

GREAT LEAPS MATH PROGRAM

Addition and Subtraction Facts 0 to 9

Addition and Subtraction Facts 10 to 18

Multiplication and Division Facts 0 to 81

www.GreatLeaps.com

**Cecil D. Mercer, Ed.D.
Distinguished Professor
University of Florida
P.O. Box 117050
Gainesville, FL 32611-7050
352-392-0701 ext. 257
cmerc@coe.ufl.edu**

Great Leaps Math Program

The Great Leaps Math Program focuses on building fluency in the basic facts, including addition, subtraction, multiplication, and division. It features concrete lessons (using manipulative objects) and representational lessons (using student drawings) to help the student understand math operations. Once the student demonstrates understanding through the concrete and representational lessons, fluency-building lessons begin through one-minute timings of oral and written student responses to math facts. The student repeats the one-minute timings until a standard practice rate on oral timings and a standard fluency rate on written timings are achieved. During the 5- to 7-minute daily session, the instructor follows the word GREAT as a mnemonic device to conduct a five-step lesson plan. The student moves from oral practice lessons to written fluency lessons to written generalization fluency lessons. Results of the timings are recorded on a math chart, and goals are provided according to the age of the student. The use of rules and relationships throughout the lessons enhances mastery of the math facts.

The program consists of three instructor manuals and three student workbooks: Addition and Subtraction Facts 0 to 9, Addition and Subtraction Facts 10 to 18, and Multiplication and Division Facts 0 to 81. Placement tests and instructional math games are provided. The program has been field-tested, and the data indicate excellent student progress and teacher acceptance.

Great Leaps Math Program

Rationale

Provide an instructional math fact program that helps students with learning problems succeed in math.

Provide teachers with brief daily math fact lessons that promote understanding of math operations and builds fluency in math facts.

Provide teachers with math fact fluency lessons that are simple enough for teachers assistants, volunteers, and parents to use effectively.

Provide a motivating math fact program for students who struggle to learn math.

Great Leaps Math Program

Instructional Procedures for Timed Lessons

G—Greet the student.

R—Review the materials and previous lesson performance.

E—Engage in teaching.

- 1. Practice a short timing**
- 2. Review and practice a rule or relationships.**
- 3. Use objects to demonstrate how to solve problems missed more than 50% of the time.**
- 4. Use drawings to demonstrate how to solve problems missed less than 50% of the time.**

A—Administer a 1-minute timing.

T—Track the student's progress on a chart.

Great Leaps Math Addition Facts 0 to 9

Object Lesson Addition Facts 0 to 9

Count objects for the first number. Count objects for the second number. Count all the objects and write the answer (sum or total).

$$\begin{array}{r} 5 \\ +2 \\ \hline \end{array}$$

$$\begin{array}{r} 4 \\ +1 \\ \hline \end{array}$$

$$\begin{array}{r} 6 \\ +0 \\ \hline \end{array}$$

$$\begin{array}{r} 1 \\ +4 \\ \hline \end{array}$$

$$\begin{array}{r} 6 \\ +2 \\ \hline \end{array}$$

$$\begin{array}{r} 1 \\ +1 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ +4 \\ \hline \end{array}$$

$$\begin{array}{r} 2 \\ +2 \\ \hline \end{array}$$

$$\begin{array}{r} 3 \\ +4 \\ \hline \end{array}$$

$$\begin{array}{r} 9 \\ +0 \\ \hline \end{array}$$

$$\begin{array}{r} 7 \\ +1 \\ \hline \end{array}$$

$$\begin{array}{r} 1 \\ +0 \\ \hline \end{array}$$

$$\begin{array}{r} 2 \\ +3 \\ \hline \end{array}$$

$$\begin{array}{r} 1 \\ +2 \\ \hline \end{array}$$

$$\begin{array}{r} 3 \\ +3 \\ \hline \end{array}$$

Great Leaps Math Addition Facts 10 to 18

$$\begin{array}{r} 8 \\ +5 \\ \hline \end{array}$$

$$\begin{array}{r} 4 \\ +6 \\ \hline \end{array}$$

$$\begin{array}{r} 6 \\ +8 \\ \hline \end{array}$$

$$\begin{array}{r} 9 \\ +3 \\ \hline \end{array}$$

$$\begin{array}{r} 7 \\ +9 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ +7 \\ \hline \end{array}$$

$$\begin{array}{r} 8 \\ +3 \\ \hline \end{array}$$

$$\begin{array}{r} 9 \\ +6 \\ \hline \end{array}$$

$$\begin{array}{r} 3 \\ +7 \\ \hline \end{array}$$

$$\begin{array}{r} * 4 \\ +9 \\ \hline \end{array}$$

$$\begin{array}{r} 7 \\ +6 \\ \hline \end{array}$$

$$\begin{array}{r} 9 \\ +2 \\ \hline \end{array}$$

$$\begin{array}{r} * 8 \\ +7 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ +5 \\ \hline \end{array}$$

$$\begin{array}{r} * 7 \\ +4 \\ \hline \end{array}$$

$$\begin{array}{r} 9 \\ +5 \\ \hline \end{array}$$

$$\begin{array}{r} 8 \\ +9 \\ \hline \end{array}$$

$$\begin{array}{r} 2 \\ +8 \\ \hline \end{array}$$

$$\begin{array}{r} 6 \\ +5 \\ \hline \end{array}$$

$$\begin{array}{r} * 5 \\ +8 \\ \hline \end{array}$$

$$\begin{array}{r} 7 \\ +3 \\ \hline \end{array}$$

$$\begin{array}{r} 9 \\ +8 \\ \hline \end{array}$$

$$\begin{array}{r} 8 \\ +4 \\ \hline \end{array}$$

$$\begin{array}{r} 9 \\ +1 \\ \hline \end{array}$$

$$\begin{array}{r} 6 \\ +9 \\ \hline \end{array}$$

$$\begin{array}{r} 4 \\ +7 \\ \hline \end{array}$$

$$\begin{array}{r} 3 \\ +9 \\ \hline \end{array}$$

$$\begin{array}{r} 8 \\ +2 \\ \hline \end{array}$$

$$\begin{array}{r} 6 \\ +4 \\ \hline \end{array}$$

$$\begin{array}{r} 9 \\ +7 \\ \hline \end{array}$$

Great Leaps Math Subtraction Facts 10 to 18

WRITTEN GENERALIZATION FLUENCY: SHEET 15

$$\begin{array}{r} 10 \\ -6 \\ \hline \end{array}$$

$$\begin{array}{r} 9 \\ +5 \\ \hline \end{array}$$

$$\begin{array}{r} 12 \\ -9 \\ \hline \end{array}$$

$$\begin{array}{r} 13 \\ -8 \\ \hline \end{array}$$

$$\begin{array}{r} 15 \\ -9 \\ \hline \end{array}$$

$$\begin{array}{r} 6 \\ +9 \\ \hline \end{array}$$

$$\begin{array}{r} * 4 \\ +6 \\ \hline \end{array}$$

$$\begin{array}{r} 15 \\ -6 \\ \hline \end{array}$$

$$\begin{array}{r} 16 \\ -7 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ +5 \\ \hline \end{array}$$

$$\begin{array}{r} * 16 \\ -8 \\ \hline \end{array}$$

$$\begin{array}{r} 10 \\ -5 \\ \hline \end{array}$$

$$\begin{array}{r} 17 \\ -8 \\ \hline \end{array}$$

$$\begin{array}{r} 18 \\ -9 \\ \hline \end{array}$$

$$\begin{array}{r} * 7 \\ +7 \\ \hline \end{array}$$

$$\begin{array}{r} 8 \\ +8 \\ \hline \end{array}$$

$$\begin{array}{r} 11 \\ -9 \\ \hline \end{array}$$

$$\begin{array}{r} 14 \\ -6 \\ \hline \end{array}$$

$8 + 9 =$

$14 - 8 =$

$5 + 8 =$

$* 15 - 6 =$

$$\begin{array}{r} 12 \\ -4 \\ \hline \end{array}$$

$$\begin{array}{r} 11 \\ -5 \\ \hline \end{array}$$

$$\begin{array}{r} 8 \\ +6 \\ \hline \end{array}$$

$$\begin{array}{r} 10 \\ -3 \\ \hline \end{array}$$

$$\begin{array}{r} 10 \\ -8 \\ \hline \end{array}$$

$$\begin{array}{r} 6 \\ +8 \\ \hline \end{array}$$

$$\begin{array}{r} 11 \\ -6 \\ \hline \end{array}$$

$$\begin{array}{r} 7 \\ +5 \\ \hline \end{array}$$

$$\begin{array}{r} 13 \\ -7 \\ \hline \end{array}$$

$$\begin{array}{r} 17 \\ -9 \\ \hline \end{array}$$

$$\begin{array}{r} 12 \\ -7 \\ \hline \end{array}$$

$$\begin{array}{r} 6 \\ +6 \\ \hline \end{array}$$

Great Leaps Math Multiplication Facts 0 to 81

Drawing Lesson Multiplication Facts 0 to 81

Draw circles for the first number. Draw dots in each circle for the second number. Count or add the dots and write the answer.

$$\begin{array}{r} 3 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 2 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 3 \\ \times 0 \\ \hline \end{array}$$

$$\begin{array}{r} 4 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 2 \\ \times 1 \\ \hline \end{array}$$

$$\begin{array}{r} 1 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 6 \\ \times 1 \\ \hline \end{array}$$

$$\begin{array}{r} 2 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 7 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 2 \\ \times 1 \\ \hline \end{array}$$

$$\begin{array}{r} 3 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 3 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ \times 1 \\ \hline \end{array}$$

ORAL PRACTICE: SHEET 6

Order Rule: The order of the numbers to be multiplied does not affect the answer
($6 \times 3 = 18$ and $3 \times 6 = 18$).

Five Rule: Any number times 5 involves counting by 5s the number of times indicated
by the multiplier (i.e., 5×6 means counting “5, 10, 15, 20, 25, 30”) ($3 \times 5 = 5 + 5 + 5$ or
counting “5, 10, 15”).

$$\begin{array}{r} 5 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} 7 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 9 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 6 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ \times 1 \\ \hline \end{array}$$

$$\begin{array}{r} 8 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 0 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 3 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 7 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 9 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 6 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} * 5 \\ \times 1 \\ \hline \end{array}$$

$$\begin{array}{r} 8 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 9 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} * 1 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 4 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 6 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 8 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 0 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 2 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 7 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} 7 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ \times 1 \\ \hline \end{array}$$

$$\begin{array}{r} * 1 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 2 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 6 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} 8 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 4 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 3 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 3 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} 7 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 3 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 9 \\ \times 3 \\ \hline \end{array}$$

Great Leaps Math Multiplication Facts 0 to 81

WRITTEN FLUENCY: SHEET 15

$$\begin{array}{r} 4 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 3 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 0 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 8 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 1 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} 9 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 7 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 9 \\ \times 0 \\ \hline \end{array}$$

$$\begin{array}{r} 6 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 0 \\ \times 0 \\ \hline \end{array}$$

$$\begin{array}{r} 7 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 2 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 9 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} * 6 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 3 \\ \times 0 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} * 4 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} 8 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 2 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} 9 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 7 \\ \times 0 \\ \hline \end{array}$$

$$\begin{array}{r} 7 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} * 5 \\ \times 1 \\ \hline \end{array}$$

$$\begin{array}{r} 3 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 8 \\ \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} 6 \\ \times 1 \\ \hline \end{array}$$

$$\begin{array}{r} 2 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 8 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ \times 9 \\ \hline \end{array}$$

Great Leaps Math Division Facts 0 to 81

WRITTEN GENERALIZATION FLUENCY: SHEET 18

$7 \overline{)14}$

$48 \div 6 =$

$6 \times 7 =$

$8 \overline{)16}$

$45 \div 9 =$

$8 \times 9 =$

$32 \div 4 =$

$9 \overline{)72}$

$24 \div 4 =$

$5 \times 8 =$

$1 \overline{)5}$

$9 \div 9 =$

$9 \overline{)36}$

$28 \div 7 =$

$7 \times 7 =$

$6 \overline{)6}$

$6 \times 5 =$

$12 \div 6 =$

$5 \overline{)45}$

$* 5 \overline{)25}$

$4 \overline{)12}$

$15 \div 3 =$

$2 \overline{)10}$

$* 4 \times 8 =$

$$\begin{array}{r} 5 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 4 \\ \times 2 \\ \hline \end{array}$$

$40 \div 5 =$

$8 \overline{)56}$

$9 \div 3 =$

$35 \div 5 =$

$9 \overline{)81}$

$* 6 \times 9 =$