

Computer Assisted Instruction has been in operation in the Welsh Elementary CAI Lab since August 1996. Over the years, we have updated the software used in the lab. It services kindergarten-fifth grades. Our managers are Monica Hebert and Rhonda Migl.

One of the programs used in the lab is **SuccessMaker**[®] which provides a digitally driven reading and math learning experience that is singularly focused on the needs of each individual student for instruction that is truly and automatically differentiated with:

- Reading content that integrates social studies, science and interdisciplinary themes.
- Mathematics content that combines instruction in fundamental skills with development of higher-order thinking strategies.
- A completely customized learning path built around the program's ongoing, real-time analysis of each learner's actual performance.
- On-demand intervention including scaffolded feedback, step-by-step tutorials and prerequisite instruction triggered when a learner encounters challenges.
- Powerful data management to monitor student progress, customize lessons and forecast achievement.

FASTT Math, which stands for **Fluency and Automaticity through Systematic Teaching with Technology**, delivers individualized instruction and practice that helps students develop automatic recall of basic math facts from numbers 0-9 or 0-12. Computer based, customized practice activities and worksheets help students achieve math-fact fluency.

FASTT Math uses this effective procedure:

1. The student is introduced to two or three non-fluent facts to study. Typically, but only when possible, the session's "Study Facts" appear as a commutative pair. He/she is encouraged to read the facts aloud. The student can also watch an animated representation of each fact to help remind him/her in a more concrete way of what the fact represents.
2. After seeing and speaking the new "Study Facts," the student is asked to type each number sentence into the computer. If he/she fails to type the facts correctly, the facts are redisplayed, and the process is repeated. This helps establish a memory relationship with the fact in the student's mind.
3. Once the student can correctly type the number sentences of the new "Study Facts," the program then presents a practice session with these facts. The program mixes presentations of the two "Study Facts" with a gradually increasing number of fluent facts. The student builds the capacity to hold the fact in memory for a longer and longer period of time. **FASTT Math** limits the allowed response time to prevent the student from employing non-automated strategies.
4. When the student is able to recall the current "Study Facts" consistently, the facts are added as "Focus Facts" to the student's Fact Grid. The software provides extra practice to help the

students solidify them in memory and increase recall speed.

5. Once a student is able to recall his or her “Focus Facts” in less than .8 of a second, those “Focus Facts” are changed to “Fast Facts” on the student’s Fact Grid.

Screening and Diagnostic Assessments

For each operation, ***FASTT Math*** begins with a placement quiz to determine the student’s baseline fact fluency with all facts in the operation. This quiz diagnoses exactly which facts a student can retrieve automatically from memory (in less than .8 of a second) and which are either unknown or being processed using an inefficient strategy.

FASTT Math periodically assesses students’ learning through two instruments:

Fast Fact Challenge (Mastery): After every 120 minutes of instructional time spent in the software, this tool determines which Focus Facts students can retrieve in .8 of a second or less.

Fast Fact Challenge (New Level): This challenge determines whether the student is now able to respond fluently to a fact in the next level, even if he/she was not able to do so during the placement quiz. It accounts for facts the student may have learned outside the software, and keeps the instructional focus where needed.

Motivation and Engagement

The Fact Grid provides milestones for achievement that both the software and the teacher can use to reward and motivate students. A selection of engaging games provides students with intelligent practice, and improved performance leads to increased speed challenges. Students compete with their own previous scores, focusing on progressive self-improvement.