Getting the Most out of STAR Math™

USING DATA TO INFORM INSTRUCTION AND INTERVENTION
Contents

Introduction ........................................................ .1

1 STAR Math Basics
   For Whom Is STAR Math Designed? .............................. .3
   Test Frequency ..................................................... .3
   Test Content ....................................................... .4
   How STAR Math Works .............................................. .4
   How We Know STAR Math Is a Good Assessment ................. .8

2 Fall Universal Screening
   Before Testing ..................................................... .10
   During Testing ..................................................... .11
   Understanding Screening Data ....................................... .11
   Acting on Fall Screening Data ....................................... .14
   Using STAR Math Data to Plan Instruction ....................... .18
   Using STAR Math with Accelerated Math .......................... .19
   Communicating with Parents ......................................... .20
   Using STAR Math in Your RTI Program ............................ .20

3 Starting an Intervention, Goal Setting, and Progress Monitoring
   Setting Up an Intervention and Goal ............................. .22
   Goals for ELLs and Students with Special Needs ................. .25
   Progress Monitoring ................................................ .27
   Responding to the Data ............................................. .28
   Editing an Intervention and Goal .................................... .30
   On-Going Progress Monitoring ..................................... .30
   STAR Math and RTI: Problem Solving vs. Standard Protocol .. .32

4 Winter Universal Screening
   Assessing the Overall Situation ................................... .34
   Assessing Grade-Level Needs ....................................... .36
   Assessing Individual Needs ......................................... .36
   Using the Growth Report to Compare Scores ....................... .37
   Making Concrete Plans ............................................. .37
   Mid-Year Screening at the Class or Group Level .................. .38
   Mid-Year Screening by Characteristic ............................. .38

5 Spring Universal Screening
   Using the Screening Report to Evaluate Your Instructional Program .39
   Using the Screening Report to Evaluate Your Intervention Strategies .. .40
   Make Plans for the Next School Year ............................... .41

6 Common Questions ................................................ .42

Appendix
   Instructions for Common Software Tasks .......................... .46
   STAR Math Objective Clusters ...................................... .50
   Sample Letter to Parents for an RTI Program ..................... .53
   STAR Math Reports ................................................ .54
   Index ........................................................................... .55
Introduction

STAR Math is a computer-adaptive assessment designed to give you accurate, reliable, and valid data quickly so that you can make good decisions about instruction and intervention. STAR Math, operating on the Renaissance Place Real Time platform, is part of a breakthrough comprehensive assessment system for data-driven schools, which also includes STAR Reading and STAR Early Literacy.

The purpose of this book is to help teachers and administrators get the most out of STAR Math. We begin by explaining the test's design and the types of data generated by the test. We also briefly describe fundamental psychometric attributes of STAR Math, such as validity and reliability. In later chapters, we explain how to best use the test for screening and progress monitoring, and we answer general frequently asked questions. In the appendix, we provide instructions for common software tasks. To make the book useful to a wide audience of educators, we minimize technical terms while explaining the concepts that are important to know. (The STAR Math software contains a technical manual for anyone who wants to examine the psychometric data more closely. You can also find the technical manual in the Resource Center on our Web site’s Training Center at www.renlearn.com/profdevel.)

We believe STAR Math is the perfect tool for data-driven schools. It is practical and sound, and it provides a wealth of information about your students’ math ability. We hope the information you find here will help and inspire you. It is, however, only an introduction. To learn about more professional-development opportunities, including consultation on your own student data, visit our Web site’s Training Center at www.renlearn.com/profdevel.
STAR Math Basics

The only way to know whether learning is taking place is to measure it. Once you do that you can do a host of other things. You can provide students with appropriate materials. You can identify students who need help. You can analyze problems with individuals, grades, or schools; set learning goals; and make plans for meeting those goals. And you can determine whether the instruction and intervention you provide are effective.

STAR Math is uniquely capable of facilitating all these tasks. Thanks to computer-adaptive technology, students typically complete the test in less than 15 minutes, and teachers and administrators receive the results immediately. Moreover, STAR Math is accurate, reliable, and valid. In fact, it is highly rated for both screening and progress monitoring by the National Center on Response to Intervention.

In this chapter, we tell you for whom STAR Math is designed, how it works, the types of data it generates, and how we know it is a good assessment. In later chapters, we explain how you can use STAR Math throughout the school year to make thoughtful decisions that will accelerate learning for all of your students.

For Whom Is STAR Math Designed?

STAR Math is designed for students in grades 1 through 12, but can also be used with kindergarten students. It identifies students’ instructional math levels and compares their math achievement to that of students across the nation. The test provides norm-referenced and criterion-referenced scores for students in grades 1 through 12; kindergarten students only receive criterion-referenced scores.

How do you know if a student is ready to take STAR Math? In general, the student should have beginning reading skills and some math skills. Observe the student working through the practice questions that appear at the beginning of STAR Math. If the student can answer these questions unassisted, he is ready to complete the test. If the student has a lot of trouble getting through the practice, the student probably does not have the basic skills necessary to be measured by STAR Math.

Test Frequency

Most schools administer the test at least twice—in fall and spring—to get baseline data for each student and to measure growth over the school year. Many schools test more frequently. They use STAR Math for screening purposes in fall, winter, and spring, and they monitor the progress of students in intervention programs more frequently—perhaps monthly, biweekly, or even weekly.
Test Content

STAR Math's content is organized into eight mathematical strands: numeration concepts, computation processes, word problems, estimation, data analysis and statistics, geometry, measurement, and algebra. The eight strands cover 214 objectives and were identified after consulting multiple sources, including textbook series, state curriculum guides, Principles and Standards for School Mathematics of the National Council of Teachers of Mathematics (NCTM), and Trends in International Mathematics and Science Study (TIMSS). As a result, the content reflects the objectives commonly taught in the math curriculum of contemporary schools (primarily in the United States). The technical manual includes more detailed information about each of the strands.

STAR Math tests consist of 24 questions, not including practice questions and a few items that are in the calibration process, and they are divided into two main parts. The first part, or the "heart" of the test, assesses numeration concepts (items 1–8) and computation processes (items 9–16). The "heart" is the bulk of the test since it covers the two mathematical strands that are fundamental to all others and includes the content about which teachers often desire the most information. The second part, or the "applications," covers all of the remaining strands: word problems, estimation, data analysis and statistics, geometry, measurement, and algebra. The specific makeup of the "applications" depends, in part, on the student's grade level. For example, a fifth-grade student will receive at least one estimation item, but a first-grade student won't receive any. The technical manual details the number of items from each strand that students, by grade level, could possibly see on the test.

STAR Math test items are presented in a multiple-choice format with four answer choices. Students will only see a "not given" response option for items in the computation processes strand. This option was included in order to minimize estimation as a response strategy and to encourage students to actually work the problems to completion.

How STAR Math Works

Students take STAR Math tests at individual computers. The software delivers multiple-choice items one by one, and the student selects answers by using four letter keys (A, B, C, D) and the Enter key (or return key for Macintosh computers). Students follow a protocol: They can use blank scratch paper and a pencil while testing, but not calculators or reference materials. After the test is completed, the software calculates a score, and teachers and administrators view and analyze reports that show results for an individual, class, grade, or school.
STAR Math can provide accurate data in a short amount of time because it combines cutting-edge computer-adaptive technology with a specialized psychometric test design. The best way to understand how this works is to walk through the test-taking experience.

**Students start the test.** You begin by explaining the test to your students using the pretest instructions that are printed from the software. These instructions explain what the test looks like, how to answer questions, and what happens if a student doesn’t answer a question in the time allowed. Each student then takes the test at a computer by logging in with a unique user name and password that you obtain by printing the Student Information Report. (See the appendix for instructions.) The software presents practice questions first and, if the student does fine with those, begins delivering actual test questions.

The first actual test question will be at a level slightly below the student's grade level. Or, if the student has taken a STAR Math test in the previous 180 days, the software uses the results from the last test to determine the starting difficulty level for the next one. You also can adjust a student's starting level in the software by entering a math instructional level, perhaps based on a score from a different test or your professional judgment. If so, the software will start the test with a question at a level slightly below the one you entered. (Instructions for adjusting a student’s starting level are in the appendix.)

The software adjusts the difficulty of every item. During the actual test, the software uses student responses to determine the level of difficulty of next items. If the student answers an item correctly, the software bumps up the difficulty level of the next item. If the student answers incorrectly, the software lowers the difficulty level of the next item. The same thing happens with the next item and the next. By continually adjusting the difficulty of an item to what the student has shown she can or cannot do, the software zeroes in on an accurate assessment of ability.

We use a similar procedure in our everyday lives. As an example, let's suppose you are new to weight lifting. Perhaps you read in a fitness book that the average person of your age and gender can comfortably lift 10-pound dumbbells overhead. When you try it, those 10 pounds are easy! So you attempt 30 pounds. But, uh-oh, that's too hard. Next you lift 20 pounds—still too hard. After a little more trial and error, you conclude that 14 pounds is just right. Thus, your current ability for lifting dumbbells overhead is 14 pounds.

STAR Math uses the same kind of procedure. The software stores a huge number of items calibrated for difficulty and “adapts” the test to each individual.
**Students are given a specific amount of time to answer each question.** Time limits keep the test moving and maintain test security, and were determined based on data we obtained when validating the test. Students have up to three minutes to answer each item. You have the option of extending time limits for individual students who you believe need more time to answer each question—English language learners, for example, or students with certain disabilities. Those students will then have twice as long to answer each question. Keep in mind that norms as well as other technical data, such as reliability and validity, are based on administering the test using the standard time limits. Therefore, if you do extend time limits for students, be sure to interpret their norm-referenced scores with caution.

Regardless of the time-limit setting, students receive a warning when 15 seconds remain for answering an item. Items that time out are counted as incorrect unless the student has already selected the correct answer.

**The test stops after the student answers 24 questions.** A major challenge when testing students is gathering enough evidence to draw reliable conclusions about their ability. This is especially problematic when designing conventional tests. Because every student takes the same test form, a conventional test must contain a large number of items in order to evaluate a wide spread of abilities.

Each STAR Math test, on the other hand, is individualized and unique. Because it immediately adjusts to each student's math ability, it delivers an accurate and reliable score after only 24 questions (not including the practice questions and a few items that are in the calibration process).

**The software calculates a score.** To measure someone’s ability to do a task, you must know how difficult the task is to do. For example, think again about how you determine your weight-lifting ability. You need items—the dumbbells—and a way to express their relative weight, which is called a scale. In this case, the scale is “pounds.” You identify the relative weight of the dumbbells by marking them with a number along that scale: 3 pounds, 5 pounds, 7 pounds, 10 pounds, and so on.

As we developed STAR Math, we approached test items in the same way. We administered the items to large, nationally representative samples of students, collected the responses, and performed a statistical analysis to determine the difficulty of each item. Using a scale, we marked each item with a difficulty level: 1.67, 1.68, and so on. This process is called item calibration. Currently, we calibrate continuously by including a few additional items on each STAR test, which is why the tests your students take may have 25 or 26 items instead of 24. (Answers for these extra items do not affect a student's score.)

The method of statistical analysis we use is based on Item Response Theory (specifically the Rasch model). This type of analysis relates the probability of a student correctly answering an item to the student's ability and the difficulty of the item. We can get a sense of how this works by returning to our weight-lifting analogy. Let's suppose we asked a large, nationally representative sample of adults to lift dumbbells of varying weights. After analyzing the data, we could say, for example, that the typical 50-year-old female has a 50-50 chance of lifting 10 pounds overhead, a 70-year-old female has a 50-50 chance of lifting 5 pounds overhead, and so on. If you’re a 70-year-old female and you can lift 20 pounds overhead, we now have a good idea of your ability! We also know that if you can
lift 20 pounds, you can lift 15 or 10 or 5. In other words, we can predict what you can do without even asking you to do it.

STAR Math can provide the same kind of information. We know a student’s grade level, and we know how difficult each item is for each student, given the time of school year and perhaps an initial estimate of math ability. Therefore we can look at a student’s pattern of right and wrong answers on a STAR test and provide a statistically sound estimate of the student’s ability. We also know the probability of a student answering any item correctly without presenting that item to the student.

The software reports various types of scores. The most important score that the STAR Math software reports is called the scaled score (SS). This score is similar to pounds in our weight-lifting example. It’s a fundamental measure that you can use to see growth over time. Just as your weight-lifting ability might increase from 20 pounds to 25 pounds, a student’s math ability might grow from 200 to 300. The drawback to scaled scores is that they don’t tell you whether a score is good, bad, or middle of the road. As an educator, you need more information in order to know what test results mean and how to respond to them.

For this reason, we calculate additional scores, all of which are derived from scaled scores. These include both criterion-referenced and norm-referenced scores. We’ll explain a few of them here and go into more detail in succeeding chapters.

A criterion-referenced score tells you how a student is doing relative to a set standard. In the case of STAR Math, we include objective clusters on the Diagnostic Report to show each student’s level of proficiency within numeration and computation objectives. (See the example on p. 18.) If a cluster, such as “hundreds,” is shaded, it means the student “mastered” it. In other words, the student’s ability estimate suggests that she could answer 70 percent or more correct on that cluster. Further, if she mastered “hundreds,” then we know she must have mastered “tens” and “ones.” That’s because content in the numeration concepts and computation processes strands is organized in a hierarchical structure, reflecting the fact that students’ understanding of harder mathematical concepts depends upon their understanding of the more basic ones. The solid black line points to the objective cluster that the student is currently developing, or the lowest objective that she has not yet mastered. See the appendix for a list of the objectives included the numeration concepts and computation processes strands.

While criterion-referenced scores are based on what students should be able to do according to a set standard, norm-referenced scores relate to what students across the nation can actually do. Percentile rank (PR) is one of these scores. A student with a percentile rank of 85, for example, performs as well or better than 85 percent of students nationwide of the same grade at the same time of year.

Another norm-referenced score—and one that is often misunderstood—is grade-equivalent (GE). This, too, compares a student’s test performance to that of students nationally. For example, a GE of 4.2 means a student scored as well on STAR Math as did the typical student who is in the second month of fourth grade.

Because different kinds of scores tell us different things, they prompt different actions. Let’s look at two more students as examples. We’ll say that they were
tested in September and December. The first student, Jennifer Brown, had a scaled score of 704 in September. By December, it increased to 740—she made gains. This is called absolute growth. When we look at her percentile rank, we see that it has also increased—from the 65th percentile to the 74th percentile. This tells us she has made gains relative to her peers, which is called relative growth.

Now let’s look at the second student, John Smith. His scaled score has also increased—from 609 to 625—showing absolute growth. But his PR is the same in December as it was in September: the 25th percentile. There’s been no relative growth. Thus we know that while John is learning, he’s barely maintaining his standing. His growth rate needs to accelerate, perhaps through an intervention program, if he is to make more significant gains.

STAR Math provides many reports that use these and other scores to help you analyze student needs, make good decisions, and monitor progress. We’ll give details and examples throughout the rest of this book of the ones that are most commonly used. A list of all the reports available and what they include is in the appendix.

**How We Know STAR Math Is a Good Assessment**

For a test to be good it must be reliable. A reliable test is like a reliable car. Just as a reliable car starts up every time you turn the key, a reliable test gives consistent results from one administration to another.

With conventional assessments, the key to reliability is length. As we noted earlier, conventional tests must be long in order to provide enough items to adequately test students with a wide range of abilities. Because STAR Math individualizes each test through computer-adaptive technology, it shows high levels of reliability with far fewer items.

Psychometricians evaluate reliability in a number of ways. One way is to administer different, but parallel, tests twice to the same students and see if the scores are consistent. This is referred to as alternate forms reliability. According to the National Center on Response to Intervention (NCRTI), a reliability level of .60 and higher is good; .80 is very good. We have collected and analyzed three types of reliability data, including alternate forms reliability. In all types of analysis, the reliability level of STAR Math exceeds .90.

Besides being reliable, a test must be valid. Validity means that the test actually tests what it is meant to test. As with reliability, there are many ways to measure this. We already looked at STAR Math’s “content validity,” that is, the relevance of the questions, strands, and objectives sampled by the test. Another way to evaluate validity is to examine the degree to which one assessment correlates with other commonly accepted assessments. To check this, we asked schools to submit students’ STAR Math results along with their scores on other assessments, such as the California Achievement Test, Comprehensive Test of Basic Skills, Iowa Test of Basic Skills, Metropolitan Achievement Test, Stanford Achievement Test, and several statewide tests. Our analysis showed a correlation with these tests that exceeded the guideline provided by NCRTI. The technical manual provides details.
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<th>Summary</th>
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<tr>
<td><strong>STAR MATH BASICS</strong></td>
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</tr>
<tr>
<td>• The software adjusts the difficulty of each item to a student’s performance. Students typically finish the test in less than 15 minutes.</td>
</tr>
<tr>
<td>• The software calculates various scores, including scaled scores, levels of proficiency with numeration and computation objectives, percentile ranks, and grade equivalents, which are used for different purposes.</td>
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<tr>
<td>• STAR Math exceeds standards for reliability and validity.</td>
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Fall Universal Screening

In the medical world, health screening tests are an important part of preventive care. They help ensure that serious diseases and conditions are detected and treated. Screening tests typically find that many people are fine, others have symptoms that bear watching, and a few need immediate treatment. Screening is one of the ways doctors sort and allocate aid based on need.

Students come to school with a variety of needs, too. In order to deliver the best, most appropriate instruction, you also need a screening process for assessing students’ conditions and allocating aid. This process, during which all students are tested, is generally referred to as universal screening. STAR Math informs universal screening by generating reliable data on every student. The software then presents the data on reports that make it easy for you to set priorities for instruction and intervention.

STAR Math software allows you to set up as many as ten screening periods in a school year. Typically, however, universal screening is done three times a year: fall, winter, and spring. In this chapter, we focus on fall screening. Fall screening tells you where you are as the school year opens, helps you make or confirm plans for allocating resources, and raises questions that will be answered in subsequent screenings.

Before Testing

Before students can take a STAR Math assessment, a number of tasks must be done within the software. Most of these are done by technology managers with administrator access, but some may be performed by teachers.

**Enter school and district information in Renaissance Place.** Someone with administrator access must enter information about each school using STAR Math, including the school calendar, staff members, classes, and student information. Or, information from a Student Information System (SIS) can be automatically integrated with Renaissance Place using one of two Renaissance Learning services: the Renaissance Data Integrator (RDI) or the Schools Interoperability Framework (SIF) connection. A lead teacher for each class must also be designated, and products must be assigned to classes. See the Renaissance Place software manual for full instructions on entering district, school, and student information.

**Add student characteristics.** When you add student information in Renaissance Place, we recommend that you include any student characteristics for which you will want data. For example, if you would like to be able to compare the progress of students receiving free lunch to that of the school population as a whole, you must identify those students in the software. The software includes a list of characteristics, and you may also define your own characteristics.

**Enter screening dates.** STAR Math has three default screening periods: Fall (September 1 – 15), Winter (January 1 – January 15), and Spring (May 1 – 15). You can edit these dates and add more screening periods, up to a maximum of ten.
(Instructions are in the appendix.) Your first screening period must be as close to the beginning of the school year as possible so that you can address instructional needs quickly. Because you are measuring each student's achievement relative to that of other students, administer STAR Math to everyone within a fairly short time period. The software allows you to define a 30-day screening period, but two weeks or less is recommended.

**During Testing**

Once testing is underway, you can check to see how it's proceeding. On the Renaissance Place Home page in the STAR Math task list, click Screening, Progress Monitoring, & Intervention and choose the school you wish to view. During the screening period, you will see a bar graph under Screening Status that shows the percentage of students who have been tested in each grade. Click Preview to see a summary of the results so far.

**Understanding Screening Data**

Once the screening period has ended, the STAR Math Screening Report displays the test data. Take a look at the example on the next page as we explain what the data means.

Notice first that the report is displaying results for a single grade, in this case, grade 5. This is the default setting so you can compare students who are at the same point in school in order to do grade-level planning.

Next notice the line that extends horizontally across the graph. This is the benchmark. A **benchmark** is the lowest level of performance that is considered acceptable. In STAR Math, the default benchmark is the 40th percentile. Students at the 40th percentile perform as well or better than 40 percent of the students in the national sample in that grade at that time of year. We use the 40th percentile as the default benchmark because research experts, along with many states, consider it to mean "working at grade level" or "proficient." Ideally, at least 80 percent of students will be at or above the benchmark.

Now look at the colored bars on the graph. These categorize students in relation to the benchmark. Basically, they show you visually what proportion of students in a grade are doing okay—that is, are "At/Above Benchmark"—and what proportion are not doing okay. The “not okay” students are further categorized by urgency of need into groups titled “On Watch,” “Intervention,” and “Urgent Intervention.”

We place students into these categories using what are called **cut scores**. Cut scores are simply a set of numbers intended to help you identify students you may need to be particularly concerned about. Other professions have similar sets of numbers. For example, it's commonly accepted that an oral temperature of 98.6 is “normal” and a temperature over 101 in an adult is cause for concern. These cut scores are guidelines that help doctors make health decisions. Our cut scores help you make educational decisions by giving you a starting point for discussion. They are not meant to set off a rush to judgment. Just as when a doctor sees that you have a fever, even a high one, she’ll check other indicators before deciding the next step.
The cut scores on the Screening Report are scaled scores that correspond to percentiles. The categories are defined in the following way:

- **At/Above Benchmark** = At/Above 40th percentile
- **On Watch** = Below 40th percentile
- **Intervention** = Below 25th percentile
- **Urgent Intervention** = Below 10th percentile

The table below the graph on the Screening Report shows the number and percentage of students who fall into each of these categories. In the example above, only 58 percent of students are at or above benchmark, far fewer than the 80 percent that is considered ideal. When a substantial number of students are performing below grade level, it often indicates there is a problem with general classroom instruction. We’ll talk about how to respond to data like this in the next section.
Another way to analyze the data on the Screening Report is to look at where students are in relation to the benchmark. For example, let's suppose 73 percent of the students in a grade are at or above benchmark but the block of green that represents them is close to the benchmark and fairly flat. (See the example below.) This tells you that students are barely making it over the benchmark line and you need to pay attention to your core instructional program, and possibly strengthen it, to accelerate growth for these students. Similarly, if the block of blue representing on-watch students is close to the benchmark and also fairly flat, you know you have many students with the potential to reach benchmark.

The report's additional pages list the students who fall into each category. Students needing urgent intervention—with the lowest scaled scores—are listed first.

Some states define cut scores for intervention, and

High Achievers
You may want to identify a cut score above which students will be eligible for enrichment or supplementary learning activities that enhance and go beyond the core program. Then manually draw a line on the report to see how many students fall into this category.
they may differ from the software’s default values. Because of this, cut scores can be changed by someone with administrator access. (The appendix provides instructions.) We urge you, however, not to lower the benchmark. Doing so lowers expectations, which ultimately lowers achievement. Moreover, lowering the benchmark means you may not make adequate yearly progress nor meet state standards. Instead, if you have many under-performing students, acknowledge that it will take a few years to get 80 percent of them to the benchmark level and work steadily toward that goal.

If you have entered student characteristics in the software, such as free lunch, Title I, or Gifted/Talented, you can run a Screening Report for just those students within a grade. You can then analyze the distribution of scores for students sharing that characteristic and you can compare their data to that of the grade as a whole.

Acting on Fall Screening Data

Suppose you go to the doctor with an aching foot. He orders x-rays, which reveal a stress fracture. The doctor looks over the results and then … does nothing. What would you do? Switch doctors! Tests are supposed to precede action.

The same principle holds true in education. Being a data-driven school doesn’t mean collecting data, it means acting on data. Here are some guidelines for acting on fall screening data.

Assess the overall situation schoolwide. If you are an administrator, review the Screening Report for each grade in your school and consider the following questions:

• Are large numbers of students below benchmark? Of those, how many are flagged for urgent intervention?
• Do some grades appear to have more students in trouble than others?
• Are you satisfied with the number of students who are at or above benchmark? Are most of those students barely meeting the benchmark, or is there a good distribution of scores?
• What might generalized low or mediocre scores mean?
• Does the core curriculum need to be examined?
• Do teachers need more professional development to fully implement the curriculum?

If you screened students the previous spring, you probably already raised these questions. In this case, compare the spring scores to the new fall ones: Did students lose ground over the summer? Does that affect any plans you made for allocating resources or training teachers?

Solve staffing and scheduling issues. If you screened students the previous spring, you likely made plans for staffing and scheduling as well. But even if fall is your first opportunity to screen with STAR Math, you can still do these tasks. Review the Screening Report for each grade and consider the intervention programs you already have in place or have planned to implement. Will they be sufficient to meet student needs? This is a good time to review the school schedule as well. Must you alter it to make room for additional intervention programs? (See p. 16 for scheduling suggestions.)
Establish grade-level teams. The STAR Math scores you see at the beginning of the year provide a look into the future—if you do nothing, the students at or above benchmark will likely meet proficiency standards by spring, and the students below benchmark will not. Your goal, therefore, is to do something to move more students to proficiency. However, the data on the Screening Report does not tell you exactly what to do. For that you need a team of people who will analyze, prioritize, plan, and make decisions.

Many schools establish grade-level teams that meet immediately after the fall testing period. Effective teams consist of members who understand students, who know the resources that are available, and who have the authority to allocate resources. Thus members of a team usually include the principal and all the teachers for the grade. They may also include the data manager, curriculum coordinator, and/or Response to Intervention (RTI) coordinator if a school uses an RTI framework. While administrators may have previously looked at intervention and resource needs across grades, grade-level teams consider the needs of their specific grade. They also assess the needs of individual students and place them in appropriate programs.

Assess achievement within the grade. It’s best if grade-level teams meet within a week after testing. Examine the general level of achievement for the grade and the distribution of scores. How many students are beginning the year “at grade level”—at or above the benchmark level? Are many students hovering just below the benchmark in the On Watch category? Will you need to make adjustments within the core instructional program to ensure that those students reach proficiency by the end of the year? Do staff members need more training in order to implement the core instructional program more effectively?

Set measurable grade-level goals and make plans for meeting them. Decide where you would like your grade to be by the next screening date. Make those goals measurable. For example, you might aim to have the percentage of students at or above benchmark increase from 58 percent to 65 percent by the winter screening date in January. Decide what strategies you will use for general classroom instruction to meet that goal. Also consider how you will make sure those strategies are implemented well. You might, for example, plan to do peer modeling and coaching, ask advice of a math coach, and/or set up periodic meetings to talk about how the strategies are working and troubleshoot as needed.

Also determine how many students in the Intervention and Urgent Intervention categories you can serve and how. What resources are available—math specialists, paraprofessionals, intervention materials—and how will you use them? In the next chapter, we’ll explain how to set individual progress goals for these students.
Ideas for Scheduling

Plan a Daily Intervention Within the Classroom
For example, a classroom of 25 students might include five students who are struggling with math. While the other students are engaged in an independent activity under the supervision of a paraprofessional, the classroom teacher works with the small group of five.

Schedule a Schoolwide Intervention/Enrichment Time
Schedule a common period for the entire building. For example, if the intervention/enrichment period is 1:00 to 1:30, all students requiring intervention or enrichment participate at that time. The students not requiring intervention or enrichment are assigned an independent learning task during the same time. This type of scheduling usually requires additional staff, such as Title I teachers, math specialists, gifted/talented teachers, paraprofessionals, and/or special education teachers.

Have Intervention Teachers Float
Under this model, one or two specialists work with groups from different classrooms throughout the day. Each classroom has a dedicated time for receiving the intervention.

Additional Options for High Schools

Establish a Period Within the Traditional Schedule
If, for example, the traditional schedule consists of six to eight periods of 50 to 60 minutes each, one of these periods, such as an elective or study hall, can be used for intervention.

Configure a Block Schedule
With this option, a “Four Block” schedule includes four 80-minute instructional blocks, a 40-minute intervention/enrichment period, and time for lunch. Students are assigned to a daily 80-minute instructional block of language arts and an 80-minute block of mathematics. They are assigned social studies and science every other day for 80 minutes. The fourth block consists of elective classes and physical education. This leaves the 40-minute period available for intervention or enrichment. A teacher’s schedule includes three 80-minute blocks and the 40-minute intervention/enrichment period. The remaining 80 minutes are reserved for team and individual planning.

Sources:
Plan interventions for students performing below the benchmark. Make sure you have the information you need to make good decisions. This means taking into account more than a single test score. Assemble additional assessment data, anecdotal records, and examples of daily work. Begin with the students needing urgent intervention. They are represented by the red bars on the first page of the Screening Report and are listed by name on the following pages. These are the students who will likely continue to struggle and drop farther and farther below benchmark if they don’t receive help. Decide which of these students will be best served by an intervention within the regular classroom and which need more intense intervention through a separate program. If you are working within an RTI framework, remember that when a student scores in the Urgent Intervention category, it does not automatically mean the student should be in a Tier 3 intervention setting. Rather, it indicates that the student needs immediate attention.

Next, consider students represented by yellow—those in the Intervention category. What kind of support is best for them? They, too, are unlikely to reach benchmark unless action is taken.

As you plan interventions for these students, consider the following questions:

- What does this particular student need?
- Has anyone intervened with this student before?
- How intense was the intervention? Whole group? Small group? Individualized?
- How successful was the intervention?
- Was the intervention implemented the way it was intended and for a sufficient amount of time?
- Based on this information, what is the best next step for this student?

A good principle to keep in mind is that as a student’s need intensifies and becomes more urgent, the student will require attention from someone with greater expertise. Just as patients with problems that are difficult to solve are referred to health specialists, so must students with persistent or severe problems receive instruction from expert educators.

Finally, consider the students represented by blue and designated “on watch.” Which of these are you worried about? Can they be supported through the core curriculum? Is further differentiation required? Some students may be fine without supplemental instruction and others will not be. Of those, some may need just a small tweak in their instruction to reach benchmark. Decide how you will monitor those students so that you can intervene if you later discover they are not making progress.
As you make these decisions, bear in mind that intervention can take many forms, including:

- Additional math practice as facilitated by Accelerated Math. Many schools find that a high-quality Accelerated Math implementation built on best practices such as monitoring student progress leads to a boost in student achievement schoolwide.
- Small-group instruction within the regular classroom. Accelerated Math helps teachers identify groups of students who are struggling with the same math objectives. Accelerated Math also supports both low-achieving and high-achieving students by providing them with an appropriate level of practice. Many instructional math programs also support low-achieving and high-achieving students by providing supplementary materials, strategies, and assessments.
- Focused instruction and practice for individuals or small groups that is in addition to core instruction delivered within the regular classroom. Renaissance Learning’s Accelerated Math for Intervention program is an example of a specially designed math intervention program.

Also be aware that the intent of the Screening Report is not to earmark students for specific programs such as special education. Rather, the report is designed to alert you to students who may need particular attention. When the data on an individual student suggests a complex or unusual problem, many schools schedule a separate meeting that takes a more comprehensive look at the student’s learning history and capabilities.

### Using STAR Math Data to Plan Instruction

Testing students at the beginning of the school year gives you baseline data that helps you plan instruction. You can view this data on several STAR Math reports (see the appendix for a complete list of STAR Math reports), but two of them in particular will help you identify a starting point for each of your student’s math practice: the Diagnostic Report and the Accelerated Math Library Report. We discussed the Diagnostic Report briefly in Chapter 1, but will look at it more closely here. In the next section, we’ll highlight the Accelerated Math Library Report.

The STAR Math Diagnostic Report provides an individual student’s most recent test scores, an assessment of skills, and
recommendations for improving current skills. The test scores include the scaled score (SS), grade equivalent (GE), percentile rank (PR), percentile rank range, normal curve equivalent (NCE), and recommended Accelerated Math library.

As we explained in Chapter 1, the objective clusters on the bottom of the Diagnostic Report show the student’s level of proficiency within the numeration concepts and computation processes strands. The student “mastered” the shaded clusters—the student was estimated to be able to answer 70 percent or more correct on the cluster—and the black line points to where the student is currently developing skills. In the example on the previous page, the student, Scott Coleman, is developing numeration and computation skills related to fractions and decimals. His teacher can use this information to determine where to target instruction for Scott, or to identify an appropriate skill-based small group for Scott within her class. The teacher will also consider other measures of Scott’s math ability, such as class work or anecdotal records, when making her instructional decisions.

The Diagnostic Report also gives specific recommendations for how the student can continue to develop math skills. These recommendations are included in text above the objective clusters. In Scott’s case, he needs to learn to add and subtract fractions with like denominators, as well as numbers with the same number of decimal places.

Using STAR Math with Accelerated Math

To achieve the most growth in any endeavor, practice must be individualized. A novice piano player, for example, doesn’t perform at the same level of competency as a concert pianist. Therefore her practice materials and many of the skills she works on must be different. The same holds true for math. If you use Accelerated Math to support a math practice program, you’ll find that STAR Math’s fall data can help you determine an appropriate starting place for each student.

Identifying an Accelerated Math library. STAR Math lists a suggested Accelerated Math library of objectives for each student on the Accelerated Math Library Report. The recommended libraries are based on students’ STAR Math scores and reflect the instructional level at which students should practice.
Because the libraries are recommendations based on one STAR Math score, they should be considered in combination with other factors, such as your knowledge of the students and students’ class work. Instructions for viewing or printing the report are in the appendix.

For a full explanation of how to use STAR Math with Accelerated Math to support math practice, see our publication *Getting Results with Accelerated Math*, which is available as a free download or for purchase as a spiral-bound copy through our Web site, www.renlearn.com. A *Teacher’s Guide to Accelerated Math for Intervention*, available with the purchase of Accelerated Math for Intervention, includes an explanation of how to use STAR Math with Accelerated Math, MathFacts in a Flash, and other tools to support math practice in an intervention setting.

### Communicating with Parents

No matter how you use fall data, remember that parents must be involved in decisions concerning their children. Important communication points are (1) as soon as there is an indication that a student is having difficulty and (2) when instruction is significantly differentiated, either within the regular classroom or through an intervention program. Depending on the nature of the intervention, include parents in instructional team meetings when a proposed intervention is discussed and, if the intervention proceeds, inform parents of their child’s progress.

To help with informing parents, STAR Math includes a Parent Report that summarizes a student’s test results, explains what the scores mean, and describes what a student needs for optimal math growth. (Instructions for printing the Parent Report are in the appendix.) An example of a letter that can be sent home to inform parents of instructional modifications within an RTI program is also in the appendix. If you’re using Accelerated Math or MathFacts in a Flash with your students, and parents have Internet access, Renaissance Home Connect can help with giving parents access to progress-monitoring data. Encourage parents to regularly log in to Renaissance Home Connect to view their child’s math practice data.

### Using STAR Math in Your RTI Program

Many states and districts have adopted an educational approach called Response to Intervention or RTI. The aim of RTI is to give all students high-quality classroom instruction first and to provide increasingly intense, individualized intervention to low-achieving students. Each student’s response to intervention is monitored frequently and adjustments are made based on the response data.
RTI implementations look different in different schools but a tiered model is central. If your school has embraced RTI, it may be represented in general terms by this pyramid.

**Using the STAR Math Screening Report with a Tiered Model.** In their review of assessments, the federally funded National Center on Response to Intervention found that STAR Math met the highest scientific standards as a tool for RTI. Because STAR Math identifies students by categories, you might be tempted to think of students needing intervention, for example, as “Tier 2 students” and those needing urgent intervention as “Tier 3 students.” Doing so, however, would not be true to the principles of RTI. The RTI model is based on the idea that every student has an equal chance of success. Tiers represent actions. A student may be enrolled in a Tier 2 or 3 intervention for a period of time but may also move from that tier into another in the course of a year—as, indeed, any student might. The overall goal is not to label students and place them, more or less permanently, into a program, but to identify students who are likely to struggle and provide the appropriate level of assistance so that the majority of students perform to benchmark standards within the core instructional program.

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**Summary**

**FALL UNIVERSAL SCREENING**
- Fall universal screening helps you to set priorities for instruction and intervention and to allocate resources.
- Students at or above the benchmark are considered to be working at grade level. Ideally, at least 80 percent of students should be at or above the benchmark.
- Cut scores define categories of need. For example, students who score below the 10th percentile are considered in need of urgent intervention.
- Grade-level teams use screening data to identify the appropriate level of instruction for each student and decide how that will be delivered.
- STAR Math provides diagnostic information for planning instruction and baseline data for measuring growth.
- For those who use Accelerated Math, STAR Math also provides a suggested starting point for each student’s Accelerated Math practice.
- Parents must be informed of key intervention decisions and should be included in the decision-making process when appropriate.
Starting an Intervention, Goal Setting, and Progress Monitoring

As adults, we know the power of goals. Whether we’re saving money to buy a house, taking classes to learn new skills, or starting an exercise program to improve our fitness, a goal focuses our behavior. We think through important questions, such as “What must I do to meet this goal? What can I do—realistically?” Most importantly, a goal gives us a fixed point against which we can measure our progress. For the same reasons, we recommend that you set math achievement goals for students who are beginning an intervention.

Of course, the ultimate goal for all students is to reach or exceed benchmark, which is typically the 40th percentile. This, however, can take time. Therefore STAR Math software enables you to set intermediate goals for a specified intervention period. For example, if a student is currently performing in the 15th percentile, your goal might be to move the student to the 20th percentile by the end of a semester. The advantage of setting intermediate goals is that you can more quickly see if a student is making progress toward the long-term goal.

Typically, goals of this type are set only for students who are in intervention, usually by the intervention teacher. To help you with this task, we provide a goal-setting tool within the software that is referred to as a “wizard.” It records the important information about an intervention and helps you calculate goals for individual students based on each student’s math status. The software then plots a student’s progress and projects whether or not the student will meet the goal. This enables you to judge the effectiveness of an intervention.

Creating Intervention Groups

If a number of students are receiving the same intervention, it’s useful to create a special “group” within the software and assign the intervention teacher to it. This gives the intervention teacher access to the students’ test data. For example, let’s suppose Joe Brown is in Mrs. Smith’s seventh-grade math class, but for the first semester he will also be receiving supplementary math instruction in a small group with the math specialist. Joe’s “official” placement is in Mrs. Smith’s “class,” and that is how the district’s technology manager enrolled him in the software. But since the math specialist also needs access to Joe’s test data, she creates a “group” in STAR Math that includes Joe and the other students with whom she will be working. The appendix has instructions for creating and managing groups.

Setting Up an Intervention and Goal

STAR Math has powerful capabilities, but to take advantage of them you must supply the software with the right information at the right time. Think of it the way you would a scientific experiment. Let’s suppose, for example, your doctor discovers you have high cholesterol. The first intervention in a situation like this is a heart-healthy diet and regular exercise. In order to measure the effects of this intervention, your doctor must have baseline data—that is, a measure of your cholesterol level at the start of the intervention. He then sets expectations for a certain period of time. For example, he might say your cholesterol level needs to drop a specific amount by the end of six months. You go back to his office after that six-month period, and he tests you again. He compares the data on your baseline test to your most recent test and evaluates whether the intervention regimen of diet and exercise has been effective. Then he decides what to do next.
To truly measure the effectiveness of a math intervention, you must follow a similar procedure. Take a look at the illustration of the software wizard on this page. The numbers correspond to the steps we describe below.

**Step 1: Name the intervention and enter an end date.** Just as a doctor describes an intervention in your medical record, so must you describe a student’s math intervention in the software. Take another look at the illustration below. Under Intervention Details is a spot where you enter the intervention name as you’d like it to appear on reports. This could be the name of a specific program such as “Accelerated Math for Intervention” or “MathFacts in a Flash,” or it could be a description like “After-school tutoring 30-min. daily.”

The end date can be the end of a marking period, semester, or school year, or any other period of time. Just be sure to allow enough time for the intervention to work. Experts recommend no fewer than eight weeks. (Some states and districts specify ten or twelve weeks.) If you are uncertain about how much time a student needs to meet a goal, make your best guess. You can change the goal end date at any time.

**Step 2: Select a starting test.** If the student has taken more than one STAR Math test before you set up an intervention in the software, you can select an anchor test. It’s important that you administer a test close to the actual start of the intervention so you can choose this as the anchor test. Doing so has the following advantages.
• An assessment at the beginning of an intervention gives you true baseline data. That means once the intervention is underway you will be able to measure the student's response to it more accurately.

• Better baseline data means the software can give you better information about what kind of growth you can expect the student to achieve. We talk more about this information in Step 4.

Use the Starting Test drop-down list to view the dates and results of all STAR Math tests the student has taken. Choose the testing date that is closest to the start of the intervention that you implemented, or plan to implement, for the student. If the student did not test within a week or two of the start of the intervention, consider retesting the student before setting up the intervention and establishing a goal.

**Step 3: Review the reference points.** If you select a starting date that is different than the initial one shown, the software refreshes reference data designed to help you set a goal for the student. In this example, Mark Boyle tested on 9/14/2009 and achieved a scaled score of 574, which placed him in the 15th percentile. The first reference point tells you how fast his ability needs to grow for him to hold his ground in relation to his peers. The second tells you the growth rate needed to reach benchmark by the end of the school year. In this case, if Mark sustains a growth rate of 1.2 scaled scores per week he will remain in the 15th percentile at the end of the school year. To reach benchmark—the 40th percentile—he needs a growth rate of 4.1 scaled scores per week. In most cases, the goal you set will be between these two points.

**Step 4: Select the goal type.** When your doctor sets a goal for lowering your cholesterol, he doesn't draw a number out of a hat. He bases the goal on what research studies say can be expected for patients like you. We provide similar information based on data we have collected on the math growth rates of over 330,000 students across the country.

Underneath “Select a goal type” in our example on p. 23, you’ll see two choices: Moderate and Ambitious. If you select “Moderate” and click Calculate Goal at the bottom of the screen, the software displays the growth rate achieved by 50 percent of students with a similar percentile rank as the student for whom you are setting goals. If you select “Ambitious,” the software displays the growth rate achieved by 25 percent of students with a similar percentile rank. Also displayed are the scaled scores and percentiles that would result from these growth rates.

In this example, a moderate goal for Mark is a growth rate of 2.6 scaled scores per week. An ambitious growth rate is 4.2 scaled scores per week. If Mark meets the moderate goal, his scaled score will be 622 and he will be in the 22nd percentile by the end of the intervention period. If he meets the ambitious goal, his scaled score will rise to 652 and he will be in the 33rd percentile.

If neither of these goals seems right, you can define a custom goal by entering a growth rate in scaled scores per week or by entering the scaled score or percentile rank you want the student to achieve by the end of the intervention period. You could set a goal between the moderate and ambitious options, for example, if you thought that was more appropriate. Or if a student is within reach of the benchmark, you might want to set the goal at the benchmark level.
How do you know which goal is best? Consider what you know about the student and the intervention. Your doctor, for example, when setting your cholesterol goal would keep in mind how compliant you are. Are you motivated to change your eating and exercise habits? Will the changes be fairly easy for you to incorporate? Do you have a supportive family? If yes, he might set an ambitious goal. If, on the other hand, he were prescribing an experimental drug for which the effects were less well known, he might set a moderate goal. Similarly, think about the following factors when setting math goals:

- **The student.** What do you know about the student? What does his or her educational history indicate about motivation and desire to learn? What was the student’s learning rate up to this point? If a student has been unmotivated and frequently absent from school, or if the student has switched schools often, you might conclude that a moderate goal is most realistic. Conversely, you might decide that since the student’s needs are urgent, an ambitious goal is essential.

- **The intervention.** How intensive is the intervention you are choosing for this student? For how much time per day will the student receive additional instruction? Is the student part of a small group or large group or will the student get individual help? Generally speaking, the more individualized attention a student receives the greater the potential for large gains.

- **Your experience.** Have you implemented this intervention before with other students? How did those students respond? Is the intervention research-based, with proven effectiveness? Will you be able to implement it the way it was intended? If you are using materials, strategies, or approaches that you know well and that have worked in the past, you may feel more confident about setting ambitious goals.

**Step 5: Save the information.** Finally, don’t forget to click Save when you are satisfied with your choices.

In our example, Mark’s school only recently acquired STAR Math. After reviewing the Screening Report in September, the fifth-grade team realized that they did not have enough resources to meet the needs of all the students below benchmark. They decided to take interim steps while developing intervention strategies, acquiring materials, and planning new intervention schedules. Ms. Ruhland, Mark’s math teacher, decided to give extra attention to a small group of low-performing students, including Mark, during her regular math class. She would meet with the small group of students for 20 minutes a day, five times a week, to reteach objectives causing them difficulty. During this time, her teaching aide would work with the rest of the class. Because Mark is so far behind, and because Ms. Ruhland thinks she has a strong approach for helping her low-performing students, Ms. Ruhland set an ambitious goal for Mark in the software. We’ll show you the results of this plan a little later in this chapter.

**Goals for ELLs and Students with Special Needs**

The reference data and goal types in the goal-setting wizard were calculated based on a heterogeneous sample of students. They may not be applicable to English language learners and students with learning or other disabilities. Make your best estimate when setting goals for these students. After a few years of experience, you will be better able to define moderate and ambitious goals for them.
The flat trend line indicates Mark has not responded to the intervention and has made no progress toward his goal.

Page 2 shows Mark’s test results and growth rate.
Progress Monitoring

STAR Math software allows you to measure math achievement frequently—monthly, biweekly, or even weekly. The Student Progress Monitoring Report then displays the test data in an easy-to-read fashion. The purpose of this report is to help you determine if a student is responding to an intervention. If the student is responding, decide whether the student is ready to move out of the intervention or if he should continue with it. If the student is not responding, schedule a problem-solving meeting to figure out why and decide what to do next. Later in this chapter, we suggest questions to consider when making these decisions. If you change the intervention, you can then edit the software so it can keep track of the student’s progress in the new intervention.

Interpreting the Student Progress Monitoring Report

The first page of the Student Progress Monitoring Report displays progress data graphically for an individual student. If you look at the example on p. 26, you’ll see blue diamonds scattered across the graph. These represent each test the student has taken. (Months of the year are indicated along the horizontal axis.) Results are given in scaled scores. Remember, scaled scores are like inches or pounds and are the best way to show absolute growth over time. For example, if a child’s height changes from 51 inches to 53 inches, you know she has grown. If a student’s scaled score on STAR Math changes from 350 to 375, you know her math ability has grown.

Now take a look at the vertical red line on the report. This marks the starting test for the intervention. You’ll see in this example that Mark’s STAR Math score at the start of the intervention was 574. Now notice the gold star on the right side of the graph. This represents the goal that Mark’s teacher, Ms. Ruhland, entered in the software. In this case, the goal was for Mark to grow 4.2 scaled scores per week. The green line on the report connects Mark’s STAR Math score at the beginning of the intervention to his goal. We call this green line the goal line, and it represents the achievement path Ms. Ruhland wants to see Mark take during the intervention.

Next notice the black line. This is called the trend line. The software looks at a student’s test results and projects the student’s growth into the future. It displays this line to show you how the student’s progress is trending. By comparing the goal line to the trend line, you can see at a glance if a student is on track to reach his or her goal. A trend line appears after five tests are taken, beginning with the start of an intervention. Statistically, this is the minimum number of tests needed to report a trend with confidence. In this case, Mark’s STAR scores have gone up and down (see sidebar) but his trend line is below his goal line, which suggests he has made no progress and is likely losing ground with respect to his peers.

The second page of the report shows the student’s current goal and actual test data. A growth rate is reported after five tests. In this example, Mark’s growth rate is a scant 0.3 scaled scores per week.

Why STAR Scores Go Up and Down

When a test is administered frequently, an individual’s score often fluctuates. This may be due to the test’s standard error of measurement; student anxiety, illness, motivation, or level of attention; or a statistical phenomenon called regression to the mean. Regression to the mean is the tendency of those with the highest scores on an initial test to score closer to average on a second test and those with the lowest scores to score closer to average—and therefore higher—on the second test. These factors do not make a test unreliable or invalid. But because some fluctuation is likely, a trend line is a better indicator of growth and projected growth than scores from individual tests.
Once displayed, the trend line typically changes with every subsequent test. If you’ve ever been on a savings plan, you may have experienced this phenomenon. Suppose, for example, you start saving in September and set a goal to put aside a thousand dollars by June at a rate of $25 a week. You stick to your plan just fine for the first few months. The exact amount actually varies a bit from week to week, but since you are consistently adding to your savings account the general trend is upward and your average “savings growth rate” is $25.39 per week. Then the holidays come along, and for a number of weeks, you put less than $25 into your piggy bank. Consequently, your growth rate changes—now it only averages $17.62 per week. Your trend line adjusts to reflect that change. It even looks like you won’t meet your savings goal. But after New Year’s Day you get back on track. Your growth rate and trend line adjust once more.

A student’s math growth rate and trend line will show similar fluctuations. After each test, the software recalculates these measurements so that you get the best, most current information.

**Responding to the Data**

STAR Math data can tell you if a student is responding to intervention, but you must respond to the data in order for it to have value. Schools review data in different ways. In some cases, intervention teachers test students weekly and request problem-solving meetings for individual students whenever there is cause for concern or a reason to change a student’s placement. Other schools hold grade-level meetings every four to six weeks to examine progress-monitoring data for all students below benchmark. Regardless of your protocol, certain scenarios are likely to emerge.

**A student is on track to meet the goal.** This, of course, is the best scenario. However, it still raises questions. For instance: Is the student ready to move out of intervention? There is no standard answer to this. You must consider both the student and the student’s problem. Some math problems—failing to efficiently recall certain math facts, for example—might be remedied quickly with focused instruction and effective practice. Other problems, like a conceptual misunderstanding about multiplication, can take a considerable amount of time to truly be overcome. The trend line only indicates if a student is on track to meet a goal. This means the intervention has been successful so far. What the trend line can’t tell you is whether or not the student needs to stay in the intervention in order to actually meet the goal. That’s a matter of professional judgment.

**A student is not on track to meet the goal.** This situation also calls for analysis. Sometimes when students in intervention do not improve we conclude they must need more intensive intervention or special education. This can be true, but other factors must be considered.

- Was the intervention implemented with fidelity? That is, according to the way it was designed and for the recommended amount of time? For example, suppose an intervention program calls for 60 minutes of daily supplementary instruction but your school only schedules it for three times a week. If a student doesn’t make progress in that situation, it may not be because of something going on with the student but because of what isn’t going on in the intervention program. One way to determine if a weak implementation
is at fault is to look for patterns in the data. If a number of students in an intervention are not making progress, that's a red flag that the intervention needs to be evaluated. The troubleshooting checklist on p. 30 can help you figure out why.

- **Is what you are doing right for this particular student?** Sometimes an intervention needs to be tweaked in relatively minor ways to meet the needs of an individual. Perhaps the materials are too hard or not motivating enough for the student, or maybe the student needs more positive reinforcement.

- **Has the student been in the intervention long enough for progress to become apparent?** Many experts believe that a math intervention must be at least eight weeks long. Some students, perhaps because of the nature or severity of their problem, may require longer periods.

- **Do you really understand the student's problem?** When you assign students to an intervention at the beginning of a school year, you may have incomplete information. This is common, especially in schools that have many students below benchmark and cannot hold meetings for all individuals before placing them in an intervention. For this reason, when a student does not show progress, you may need to gather more diagnostic information. Perhaps, for example, what appears to be a computation problem is really a reading problem or a deeper misunderstanding of a core concept.

If a student does not meet a goal, you have a number of choices. If the intervention was not implemented with fidelity, you can keep the same intervention and type of goal, but improve the implementation. If the student simply needs more time to show gains, you can extend the goal end date. If the intervention does not match the needs of the student, you can change the intervention (along with its goal and end date) based on what you now know about the student.

In our example, Ms. Ruhland is very concerned about Mark's lack of progress. She also realizes that she has not been able to stick to the intervention plan. Because of other demands on her time, she has only been able to meet with her small group of struggling students two or three times a week. In the meantime, Lake View School has reconfigured its schedule and added an intervention period during which students below benchmark receive supplementary instruction. The fifth-grade team decides to place Mark in a math intervention class taught by Mr. Dawson, a certified math specialist. Mr. Dawson will use Accelerated Math for Intervention to fully differentiate his students' instruction and practice. For low-performing students such as Mark, practice objectives will often be at a level below their current grades. Mr. Dawson will also incorporate math fact practice into his students' daily routine.
TRoubleshooting an Intervention

Use this checklist to see why an intervention program might not be effective.

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<thead>
<tr>
<th>Question</th>
<th>YES</th>
<th>NO</th>
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<tbody>
<tr>
<td>Is the intervention research based?</td>
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<td>Has the intervention been implemented for the intended amount of time?</td>
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<td>Can students perform the academic work assigned to them?</td>
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<td>Is the teacher committed to conducting the intervention?</td>
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<td>Are materials readily and continuously available?</td>
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<td>Has the teacher been shown how to implement the intervention by a</td>
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<td>knowledgeable coach?</td>
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<td>Has the coach observed the intervention at least once to ensure that the</td>
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<td>teacher is using the intervention correctly and has all the needed</td>
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<td>materials?</td>
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<td>Has the teacher been provided with follow-up support after the initial</td>
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<td>training?</td>
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<td>Does the teacher have a systematic plan for managing routines and</td>
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<td>procedures so that academic engaged time is maximized?</td>
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Editing an Intervention and Goal

If you move a student to a different type of intervention or change the duration or goal of an intervention, enter that information in the software. That way, the Progress Monitoring Report can display data on the student's progress during each intervention separately. This enables you to identify, over time, the intervention that is most successful.

To edit an intervention and goal, go to the STAR Math tab, click Screening, Progress Monitoring, and Intervention, click the name of the student, and then click Edit an Intervention and Goal. You'll see the student's latest test score, goal, and current growth rate at the top of the page. (Instructions for editing an intervention and goal are in the appendix.)

If you are switching a student to a different intervention—for example, from small-group instruction within the classroom to a supplementary intervention class—select the option to set up a new intervention and goal. Then follow the same process used for setting up the original intervention and goal, which we described earlier in this chapter. This tells the software that one intervention has ended and another has begun. In our example, Mark's intervention program has changed but his goal, which is ambitious, remains the same. The instructions in the appendix will walk you through all these steps.

On-Going Progress Monitoring

As the school year goes on, continue to periodically test your intervention students so that you can see if the interventions are working, fix problems that arise, and move students out of intervention if that seems appropriate. Some schools administer STAR Math monthly to students in intervention; others test biweekly or weekly. Whatever you choose, remember that a student must take five tests before the report can display a trend line, which is your best indicator of the student's rate of growth. Make test results available to key people, including math teachers,
Mark responded well to the second intervention.

Mark's growth rate exceeded expectations.
homeroom teachers, intervention teachers, and—especially if your school is using an RTI framework—grade-level teams.

On p. 31, we show what a Student Progress Monitoring Report looks like when a student has been in two or more interventions in a school year. In this example, the data related to Mark’s first intervention is on the left. As we noted earlier, his trend line is flat, indicating his math ability did not grow during that period. The second vertical red line indicates the start of the second intervention in the month of October. Mark’s goal line—the green line—connects his score at the start of the second intervention to his goal. The trend line—the black line—shows how Mark’s achievement is trending. It’s going up. This tells us he is responding well to the second intervention. Indeed, his trend line is slightly above the goal line, which shows he is on track to meet his goal by the target date.

The second page of the report provides exact data. In the seven weeks since the second intervention began, Mark’s growth rate has accelerated to 5.2 scaled scores per week. This exceeds his goal of 4.2 scaled scores per week and is evidence that he is responding well to the intervention.

**STAR Math and RTI: Problem Solving vs. Standard Protocol**

Schools working within an RTI framework may have different ways of placing students in intervention. Some schools use a problem-solving method. When a student is identified as struggling with math, for example, teachers and specialists may do additional diagnostic testing and hold a multi-staff meeting to analyze the student’s deficits and plan individualized intervention strategies. Other schools, especially those that have many low-performing students, use what are termed standard protocols. These schools simply may not have the resources to provide individualized interventions to large numbers of students. Instead, they initially provide a standard protocol, especially at Tier 2. Students with similar skill needs are grouped together and participate in a research-proven intervention program. Staff choose the intervention from a limited number of defined programs. The advantages of a standard protocol are that decisions about placement can be made within a few meetings and fewer resources are required to meet student needs.
Summary

STARTING AN INTERVENTION, GOAL SETTING, AND PROGRESS MONITORING

• Make sure a student is tested shortly before an intervention begins so that you have accurate baseline data.
• Enter details about an intervention in the software and set growth-rate goals.
• Administer STAR Math frequently to monitor progress—perhaps monthly, biweekly, or even weekly.
• Review the Student Progress Monitoring Report after each test. By comparing a student's trend line to the goal line, you can see if the student is on track to meet the goal for the intervention.
• After analyzing progress-monitoring data, take action. Before moving a student to a more intensive intervention, make sure the current intervention has been implemented with fidelity and matches the student's needs, and that the student has been engaged long enough for it to have an effect.
• Every time you change an intervention or a goal, enter that information so that the software can provide data for each intervention separately.
Winter Universal Screening

Once the school year is underway, it’s essential that you keep an eye on all students, not just those in intervention. A good time for pulling back and taking this larger view is after students have taken a mid-year STAR Math test. Are students who are performing at or above benchmark continuing to succeed? How are the “on watch” students faring? Are the students below benchmark moving upwards? This is the time to evaluate your core instructional program and intervention strategies, move students in or out of intervention, and make programmatic changes that will accelerate math growth for all students.

Assessing the Overall Situation

After all students have been tested, print a Screening Report for each grade. As in the fall, we recommend that the data be reviewed on a couple of levels. Administrators need to look at the data for every grade to monitor growth. Are students on track to do well on state tests? Since mid-year is closer to the state testing period than fall, it’s a better predictor of student outcomes, yet early enough to affect them. Mid-year is also the time to reassess resource allocation. Do some grades need more resources—staff and materials—than others?

In addition, grade-level teams must get together, analyze the data for their grade, review progress toward grade-level goals, and make instructional decisions about individual students. As in the fall, meeting as a team promotes a shared sense of responsibility and also facilitates the movement of students in and out of intervention.

Review the categories. Compare the winter Screening Report to the Screening Report you printed in the fall. Scan the distribution of students by looking at the blocks of color, and then review the totals below the graph. Have the Intervention and Urgent Intervention categories grown smaller? Have students in the On Watch category moved closer to the benchmark? Has the At/Above Benchmark category expanded? How close are you to having at least 80 percent of students in this category?

Take a look, for example, at the Screening Reports on p. 35. When we compare the fall and left-hand winter reports, we see that the On Watch, Intervention, and Urgent Intervention categories (shown in blue, yellow, and red) have all shrunk, while the At/Above Benchmark category (shown in green) has expanded. This indicates that over the last few months learning has accelerated for students in this grade.

Now imagine a different scenario, such as that shown in the right-hand winter report. This data does not look so positive. When compared with the fall report, we see that fewer students are at or above benchmark. As the numbers below the graph tell us, the percentage has decreased from 58 percent to 51 percent. At the same time, the percentage of students in the On Watch category has swelled—from 17 percent to 22 percent—the percentage of students in Intervention has increased from 20 percent to 21 percent, and the percentage of students in Urgent Intervention has increased from 5 percent to 6 percent. These numbers indicate that the needs of students hovering near the benchmark are not being met and the lowest performing students are continuing to struggle.
Check grade-level progress by comparing fall and winter Screening Reports.

This report shows a positive winter scenario. Some students have moved out of intervention and above benchmark between the fall and winter screening periods.

This report shows a negative winter scenario. Fewer students are at or above benchmark and the On Watch category has expanded.

Winter Universal Screening
Ask the hard questions. If the number of students at or above benchmark has dropped between fall and winter, you need to ask why. Something is happening—or not happening—that is causing student growth to slow down. This signals a problem in the core instructional program. Are classroom teachers working with research-based materials? Are they employing sound instructional practices? Is classroom instruction sufficiently differentiated to meet all students’ needs? Do teachers need guidance and support in the form of professional development to implement the core program effectively? Since on-watch students usually remain in the regular classroom, the same questions must be asked when they move downwards into the Intervention category. If students aren’t moving out of the Intervention and Urgent Intervention categories, and certainly if their numbers are growing, take a thorough look at those programs. Why aren’t students responding?

Conversely, if you are seeing movement upwards—out of intervention to benchmark and above—it’s worthwhile identifying what you are doing right. Take the time to consider whether teachers have what they need to maintain these gains.

Assessing Grade-Level Needs

If you are an administrator or someone else who has the authority to allocate resources within your school, compare the needs of students at different grade levels. Are students in some grades now in more need than students in other grades? Should you shift resources from one grade to another? Suppose, for example, three new students needing intervention enrolled in the seventh grade. In addition, a few other seventh-grade students moved from the On Watch category to the Intervention category. At the same time, a number of eighth-grade students who were getting one-on-one help from a math specialist have shown progress and may now be supported within the regular classroom. In this case, it might make sense to reassign the math specialist to the seventh grade.

Assessing Individual Needs

In addition to evaluating the progress of a grade as a whole, grade-level teams must take a close look at individuals. At mid-year it’s especially important to see what has happened to students who were at or near the cut points in the fall. Because of the standard error of measurement, it’s easy for these students to “jump” from one category to another. What does the test data look like now for students who were at or near the benchmark cut point in the fall? Are they solidly above the benchmark or “On Watch”? What does the data look like for those who were at or near the cut point for intervention? Are they now above the cut point or have they fallen below it?

Before making decisions about students, gather multiple sources of information, such as diagnostic test data, anecdotal records, and examples of daily work. Who is ready to move out of intervention? Who needs to stay in intervention to make further gains? Whom did you miss during fall screening? Can the needs of students not making sufficient progress be met by differentiating instruction within the regular classroom? If that strategy has already been tried and proved unsuccessful, is it appropriate to place the students in a supplementary
Winter Universal Screening

intervention program? If students already in intervention are not making progress, decide if they need more intensive intervention and how that will be delivered. See Chapter 3 for guidelines on how to make these decisions and how to use the Progress Monitoring Report to review a student’s intervention history.

Using the Growth Report to Compare Scores

After the winter screening, you can use the STAR Math Growth Report to compare students’ most recent scores with their fall screening scores. The report doesn’t include screening categories or their graphic representations, but it does list scores from two date ranges, side by side, for each student. You can generate the Growth Report for an entire grade, a class, or a group of individual students, depending on your level of access in the STAR Math software. (See the appendix for instructions.)

Gauge growth from one testing period to the next by looking at scores such as percentile rank and scaled score. Did students who met benchmark in the fall at least maintain their percentile ranks in the winter? Are students who were below benchmark in the fall making gains in their percentile ranks? Did all students increase their scaled scores? Are students keeping on track for end-of-year goals? Is the grade or class making adequate progress as a whole?

Keep in mind that you can use the Growth Report to compare any two testing periods, not only screening periods. This may be useful if your district or school is using STAR Math for progress monitoring purposes, but not for universal screening.

Making Concrete Plans

Once you have identified problems, decide how you will correct them. How can you provide more effective core instruction? What changes can you make now to accelerate growth throughout the rest of the school year? What goals can you set for improvement?

For instance, in our example (see p. 29) the fifth-grade team decided to take a close look at what they were doing within the regular classroom. In this case, the teachers were using Accelerated Math to support their math practice program for all students. Because they had recently attended a series of training sessions, they had a new understanding of Accelerated Math best practices, and decided to make some changes.
The teachers now felt ready to use Accelerated Math for differentiated practice—including assigning objectives from grades above and below their own—to meet a need that had always existed in their classrooms. They decided to use data on STAR Math and Accelerated Math reports to help with placing students at appropriate levels of practice. They also wanted to rely more on Accelerated Math reports when planning, especially when identifying students to group for additional instruction. They decided that all of their students would benefit from 10 minutes of math fact practice at least three days a week, and they chose to provide and monitor this practice using MathFacts in a Flash. Finally, they brainstormed ideas for maintaining efficient classroom routines so students could spend more time practicing without distractions. The teachers agreed that implementing these changes would benefit students in their regular classrooms, as well as provide extra support for students taking part in Mr. Dawson’s math intervention class.

After establishing this plan, the fifth-grade team set a goal to reclaim the ground lost in the first half of the year and go even farther—to have 65 percent of students at or above benchmark by the end of the school year and to reduce the percentage of students in the Intervention and Urgent Intervention categories to below 20 percent.

Mid-Year Screening at the Class or Group Level

The STAR Math Screening Report can be printed for a class or a group as well as for an entire grade within a school. Doing so shows you the distribution of students within the class or group across the four categories. If you are an administrator, for example, you might run Screening Reports for specific classes that you are concerned about. If you are a classroom teacher or an intervention teacher, you might view the report for your own class or group. You can then quickly identify students who are struggling, and by comparing the winter Screening Report to the fall Screening Report, you can see if students are moving out of the red, yellow, and blue categories to green—at or above benchmark.

Mid-Year Screening by Characteristic

The default setting for reports is to show all demographics. However, if you have identified students by ethnicity, language, Title I, gifted/talented, or another characteristic, you can run a Screening Report that includes just the students who share a characteristic within a grade. For example, you could view a Screening Report for each grade and see how free-lunch students are distributed across the categories. By comparing fall and winter reports, you can also see if they are progressing to benchmark.

Summary

**WINTER UNIVERSAL SCREENING**

- Winter screening gives you the opportunity to check the status of all students and make instructional adjustments as needed.
- Compare the fall and winter STAR Math Screening Reports, and look for movement toward and above the benchmark.
- If students have not moved toward the benchmark or if they’re slipping under the benchmark, this is a signal to evaluate the core instructional program.
- If students are not moving out of the Intervention and Urgent Intervention categories, those programs also need to be evaluated.
- Use the STAR Math Growth Report to compare student scores from the fall and winter screenings, or from any two testing periods.
- Based on the screening data, make plans to improve or maintain the effectiveness of your instructional programs.
Spring Universal Screening

The purpose of universal screening in spring is two-fold: It serves as a “postmortem” for the school year and it helps you pre-plan. As you review three sets of data (fall, winter, spring), you see how students have performed over the course of the year. With this information, you can determine the effectiveness of your instructional programs and intervention strategies, see if the decisions you made earlier in the year have led to math gains, and begin to make data-based plans for the next school year.

Using the Screening Report to Evaluate Your Instructional Program

There are a couple of ways to determine whether the core instructional program in a grade or school is working. The first is to look at the percentage of students performing at or above benchmark. As mentioned earlier, at least 80 percent is generally considered ideal, and if you have a high-performing school, it makes sense to expect your student population to meet that goal.

Viewing Fall/Winter/Spring Reports

Save copies of reports that you print for each screening period, or reprint the reports from the software. The appendix includes instructions for reprinting reports.

The spring Screening Report helps you evaluate the effectiveness of your programs and make data-based plans for the next school year.
For some schools, however—schools that have historically been low performing or that have a transient population and/or large numbers of students struggling with math—this may not be a reasonable indicator. In these cases, some experts say that having at least 80 percent of students in the On Watch and At/Above Benchmark categories combined is a sensible goal. Also look at growth over multiple years. If you are moving more students to benchmark from year to year, that’s a sign that core instruction is not only working but improving.

Additional indicators of a healthy core instructional program are:

- Nearly all students are growing from fall to winter to spring. The percentage of students at or above benchmark is increasing or, at minimum, holding steady. Students are moving upwards from the On Watch, Intervention, and Urgent Intervention categories.
- You have met grade-level progress goals that were set mid-year.
- There are no gradewide learning problems and few classwide learning problems. All grades and almost all classes show achievement gains from fall to winter to spring.
- Achievement is equitable. Students in all demographic groups—gender, ethnicity, language, socioeconomic status—are achieving.

Let’s take a look at our fifth-grade example on p. 39. As we saw in the previous chapter, the Screening Report told us that the percentage of students at or above benchmark had dropped from 58 percent to 51 percent between fall and winter. Teachers then set a goal to have 65 percent of their students at or above benchmark by the end of the year. The spring Screening Report shows that they met this goal. This indicates that they did indeed strengthen their core instructional program.

The fifth-grade teachers could also use the STAR Math Growth Report to compare student scores from the spring screening to the fall or winter screening. This method would not allow them to see the movement of students from one screening category to another, but they could view student scores from any two of the screening periods, side by side, to make determinations of growth. (See an example on p. 37.) An administrator could generate the Growth Report for a grade, perhaps to be considered at a grade-level team meeting, or teachers could generate individual reports for their own classes.

Using the Screening Report to Evaluate Your Intervention Strategies

Spring is also time to evaluate the effectiveness of your intervention strategies, both those that are implemented within the regular classroom and supplementary programs. Indicators of healthy intervention programs are:

- Students as a whole are moving out of the Intervention and Urgent Intervention categories toward benchmark.
- You have met grade-level progress goals that were set mid-year.
- All students in need of intervention are being served.
- Strategies and programs are being implemented as designed and for the amount of time required.
- Most students in intervention are meeting their math progress goals as evidenced by their Progress Monitoring Reports.
- Students who have moved out of intervention are maintaining their gains.
Taking another look at our example on p. 39, we see that this team of teachers also met their mid-year goal for struggling students by reducing the number of students in the Intervention and Urgent Intervention categories from 27 percent to 19 percent. The team was happy to have reversed the mid-year downward trend, and saw this as evidence that the intervention strategies and programs they had implemented worked well.

Make Plans for the Next School Year

If the Screening Report shows good results, identify which strategies have worked, within both general classrooms and intervention programs. Figure out how you can continue those strategies and build upon them. Will new teachers be coming into the school? Decide how they will be trained and coached so they, too, can implement the strategies effectively.

Also identify strategies that were not effective. Was the problem with the strategies themselves, or were they not implemented well? Decide if you need to improve the implementation of a strategy or abandon it for another.

Spring screening is a good time to hold cross-grade meetings as well. Teachers can then prepare for students who will be entering their classrooms the next fall.

If you are an administrator or someone involved with staffing and purchasing, consider whether you will have sufficient resources in the fall to meet student needs. Will any grades need more staff? Can staff be hired, or must you move staff from one grade to another? What materials will you need?

In our example, the fifth-grade teachers, after evaluating the success of their program over the past year, turned to the students who will be entering their classrooms the following fall. They noticed that this group of students has a fairly high percentage in the On Watch category. Because their implementation of Accelerated Math best practices was so effective, they agreed to adhere to them next year. Since they anticipate a new teacher coming in, they decided to pair him with their most skilled Accelerated Math user so that he can quickly learn and apply these practices, too.

Summary

**SPRING UNIVERSAL SCREENING**

- Spring Universal Screening is a time to review the past school year and pre-plan for the next one.
- By analyzing the Screening Reports for fall, winter, and spring and comparing the movement of students among categories, you can judge the effectiveness of core instruction and intervention strategies.
- Use the Growth Report to compare student scores from any two testing periods, such as fall and spring screenings or winter and spring screenings.
- When pre-planning for the next school year, decide which strategies to keep, which to abandon, and which to improve. Determine how to allocate resources to meet next year’s needs.
Common Questions

Do my students need to be supervised while they take a STAR Math test?
Yes! For results to be valid, STAR Math must be administered consistently. A standard administration ensures that results can be compared to norms. A test administrator should make sure that the testing environment is free of distractions. The test administrator must also follow the pretest instructions that are included in the software prior to each student’s first test. In fact, to periodically remind students of testing procedures, it’s a good idea to use the pretest instructions during each screening period. For any additional testing beyond the screenings, use your judgment as to whether a student needs to hear the instructions again.

Why can’t my students use calculators during the test?
During the STAR Math norming study, students followed this protocol: They could use blank scratch paper and a pencil, but not calculators or reference materials. In order for normative scores to be meaningful, your students must test in the same way.

I test my intervention students every week and am seeing some of the same questions repeated. Does this invalidate the test?
The questions you see repeated are in the practice section, which precedes the test. If you test students frequently, some of these questions may be repeated since the bank of items for the practice section is relatively small. However, answers to practice questions do not affect students’ scores.

Sometimes my students accidently close the Web browser and the test disappears. Is there a way to go back in, or do they have to start over?
If students close the Web browser or otherwise lose connection to the server, they can log in again and resume the test where they left off. However, they can resume an unfinished test only once, and it must be done within 48 hours. After students log in again, they will see a message to click the Start button to restart the test. After clicking, a dialog box opens and you will need to enter the monitor password.

What should I do if a test is interrupted by a fire drill or some other unexpected event, and we can’t reschedule it right away?
You can stop a student’s test by pressing Ctrl+A (Windows) or control+A (Macintosh). Then you must enter the monitor password. If a test is purposefully stopped (rather than closed accidentally or through a lost connection), the student cannot complete it later. The student can, however, take a new test. STAR Math will not record a score for the stopped test.

Is it okay to retest a student if I know the student can do better?
Yes, if you know a student has rushed through a test or not taken it seriously. If the student retests before midnight on the same day, only the most recent test data will be used in score calculations and show up on reports. (The exception is the Test Record Report, which displays a history of all tests.) However, if a student retests after midnight, the second test will be treated as a separate test. If a student tests more than once during a screening period, data from the last test taken is shown on reports.
I intervene with students one-on-one. Do I need to create a separate group for each student?
No. In this case, you can create one group with a title such as “Individual tutoring” and add all the students to that group. This will make it convenient for you to view and print reports.

Why can’t the software automatically set a goal for each student in my intervention group?
For a goal to be appropriate, it must be individualized. It’s critical that you take into account each student’s academic history, experience with previous interventions, and other unique characteristics, such as English language proficiency, as well as the intensity of the planned intervention. While the software “knows” the growth rates achieved by students performing at a similar level of reading proficiency, only you know these other factors and how they may influence a student’s growth.

I have a kindergarten student who can read independently. Can I give her a STAR Math test?
Yes, but not all scores will be reported. Because kindergarten students were not in the norming sample, STAR Math cannot provide norm-referenced scores such as percentile rank. However, it will provide scaled scores, grade-equivalent scores, level of mastery within the numeration and computation objectives, and a recommended Accelerated Math library.

I teach an evening class of high-school dropouts. What grade level do I indicate for them?
The purpose of entering a grade level is to make sure a student is not immediately frustrated by items that are too difficult. If you can estimate the student’s math level, enter that grade. Otherwise, a good rule of thumb is to enter the last grade in which the student was enrolled.

Why can’t I see which questions a student missed?
With computer-adaptive tests, the student’s performance on individual items is not as meaningful as the pattern of responses to the entire test. See pp. 4–7 for an explanation of how STAR Math test scores are calculated.

Where is the “wizard” that I use to set goals for my intervention students?
On the Renaissance Place Home page, scroll to the STAR Math tab and click Screening, Progress Monitoring & Intervention. Then follow the instructions in the appendix for defining interventions and goals.

I’ve clicked on Reports under the STAR Math tab, but I don’t see the Screening and Student Progress Monitoring Reports. Where are they?
To access these reports, go to the Renaissance Place Home page, scroll to the STAR Math tab, and click Screening, Progress Monitoring & Intervention. Then follow the instructions in the appendix for viewing and printing reports.

Why don’t I set a progress goal for every student?
The purpose for setting a goal is to measure a student’s response to an intervention. You set a goal, you prescribe an intervention, and then you evaluate the effectiveness of the intervention by seeing whether or not the student is making progress toward the goal. Therefore, you only set goals for students in intervention.
Appendix
Instructions for Common Software Tasks

Before Testing

Log in as a Teacher/Administrator, Locate Pretest Instructions, and Enter a Monitor Password
1. On the Welcome page, click Teacher/Administrator.
2. Enter your user name and password; then, click Log In.
3. On the Home page in the STAR Math task list, click Resources.
4. Click Pretest Instructions.
5. To save or print the instructions, use the Adobe Reader buttons. Then, close the Adobe Reader.
6. Click Done to return to Home.
7. If you wish to change the default setting for the monitor password (which is ADMIN), click Preferences in the STAR Math task list.
8. Select your school and class from the drop-down lists if necessary. Click Testing Password and enter a new monitor password.
9. Click Save.

Identify Students’ User Names and Passwords
1. On the Home page in the STAR Math task list, click Reports.
2. Select your school from the drop-down list if necessary. Under Other Reports, select Student Information.
4. To save or print the report, use the Adobe Reader buttons.

Log in as a Student and Take a STAR Math Test
1. On the Welcome page, click Student.
2. Enter a student user name and password.
3. Under STAR Math, click Take a Test.
4. Click Start. Enter the monitor password.
5. Stop the test with Ctrl+A (Windows) or control+A (Macintosh).

Adjust a Student’s Starting Level and/or Extend Time Limits
1. On the Home page in the STAR Math task list, click Student Settings.
2. Select a school and class from the drop-down lists if necessary, and click Edit.
3. To adjust a starting level, enter a Math Instructional Level in the student’s row.
4. To extend the time limit for answering questions, click the On box in the student’s row.
5. Click Save.

View Screening Dates
1. On the Home page in the STAR Math task list, click Screening, Progress Monitoring & Intervention.
2. If necessary, choose your school using the drop-down list. In the gray sidebar on the left side of the screen, click Screening Dates.
3. View the dates and click Done.
Add, Remove, or Edit Screening Dates
You must have administrator access to do these tasks.
4. On the Home page in the STAR Math task list, click Screening, Progress Monitoring & Intervention.
5. Select a school using the drop-down list. In the gray sidebar on the left side of the screen, click Screening Dates.
6. To add a screening date, click Add Screening Dates. Enter the information in the new row.
7. To remove a screening date, click Remove at the end of the row.
8. To edit a screening date, delete the name and/or date and enter the new information.
9. Click Save.

View Cut Scores
1. On the Home page in the STAR Math task list, click Screening, Progress Monitoring & Intervention.
2. In the gray sidebar on the left side of the screen, click Cut Score Categories. (This link is disabled if screening dates have not been entered.)
3. Select a school and grade if necessary using the drop-down lists.
4. View the scores and click Done.

Edit Cut Scores
You must have administrator access and enter screening dates before you can do this task.
1. On the Home page in the STAR Math task list, click Screening, Progress Monitoring & Intervention.
2. In the gray sidebar on the left side of the screen, click Cut Score Categories.
3. Select a school and grade using the drop-down lists.
4. Choose a “Set Cut Score by” option.
   • If using national percentile rank, use the drop-down lists to select new percentile rank values.
   • If using STAR scaled scores, enter the target date. In the table, enter new scaled score values.
5. Click Update Preview.
6. Click Save.

During Testing
Check the Number of Students Screened and Preview Results to Date
1. On the Home page in the STAR Math task list, click Screening, Progress Monitoring & Intervention.
2. Select a school and grade if necessary using the drop-down lists.
3. View the bar graphs.
4. Click Preview next to a grade to see a summary of the results so far. The preview feature is active for 30 days after the end of the screening period.

Working with Groups
Create an Intervention Group
1. On the Home page in the STAR Math task list, click Screening, Progress Monitoring & Intervention.
2. Select a school if necessary using the drop-down list. In the gray sidebar on the left side of the screen, click **Manage Groups**.
3. Click **Create Group**.
4. Enter the name of the group.
5. Assign personnel. Use the drop-down list to assign one person. To assign more than one person, click **Select Multiple Personnel** and click the boxes in front of the names.
6. Select the programs the group will be using by clicking the boxes.
7. You may describe the group in the Description box.
8. Click **Save**.

**Add or Remove Students from a Group**

1. On the Home page in the STAR Math task list, click **Screening, Progress Monitoring & Intervention**.
2. Select a school if necessary using the drop-down list. In the gray sidebar on the left side of the screen, click **Manage Groups**.
3. Click **Add/Remove Students** next to the name of the group.
4. To add a student, enter student information under “Search for Student” and click **Search**. Select students by clicking the boxes in front of the students’ names. Click **Add**.
5. To remove a student, click **Remove** next to the student’s name. Click **Remove All** to remove all students.
6. Click **Save**.

**Defining Interventions and Goals**

**Set Up a New Intervention and Goal (initial set up)**
A student must take a STAR test before you can define an intervention and goal.

1. On the Home page in the STAR Math task list, click **Screening, Progress Monitoring & Intervention**.
2. Select a school if necessary using the drop-down list. If you are within a screening period, click **Progress Monitoring & Goals**. Otherwise, go to the next step.
3. To select a student, enter student information under “Search for Student” and click **Search**. Click the student’s name.
4. Under the student’s test information, click **Set up intervention and goal for progress monitoring**.
5. Type the name of the intervention.
6. Enter a Goal End Date for the intervention period.
7. Select a Starting Test if necessary using the drop-down list.
8. Select the goal type by clicking the button in front of Moderate or Ambitious, or define a custom goal. To define a custom goal, use the drop-down list to choose Growth Rate, Scaled Score, or Percentile Rank. Then enter the number you would like the student to reach by the end of the intervention period.
9. Click **Calculate Goal** to see the score the student would need to achieve by the end of the intervention period to meet the goal. Or, for a custom goal, you may see the rate of growth necessary for the student to achieve the score you entered by the end of the intervention period.
10. Click **Save**.

**Edit an Intervention and Goal (all subsequent uses)**
1. On the Home page in the STAR Math task list, click **Screening, Progress Monitoring & Intervention**.
2. Select a school if necessary using the drop-down list.
3. Click Progress Monitoring & Goals next to View above the school name.
4. To select a student, enter student information under “Search for Student” and click Search. Click the student’s name.
5. Under the student’s test information, click Edit Intervention and Goal.
6. Choose Change duration or goal of existing intervention or Set up new intervention and goal.
7. To change the duration, enter a new date for the Goal End Date.
8. To change the goal type, click the button in front of Moderate or Ambitious, or define a custom goal. To define a custom goal, use the drop-down list to choose Growth Rate, Scaled Score, or Percentile Rank. Enter the number you would like the student to reach by the end of the intervention period.
9. To set up a new intervention and goal, follow the steps for “Set Up a New Intervention and Goal (initial set up).”
10. Click Calculate Goal to see the score the student would need to achieve by the end of the intervention period to meet the goal.
11. Click Save.

Viewing and Printing Reports

Create and Print a Screening Report
1. On the Home page in the STAR Math task list, click Screening, Progress Monitoring & Intervention.
2. Select a school if necessary using the drop-down list. Under Reports in the gray sidebar on the left side of the screen, click Screening.
4. To save or print the report, use the Adobe Reader buttons.

Reprint a Screening Report from a Previous Screening Period
1. On the Home page in the STAR Math task list, click Screening, Progress Monitoring & Intervention.
2. Select a school if necessary using the drop-down list. Under Reports in the gray sidebar on the left side of the screen, click Screening.
3. Select reporting options. Use the Reporting Period drop-down list to select a previous screening period. Click View Report.
4. To save or print the report, use the Adobe Reader buttons.

Create and Print a Student Progress Monitoring Report
1. On the Home page in the STAR Math task list, click Screening, Progress Monitoring & Intervention.
2. Select a school if necessary using the drop-down list. Under Reports in the gray sidebar on the left side of the screen, click Progress Monitoring.
4. To save or print the report, use the Adobe Reader buttons.

View and Print Other Reports
1. On the Home page in the STAR Math task list, click Reports.
2. Select a school and class if necessary using the drop-down lists.
3. Click the name of the report you wish to view or print.
4. Select reporting options and click View Report.
5. To save or print the report, use the Adobe Reader buttons.
STAR Math Objective Clusters

Below are the objective clusters and objectives included in the numeration concepts and computation processes strands. Information about the remaining six strands (word problems, estimation, data analysis and statistics, geometry, measurement, and algebra) can be found in the technical manual.

<table>
<thead>
<tr>
<th>OBJECTIVE CLUSTER</th>
<th>OBJECTIVE ID</th>
<th>OBJECTIVE NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ones N00 N01 N02 N03 N04 N05</td>
<td>Ones: Locate numbers on a number line Ones: Place numerals in order Ones: Using numerals to indicate quantity Ones: Relate numerals and number words Ones: Use ordinal numbers Ones: Understand the concept of zero</td>
<td></td>
</tr>
<tr>
<td>Tens N01 N02 N03 N04 N05</td>
<td>Tens: Place numerals (10–99) in order of value Tens: Associate numeral with group of objects Tens: Relate numeral and number word Tens: Identify one more/one less across decades Tens: Understand the concept of zero</td>
<td></td>
</tr>
<tr>
<td>Hundreds N06 N07 N08 N09</td>
<td>Hundreds: Place numerals in order of value Hundreds: Relate numeral and number word Hundreds: Identify place value of digits Hundreds: Write numerals in expanded form</td>
<td></td>
</tr>
<tr>
<td>Thousands N11 N12 N13 N14</td>
<td>Thousands: Place numerals in order of value Thousands: Relate numeral and number word Thousands: Identify place value of digits Thousands: Write numerals in expanded form</td>
<td></td>
</tr>
<tr>
<td>Hundred Thousands N16 N17 N18 N19</td>
<td>Ten thousands, hundred thousands, millions, billions: Place numerals in order of value Ten thousands, hundred thousands, millions, billions: Relate numeral and number word Ten thousands, hundred thousands, millions, billions: Identify place value of digits Ten thousands, hundred thousands, millions, billions: Write numerals in expanded form</td>
<td></td>
</tr>
<tr>
<td>Fractions &amp; Decimals N21 N22 N23 N24 N25 N26 N27 N28 N29 N30</td>
<td>Fractions and decimals: Convert fraction to equivalent fraction Fractions and decimals: Convert fraction to decimal Fractions and decimals: Convert decimal to fraction Fractions and decimals: Read word names for decimals to thousandths Fractions and decimals: Identify place value of digits in decimals Fractions and decimals: Identify position of decimals on number line Fractions and decimals: Identify position of fractions on number line Fractions and decimals: Convert improper fraction to mixed number Fractions and decimals: Round decimals to tenths, hundredths Fractions and decimals: Relate decimals to percents</td>
<td></td>
</tr>
<tr>
<td>OBJECTIVE CLUSTER</td>
<td>OBJECTIVE ID</td>
<td>OBJECTIVE NAME</td>
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<td>-------------------</td>
<td>--------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Advanced Concepts I</td>
<td>N31</td>
<td>Advanced concepts: Determine square roots of perfect squares</td>
</tr>
<tr>
<td></td>
<td>N34</td>
<td>Advanced concepts: Recognize meaning of exponents (2–10)</td>
</tr>
<tr>
<td></td>
<td>N39</td>
<td>Advanced concepts: Can determine greatest common factor</td>
</tr>
<tr>
<td></td>
<td>N41</td>
<td>Advanced concepts: Recognizes use of negative numbers</td>
</tr>
<tr>
<td></td>
<td>N32</td>
<td>Advanced concepts: Give approximate square roots of a number</td>
</tr>
<tr>
<td>Advanced Concepts II</td>
<td>N33</td>
<td>Advanced concepts: Recognize the meaning of nth root</td>
</tr>
<tr>
<td></td>
<td>N35</td>
<td>Advanced concepts: Recognize meaning of negative exponents</td>
</tr>
<tr>
<td></td>
<td>N36</td>
<td>Advanced concepts: Recognize meaning of fractional exponents</td>
</tr>
<tr>
<td></td>
<td>N37</td>
<td>Advanced concepts: Can use scientific notation</td>
</tr>
<tr>
<td></td>
<td>N38</td>
<td>Advanced concepts: Knows meaning of primes and composites</td>
</tr>
<tr>
<td></td>
<td>N40</td>
<td>Advanced concepts: Can determine least common multiple</td>
</tr>
<tr>
<td>Addition &amp; Subtraction Basic Facts to 10</td>
<td>C01</td>
<td>Addition of basic facts to 10</td>
</tr>
<tr>
<td></td>
<td>C02</td>
<td>Subtraction of basic facts to 10</td>
</tr>
<tr>
<td>Addition &amp; Subtraction Basic Facts to 18, No Regrouping</td>
<td>C03</td>
<td>Addition of basic facts to 18</td>
</tr>
<tr>
<td></td>
<td>C04</td>
<td>Subtraction of basic facts to 18</td>
</tr>
<tr>
<td></td>
<td>C05</td>
<td>Addition of three single-digit addends</td>
</tr>
<tr>
<td></td>
<td>C06</td>
<td>Add beyond basic facts, no regrouping (2d + 1d)</td>
</tr>
<tr>
<td></td>
<td>C07</td>
<td>Subtract beyond basic facts, no regrouping (2d – 1d)</td>
</tr>
<tr>
<td>Addition &amp; Subtraction with Regrouping</td>
<td>C08</td>
<td>Add beyond basic facts with regrouping (2d + 1d, 2d + 2d)</td>
</tr>
<tr>
<td></td>
<td>C09</td>
<td>Subtract beyond basic facts with regrouping (2d – 1d, 2d – 2d)</td>
</tr>
<tr>
<td></td>
<td>C10</td>
<td>Add beyond basic facts with double regrouping (3d + 2d, 3d + 3d)</td>
</tr>
<tr>
<td></td>
<td>C11</td>
<td>Subtract beyond basic facts with double regrouping (3d – 2d, 3d – 3d)</td>
</tr>
<tr>
<td>Multiplication &amp; Division: Basic Facts</td>
<td>C12</td>
<td>Multiplication basic facts</td>
</tr>
<tr>
<td></td>
<td>C13</td>
<td>Division basic facts</td>
</tr>
<tr>
<td></td>
<td>C14</td>
<td>Multiplication beyond basic facts, no regrouping (2d × 1d)</td>
</tr>
<tr>
<td>Advanced Computation with Whole Numbers</td>
<td>C15</td>
<td>Division beyond basic facts, no remainders (2d ÷ 1d)</td>
</tr>
<tr>
<td></td>
<td>C16</td>
<td>Multiplication with regrouping (2d × 1d, 2d × 2d)</td>
</tr>
<tr>
<td></td>
<td>C17</td>
<td>Division with remainders (2d ÷ 1d, 3d ÷ 1d)</td>
</tr>
<tr>
<td></td>
<td>C18</td>
<td>Add whole numbers: any difficulty</td>
</tr>
<tr>
<td></td>
<td>C19</td>
<td>Subtract whole numbers: any difficulty</td>
</tr>
<tr>
<td></td>
<td>C21</td>
<td>Divide whole numbers: any difficulty</td>
</tr>
<tr>
<td>Fractions &amp; Decimals I</td>
<td>C22</td>
<td>Add fractions: like single-digit denominators</td>
</tr>
<tr>
<td></td>
<td>C23</td>
<td>Subtract fractions: like single-digit denominators</td>
</tr>
<tr>
<td></td>
<td>C33</td>
<td>Add decimals, place change (2 + .45)</td>
</tr>
<tr>
<td></td>
<td>C35</td>
<td>Subtract decimals, place change (5 – .4)</td>
</tr>
<tr>
<td>OBJECTIVE CLUSTER</td>
<td>OBJECTIVE ID</td>
<td>OBJECTIVE NAME</td>
</tr>
<tr>
<td>-------------------------</td>
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<td>--------------------------------------------------------</td>
</tr>
<tr>
<td>Fractions &amp; Decimals II</td>
<td>C24</td>
<td>Add fractions: unlike single-digit denominators</td>
</tr>
<tr>
<td></td>
<td>C25</td>
<td>Subtract fractions: unlike single-digit denominators</td>
</tr>
<tr>
<td></td>
<td>C26</td>
<td>Multiply fractions: single-digit denominators</td>
</tr>
<tr>
<td></td>
<td>C27</td>
<td>Divide fractions: single-digit denominators</td>
</tr>
<tr>
<td></td>
<td>C28</td>
<td>Add mixed numbers</td>
</tr>
<tr>
<td></td>
<td>C29</td>
<td>Subtract mixed numbers</td>
</tr>
<tr>
<td></td>
<td>C36</td>
<td>Multiply decimals</td>
</tr>
<tr>
<td></td>
<td>C37</td>
<td>Divide decimals</td>
</tr>
<tr>
<td>Percents, Ratios, &amp; Proportions</td>
<td>C38</td>
<td>Percent A (10 is what % of 40?)</td>
</tr>
<tr>
<td></td>
<td>C39</td>
<td>Percent B (20% is 50 of what?)</td>
</tr>
<tr>
<td></td>
<td>C40</td>
<td>Percent C (30 is 50% of what?)</td>
</tr>
<tr>
<td></td>
<td>C41</td>
<td>Proportions</td>
</tr>
<tr>
<td></td>
<td>C42</td>
<td>Ratios</td>
</tr>
<tr>
<td>Multiplication &amp; Division of Mixed Numbers</td>
<td>C30</td>
<td>Multiply mixed numbers</td>
</tr>
<tr>
<td></td>
<td>C31</td>
<td>Divide mixed numbers</td>
</tr>
</tbody>
</table>
Dear Parent or Guardian,

We have recently completed the benchmark testing that is required by the Response to Intervention program. This assessment is designed to identify whether your child is ready for math on grade level (Tier 1) or whether your child needs additional and/or more intensive math instruction (Tier 2 or Tier 3). All students in the school will be placed into a skill group in Tier 1, 2, or 3 for a minimum of four cycle days a week. The results of the benchmark testing indicate that your child would benefit from placement in:

- _____ Tier 1: REGULAR CURRICULUM + enrichment activities
- _____ Tier 2: REGULAR CURRICULUM + additional instruction
- _____ Tier 3: REGULAR CURRICULUM + additional, more intensive support

Your child will be placed in a (name of intervention program) skill group starting on (date of start of skill groups). This group will work on the following:

- _____ Building Fact Fluency: This includes (give examples of skills). These skills are important because (describe importance).
- _____ Closing Core Skill Gaps: This includes (give examples of skills). These skills are important because (describe importance).
- _____ Enrichment Activities: This means activities that enhance the regular curriculum and expand on information and skills already mastered. This is important for students who have met grade-level goals so that they continue to improve and learn.

During the school year the staff will continue to monitor the progress of your child and you will be notified of the results and recommendations.

If you have any questions about this assessment or the recommendation, kindly contact me.

Thank you for your continued interest in your child’s school success.

Sincerely,

School Principal

Adapted from: Project MP3—Monitoring Progress of Pennsylvania Pupils, supported by Grant #H326M050001, a model/demonstration project from the U.S. Department of Education to the Center for Promoting Research to Practice, Lehigh University, Bethlehem, PA, 18015.
# STAR Math Reports

Below is a list of all the reports available with STAR Math. For more details about each report, why you would use it, and customization options, see the software manual.

<table>
<thead>
<tr>
<th>Report Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accelerated Math Library</td>
<td>Suggests Accelerated Math libraries for students based on the results of their STAR Math tests. Used in conjunction with Accelerated Math.</td>
</tr>
<tr>
<td>Annual Progress</td>
<td>Provides a graphic display of the math progress of a student or class across a school year in comparison to a National Norm Reference.</td>
</tr>
<tr>
<td>Class</td>
<td>Lists STAR Math classes, their teachers, and their students.</td>
</tr>
<tr>
<td>Diagnostic</td>
<td>Includes an individual student's most recent test scores, an assessment of skills, and recommendations.</td>
</tr>
<tr>
<td>Enrollment</td>
<td>Lists each student's class and teacher.</td>
</tr>
<tr>
<td>Group Performance</td>
<td>Provides a graphic display of how groups of students are progressing toward proficiency based on their STAR Math tests. Available only to customers in states participating in the Council of Chief State School Officers (CCSSO) Renaissance Learning R&amp;D consortium.</td>
</tr>
<tr>
<td>Growth</td>
<td>Provides each student's scores for a pre- and posttest, along with the mean pre- and posttest scores for the group of students included on the report.</td>
</tr>
<tr>
<td>Parent</td>
<td>Gives parents their child's most recent test scores, provides definitions of the scores, and notes how the scores can be used.</td>
</tr>
<tr>
<td>Registration</td>
<td>Lists students who are registered for testing, math instructional levels (if applicable), types of time limits on questions, user names and passwords, and other identifying information. Only relevant for schools requiring registration before testing.</td>
</tr>
<tr>
<td>Screening</td>
<td>Provides a graph that shows the distribution of students within a grade across the following categories: At/Above Benchmark, On Watch, Intervention, and Urgent Intervention.</td>
</tr>
<tr>
<td>Snapshot</td>
<td>Provides student scores on a single test, along with the class's PR distribution.</td>
</tr>
<tr>
<td>Student Detail</td>
<td>Provides the ID, gender, date of birth, grade level, ethnicity, and characteristics for each student included in the report.</td>
</tr>
<tr>
<td>Student Information</td>
<td>Provides the ID, gender, date of birth, math instructional level (if applicable), type of question time limit, user name, and password for each student included in the report.</td>
</tr>
<tr>
<td>Student Performance</td>
<td>Provides a graphic display of how individual students are progressing toward proficiency based on their STAR Math tests. Available only to customers in states participating in the Council of Chief State School Officers (CCSSO) Renaissance Learning R&amp;D consortium.</td>
</tr>
<tr>
<td>Student Progress Monitoring</td>
<td>Provides a graphic display of an individual student's progress toward a goal and uses a trend line to show projected growth.</td>
</tr>
<tr>
<td>Summary</td>
<td>Provides scores for all students included on the report, along with the PR and GE distributions.</td>
</tr>
<tr>
<td>Teacher</td>
<td>Lists teachers using STAR Math, their user names, classes, and class positions.</td>
</tr>
<tr>
<td>Test Activity</td>
<td>Shows which students have and have not completed a STAR Math test.</td>
</tr>
<tr>
<td>Test Record</td>
<td>Provides a complete history of a student's STAR Math tests and scores.</td>
</tr>
</tbody>
</table>
absolute growth, 8, 27
Accelerated Math, 18, 19–20, 29, 37–38
Accelerated Math Library Report, 18–19
ambitious goal, 24–25, 30
baseline data, 3, 18, 22, 24
benchmark
  and goal setting, 24–25
  changing, 13–14
  definition, 11
  on Screening Report, 11
calculator, 4, 5, 42
calibration, 6
categories, 11–14, 21, 34–36
characteristics, 10, 14, 38
computer-adaptive, 3, 5, 8, 43
core instructional program, 13, 15, 36, 39–40
criterion-referenced, 3, 7
cut scores
  changing, 13–14
  definition, 11
  and percentiles, 12
  viewing and editing, 47
Diagnostic Report, 7, 18–19
  editing an intervention and goal, 30, 48–49
  end date for intervention and goal, 23, 29
  English language learners, 6, 17, 24
fidelity of implementation, 28, 29
fluctuation in scores, 27
frequency of testing, 3
goal line, 27, 32
goal types, 24, 29
goals
  custom, 24
  editing, 30, 48–49
  for ELLs, 25
  grade-level, 15, 36, 37, 40
  purpose of, 22, 43
  setting, 22–25, 43, 48
  grade-equivalent (GE), 7, 19
  grade-level teams, 15, 34, 36
groups, 22, 43, 47–48
growth rate, 24, 27–28
Growth Report, 37, 40
high achievers, 13, 36
high school, 16, 43
instruction, 18–19, 39
intervention
  and Screening Report, 40–41
  editing an, 48–49
  end date, 23
  forms of, 17–18
  interpreting data, 28–29
  length of, 23
  monitoring response to, 27–28, 30–32
  naming, 23
  planning, 17–18
  setting up, 22–25, 48
  start date, 23–24
Item Response Theory, 6
items
  calibration of, 6
  format of, 4
  number of, 4, 6
kindergarten, 3, 43
length of the test, 6
math instructional level, 5, 46
MathFacts in a Flash, 18, 20, 38
moderate goal, 24
monitor password, 42, 46
National Center on Response to Intervention, 3, 8
normal curve equivalent (NCE), 19
norm-referenced scores, 3, 6, 7
objective cluster, 7, 18–19, 50–52
Parent Report, 20
parents, 20, 53
percentile rank (PR), 7–8, 11–12, 19, 24, 37, 43
practice test, 5, 42
pretest instructions, 5, 42, 46
problem solving, 25, 28–29, 36
progress monitoring
  on-going, 30–32
report data, 26–28
responding to data, 28–29
reference points for goal setting, 24
relative growth, 8
reliability, 8
Renaissance Home Connect, 20
reports
Accelerated Math Library Report, 18–19
Diagnostic Report, 7, 18–19
Growth Report, 37, 40
Parent Report, 20
Screening Report, 11–14, 34–37, 39–41, 49
Student Information Report, 5, 46
Student Progress Monitoring Report, 26–28, 30–32, 49
Summary Report, 11
Test Record Report, 42
Response to Intervention (RTI), 15, 17, 20–21, 32, 53
resuming a test, 42
retesting a student, 42

scaled score
definition, 7
for goals, 24
for kindergarten, 43
for reference points, 24
on Diagnostic Report, 18–19
on Growth Report, 37
on Progress Monitoring Report, 27
on Screening Report, 12–13
scheduling, 14, 16
screening
fall, 10–21
spring, 39–41
winter, 34–38
screening periods, 10–11, 46, 47
Screening Report, 11–14, 34–37, 39–41, 49
screening status, 11, 47
software instructions, 46–49
special education, 18, 28
standard error of measurement, 27, 36
standard protocols, 32
starting level, 5, 43, 46
stopping a test, 42
strands, 4
Student Information Report, 5, 46

Student Progress Monitoring Report, 26–28, 30–32, 49
Summary Report, 11
Test Record Report, 42
testing conditions, 5
time limits, 6, 46
trend line, 27–28
troubleshooting an intervention, 28–29
checklist for, 30
validity, 8
wizard, 22–25, 43
About Renaissance Learning

Renaissance Learning, Inc. is a leading provider of technology-based school improvement and student assessment programs for K12 schools. Adopted by more than 70,000 schools, Renaissance Learning's tools provide daily formative assessment and periodic progress-monitoring technology to enhance core curriculum, support differentiated instruction, and personalize practice in reading, writing, and math. Renaissance Learning products help educators make the practice component of their existing curriculum more effective by providing tools to personalize practice and easily manage the daily activities for students of all levels. As a result, teachers using Renaissance Learning products accelerate learning, get more satisfaction from teaching, and help students achieve higher test scores on state and national tests. Renaissance Learning has seven U.S. locations and subsidiaries in Canada and the United Kingdom.