



# Accelerating Response to Intervention

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**iLearn Math** is designed specifically as an intervention for accelerating the progress of at-risk students back to grade level in math. iLearn Math provides everything you need for intervention with students in grades 2-8, and can be used at either Tier 2 or Tier 3. All you need to add is the progress monitoring. It's the easiest and most practical way to implement an effective RTI program in math.

An effective RTI program should allow you to diagnose each student's performance to determine the specific instructional needs of each student. It should then provide research-based strategies for improving performance in the areas of need. Once an intervention is in place, the most critical element of the process is determining whether performance is improving at a rate that allows the student to "catch up". If not, the intervention should be modified so that students improve at the desired rate. While the logic is sound, the devil is in the details.

The RTI process can be labor intensive, with uncertain outcomes. It's also limited by the fact that it can take weeks, or even months in some cases, to determine if adjustments are necessary. This means adjustments to improve performance are typically infrequent. Finally, delivering an intervention is labor intensive. Most of the research-based strategies for intervention are based on tutoring students in small groups, which is often impractical or prohibitive given the resources available to the school. Furthermore, effective interventions usually require professional development to insure that teachers are informed about, and comfortable with, the delivery of these intervention strategies. The final issue once RTI has been implemented is program management. It's important to insure that interventions are implemented with fidelity to the design as validated through research.

Thus, while the RTI concept is an excellent one, there are many challenges to implementing it effectively. That's where iLearn Math provides many important benefits. iLearn Math offers a unique approach to RTI in that it uses the computer to

implement and support the activities inherent in an effective RTI program. The information below summarizes some of the areas in which iLearn Math provides benefits, both in the effectiveness of the intervention and the ease of implementation.

## Diagnostic Assessment

The first step in the RTI process in math is usually the administration of “survey” tests to assess students against benchmarks and identify students at risk. Once this is completed, the next step for the at risk students is to pinpoint the exact nature of each student’s needs so an appropriate intervention can be implemented. This is usually done by analyzing individual responses to survey tests or compiling data from other tests. With iLearn Math, this is not required. iLearn Math does the diagnosis for you – automatically. It includes a comprehensive diagnostic assessment process that identifies exactly what each student needs to work on every day. Because this is done for each student on a daily basis, teachers don’t have to analyze data from the progress monitoring reports to identify “gaps” for each student. In addition, there’s no need to administer any additional tests, grade any tests, or compile the data from any tests – iLearn Math does this automatically.

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**We feel that the individual prescriptive nature of iLearn Math is more helpful to students.**

*Karen Suddeth*  
Director of Instruction

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## Research-Based Instruction

An effective RTI program should utilize research-based interventions. The iLearn Math intervention meets this requirement. It was

created to deploy proven, research-based strategies. It uses the computer to implement these strategies and enhance their effectiveness as well as to make these strategies easier and more practical implement. Consequently, the entire design of iLearn Math is derived directly from research. The research addresses both instructional strategies for students having difficulty in math and the organization, structure, and sequencing of the math content as well. Some of the strategies apply to the instruction in general. Others are specific to content areas, such as basic facts and solving word problems. For example:

- it provides basic fact fluency using cognitive strategies; frequent, immediate feedback; goal setting; incremental rehearsal; and integrated, cumulative practice - all methods proven to produce gains in fluency development
- it includes explicit, schema-based strategy instruction for solving word problems
- it includes electronic manipulatives proven to be more effective than concrete manipulatives
- the curriculum is based on a progression from concrete (electronic manipulatives) to representational to abstract, which research has shown to be highly effective for at-risk students
- it uses carefully constructed, explicit, step-by-step instruction proven to be most effective with at-risk students
- it integrates both conceptual understanding and procedural fluency, as recommended by the National Math Panel based on its review of the research literature
- it uses methods of delivering multimedia instruction that optimize what’s known about cognitive processing and the human limits that affect such processing

iLearn Math is not only based on research but has also proven to be effective in producing substantial gains in scores on state tests,

both in controlled studies as well as longitudinal studies spanning up to six years. The gains achieved when schools have implemented iLearn Math for a school year have resulted in exceptionally large increases in scores on state tests. These gains have occurred for entire school populations. They have also closed the gap between minority students and non-minority students, and have closed the gap between students with disabilities and students without disabilities.

Furthermore, the use of iLearn Math eliminates the need to identify an effective research-based intervention for each student for each identified need. iLearn Math provides an entire intervention curriculum that spans Grades 1-8 and addresses all the critical categories of a comprehensive curriculum:

- Basic Facts
- Computation
- Concepts
- Applications

Because of the scope of the content and the design of instructional process iLearn Math provides a consistent, standardized intervention, to meet the needs of every student, no matter what their needs are.

**“ I have previewed many technology-based instructional programs. iLearn is the only one that I am truly enthusiastic about. In addition to the benefits you describe, I have to say that I am extremely supportive of the "mathematical" appearance of the graphics. In terms of instructional time, there is no time wasted on cartoons. ”**

*Eve Laufer  
Teacher*

## Individually Optimized Instruction

At heart of the RTI concept is the idea of monitoring the progress of at-risk students -

students performing below expectations for their grade level - on a regular basis. The purpose is to determine how well the students respond to the intervention being used. The goal is for these students to achieve and sustain rates of growth that allow them to close the gap in performance between them and their peers who are not at risk. In order to achieve this goal, it is necessary to determine when an intervention is working and when it is not. In the later case, changes should be made as quickly as possible to insure continuous progress.

Here, the capabilities provided by an automated system such as iLearn Math are unprecedented. iLearn Math is designed as a dynamic process - it changes on a minute-to-minute basis in response to the performance of each student.

As the diagnostic process is implemented on an ongoing basis as described above, iLearn Math automatically delivers instruction to address any gaps identified. This means teachers don't have to determine what students need to work on each day, and are not required to assign work to students within iLearn Math. It automatically delivers the appropriate instruction, practice, review or fluency activities on a real-time basis. Students are automatically accelerated when they do well; they automatically receive more instruction on a given topic when they need it. The result is a much tighter loop between formative assessment of student performance and changes in the curriculum. With small-group based intervention, adjustments are made only on a weekly or monthly basis. With iLearn Math, adjustments are made on a minute-to-minute basis - for every student, every day. This level of precision in matching instruction to the needs of each student is simply not within human capability using traditional instructional approaches, even small-group tutoring.

In addition, iLearn Math is designed so that students must master each topic for which the student receives instruction. iLearn Math controls each student's progress and does not



allow them to move forward in the curriculum until they have met the criteria for mastery and/or fluency for the current topic. This insures that students always have the proper foundation for later work. It also means there's no need for a "spiral" curriculum in which students revisit the same topic repeatedly. They master the topic when it's presented, then move on to more complex content based on that topic. The process of insuring mastery at each step of instruction organized in a systematic progression of increasingly more difficult content is an important research-based element of the design of iLearn Math.

One implication of this design is that students spend a much higher percentage of their time engaged in activities that are optimally effective. Students spend all their time working on the concepts and skills they need, never on topics they've already mastered. They produce exceptionally high rates of response to the instruction, another research-based feature of effective instruction.

**“ This user friendly program has allowed students to excel where traditional methods have failed. The interactive technology utilized in this program will not allow students to ‘cheat’ to move beyond their ability. Teachers are able to monitor students’ progress as they move through the program. It is definitely a program that reaches a diverse majority of learners, and has proved itself to be successful. ”**

*Mary Beth Waller*  
Teacher

## Ease of implementation

While the research on the effectiveness of the RTI approach is compelling, the efforts to bridge the gap between research and practice are still in their infancy. In other words,

implementing an effective RTI process poses challenges - and solutions to the challenges are a work in progress. A major contribution of iLearn Math to the RTI approach is that it helps to overcome many of the challenges inherent in implementation. iLearn supports the teacher and the intervention process in ways that help to reduce the workload in implementing RTI, not increase it. It makes the implementation of a highly specialized intervention for each student practical to implement.

One reason for this is that it requires minimal training to implement. The training is short (1.5 hours) and conveniently available online so that teachers can complete the training on their schedule, in short 15-20 minute segments, or all at once. This reduces the preparation time for an intervention and which means it can be implemented effectively in a relatively short period of time.

The iLearn Math intervention is also easy to manage once it's implemented. It doesn't require the use of small groups of students to be effective, and there's no need to add additional staff as tutors. iLearn can be easily implemented with a full class of students, and this is typically the case.

iLearn Math includes many features that support the teacher in innovative ways. The result is that it actually reduces the teachers workload, rather than increasing it. For example, teachers aren't required to make work assignments - this is done automatically within iLearn Math. They don't have to assign tests or grade them to see how students are doing. They aren't even required to monitor student work to verify that they've completed their assignments or met criteria for mastery or fluency - iLearn Math does this for them. Finally, they can review student progress without the need to analyze the data and determine what the student should do next. All of this is done within iLearn Math - and it's done at an unprecedented level of detail and frequency.

These labor-saving features provide

tremendous benefit to teachers and make it possible to deliver precisely differentiated instruction to each student. This is particularly important since the delivery of differentiated instruction is the essence of more “intensive” intervention at higher Tiers of intervention.

While effective, most interventions that provide differentiated instruction add additional workload demands, both in the classroom and outside it. iLearn Math solves this problem. The result is that highly differentiated instruction is delivered in a manner that’s practical on a day-to-day basis.

Since so much of the intervention is managed and delivered by the computer, an automated reporting system is essential, and provides further benefits to the teacher. The iLearn Math reporting system keeps track of all the work done by each student and provides reports on demand via the internet on topics such as:

- attendance
- time on tasks
- grades on all tests
- trouble spots teachers should provide help on
- student progress
- rate of interaction
- and many others

The automated reporting system allows teachers to easily monitor when students are productively engaged and when they are not. Furthermore, in an iLearn classroom, students exhibit far fewer behavior problems so teachers can focus on academics, not behavior. The result is that the use of iLearn frees up the teacher to work one-on-one with students, and allows for more frequent and productive interaction with students who may need additional help.

iLearn Math also includes reports for administrators that allow them to monitor the fidelity of program implementation. Easy-to-use reports on all aspects of the implementation are available on demand and can be viewed at many levels of aggregation or disaggregation.

These reports are easily accessed via the Internet and provide a real-time assessment of the quality of implementation and student progress at many levels.

**“ I’m interested in being able to go into the program myself and not only see how teachers are doing with individual groups of students, but I can also target individual students. If a parent calls me or I’ve been working with a family through IEPs, I can follow along and I particularly like being able to track that. ... I also like it in terms of accountability because of No Child Left Behind and being accountable with test scores. It’s not that you wait to the end and find out they are doing better.**

**You can watch it as they move through the program ... I think for accountability purposes, it’s really important that we’re constantly looking at the data and really seeing what students are doing.”**

*Mary Aksentis*  
Director of Special Education

## Effectiveness of Implementation

Most importantly, iLearn Math works. Virtually every student, even students with disabilities – are highly successful when using iLearn. iLearn Math results in accelerated response to intervention – students learn more in less time than with other research-based interventions.

- Students are engaged and spend far more time on task than with small group instruction.

**“ Students that are involved and engaged are a much easier to manage, than students who are off task. And the students using this are on task.**

*Doug Wollbrink*  
Teacher

- Students, most of whom are successful in math for the first time, are motivated by their success.
- At-risk students are able to “catch up” to their peers not at risk

When iLearn Math is implemented for a full year, it results in substantial gains on state tests.

**“ Frankly, we’re not aware of any other way to get the achievement gains that iLearn shows us. The important thing is that kids achieve, and tests scores go up.**

*Dr. Leland Howard*  
*Assistant Superintendent of Special Services*

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