PROGRAM OVERVIEW

This manual provides scripted instruction for each *Super Solvers* lesson; however, you should use the dialogue in the scripts as a guide. Study the scripts before each lesson so you are familiar with the terminology and strategies. Do not read scripts verbatim. Once problem types are introduced to students, the manual no longer scripts those procedures. It is up to the teacher to review relevant scripts as needed to accurately teach the concepts. Strategy cards are used throughout the program to assist the teacher in supporting students in learning the appropriate problem-solving strategies to solve the various problem types. These strategy cards should be faded as students become proficient with the concepts.

Super Solvers incorporates a superhero theme to increase student interest. This theme is reflected in the stories and activity names. The program includes the following activities: *Brain Boost* (executive functioning/self-regulated learning), *Multi-Minute* (whole-number multiplication), *Problem Quest* (fraction word problems), *Fraction Action* (core fraction curriculum), *Fraction Flash* (fluency activity with foundational fraction skills), *Power Practice* (independent practice), and *Super Challenge* (curriculum-based measurement assessment administered every two weeks beginning the third week).

The program also includes a supplementary fraction calculations component (*Calculations Quest*) that can be implemented indepedently or in conjunction with the main program. *Calculations Quest* also includes a series of curriculum-based measurements (i.e., *Conquer Calculations*) to monitor students' progress throughout the program.

Super Solvers is designed to be delivered three times each week for 13 weeks to dyads or small groups of students. The teacher can make modifications as needed to accommodate larger groups of students. Each lesson is approximately 40-45 minutes. The 39 lessons are arranged in deliberate order. The first several lessons introduce foundational concepts. Each of these lessons is essential. They include explicit instruction on the critical strategies used throughout the program.

We highly recommend that teachers undergo training before implementing *Super Solvers.* Training is important for understanding the scope of the program and allows teachers to ask questions as they prepare to use the program in ways that meet their students' needs. As with any new curriculum, it takes teaching the program to learn the program. Therefore, expect to teach the entire program to become proficient.

PROGRAM OVERVIEW

Differentiating Instruction

Super Solvers was tested in a series of randomized controlled trials. In our studies, we ensured our intervention was implemented with high fidelity (i.e., the strategies used were taught exactly as intended by the developers). Teachers implemented the program in its entirety, with few opportunities to modify instruction. When implementing our program for the first time, we suggest delivering the lessons as they are designed before making any changes. We provide suggestions throughout the manual on how to modify instruction to meet your students' needs. In-person training on the program provides insight on how to differentiate based on student needs.

Fidelity of Implementation

We include fidelity sheets on the USB drive to assist teachers and administers measure whether the intervention was implemented as it was designed. These fidelity checklists are a guide, and do not include all points within the lesson guide. The person assessing fidelity should be very familiar with the manual's teaching strategies to accurately assess whether problems were taught using the *Super Solvers* strategies.

MATERIALS

The top of each script includes a list of extra materials required for that lesson. Be sure to review the materials section ahead of time to ensure you have everything you need for the day's lesson.

Materials printed/copied by teacher *prior* to implementing each lesson:

- Worksheets (provided on USB drive; print each lesson prior to implementation)
- *Checkbook*(s) (one for each group of students)
- Certificate(s) of Achievement to be awarded at the end of the program

Materials provided by the teacher:

- Timer
- Fraction tiles
- Fraction circles (template provided on USB drive if needed)
- Prizes*

*__Note:__ Students have the opportunity to earn dollars when successfully following the behavior expectations of the program. Students keep track of their "money" on their bank ledger provided in the *Checkbook*. Money is used to buy prizes at the end of each lesson. Prizes can include tangible reinforcements (e.g., stickers, bouncy balls, pencils) or activity rewards (e.g., taking a break, being a teacher helper). At the end of each lesson, the teacher uses the checkbook to inform students of how many dollars they earned during the lesson. Students either choose to spend their money at the end of the lesson or save their money to purchase more expensive prizes later.

Additional materials** (one set of each included with purchase; additional sets can be created as needed with templates provided on USB drive):

- Flashcards
- "Greater Gator" cards
- Strategy cards (see list of strategy cards and icons used throughout manual on the following pages)
- Spinner for *Superhero Spin-Off* review game

**__Note:__ We provide enough of these materials for implementation with a small group of students. Additional sets of each item can be created as needed with templates provided on USB drive.

The following pages include images and icons for the following: *Behavior Expecations Card,* strategy cards, and a list of flashcards for fluency-building activities. Teachers should become familiar with the icons used for each card, as these are embedded throughout the Lesson Guides within the manual.

LESSON GUIDES OVERVIEW

Each daily Lesson Guide is a framework to help the teacher cover the material scheduled for each day in the allotted time. Lesson guides are written like a "script." However, the guide should not be read verbatim. Teachers should be familiar with the Lesson Guide before implementing with students.

Lesson script font guide:

- Teacher's verbal instruction is marked in **bold**.
- Ideal student responses are in unmarked font (not bold or italicized).
- *Italicized* content includes directives to the teacher.
- Underlined content should be emphasized.

Lesson Guides have a gray sidebar (left column) with images (e.g., worksheets, strategy card icons, worked examples), problem letters, step numbers, notes, and directions to help teachers in implementing the lesson. These images are intended to help teachers understand the most important components of a teaching strategy. Once problem types are initially scripted, the guides fade scripted instruction. Images embedded in the scripts alert teachers to where the script begins in the problem-solving process.

Sample strategy card icon indicates teachers use the *Compare Card* during the lesson.

Stars with letters indicates scripting for that problem letter follows.

Boxes with numbers indicate scripting for steps on *Problem Quest* word-problem cards.

Gray boxes within the script include vocabulary review (scalloped-edge box with terms in bold) or unscripted problem-solving guides (straight-edge box with bulleted points). The bulleted list includes important steps the teacher must complete for a problem.

Whole Numbers: Numbers we use to count whole things.
Fractions: Numbers that tell us about parts of things
Fraction Less than 1: The number in the numerator is smaller than the number in the denominator.
Numerator: The number of equal parts in the fraction. Top number.
Denominator: How many equal parts the unit is divided into. Bottom number.
Equivalent: Equal. The same amount.
Unit: The whole thing.
Equal Parts: Parts are the same size. Equal parts make a fraction.
Unit Fraction: A fraction less than 1 with a 1 in the numerator.

- Figure out the denominator. *(Count spaces the number line is divided into.)*
- Write the fraction for each tick mark.
- Write the fraction equivalent to 1.

BEHAVIOR MANAGEMENT

Overview

The first section in each lesson addresses the foundation for the *Super Solvers* behavior management system. Because at-risk students often have difficulty with attention, motivation, and self-regulation, *Super Solvers* embeds a motivational reward system throughout the lessons to promote on-task behavior. The first lessons of the program introduce the behavior management system in detail; subsequent lessons allow for adaptation to individual students' needs. The behavior management system can easily work in tandem with other systems already in place in the school.

Students can earn "money" by following behavior expectations as outlined on the *Behavior Expectations Card* and use their "money" to purchase prizes. Each tutoring group uses the *Checkbook* (see below) to track student behavior and rewards. Students earn "money" individually or as a group in the following ways:

Group:

- Students beat *Multi-Minute Flash* (begins on Lesson 22) or *Fraction Flash* (begins on Lesson 4) scores. For *Multi-Minute Flash*, scores are cumulative. That is, students strive to beat their best score. For *Fraction Flash*, students work to beat their highest score within the 3-day activity. For repeated *Fraction Flash* activities, students strive to beat their cumulative best score.

Individual:

- Follow behavior expectations during lesson (a minimum of 4 times per session).
- Correctly answering "bonus" problems on *Power Practice*.
- Earning additional "bonus money," per teacher's discretion. Additional money may be earned, for example, if an individual student requires a more intensive schedule of reinforcement than the 4 intervals suggested. Teachers may also reward students for quality explanations or solving especially challenging problems. This "money" is tracked and totaled in tbe Bonus column.

Checkbook

Teachers use the *Checkbook* to track each student's behavior during timed intervals, track amount of money earned during the lesson, and the group's *Multi-Minute Flash* and *Fraction Flash* scores.

Student 1:_____		Student 2:_____		Student 3:_____	
Timer 1	L T R $1 $0	Timer 1	L T R $1 $0	Timer 1	L T R $1 $0
Timer 2	L T R $1 $0	Timer 2	L T R $1 $0	Timer 2	L T R $1 $0
Timer 3	L T R $1 $0	Timer 3	L T R $1 $0	Timer 3	L T R $1 $0
Timer 4	L T R $1 $0	Timer 4	L T R $1 $0	Timer 4	L T R $1 $0
Bonus	$	Bonus	$	Bonus	$
Total	$	**Total**	$	**Total**	$
Withdrawn	$	**Withdrawn**	$	**Withdrawn**	$
Balance	$	**Balance**	$	**Balance**	$

The *Behavior Expectations Card* outlines student expectations throughout the lesson. The teacher can add to or modify as needed.

Behavior Expectations Card

Listen.

Listen when others speak.
Voices off.
Eyes on the speaker.

Try your best.

Think about each question before answering.
If you know the answer, show or tell me.
If you don't know the answer, ask for help.

Be respectful.

Treat others how you would like to be treated.
Keep your hands to yourself.
Sit while working.

Bx

Checkbook

Student 1: _____						Student 2: _____						Student 3: _____					
Timer 1	L	T	R	$1	$0	Timer 1	L	T	R	$1	$0	Timer 1	L	T	R	$1	$0
Timer 2	L	T	R	$1	$0	Timer 2	L	T	R	$1	$0	Timer 2	L	T	R	$1	$0
Timer 3	L	T	R	$1	$0	Timer 3	L	T	R	$1	$0	Timer 3	L	T	R	$1	$0
Timer 4	L	T	R	$1	$0	Timer 4	L	T	R	$1	$0	Timer 4	L	T	R	$1	$0
Bonus	$					Bonus	$					Bonus	$				
Total	$					**Total**	$					**Total**	$				
Withdrawn	$					**Withdrawn**	$					**Withdrawn**	$				
Balance	$					**Balance**	$					**Balance**	$				

After each timer interval (per teacher discretion), circle "L," "T," and/or "R" + $0 (if behavior expectation(s) were not met for a category during the interval) or $1 (if all expectations were met during the entire interval). If student earns $0, teacher provides an accompanying goal to work on for the next interval, related to the category missed. Praise student for earning $1.

Lesson 1

Student 1: _____					
Timer 1	L	T	R	$1	$0
Timer 2	L	T	R	$1	$0
Timer 3	L	T	R	$1	$0
Timer 4	L	T	R	$1	$0
Bonus	$				
Total	$				
Withdrawn	$				
Balance	$				

The bottom columns serve as a daily student bank to track money earned and withdrawn. Students can spend money at the end of each lesson on prizes/rewards, per teacher's discretion.

Behavior Expectations Card

Listen.

Listen when others speak.
Voices off.
Eyes on the speaker.

Try your best.

Think about each question before answering.
If you know the answer, show or tell me.
If you don't know the answer, ask for help.

Be respectful.

Treat others how you would like to be treated.
Keep your hands to yourself.
Sit while working.

Bx

LESSON ACTIVITIES

Brain Boost (2-3 minutes)

- Read/discuss *Brain Boost* comic. Stories promote executive functioning, operationalized as goal setting (with an option to track students' progress), self-regulation, perseverance through challenging tasks, and analyzing errors.

Multi-Minute (2-3 minutes)

- Teach strategies for solving whole-number multiplication facts with factors 1-9. *(Lessons 1-6)*
- Students practice solving multiplication problems using strategies. *(Lessons 7-21)*
- Teacher facilitates fluency-building multiplication flashcard activity. *(Lessons 22-39)*

Problem Quest (13-15 minutes)

- Teach strategies for identifying the underlying structure of fraction word problems and how to solve *Compare Word Problems* (comparing two fractions or ordering three fractions), *Proportion Word Problems* (solve for a missing number in a proportional relationship), and *Splitting Word Problems* (fraction division word problems). *(Lessons 10-39)*
- On Lesson 22, the program shifts a stronger focus on word problem practice.

Fraction Action (15-18 minutes)

- Teach strategies for assessing fraction magnitude. Topics include comparing fractions, ordering fractions, placing fractions on the 0-1 and 0-2 number lines, fraction equivalencies, and proportional reasoning.
- Strategies focus on benchmarking to assess relative magnitude.

Fraction Flash (3-4 minutes)

- Students build fluency by quickly solving fraction problems aloud in the allotted two minutes.
- The content of the activity changes every three days (with regular repeats).
- Students must meet or beat their score from the previous lesson to earn extra fraction "money" within the behavior management system.

Power Practice/Super Challenge (7-10 minutes)

- At the end of each lesson, students independently solve problems on *Power Practice* worksheets.
- Every two weeks, teachers administer *Super Challenge* (7-minute timed Curriculum-Based Measurement) in lieu of *Power Practice* on Lessons 9, 15, 21, 27, 33, and 39. Optionally, scores are graphed and discussed using accompanying comics in *Brain Boost Adventures*.

SUPPLEMENTAL LESSON ACTIVITIES

Calculations Quest (5-7 minutes)

- Teach strategies for solving fraction addition, subtraction, multiplication, and division problems.
- If teachers choose to use the supplement in conjunction with the main program, they should begin *Calculations Quest* on Lesson 10.
- *Calculations Quest* can replace *Problem Quest* or, if time allows, it can be implemented after *Problem Quest (before Fraction Action).*
- The 29-lesson supplement can also be implemented independent of the main program.

Calculations Quest Practice/Conquer Calculations (5-7 minutes)

- At the end of each lesson, students independently solve problems learned during *Calculations Quest.*
- Teachers administer the 5-minute CBM, *Conquer Calculations*, biweekly (beginning on Lesson 18) to track students' progress and make necessary curriculum modifications to meet students' needs. *Conquer Calculations* replaces *Calculations Quest Practice* on these designated lessons (Lesson 18, 24, 30, and 36).
- *Calculations Quest Practice* and *Conquer Calculations* is planned to work with the main program. If you choose to implement the supplement with the main program, students should complete one *Calculations Quest* worksheet and one Power Practice worksheet each lesson during independent work.
- *Conquer Calculations* does not interfere with *Super Challenge.* They are designed to alternate.