

Getting Results with **MathFacts in a Flash™**

HELP STUDENTS DEVELOP AUTOMATICITY WITH MATH FACTS



Getting Results with **MathFacts in a Flash™**

HELP STUDENTS DEVELOP AUTOMATICITY WITH MATH FACTS



2Know!, the Accelerated products design, Accelerated Math, Accelerated Reader, Advanced Technology for Data-Driven Schools, MathFacts in a Flash, NEO 2, Renaissance Home Connect, Renaissance Learning, the Renaissance Learning logo, Renaissance Place, Renaissance Responder, and STAR Math are trademarks of Renaissance Learning, Inc., and its subsidiaries, registered, common law, or pending registration in the United States and other countries.

ISBN 978-1-59455-328-8
© 2010 by Renaissance Learning, Inc.
All rights reserved. Printed in the United States of America.

This publication is protected by U.S. and international copyright laws. It is unlawful to duplicate or reproduce any copyrighted material without authorization from the copyright holder. If this publication contains pages marked "Reproducible Form," only these pages may be photocopied and used by teachers within their own schools. They are not to be reproduced for private consulting or commercial use. For more information, contact:

Renaissance Learning, Inc.
P.O. Box 8036
Wisconsin Rapids, WI 54495-8036
(800) 338-4204
www.renlearn.com

2Know!, the Accelerated products design, Accelerated Math, Accelerated Reader, Advanced Technology for Data-Driven Schools, MathFacts in a Flash, NEO 2, Renaissance Home Connect, Renaissance Learning, the Renaissance Learning logo, Renaissance Place, Renaissance Responder, and STAR Math are trademarks of Renaissance Learning, Inc., and its subsidiaries, registered, common law, or pending registration in the United States and other countries.

ISBN 978-1-59455-328-8
© 2010 by Renaissance Learning, Inc.
All rights reserved. Printed in the United States of America.

This publication is protected by U.S. and international copyright laws. It is unlawful to duplicate or reproduce any copyrighted material without authorization from the copyright holder. If this publication contains pages marked "Reproducible Form," only these pages may be photocopied and used by teachers within their own schools. They are not to be reproduced for private consulting or commercial use. For more information, contact:

Renaissance Learning, Inc.
P.O. Box 8036
Wisconsin Rapids, WI 54495-8036
(800) 338-4204
www.renlearn.com

Contents

Introduction	1
MathFacts in a Flash Basics	3
① The Purpose of MathFacts in a Flash: Developing Automaticity ..5	
② How MathFacts in a Flash Works	7
③ Getting to Automaticity: Instruction-Practice-Assessment . . .11	
Using MathFacts in a Flash with Students.	15
④ Beginning Tasks	17
⑤ Other Essential Practices	22
Managing MathFacts in a Flash in Your Classroom.	29
⑥ Monitoring Student Progress	31
⑦ Motivation and Progress Monitoring with Students	41
Renaissance Home Connect	45
⑧ Partnering with Parents	47
Questions and Answers.	53
⑨ Commonly Asked Questions.	54
Appendix.	57
Professional Competencies: Skills List.	58
Instructions for Common Software Tasks - Renaissance Place. . .60	
Reproducible Resources	65
Sample Reports	69
References	75
Index.	76

Introduction

Congratulations! You have purchased one of the most effective practice and assessment tools for helping students develop fluency and automaticity with math facts—MathFacts in a Flash. Research has shown that automaticity with math facts frees up memory space, allowing for greater facility with number sense, calculation, and mental math. All of your students can take advantage of building automaticity with MathFacts in a Flash—from those who are learning math facts for the first time to those who are still struggling with math facts while trying to master more complex mathematical concepts.

In this book, we describe some of the techniques that maximize the potential of MathFacts in a Flash. First we share information about the purpose of MathFacts in a Flash and its basic role in the classroom. Then we describe research-proven best practices. These include the essential steps you'll need for getting started as well as the most effective ways of using the program with students. After that, we show you how to use MathFacts in a Flash data to monitor student progress, intervene when necessary, and motivate students. Finally, we offer tips for managing the program in your classroom. We also included a special section on Renaissance Home Connect—a built-in tool for engaging parents as partners in helping students master math facts.

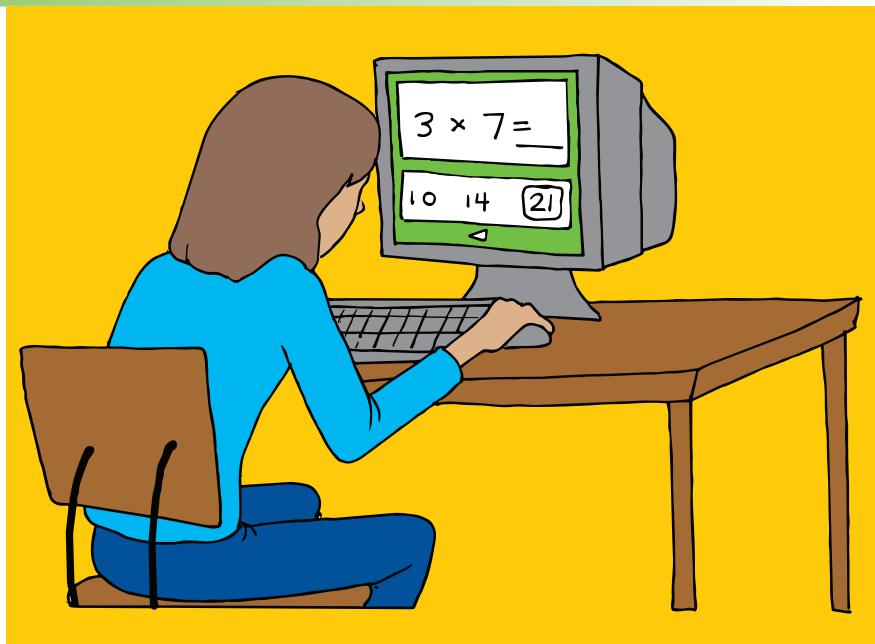
In the appendix you'll find step-by-step instructions for the most common software tasks, helpful reproducible forms, sample reports, and a checklist of teacher professional competencies that you'll develop in the course of working with your students while they use MathFacts in a Flash.

We hope that what you find here will inform and inspire you. Bear in mind, however, that this is only an introduction. To learn more about other professional development opportunities, visit our Web site: www.renlearn.com.

Please note: If you are using an older version of MathFacts in a Flash software, some of the features covered in this guide may not be available to you. However, the best practices that we describe remain the same for users of all versions of MathFacts in a Flash.

MathFacts in a Flash

Basics



1

The Purpose of MathFacts in a Flash: Developing Automaticity

MathFacts in a Flash is a software program designed to give students valuable practice on their addition, subtraction, multiplication, division, squares, and fraction, decimal, and percent conversion facts. The goal in using MathFacts in a Flash is for students to recall math facts instantly, accurately, and effortlessly, without the use of calculators. This is an important skill, both in school and everyday life.

Think of all of the adults you have heard claim, “I’m just not good at math.” It’s a fair bet that many of them probably never mastered math facts—they haven’t developed automaticity. Without this advantageous instant recall, simple tasks can become mathematical obstacles. Imagine trying to quickly figure out change, calculate a tip, split up a restaurant bill, estimate interest on a loan, or decide which product is a better buy at the supermarket while simultaneously struggling to recall math facts. If always asked to play double duty, mathematical thinking will be torn between performing calculations and solving problems. Both tasks compete for the same brain resources, which may simply lead to aggravation.

Now imagine an algebra student who hasn’t yet developed math fact automaticity. Will the student’s success with manipulating equations be hampered by his inability to multiply? Probably. The student might have the understanding and strategies needed to solve complex math problems, but his slow speed with math facts will sidetrack the problem-solving process entirely. He’ll likely experience frustration and failure. Over time, he will become more discouraged and less confident about his mathematical ability.

Being able to instantly retrieve math facts—without having to think about them while doing it—is the key to this student’s success. In fact, automaticity with math facts goes beyond enabling students to be confident and efficient with traditional computation algorithms. It’s also essential for the development of mental math, approximation, and estimation skills, which in turn lead to greater development of number sense (Woodward, 2006).

How do students develop automaticity with math facts? Having a solid foundation in the operational concepts is essential, but not enough. Students need effective math facts practice—targeted, timed, and with immediate corrective feedback—in order to become fluent enough with math facts so they can utilize them in other contexts. The Final Report of the National Mathematics Advisory Panel emphasizes the role of practice in developing automaticity:

“... practice allows students to achieve automaticity of basic skills...which frees up working memory for more complex aspects of problem solving”
(National Mathematics Advisory Panel, 2008).

Though experts indicate that math fact automaticity can be achieved using a

number of different instructional methods (Ball, 2005), technology-based tools such as MathFacts in a Flash offer some clear advantages in providing sufficient and appropriate practice. Specifically, MathFacts in a Flash:

- Provides targeted/personalized practice on math facts
- Gives immediate corrective feedback for each problem
- Enables customizable time goals for practice and test sessions

By providing the means for effective practice, MathFacts in a Flash can help your students develop the automaticity with math facts that will form the foundation for success throughout their mathematics careers.

Summary

THE PURPOSE OF MATHFACTS IN A FLASH

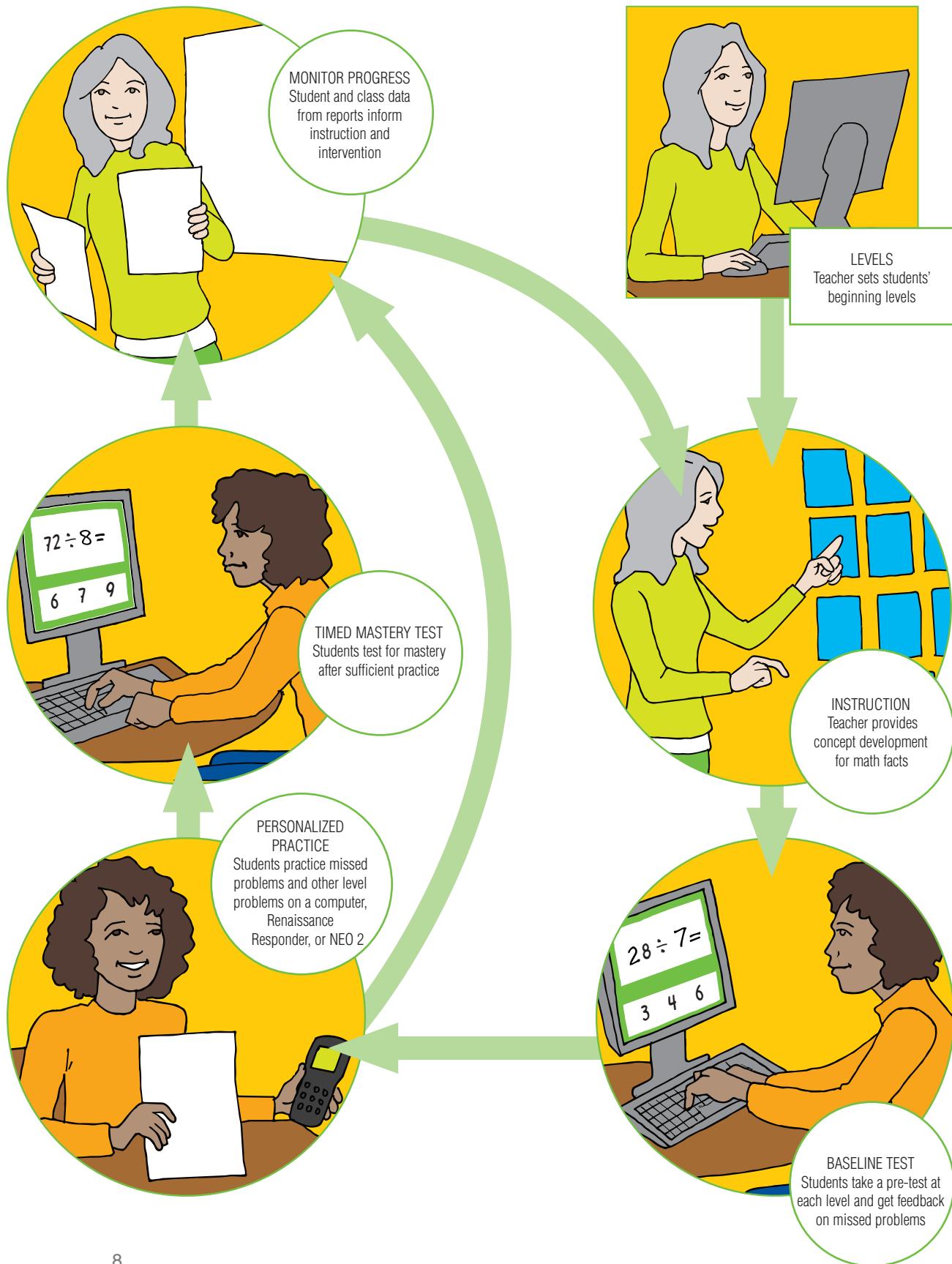
- The purpose of MathFacts in a Flash is to help students develop automaticity with math facts.
- Targeted, timed practice with immediate corrective feedback promotes student success.
- The benefits of automaticity with math facts extend beyond simple calculation and computation.
- Technology-based tools such as MathFacts in a Flash offer advantages in providing sufficient and appropriate practice.

How MathFacts in a Flash Works

Using MathFacts in a Flash with your students involves a few basic steps:

1. **Instruction**—Guide student concept development in a relevant mathematics topic (e.g., addition, subtraction, multiplication, and division operations; squares; fraction/decimal/percentage conversions) and help students acquire basic math facts.
2. **Levels**—Set the beginning level or levels for your students in the MathFacts in a Flash software. You can personalize a level for each student or set one level for all students. The 62 available levels in MathFacts in a Flash are listed on pp.9–10.
3. **Baseline test**—Students complete a 40-item timed test at the computer on their designated beginning level. Immediate on-screen feedback provides students with time and accuracy results and shows any missed problems. If students meet the time and accuracy goals, they can attempt a lower time goal on the same level or automatically move to the next level. You must set a preference in the software to allow students to attempt a lower time goal.
4. **Personalized practice**—If students miss any problems on the baseline test, MathFacts in a Flash will prompt them to practice the level before retesting. Practices have a minimum of 20 problems and include those missed on the baseline test and those identified as the most difficult for the level. Students get immediate corrective feedback as they practice and a printed TOPS Report that lists missed problems. Students can also practice math facts with a Renaissance Responder, NEO 2 laptop, home computer, or MathFacts in a Flash worksheets and flash cards.
5. **Timed tests for mastery**—After sufficient practice, students test in the software to demonstrate mastery of a level. They must answer 40 problems correctly within the allotted time. If students master a level, they can attempt a lower time goal on the same level or move to the next level. You must set a preference in the software to allow students to attempt a lower time goal.
6. **Progress**—Monitor student progress with MathFacts in a Flash reports. Check in with students and intervene when necessary.
7. **Return to instruction**—Review report data and student performance to determine your next instructional steps and continue the cycle.

MathFacts in a Flash Basic Cycle



MathFacts in a Flash Levels

These are the 62 levels of MathFacts in a Flash in default order. You choose the beginning level for each of your students. When students master a level, they automatically move to the next level. You can remove, add, or reorder levels to match your curriculum.

Level #	Level Name
1	Addition of 0, 1
2	Addition of 2, 3
3	Addition of 4, 5
4	Alternate Forms: Addition of 0 to 5 *
5	Review: Addition of 0 to 5
6	Addition of 6, 7
7	Addition of 8, 9
8	Addition of 10
9	Alternate Forms: Addition of 6 to 10 *
10	Addition Review 1
11	Addition Review 2
12	Subtraction of 0, 1
13	Subtraction of 2, 3
14	Subtraction of 4, 5
15	Alternate Forms: Subtraction of 0 to 5 *
16	Review: Subtraction of 0 to 5
17	Subtraction of 6, 7
18	Subtraction of 8, 9
19	Subtraction of 10
20	Alternate Forms: Subtraction of 6 to 10 *
21	Subtraction Review 1
22	Subtraction Review 2
23	Review: +, -
24	Multiplication by 0, 1
25	Multiplication by 2, 3
26	Multiplication by 4, 5
27	Alternate Forms: Multiplication by 0 to 5 *
28	Multiplication Review: 0 to 5
29	Multiplication by 6, 7
30	Multiplication by 8, 9
31	Multiplication by 10
32	Alternate Forms: Multiplication by 6 to 10 *
33	Multiplication Review: 6 to 10
34	Multiplication by 11, 12

Level #	Level Name
35	Alternate Forms: Multiplication by 11 to 12 *
36	Multiplication Review 1
37	Multiplication Review 2
38	Review: +, -, x
39	Division by 1, 2
40	Division by 3, 4
41	Division by 5, 6
42	Alternate Forms: Division by 1 to 6 *
43	Division Review: 1 to 6
44	Division by 7, 8
45	Division by 9, 10
46	Alternate Forms: Division by 7 to 10 *
47	Division Review: 7 to 10
48	Division by 11, 12
49	Alternate Forms: Division by 11 to 12 *
50	Division Review 1
51	Division Review 2
52	Review: +, -, x, /
53	Squares to 15, 20
54	Squares Review
55	Review: +, -, x, /, squares
56	Fractions to Decimals
57	Decimals to Fractions
58	Percentages to Decimals
59	Decimals to Percentages
60	Fractions to Percentages
61	Conversion Review
62	Review: +, -, x, /, squares, conversion

* In Alternate Form levels, problems are presented with the blank in any of three possible positions, e.g.:

$$4 + \underline{\quad} = 6$$

$$\underline{\quad} + 2 = 6$$

$$4 + 2 = \underline{\quad}$$

Summary

HOW MATHFACTS IN A FLASH WORKS

- You set the beginning level for students—individually or for the whole class.
- Students practice and test on each level until they master it.
- You guide instruction for the concepts behind math facts.
- MathFacts in a Flash report data informs instructional decisions.

3

Getting to Automaticity: Instruction-Practice-Assessment

Instruction, practice, and assessment play equally important roles in helping students move into math fact automaticity. The National Math Panel reinforces the importance of the relationship between concept development and computational fluency:

"For all content areas, conceptual understanding, computational fluency, and problem-solving skills are each essential and mutually reinforcing, influencing performance on such varied tasks as estimation, word problems, and computation." (US Department of Education National Mathematics Advisory Panel, 2008)

You provide students with the essential conceptual background and explicit instruction in math fact strategies, and MathFacts in a Flash manages tasks that are best automated by technology: generating practices and tests, scoring, and reporting results. The report data can help inform your instructional decisions, signal the need for interventions, and motivate students to take ownership of their practice.

	Instruction	Practice	Assessment
Teacher	<ul style="list-style-type: none"> Provides students with conceptual background and explicit instruction in strategies 	<ul style="list-style-type: none"> Sets initial level for students in the software Monitors student progress with reports Intervenes with students who are struggling Reinforces concepts and strategies 	<ul style="list-style-type: none"> Uses MathFacts in a Flash report data to inform instruction and next steps
MathFacts in a Flash		<ul style="list-style-type: none"> Generates 40-item level baseline tests Provides students with practice (on problems missed on baseline test and problems considered most difficult in the level) and corrective feedback Generates reports to inform students, teachers, and parents about student progress 	<ul style="list-style-type: none"> Automatically advances students to the next level after mastering a level (If a Time Goals preference is set, students can also choose to retest at a lower time goal.)
Students		<ul style="list-style-type: none"> Take baseline test at the beginning of each level Practice math facts with a classroom computer, Renaissance Responder, NEO 2, home computer, or MathFacts in a Flash worksheets or flash cards Meet with the teacher to discuss progress, concepts, and strategies 	<ul style="list-style-type: none"> After sufficient practice, test for mastery on a classroom computer or NEO 2 Chart progress on mastery of levels (If students will chart progress, use the sample charts on pp.66–68.)

Explicit and Systematic Instruction Comes First

Students need to know the meaning of the facts that they are attempting to memorize. For example, they should know that “ 3×4 ” means “three groups of four” or “ $4 + 4 + 4$.” Having students attempt to memorize facts too early, without adequate concept development, can result in “drill and kill”—frustration, discouragement, and disenchantment with the process of learning math facts. Students are more successful and motivated when they have a solid base of understanding behind their practice.

Effective Practice

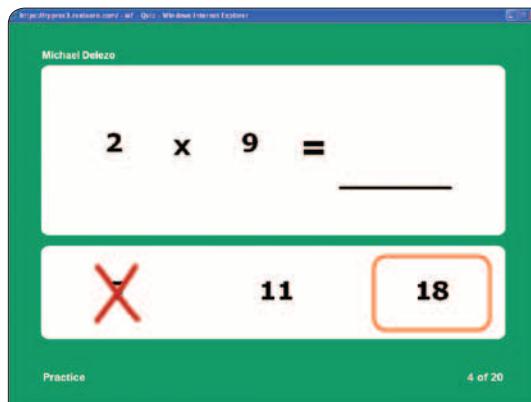
Effective practice

- A select set of facts
- Immediate corrective feedback
- Limited time for response

What makes effective practice? What helps students move out of figuring out or deriving facts and into automatic recall? Researchers have repeatedly identified a few key elements that make a difference for students (Crawford, 2003):

- **Students practice a select set of facts, and only practice facts with which they are already familiar.** Students can become discouraged by trying to memorize too many facts at once. With MathFacts in a Flash, students practice math facts one level at a time. There are 62 levels and you decide where in the sequence each student should begin.
- **Students get immediate corrective feedback.** MathFacts in a Flash displays the correct answer right away when students give an incorrect response. Students are then asked to respond again to the same problem in order to commit the correct answer to memory. Students get corrective feedback whether they work with MathFacts in a Flash on a classroom computer, home computer, Renaissance Responder, or NEO 2.

Immediate corrective feedback to students during practice

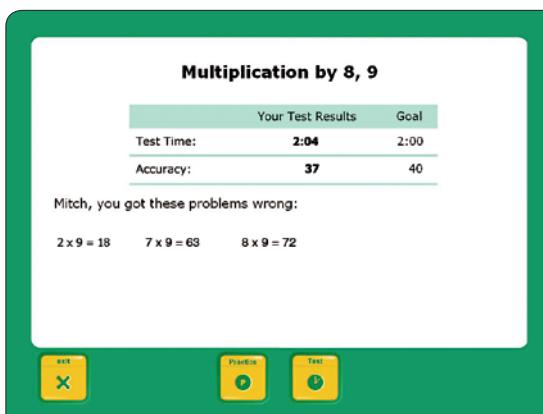


In the practice problem above, the student initially answered “7.” The software marked the answer incorrect and indicated the correct answer. Next, the student will see the same problem without any marks on the answer choices. (Note: As we will see later, students can also work in an open-ended mode. See pp.23–24.)

- **Limited response times:** In MathFacts in a Flash, students practice for accuracy and proficiency and then test for mastery. When students get all practice problems in a level correct, they are ready to take a timed test to

demonstrate mastery. To master a level in MathFacts in a Flash, students must correctly answer, by default settings, 40 problems in two minutes. This rate of response helps students move away from using strategies for figuring out or deriving answers and into automaticity. Changing default time goals for your class or for individual students is discussed in a later section, Motivation and Progress Monitoring with Students.

At the end of a timed test, students get on-screen corrective feedback showing the problems that they missed, the correct answers, and the time it took to complete the test. Students continue practicing and testing at each level until they reach mastery.



On-screen feedback after a mastery test

MathFacts in a Flash Informs Instructional Decisions

MathFacts in a Flash reports help you monitor the progress of the whole class or of individual students, identify students who are struggling, and determine logical next steps. Key reports will be discussed in detail in a later section, Managing MathFacts in a Flash in Your Classroom. Samples of the reports can be found on pp.69–73.

Now that you know the basics of MathFacts in a Flash, you may be thinking about how to best use the program with your students.

We suggest that students practice math facts in short, frequent sessions, approximately 5–15 minutes long, which aligns with the recommendations of the What Works Clearinghouse (Gersten, Beckmann, Clarke, Foegen, Marsh, Star, & Witzel, 2009). How often your students practice is up to you, but we recommend a minimum of three sessions per week. You also will need to decide whether your whole class will practice math facts at once, or if students will individually work in the program throughout the class period or school day. Let's look at how one teacher, Mrs. Showen, uses MathFacts in a Flash with her class:

Mrs. Showen has all of her students work on math facts at the same time. When it is time for MathFacts in a Flash practice, most students pick up a Renaissance Responder and start practicing at their desks. A few other students take turns at the classroom computer to test for level mastery. Mrs. Showen works with two students who are struggling with

multiplication facts for 6 and 7. They use flash cards, separating the cards that the students answer correctly from those they miss. They discuss strategies for remembering the missed facts. Several other students practice division facts in pairs, using printed worksheets and flash cards from the software. When MathFacts in a Flash practice time is over, Mrs. Showen reminds students that they can continue practicing with Renaissance Home Connect if they have access to a computer outside of school. Other students will take home their printed flash cards or worksheets for reinforcement.

Summary

GETTING TO AUTOMATICITY: INSTRUCTION-PRACTICE-ASSESSMENT

- Students need instruction in the concepts behind math facts before practicing math facts.
- Math facts practice leading to automaticity depends on having a limited set of facts to practice, immediate corrective feedback, and a limited response time.
- You can use MathFacts in a Flash with all of your students at once, or with individuals and groups periodically throughout the day.

Using MathFacts in a Flash with Students



Beginning Tasks

MathFacts in a Flash is a simple program to install and manage. Even so, taking a little time to get familiar with the software and to establish student routines will help you and your students get the most from the program.

Prepare to Use the Software

First, identify which version of the software you will be using. Take a look at the welcome screens below. If your welcome screen looks like the one on the left, you have the Web-based version, Renaissance Place. If your welcome screen looks like the one on the right, you have the desktop version of MathFacts in a Flash.



Make sure the software is set up and you're familiar with it. Renaissance Place users should find that their classes and student names have been entered by the technology administrator for the school or district, who may also provide you with login information.

Each of your students will need a user name and password to log in to the program. This information can be found on the Student Information Report. Print a copy of the report so you have the information available for your students. See p.62 for information on printing reports. (For full instructions on system requirements and the class management program, please see your MathFacts in a Flash Software Manual.)

You will need to have at least one computer in your classroom to manage the program, along with a printer for reports. If you will not be using Renaissance Responders or NEO 2s, it is convenient, though not necessary, to have at least two computers: one on which you manage the software and another that students use when they practice or test.

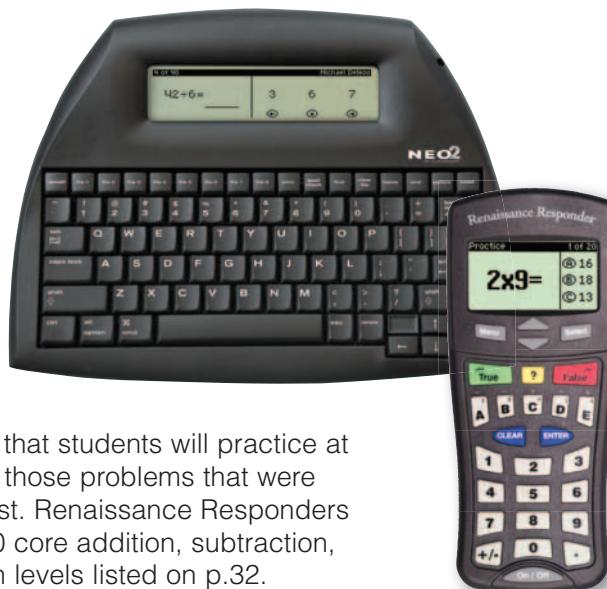
Decide How Students Will Practice

We mentioned earlier that students will need to test for mastery in school on a classroom computer or NEO 2. A consistent, supervised testing environment ensures that the mastery test results are valid—that is, students did not receive outside help and tested in a setting free of distractions.

Students can use a classroom computer or NEO 2 for practice, but have other options available to them—both inside and outside of the classroom. Using more than one mode of practice can help avoid a bottleneck if several students will need to wait to use a classroom computer. If possible, consider using a combination of practice modes to best meet your needs:

School computer. Classroom computers work well if students will use MathFacts in a Flash throughout the school day, rather than all at once, or if students have frequent access to a computer lab.

NEO 2s or Renaissance Responders. If you have NEO 2s or Renaissance Responders, all of your students can practice at once—no need to juggle classroom computers or schedule lab time. As with the school computer, practice is personalized. This means that students will practice at their own levels, targeting those problems that were missed on the baseline test. Renaissance Responders provide practice on the 40 core addition, subtraction, multiplication, and division levels listed on p.32.



Home computer. With Renaissance Home Connect, students can pick up practice where they left off in the classroom by practicing at home or on any Internet-connected computer. Students can continue to practice at their current level or choose to practice at any other level. See. p.47 for more information about Renaissance Home Connect.

Printed practice. You can print flash cards and worksheets from the MathFacts in a Flash software for each of the 62 levels. Some of the worksheets and charts are designed to help students first develop the conceptual background that they'll need before moving on to practicing math facts.

Count by Threes Worksheet

Name: _____

Count by 3s and write the missing numbers.

1	2		4	5		7	8		10
11		13	14		16	17		19	20
	22	23		25	26		28	29	
31	32		34	35		37	38		40

Identify levels that your students will practice

MathFacts in a Flash comes with all 62 levels installed and ready to use. Because the software automatically advances students when they master a level, you'll want to review the list of levels installed in the Assignment Book to determine if your students should encounter all of them. (You can find a list of the levels on pp.9–10 of this guide.) Consider removing levels that your students won't need to practice during the school year. For example, a third-grade teacher will probably want to remove the levels on squares and conversions. When you remove a level from the Assignment Book, you remove it for your whole class, but it can easily be restored if you change your mind. (Instructions for removing and restoring levels are on p.60.) You cannot remove levels on which students are currently working; therefore, if possible, review and remove levels at the beginning of the school year.

Viewing All Problems in a Level:

If you want to see all of the problems that are in a level, you can print or preview a practice worksheet from the level. (You'll find the software directions on p.62.)

If necessary, you can also reorder the levels in your Assignment Book to more closely match your curriculum or pacing guide. (Instructions for reordering levels are on p.60.) As a general rule, students should not practice any level for which they have not had instruction. Later, we will discuss how to manage individual student access to levels.

Determine the starting level for each student

Once you set a student's MathFacts in a Flash starting level, the program takes it from there, moving the student through all successive levels that you did not remove. In identifying each student's beginning level, keep in mind that students make the most progress when they work with content that is challenging enough to be engaging, but not so difficult as to be frustrating. Remember that students develop automaticity more efficiently when they practice facts with which they are already familiar; that is, facts for which they have been exposed to the relevant concepts and strategies. Also consider the personalities of students and how much they need to experience challenge versus immediate success. For example, if you have an eighth-grade student in intervention who is struggling with basic multiplication facts, you might want to allow her to work through the addition and subtraction levels in order to gain confidence with the program and enthusiasm for higher levels. For an on-level student who is brushing up on computational fluency in preparation for a high-stakes test, starting at a higher level may be more appropriate. (Instructions for setting levels are on pp.60–61.)

Set up students for success: Have them practice facts with which they are already familiar.

In short, there is no single method for placing students in MathFacts in a Flash; the program lets you decide. Many teachers base students' initial levels on last year's performance, standardized test data, or informal diagnostic strategies. Here are additional strategies that teachers have used for identifying students' initial MathFacts in a Flash levels:

- **Start all students at the first level and let them work straight through the remaining levels.** This approach allows a high degree of initial success for

most students, but it may take awhile for students to reach the level where they will make the most growth.

- **Use STAR Math data to place students in MathFacts in a Flash levels.** If you are using STAR Math, the Diagnostic Report identifies a grade-equivalent math score that can be used in conjunction with MathFacts in a Flash default benchmarks to approximate initial placement. (We discuss benchmarks in detail beginning on p.31.) The Diagnostic Report also shows where students fit on a continuum of computational skills.
- **Use printed MathFacts in a Flash worksheets as a quick diagnostic test.** Print a worksheet from one of the cumulative review levels and give it to students as a timed diagnostic test. This will allow you to observe how quickly students answer the questions and if students appear to be “figuring out” the facts. Some teachers use this approach from the “bottom up”—they start by giving the first addition-level review worksheet to all students as a timed test. Those students who were successful on the first test take a teacher-timed test with the next level of review worksheet, and so on, until the teacher has found the best level for each student. This method takes more time, but it provides documentation that you may need later when talking with parents about a student’s initial placement.

From the What Works Clearinghouse:

Provide about 10 minutes per session of instruction to build quick retrieval of basic arithmetic facts. Consider using technology, flash cards, and other materials for extensive practice to facilitate automatic retrieval...we recommend that about 10 minutes be devoted to building this proficiency during each intervention session.

Acknowledging that time may be short, we recommend a minimum of 5 minutes a session (Gersten, et al., 2009).

Decide how long and when students will practice

As teachers, you know intuitively that if math facts practice sessions are too long, students will disengage. On the other hand, if practice sessions are not frequent enough, students won’t retain what they practiced. To find the right balance, we recommend that students practice math facts between 5–15 minutes per day, at least three days a week. This recommendation is in alignment with the practice recommendations of the What Works Clearinghouse. (See box at left.)

Additionally, our recommendations are supported by our own MathFacts in a Flash research database of almost 200,000 students in 49 states and the District of Columbia.

In deciding how you will create practice time for every student, it helps to think about whether you want students to practice all at once or periodically throughout the day. If all students will practice during the same 5–15-minute period, they will probably need to use a combination of classroom computers, flash cards, printed worksheets, Renaissance Responders, NEO 2s, computer lab computers, and your own materials. If students will practice periodically throughout the day, you will need to establish a few basic routines for accessing materials (e.g., computer sign-up, checking out and turning in Renaissance Responders, practicing with flash cards, and accessing and turning in printed worksheets).

For students in intervention, 5–15 minutes of MathFacts in a Flash practice time works well as the practice component of a 20–40-minute instruction period, four or five times a week.

No matter how you structure the use of MathFacts in a Flash in your classroom, we highly recommend that you make sure all students have a chance to use the program. If you restrict MathFacts in a Flash to a select group of students—for example, those students who finish their regular math work early—you run the risk of overlooking the very students who may need math facts help the most.

Familiarize Yourself with Reports

MathFacts in a Flash reports help you monitor student and class progress toward

- mastering levels
- achieving accuracy and time goals
- meeting grade-level benchmarks

These are four of the most commonly used reports:

Report name	Primary purpose	Who uses it
Class Progress Report	Shows each student's pace and progress at the current level, and helps identify students who are struggling.	Teachers
Student Progress Report	Details student accuracy and speed on the current level, and shows progress toward year-end benchmarks.	Teachers
Student Record Report	Shows individual student progress on the current level and on all previously mastered levels.	Teachers
TOPS Report	Shows teachers and students which facts were missed on a practice or test, and how long the practice or test took.	Teachers, Students

You can see full-page samples of these reports beginning on p.69. In a later section, Managing MathFacts in a Flash in Your Classroom, we'll discuss the best ways to utilize report data.

Summary

BEGINNING TASKS

- Prepare to use the software.
- Decide how students will practice.
- Identify levels that your students will practice.
- Determine the starting level for each student.
- Decide how long and when students will practice.
- Familiarize yourself with reports.

5

Other Essential Practices

Now that you know the basics of getting started with MathFacts in a Flash, let's look at other practices and features designed to help you and your students get the most from the program.

Review

The importance of reviewing math facts while developing automaticity cannot be overstated. Review cements learning and increases fluency. Practicing a skill beyond initial mastery—sometimes called “overlearning”—serves to move information from short-term memory to long-term memory. This is one reason why the What Works Clearinghouse recommends math facts fluency remediation with cumulative review for students in Response to Intervention (RTI) schools (US Department of Education Institute of Education Sciences What Works Clearinghouse, 2009).

Review Levels. When MathFacts in a Flash levels are in default order, at least every fifth level is a review level. Five of these are cumulative review levels that include multiple operations:

- Review: +, -
- Review: +, -, x
- Review: +, -, x, /
- Review: +, -, x, /, squares
- Review: +, -, x, /, squares, conversion

When a student is unsuccessful at mastering a cumulative review level, MathFacts in a Flash automatically provides practice on the missed problems, as usual. In certain cases, though, it helps to pay special attention to what kind of problems (i.e., which operations) the student missed.

Example: Leon is struggling to master the review level named “Review: +, -, x.” His latest TOPS Report shows that he needs some brush-up practice on addition facts. To find out which other addition facts might be problematic for Leon, his teacher, Ms. Ranieri, could do a quick session with addition flash cards, or she might print an Addition Review level worksheet from the software to use as a timed test with Leon.

For concentrated review on addition facts, Leon could do more work with printed worksheets or flash cards from a specific addition level, or he could practice one or more addition levels on a Renaissance Responder. Ms. Ranieri may also decide to place Leon's current cumulative review level on hold and have Leon re-master certain addition levels in the software.

Holding and Resetting Levels

When you place a level on hold, MathFacts in a Flash ignores, or skips over that level. *Hold* can be used to suspend students' work on a certain level when they

are struggling, or to keep students from testing on or practicing certain skills before they are ready. You can place levels on hold for individual students or for the whole class. (Instructions for holding and resetting levels are on p.61.) Here are a few ways that Mr. Hanna, a fourth-grade teacher, uses the hold and reset functions:

Example 1: Mr. Hanna knows that a few of his students will probably master the “Multiplication Review 2” level soon. Mr. Hanna puts the division levels and all levels beyond them on *hold* because he has not yet introduced the concepts relating multiplication to division. Mr. Hanna later *resets* the levels as he is ready for students to practice them.

Example 2: Mr. Hanna’s student Lani has taken five tests on a subtraction level and has very low accuracy scores. Mr. Hanna wants to work with Lani before she practices or tests further on this level. He places Lani’s level on *hold* until he can identify the problem. When Lani is ready to work on that same level again, Mr. Hanna uses *set level* to allow Lani to resume where she left off. If Mr. Hanna *reset* Lani’s level, all of her data and work from that level would have been deleted and Lani would have begun the level again with a baseline test.

Example 3: Mr. Hanna prefers that his students work with the alternate form levels after first mastering the other levels. He places the alternate form levels on *hold*. As students finish mastering the other levels, Mr. Hanna *sets* the first alternate form level as the current level, and *resets* the other alternate form levels so that MathFacts in a Flash can move students through them automatically.

Activity	Use this activity to...
Set level	<ul style="list-style-type: none"> Set a level as a student’s current working level (including as the starting level) Return a level from “hold” status so a student can resume working where he left off
Reset level	<ul style="list-style-type: none"> Return a level from “hold” status and delete any previous student work and data for the level (The student will begin the level with a baseline test.) Allow a student to rework a level that she has already mastered (e.g., to go back and lower her mastery time later in the year)
Hold level	<ul style="list-style-type: none"> Skip over a level or levels that you don’t want students to work on Suspend student work on a level in which they are having problems <p>Keep in mind . . .</p> <ul style="list-style-type: none"> Mastered levels cannot be put on hold If a level with no work is placed on hold and then “set,” the level becomes the student’s working level

Student Answer Format

The sample practice on p.12 shows a problem and three answer choices. This assisted-response format is the default answer format for MathFacts in a Flash practices and tests. If you decide that your students will use the assisted-response format, you will also determine if they will answer with a mouse or a keyboard.

There may be times, however, when you prefer to have students respond to open-ended questions—those without answer choices. For open-ended problems, students key in their answers and press **Enter** or **return** to go to the next problem.

As with assisted-response format, MathFacts in a Flash gives immediate corrective feedback when students practice with open-ended problems. (Instructions for setting the Student Answer Input Preference are on p.63.)

Different Modes of Practice

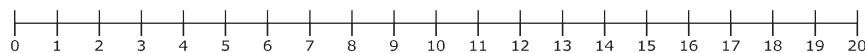
We've already looked at how students can practice with MathFacts in a Flash using various methods: classroom computers, NEO 2s, Renaissance Responders, MathFacts in a Flash card decks, printed flash cards, printed worksheets, or a home computer. Using multiple modes means more practice for students—in the classroom, at lunch or recess, and even at home. Review the chart below to help identify which mode or modes will best suit your students:

WAYS TO PRACTICE IN MATHFACTS IN A FLASH			
Mode	Assisted-Response or Open-Ended	Vertical or Horizontal Problem Display	Benefits and Features
Classroom Computer or NEO 2	either	either	<ul style="list-style-type: none"> Can be used for mastery testing as well as practice.
Renaissance Responder	assisted-response	horizontal	<ul style="list-style-type: none"> Everyone can practice at once—no bottleneck at the classroom computer. Responders are mobile. Students can practice anywhere (e.g., lunch, recess), play math fact games with other students, and challenge classmates on accuracy and time. Students can practice at any core skill level and can practice taking timed tests that do not count toward mastery.
Flash Cards	open-ended	vertical	<ul style="list-style-type: none"> Flash cards work in tandem with Renaissance Responders to expose students to various math fact presentations. Flash card facts are open-ended and vertical. Responder facts are assisted-response and horizontal.
Printed Worksheets	open-ended	either	<ul style="list-style-type: none"> Teachers can choose to print 10, 20, 30, or 40 problems in horizontal or vertical format. Addition, Subtraction, Multiplication, and Division levels include an option to print a number line at the end of the practice. Students can use worksheets to look for fact patterns within a level (e.g., commutativity) or between levels (e.g., fact families).
Renaissance Home Connect	assisted-response	horizontal	<ul style="list-style-type: none"> Students can practice any level as well as practice taking tests (which will not count toward mastery). Parents can see their child's work on the current level, including missed problems.

Use the Number Lines on Printed Worksheets to Tie Math Facts to Concepts

The number line graphics at the bottom of printed worksheets can help students make the link between conceptual and procedural knowledge of math facts. The Final Report of the National Mathematics Advisory Panel emphasizes the use of number lines at all levels of mathematics learning.

Number line for addition and subtraction worksheets



Number line for multiplication and division (through 10s) worksheets



Number line for multiplication and division (11s and 12s) worksheets



Using MathFacts in a Flash with Older Students

Many teachers find that MathFacts in a Flash is a great fit for older students who are below grade level, in remediation, or in an intervention setting. However, you'll find that MathFacts in a Flash can also be used effectively with other middle and high school students.

Throughout the upper grades, students continue to develop their concepts of place value, how numbers are composed and decomposed, and the meaning of decimals, fractions, percents, and exponents. As the National Math Panel notes, "Far too many middle and high school students lack the ability to accurately compare the magnitudes of such numbers." (US Department of Education National Mathematics Advisory Panel, 2008)



MathFacts in a Flash can help students develop this ability. For example, MathFacts in a Flash conversion levels give students greater facility in comparing decimals, fractions, and percents, and help them strengthen their understanding of the relative magnitude of numbers in these forms.

Here are some other ideas from teachers who have used the program with older students:

- **Fluency Review.** Use MathFacts in a Flash for students who may simply need a speed boost with calculations. Students can challenge themselves to

lower time goals to help build speed.

- **High-Stakes Test Preparation.** Knowledge of fraction/decimal/percent conversions and squares is essential for both state tests and college entrance exams. MathFacts in a Flash helps students develop quick recall, which leads to better scores.
- **Alternate Forms.** Use the alternate form levels to help students cement the concept of reciprocity of operations and deepen their understanding of commutativity.
- **Boot Camp.** At the beginning of a pre-algebra or algebra course, run students through a MathFacts in a Flash “boot camp” using selected review and cumulative review levels. Here are two possible short courses:

Course 1	Course 2 (abbreviated)
Addition Review 1	Addition Review 2
Addition Review 2	Review: +, -
Subtraction Review 1	Review: +, -, x
Subtraction Review 2	Review: +, -, x, /
Review: +, -	Squares Review
Multiplication by 11, 12	Review: +, -, x, /, squares
Multiplication Review 1	Fractions to Decimals
Multiplication Review 2	Decimals to Fractions
Review: +, -, x	Percentages to Decimals
Division by 11, 12	Decimals to Percentages
Division Review 1	Fractions to Percentages
Division Review 2	Conversion Review
Review: +, -, x, /	Review: +, -, x, /, squares, conversion
Squares to 15, 20	
Squares Review	
Review: +, -, x, /, squares	
Fractions to Decimals	
Decimals to Fractions	
Percentages to Decimals	
Decimals to Percentages	
Fractions to Percentages	
Conversion Review	
Review: +, -, x, /, squares, conversion	

Are Students Ready for Automaticity?

How can you tell if students are ready to use MathFacts in a Flash to develop automaticity? At all levels, students should only practice for automaticity once they've been introduced to the concepts that form the foundation of the facts that they'll practice. Some students may need to revisit and do additional work with concepts that they were introduced to in previous grades. More information about screening for and teaching pre-automaticity fundamentals can be found in the *Numeracy Development & Intervention Guide* (Vos, 2009), but here are a few key points:

1. First with objects and later with numbers, students need to have a basic understanding of:
 - order
 - size
 - 1:1 correspondence
 - classification/grouping
2. Students should develop math fact knowledge first with hands-on materials, then with pictures, and finally with equations.
3. Students need a clear concept of counting—not just “how to,” but the meaning of what happens when they count.
4. Students need an understanding of the meaning of the operation that they will be practicing—for example, that addition means both joining sets and counting on.

You can also print practice materials from the MathFacts in a Flash software to help students get ready to practice for automaticity:

- Level practice worksheets (can include a number line appropriate for the operation and level)
- Other worksheets:
 - Count by Threes
 - Count by Fours
 - Even Numbers
 - Odd Numbers
 - Random Numbers
 - Addition to 10 Chart
 - Hundred Chart
 - Multiplication to 12 Chart

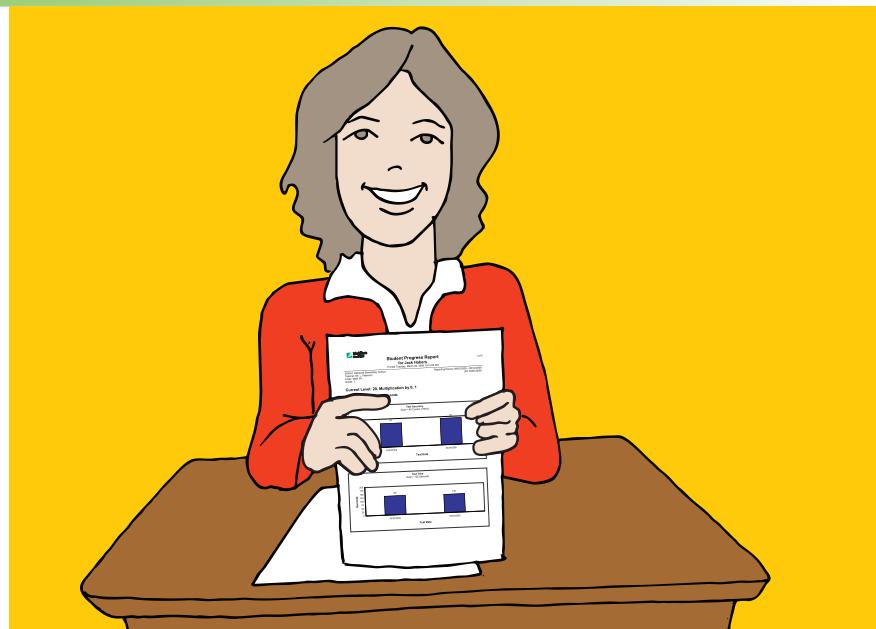
(Instructions for printing practice materials are on p.62.)

Summary

OTHER ESSENTIAL PRACTICES

- Review is an important component in math fact automaticity. Some review is built into the software. Teachers can initiate other review.
- Each MathFacts in a Flash practice mode has a unique set of benefits and features.
- MathFacts in a Flash can be used with older students—even those who are on level.
- Students need to understand basic mathematical concepts before they practice for math fact automaticity.

Managing MathFacts in a Flash in Your Classroom



Monitoring Student Progress

Earlier, we saw how MathFacts in a Flash provides immediate feedback to students while they practice. This immediate, corrective feedback makes MathFacts in a Flash a powerful tool for practice, much more so than only practicing with flash cards or worksheets. Moreover:

MathFacts in a Flash practice is measured practice.

Effective teachers know that instruction and progress-monitoring intervention are best informed by data. MathFacts in a Flash measures more than just the levels that students have mastered and the problems they missed. The data in MathFacts in a Flash reports also help you gauge student accuracy and fluency—the essential components of automaticity—and student progress toward yearly benchmarks. With this knowledge you can plan your program usage so that students get the most from their math facts practice time.

You can also use the detailed progress-monitoring data in MathFacts in a Flash reports to tailor your instruction and interventions to your students' specific needs. MathFacts in a Flash is a perfect tool to use with students in all tiers of Response to Intervention implementations.

Benchmark Levels

MathFacts in a Flash enables you to monitor student progress toward end-of-the-year benchmarks to help identify which students are meeting grade-level expectations for fact fluency. The software includes default benchmarks and a default target date (April 1) for meeting those benchmarks. School or district administrators can change the default settings for each grade based on local standards and curriculum. Teachers can view the benchmark settings but cannot change them.

MathFacts in a Flash Supports RTI Implementations

- Provides progress-monitoring assessment between screenings
- Measures
 - » mastery of each level
 - » the rate of growth toward benchmarks
- Offers grade-level benchmarks that are research- and evidence-based
- Supports students in all tiers of intervention with differentiated practice
- Includes Renaissance Home Connect to involve parents as partners in monitoring student progress
- Integrates data systems: the STAR Math Screening Report can help pinpoint students most likely in need of math facts intervention

DEFAULT END-OF-YEAR BENCHMARKS		
Operation	Benchmark (master by end of)	MathFacts Benchmark Level
Addition	Grade 2	Addition Review 2
Subtraction	Grade 3	Review: +, -
Multiplication	Grade 4	Review: +, -, x
Division	Grade 5	Review: +, -, x, /

Note that these benchmarks do not set the pace of instruction. Rather, they are benchmarks for student *automaticity* with the math facts in the specified level.

These evidence-based core-skill benchmarks were identified in accordance with National Math Panel recommendations, the NCTM Curriculum Focal Points, and common state standards. The validity of these benchmarks was confirmed by MathFacts in a Flash usage data from nearly 200,000 students in 49 states and the District of Columbia.

Level Name
Addition of 0, 1
Addition of 2, 3
Addition of 4, 5
Review: Addition of 0 to 5
Addition of 6, 7
Addition of 8, 9
Addition of 10
Addition Review 1
Addition Review 2 (Default benchmark for Grade 2)
Subtraction of 0, 1
Subtraction of 2, 3
Subtraction of 4, 5
Review: Subtraction of 0 to 5
Subtraction of 6, 7
Subtraction of 8, 9
Subtraction of 10
Subtraction Review 1
Subtraction Review 2
Review: +, - (Default benchmark for Grade 3)
Multiplication by 0, 1
Multiplication by 2, 3
Multiplication by 4, 5
Multiplication Review: 0 to 5
Multiplication by 6, 7
Multiplication by 8, 9
Multiplication by 10
Multiplication Review: 6 to 10
Multiplication Review 1
Multiplication Review 2
Review: +, -, x (Default benchmark for Grade 4)
Division by 1, 2
Division by 3, 4
Division by 5, 6
Division Review: 1 to 6
Division by 7, 8
Division by 9, 10
Division Review: 7 to 10
Division Review 1
Division Review 2
Review: +, -, x ÷ (Default benchmark for Grade 5)

These 40 MathFacts in a Flash levels can be set as grade-level benchmarks. The levels encompass the four basic operations for 0 through 10 in standard format.

Alternative Settings—If you are using MathFacts in a Flash in a middle school or high school setting, a school administrator can identify end-of-year benchmarks for the grades that are in your school. In an intervention setting, MathFacts in a Flash benchmarks can help you monitor student progress between screenings and monitor the effectiveness of interventions. You can use MathFacts in a Flash benchmarks as intervention targets and identify growth-rate goals, such as a certain number of levels mastered per week, if appropriate.

Information on student progress toward benchmarks appears on the Student Progress Report and Renaissance Place Dashboard.

Key Reports

Let's take a look at four of the most commonly used reports:

- TOPS Report
- Class Progress Report
- Student Record Report
- Student Progress Report

TOPS Report: View a student's most recent test or practice results



**Test TOPS
for Lisa Stone**

Printed Monday, October 13, 2008 10:15:24AM

School: Oakwood Elementary School Teacher: Mrs. M. Adams
Class: Math 4A Grade: 4

Number Correct: 37 / 40 (93%)																
Level: 11	Time															
Level Name: Addition Review 2																
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Accuracy</th> <th style="text-align: right;">Time</th> </tr> </thead> <tbody> <tr> <td style="text-align: left;">Test 1: 37 of 40 Correct</td> <td style="text-align: right;">93%</td> </tr> <tr> <td style="text-align: left;">Goal: 40 of 40 Correct</td> <td style="text-align: right;">100%</td> </tr> <tr> <td></td> <td style="text-align: right;">1 Minute, 39 Seconds</td> </tr> <tr> <td></td> <td style="text-align: right;">2 Minutes, 0 Seconds</td> </tr> <tr> <td></td> <td style="text-align: right;">1:39</td> </tr> <tr> <td></td> <td style="text-align: right;">2:00</td> </tr> </tbody> </table>			Accuracy	Time	Test 1: 37 of 40 Correct	93%	Goal: 40 of 40 Correct	100%		1 Minute, 39 Seconds		2 Minutes, 0 Seconds		1:39		2:00
Accuracy	Time															
Test 1: 37 of 40 Correct	93%															
Goal: 40 of 40 Correct	100%															
	1 Minute, 39 Seconds															
	2 Minutes, 0 Seconds															
	1:39															
	2:00															
Incorrect Problems (3)																
<table border="1" style="width: 100%; border-collapse: collapse;"> <tbody> <tr> <td style="text-align: left;">$8 + 6 = 14$</td> <td style="text-align: center;">$9 + 4 = 13$</td> <td style="text-align: right;">$8 + 4 = 12$</td> </tr> </tbody> </table>			$8 + 6 = 14$	$9 + 4 = 13$	$8 + 4 = 12$											
$8 + 6 = 14$	$9 + 4 = 13$	$8 + 4 = 12$														

Number Correct: 38 / 40 (95%)																
Level: 11	Time															
Level Name: Addition Review 2																
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Accuracy</th> <th style="text-align: right;">Time</th> </tr> </thead> <tbody> <tr> <td style="text-align: left;">Test 2: 38 of 40 Correct</td> <td style="text-align: right;">95%</td> </tr> <tr> <td style="text-align: left;">Goal: 40 of 40 Correct</td> <td style="text-align: right;">100%</td> </tr> <tr> <td></td> <td style="text-align: right;">1 Minute, 41 Seconds</td> </tr> <tr> <td></td> <td style="text-align: right;">2 Minutes, 0 Seconds</td> </tr> <tr> <td></td> <td style="text-align: right;">1:41</td> </tr> <tr> <td></td> <td style="text-align: right;">2:00</td> </tr> </tbody> </table>			Accuracy	Time	Test 2: 38 of 40 Correct	95%	Goal: 40 of 40 Correct	100%		1 Minute, 41 Seconds		2 Minutes, 0 Seconds		1:41		2:00
Accuracy	Time															
Test 2: 38 of 40 Correct	95%															
Goal: 40 of 40 Correct	100%															
	1 Minute, 41 Seconds															
	2 Minutes, 0 Seconds															
	1:41															
	2:00															
Incorrect Problems (2)																
<table border="1" style="width: 100%; border-collapse: collapse;"> <tbody> <tr> <td style="text-align: left;">$8 + 9 = 17$</td> <td style="text-align: center;">$8 + 7 = 15$</td> </tr> </tbody> </table>			$8 + 9 = 17$	$8 + 7 = 15$												
$8 + 9 = 17$	$8 + 7 = 15$															

Teacher _____ Parent _____

Comments: _____

TOPS Reports inform you and your students about practice or test performance in the software. They include the student's current level, results for time and accuracy, and any incorrect problems. The incorrect problems can help you see if there is a pattern in the missed facts and can also help students quickly identify which facts need more work. You can see samples of both Practice and Test TOPS Reports on p.69.

By default, a TOPS Report will print each time a student completes a practice or a test. You can change the preference to print a TOPS Report at the end of a session, i.e., when the student logs out of MathFacts in a Flash. (Instructions for changing the TOPS Report printing preference are on p.63.)

Here are some ways for students to use the information on their TOPS Reports:

- Preprint flash cards from the software for each level. Students can cut up a set of flash cards for their current level. They can write answers to the facts they missed, cut up the cards, and separate “missed” from “known” facts into two envelopes. They should practice the facts they missed. If a missed fact doesn’t show up on the next TOPS Report, the student moves the card to the “known” envelope. The goal is for the “missed” envelope to be empty.
- Students can write each missed fact a number of times, with the correct answer. As they write the facts, students can say the problems and answers aloud.
- Students can organize missed facts into groups of related facts (e.g., $6 \times 7 = 42$; $7 \times 6 = 42$) and write them at the bottom of the TOPS Report.
- Pair up students who are working on the same level. Instruct them to share strategies for remembering facts missed by their partner.

Other tips:

- Send the TOPS Report home to parents to help them target specific facts that their child needs to practice.
- If MathFacts in a Flash is being used in a pull-out or intervention class, TOPS Reports can provide quick, detailed information for other teachers.
- Designate a place where students should turn in TOPS Reports when they’re finished with them. Make a special basket or “brag” bulletin board for TOPS Reports with no missed problems.

Use the TOPS Report to identify whether a student needs to work on speed, accuracy, or both for the current level.

Class Progress Report: Keep an eye on the big picture

**MathFacts
in a Flash®**

Class Progress Report
Printed Tuesday, October 14, 2008 3:30:15PM

1 of 1

School: Oakwood Elementary School Reporting Period: 9/02/2008 – 10/14/2008
(1st Quarter)

Report Options
Reporting Parameter Group: All Demographics [Default]

Class: Math 4A
Teacher: Adams, Marcie

Student	Level	Current Level				All Levels				
		Last Session	Session Type	School Days Since Last Session	Number of Practices	Number of Tests	Number of Practices	Number of Tests	Levels Mastered	Best Time Attempts
Anderson, Marcus	14. Subtracting 6s, 7s	10/07/08	Test	0	1	2	20	28	13	2
Bell, Timothy	10. Subtracting 6s, 1s	10/14/08	Test	Today	2	1	10	18	9	4
Bollig, Brandon	10. Subtracting 6s, 1s	10/10/08	Test	2	2	1	13	22	9	3
Chang, Michelle	16. Subtracting 10s	10/10/08	Test	2	1	2	24	45	15	2
Gonzales, Maria	16. Subtracting 10s	10/07/08	Practice	5	1	2	17	30	15	3
Halden, Susan	11. Subtracting 2s, 3s	10/10/08	Test	2	1	2	10	20	10	2
O'Neil, Sarah	17. Subtraction Review I	10/10/08	Test	2	-	1	9	20	15	4
Richmond, Angela	11. Subtracting 2s, 3s	10/07/08	Test	5	1	3	12	25	10	2
Rodrigues, Carlos	12. Subtracting 4s, 5s	10/10/08	Practice	2	1	2	13	26	11	1
Stone, Lisa	11. Subtracting 2s, 3s	10/13/08	Test	1	3	5	12	25	10	1
Tyler, Lawrence	11. Subtracting 2s, 3s	10/07/08	Test	5	2	5	25	20	10	2
White, Jacob	10. Subtracting 6s, 1s	10/10/08	Practice	2	2	2	14	25	9	2

Summary
Number of Students: 12

	Number of Practices	Number of Tests	Number of Levels Mastered	Best Time Attempts
Average	15	25	11	2

The Class Progress Report gives a snapshot of the status of your whole class, and helps you quickly see who may be struggling either at the moment or in general. View the report to see who is not working steadily, who may need help, or who has improved their mastery times. You can also review summary information about the number of practices, tests, and mastered levels. Customize this report for any time period or group of students. You can see a full-page Class Progress Report on p.70. When you look at the Class Progress Report consider the following:

Current Level Section: Who needs help on their current level?

- Look at the School Days Since Last Session column. Has it been several school days since any of your students completed a practice or test? Has the student been absent? It may be possible that the student has practiced on a Renaissance Responder or with Renaissance Home Connect.
- Look at the Number of Tests column. Have any students taken five or more tests in a level without mastering it? These students may need to practice more before testing in order to build fluency. They may also need more strategies or conceptual background, or they may simply need to slow down enough to be more accurate. (The Student Progress Report can help you zero in on the cause of difficulty.)
- Look at the Level column. Are two or more students struggling with the same level? These students may be paired or grouped together for additional instruction.

All Levels Section: Who is struggling generally?

- Check the Levels Mastered column. Have any students mastered fewer levels during the report period than you might expect?

- Compare the number of tests with the number of levels mastered. Students who have taken many tests and mastered few levels may be struggling with several concepts. (The Student Record Report gives further details about how students mastered previous levels.)
- The Best Time Attempts column shows the number of times a student has bettered the previous test time on a level while still meeting accuracy criteria. Do the numbers indicate that students are working on lowering their mastery times according to your plan?

Student Record Report: Get more detail about individual students

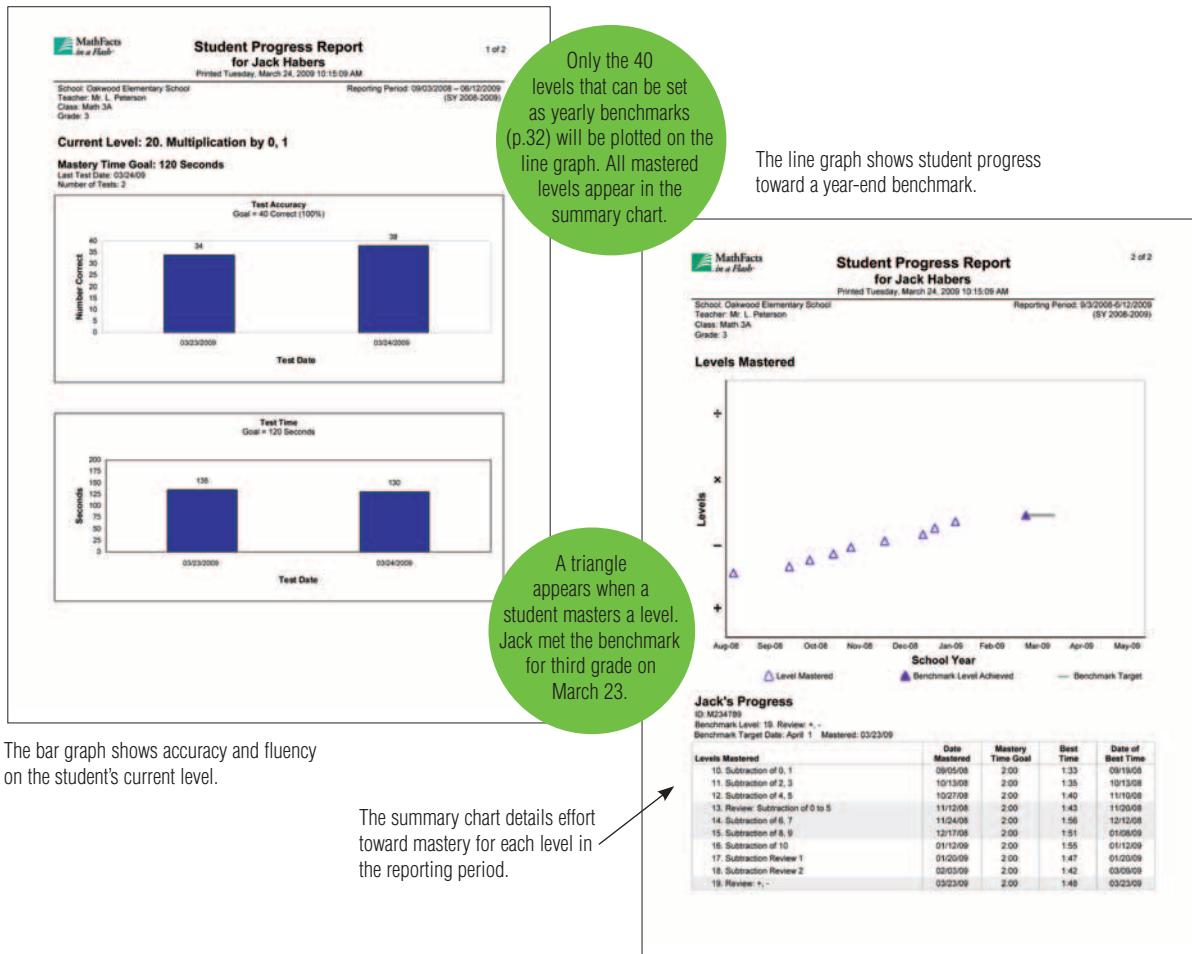
Student Record Report										
Printed Tuesday, October 14, 2008 3:36:04PM										
1 of 1										
School: Oakwood Elementary School										
Reporting Period: 9/02/2008 - 10/14/2008 (1st Quarter)										
Report Options										
Reporting Parameter Group: All Demographics [Default]										
Content: Display current and mastered levels.										
Stone, Lisa										
ID: LSTONE		Class: Math 4A								
Grade: 4										
Current Level										
						Last Test				
						Accuracy	Time	Mastery Time Goal	Number of Practices	Number of Tests
Level Name		Date				3840	1:41	2:00	3	5
11. Addition Review 2		10/13/08								
Levels Mastered										
		Start Date	Date Mastered	Mastery Time Goal	School Days To Master	Number of Practices	Number of Tests	Best Time	Date of Best Time	Best Attempts
		09/02/08	09/02/08	2:00	0	1	1	1:37	09/04/08	2
1. Addition of 0, 1										
2. Addition of 2, 3		09/02/08	09/05/08	2:00	3	0	1	1:46	09/08/08	2
3. Addition of 4, 5		09/05/08	09/09/08	2:00	2	0	2	1:49	09/11/08	3
4. Alternate Forms: Addition of 0 to 5		09/09/08	09/12/08	2:00	3	1	2	1:55	09/15/08	1
5. Review: Addition of 0 to 5		09/12/08	09/17/08	2:00	2	1	1	1:51	09/18/08	2
6. Addition of 6, 7		09/17/08	09/19/08	1:45	3	1	2	1:42	09/22/08	2
7. Addition of 8, 9		09/19/08	09/23/08	2:00	2	1	3	1:52	09/25/08	2
8. Addition of 10		09/25/08	09/30/08	1:45	3	1	3	1:44	09/30/08	1
9. Alternate Forms: Addition of 8 to 10		09/30/08	10/03/08	2:00	3	1	2	1:55	10/03/08	1
10. Addition Review 1		10/03/08	10/07/08	1:45	2	2	3	1:43	10/10/08	1
Summary										
Total Levels Mastered		10								
Average Days to Master		2								
Average Number of Practices		1								
Average Number of Tests		2								

The Student Record Report provides a detailed summary of one student's current level and mastered levels. You can customize the date range of this report to show data from a single day to the entire school year.

You can see a full-page sample Student Record Report on p.71. Here are some things to consider when reviewing the Student Record Report:

- Look at the School Days to Master column: Which levels took the student a long time to master? Did the student work on the level prior to instruction?
- Look at the Best Time and Best Time Attempts columns: Has the student attempted any times under two minutes (or under your revised mastery time goal)?
- Look at the Current Level and Summary charts: How long has the student been working on this level? How does this compare to the average number of days the student took to master other levels? Is the student struggling?
- Look at the Current Level chart: Has the student taken more than five tests without success on this level? If so, the student may be struggling. Check the latest TOPS Report for a list of missed facts.
- Compare Average Number of Practices to Average Number of Tests in the Summary chart: Does the student test a lot more than practice? Students should not test continually without success. Check in with students to see why they are not practicing more, or find out if they're practicing on a Renaissance Responder or with Renaissance Home Connect.

Student Progress Report: Check student accuracy and speed on a single level and the overall progress toward benchmarks



Talking with students about benchmarks

Although school administrators can set custom grade-level benchmarks for your school, the benchmarks may not be realistic for some of your students. For these students, consider identifying other attainable short-term goals that will lead them to success. Similarly, identify goals beyond the grade-level benchmark for students who will easily surpass it before the end of the school year. Discuss these goals with students.

Students can track progress toward goals using the Tracking and Goal-Setting Chart (p.67) and the All-Level Mastery Tracker (p.68). The Tracking and Goal-Setting Chart can be used in different ways. Here is one suggestion:

1. In the “Level Mastery Date” cells across the bottom of the chart, write the date of each school day (in a six-week marking period).
 2. In the boxes in the left column, write the level numbers for ten successive or non-successive levels that are targets for students to master. Put the lowest level number at the bottom and the highest level number at the top.
 3. When students master a level that is on the chart, have them shade in the cell that is at the intersection of that level and the date it was mastered.
- 

Let's revisit Mrs. Showen's classroom to see how she uses the Student Progress Report. Mrs. Showen reviews Student Progress Reports weekly and meets with students as needed to discuss concerns and to acknowledge effort and progress.

- Mrs. Showen notices from the Student Progress Report's bar graph that Drew took four tests at his current level and his accuracy scores range from 22 to 27 correct. Drew completed each of his tests in less than one minute. Mrs. Showen encourages Drew to slow down while testing and recommends that he earn 100% correct on a practice before testing again.
- From the Student Progress Report's line graph and summary table, Mrs. Showen sees that Malika has mastered only a few levels this marking period. She turns next to the report's bar graphs and discovers that, although Malika achieved 100% accuracy (or close to it) for three tests at her current level, she hasn't reached her mastery time goal—every test took 175 seconds or longer. Mrs. Showen thinks that Malika might be deriving or figuring out certain facts. She reviews Malika's most recent TOPS Report to see which facts require special attention. She then asks Malika to set a personal goal of finishing her practices in less than two minutes before testing again.
- Another of Mrs. Showen's students, Jeremy, has been struggling in math. It is clear that lack of computational fluency is part of the problem. Mrs. Showen, the principal, and Jeremy's parents decide to incorporate MathFacts in a Flash as part of a Tier 2 intervention strategy, including a goal of mastering two addition or subtraction levels each week for nine weeks. Mrs. Showen uses the Student Progress Report to see if Jeremy is on track with the intervention plan. She looks at the line graph to view Jeremy's rate of progress and she looks at the Summary chart to check the number of levels mastered per week.

Accuracy Issues:

If a student is testing at or under the time goal but not mastering levels, this means her accuracy is off. How many and what kind of problems is she missing in the level?

TIP: Consider printing a level worksheet to use as a test to see what kind of responses she gives.

Summary**TIPS FOR USING THE STUDENT PROGRESS REPORT:**

- Look at the report for each student weekly—begin with the line graph to review students' progress toward the benchmark. For more detail, see the bar graph and summary chart.
- Talk with students to learn more about any difficulties revealed on the report and to discuss goals.
- Use the report to help evaluate effectiveness of student interventions.

View Student Progress in the Assignment Book and the Student Detail Page**Assignment Book**

The Assignment Book uses symbols to indicate each student's current status on all levels. In the Renaissance Place edition of the program, click **Set Level, Hold/Reset**, or **Edit Mastery Time** from the Assignment Book to view these symbols:

Symbol	Status	Description
 Green	Ready to Work	The student will work on this level next. When the student masters a level, the program automatically assigns Ready to Work status to the next open level.
 Green	Working	The student has tested on this level but has not yet met the mastery criteria.
 Blue	Mastered	The student has met the mastery criteria for the level.
 Gray	Hold	The teacher has placed a hold on this level. The student cannot work on this level until the teacher changes the status.

Student Detail Page

From the Assignment Book, click a student name to view the Student Detail page. This page lists information for each level worked on by the student: level name, number of tests and practices, last session, and mastered time. Use the Student Record Report and the Student and Class Progress Reports to help you monitor students' work in more detail.

Summary**MONITORING STUDENT PROGRESS**

- You can use MathFacts in a Flash to monitor student progress toward grade-level benchmarks.
- MathFacts in a Flash reports help inform your instructional decisions and interventions.
- The TOPS Report, Class Progress Report, Student Record Report, and Student Progress Report are the four key MathFacts in a Flash reports.
- You can also monitor student progress using the Assignment Book and Student Detail page.

Motivation and Progress Monitoring with Students

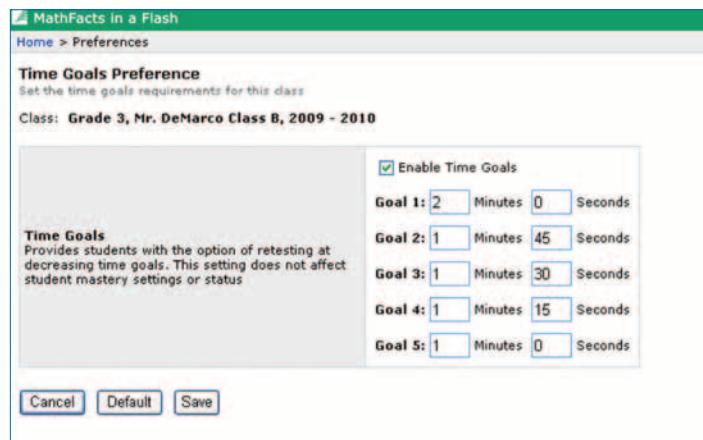
While we've mostly focused on the ways that you monitor student progress, MathFacts in a Flash also offers opportunities for students to manage and monitor their own practice. Many students find self-monitoring to be highly motivating: they feel in charge of their learning and their efforts are rewarded with feedback. In addition to monitoring their own time and accuracy results through the TOPS Report, students can also monitor and track progress toward goals that are set in MathFacts in a Flash. In this section, we discuss mastery time goals, student options to practice or test, and class-level motivation.

Mastery Time Goals

When testing for mastery, students try to accurately answer all 40 problems within the default time goal of two minutes. If students are successful, they choose to move on to the next level or retest on the same level to achieve a lower time. Testing again at a lower time does not affect the mastery status of the level. (If you disable the Time Goals preference, students will automatically move on to the next level without being given the option to retest. Instructions for disabling the Time Goals preference are on p.62.) If you will allow students to retest for lower times, be sure to let them know how you want them to practice:

- Work through all or some time goals for a level before moving on to the next level.
- Master all levels at the initial time goal, and then go back to re-master levels at lower times. (For this you will need to reset mastered levels.)

Under the Time Goals preference, you can also identify and edit five decreasing test time goals for your class, including resetting the initial default goal of two minutes. (Instructions for resetting time goals are on p.63.)



If you need to edit the default mastery time goal for an individual student, you can

do that by level for the student. (Instructions for editing individual mastery time goals are on p.61.)

Keep in mind: You want your students to experience success, but fluency and automaticity are the goals. Students will not move into automaticity if they have enough time to derive or figure out facts while testing. Try not to lengthen the test time goals just so students can master more levels if what they really need is more practice.

Guidelines for Resetting or Disabling Time Goals

The MathFacts in a Flash default for student mastery of a level is two minutes on a 40-item test—an average of three seconds per problem. This rate was established according to current research and is supported by our MathFacts in a Flash data from nearly 200,000 students. The rate includes the time needed for students to move the mouse and click or to do keyboard entry. Your pacing guide and time frame will affect your decisions about using time goals, but here are some general guidelines:

- For younger students, you may want to disable time goals, at least initially until they become comfortable with advancing through levels automatically.
- Students in fifth grade and above may be able to average two seconds per problem (Isaacs & Carroll, 1999; Mercer & Miller, 1992), which corresponds to a goal setting of one minute and 20 seconds. Our recommendation is that if you are using time goals, begin with the default settings and adjust the times as your situation requires.

Another Preference: Time Out

For both practices and tests, there is a maximum amount of time that MathFacts in a Flash will allow a student to practice a problem before the program automatically advances to the next problem. The default setting for this class-level preference is 30 seconds per problem, with a total time of 10 minutes per practice or test. You can change this if necessary. (See p.63.)

Begin with the default time goal settings and adjust the times for your situation

Practice or Test?

Within each level, students always have the choice whether to practice or test. The exception is immediately after a level baseline mastery test: students are required to practice rather than test again immediately if they missed any of the problems or did not meet the mastery time. (You can change this Mandatory Practice preference, but we don't recommend it.) By practicing right after a test, students benefit from the immediate corrective feedback on problems they just missed.

After the initial baseline test, how should you advise your students to proceed—practice or test? One very basic guideline is that students are ready to test on a level when they are 100% accurate on a practice. You might tell older students that a good predictor of test success is when they are able to practice with 100% accuracy in about half the time of the mastery time goal. The reason for this is because practices usually have about half the number of problems of tests.

Students are ready to test on a level when they are 100% accurate on a practice.

These guidelines will help “pull in the reins” on students who are too fast but not accurate enough, and will also encourage students who are figuring out or

deriving math facts to “giddy up” toward automatic recall. Look at the Class Progress Report daily, and check in with any students who have taken five or more tests on their current level. For students who appear to be figuring out math facts, check that they are clear on the concepts behind the facts, and give them some strategies for remembering problematic facts. See the *Numeracy Development & Intervention Guide* (Vos, 2009) or other resources. Encourage students to first practice the “problem” facts in a small concentrated group (as with flashcards) and then to mix them with “known” facts (as with MathFacts in a Flash).

Use Report Data and the Renaissance Place Dashboard to Motivate Students

Acknowledge student effort and help students share in individual, class, and school success by using MathFacts in a Flash reports and the Renaissance Place Dashboard. Here are just a few ideas:

Class Progress Report

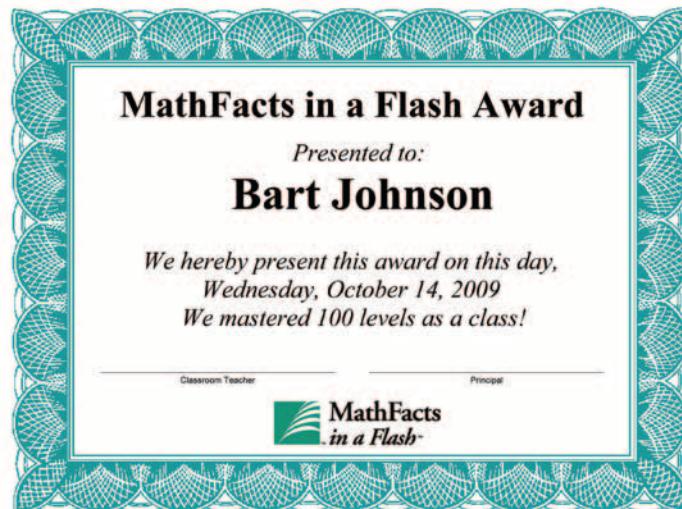
- Set a class goal for mastering a number of levels by a certain date (e.g., the end of a marking period). Track progress toward the goal by posting the number of levels mastered by the class each week. To find the number, customize the report’s date range to one week. The class total of levels mastered is in the Summary chart.
- Check the Best Time Attempts column and acknowledge students who bettered their mastery goal times.

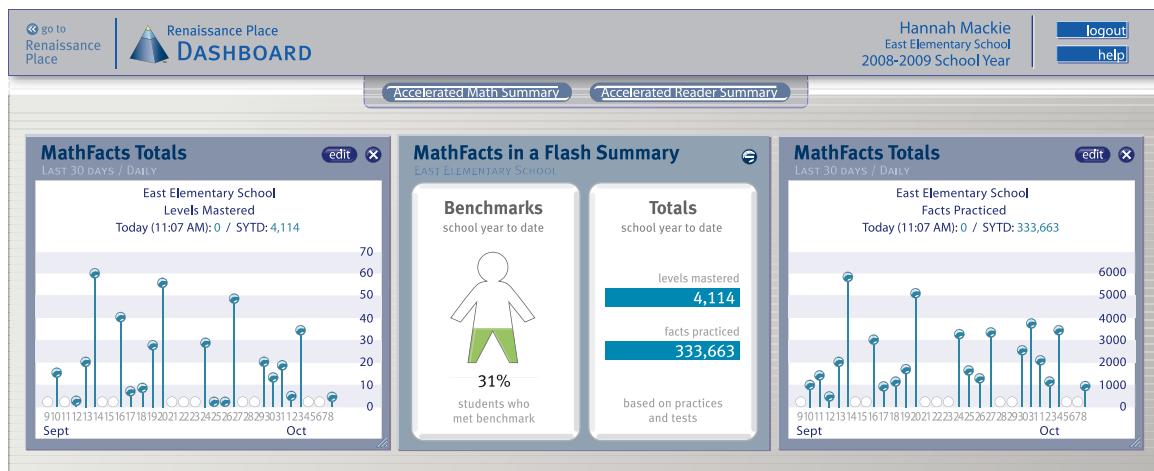
Certificates

Use Certificates to:

- Acknowledge the number of levels mastered, special goals, or achievements.
- Provide an opportunity for students to suggest award categories or thresholds for awards.

(Instructions for printing Certificates are on p.62.)





The Renaissance Place Dashboard

The Renaissance Place Dashboard gives you the total number and percentage of students in all of your classes who have met benchmark, as well as those who are working toward benchmark or were originally placed above the grade-level benchmark.

You can also see daily and year-to-date school-wide totals for the number of facts practiced and levels mastered. With this data, you can celebrate both genuine effort and achievement, and acknowledge your students' contributions to the school totals.

Summary

MOTIVATION AND PROGRESS MONITORING WITH STUDENTS

- MathFacts in a Flash has several built-in features that motivate students toward automaticity.
- MathFacts in a Flash allows you to identify and set custom time goals for individual students or your whole class.
- Students can decide when to practice or test within each level.
- Data from reports and the Renaissance Place Dashboard can be used for student motivation and recognition.

Renaissance Home Connect



Partnering with Parents

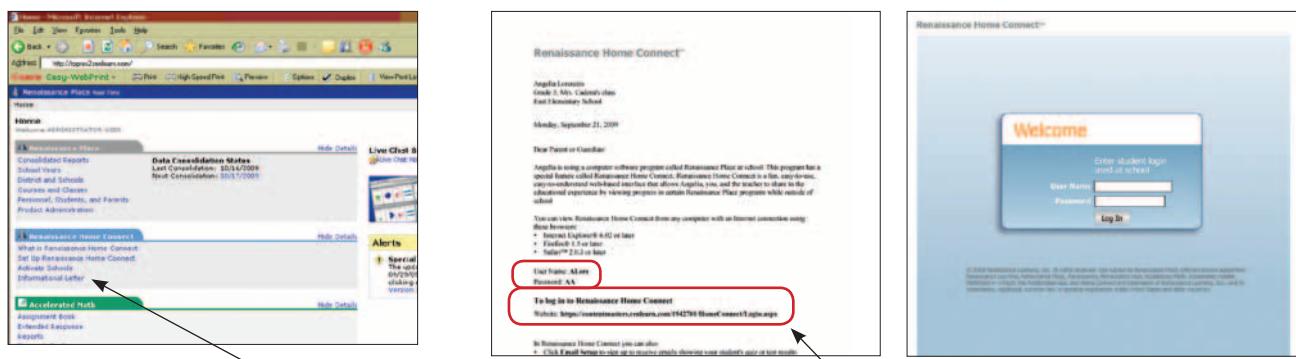
With Renaissance Home Connect, students can use MathFacts in a Flash on any Web-enabled computer—at home, at a friend or relative's house, at the library—anywhere! The same is true for parent access. If your school uses the Renaissance Place version of MathFacts in a Flash, you have a great, built-in tool for extending student math fact practice outside of school and for involving parents.

When parents are active partners in helping students learn math facts, students are more motivated and inspired, they practice more, and they do better in school. Engaged parents help not only their children, but schools and districts as well. The positive effect that family involvement has on student achievement is well established—shared accountability and regular, two-way communication between teachers and parents are both tenets of federal education law. Renaissance Home Connect makes it easy to maintain a direct link between school and parents or other family members.

When students use MathFacts in a Flash at home, they are able to practice or test at any level, regardless of what they are working on at school. Families can also view the results of the work completed at school. Parents and others can stay on top of student progress with an automatic email message each time their child masters a new MathFacts in a Flash level. Renaissance Home Connect technology can help you overcome some of the hurdles (e.g., work schedules, cultural preferences, misconceptions) that you may have experienced in the past when trying to communicate with parents about student achievement.

Setting Up Access

Setting up student and parent access to Renaissance Home Connect is as easy as 1 – 2 – 3!



1. Print an informational letter for each student from the Renaissance Place Home page.
2. Send or email the letter to each student's home.
3. Student and parents both use the student's user name and password to log in to Renaissance Home Connect. The informational letter specifies the Web address.

If your school uses Renaissance Home Connect with Accelerated Reader or Accelerated Math, you'll use the same Web address and login procedure for MathFacts in a Flash.

Students Working at Home

As we said earlier, students can practice any MathFacts in a Flash level with Renaissance Home Connect, regardless of their status or current level at school.

Tests taken at home do not count toward mastery—they are “for practice” only.

Students can review levels they have already mastered or try levels they haven't yet practiced. They can also choose to either practice or test in the level. Though undoubtedly the work that students do through Renaissance Home Connect will help them reach levels of automaticity sooner, it is important to note that tests taken at home do not count toward mastery—they are “for practice” only.

This allows students to work under test conditions (40 problems and a controlled response time), but it also guarantees that no one other than the student can test for actual mastery. In addition, none of the data from students' work in Renaissance Home Connect will appear in the MathFacts in a Flash Assignment Book at school.

When students or parents log in to Renaissance Home Connect, they immediately see the results of the student's last session—the percent correct, practice or test times, and missed problems.

Students can choose to view the results of their last session at school, view the results of their last session at home, or start practicing. After selecting a level, students choose to either practice or test.

The screenshot shows the Renaissance Home Connect homepage. At the top, there are links for 'Accelerated Math' and 'MathFacts in a Flash'. Below that, there are two main sections: 'School Results' and 'Home Results'. The 'School Results' section is highlighted with a green background and displays the following information:

- My Last Session at School** (taken 5/20/2007)
- Adding 4s, 5s**
- 90%** average % correct (90%)
- Accuracy**: Actual: 36 of 40 Correct (90%) | Goal: 40 of 40 Correct (100%)
- Time**: 2 Minutes, 05 Seconds (2:05) | 2 Minutes, 00 Seconds (2:00)
- Incorrect Problems**: $5 + 0 = 5$, $8 + 4 = 12$, $4 + 3 = 7$, $5 + 6 = 11$
- Total Levels Mastered: 2

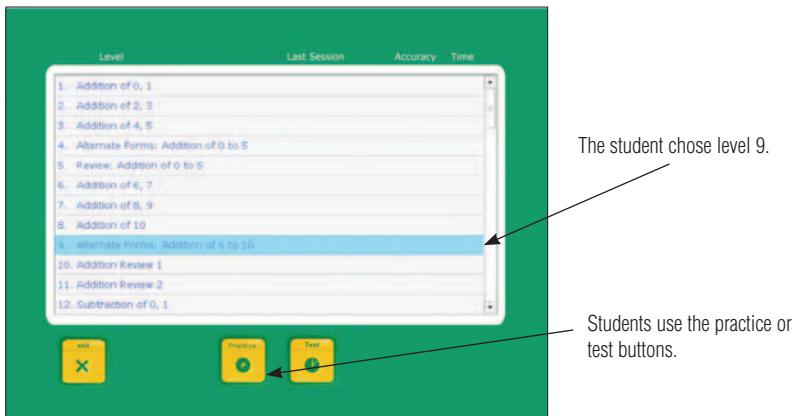
The 'Home Results' section is shown below the school results. It has a blue background and contains the following text:

Students use this link to choose the level they want to work on.

Link to latest school results. Link to latest home results.

does not count toward mastery at school

Start Practicing

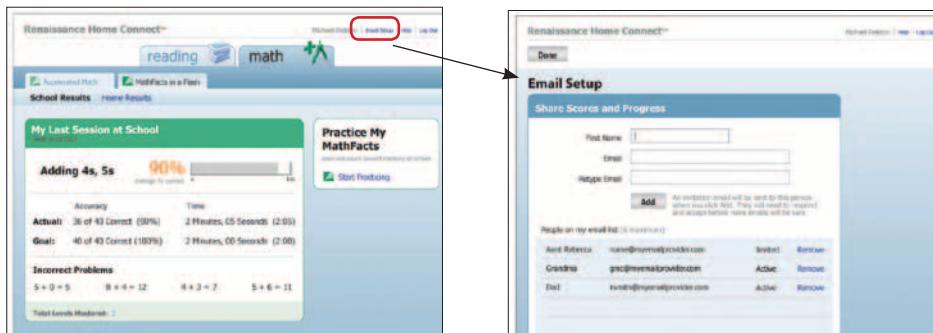


As at school, Renaissance Home Connect tests have 40 problems, and practices have a minimum of 20 problems. Practices include the problems that students missed on their last test, whether that test was at home or at school.

How Parents Monitor Student Levels and Progress

Parent and student views in Renaissance Home Connect are identical. Parents can use the School Results window to identify their child's current level. In addition, parents can choose to receive an email every time their child masters a MathFacts in a Flash level. The email can be sent to five other addresses—grandparents, other relatives, family friends—so others can share in celebrating the student's math facts success!

To set up the email option, parents click **Email Setup** and enter the names and email addresses for message distribution. The intended recipients must respond and accept before the email messages will be sent.



Also, keep in mind:

- Students can gauge progress in their test times by comparing the display of the latest home test time with their school mastery time goal.
- TOPS Reports don't print at home. Students view their missed problems on the screen at the end of a practice or test.
- Students cannot use MathFacts in a Flash at home until they have first worked in the program at school.
- For more detailed information about the differences between MathFacts in a Flash at home and in school, refer to the MathFacts in a Flash Software Manual.

Talking with Students and Parents about Practicing at Home

While practicing at home, students will likely spend some time working on their current school level and some time either reviewing mastered levels to improve their fluency, or challenging themselves to practice new levels. It is fine to encourage practice at all levels—students feel empowered and become invested in their own learning when they can make choices about what to practice. At the same time, students can expect to find it more difficult to develop automaticity with math facts that are beyond their content knowledge. It is important to remind students and parents that students should work toward automaticity of known content so they don't get discouraged. Let parents know which levels or range of levels you feel are most appropriate for their child to practice at home.

Here is some additional advice you might share with parents:

- Actively encourage math facts practice the same way (and for the same reasons) you may encourage practice of a musical instrument or an athletic skill. Students practice for speed and accuracy.
- Work with your child to practice the math facts that they missed on their practices or tests. These problems are listed on the TOPS Report that your child gets at school, or on-screen after each practice or test if your child is using Renaissance Home Connect.
- Practice math facts with flash cards that you have at home or with printed flash cards that your child brings home from school. Sort the cards into “correct” and “incorrect” piles. At first, practice a few missed facts at a time. Later, mix up the missed facts with some known facts. This helps students with fact retention.
- Ask your child to read missed problems aloud while writing them for practice.
- Help your child see the relationship between a missed fact and another fact that he already knows.
- It is best not to force students to memorize facts before they have learned the concepts in school. Check with your child's teacher about which MathFacts in a Flash levels would be most appropriate to practice at home.
- Know your child's mastery time goal—the target time for correctly answering 40 problems in a level. Find it on the TOPS Report or on the School Results or Home Results screens in Renaissance Home Connect.
- Develop a simple reward system for home math facts practice. It's important to notice and reward your child's efforts in addition to her achievement.

Other Ways to Share Information with Parents

Sending home copies of the Parent Report (in English or Spanish) and the TOPS Report can also help parents stay involved. During parent conferences, consider using the Student Record Report to provide a comprehensive view of the levels that students have mastered.

Summary

PARTNERING WITH PARENTS – RENAISSANCE PLACE HOME CONNECT

- Renaissance Home Connect makes it easy to engage parents as partners in helping students achieve math fact automaticity.
- Students can practice and test on any MathFacts in a Flash level from home, but they can only master levels at school.
- Renaissance Home Connect is included in your school's MathFacts in a Flash Renaissance Place subscription.
- Students and parents can see results from the last home session and the last school session.
- Parents can receive emails advising them each time their child masters a MathFacts in a Flash level.
- Provide parents with additional information by sharing copies of the TOPS Report, the Parent Report, and the Student Record Report.

Questions and Answers

9

Commonly Asked Questions

How do I find students' user names and passwords?

View or print the Student Information Report for your class. (Instructions for printing reports are on p.62.)

The program allows students to choose between testing and practicing. How should I advise my students to proceed?

Students should not test repeatedly without success. Tell students they should test after getting 100% correct—or close to 100% correct—on a practice.

After students master a level in MathFacts in a Flash, do they need to review? If so, what is the best way to do this?

It is important to review and practice beyond the point of initial mastery. Review helps to build fluency and establish automaticity. MathFacts in a Flash has built-in review levels for each operation and cumulative review levels for multiple operations.

My student knows most of her multiplication facts, but she just can't seem to recall certain facts—she's really stuck on them. What should I do? Is more practice the answer?

Maybe. It's also possible that she would benefit first from revisiting specific strategies for those facts. For example, say that 6×4 is problematic. Your student may know that $5 \times 4 = 20$, so remind her that 6×4 is one group of four more than 5×4 , or 24. If strategies plus additional practice don't help, check the student's core understanding of multiplication. The *Numeracy Development & Intervention Guide* (Vos, 2009) offers more in-depth advice.

How do students know which level to practice on Renaissance Responders?

With Renaissance Responders, students can practice or test at any of the core levels. (See list of core levels on p.32.) If students are using the Renaissance Responders in class, practicing at their current level will prepare them for mastery testing on the classroom computer or a NEO 2 and will allow them to come to you with questions. Students can also use the Renaissance Responders to review levels that were previously mastered. If you have enabled mastery time goals, students can then retest for a lower time on those levels using the classroom computer or NEO 2.

How can I use the 2Know! Toolbar with MathFacts in a Flash?

Some teachers like to introduce alternate form levels with the 2Know! Toolbar. Students view the whole-class session as a fun way to practice, and the teacher gets plenty of detail about students' understanding of the interrelationship between operations.

You can also use the 2Know! Toolbar to get a quick sense of how comfortable your class is in general with the math facts of a single operation. Student responses can help you make informed decisions about when it's time to move ahead in the curriculum.

Use the 2Know! Toolbar for whole-class or large-group practice. Working with a single level can offer review for some students, on-level practice for others, and perhaps a preview of what is to come for the rest. All students are actively involved, in a low-pressure setting.

What if a student makes a mistake and wants to change an answer?

When testing, students can change their response only on the last problem answered by clicking **Back** (on a computer), **Clear** (on a Renaissance Responder) or by pressing the backspace key (on a NEO 2). Students cannot change answers on practices.

How can I stop a practice or test?

Windows: press Ctrl+A

Macintosh: press control+A

NEO 2: press ctrl+A or ⌘+A

Depending on your Monitor Password preference setting, you may be asked to enter a monitor password to stop the practice or test. (Instructions for setting the Monitor Password preference are on p.63.)

Where can I find more help?

Location	Directions
Online Help (while using MathFacts in a Flash, Renaissance Place edition)	Click Help in the upper-right corner of any page to display a sidebar containing more information about that page.
Software Manual	If using the Renaissance Place edition, click Manuals in the upper-right corner of any page to find the <i>Renaissance Place Software Manual</i> , <i>MathFacts in a Flash Software Manual</i> , and other documents.
Resources (advice for implementing MathFacts in a Flash in your classroom)	If using the Renaissance Place edition, click Resources under the MathFacts in a Flash tab on the Home page.
Knowledge Base (technical support)	Search the Renaissance Learning Knowledge Base on the Web at http://support.renlearn.com/techkb/ .
Email	General questions: answers@renlearn.com Technical questions: support@renlearn.com
Phone	Call 800-338-4204 to talk to customer support.
Live Chat Support	From your Renaissance Place Home Page (if running on the Real Time platform), click Live Chat Support during normal business hours.
On-Demand Sessions (self-guided tutorials or recorded webinar sessions available 24/7)	From www.renlearn.com , click Training Center>Professional Development>Math>On-Demand Sessions to see available sessions.
Assistance in Spanish	From www.renlearn.com , click About us>Contact us for details.

Appendix

Professional Competencies: Skills List

Teacher Professional Competencies: Student-Guided Learning

Getting Results with MathFacts in a Flash identifies ways that teachers can guide students in:

Code	Skill	Sample References
Content		
SG01	Using strategies to derive or recall solutions to math facts	p.14
SG02	Using number lines to make a link between concepts and computational procedures	p.25
SG03	Understanding the meaning of counting (vs. ordering)	p.27
SG04	Developing functional concepts of the four arithmetic operations	p.27
SG05	Interpreting alternate forms of problems	p.26
SG06	Applying the commutativity properties of addition and multiplication to recall related math facts	p.24
SG07	Applying the relationships between and among operations to recall related math facts	p.24
SG08	Identifying equivalent forms of fractions, decimals, and percents	p.26
Communication		
SG09	Explaining mathematical reasoning and strategies for remembering math facts	p.34
SG10	Communicating progress to parents or guardians	pp.47;50
Practice and Progress Monitoring		
SG11	Evaluating and prioritizing decisions about learning and practice	pp.42;54
SG12	Analyzing performance data sets and identifying error patterns	p.34
SG13	Using fractions and percentages to compare data sets and gauge performance growth	pp.33–34
SG14	Using a continuous data graph to track progress over time	p.67
SG15	Interpreting and utilizing on-screen corrective feedback	pp.12–13
SG16	Determining whether to review mastered content levels or practice new content levels	p.41
SG17	Reviewing previously mastered concepts for improved fluency	p.41
SG18	Distinguishing correct from incorrect answers	pp.12;34
SG19	Prioritizing the practice of targeted content	p.42
Technology		
SG20	Using a mouse or keyboard to advance progress through software	pp.23;55
SG21	Logging on and logging off using a student i.d. and password	pp.17;47
Adaptation		
SG21	Balancing speed and accuracy to improve fact fluency	p.39
SG22	Transferring school practice methods to home practice	pp.18;48–49
SG23	Developing mathematical understandings in a concrete-to-abstract continuum	p.27
SG24	Using multiple learning modes to enhance math facts practice	pp.14;50

Teacher Professional Competencies: Teacher-to-Student

Getting Results with MathFacts in a Flash details practices whereby teachers demonstrate competency in:

Code	Skill	Sample References
Measurement and Tracking		
TC01	Using reports to monitor student progress toward instructional outcomes	pp.33–40
TC02	Monitoring progress toward yearly benchmarks and intervention goals	pp.38–39
TC03	Using data to inform and support instruction and intervention decisions	p.35
TC04	Establishing and communicating routines for utilizing program materials	p.20
TC05	Maintaining useful student performance records	p.20
Communication		
TC06	Providing specific feedback and motivation to students	p.43
TC07	Communicating to parents or guardians the student's strengths and weaknesses based on assessment results	p.51
TC08	Communicating to parents or guardians how to assess the student's educational progress	pp.49–50
TC09	Involving parents as partners in the education of their children	pp.47–51
TC10	Clarifying and articulating the performance outcomes expected of students	pp.31–32
TC11	Describing the extent to which each student has attained both short- and long-term instructional goals	p.38
TC12	Using a variety of strategies to promote cooperative learning	pp.13–14
Evaluation		
TC13	Using assessment methods in ways that encourage students' educational development and that do not inappropriately increase students' anxiety levels	p.55
TC14	Utilizing assessment methods appropriate for instructional decisions	p.11
TC15	Assessing student readiness for curriculum content and concepts	pp.26–27
TC16	Evaluating the effectiveness of instruction	p.38
TC17	Evaluating the effectiveness of curriculum and materials	p.38
TC18	Analyzing assessment results to identify students' strengths and errors	pp.33–34
TC19	Judging the extent of student attainment of instructional outcomes	p.38
Motivation		
TC20	Setting student intervention targets	pp.31–33
TC21	Identifying student growth-rate goals	pp.31–33
TC22	Setting short-and long-range student goals	pp.31–33
Adaptation		
TC23	Adjusting instruction strategies in response to student progress data	pp.41–42
TC24	Connecting instruction and concepts to students' prior understanding	p.50
TC25	Identifying the most suitable learning modality to facilitate student outcomes	p.18
TC26	Using multiple representations of concepts	pp.10; 25
TC27	Intervening and reinforcing concepts with struggling students	pp.27; 42–43
TC28	Planning instruction and the instructional setting to facilitate learning by individuals or groups of students	pp.19; 31
TC29	Adjusting the sequence of skills to fit individual student needs and the curriculum	p.9

Instructions for Common Software Tasks - Renaissance Place

Setting Up MathFacts in a Flash

Note: Set-up tasks for the Renaissance Place edition of MathFacts in a Flash are usually performed by a technology administrator. These tasks include installing MathFacts in a Flash, entering district, calendar, school, teacher, and student information; and adding and assigning classes and teachers. Instructions for these tasks are in the MathFacts in a Flash Software Manual.

Working With MathFacts in a Flash Levels

View the Assignment Book for a Class

1. Begin at the Renaissance Place Home page.
2. Click **Assignment Book** in the list of MathFacts in a Flash tasks.
3. If you have multiple classes, select the desired class from the drop-down menu.

Add, Remove, or Restore Levels

1. View the Assignment Book for the class for which you need to add or remove levels.
2. Click **Add/Remove** under Manage Levels along the left side of the page.
3. To add or restore a level, check the box by it. To remove a level, clear the check mark.
4. To select all the boxes on the page, check the Select box in the column heading. To deselect all boxes, clear the check mark.
5. Click **Save**.

Reorder Levels

1. Begin at the Assignment Book.
2. Click **Reorder** under Manage Levels along the left side of the page.
3. Check the boxes by the levels that you want to move. You can choose one or more levels.
4. To move the level up or down one or more positions in the list, type the number of positions you want the level moved in the blank box next to the Move Up or Move Down button. Then click **Move Up** or **Move Down**.
5. To move the level to a specific position in the list, type the desired position in the blank box next to the Move To button. If you chose more than one level, this will be the position of the first level (numerically) that you chose. Then, click **Move To**.
6. Click **Save**.
7. To return all the levels to the order they were in when the software was installed, click **Default**.

Set a Level for One Student

1. Begin at the Assignment Book.
2. Check the box next to the name of the student for whom you need to set a level.
3. Click **Set Level** under Activities along the left side of the page.
4. Click the circle in the Select column for the desired level. Click **Next >>** or **<< Previous** to move through the list of levels.
5. Click **Save**.

Set Levels for Multiple Students

1. Begin at the Assignment Book.
2. Check the box next to the name of each student for whom you need to set a level. To select all students, check the Student box at the top of the column.
3. Click **Set Level** under Activities along the left side of the page.
4. To set all the students you selected at the same level, click the circle by the level number at the top of the column, and then click **Save**. To set a different level for each student you selected, click the circle in the intersection of the column and row for that level and student.
5. Click **Save**.

Hold or Reset Levels

1. Begin at the Assignment Book.
2. Select one or more students by clicking the box next to the students' names. To select all students, click the box at the top of the column.
3. Click **Hold/Reset** under Activities along the left side of the page.
4. For each student, click the box that matches the level you wish to place on hold or reset.
5. Click **Hold** or click **Reset** and click **Done**.

Edit Mastery Times for Individual Students

1. Begin at the Assignment Book.
2. Select a student by clicking the box next to the student's name.
3. Click **Edit Mastery Time** under Activities along the left side of the page.
4. Type the time you want to use for each level in the blank Minutes and Seconds fields next to the level names.
5. To set all levels to the same mastery time, type the time in the Minutes and Seconds fields at the top of the page, and click **Set All**.
6. Click **Save**.

Edit Mastery Time for Multiple Students

1. Begin at the Assignment Book.
2. Select students by clicking the box next to the students' names. To select all students, click the box at the top of the column.
3. Click **Edit Mastery Time** under Activities along the left side of the page.
4. For each student, click the box in the column for each level in which you wish to edit the mastery time. To select all students for a level, click the box by the level number at the top of the column.
5. Type the time you want to use (for the students and levels you chose) in the blank Minutes and Seconds fields.
6. Click **Set Time**.
7. Repeat these steps for each mastery time you want to change.

Copy Levels Between Classes

1. Begin at the Assignment Book for the class that you need to copy levels into.
2. Click **Copy Levels** under Manage Levels along the left side of the page.
3. Select a class from the drop-down list to choose the class you want to copy the levels from.
4. Click **View** if you want to see the levels and the order they are in for the class you chose to copy from.
5. Click **Copy**. You may see a message telling you that levels will be removed and all student work on those levels will be deleted. Click **OK** to continue copying the levels.

Printing Reports and Practice Materials

Print Reports from the Assignment Book

1. Begin at the Assignment Book.
2. Check the box by each student you want included. To select all students, click the box at the top of the column.
3. Click the desired report name under Reports along the left side of the page.
4. The report is generated and displayed in Adobe Reader (or in Preview on certain Macintosh computers), either within your browser window or in a separate window.
5. To print the report, click the Adobe Reader print button (in Preview, click the **File** menu and choose Print).

Print Reports and Certificates from the Home Page

1. Begin at the Renaissance Place Home page.
2. Click **Reports** in the list of MathFacts in a Flash tasks.
3. Click the link for the report or certificate you wish to print.
4. Set the desired customization options for specific students, dates, or other options.
5. Click **View Report**.
6. The report is generated and displayed in Adobe Reader (or in Preview on certain Macintosh computers), either within your browser window or in a separate window.
7. To print the report, click the Adobe Reader print button (in Preview, click the **File** menu and choose Print).

Print Practice Materials for Students

1. Begin at the Assignment Book.
2. Click **Print Practice** under Activities along the left side of the page.
3. Click the item's name to print any of the practice worksheets or charts (except the Level Practice Worksheet and the Level Practice Flash Cards—see #4 below).
4. For Level Practice Worksheets and Flashcards, choose a level from the drop-down list.
5. For Level Practice Worksheets, use the drop-down list to choose the number and orientation of problems, and customize the number line setting.
6. The item is generated and displayed in Adobe Reader (or in Preview on certain Macintosh computers).
7. Click the Adobe Reader print button (in Preview, click the **File** menu and choose Print).

Working With Mastery Time Goals

Disable Time Goals

1. Begin at the Renaissance Place Home page.
2. Click **Preferences** in the list of MathFacts in a Flash tasks.
3. Click **Time Goals**.
4. Deselect the Enable Time Goals check box.
5. Click **Save**.

Reset Time Goals

1. Begin at the Renaissance Place Home page.
2. Click **Preferences** in the list of MathFacts in a Flash tasks.
3. Click **Time Goals**.
4. To change the time goals, leave the check in the Enable Time Goals box. Change the Minutes and Seconds for each of the five goals. Set all five goals in descending order.
5. Click **Save**.

Other Preference Settings

Change or View Preferences

1. Begin at the Renaissance Place Home page.
2. Click **Preferences** in the list of MathFacts in a Flash tasks.
3. Click the link for the preference you wish to set.
4. Set the desired customization options.
5. Click **Save**.

Preferences

Mandatory Practice - Specify if students will be required to practice after failing their first test on a level.

Monitor Password - Specify if a monitor password must be entered before a student can cancel a test or mandatory practice, and set the password that must be used.

Problem Format - Set the practice and test problem format to horizontal, vertical, or a combination of both.

Student Answer Input - Specify how students must choose or enter their answers on practices and tests.

Time Goals - Enable and define five decreasing time goals for tests.

Time-Out - Set the maximum time allowed per test or practice and per problem.

TOPS Report - Choose when a TOPS Report will print and whether it will include a parent signature line.

General - Set the number of items shown per page in lists (such as a list of levels).

Benchmarks - View or edit (administrator access level) school benchmark levels for each grade and the target date for achievement.

Reproducible Resources

NAME: _____

MathFacts in a Flash Practices and Tests Chart

Level Number: _____

Level Name: _____

PRACTICES		TESTS		
Practice Number	✓	How did you practice? (e.g. Class Computer, Renaissance Home Connect)	Correct	Date
1	/		1	/
2	/		2	/
3	/		3	/
4	/		4	/
5	/		5	/
6	/			If you have taken 5 tests without mastering this level, please see your teacher.
7	/		6	/
8	/		7	/
9	/		8	/
10	/			

PRACTICES		TESTS		
Test Number	✓	Test Time	Correct	Date
1				/
2				/
3				/
4				/
5				/

NAME: _____

MathFacts in a Flash Tracking and Goal-Setting Chart

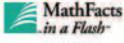
Level
Number

Level Mastery Date

MathFacts in a Flash All-Level Mastery Tracker

Level Number	Level Name	Date	Best Time	Level Number	Level Name	Date	Best Time
1	Addition of 0, 1			32	Alternate Forms: Multiplication by 6 to 10		
2	Addition of 2, 3			33	Multiplication Review: 6 to 10		
3	Addition of 4, 5			34	Multiplication by 11, 12		
4	Alternate Forms: Addition of 0 to 5			35	Alternate Forms: Multiplication by 11 to 12		
5	Review: Addition of 0 to 5			36	Multiplication Review 1		
6	Addition of 6, 7			37	Multiplication Review 2		
7	Addition of 8, 9			38	Review: +, -, ×		
8	Addition of 10			39	Division by 1, 2		
9	Alternate Forms: Addition of 6 to 10			40	Division by 3, 4		
10	Addition Review 1			41	Division by 5, 6		
11	Addition Review 2			42	Alternate Forms: Division by 1 to 6		
12	Subtraction of 0, 1			43	Division Review: 1 to 6		
13	Subtraction of 2, 3			44	Division by 7, 8		
14	Subtraction of 4, 5			45	Division by 9, 10		
15	Alternate Forms: Subtraction of 0 to 5			46	Alternate Forms: Division by 7 to 10		
16	Review: Subtraction of 0 to 5			47	Division Review: 7 to 10		
17	Subtraction of 6, 7			48	Division by 11, 12		
18	Subtraction of 8, 9			49	Alternate Forms: Division by 11 to 12		
19	Subtraction of 10			50	Division Review 1		
20	Alternate Forms: Subtraction of 6 to 10			51	Division Review 2		
21	Subtraction Review 1			52	Review: +, -, ×, /		
22	Subtraction Review 2			53	Squares to 15, 20		
23	Review: +, -			54	Squares Review		
24	Multiplication by 0, 1			55	Review: +, -, ×, /, squares		
25	Multiplication by 2, 3			56	Fractions to Decimals		
26	Multiplication by 4, 5			57	Decimals to Fractions		
27	Alternate Forms: Multiplication by 0 to 5			58	Percentages to Decimals		
28	Multiplication Review: 0 to 5			59	Decimals to Percentages		
29	Multiplication by 6, 7			60	Fractions to Percentages		
30	Multiplication by 8, 9			61	Conversion Review		
31	Multiplication by 10			62	Review: +, -, ×, /, squares, conversion		

Sample Reports

 **Practice TOPS**
for Marcus Royce

Printed Thursday, September 17, 2009 09:24:45 AM

School: Newberry Middle School Teacher: Ms. S. Burchfield
Class: Period 6 Math 7 Grade: 7

Number Correct: 29 / 40 (73%)
Practice Number: 1
Level: 52
Level Name: Review: +, -, x, /

Incorrect Problems (11)				
16 - 9 = 8	13 - 9 = 7	6 x 7 = 45	64 / 8 = 7	7 x 3 = 24
45 / 6 = 7	18 / 6 = 4	4 x 9 = 32	49 / 7 = 9	27 / 3 = 6
8 x 8 = 56				

Teacher _____ Parent _____
Comments: _____

 **Test TOPS**
for Lisa Stone

Printed Monday, October 13, 2008 10:15:24AM

School: Oakwood Elementary School Teacher: Mrs. M. Adams
Class: Math 4A Grade: 4

Number Correct: 37 / 40 (93%)
Level: 11
Level Name: Addition Review 2

Accuracy		Time	
Test 1:	37 of 40 Correct	93%	Test 1:
Goal:	40 of 40 Correct	100%	Goal:
		1 Minute, 39 Seconds	1:39
		2 Minutes, 0 Seconds	2:00

Incorrect Problems (3)		
8 + 6 = 14	9 + 4 = 13	8 + 4 = 12

Number Correct: 38 / 40 (95%)
Level: 11
Level Name: Addition Review 2

Accuracy		Time	
Test 2:	38 of 40 Correct	95%	Test 2:
Goal:	40 of 40 Correct	100%	Goal:
		1 Minute, 41 Seconds	1:41
		2 Minutes, 0 Seconds	2:00

Incorrect Problems (2)	
8 + 9 = 17	8 + 7 = 15

Teacher _____ Parent _____
Comments: _____

Class Progress Report

Printed Tuesday, October 14, 2008 3:30:15PM



School: Oakwood Elementary School

Report Options
 Reporting Parameter Group: All Demographics [Default]

Class: Math 4A

Teacher: Adams, Marcie

1 of 1

 Reporting Period: 9/02/2008 – 10/14/2008
 (1st Quarter)

Student	Level	Current Level			All Levels		
		Last Session	Session Type	School Days Since Last Session	Number of Practises	Number of Tests	Number of Practises
Anderson, Marcus	14. Subtrading 6s, 7s	10/07/08	Test	5	1	2	20
Bell, Timothy	10. Subtrading 0s, 1s	10/14/08	Test	2	1	10	28
Bollig, Brandon	10. Subtrading 0s, 1s	10/10/08	Test	2	1	13	18
Chang, Michelle	16. Subtrading 10s	10/10/08	Test	2	1	2	22
Gonzales, Maria	16. Subtrading 10s	10/07/08	Practice	5	1	2	9
Halden, Susan	11. Subtrading 2s, 3s	10/10/08	Test	2	1	2	17
O'Neil, Sarah	17. Subtraction Review 1	10/10/08	Test	2	1	1	24
Richmond, Angela	11. Subtrading 2s, 3s	10/07/08	Test	5	1	3	45
Rodrigues, Carlos	12. Subtrading 4s, 5s	10/10/08	Practice	2	1	2	30
Stone, Lisa	11. Subtrading 2s, 3s	10/13/08	Test	1	3	5	15
Tyler, Lawrence	11. Subtrading 2s, 3s	10/07/08	Test	5	2	5	20
White, Jacob	10. Subtrading 0s, 1s	10/10/08	Practice	2	2	2	10
							25
							9

Summary
 Number of Students: 12

	Number of Practises	Number of Tests	Number of Levels Mastered	Best Time Attempts
Average	15	25	11	2



Student Record Report

Printed Tuesday, October 14, 2008 3:36:04PM

School: Oakwood Elementary School

Report Options

Reporting Parameter Group: All Demographics [Default]

Content: Display current and mastered levels.

Stone, Lisa

ID: LSTONE
Grade: 4
Teacher: Adams, Marcie

Current Level

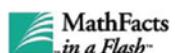
Level Name	Last Test			Mastery Time Goal	Number of Practices	Number of Tests
	Date	Accuracy	Time			
11. Addition Review 2	10/13/08	38/40	1:41	2:00	3	5

Levels Mastered

Level	Start Date	Date Mastered	Mastery Time Goal	School Days To Master	Number of Practices	Number of Tests	Best Time	Date of Best Time	Best Time Attempts
1. Addition of 0, 1	09/02/08	09/02/08	2:00	0	1	1	1:37	09/04/08	2
2. Addition of 2, 3	09/02/08	09/05/08	2:00	3	0	1	1:46	09/08/08	2
3. Addition of 4, 5	09/05/08	09/09/08	2:00	2	0	2	1:49	09/11/08	3
4. Alternate Forms: Addition of 0 to 5	09/09/08	09/12/08	2:00	3	1	2	1:55	09/15/08	1
5. Review: Addition of 0 to 5	09/12/08	09/17/08	2:00	2	1	1	1:51	09/18/08	2
6. Addition of 6, 7	09/17/08	09/19/08	1:45	3	1	2	1:42	09/22/08	2
7. Addition of 8, 9	09/19/08	09/23/08	2:00	2	1	3	1:52	09/25/08	2
8. Addition of 10	09/25/08	09/30/08	1:45	3	1	3	1:44	09/30/08	1
9. Alternate Forms: Addition of 6 to 10	09/30/08	10/03/08	2:00	3	1	2	1:55	10/03/08	1
10. Addition Review 1	10/03/08	10/07/08	1:45	2	2	3	1:43	10/10/08	1

Summary

Total Levels Mastered	10
Average Days to Master	2
Average Number of Practices	1
Average Number of Tests	2



Student Progress Report for Jack Habers

1 of 2

Printed Tuesday, March 24, 2009 10:15:09 AM

School: Oakwood Elementary School
Teacher: Mr. L. Peterson
Class: Math 3A
Grade: 3

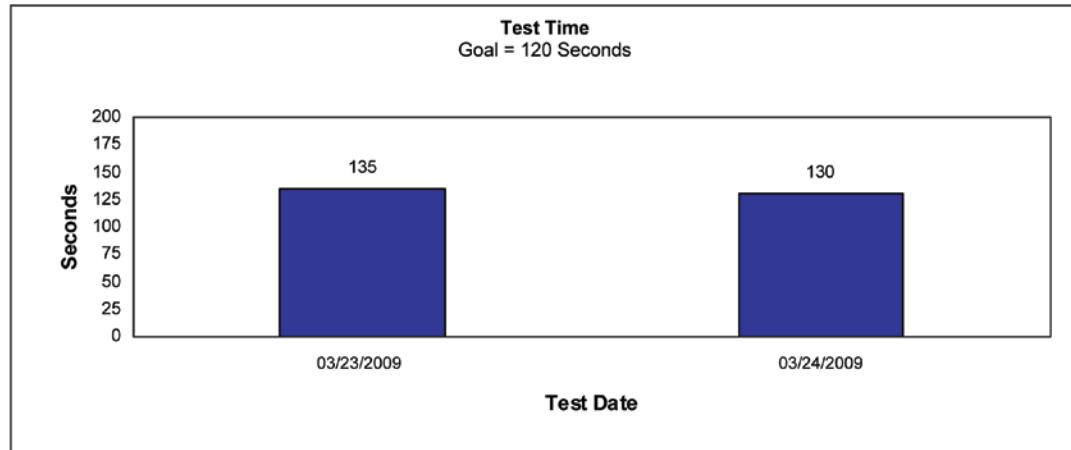
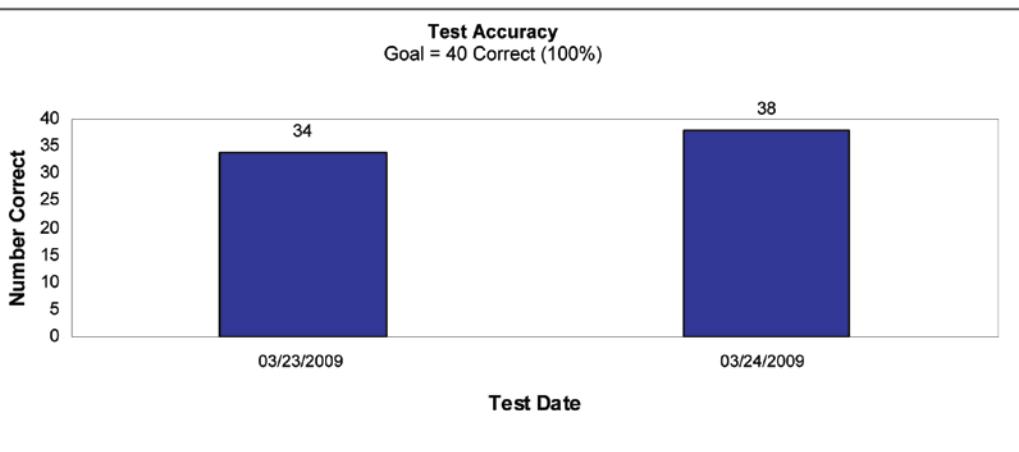
Reporting Period: 09/03/2008 – 06/12/2009
(SY 2008-2009)

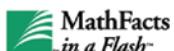
Current Level: 20. Multiplication by 0, 1

Mastery Time Goal: 120 Seconds

Last Test Date: 03/24/09

Number of Tests: 2





Student Progress Report for Jack Habers

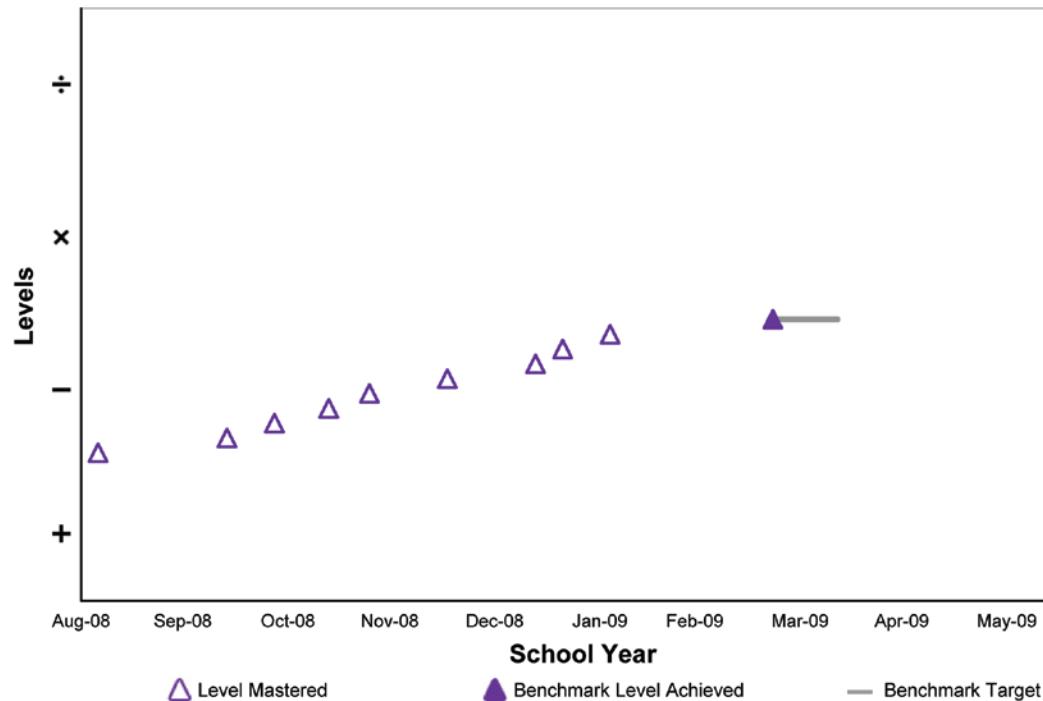
2 of 2

Printed Tuesday, March 24, 2009 10:15:09 AM

School: Oakwood Elementary School
Teacher: Mr. L. Peterson
Class: Math 3A
Grade: 3

Reporting Period: 9/3/2008-6/12/2009
(SY 2008-2009)

Levels Mastered



Jack's Progress

ID: M234789

Benchmark Level: 19. Review: +, -

Benchmark Target Date: April 1 Mastered: 03/23/09

Levels Mastered	Date Mastered	Mastery Time Goal	Best Time	Date of Best Time
10. Subtraction of 0, 1	09/05/08	2:00	1:33	09/19/08
11. Subtraction of 2, 3	10/13/08	2:00	1:35	10/13/08
12. Subtraction of 4, 5	10/27/08	2:00	1:40	11/10/08
13. Review: Subtraction of 0 to 5	11/12/08	2:00	1:43	11/20/08
14. Subtraction of 6, 7	11/24/08	2:00	1:56	12/12/08
15. Subtraction of 8, 9	12/17/08	2:00	1:51	01/08/09
16. Subtraction of 10	01/12/09	2:00	1:55	01/12/09
17. Subtraction Review 1	01/20/09	2:00	1:47	01/20/09
18. Subtraction Review 2	02/03/09	2:00	1:42	03/09/09
19. Review: +, -	03/23/09	2:00	1:48	03/23/09

References

1. Woodward, J. (2006). Developing automaticity in multiplication facts: Integrating strategy instruction with timed practice drills. *Learning Disability Quarterly*, 29(3), 269–289.
2. National Mathematics Advisory Panel. (2008). *Foundations for success: The final report of the National Mathematics Advisory Panel*. Washington, DC: U.S. Department of Education.
3. Ball, D., Ferrini-Mundy, J., Kilpatrick, J., Milgram, R., Schmid, W., & Schaar, R. (2005). *Reaching for common ground in k–12 mathematics education. Notices of the AMS*, 52(9), 1055–1058.
4. Crawford, D. B. (2003). *The third stage of learning math facts: Developing automaticity*. Unpublished manuscript.
5. Gersten, R., Beckmann, S., Clarke, B., Foegen, A., Marsh, L., Star, J. R., & Witzel, B. (2009). *Assisting students struggling with mathematics: Response to Intervention (RtI) for elementary and middle schools* (NCEE 2009-4060). Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education.
6. Vos, K. E. (2009). *Numeracy development and intervention guide*. Wisconsin Rapids, WI: Renaissance Learning, Inc.
7. Isaacs, A. C., & Carroll, W. M. (1999). *Strategies for basic-facts instruction. Teaching Children Mathematics*, 5(9), 508–515.
8. Mercer, C. D., & Miller, S. P. (1992). *Teaching students with learning problems in math to acquire, understand, and apply basic math facts. Remedial and Special Education*, 13(3), 19–35.

MathFacts in a Flash Award

Presented to:

Bart Johnson

We hereby present this award on this day,

Wednesday, October 14, 2009

We mastered 100 levels as a class!

Classroom Teacher

Principal



References

1. Woodward, J. (2006). Developing automaticity in multiplication facts: Integrating strategy instruction with timed practice drills. *Learning Disability Quarterly*, 29(3), 269–289.
2. National Mathematics Advisory Panel. (2008). *Foundations for success: The final report of the National Mathematics Advisory Panel*. Washington, DC: U.S. Department of Education.
3. Ball, D., Ferrini-Mundy, J., Kilpatrick, J., Milgram, R., Schmid, W., & Schaar, R. (2005). *Reaching for common ground in k–12 mathematics education. Notices of the AMS*, 52(9), 1055–1058.
4. Crawford, D. B. (2003). *The third stage of learning math facts: Developing automaticity*. Unpublished manuscript.
5. Gersten, R., Beckmann, S., Clarke, B., Foegen, A., Marsh, L., Star, J. R., & Witzel, B. (2009). *Assisting students struggling with mathematics: Response to Intervention (RtI) for elementary and middle schools* (NCEE 2009-4060). Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education.
6. Vos, K. E. (2009). *Numeracy development and intervention guide*. Wisconsin Rapids, WI: Renaissance Learning, Inc.
7. Isaacs, A. C., & Carroll, W. M. (1999). *Strategies for basic-facts instruction. Teaching Children Mathematics*, 5(9), 508–515.
8. Mercer, C. D., & Miller, S. P. (1992). *Teaching students with learning problems in math to acquire, understand, and apply basic math facts. Remedial and Special Education*, 13(3), 19–35.

Index

A

accuracy 21, 23, 33, 39, 41, 42
alternate form levels 10, 23, 26, 54
Assignment Book 19, 40, 48, 60
 symbols 40
automaticity 1, 5, 11, 13, 19
 readiness 26

B

baseline test 7
boot camp 26

C

calculators 5
certificates 43
change an answer 55
conceptual background 11
corrective feedback. 12
curriculum 19

D

desktop 17

F

flash cards 14, 24
fluency 22, 25, 39, 50

G

goals
 short-term 39
 time 41
growth-rate goals 33

H

help 55
high-stakes test 19, 26

I

immediate corrective feedback 12
instruction 11, 14
intervention 19, 20, 25, 33, 39. *See also* Response to Intervention (RTI)

L

levels
 add 19,60
 alternate form 10, 23, 26, 54
 core 32
 hold 22, 23
 remove 19, 60
 reorder 19, 60
 reset 22, 23, 61
 review 22
 set 22, 23
 starting 19

Log in

student 17, 47
teacher 17

M

- mastery time
 - edit 61
- monitor student progress 7, 11, 31, 33, 41
- motivation 41, 43

N

- National Mathematics Advisory Panel 5, 11, 25
- NCTM Curriculum Focal Points 32
- NEO 2 18, 24
- number lines 25
- number sense 5
- Numeracy Development & Intervention Guide 26, 43

O

- older students 25

P

- pacing guide 19
- parent
 - advice 50
 - informational letter 47
 - Parent Report 50
 - Renaissance Home Connect 49
- passwords 54

practice

- effective 12–13
- home 50
- modes 17–19, 24
- or test 42
- personalized 7, 8
- session length 20
- stop 55

preferences 63**R**

- Renaissance Home Connect 47
 - email option 49
 - set up access 47
- Renaissance Place 17
- Renaissance Place Dashboard 33, 43, 44
- Renaissance Responder 7, 11, 18, 24, 54
- reports 33
 - Class Progress 35
 - Parent Report 50
 - print 62
 - Student Progress 38
 - Student Record 37
 - TOPS 33
- reproducible resources 65
- research database 20
- response times 12

Response to Intervention (RTI) 22, 31
review 22, 27

routines 20

S

self-monitoring 41

- Spanish 50, 55
- STAR Math 20
- student answer format 23
- Student Detail Page 40
- Student Information Report 54
- T**
 - Teacher Professional Competencies 58, 59
 - time goals
 - enable 42, 62
 - reset 41, 63
- 2Know! Toolbar 54
- W**
 - What Works Clearinghouse 13, 20, 22
 - worksheets 14, 20, 24, 27

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.



(800) 338-4204 • www.renlearn.com

\$14.95

ISBN 978-159455328-8



9 781594 553288

MFFGR.0811
R42296

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.



(800) 338-4204 • www.renlearn.com

\$14.95

ISBN 978-159455328-8



9 781594 553288

MFFGR.0811
R42296