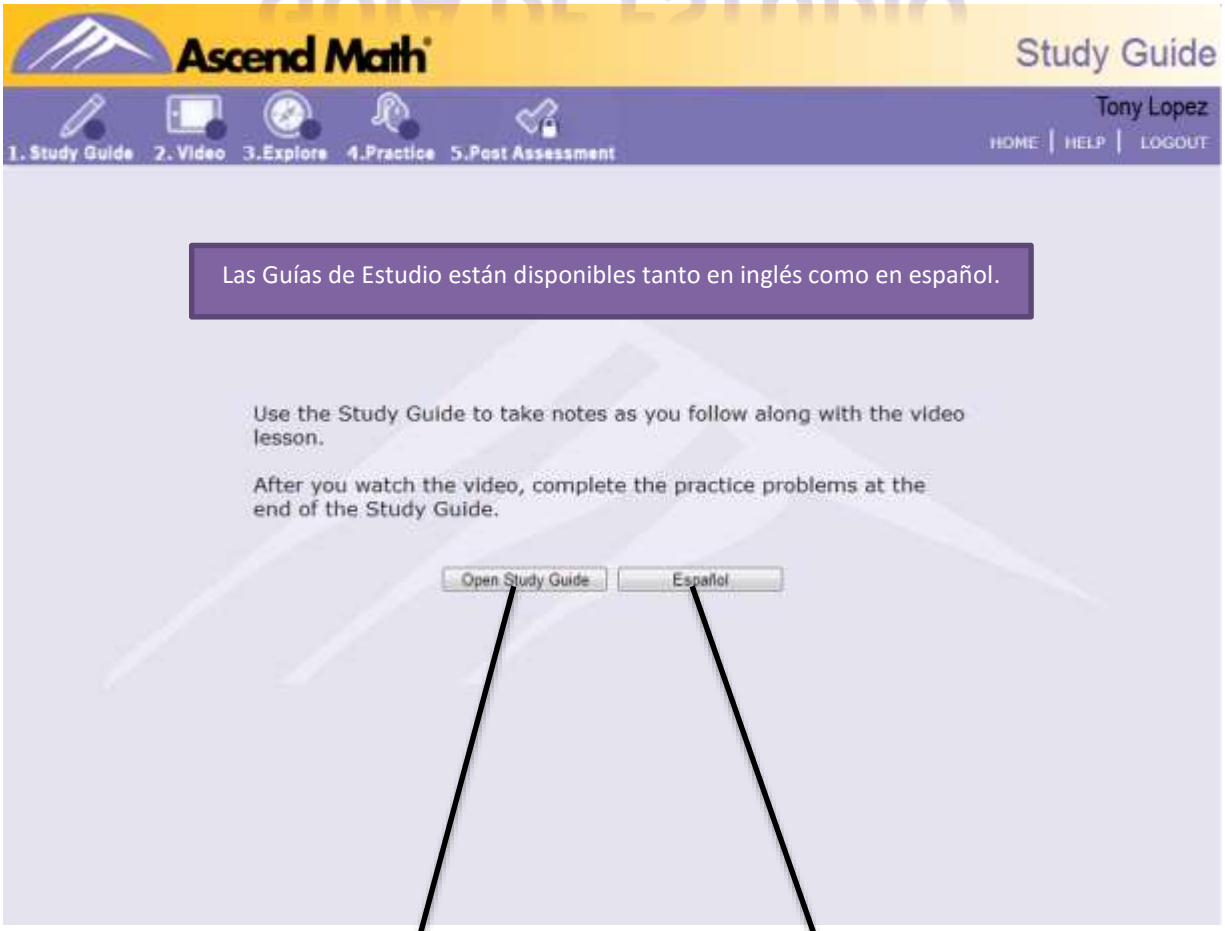

- Lance un navegador y váyase a:
  - myascendmath.com
- Haga clic en "Device Test”
- Después de completar la configuración técnica, inicie la sesión como un Estudiante.

¡Empecemos!

# PÁGINA INICIAL ESTUDIANTIL

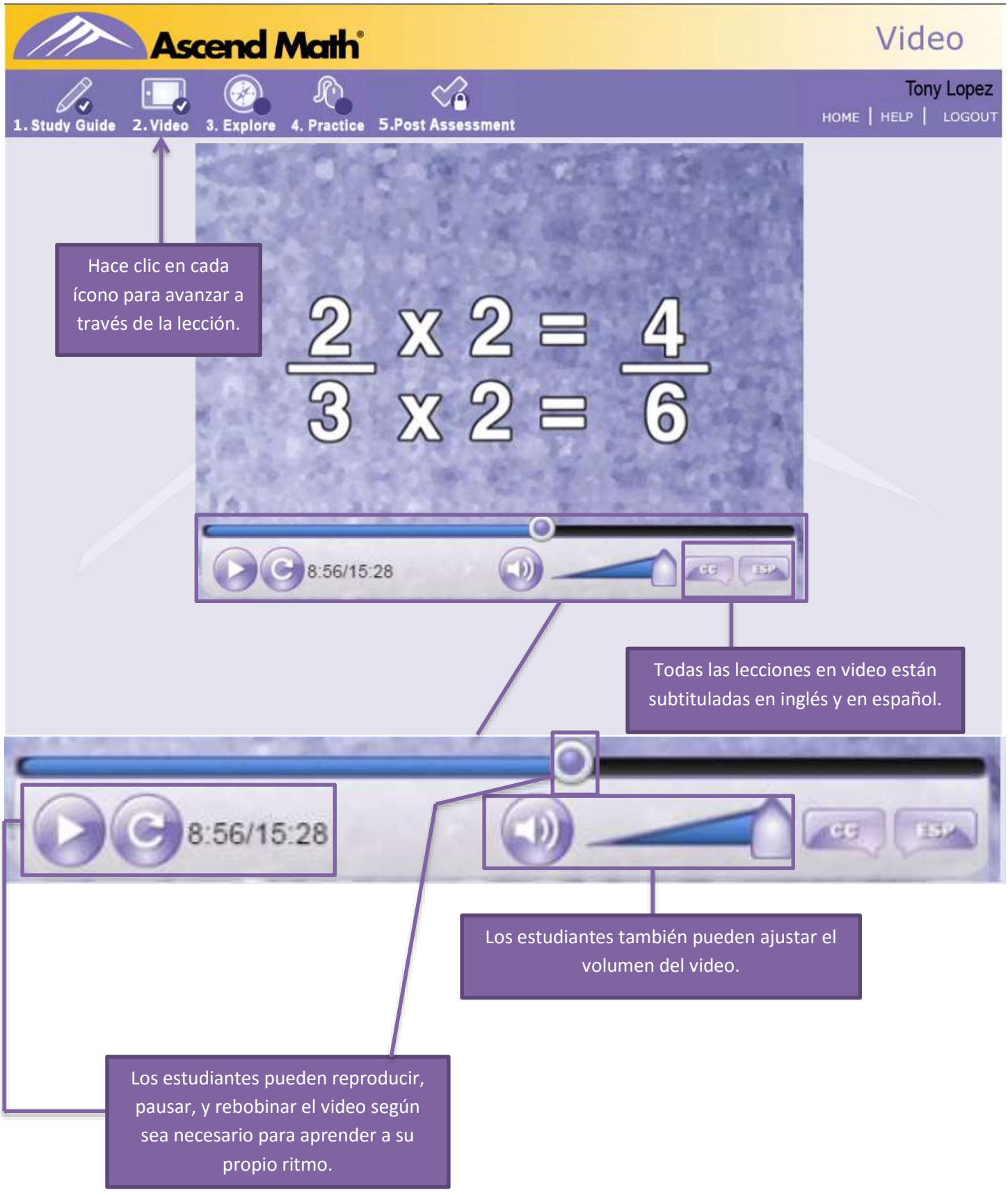



# Lecciones para Estudiantes
# GUÍA DE ESTUDIO



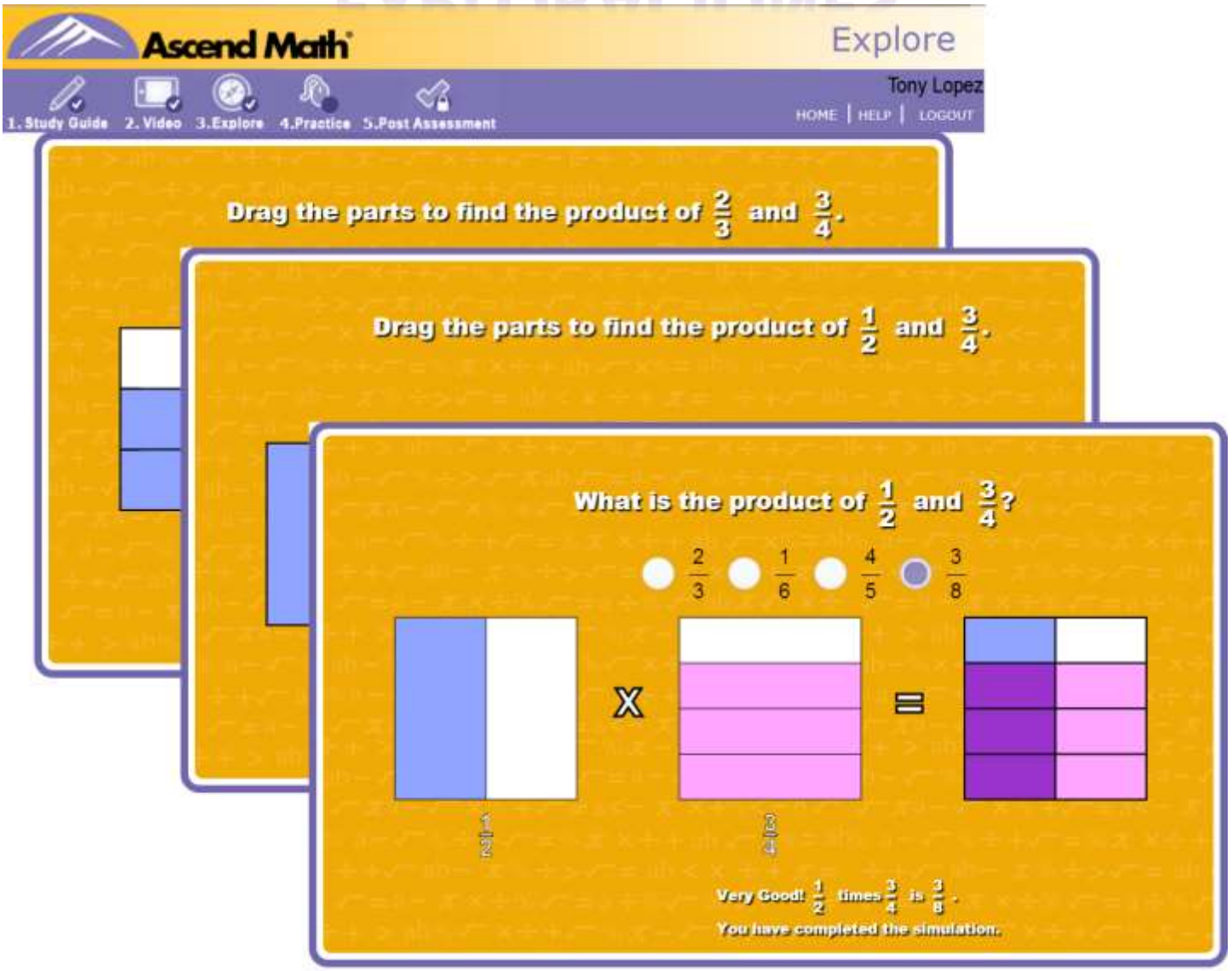

## Lecciones para Estudiantes

# VIDEOS DE INSTRUCCIÓN



Lecciones para Estudiantes

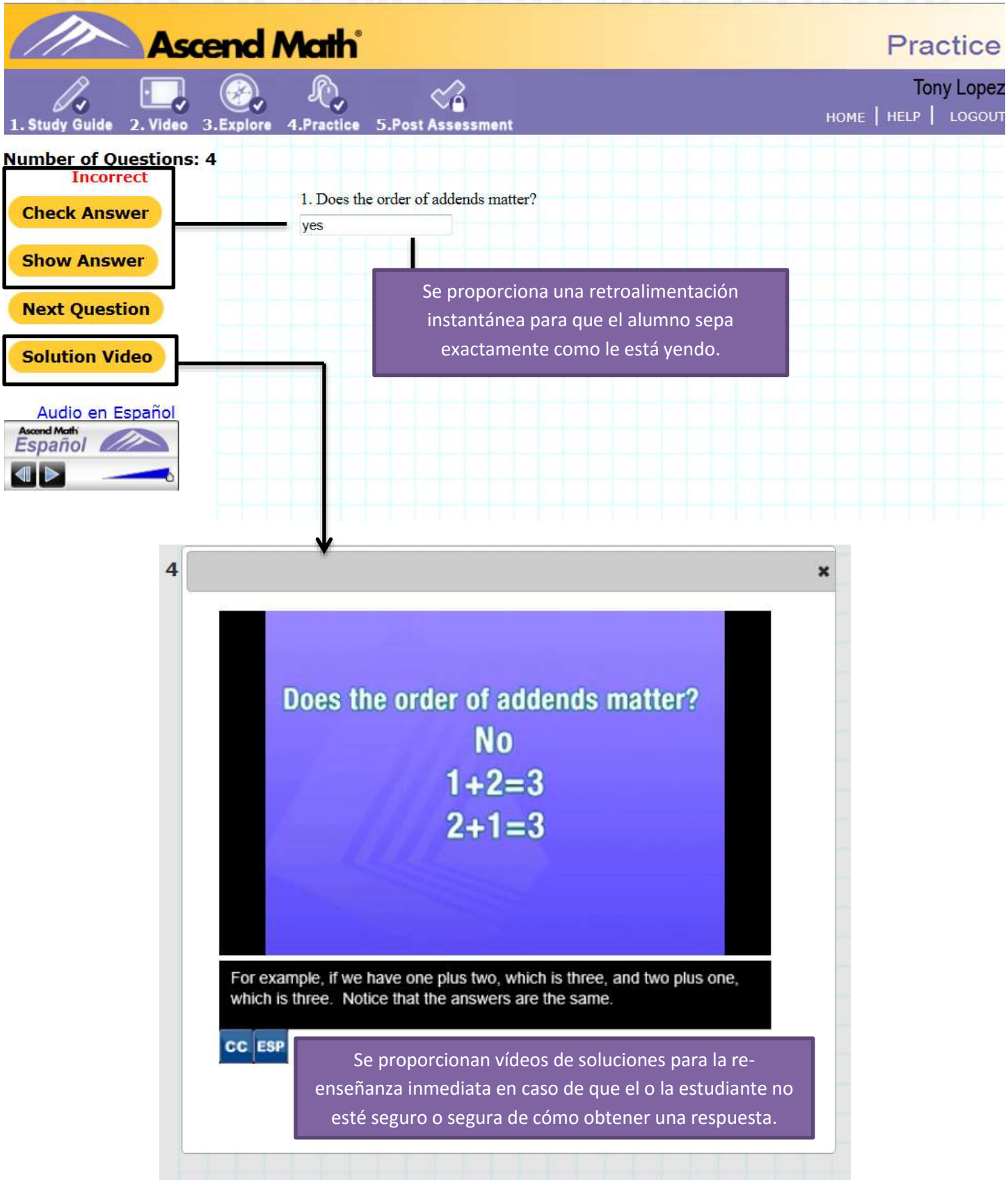
# EXPLORACIONES




Los manipulativos interactivos guían a los estudiantes a través de ejercicios de exploración, proporcionando información instantánea y refuerzo positivo.

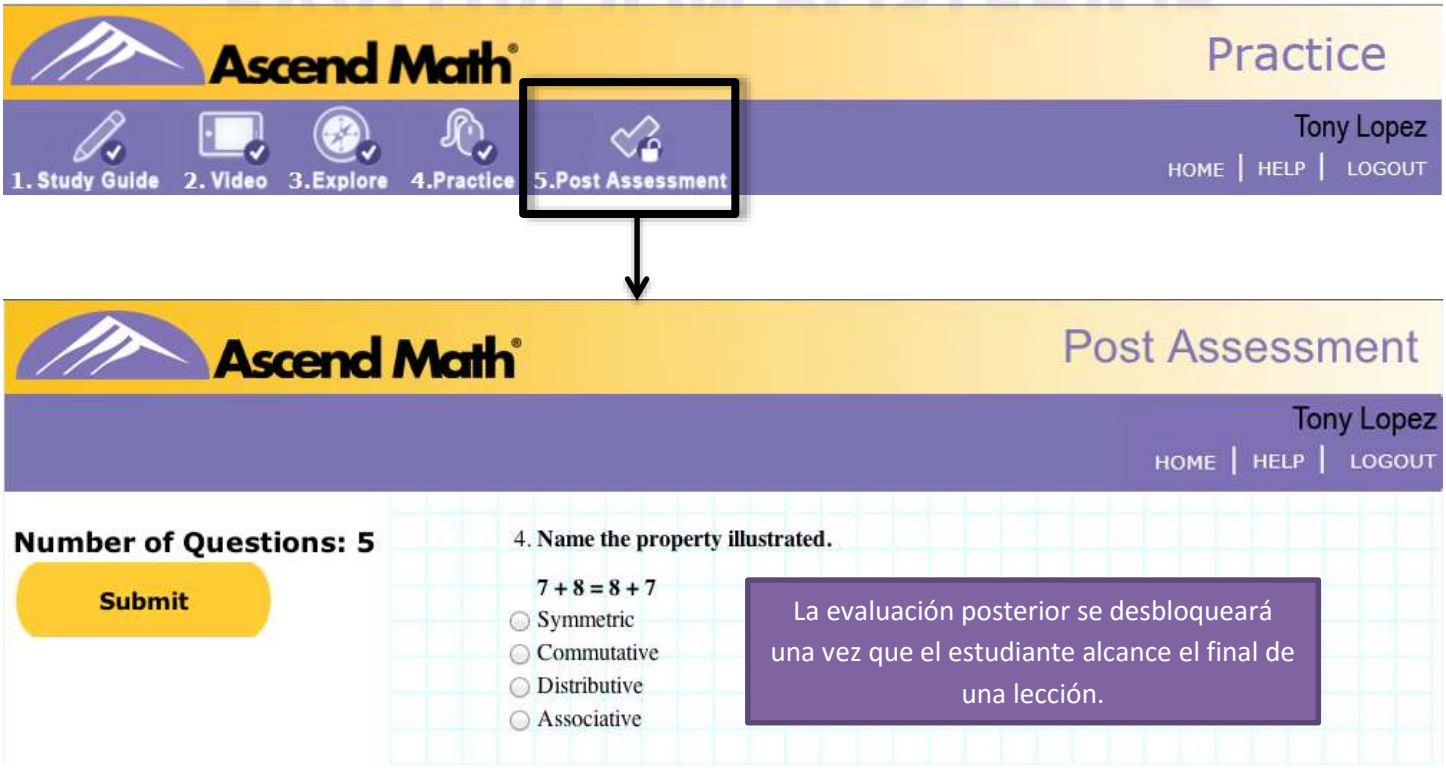
Lecciones para Estudiantes

# PRÁCTICA INTERACTIVA GUIADA



Lecciones para Estudiantes

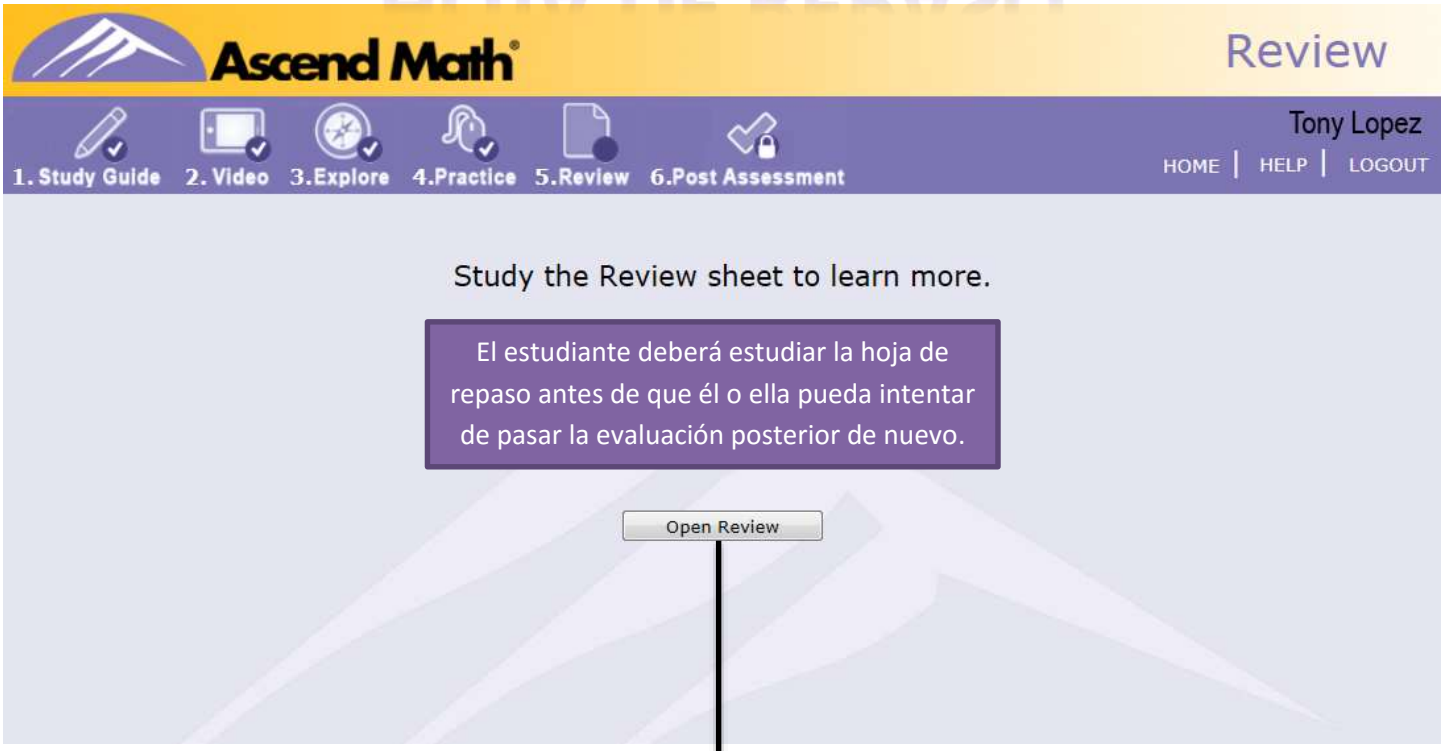
# EVALUACIÓN POSTERIOR

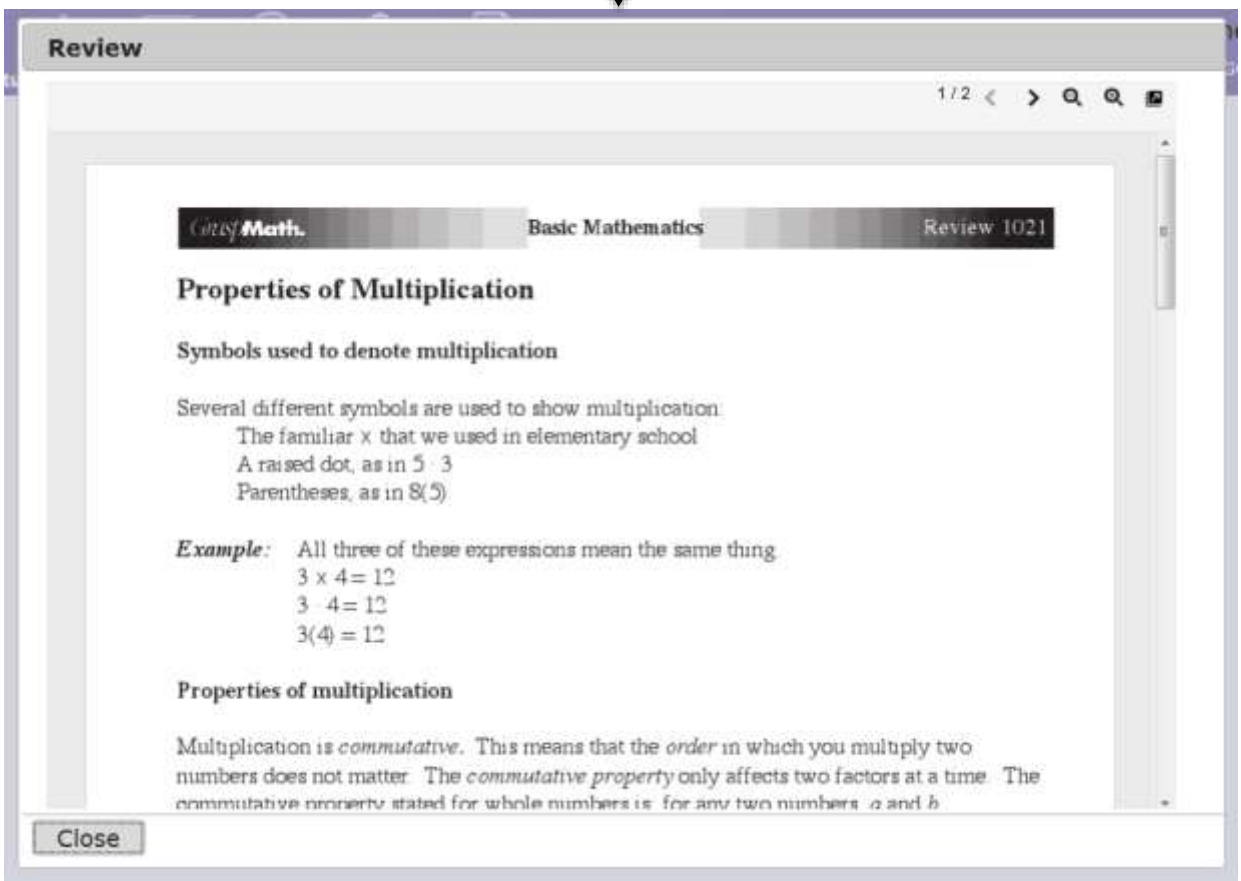



El estudiante deberá completar con éxito un objetivo de aprendizaje para poder avanzar al siguiente objetivo de la secuencia.

Si un estudiante no pasa la evaluación posterior, él o ella será dirigido de nuevo al principio de la lección.

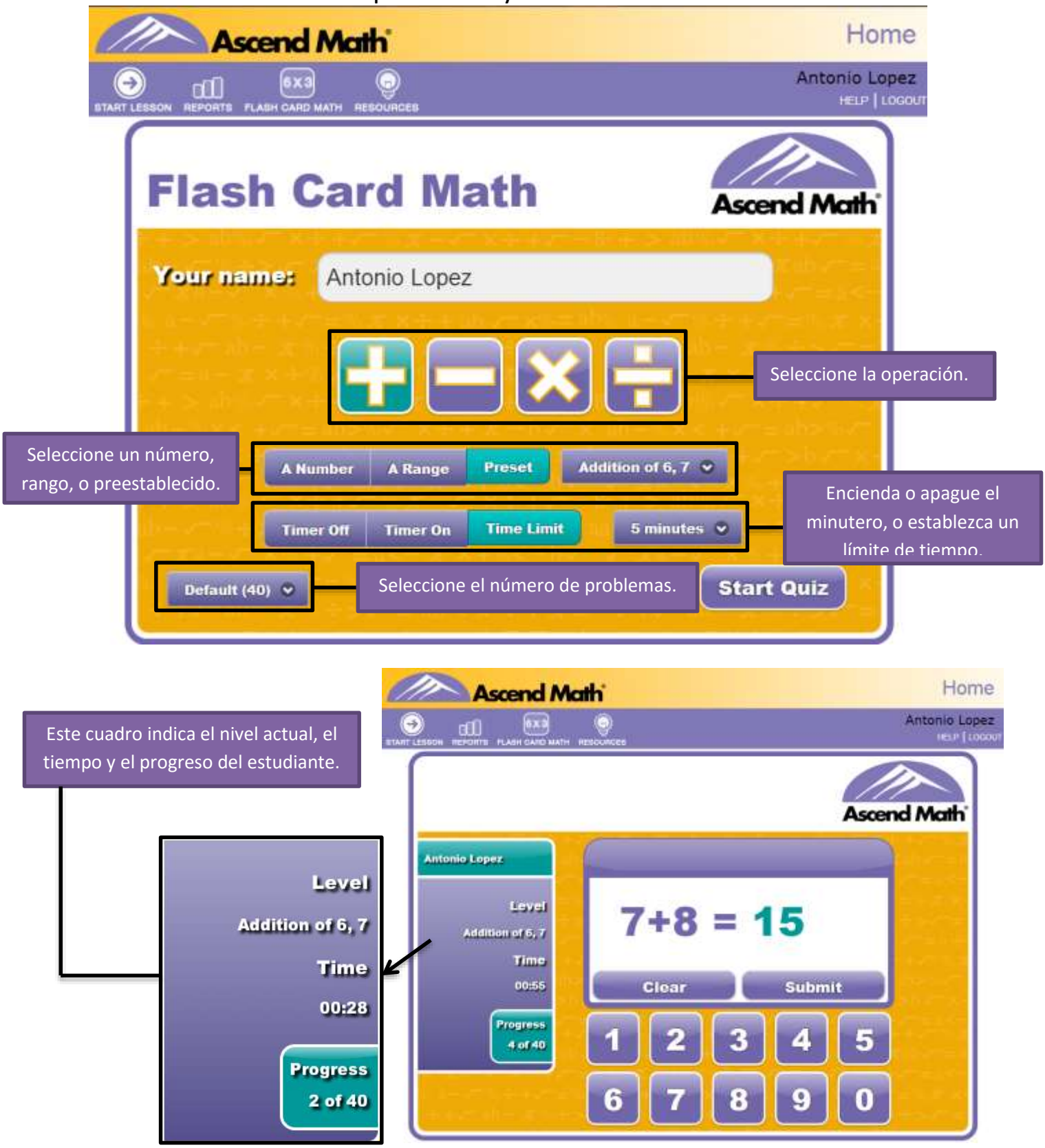
# Finalización de la Lección
# HOJA DE REPASO



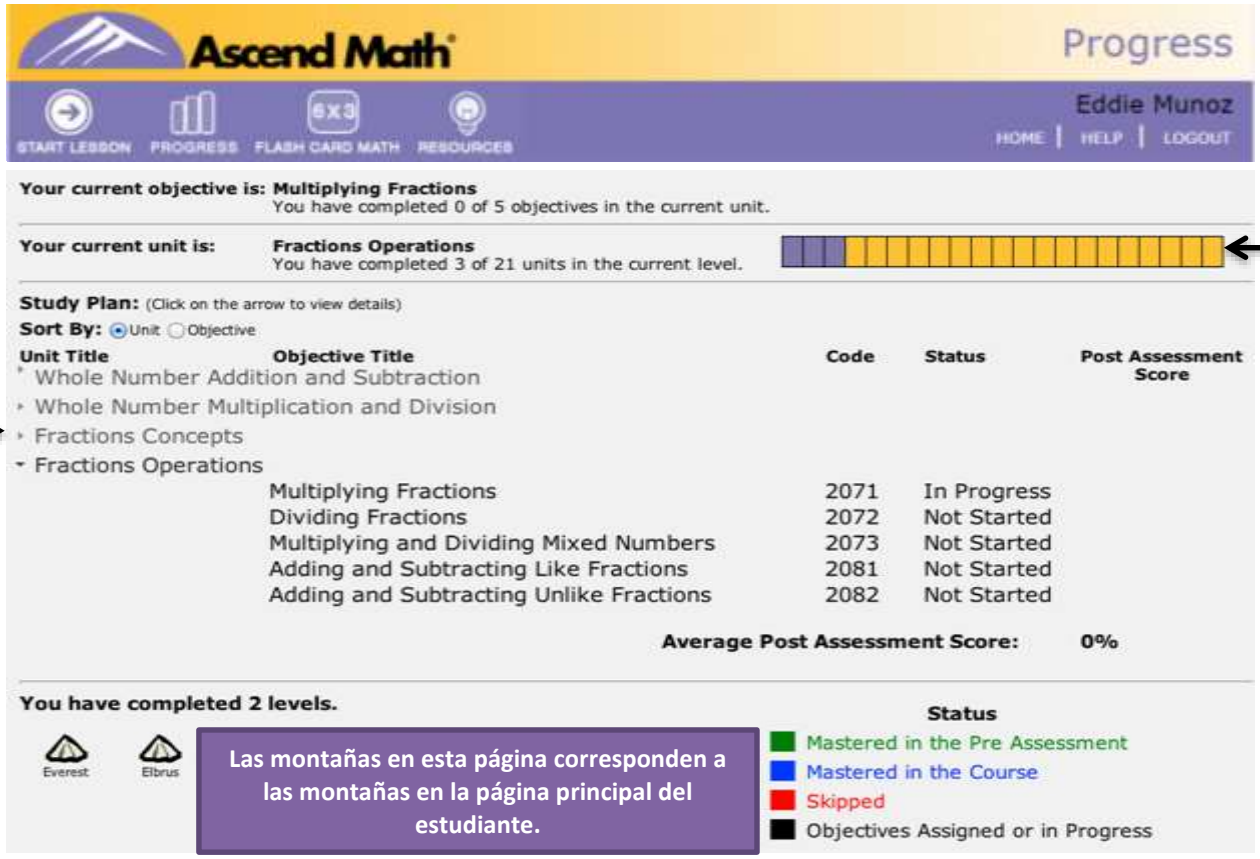



# FLASH CARD MATH (TARJETAS DE MEMORIA MATEMÁTICA)

Cada suscripción incluye las Flash Card Math.



# PÁGINA DE PROGRESO DEL ESTUDIANTE




Las montañas en esta página corresponden a las montañas en la página principal del estudiante.

Los Objetivos de Aprendizaje para cada unidad aparecen una vez que el estudiante abre la Unidad.

Barra de Progreso de Unidades: Indica las unidades dentro del nivel que han sido completadas.

Nombre del Colegio: _____

Dirección del Colegio: _____

_____

Fecha: _____

Estimados Padres de Familia,

Le estamos ofreciendo a su estudiante la oportunidad de participar en un programa innovador de intervención matemática que tenemos disponible recientemente en nuestro colegio. El programa Ascend Math utiliza evaluaciones en línea para comparar las fortalezas y debilidades de cada estudiante. Después, Ascend automáticamente desarrolla un plan de estudio individual para cada estudiante basado en los resultados de la evaluación. Las lecciones de Ascend contienen videos de instrucción, actividades de aprendizaje interactivas, y problemas de práctica.

Los estudiantes pueden acceder a las lecciones y evaluaciones de Ascend desde cualquier ordenador o dispositivo que esté conectado al internet – incluyendo una ordenador de casa. Como cada lección asignada a su estudiante fue específicamente escogida para él o ella en base a sus propias necesidades, es muy importante que en las evaluaciones las respuestas de su estudiante reflejen únicamente su propia comprensión de la materia.

Si su estudiante utiliza Ascend desde la casa, por favor asegúrese de que él o ella responda a las preguntas sin ayuda alguna durante la evaluación inicial o la evaluación posterior. Como con cualquier entorno de aprendizaje, las distracciones externas pueden impedir la realización del mayor potencial del estudiante. Les pedimos que controlen el entorno de su estudiante mientras que él o ella utilice el programa de Ascend en la casa.

Ustedes puede apoyar el crecimiento de su estudiante en las matemáticas haciendo que él o ella pueda acceder el programa de Ascend desde la casa.
1. Inicie la sesión en Ascend desde myascendmath.com, haga clic en "Device Test” (Dispositivo de prueba) en el cuadro amarillo.
2. Si su hijo o hija está atascado o atascada en una unidad, puede tratar de ayudarle mirando el video y brindándole asistencia o enviándole un correo electrónico a su profesor.

Su estudiante puede acceder a su cuenta de Ascend utilizando los siguientes datos de acceso:

Nombre del Colegio: _____

Nombre del Usuario: _____

Contraseña: _____

Gracias por permitir que su hijo o hija sea parte de esta gran oportunidad, si quisiera estar al tanto del progreso de su estudiante mientras que él o ella utiliza el programa Ascend, por favor comunicarse con _____ para información de cómo acceder los reportes de progreso.

Si quisiera más información acerca del programa de Matemáticas Ascend, por favor visite www.ascendmath.com/demo.

Sírvase contactar a _____ para cualquier información adicional.

(Nombre del Profesor o Profesora)

(Contacto en el colegio)

Atentamente,

_____

(Nombre del Profesor o Profesora o Nombre del Director o Directora)

---

AL DEVOLVER ESTA PARTE DEL FORMULARIO ESTARÍA ACEPTANDO QUE LEYÓ Y COMPRENDIÓ EL CONTENIDO DE ESTA CARTA.

Entiendo que mi estudiante, _____ será inscrito en el curso de Matemáticas Ascend y que las evaluaciones del curso Ascend deberán ser completadas únicamente por mi estudiante.

_____ _____

(Padre o Tutor Legal) (Fecha)

Por favor devolverle esta porción a la profesora de matemáticas de su hijo o hija antes del, _____/_____/_____.

(Nombre del Estudiante)

(Mes) (Día) (Año)

School Name: _____

School Address: _____

_____

Date: _____

Dear Parent,

Your student has been given the opportunity to participate in an exciting math intervention program that is now available at our school. Ascend Math uses online assessments to benchmark each student's strengths and weaknesses. Then Ascend automatically delivers an individual study plan for each student based on the assessment results. Ascend's lessons contain video instruction, interactive learning activities, and practice problems.

Students can access Ascend's lessons and assessments from any computer or device that is connected to the internet –including a home computer. Since each lesson your student is assigned was chosen specifically for your student based on his or her own weaknesses, it is very important that your student's responses to the assessments reflect only their understanding of the subject matter.

If your student uses Ascend from home, please ensure that he or she answers questions without any assistance during the pre-assessment or post assessment. As with any learning environment, outside distractions can prevent students from performing to their highest potential. We encourage you to monitor your students' environment while using Ascend from home.

You can support your student's growth in Mathematics by making Ascend accessible to them at home.
1. Log onto Ascend by going to myascendmath.com and clicking on "Device Test" in the yellow box.
2. If your student gets stuck on a unit, you can try to assist them by watching the video and assisting them or e-mailing their teacher.

Your student can access their Ascend account using the below login details:

School Name: _____

User Name: _____

Password: _____

Thank you for allowing your student to be a part of this exciting opportunity. If you would like to monitor your student's progression through Ascend, please contact _____ for information on viewing detailed reports.

If you would like more information on Ascend Math, please visit www.ascendmath.com/demo.

Please contact _____ for additional information.

(Teacher Name)

(School Contact)

Sincerely,

_____

(Teacher Name or Principal Name)

---

RETURN THIS PORTION SIGNIFYING THAT YOU HAVE READ AND UNDERSTAND THE CONTENTS OF THIS LETTER.

I understand that my student, _____ will be enrolled in Ascend Math and that

the assessments within Ascend are to be completed by my student only.

_____ _____

(Parent or Guardian) (Date)

Please return this portion to your child's math teacher by, _____/_____/_____.

(Student Name)

(Month) (Day) (Year)

# Tab 1 Program Capabilities and Requirements

## Contents

Ascend Math® is a research based on-line individualized intervention resource which identifies skill gaps, prescribes targeted instruction and motivates students to succeed. Ascend Math's adaptive Grade Level Recommendation Test or Screener identifies skill gaps according to CCSS. Using the identified standards, Ascend Math automatically differentiates instruction and assigns each student an individual education plan (IEP) based on individual needs. By identifying the starting level of each student, students working on Ascend Math begin to see success immediately and are highly motivated to succeed.

Once placed at a recommended functional level, Ascend differentiates instruction for each student by administering pre-assessments and then building learning paths based on students' strengths and weaknesses. Areas in which students successfully complete the pre assessment are automatically removed from their study plan. Upon completion of learning resources in the student learning center, students must successfully complete a post assessment in order to move on to the next lesson in sequence. Each subsequent lesson increases in difficulty as students move through the course plan. If students are unsuccessful in the completion of a post assessment, they are directed back to learning activities.

## 1. Pre and Post Testing

Ascend offers prescriptive, formative and summative assessments. Pre assessments diagnose and prescribe differentiated learning paths. Post assessments are formative assessments that ensure students achieve mastery in one learning objective prior to moving to the next learning objective in sequence. Ascend Math's reports allow teachers and administrators to easily compare pre and post assessment scores and related gains.

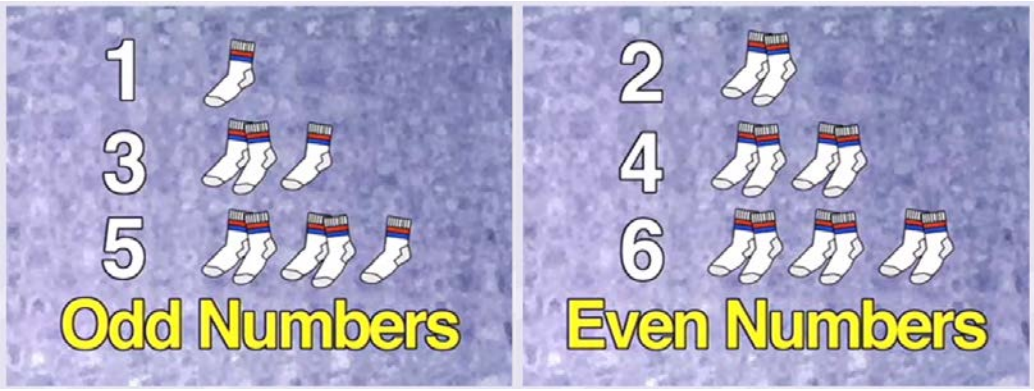
Ascend Math also offers summative assessments. Summative assessents may be offered multiple times in a school year. Ascend Math's Growth Report allows teachers and administrators to easily compare results between summative assessments.

Assessments are delivered online and questions take the form of multiple choice, open answer, and True/False. All questions are randomly pulled from a vast test bank. Answers for each particular question are randomly ordered.

In addition to online assessments, Ascend Math's Explore feature provides opportunity for oral assessment and Ascend Math Study guides allow for constructed response.

## 2. Number Sense

Ascend offers lots of opportunities to develop an intuitive feel for numbers and their relationships. Students are offered preparation for making mathematical decisions in the form of manipulatives, videos, practice problems, and explorations.

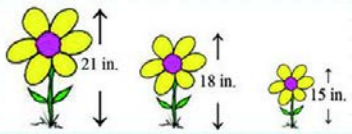


Check Answer

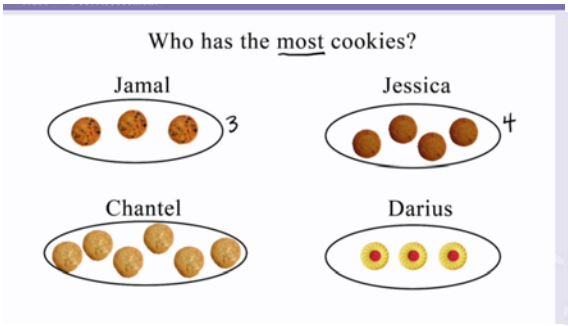
Show Answer

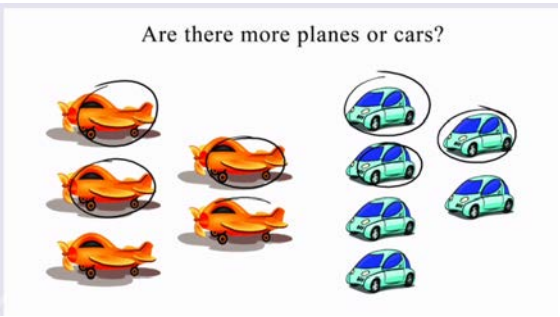
Next Question

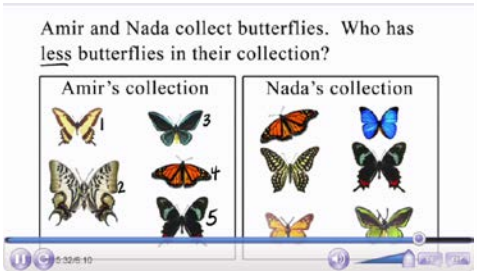
8. **The flowers below decrease in size from left to right. If the pattern continues, what will be the height of the next flower?**

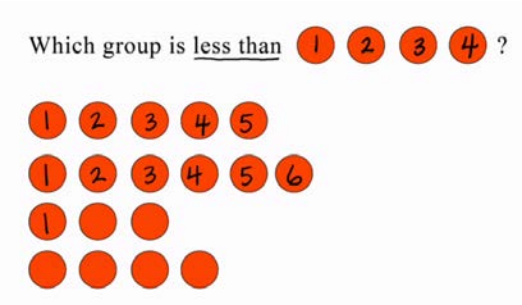


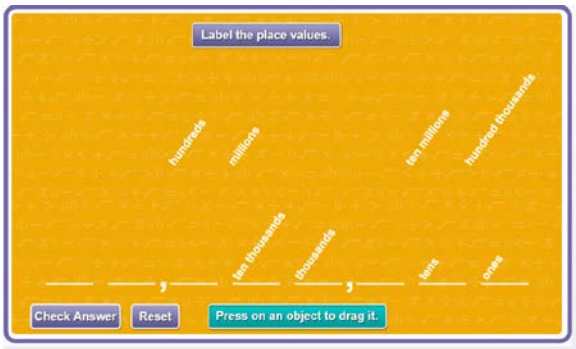

- 6
- 13
- 10
- 12







Ascend Math

Name: _____

**Whole Numbers and Place Value**

Follow along with the video and take notes.

The first of the **whole numbers** are: ____, ____, ____, ____, ____, ____, ____...
Construct a place value chart.

Label the periods (a **period** is a group of three digits)

8,736,429

We read a place value chart as sets of whole numbers followed by the name of each _____.

**Términos De Números Enteros**

El primero de los **números enteros** es: ____, ____, ____, ____, ____, ____, ____...
Construir un valor de lugar gráfico.

Identifique los períodos ( un **período** es un grupo de tres dígitos).

8,736,429

Leemos un valor gráfico como el conjunto de los números enteros seguido por el nombre de cada _____.

**Practice**

Now you try it!
**Label the periods of the following numbers. Explain the reasoning for your answers.**

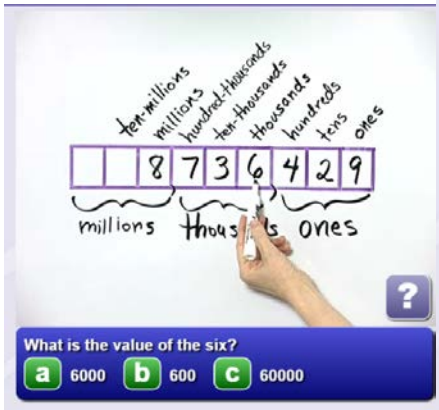
**1.** 3,149 **2.** 89,765 **3.** 39,996,752

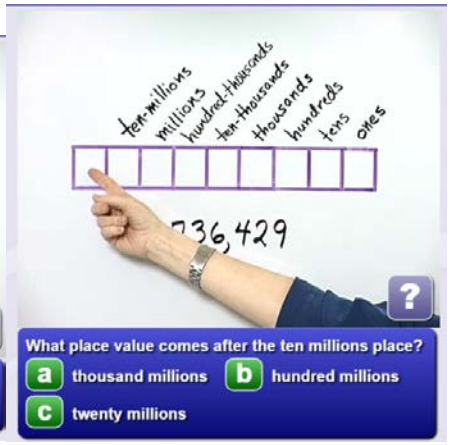
**4.** 22,116 **5.** 39,996,752 **6.** 2,320,278

**Práctica**

¡Ahora inténtalo!

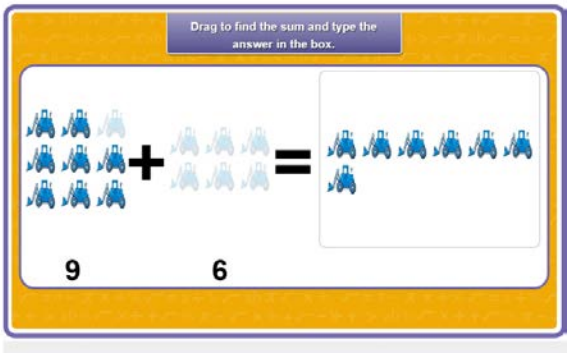
**Nombre los períodos de los siguientes números.**



## 3. Number & Operations

Ascend offers different modalities to cover operations at all different grade levels. Please attachment 4 for examples.




## 4. Math Facts-Timed and Untimed

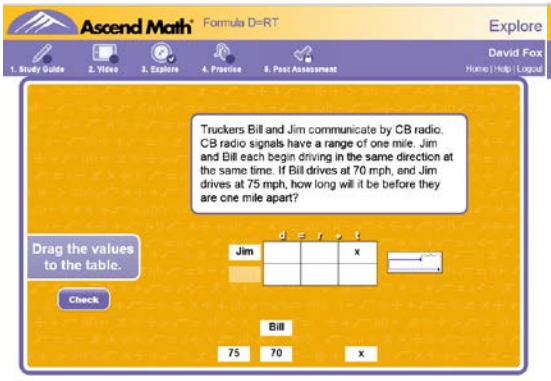
Ascend Math® resources include FlashCard Math which reinforces students' ability to build automaticity in recalling basic math facts.

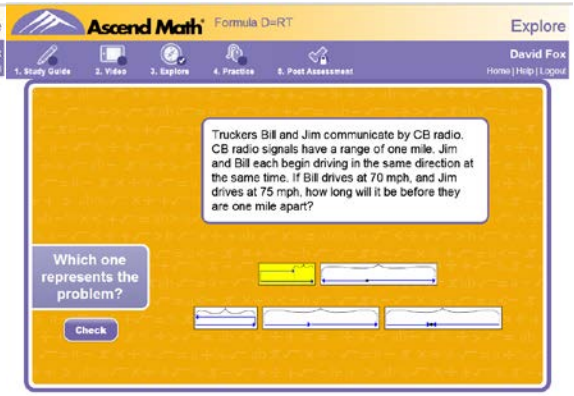
Please see details below.

# 5. Algebra

Ascend teaches steps and lays out tools that aid in solving similar problem solving situations, such as tables, steps, and models. See below for a few examples.

Tables and steps:




**Objective:**
Use the formula $d = r \cdot t$ to solve problems.

**Distance = Rate x Time**
**Substitute**

$d = r \cdot t \longrightarrow d =$ _____
$r =$ _____
$t =$ _____

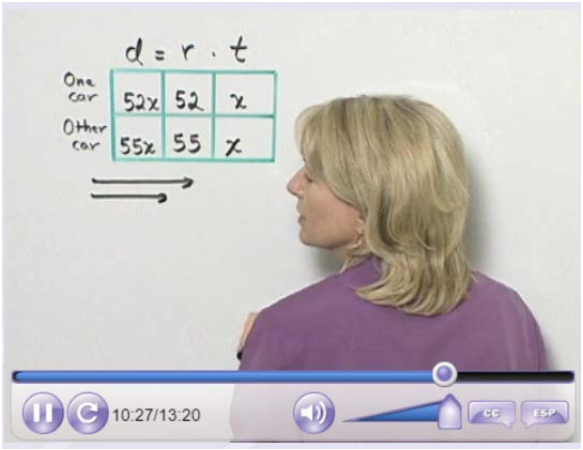
**Substitute into $d = r \cdot t$:**
We know 55 miles per hour is a _____, so if we drive at 55 m.p.h. for two hours we find:

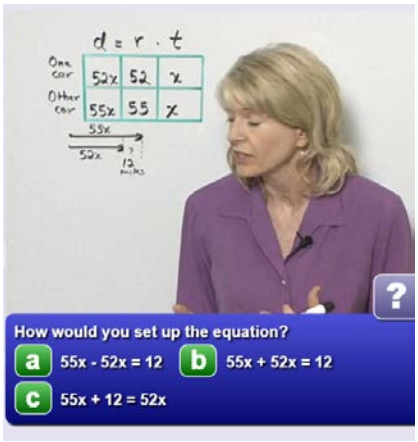
$d = r \cdot t$
=
=

**Distance = Rate x Time**

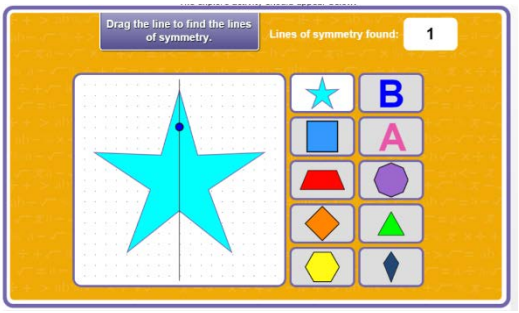
**Copy solution steps:**
From a point on a straight bicycle trail, Andrew and Stewart ride bicycles in opposite directions. Stewart's speed is 2 miles per hour slower than Andrew's. If they are 50 miles apart in 2.5 hours, what is the speed of each bicyclist?
*set up 2 x 3 grid here* *complete calculations here*

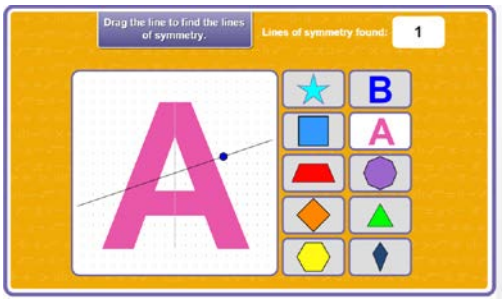
Ascend integrates video, study guide and exploration to allow students to grasp each task.



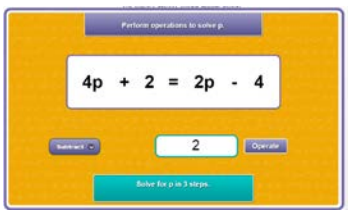



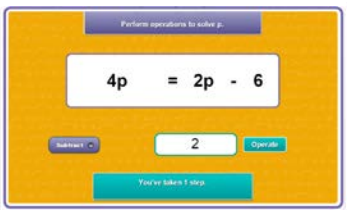

Models:

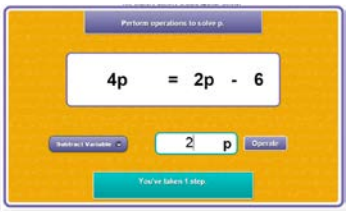


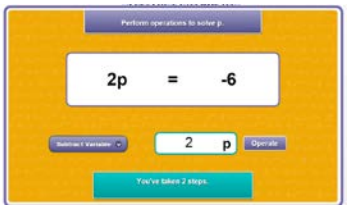




Steps:

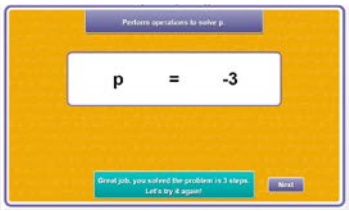


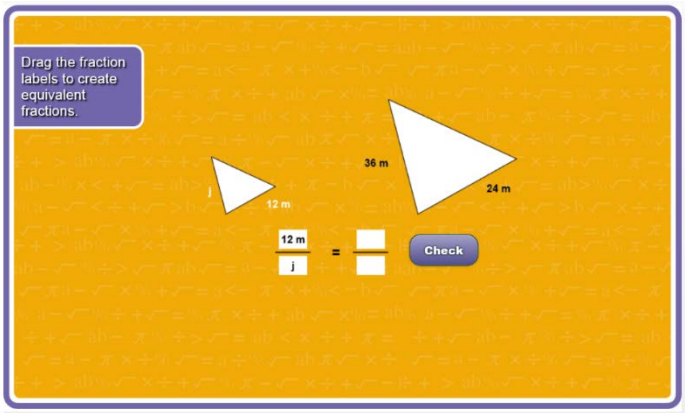



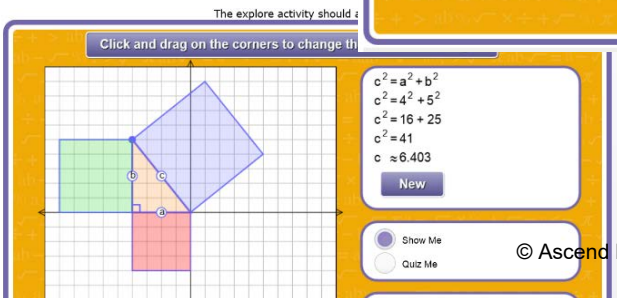


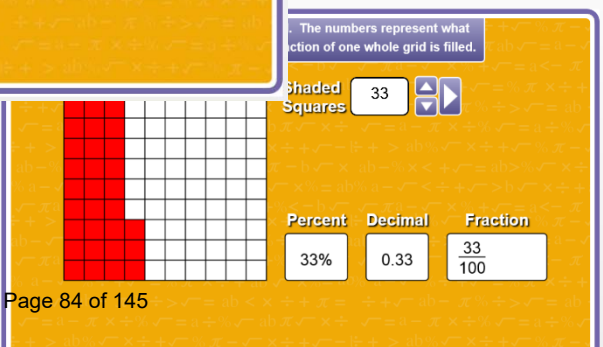


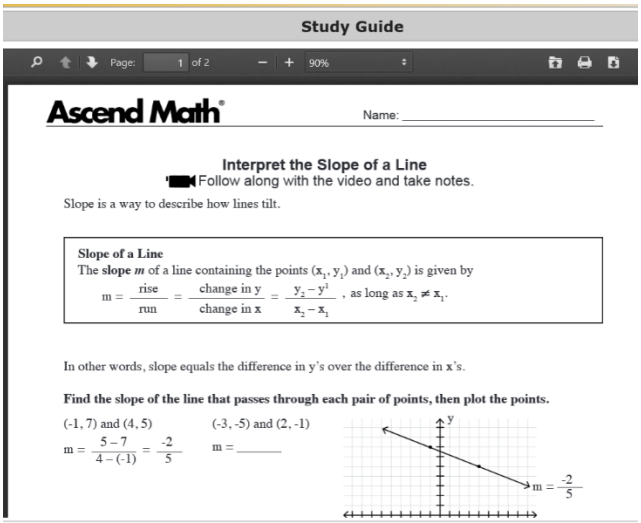

## 6. Geometry

Please see screenshots on the following page for a small sample of applicable content.





Study Guide

Page: 1 of 2 90%

Ascend Math®

Name: _____

**Interpret the Slope of a Line**

Follow along with the video and take notes.

Slope is a way to describe how lines tilt.

**Slope of a Line**

The **slope** ***m*** of a line containing the points $(x_1, y_1)$ and $(x_2, y_2)$ is given by

$$m = \frac{\text{rise}}{\text{run}} = \frac{\text{change in } y}{\text{change in } x} = \frac{y_2 - y^1}{x_2 - x_1}, \text{ as long as } x_2 \neq x_1.$$

In other words, slope equals the difference in y's over the difference in x's.

**Find the slope of the line that passes through each pair of points, then plot the points.**

(-1, 7) and (4, 5)

$m = \frac{5-7}{4-(-1)} = \frac{-2}{5}$

(-3, -5) and (2, -1)

m = _____

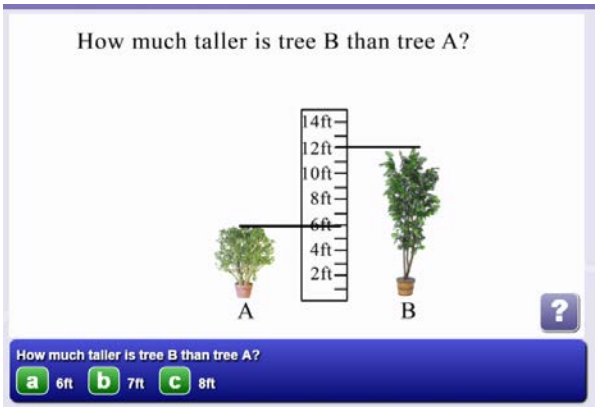
y

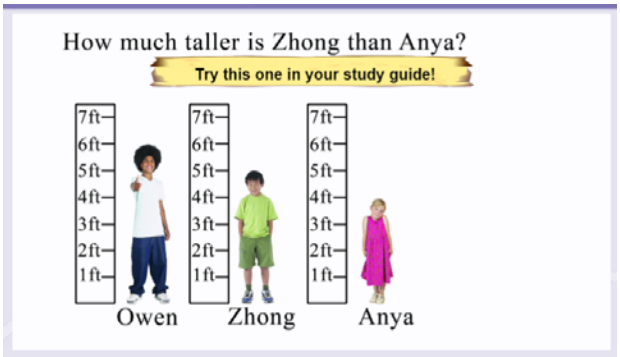
$m = \frac{-2}{5}$

# 7. Measurement

Ascend offers concrete, representational/pictorial, and abstract: Tool use is taught in many applicable areas, while encouraging precision as well as real life estimation.

**Q 1.** Which picture is 2 inches high?

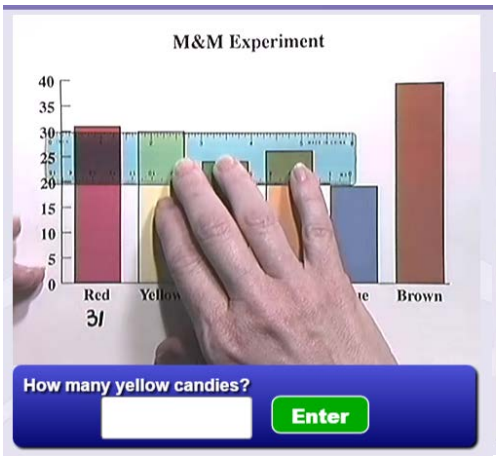



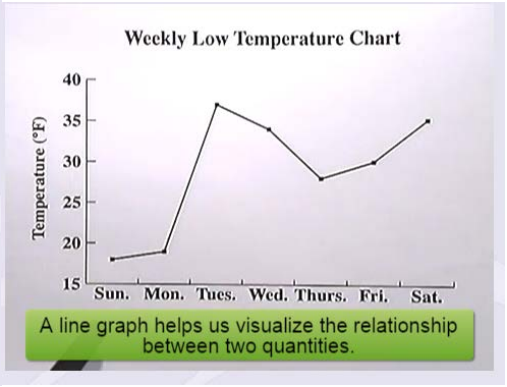

Ascend offers critical thinking at all levels, allowing creation of meaningful connections within mathematics.

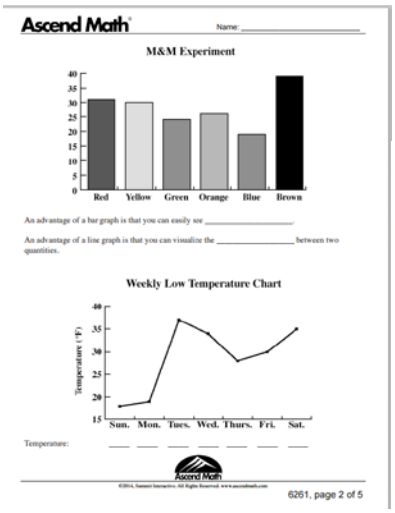
**Q 17.** Which measurement best describes the height of a bicycle?
A 1. 3 feet
A 2. 3 inches
A 3. 3 centimeters
A 4. 3 meters

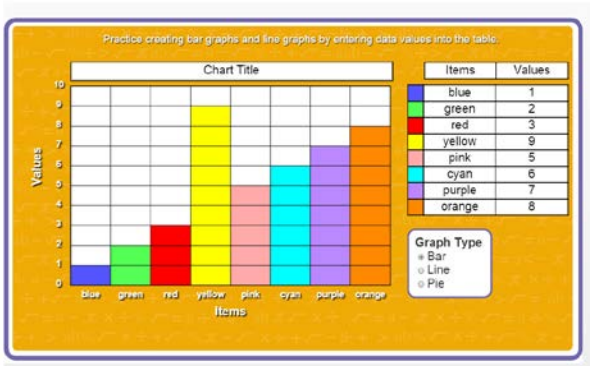
## 8. Data Analysis & Probability

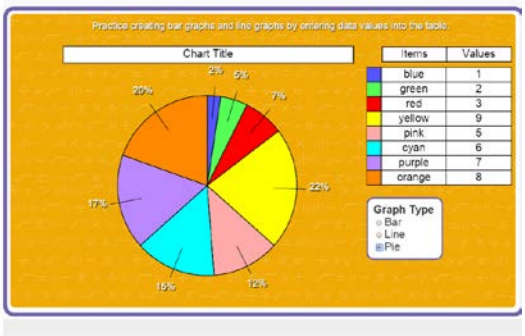
See examples immediately below.



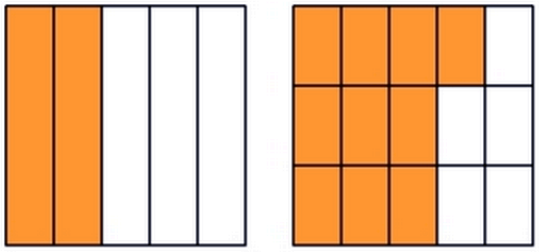




## 9. Problem Solving

Ascend Lesson E4.04 Level 4 and 5: balance between computation and conceptual understanding.

This teaches the concept behind cross multiplying to compare fractions. Ascend incorporates modeling at all levels. CCSS.Math.Practice.MP4

**Q 37.** The models are shaded to show that --



A 1. $\frac{2}{5} < \frac{10}{15}$

A 2. $\frac{2}{5} > \frac{10}{15}$

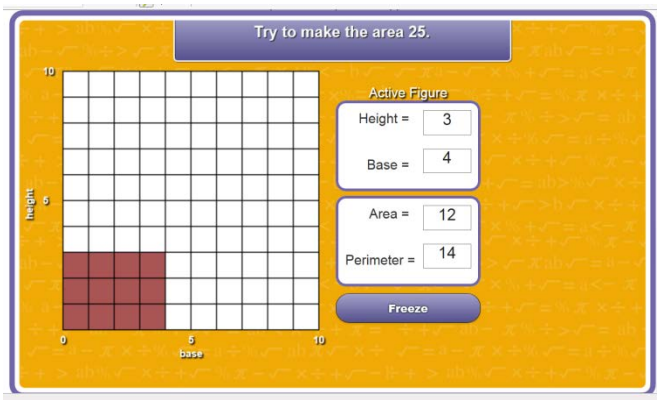
A 3. $\frac{3}{5} < \frac{5}{15}$

A 4. $\frac{2}{5} = \frac{10}{15}$

1. Evaluate the expression below.

$36 \div 6 \div 3 =$ ____

Problem solving skills are taught via Ascend hands-on manipulatives as well as award-winning video. See below for an example manipulating an area model to show a particular area.



## 10. Progress Monitoring

At the completion of the learning activities the student is directed to the post assessment. Post assessments are formative assessments that the student is required to pass, based on a desired proficiency level, prior to moving to the next objective in the study plan. Progress monitoring is therefore an ongoing process as students move through the Ascend Math curriculum.

Once the student has completed all objectives in the study plan for a unit, the student will pre assess on the next unit in the level. When all units in the level have been mastered, the system will automatically move the student to the next level in Ascend. Instruction for an Ascend Math level covers 30-40 hours of material.

The Teacher and Administrator interfaces are also robust but flexible. Teachers may follow CCSS exactly or modify the scope and sequence of their students' learning objectives to exactly meet their classroom needs. Ascend Math's automated tracking of student performance provides built-in and easy to access accountability reporting tied to Common Core Standards.

Ascend makes it easy to track and document each student's progress by providing many detailed reports at the student, class, school, and district level. Ascend offers pre and post assessment reporting. Reports include both formative and summative results. All assessment questions are randomly pulled from a test question database. Ascend reports will show the learning objective and the standard for which each objective correlates. All reports are available on-demand from anywhere a teacher or administrator has internet access. Ascend reports are available in HTML, PDF and Excel formats.

Ascend offers prescriptive, formative and summative assessments. Pre assessments diagnose and prescribe differentiated learning paths. Post assessments are formative assessments that ensure students achieve mastery in one learning objective prior to moving to the next learning objective in sequence. Ascend Math's reports allow teachers and administrators to easily compare pre and post assessment scores and related gains.

Ascend Math also offers summative assessments. Summative assessments may be offered multiple times in a school year. Ascend Math's Growth Report allows teachers and administrators to easily compare results between summative assessments.

Assessments are delivered online and questions take the form of multiple choice, open answer. All questions are randomly pulled from a vast test bank. Answers for particular question are randomly ordered.

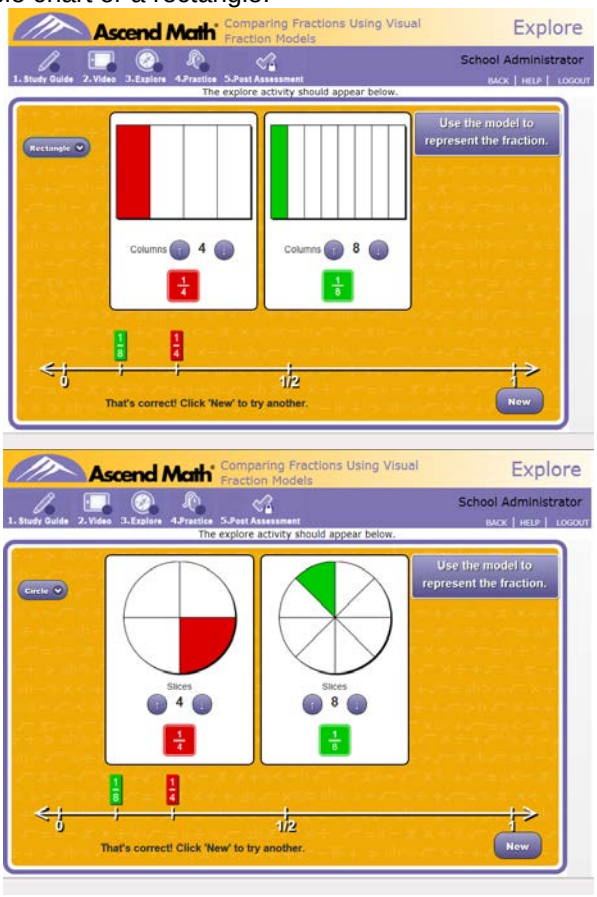
In addition to online assessments, Ascend Math's Explore feature provides opportunity for oral assessment and Ascend Math Study guides allow for constructed response.

Ascend recently introduced a newly integrated dashboard in the teacher interface. Here, teachers receive real time pertinent information about each of their classes/students. This dashboard provides an at a glance tool for teachers to gauge which students are making progress and which students require one on one assistance.

# Contents

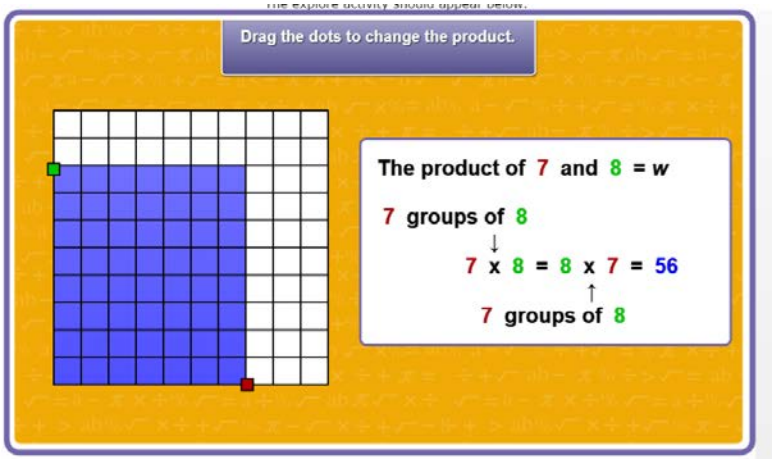
1. Make sense of problems and persevere in solving them.

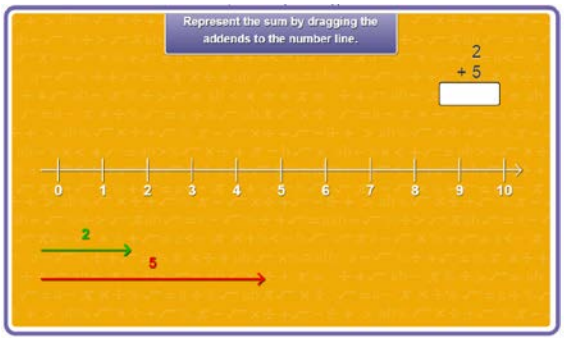
   Ascend Math teaches flexible mathematical thinking by encouraging development of multiple tactics for similar problems. Students are encouraged to make sense of and understand the concept they are working on. See the example below – the numerical representation is compared to an area model which in turn is compared to a number line display. Students may explore the concept using either a pie chart or a rectangle.

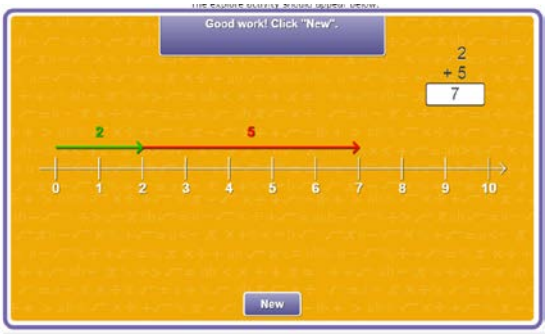


2. Reason abstractly and quantitatively.

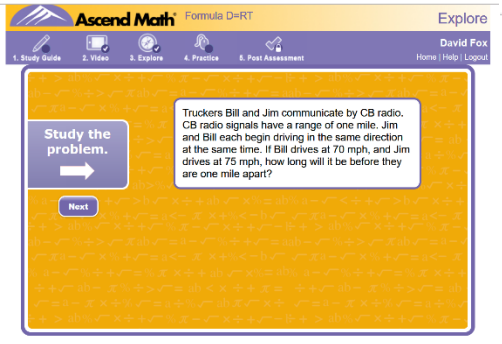
Mathematical reasoning requires attending to the meaning of quantities, not just how to compute them; and knowing and flexibly using different properties of operations and objects. Ascend Math integrates visual approaches to acquisition of math skills. Please see examples below!

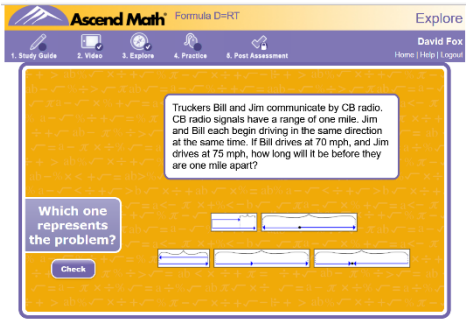



Students are first asked to visualize the problem (abstract):

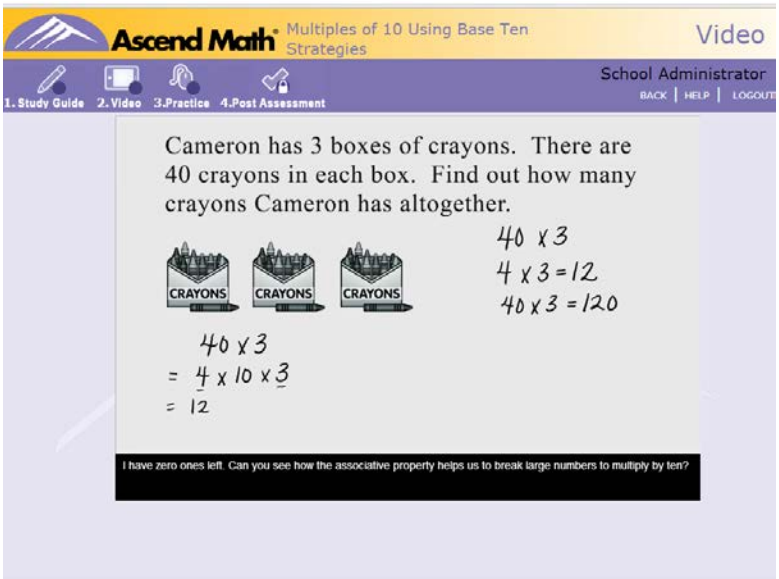


Set up the equations and then solve for the answer (quantitative).

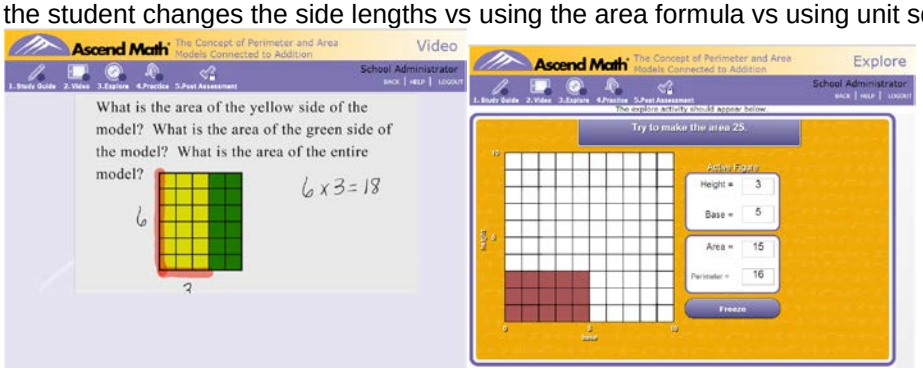

3. Construct viable arguments and critique the reasoning of others.

By offering a multi modal approach to instruction, using video, interactive explorations, practice problem video solutions, as well as study guides Ascend Math teaches a multitude of problem solving strategies for learners of varying aptitudes and affinities. Ascend provides real world applications throughout, such as tip-calculation, interest, wages, taxes, and task rates.

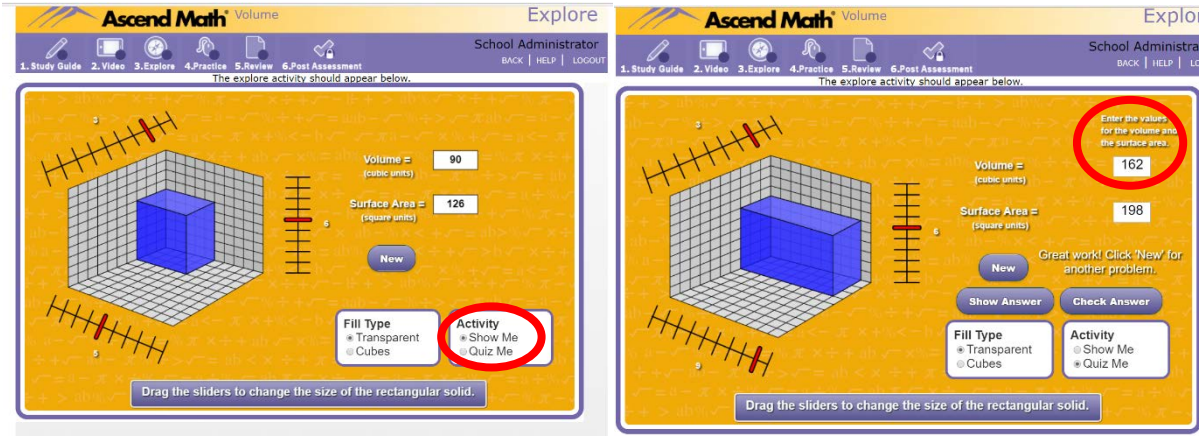


4. Model with mathematics.

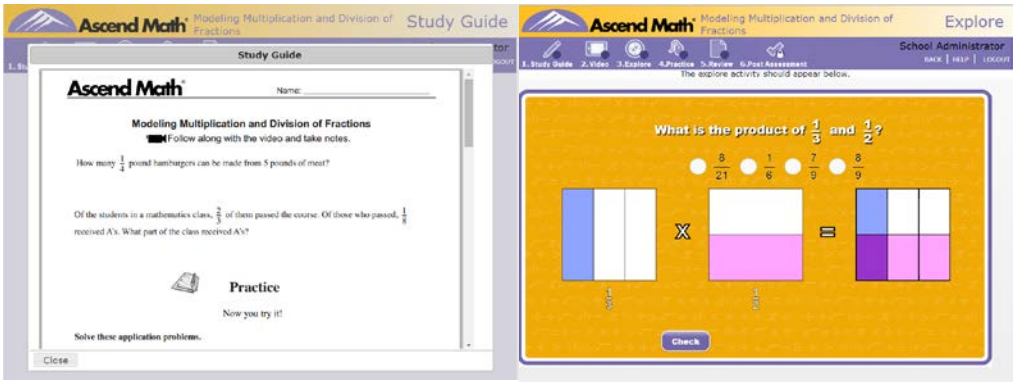
Ascend Math provides opportunities to discover formulas and processes discussed in the instructional video portion by connecting these to models.
E.g. solving an area-of-a-square problem with an interactive exploration by seeing the area and how it changes as the student changes the side lengths vs using the area formula vs using unit squares.



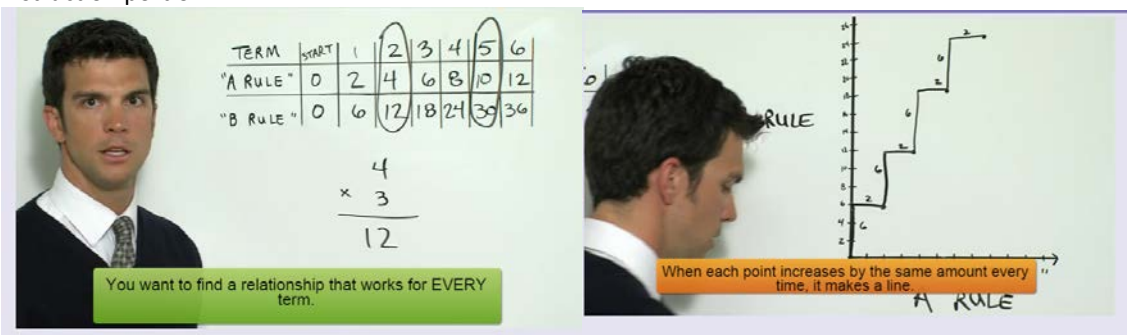

E.g. Visualizing the volume formula and watch the end result change as side length are manipulated, not just plugging answer into a formula.



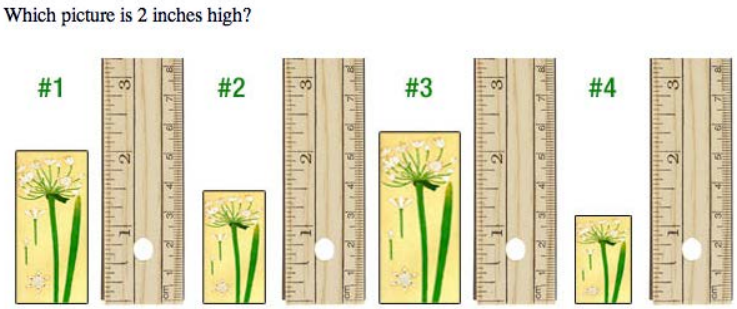
Ascend Math connects visual and symbolic learning throughout the entire study plan at all levels. See an example below. Fraction multiplication is taught not only by symbolic calculation, but also using visual representation.




5. Use appropriate tools strategically.
   Ascend encourages use of tools, such as tables, models, steps, etc. to solve. Students respond differently to varying approaches.
   See below for an example of a video. Patterns and relationships are discovered using different tools during the instruction portion.

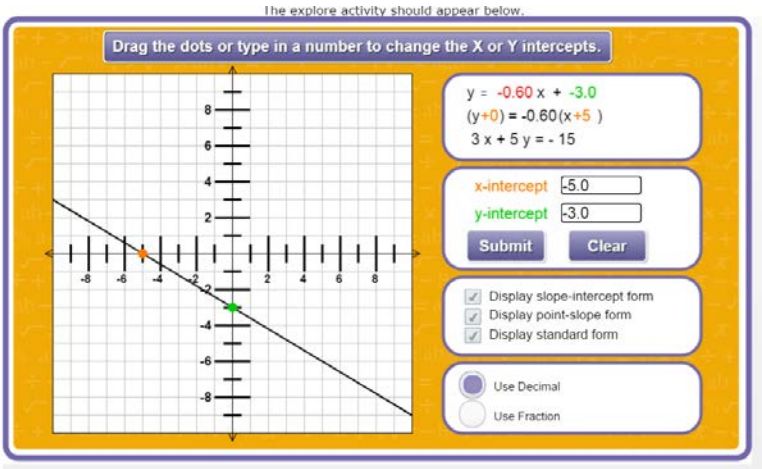



6. Attend to precision.
   Concrete, representational/pictorial, and abstract: Tool use is taught in many applicable areas, while encouraging precision as well as real life estimation.



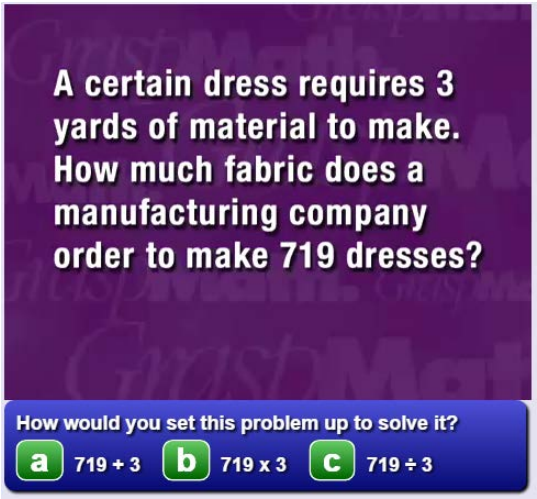
7. Look for and make use of structure.

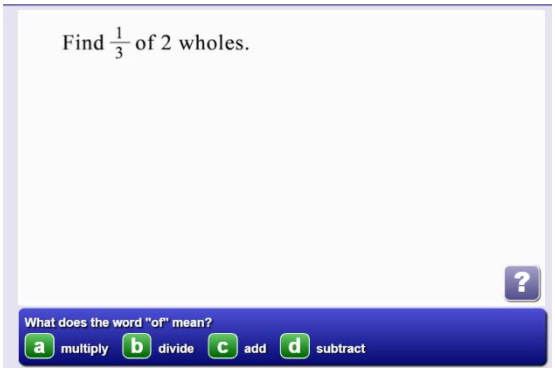
Structure is present throughout math. Ascend utilizes this to teach students approaches to problem solving. As an example see below: The connection between the graph and the equation of a function are emphasized by color coding the parts involved, such as orange for the x-intercept.




8. Look for and express regularity in repeated reasoning.

Looking for repeated reasoning in mathematics allows for deeper understanding and easier calculations. Ascend shows instances of repeated reasoning to students, so they can make use of these.

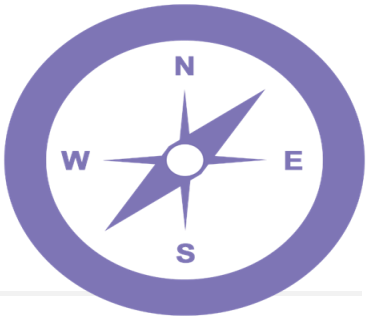


# Ascend Math Teacher Guide

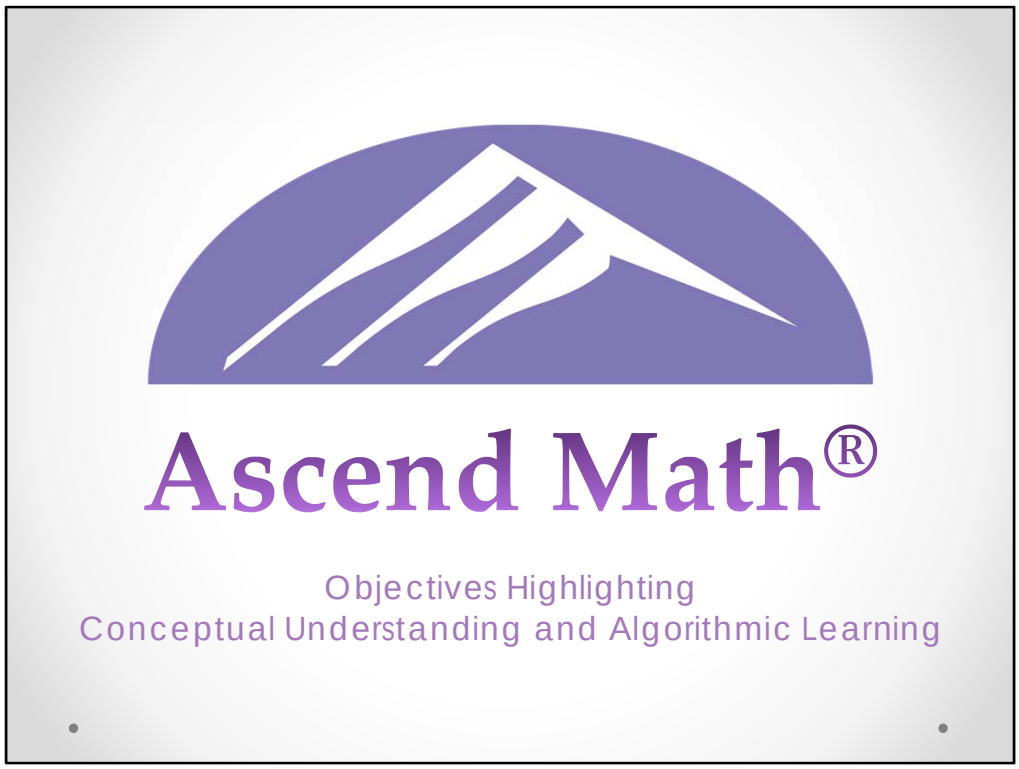
| Topic | Greatest Common Factor | Objective Number | 1052 |
|---|---|---|---|

| Objective | Prior Knowledge Needed |
|---|---|
| The purpose of this lesson is to find the greatest common factor of two or more numbers. | The student should know:<br>*the meaning of factors vs. multiples<br>*what the word product means<br>*what a prime number is |

| | | | |
|---|---|---|---|
| Explore Details | As the student begins the explore, he/she will be given a pair of numbers for which they will need to find the greatest common factor. Students may use the number line to see if a factor selected is common to the pair given. The student will continue to use the number line, by increasing the value of the common factor using the + /- boxes to look for additional common factors. Once the student determines the GCF, they will submit the answer and check their solution. The student will practice several more problems, until they have completed the explore activity. | |  |
| Check for Understanding | Students should discuss and answer the following questions:<br>Does the student understand the difference between factor and multiple? Does the student understand how to write a number as a product of prime factors? Does the student understand that there may be several common factors? | | |
| Additional Activity (Independent/ group activity to reinforce lesson) | Create a Venn Diagram of two circles using string or yarn. Each group should receive two bags containing numbers. One bag should contain higher numbers like 20, 24, 30, 36, etc. The other bag should contain all prime factors of the numbers in the first bag. Reminder: you will need several of each factor. Students work together to complete the Venn diagram and then multiply the common factors that are in the center of the Venn Diagram. | Teaching Aids/ Materials Needed for Activity<br>*String or yarn to create Venn Diagram circles *Index cards with various numbers<br>*Brown paper bags to hold numbers | |
| Other Resources (Websites, Books, etc.) | **http://www.sheppardsoftware.com/math games/fractions**<br>**http://www.mathplayground.com/factortrees.html** | | |
| Vocabulary | Greatest common factor – of a list of numbers is the largest common factor of the numbers in the list; Factor - numbers you can multiply together to get another number; Prime number – a prime number can be divided evenly only by 1, or itself, and it must be a whole number greater than 1; Prime factor – a factor that is a prime number: one of the prime numbers that, when multiplied, give the original number | | |

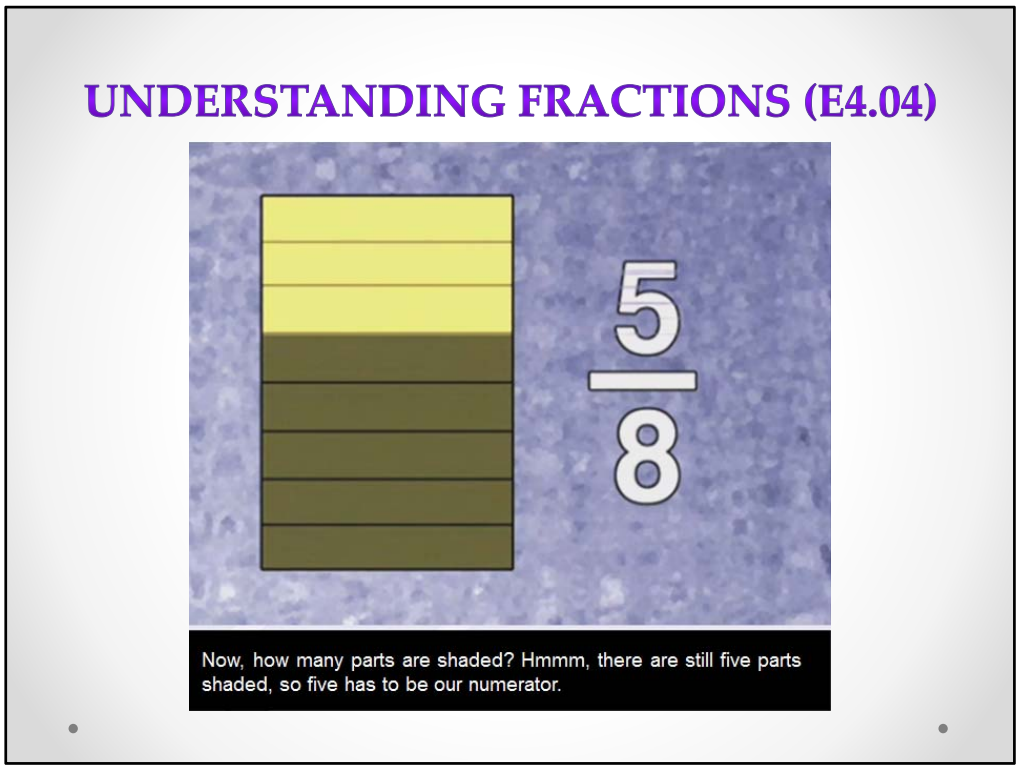
**Notes:**

© Ascend Education





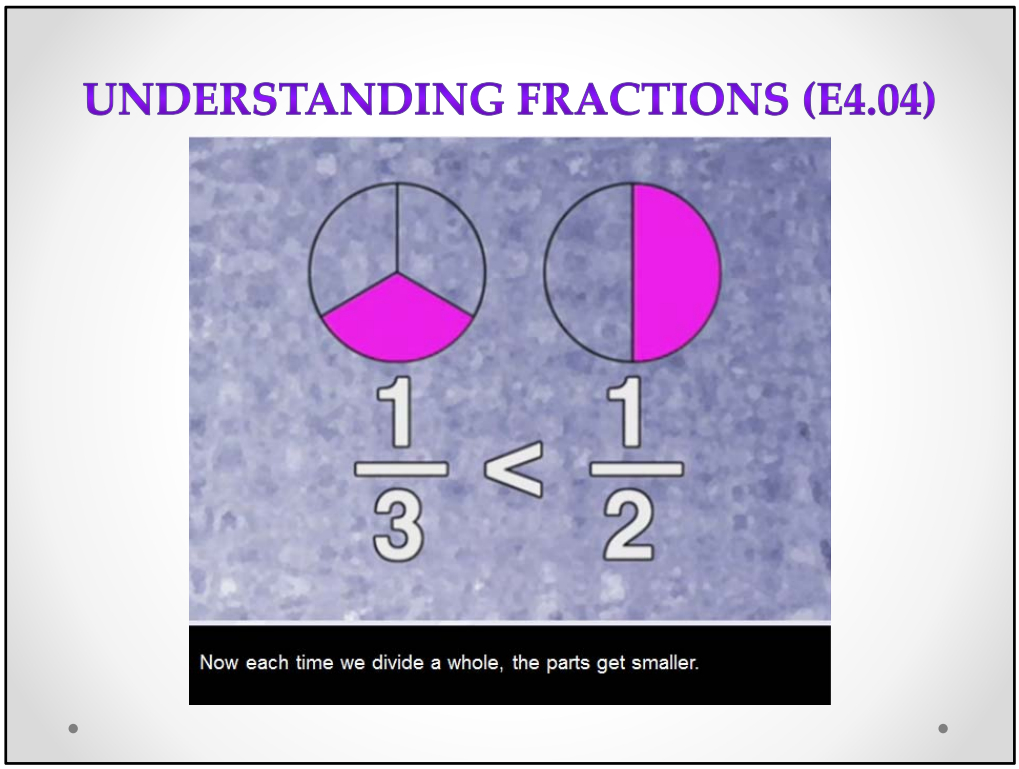

© Ascend Math - Exhibits Page 99 of 145




- Level 3
- At time 3:40 the video instruction visually explains the numerator and denominator. The Denominator always counts the entire part of the area model. The Numerator the shaded part.



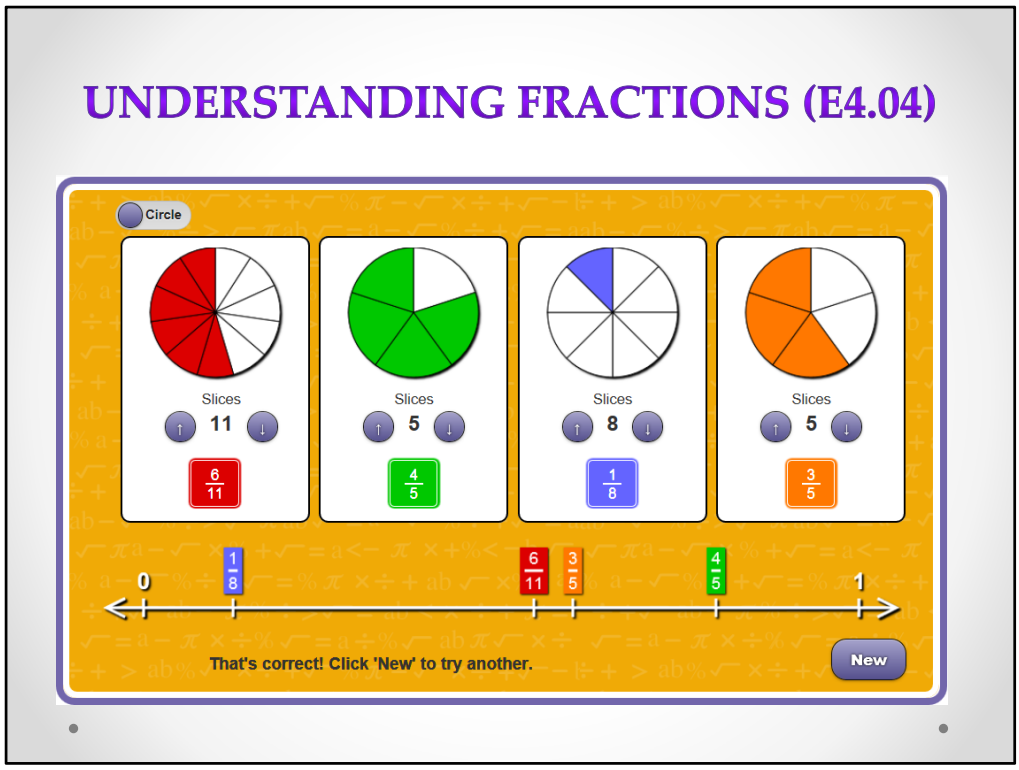
© Ascend Math - Exhibits Page 100 of 145




- Level 3
- Starting at 4:15 circles are used to show the concept behind a fraction by counting the parts and shading them.



© Ascend Math - Exhibits Page 101 of 145

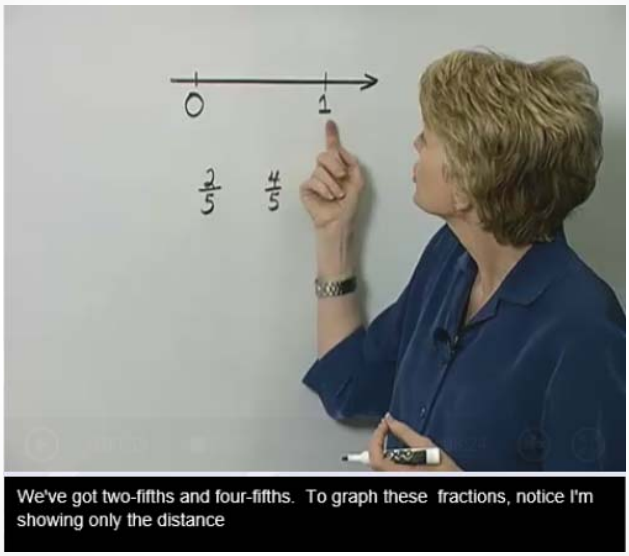



- Level 3
- The explore item reiterates the concept by allowing the students change the numerator and denominator



© Ascend Math - Exhibits Page 102 of 145

# COMPARING FRACTIONS (2063)

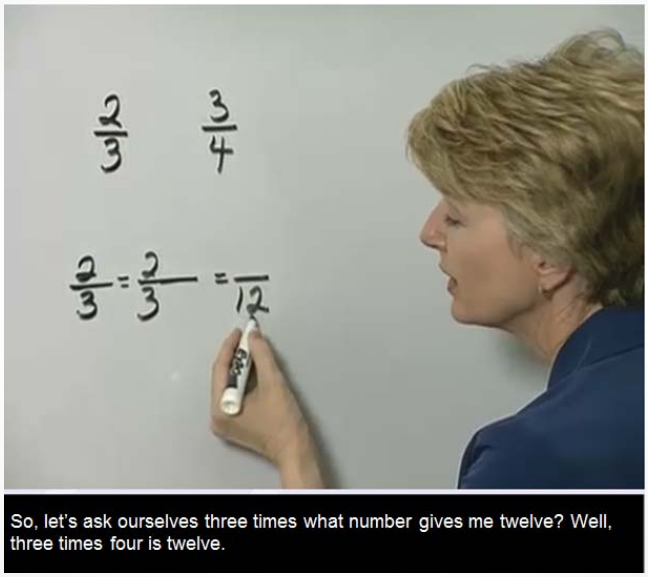



- Level 6
- The video uses number line 2:16 (conceptual and visual) to compare fractions AS WELL AS finding equivalent fractions (algorithmic) 3:30.



© Ascend Math - Exhibits Page 103 of 145

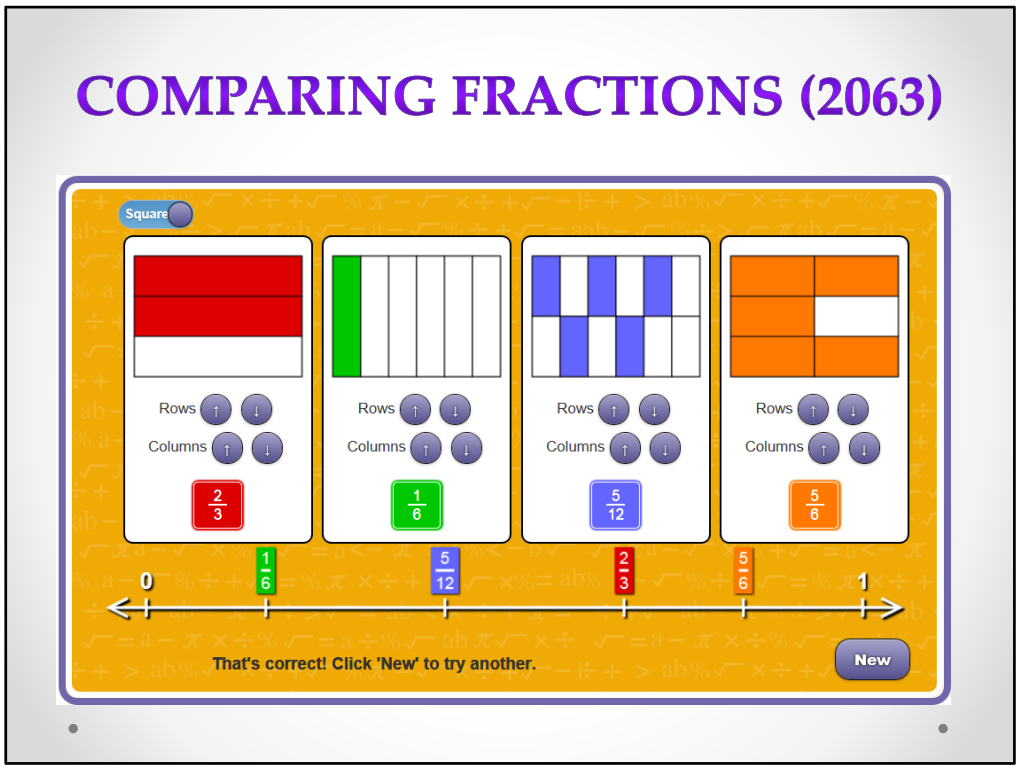
# COMPARING FRACTIONS (2063)




- Level 6
- The video uses number line 2:16 (conceptual and visual) to compare fractions AS WELL AS finding equivalent fractions (algorithmic) 3:30.
- .



© Ascend Math - Exhibits Page 104 of 145

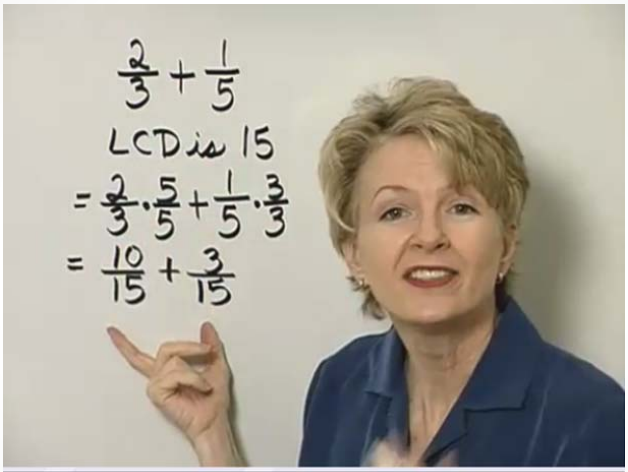



- Level 6
- The explore item reiterates the concept by allowing the students change the numerator and denominator



© Ascend Math - Exhibits Page 105 of 145

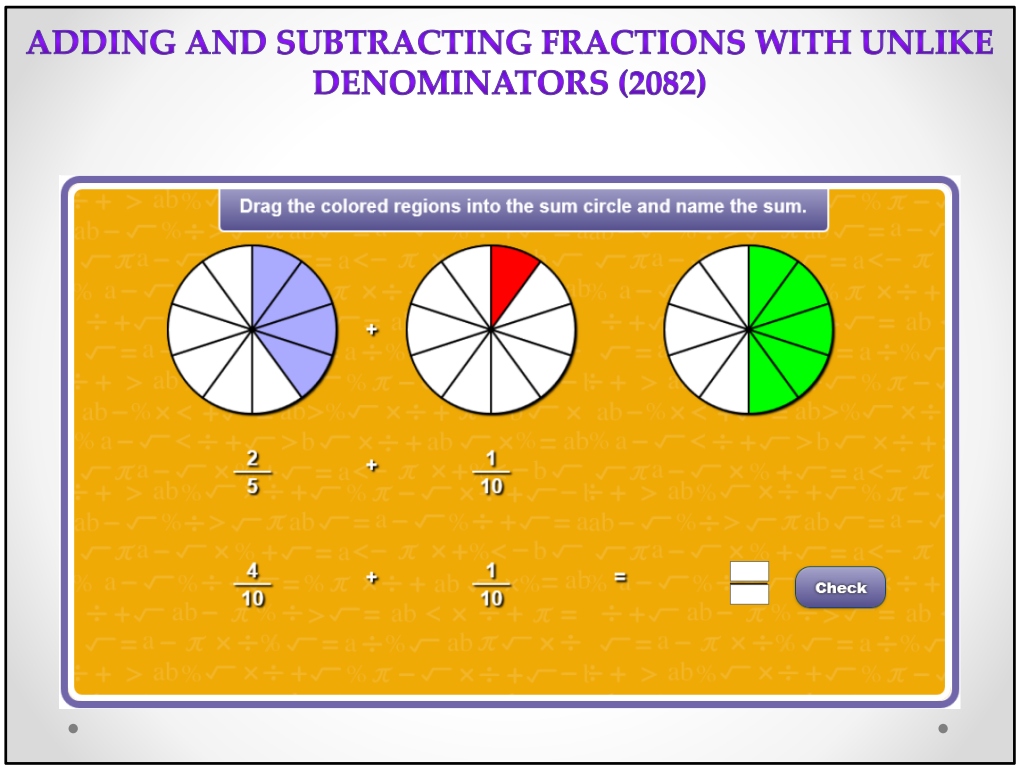
## ADDING AND SUBTRACTING FRACTIONS WITH UNLIKE DENOMINATORS (2082)




- Level 6
- The videos' algorithmic coverage is complemented by the conceptual explore item (on next page). Exploration incorporates visual fraction models to show the concept of numerator/denominator. Visual understanding of Least Common Denominator.



© Ascend Math - Exhibits Page 106 of 145

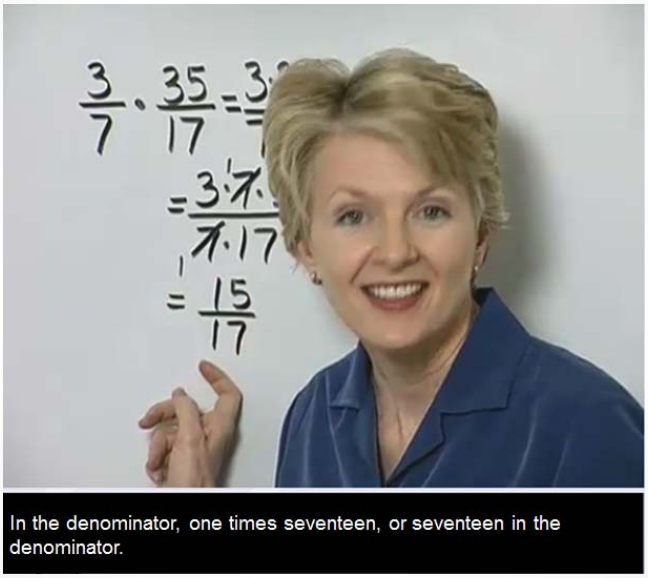



- Level 6
- The videos' algorithmic coverage is complemented by the conceptual explore item. Exploration incorporates visual fraction models to show the concept of numerator/denominator. Visual understanding of LCD.



© Ascend Math - Exhibits Page 107 of 145

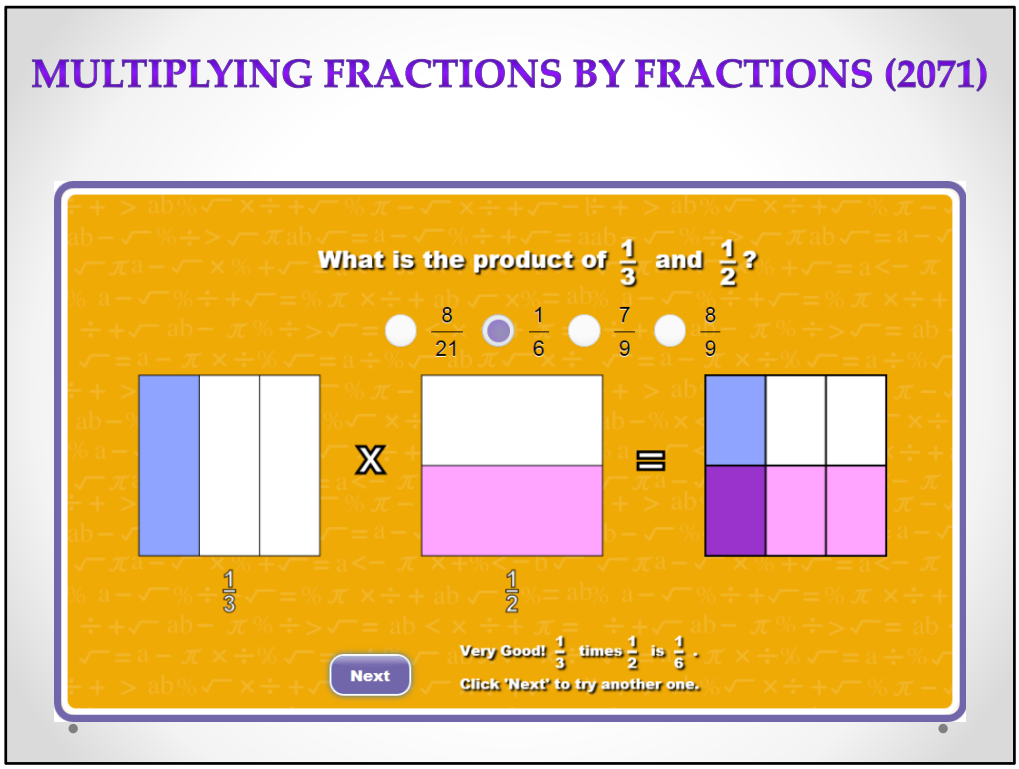
## MULTIPLYING FRACTIONS BY FRACTIONS (2071)




- Level 6
- The videos' algorithmic coverage is complemented by the conceptual explore item (on next page). This shows the meaning behind multiplication of fractions not just by "numerator by numerator" and "denominator by denominator", but actually shows the area models and what taking a fraction of a fraction means.



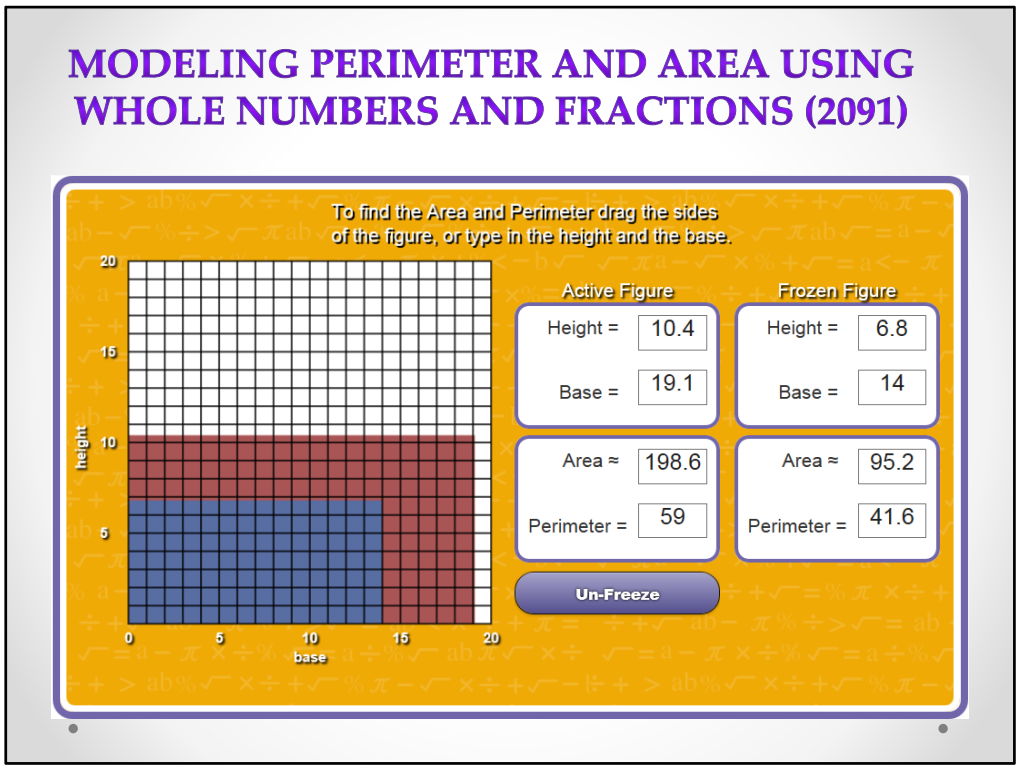
© Ascend Math - Exhibits Page 108 of 145




- Level 6
- The videos' algorithmic coverage is complemented by the conceptual explore item. Shows the meaning behind multiplication of fractions not just by "numerator by numerator" and "denominator by denominator", but actually shows the area models and what taking a fraction of a fraction means.



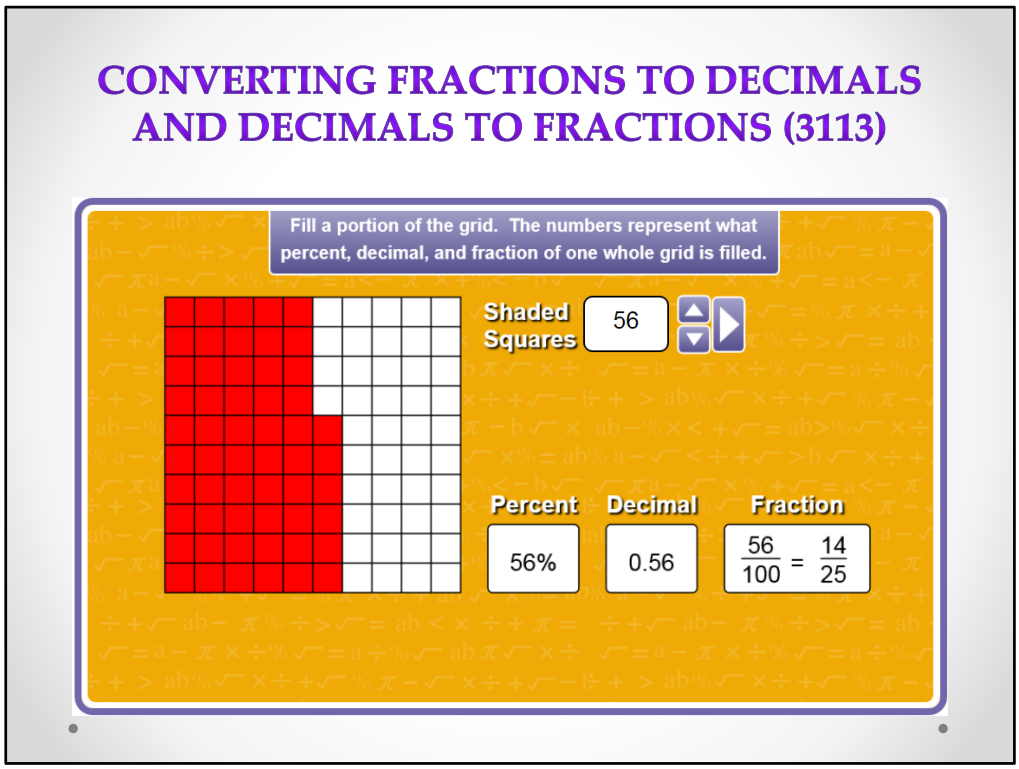
© Ascend Math - Exhibits Page 109 of 145




- Level 7
- The explore item above incorporates the area and perimeter to practice using and understanding decimals visually.



© Ascend Math - Exhibits Page 110 of 145

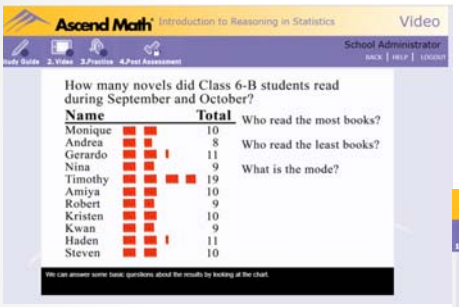


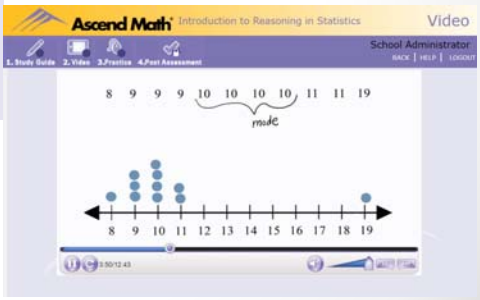

- Level 7
- The explore item synergizes with the video by allowing students to manipulate a hands on approach to visualizing decimals and fractions.



© Ascend Math - Exhibits Page 111 of 145

# INTRODUCTION TO REASONING IN STATISTICS (6286)



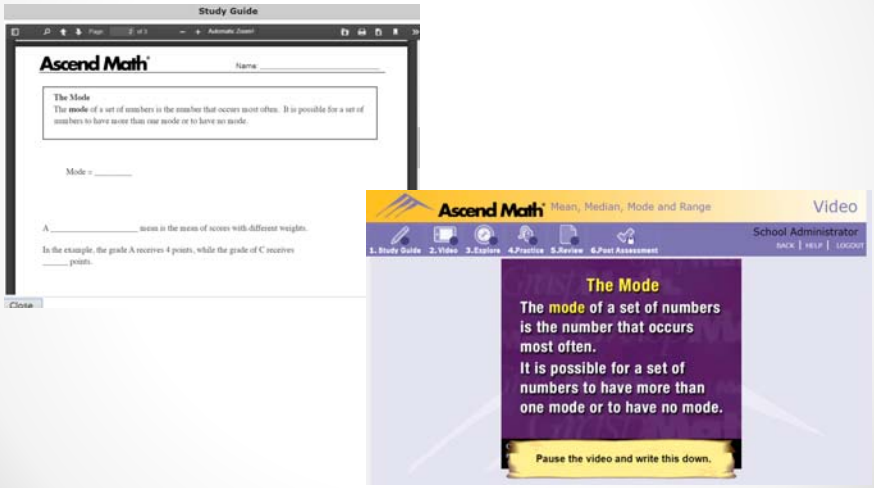




Ascend begins by visually introducing students to the concept of range (least to most) and mode using different representations.



© Ascend Math - Exhibits Page 112 of 145

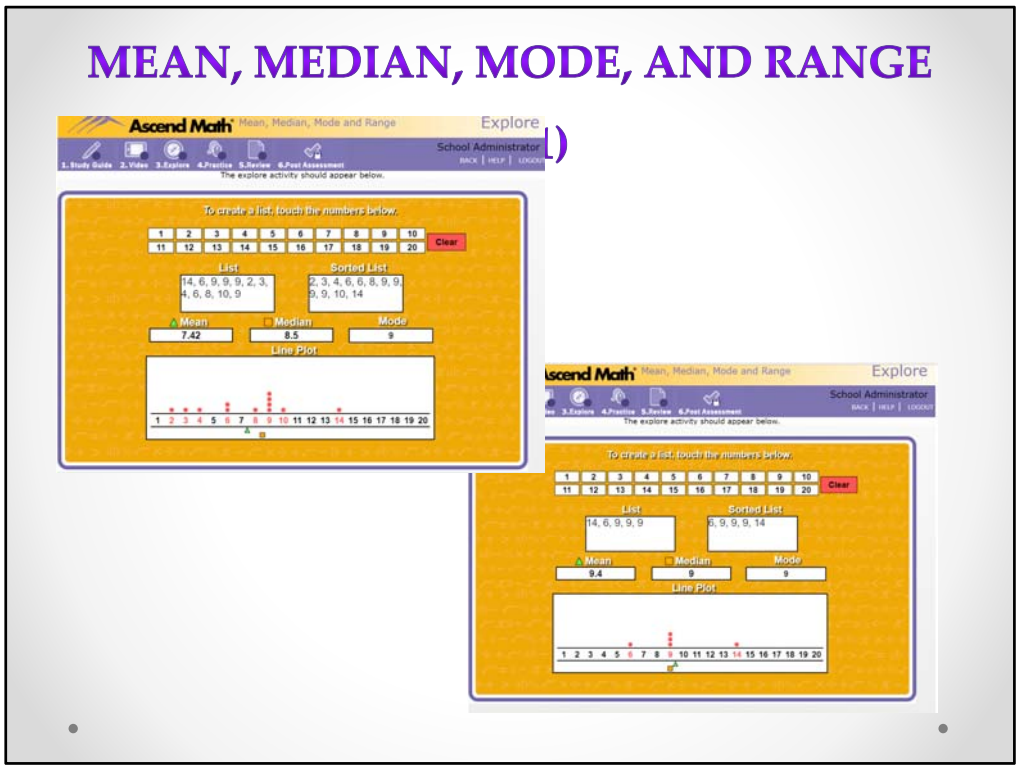
# MEAN, MEDIAN, MODE, AND RANGE (6271)




Ascend builds on the visual for formalize the concepts of median and mode.



© Ascend Math - Exhibits Page 113 of 145




Ascend allows the student to then visualize data through an exploration.



© Ascend Math - Exhibits Page 114 of 145

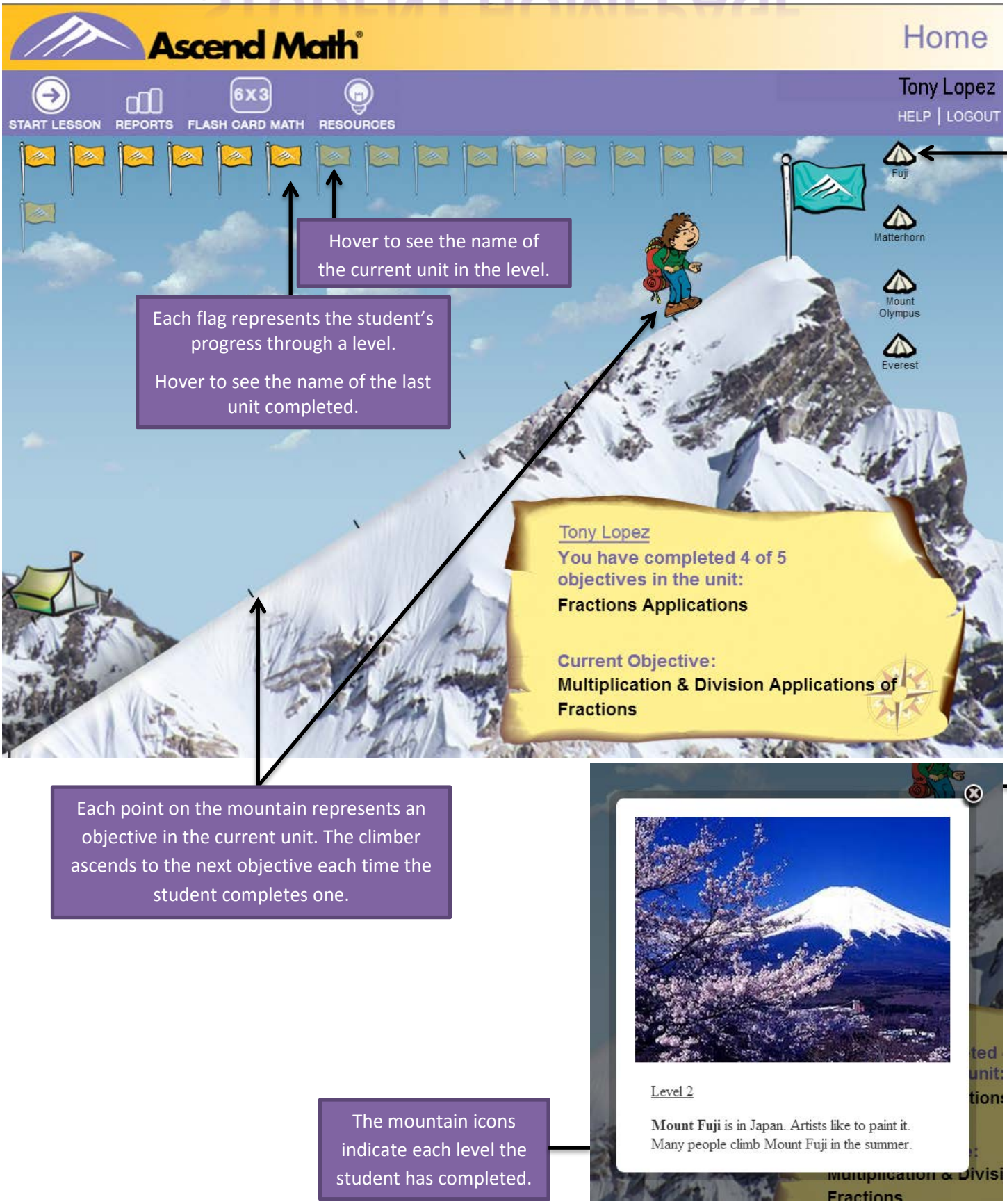
Ascend Math®
TARGETED INSTRUCTION & ASSESSMENT...ONLINE

Ascend offers instruction in multiple modalities to address a variety of learning styles and preferences by combining:

1. Video instruction
2. Multimedia explorations to reinforce learning
3. Manipulatives to support the learning of difficult concepts
4. Guided interactive practice supported by immediate feedback to re-teach concepts and skills and reinforce new knowledge
5. Printable resources to extend learning and practice and support constructed response
6. Flash Card Math to build math fact literacy

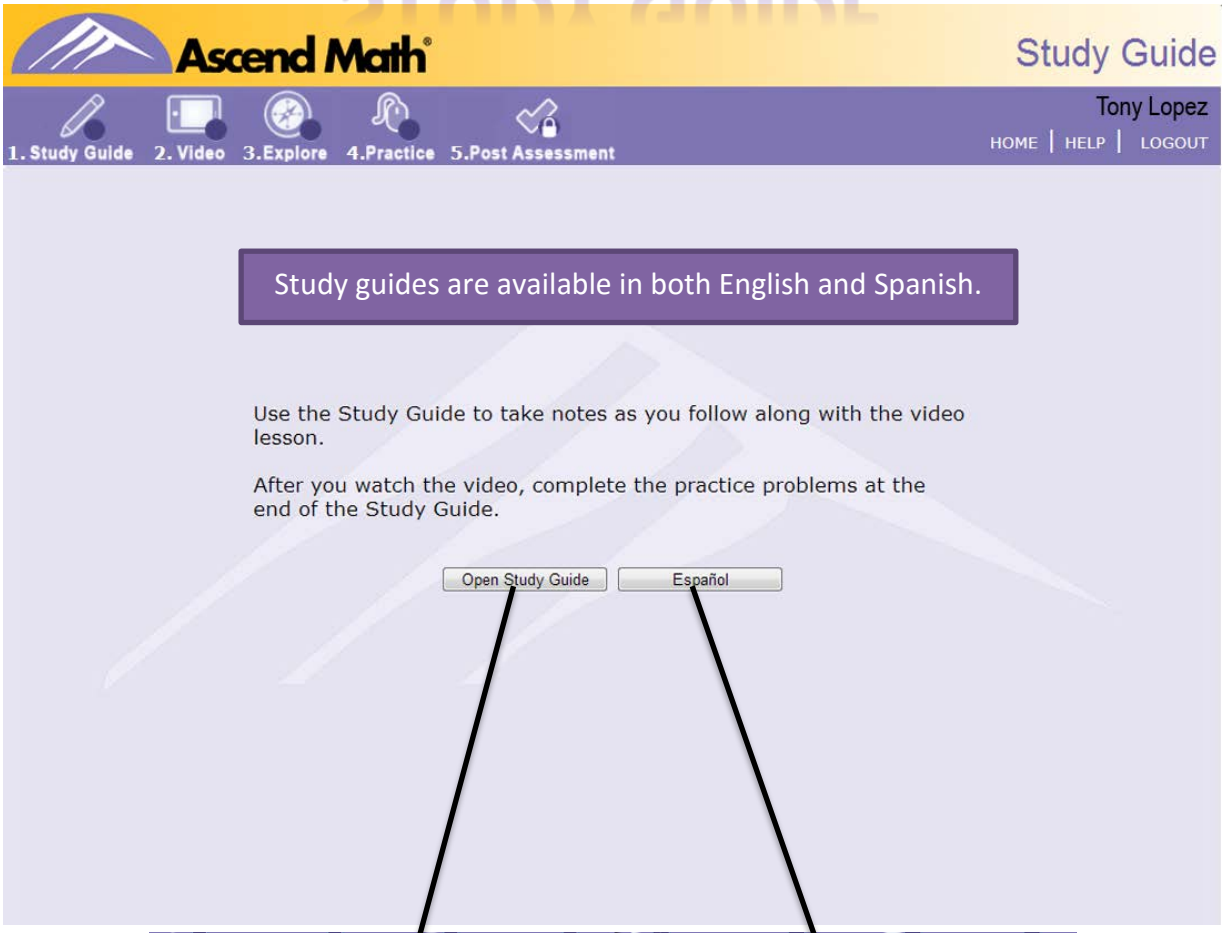
Let's Get Started!

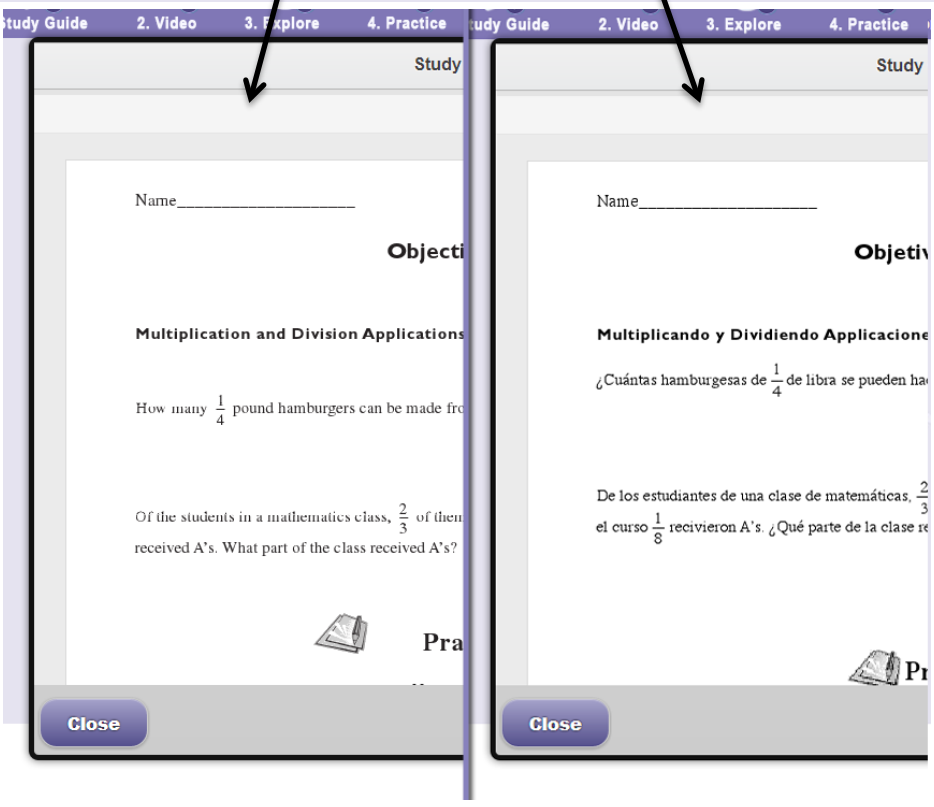
# STUDENT HOMEPAGE



Student Lesson

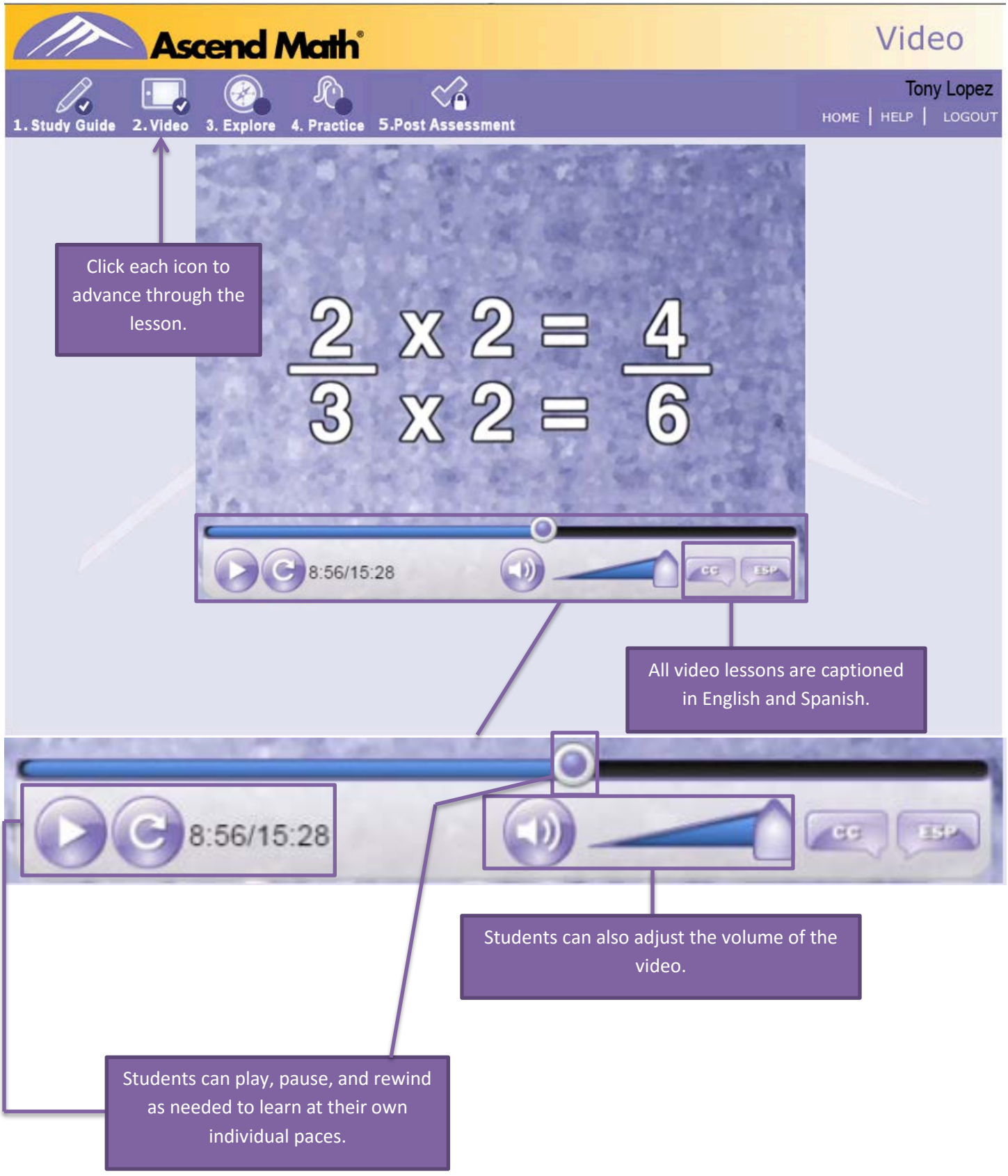
# STUDY GUIDE



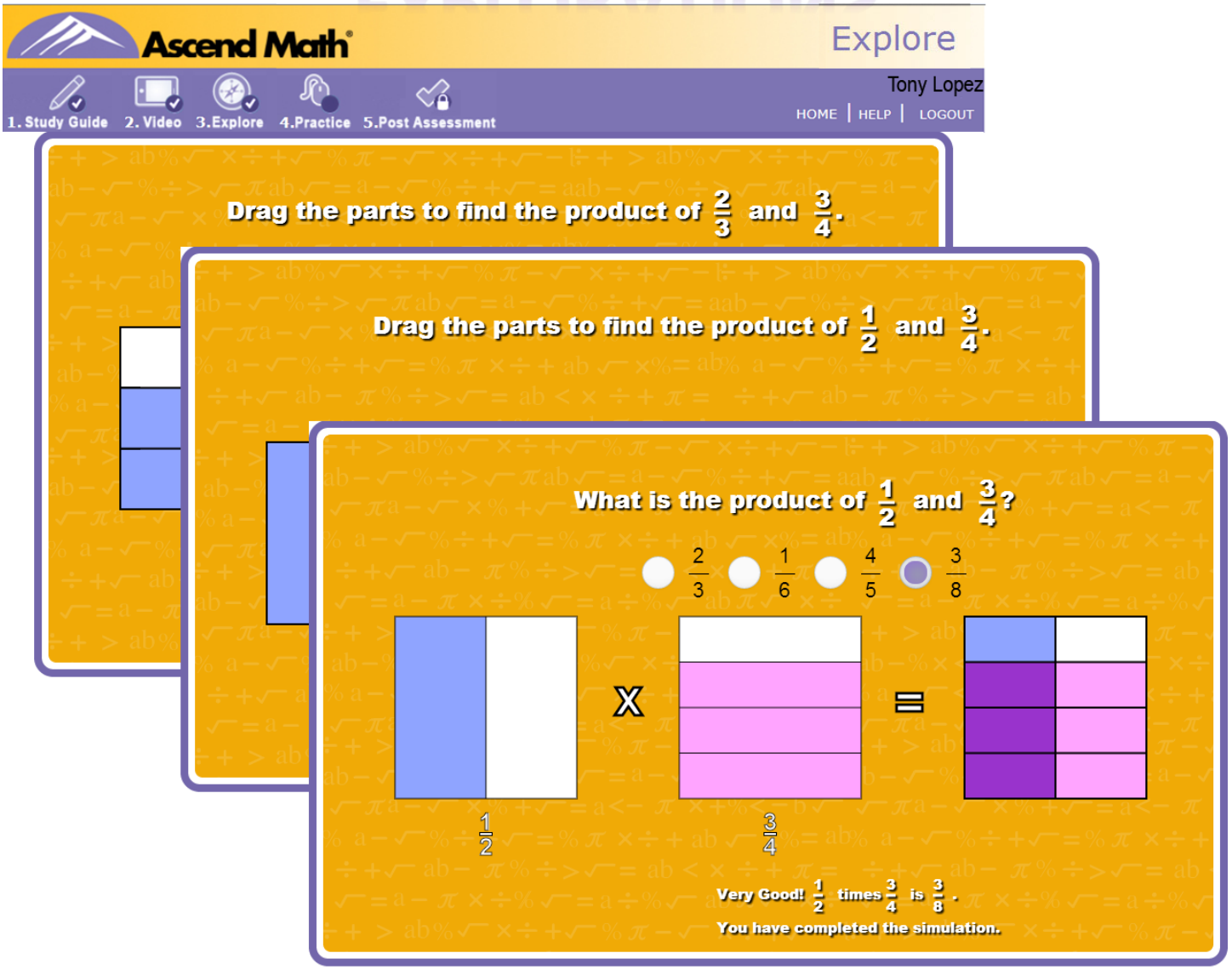
Student Lesson

# VIDEO INSTRUCTION



Student Lesson

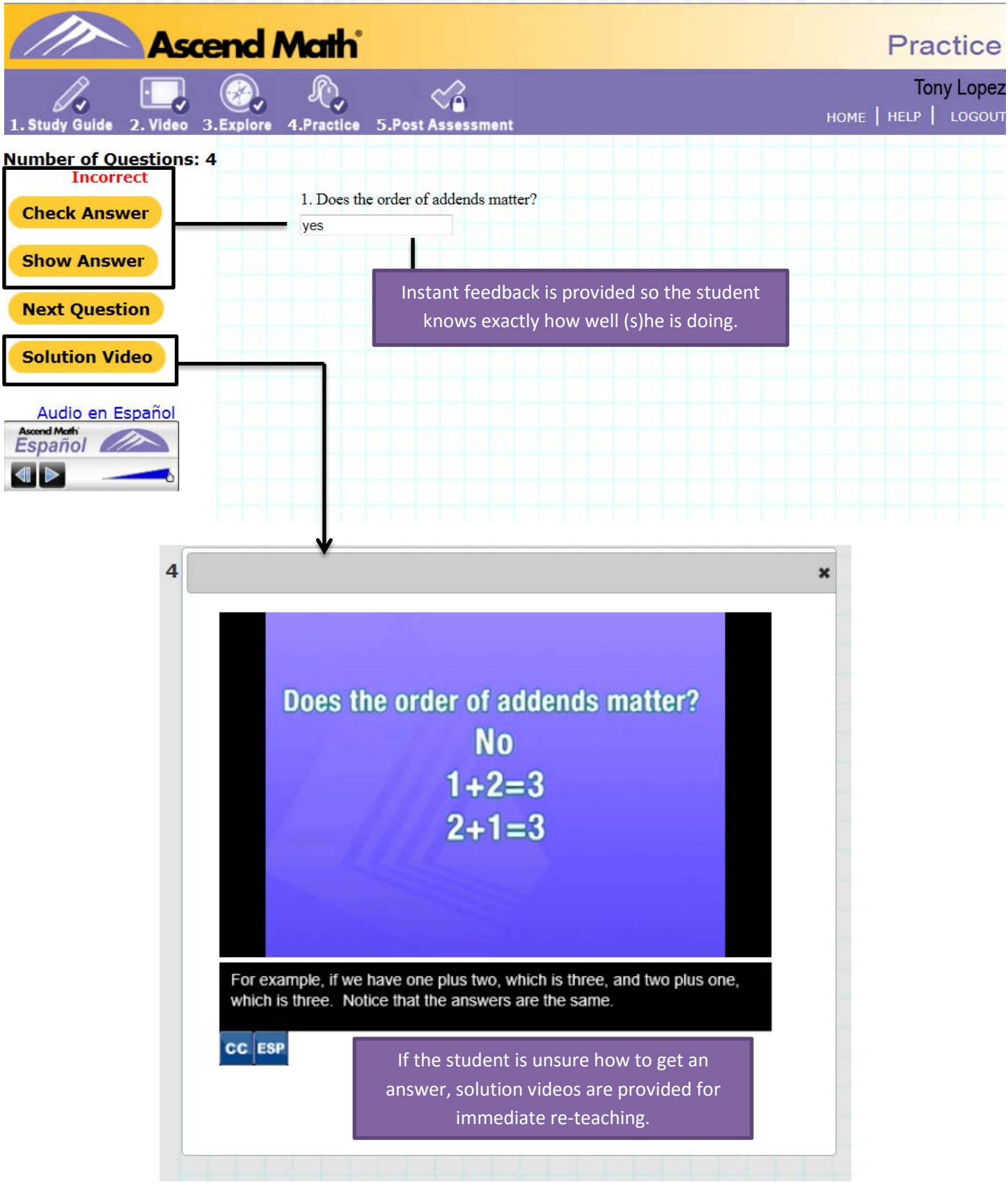
# EXPLORATIONS




Interactive manipulatives lead students through exploratory exercises, providing instant feedback and positive reinforcement.

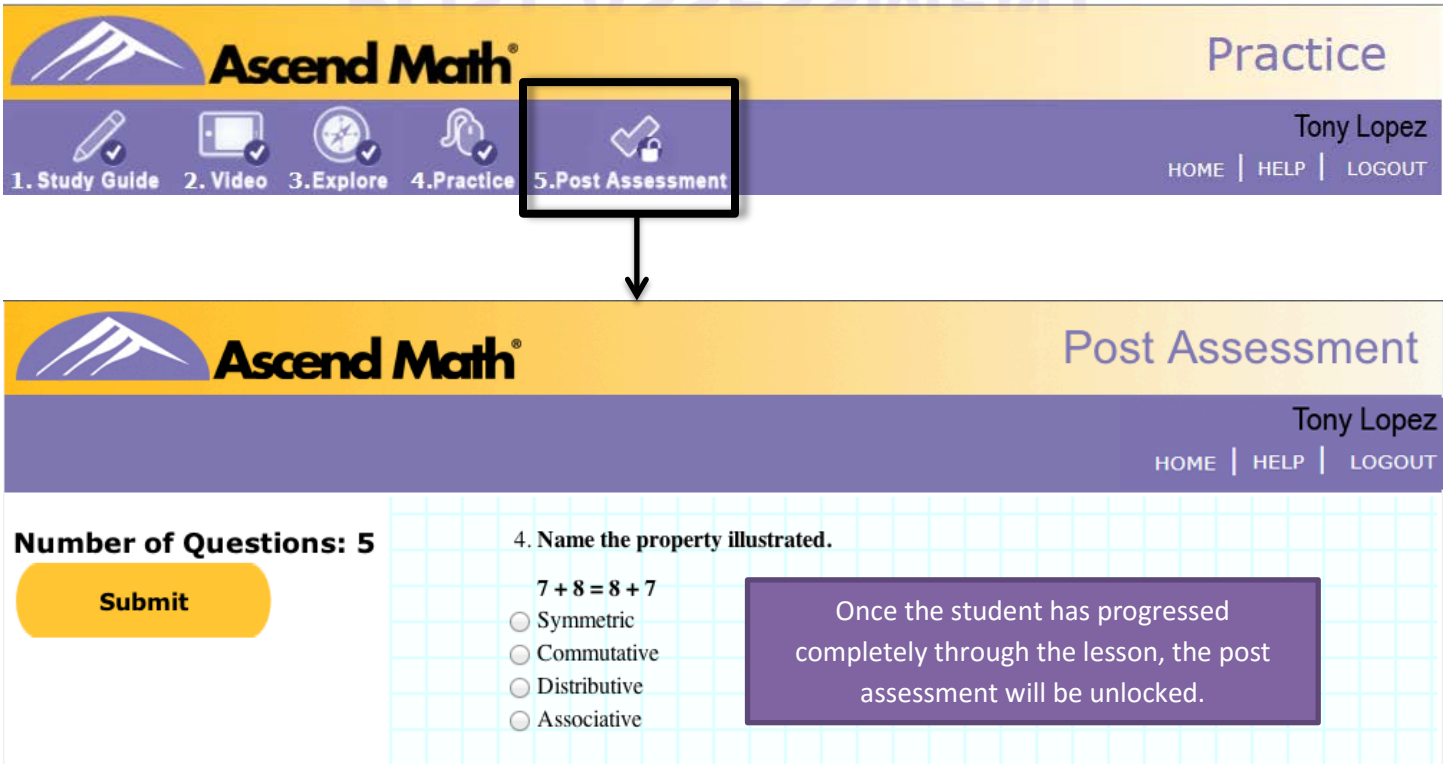
Student Lesson

# GUIDED INTERACTIVE PRACTICE



Student Lesson

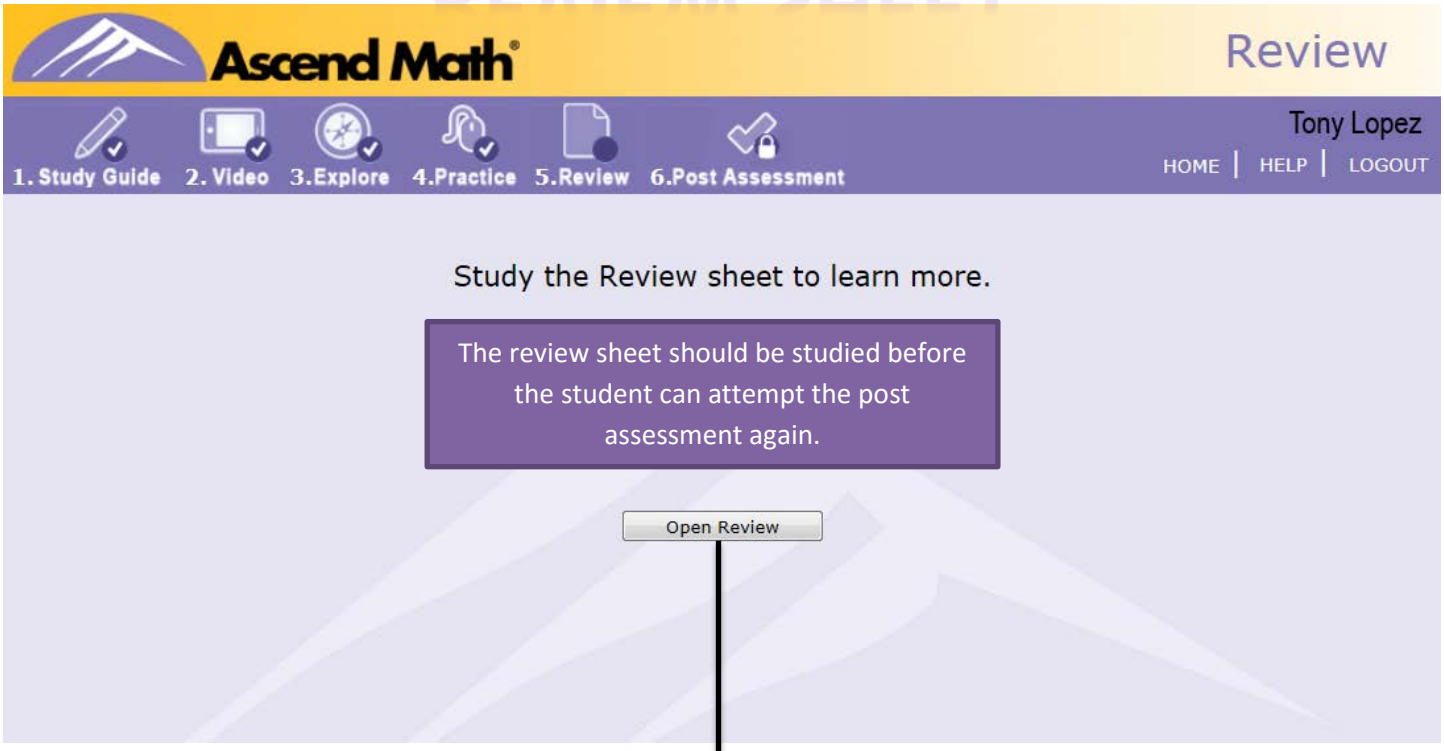
# POST ASSESSMENT

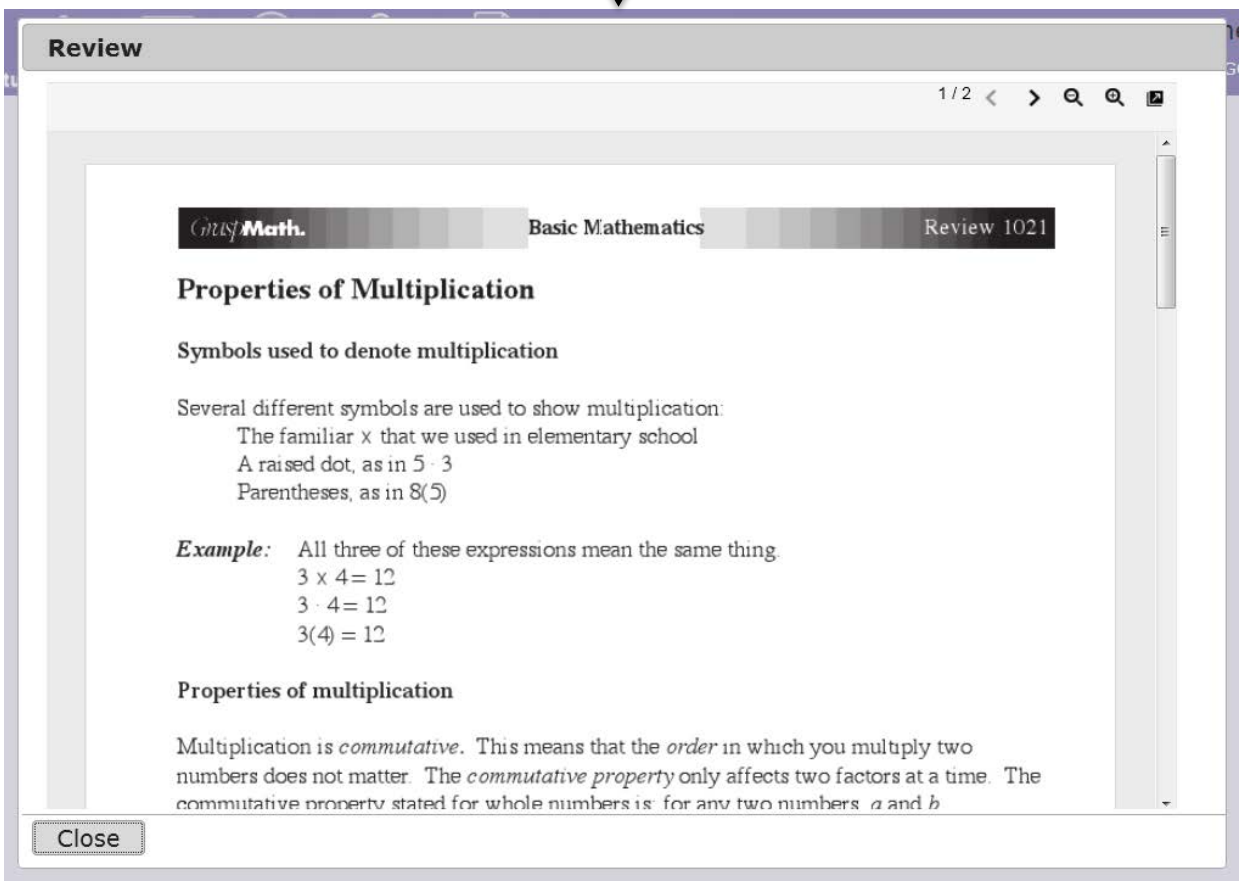



Upon successful completion of a learning objective, the student will advance to the next objective in sequence.

If a student does not pass the post assessment, (s)he will be directed back to the beginning of the lesson.

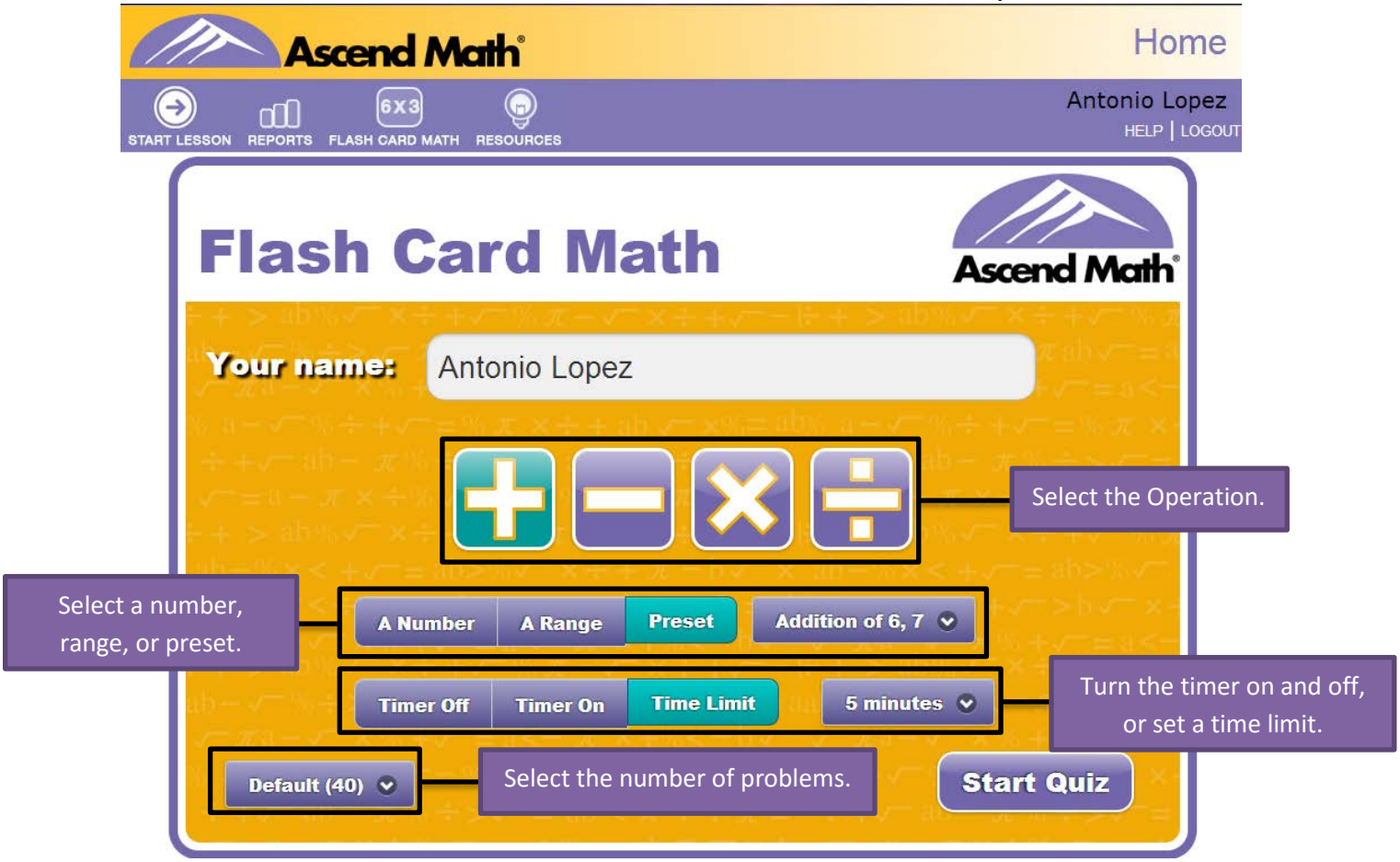
# Lesson Completion
# REVIEW SHEET

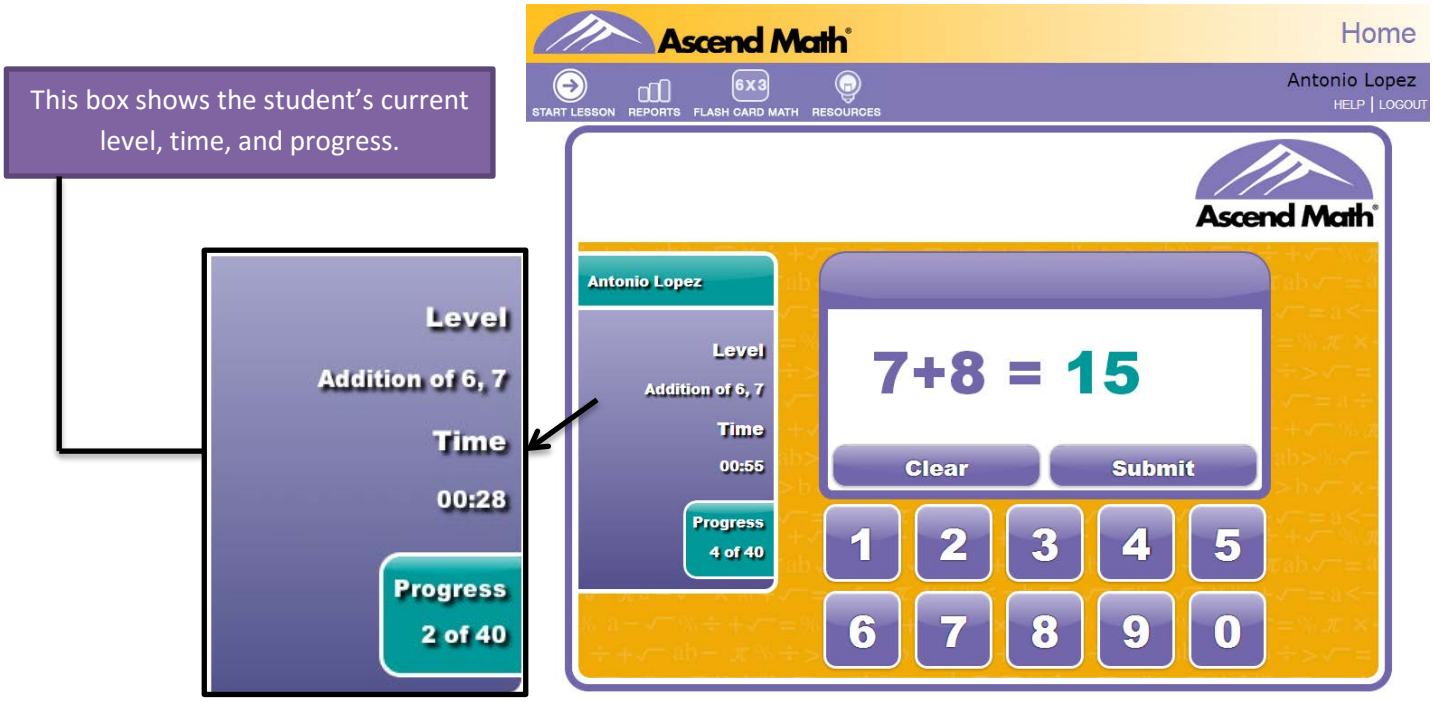


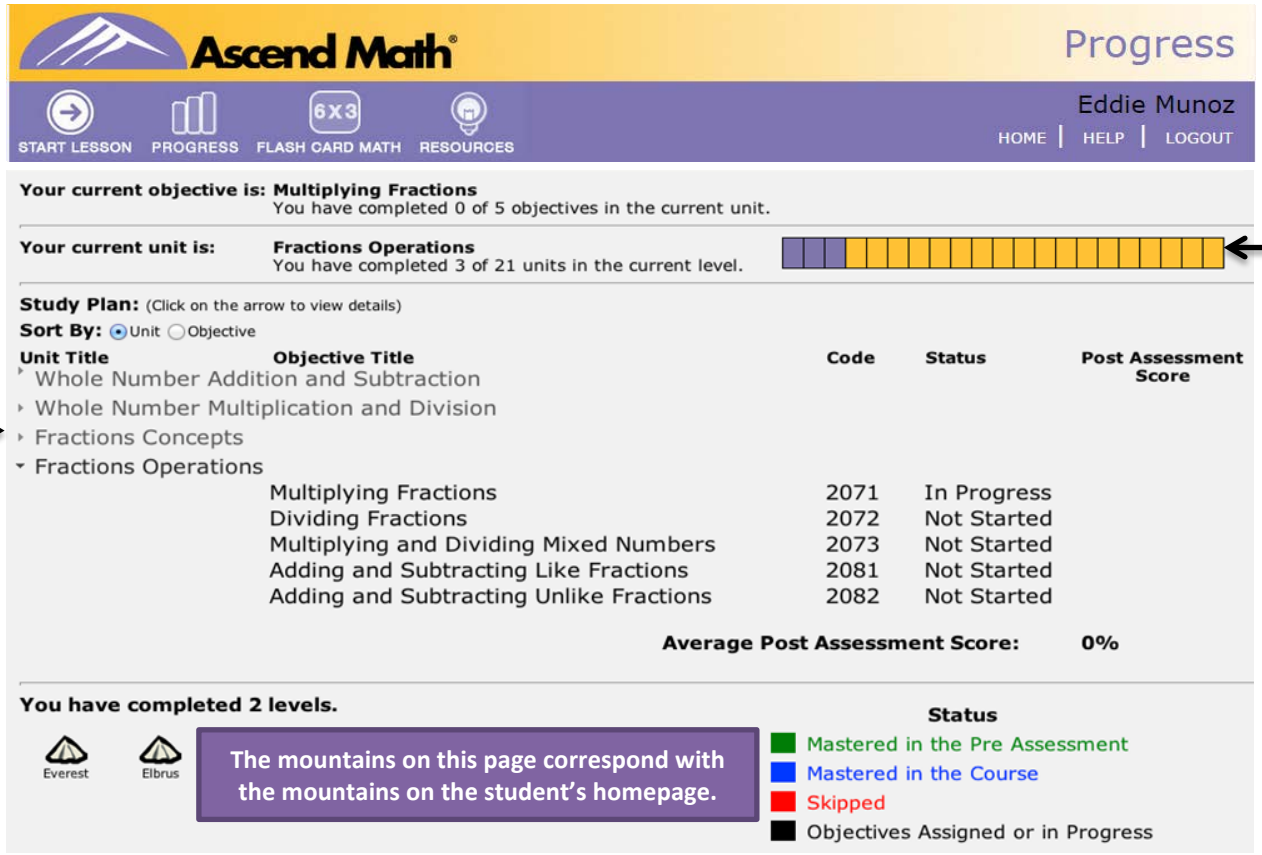
# FLASH CARD MATH

Flash Card Math is included with each subscription.



# STUDENT PROGRESS PAGE




The mountains on this page correspond with the mountains on the student's homepage.

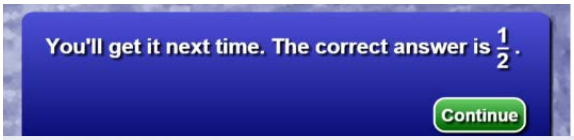
Learning Objectives for each unit will display when students open the Unit.

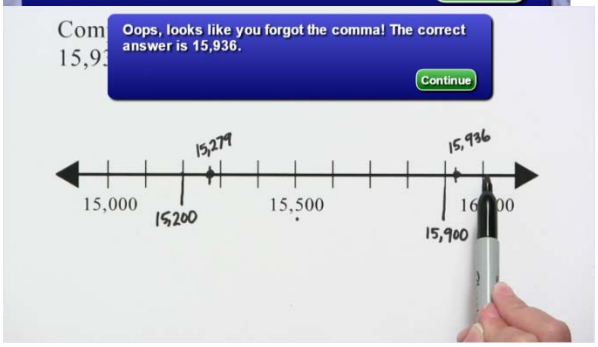
Unit Progress Bar: Units completed within the level

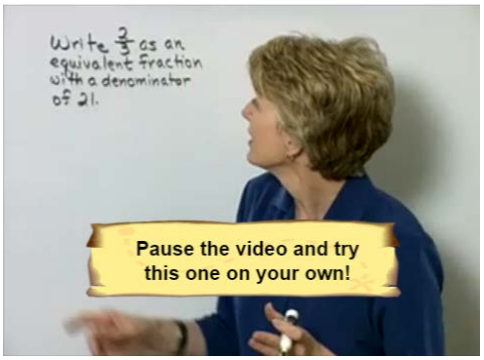
# GROWTH MINDSET

## In Ascend Math

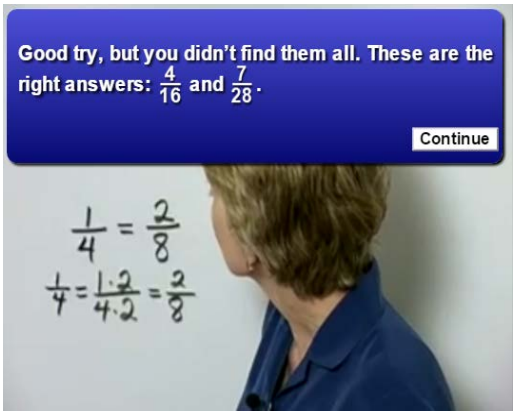
In Ascend we want t
reward the correct a
provide improveme
and encourage the s
again if she got it wr

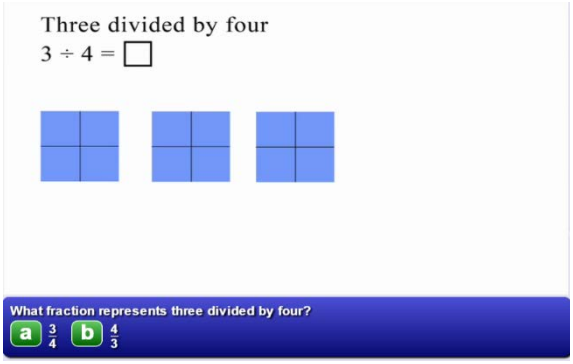


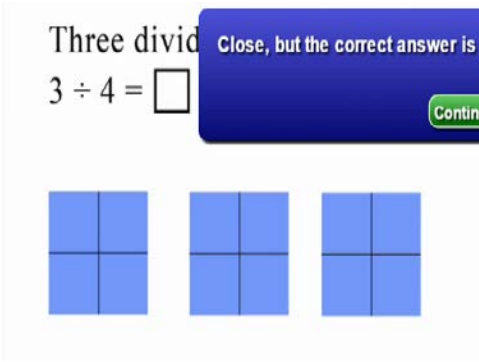



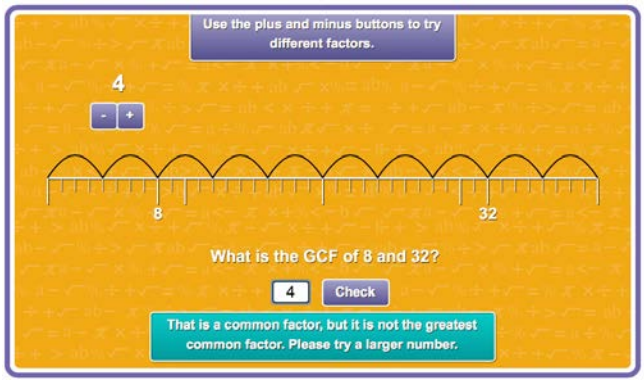



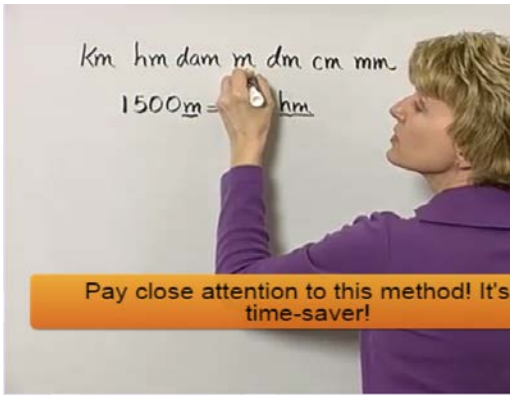

Video feedback sho
a missed answer is a
learn.



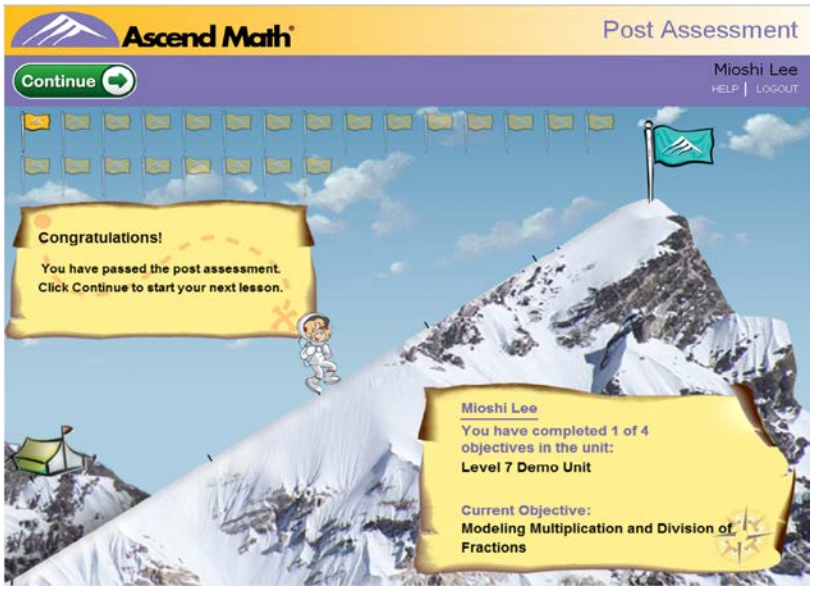



In Ascend we not only want to reward a passing post assessment score, but recognize strategy was used or emphasize how the student can learn from the mistake learn.




In Ascend we want to do more than just reward for passing an objective or for acing the assessment; we want to emphasize that learning is a process and mastery will come with work.

“Praising students' strategies, focus, effort, persistence, and improvement "takes the spo fixed ability and puts it on the process of learning," Dr. Carol Dweck said and Ascend Mat incorporates this research throughout the learning process.

**Climb that mountain!**

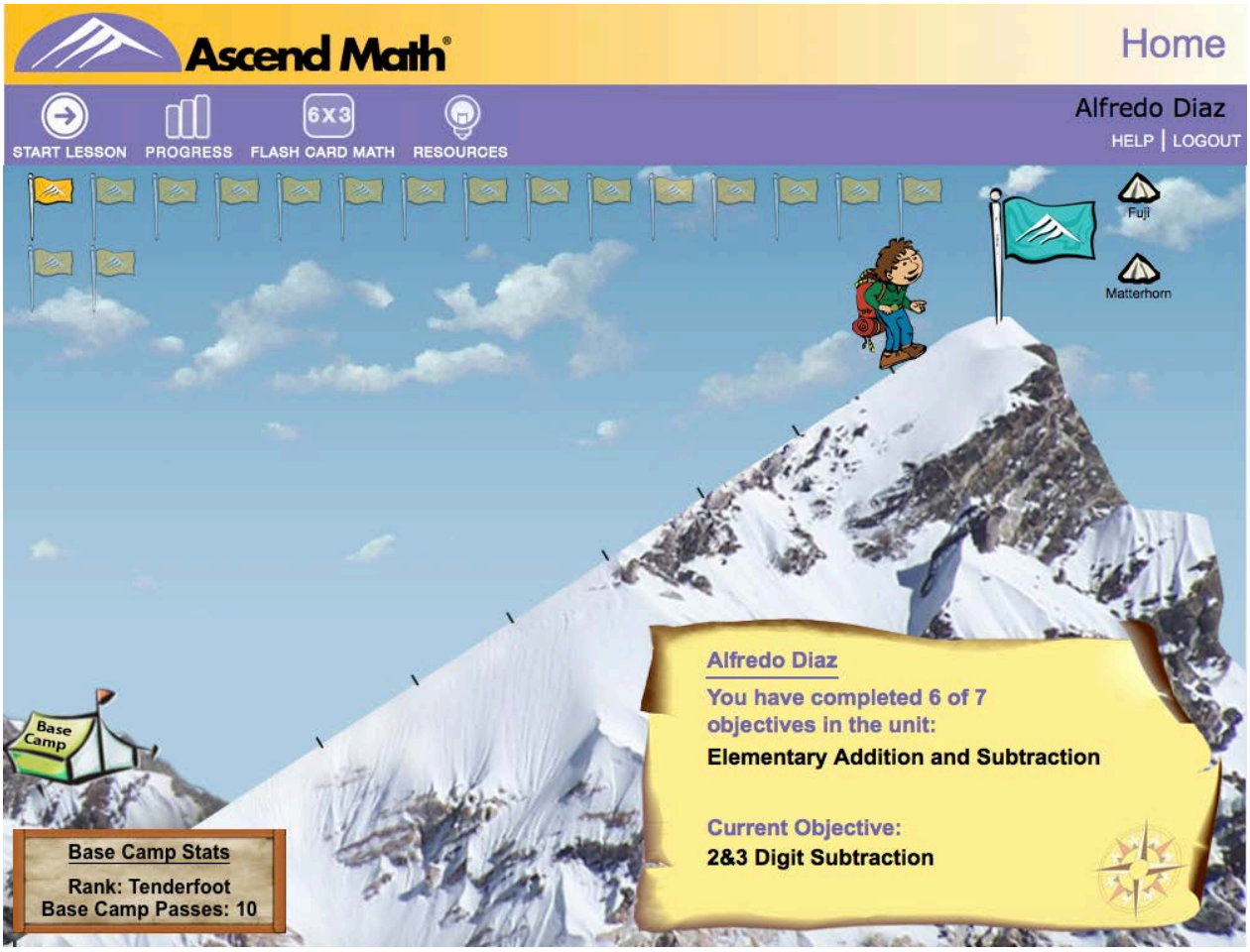
Ascend Math Offers Base Camp

Students may earn:

Experience Points – for completion of objectives

Base Camp Pass – Each Base Camp Pass represents 3 minutes that a student will be allowed to spend in Base Camp. The number of passes that a student is allowed to use per day is limited by school administrator settings


Ascend Math
Base Camp


Ascend Math
Home
START LESSON
PROGRESS
6X3
FLASH CARD MATH
RESOURCES
Alfredo Diaz
HELP | LOGOUT
Fuji
Matterhorn
Base Camp
Base Camp Stats
Rank: Tenderfoot
Base Camp Passes: 10
Alfredo Diaz
You have completed 6 of 7 objectives in the unit:
Elementary Addition and Subtraction
Current Objective:
2&3 Digit Subtraction

Base Camp offers rewards for effort and time on task including:

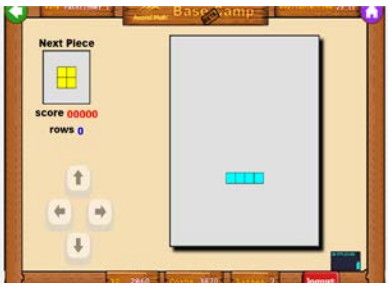
- Games
- General Store
- Treasure Room

Sample Games include:

Hungry Bears

Space Blaster


Geo Block Drop



# Ascend Math® Service Level Agreement (SLA)

**Ascend Math Uptime SLA.** Ascend Education shall use all reasonable commercial efforts, being no less than accepted industrial standards in this regard, to ensure that Ascend Math is available to students 98% of the service period time in any calendar month.

**Definitions.** The following definitions shall apply to the Ascend Math Uptime SLA.

- **"Downtime"** means, for a server, if the server response time is over one minute where the server does not reply to a ping request. Response time is calculated using server monitoring software (Pingdom), based on results from ping tests, TCP port tests, and website response time tests. Downtime is measured based on server side response time.

- **“Service Period”** means 6:00 AM to 10:00 PM Central Standard Time.

- **"Monthly Uptime Percentage"** means the total number of minutes in the Service Period of a calendar month minus the number of minutes of Downtime suffered from all Downtime Periods in the calendar month, divided by the total number of minutes in the Service Period in the calendar month.

- **"Scheduled Downtime"** means those times where Ascend Education notifies you of periods of Downtime ten (10) days prior to the commencement of such Downtime. There will be no more than twelve (12) hours of Scheduled Downtime per calendar year. Scheduled Downtime is not considered Downtime for purposes of this Ascend Math Uptime SLA, and will not be counted towards any Downtime Periods.

- **"Services"** means the services provided to customers by Ascend Math including the student interface, reporting, teacher and administrative logins and other services in accordance with the terms as expressly agreed between customers and Ascend Education.

**Uptime SLA Exclusions.** The Uptime SLA does not apply to any performance issues: (i) caused by factors outside of Ascend Education's reasonable control, including any force majeure event or Internet access or related problems; (ii) that resulted from any actions or inactions of TEA or any third; or (iii) that resulted from your equipment and/or third party equipment (not within the primary control of Ascend Education). This Ascend Math SLA states your sole and exclusive remedy for any failure by Ascend Education to provide the Services as a result of Downtime.

Ascend Education offers a variety of PD options depending on the scope of adoption. Common Options are listed below and may be custom
Prices for Professional Development are quoted with Ascend Math proposals.

## Professional Development Packages

| Description |
|---|
| **Ascend Math Essential Training District** |
| » Large Adoption - Administrator Planning Session |
| » Large Adoption - Teacher Training; single location, one day, 2 sessions of 3 hours each. Maximum attendees at each session: 20 |
| » Data Collection and Review 2 Hour Webinar. Maximum attendees: 8 at each session |
| » Onsite Data Collection and Report Summary One Day- up to 3 different locations depending on proximity to each other |
| **Ascend Math Essential Training - Web/Onsite Combination** |
| » Kick off Two Hour Webinar - Get Students Started Maximum attendees: 8 |
| » Administrator and Teacher Training One Day onsite full day working with individual teachers Up to 2 sessions per day. Max per sessio |
| » Data Collection and Report Summary 2 Hour Webinar Maximum attendee 8 - Scheduled 6 months after anniversary date |
| **Ascend Math Essential Training and Web/Data Review** |
| » Kick off Two Hour Webinar - Get Students Started Maximum attendees: 8 at each session |
| » Data Collection and Initial Report Review 2 Hour Webinar. Maximum attendees: 8 - Scheduled after 6 to 8 hours of student usage |
| » Data Collection and Report Summary 2 Hour Webinar. Maximum attendees 8 - Scheduled 6 months after anniversary date |
| **Ascend Math Web Starter Training and Report Review Package** |
| » Starter Training One Hour Webinar: Maximum attendees 4 |
| » Data Collection and Initial Report Review 1 Hour Webinar Maximum attendees: 4 - Scheduled after 6 to 8 hours of student usage |
| **Data Collection and Review Services *** |
| Monthly Reporting - Up to 4 reports; emailed to school for each of 9 months |
| Quarterly Analysis & Review - 4 times/year including report review via webinar |
| Monthly Reporting and Quarterly Analysis |
| **Other Training Services** |
| Train the Trainer 2 days |
| Teacher Quick Start Training Webinar price per Teacher |
| Remote Technical Support |
| Onsite technical support - one full day |

## Ascend Math Admistrator Planning and Support

| | *Expected Date* | | | *Sessions Required* |
|---|---|---|---|---|
| Administrator Planning Session | January | Webinar with Administrators | | |
| Initial Data Analysis | Late February | Initial Webinar with Administrators | | 1 |
| Bi-Monthly Data Analysis | March, May | Data Review Webinars with Administrators | | 2 |

## Ascend Math Teacher Training and Support

| | *Expected Date* | *Total Teachers Requiring Training* | *Teachers /Session* | *Sessions Required* |
|---|---|---|---|---|
| Initial Training - 2 Two Hour Sessions/Day (1) | January | Tn | 20 | Tn/20 |
| | | | *Total Sites* | *Days Required* |
| Report Review and Data Coaching | February | 3 buildings/day | Sn | Sn/3 |
| Report Review and Data Coaching | April | 3 buildings/day | Sn | Sn/3 |

Notes

(1) Training Sessions will include 2 training sessions per day. The Training Session will include 2 hours of presentation time and 1/2 hour of follow up Q&A. Training times are 8:30 to 11 and 12 to 2:30. One trainer will deliver 4 sessions.

Upon Completion of Training, Teachers will receive a document that will guide them to on demand how to videos in the Ascend Math Knowledge Base.

# The Ascend Math Sample Reports

# Ascend Math Reporting

Ascend is an online math instructional resource that offers pre and post assessment reporting. Reports include both formative and summative results. All assessment questions are randomly pulled from a test question database. Ascend reports will show the learning objective and the State Standard for which each objective correlates. Reports include the following:

- **Teacher/Campus Usage**

  ***Administrator Dashboard*** – The School Administrator Dashboard provides a snapshot of teacher and student usage. Data provided includes teacher logins, student hours worked for the last 14 days and since the beginning of implementation or the school year. The dashboard also reports student gains.

- **Student Usage**

  ***Level Recommendation Test*** – The Level Recommendation Test is an adaptive test that identifies where skill gaps begin; regardless of their actual grade level. Students then begin their work in Ascend at the recommended grade level. The Level Recommendation Report shows students' actual grade level and the recommended grade level.

  ***Activity Completion Report*** – The Activity Completion Report displays the amount of activity a student completed within a specified time frame.

  ***Pre Assessment Report*** – The diagnostic Pre Assessment Report outlines the student results of the pre assessment. Learning objectives and State Standards are identified at the top.

  ***Post Assessment Report*** – The Post Assessment Report outlines the student results of each post assessment. Learning Objectives and State Standards are identified at the top of the report. This is a formative report that tracks individual student progress throughout the course of their individual study plan.

- **Student Growth**

  ***Level Completion Report*** –The Grade Level Completion Report calculates student progress as students achieve more than one grade level gain in Ascend.

  ***Quiz Report*** - The Quiz Report is a summative report that shows how students are performing at a single point in time. Quizzes may be assigned on demand at the preference of a teacher.

  ***Growth Report*** - The Growth Report automatically tracks the first and last attempt of students taking the same quiz multiple times and calculates the re lated growth. The report is available for any given date range and will display results for one or multiple quizzes.

- **Student Progress**

  ***The Course Progress Report*** shows both summary and detailed learning progress for individual students. The summary data shows pre assessment scores, post assessment scores, gains and time on task. The lower section of the report details the student individual learning plan. This report illustrates which learning objectives Ascend automatically removes from the student learning plan based on pre assessment results and demonstrates how Ascend differentiates in struction for each student.

  ***The Class Summary Report*** is a summary of pre and post assessment results for each student in a class. Teachers and administrators may aslo pull this report for multiple classes at one time.

- **Campus Progress**

  ***School Progress Report*** – The School Progress Report is a summary of results for each grade level in an Ascend School or after school program.

Favorite Reports
Student Reports
Class Reports
Progress Reports
Activity Reports
Quiz Reports
Flash Card Math
Certificates
Administration Dashboard

## Washington Middle Dashboard

**Currently Logged in:** **Students:** 22 **Teachers:** 3

**Number of Licenses:** 400 **Assigned Licenses:** 388 **Unassigned Licenses:** 12

**Renewal Date:** 12/01/15 **Assigned Licenses Used*:** 388 **Assigned Licenses Unused**:** 0

**Usage over the Last 14 Days:**

**Student Logins:** 320/388 **Teacher Logins:** 10/12 **Total Hours Worked for Students:** 425:15:05

These tables include data from 01/14/2014 to 04/23/2014

| Usage |
|---|
| Average Time Per Student for Active Students |
| 11:12:44 |

| Results | | |
|---|---|---|
| Pre Test | Post Test | Gain |
| 69.4% | 100% | 30.60% |

Results in this table do not include data from Level K or 1.

*Assigned Licenses Used: Students that have started an Assessment.

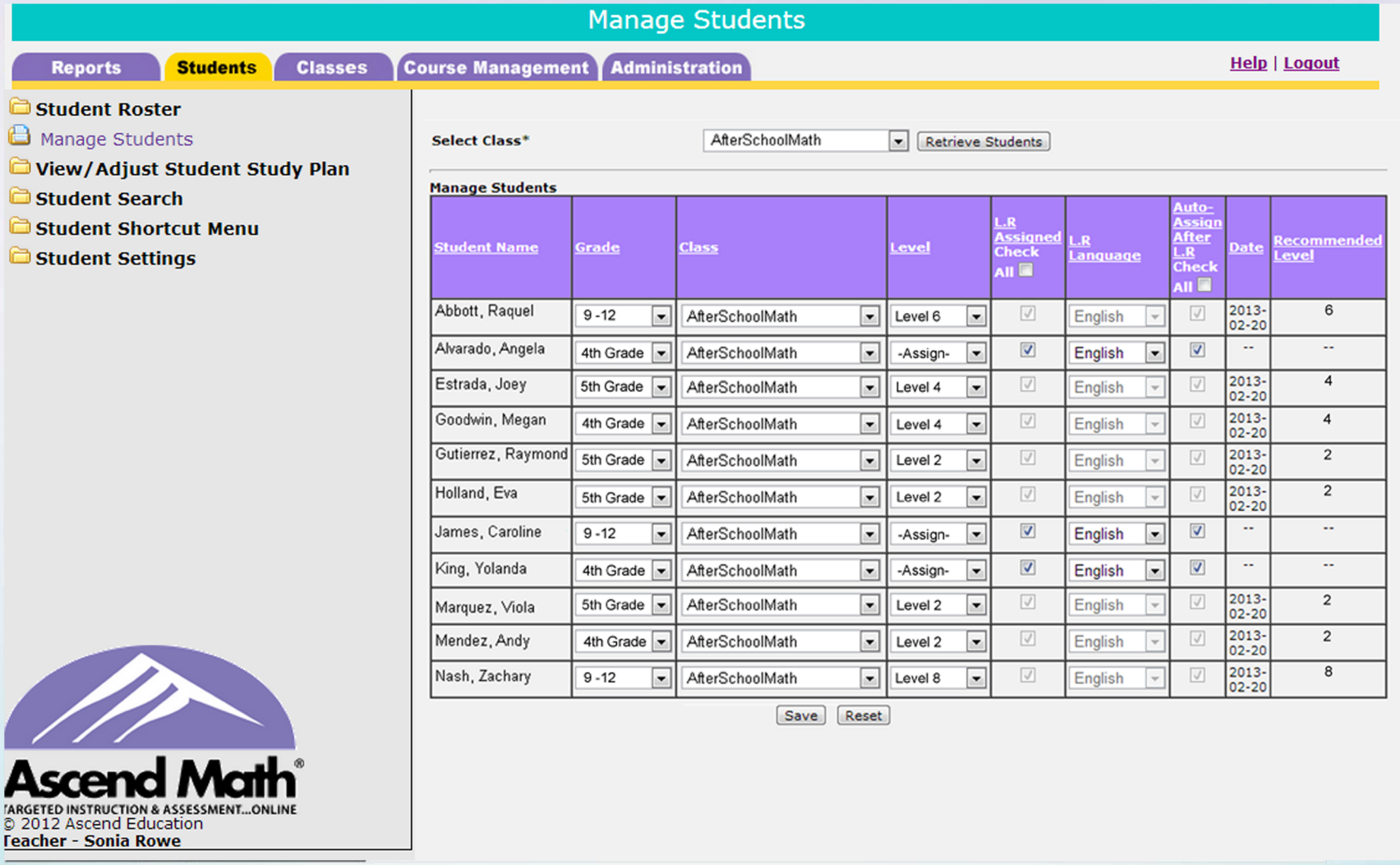
**Assigned Licenses Unused: Students that have been created but have never logged in.

Ascend Math®
TARGETED LEARNING & ASSESSMENT...ONLINE

© 2012 Ascend Education

School Administrator - School Administrator

# Level Recommendation






Ascend Math

# *Activity Completion Report*

**School** SunnydaleMiddle
**Teacher** Lovett, Angela
**Class** Math Lab
**Time Frame** Date Range
**Start Date** 8/1/2014
**End Date** 02/04/2015
**Report Date** 02/04/15 05:18:07 PM


| Name | Actual Grade | Level | Objectives Completed on Pre Assessment | Objectives Completed on Post Assessment | Total Hours Worked | Last Login Date | User Name |
|---|---|---|---|---|---|---|---|
| Bevans, Kyle | 8th Grade | 4 | 24 | 19 | 30:23:14 | 1/30/2015 | kylebevans |
| Blackburn, Jamie | 8th Grade | 4 | 32 | 21 | 35:45:17 | 1/30/2015 | jblackburn |
| Blackburn, Jamie | 8th Grade | 5 | 1 | 2 | 01:02:24 | 3/14/2015 | jblackburn |
| Darwin, Maristela | 8th Grade | 2 | 26 | 15 | 02:06:56 | 9/25/2014 | mdarwin |
| Darwin, Maristela | 8th Grade | 3 | 20 | 28 | 09:15:04 | 11/22/2014 | mdarwin |
| Darwin, Maristela | 8th Grade | 4 | 23 | 30 | 09:31:40 | 1/26/2015 | mdarwin |
| Darwin, Maristela | 8th Grade | 5 | 6 | 7 | 03:30:00 | 2/14/2015 | mdarwin |
| Gilbert, Sierra | 8th Grade | 4 | 25 | 24 | 16:55:54 | 2/14/2015 | sgilbert |
| Hibbert, Jane | 8th Grade | 2 | 29 | 12 | 03:20:21 | 10/14/2014 | jhibbert |
| Hibbert, Jane | 8th Grade | 3 | 21 | 19 | 13:33:59 | 2/14/2015 | jhibbert |
| Huerta, Antonio | 8th Grade | 4 | 26 | 27 | 18:32:47 | 1/30/2015 | thuerta |
| Huerta, Antonio | 8th Grade | 5 | 0 | 4 | 01:23:53 | 2/14/2015 | thuerta |
| Ibarra, Esmeralda | 8th Grade | 4 | 29 | 14 | 11:47:16 | 2/14/2015 | eibarra |
| Kuntz, Shirlee | 8th Grade | 3 | 30 | 15 | 09:13:24 | 1/6/2015 | skuntz |
| Kuntz, Shirlee | 8th Grade | 4 | 20 | 9 | 02:42:54 | 2/14/2015 | skuntz |
| Rey, Esperanza | 8th Grade | 2 | 32 | 9 | 02:45:41 | 10/2/2014 | erey |
| Rey, Esperanza | 8th Grade | 3 | 31 | 17 | 08:42:33 | 11/25/2014 | erey |
| Rey, Esperanza | 8th Grade | 4 | 22 | 6 | 06:20:22 | 2/14/2015 | erey |
| Shaw, Brody | 8th Grade | 5 | 7 | 26 | 37:44:13 | 2/14/2015 | bshaw |
| Teel, Jarrett | 8th Grade | 7 | 3 | 15 | 16:33:44 | 2/14/2015 | jteel |
| Thomas, Rena | 8th Grade | 2 | 31 | 9 | 01:48:15 | 9/25/2014 | rthomas |
| Thomas, Rena | 8th Grade | 3 | 25 | 23 | 04:15:21 | 10/25/2014 | rthomas |
| Thomas, Rena | 8th Grade | 4 | 27 | 26 | 09:22:40 | 12/11/2014 | rthomas |
| Thomas, Rena | 8th Grade | 5 | 13 | 11 | 04:15:42 | 2/14/2015 | rthomas |
| Trevis, Claudia | 8th Grade | 2 | 32 | 9 | 01:48:31 | 10/2/2014 | ctrevis |
| Trevis, Claudia | 8th Grade | 3 | 18 | 15 | 09:59:41 | 1/30/2015 | ctrevis |
| Wexler, Brittni | 8th Grade | 4 | 25 | 22 | 28:58:28 | 2/4/2015 | bwexler |
| Zapatero, Manzel | 8th Grade | 5 | 10 | 28 | 35:50:00 | 2/4/2015 | mzapatero |

**Total Hours Worked Total:** **337:30:14**

## *Pre Assessment Results*

Diagnostic Assessment results report lists State Standards.


**School Name:** SunnydaleMiddle
**Report Date:** 02/04/15 05:18:58 PM

| | |
|---|---|
| **Teacher:** | Angela Lovett |
| **Class Name:** | Math Lab |
| | Level 5 |

| No. | Student Name | 1010<br>5.NBT.1<br>Place Value When Multiplying and Dividing | 1011<br>5.NBT.1, 5.NBT.3a, 5.NBT.4, 5.NBT.7, 5.OA.1<br>Whole Numbers and Place Value | 1017<br>5.NBT.4, 5.NF.3<br>Rounding Whole Numbers Using a Number Line Diagram | 1018<br>5.NBT.4, 5.NF.3<br>Rounding Whole Numbers | E4.01<br>5.OA.1<br>Multiplying with 2 Digit Factors | E4.02<br>5.NBT.6, 5.OA.1<br>Finding 2 Digit Quotients | E4.03<br>5.MD.1<br>Metric Measurement | 1012<br>5.OA.1<br>Adding Whole Numbers with a Number Line Diagram | 1013<br>5.OA.1<br>Properties of Addition with Whole Numbers | 1014<br>5.OA.1<br>Adding Whole Numbers in Columns | 1015<br>5.OA.1<br>Subtracting Multi-Digit Whole Numbers | 1016<br>5.OA.1, 5.OA.2<br>Modeling Addition and Subtraction of Whole Numbers |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Blackburn, Jamie | - | 3/3 | 2/3 | 1/3 | 0/3 | 0/3 | - | - | - | - | - | - |
| 2 | Darwin, Maristela | - | 1/3 | 3/3 | 3/3 | 2/3 | 1/3 | 2/3 | 3/3 | 1/3 | 3/3 | 3/3 | 2/3 |
| 3 | Huerta, Tony | - | 1/3 | 2/3 | 0/3 | 2/3 | 0/3 | - | - | - | - | - | - |
| 4 | Shaw, Brody | - | 1/3 | 3/3 | 2/3 | 3/3 | 1/3 | 2/3 | 3/3 | 1/3 | 1/3 | 1/3 | 3/3 |
| 5 | Thomas, Rena | - | 3/3 | 3/3 | 2/3 | 3/3 | 2/3 | 1/3 | 3/3 | 1/3 | 3/3 | 3/3 | 0/3 |
| 6 | Zapatero, Manzel | - | 1/3 | 2/3 | 1/3 | 2/3 | 0/3 | 0/3 | 3/3 | 0/3 | 3/3 | 3/3 | 3/3 |

| | |
|---|---|
| | Mastered |
| | Needs Improvement |

Ascend Automatically removes learning objectives from student study plans if students show mastery on the pre assessment.

## *Post Assessment Results*


| | |
|---|---|
| **School Name:** | **SunnydaleMiddle** |
| **Report Date:** | **02/04/15 05:19:19 PM** |
| **Teacher:** | **Angela Lovett** |
| **Class Name:** | **Math Lab** |
| | **Level 5** |

Results reflect learning objectives and state standards.

| | | 1010 | | 1011 | | 1017 | | 1018 | | E4.01 | | E4.02 | | E4.03 | | 1012 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 5.NBT.1 | | 5.NBT.1, 5.NBT.3a, 5.NBT.4, 5.NBT.7, 5.OA.1 | | 5.NBT.4, 5.NF.3 | | 5.NBT.4, 5.NF.3 | | 5.OA.1 | | 5.NBT.6, 5.OA.1 | | 5.MD.1 | | 5.OA.1 | |
| | | Place Value When Multiplying and Dividing | | Whole Numbers and Place Value | | Rounding Whole Numbers Using a Number Line Diagram | | Rounding Whole Numbers | | Multiplying with 2 Digit Factors | | Finding 2 Digit Quotients | | Metric Measurement | | Adding Whole Numbers with a Number Line Diagram | |
| No. | Student Name | T.Att | Score | T.Att | Score | T.Att | Score | T.Att | Score | T.Att | Score | T.Att | Score | T.Att | Score | T.Att | Score |
| 1 | Blackburn, Jamie | - | - | - | - | 1 | 100.0% | 2 | 100.0% | - | - | 1 | 80.0% | 4 | 80.0% | - | - |
| 2 | Darwin, Maristela | - | - | 19 | 100.0% | 2 | 100.0% | 28 | 80.0% | 2 | 100.0% | 13 | 80.0% | 45 | 80.0% | - | - |
| 3 | Huerta, Tony | - | - | 3 | 80.0% | 1 | 100.0% | 2 | 100.0% | 1 | 100.0% | - | - | 14 | 80.0% | - | - |
| 4 | Shaw, Brody | - | - | 1 | 80.0% | - | - | 1 | 100.0% | - | - | 4 | 100.0% | 6 | 80.0% | - | - |
| 5 | Thomas, Rena | - | - | 8 | 100.0% | 1 | 100.0% | 11 | 100.0% | - | - | 2 | 100.0% | 58 | 80.0% | - | - |
| 6 | Zapatero, Manzel | - | - | 1 | 80.0% | 1 | 100.0% | 2 | 100.0% | 1 | 80.0% | 1 | 100.0% | 11 | 100.0% | - | - |
| | Mastered | | | | | | | | | | | | | | | | |
| | Needs Improvement | | | | | | | | | | | | | | | | |

## *Level Completion Report Data*


**School Name:** SunnydaleMiddle
**Report Date:** 02/04/15 05:21:06 PM
**Time Frame:** Date Range
**Start Date:** 08/01/2014
**End Date:** 02/04/2015
**Number Of Students:** 9

**Information listed on this report is limited to the date range selected.**

| Name | User Name | Class Name | Last Login | Total Time on Task | Number of Levels Completed | Level | Avg. Pre Assessment Result (%) | Avg. Post Assessment Result (%) | Gain in Score (%) | Number of Prescribed Objectives | Number of Objectives Completed | Current Objective Code | Start Date | Completion Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Blackburn, Jamie | jblackburn | Math Lab | 1/30/2015 | 23:59:55 | 1 | 4 | 77.4 | 87.6 | 10.3 | 21 | 21 | - | 8/5/2014 | 1/30/2015 |
| Blackburn, Jamie | jblackburn | Math Lab | 1/30/2015 | 00:21:50 | | 5 | 40 | 100 | 60 | 4 | 2 | E4.02 | 8/5/2014 | - |
| Darwin, Maristela | mdarwin | Math Lab | 1/30/2015 | 00:52:15 | 3 | 2 | 83.7 | 89.3 | 5.6 | 15 | 15 | - | 8/5/2014 | 9/25/2014 |
| Darwin, Maristela | mdarwin | Math Lab | 1/30/2015 | 07:26:11 | | 3 | 70.1 | 90 | 19.9 | 28 | 28 | - | 8/5/2014 | 11/22/2014 |
| Darwin, Maristela | mdarwin | Math Lab | 1/30/2015 | 06:47:27 | | 4 | 64.8 | 89.3 | 24.6 | 30 | 30 | - | 8/5/2014 | 1/26/2015 |
| Darwin, Maristela | mdarwin | Math Lab | 1/30/2015 | 02:16:26 | | 5 | 59.6 | 91.4 | 31.8 | 13 | 7 | 1022 | 8/5/2014 | - |
| Hibbert, Jane | jhibbert | Math Lab | 1/30/2015 | 01:19:52 | 1 | 2 | 87 | 93.3 | 6.3 | 12 | 12 | - | 8/5/2014 | 10/14/2014 |
| Hibbert, Jane | jhibbert | Math Lab | 1/30/2015 | 08:02:10 | | 3 | 75.6 | 90.5 | 14.9 | 20 | 19 | 1016 | 8/5/2014 | - |
| Huerta, Tony | thuerta | Math Lab | 1/30/2015 | 14:51:33 | 1 | 4 | 67.9 | 89.6 | 21.7 | 27 | 27 | - | 8/5/2014 | 1/30/2015 |
| Huerta, Tony | thuerta | Math Lab | 1/30/2015 | 00:58:04 | | 5 | 33.3 | 95 | 61.7 | 4 | 4 | - | 8/5/2014 | - |
| Shaw, Brody | bshaw | Math Lab | 1/30/2015 | 28:06:52 | <1 | 5 | 51 | 93.8 | 42.9 | 27 | 26 | 2082 | 8/5/2014 | - |
| Teel, Jarrett | jteel | Math Lab | 1/30/2015 | 11:11:46 | <1 | 7 | 33.3 | 88 | 54.7 | 17 | 15 | 2092 | 8/5/2014 | - |
| Thomas, Rena | rthomas | Math Lab | 1/30/2015 | 00:50:23 | 3 | 2 | 87.8 | 98 | 10.2 | 10 | 10 | - | 8/5/2014 | 9/25/2014 |
| Thomas, Rena | rthomas | Math Lab | 1/30/2015 | 02:54:50 | | 3 | 75 | 91.3 | 16.3 | 23 | 23 | - | 8/5/2014 | 10/25/2014 |
| Thomas, Rena | rthomas | Math Lab | 1/30/2015 | 06:39:13 | | 4 | 74.8 | 86.9 | 12.1 | 26 | 26 | - | 8/5/2014 | 12/11/2014 |
| Thomas, Rena | rthomas | Math Lab | 1/30/2015 | 03:24:45 | | 5 | 69 | 87.3 | 18.2 | 15 | 11 | 2116.2 | 8/5/2014 | - |
| Trevis, Claudia | ctrevis | Math Lab | 1/15/2015 | 01:02:49 | 1 | 2 | 92.7 | 95.6 | 2.9 | 9 | 9 | - | 8/5/2014 | 10/2/2014 |
| Trevis, Claudia | ctrevis | Math Lab | 1/15/2015 | 07:03:11 | | 3 | 75.9 | 85.3 | 9.4 | 16 | 15 | - | 8/5/2014 | - |
| Zapatero, Manzel | mzapatero | Math Lab | 1/20/2015 | 25:56:40 | <1 | 5 | 51.8 | 88.6 | 36.8 | 28 | 28 | - | 8/5/2014 | - |


# *Class Quiz Report*

Report Date:02/04/15 05:21:43 PM
Date Range: 08/01/2014 - 02/04/2015

School Name: SunnydaleMiddle

| | |
|---|---|
| Teacher: | Lovett, Angela |
| Class Name: | Math Lab |

| Quiz Name: | Ch. 1-3 Review | | Ch. 4-6 Review | | Percents Quiz | |
|---|---|---|---|---|---|---|
| Date Quiz is Assigned: | Oct 14, 2014 | | Nov 14, 2014 | | Jan 5, 2015 | |
| Student Name | Att.No | Score | Att.No | Score | Att.No | Score |
| Blackburn, Jamie | 1 | 66.7% | 3 | 50.0% | 1 | 37.5% |
| Darwin, Maristela | 2 | 100.0% | 2 | 83.3% | 3 | 75.0% |
| Gilbert, Sierra | 1 | 100.0% | 1 | 50.0% | 1 | 75.0% |
| Hibbert, Jane | 1 | 50.0% | 1 | 100.0% | 1 | 83.3% |
| Huerta, Tony | 3 | 50.0% | 2 | 66.7% | 2 | 75.0% |
| Ibarra, Essie | 1 | 100.0% | 1 | 83.3% | 1 | 50.0% |
| Kuntz, Shirlee | 2 | 50.0% | 3 | 33.3% | 3 | 50.0% |
| Rey, Esperanza | 1 | 100.0% | 1 | 100.0% | 2 | 83.3% |
| Shaw, Brody | 1 | 16.7% | 1 | 66.7% | 1 | 25.0% |
| Teel, Jarrett | 2 | 83.3% | 2 | 100.0% | 2 | 75.0% |
| Thomas, Rena | 3 | 83.3% | 1 | 50.0% | 1 | 37.5% |

| | |
|---|---|
| | Mastered |
| | Needs Improvement |


# *Growth Report*

Report Date:02/04/15 05:22:13 PM
Date Range: 08/01/2014 - 02/04/2015

| | |
|---|---|
| School Name: | SunnydaleMiddle |
| Teacher: | Lovett, Angela |
| Class Name: | Math Lab |

| Quiz Name: | | Decimals Quiz | | | | |
|---|---|---|---|---|---|---|
| Student Name | Level | First Attempt Within Date Range | Date | Last Attempt Within Date Range | Date | Growth |
| Blackburn, Jamie | 5 | 37.50% | 01/12/2015 | 83.30% | 01/19/2015 | 45.80% |
| Darwin, Maristela | 5 | 37.50% | 01/12/2015 | 75.00% | 01/19/2015 | 37.50% |
| Gilbert, Sierra | 4 | 75.00% | 01/12/2015 | 83.30% | 01/19/2015 | 8.30% |
| Hibbert, Jane | 3 | 83.30% | 01/12/2015 | 100.00% | 01/19/2015 | 16.70% |
| Huerta, Antonio | 5 | 65.00% | 01/12/2015 | 75.00% | 01/19/2015 | 10.00% |
| Ibarra, Esmeralda | 4 | 50.00% | 01/12/2015 | 83.30% | 01/19/2015 | 33.30% |
| Kuntz, Shirlee | 4 | 37.50% | 01/12/2015 | 50.00% | 01/19/2015 | 12.50% |
| Rey, Esperanza | 4 | 50.00% | 01/12/2015 | 100.00% | 01/19/2015 | 50.00% |
| Shaw, Brody | 5 | 25.00% | 01/12/2015 | 83.30% | 01/19/2015 | 58.30% |
| Teel, Jarrett | 7 | 0.00% | 01/12/2015 | 75.00% | 01/19/2015 | 75.00% |
| Thomas, Rena | 5 | 37.50% | 01/12/2015 | 83.30% | 01/19/2015 | 45.80% |

| | |
|---|---|
| | 0% - 69% |
| | 70% - 79% |
| | 80% - 100% |
| NA = | Student has not been assigned to this quiz. |

Growth data displays for students who have taken a quiz two or more times. Growth data is not applicable if a student has only taken one quiz.

# Report: *Course Progress*

| | |
|---|---|
| **Student Name** | **Jane Hibbert** |
| **Class** | **Math Lab** |
| **Level** | **Level 3** |

| **Pre Assessment Results** | |
|---|---|
| Test Date | 11/19/2014 12:40 |

| | |
|---|---|
| Total Number of Problems | 123 |
| Problems Attempted | 117 |
| Problems Correct | 93 |
| Percent Correct | 75.60% |

| **Course Progress** | |
|---|---|
| Hours Per Week | - |
| Estimated Hours to Completion | - |
| Estimated Weeks to Complete | - |
| Total Hours Worked | 2:45:19 |
| Remaining Weeks to Complete | - |

| **Post Assessment Results** | |
|---|---|
| Date of last login | 1/14/2015 12:17 |
| Total Problems Attempted | 24 of 25 |
| Total Problems Correct | 22 |
| Average of Passing Scores | 88.00% |
| Gain in Score | 12.40% |
| Date of Last Completed Test | 2/4/2015 10:41 |

| S.No. | Objective | Standard | Pre Assessment Result | Time On Task | Post Assessment Attempted | Post Assessment Correct | Post Assessment Score | Time Spent Post-Assessment | Objective | Texas Essential Knowledge and Skills | Section Code | Number of attempts at Post Assessment |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Whole Numbers** | | | | | | | | | | | | |
| 1 | Whole Numbers and Place Value | 3.NBT | 33.30% | 2:18:25 | 5 of 5 | 4 | 80.00% | 0:00:55 | 1011 | 3.NBT.1 | 1001 | 16 |
| 2 | Rounding Whole Numbers Using a Number Line Diagram | 3.NBT | 100.00% | | | | | | 1017 | 3.NBT.1 | 1001 | |
| 3 | Rounding Whole Numbers | 3.OA | 100.00% | | | | | | 1018 | 3.OA.8 | 1001 | |
| **Elementary Multiplication** | | | | | | | | | | | | |
| 1 | Interpreting Products of Whole Numbers Using Multiples of 10 | 3.NBT | 66.70% | 0:11:29 | 4 of 5 | 4 | 80.00% | 0:03:28 | E5.25.A | 3.NBT.3 | EM1 | 2 |
| 2 | Multiples of 10 Using Base Ten Strategies | 3.NBT | 100.00% | | | | | | E5.25.B | 3.NBT.3 | EM1 | |
| **Elementary Division** | | | | | | | | | | | | |
| 1 | Foundations of Division | 3.OA | 66.70% | 0:09:08 | 5 of 5 | 4 | 80.00% | 0:07:47 | E5.21 | 3.OA.2 | EM1 | 1 |
| **Elementary Multiplication and Division with Two or More Digits** | | | | | | | | | | | | |
| 1 | Multiplication and Division using Associative and Distributive Properties | 3.OA | 100.00% | | | | | | E5.23 | 3.OA.5 | EM1 | |
| 2 | Modeling Multiplication and Division with Unknowns | 3.OA | 66.70% | 0:09:22 | 5 of 5 | 5 | 100.00% | 0:01:16 | E5.24 | 3.OA.8 | EM1 | 4 |
| **Whole Number Addition and Subtraction** | | | | | | | | | | | | |
| 1 | Adding Whole Numbers with a Number Line Diagram | 3.NBT | 100.00% | | | | | | 1012 | 3.NBT.2 | 1001 | |
| 2 | Properties of Addition with Whole Numbers | 3.NBT | 100.00% | | | | | | 1013 | 3.NBT.2 | 1001 | |
| 3 | Adding Whole Numbers in Columns | 3.NBT | 100.00% | | | | | | 1014 | 3.NBT.2 | 1001 | |
| 4 | Subtracting Multi-Digit Whole Numbers | 3.NBT | 66.70% | 0:23:47 | 5 of 5 | 5 | 100.00% | 0:03:24 | 1015 | 3.NBT.2 | 1001 | 1 |
| 5 | Modeling Addition and Subtraction of Whole Numbers | 3.MD | 0.00% | 0:29:55 | 5 of 5 | 3 | 60.00% | 0:05:53 | 1016 | 0.7d, 3.MD.8, 3.( | 1001 | 2 |

| | |
|---|---|
| Total Prescribed Objectives | 6 |
| Objectives Attempted | 6 |
| Objectives Completed | 5 |

Objectives Mastered in the Pre Assessment

Objectives Mastered in the Course

Objectives Assigned

Students placed out of learning objective on pre assessment; indicating individual learning plan.

## *Combined Class Report Summary*

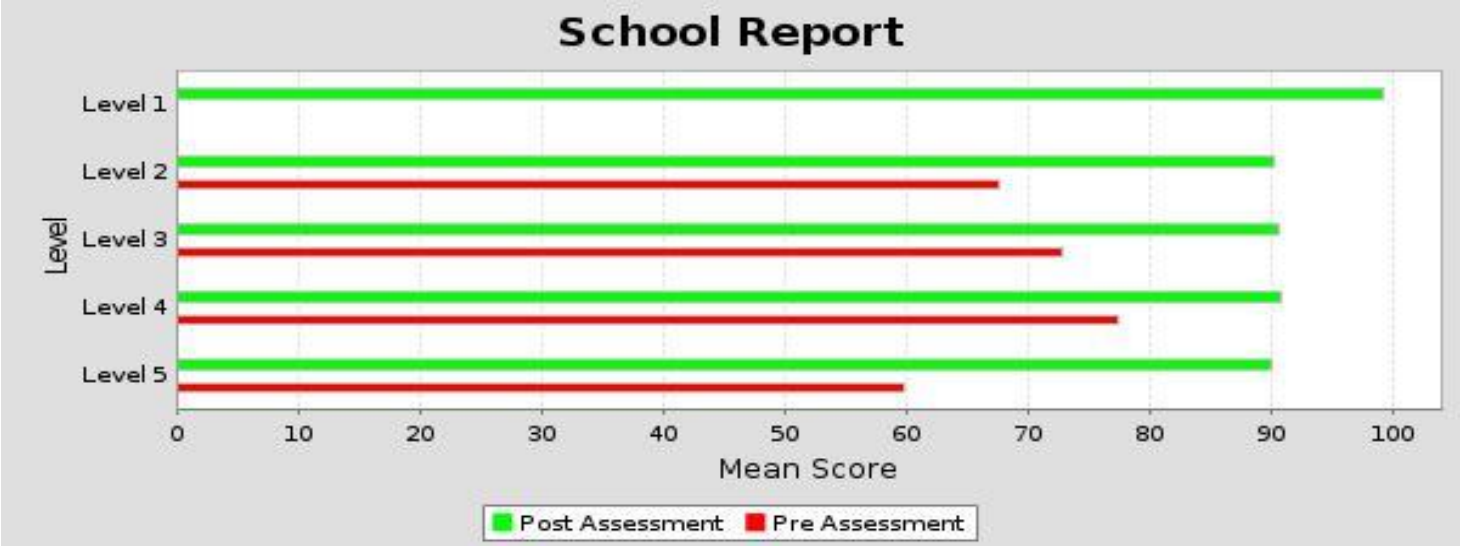

**School Name:** SunnydaleMiddle
**Report Date:** 02/04/15 05:20:29 PM
**Number Of Students:** 9

| No. | Name | Pre Assessment Results | Number of Prescribed Objectives | Number of Objectives Completed | Objective Test Score (Average) | Gain in Score | Number of Objectives Remaining | Current Objective Code | Class Name |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Blackburn, Jamie | 40.00% | 4 | 2 | 100.00% | 60.00% | 2 | E4.02 | Math Lab |
| 2 | Darwin, Maristela | 59.60% | 13 | 7 | 91.40% | 31.80% | 6 | 1022 | Math Lab |
| 3 | Hibbert, Jane | 75.60% | 20 | 19 | 90.50% | 14.90% | 1 | 1016 | Math Lab |
| 4 | Huerta, Tony | 33.30% | 9 | 4 | 95.00% | 61.70% | 5 | 2087 | Math Lab |
| 5 | Shaw, Brody | 51.00% | 27 | 26 | 93.80% | 42.90% | 1 | 2082 | Math Lab |
| 6 | Teel, Jarrett | 33.30% | 17 | 15 | 88.00% | 54.70% | 2 | 2092 | Math Lab |
| 7 | Thomas, Rena | 69.00% | 15 | 11 | 87.30% | 18.20% | 4 | 2116.2 | Math Lab |
| 8 | Trevis, Claudia | 75.90% | 16 | 15 | 85.30% | 9.40% | 1 | 1056 | Math Lab |
| 9 | Zapatero, Manzel | 51.80% | 28 | 20 | 88.60% | 36.80% | 8 | E5.23 | Math Lab |
| | **Average Score** | **54.39%** | | | **91.10%** | **36.70%** | | | |

Average gain for all students.

# *MemorialMiddleSchool School Progress Report*

| Level | Number of Students | Mean Score Pre Assessment | Average Time On Task Per Student | Mean Score Post Assessment | Gain in Score* |
|---|---|---|---|---|---|
| | | | | | |
| Level 1 | 3 | N/A | 0:52:43 | 99.30% | N/A |
| Level 2 | 140 | 67.70% | 1:47:39 | 90.40% | 22.70% |
| Level 3 | 116 | 73.00% | 2:25:37 | 90.80% | 17.80% |
| Level 4 | 131 | 77.50% | 2:04:38 | 90.90% | 13.50% |
| Level 5 | 24 | 59.90% | 1:41:19 | 90.10% | 30.20% |




*The 'Gain in Score' percentage is based upon the average gain in score of each individual student that has completed a pre assessment and at least one post assessment. It is not a calculation of the Mean Post Assessment Score minus the Mean Pre Assessment Score.

Ascend Math®
TARGETED INSTRUCTION & ASSESSMENT...ONLINE