



Spirit of Math[®]

Releasing the Genius[®]

Curriculum Overview



Advancing Human Intelligence
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Curriculum Overview

by grade

GRADE	DRILLS	PROBLEM SOLVING	CORE CONTENT	INDEPENDENT ASSIGNMENTS
K	<ul style="list-style-type: none"> Regrouping: Making groups of tens (up to 10 and 20) Skip counting: 2s, 5s, and 10s Super speed addition Addition 	<ul style="list-style-type: none"> An introduction to various math problems that develop logical thinking and spatial sense. For example, tangrams, 3-D blocks, 3-D drawings, counting shapes, patterning, the other one, which is where?, line ups, money, time, symmetry, Cartesian plan, triangles, and circles among others. 	<ul style="list-style-type: none"> Regrouping: Making zeros or multiples of tens Strings: Add and subtract strings of numbers using various strategies Multiplication by 2, 5, and 10 Integers Geometry: Perimeter and area 	<ul style="list-style-type: none"> Mini Wizards Assignment of the Year (20 equations) Solve my riddles! (Cartesian)
1	<ul style="list-style-type: none"> Regrouping: Making groups of tens (up to 10, 20, and 100) Addition (1x1 and 2x1) Super speed addition (1x1) Integer addition (1x1) Double & Half Multiplication (1x1) Division (1x1) 	<ul style="list-style-type: none"> The "Other One" problems "All But" problems Cuts & pieces Counting shapes Date problems Magic squares Venn diagrams Pathways Polygons Alphametrics Time Money Logic problems Spirit of Math Contest 	<ul style="list-style-type: none"> Making tens Regrouping (adding four to eight one- and two-digit numbers) Integers Patterns in multiplication Exponents Fractions (labelling, adding/ subtracting, comparing) Cartesian coordinate system Data analysis 	<ul style="list-style-type: none"> Assignment of the Year (25 equations) Wee Wizards problem set Problem poster project Mighty Mathematicians research project
2	<ul style="list-style-type: none"> Regrouping (up to 20, 100) Short addition (2x1, 2x2) Short multiplication (1x1, 2x1) Short division (1x1, 2x1) Integer addition (1x1, 2x1) Super Speed Long Multiplication (2x2) 	<ul style="list-style-type: none"> Pages Time Super Series Venn Diagrams Heads and Legs Chords and Regions Date Problems Age SoM Contest Regrouping Problem Solving Logic Tables Alpha Math Data (mean, median, mode and graphing) Polynomioes 	<ul style="list-style-type: none"> Regrouping Multiplication with nine and tens Division Factors Prime & Composite Perfect Squares Integers (ups and downs and regrouping) Exponents and Number Bases Rationals (Intro through intervals/ number lines, mixed/improper, adding and subtracting) 	<ul style="list-style-type: none"> Assignment of the Year Wise Wizards Mighty Mathematicians research project January Thaw Problem Poster Project
3	<ul style="list-style-type: none"> Regrouping to 100 Short addition (2x2 and 3x2) Integer addition (1x1, 2x1, and 2x2) Short Division (2x1 and 3x1) Long multiplication 3x2 Long Division 3x1 	<ul style="list-style-type: none"> Date Problem Integers Logic Tables Line Up All But Cuts and Pieces Clock and Time Interval Venn Diagrams Counting Shapes Averages Pathways 	<ul style="list-style-type: none"> Regrouping Integers Relocation property Prime and Composite Prime Factoring Perfect Squares Fractions Geometry 	<ul style="list-style-type: none"> Assignment of the Year Trick or Treats! POW WOW Wise Wizards Little Spirits Problem poster project Famous mathematicians research project
4	<ul style="list-style-type: none"> Short multiplication (3x1) Integer addition (2x2) Integer multiplication (3x1) Long multiplication (3x2 with decimals) Short division (2x1 and 3x1) Long division (2x1 without decimals, 4x2 with decimals) Perfect squares up to 25^2 	<ul style="list-style-type: none"> Consecutive numbers (including odd/even) "Handshakes" problems Probability Heads & legs Arrangements of letters Pathways (using factorials) Rate problems Least common multiple using prime factors Spirit of Math & CNML Contests 	<ul style="list-style-type: none"> Regrouping Positive and negative integers (integral distance) Relocation with multiplication and division Prime numbers and prime factoring Tests of divisibility Geometry (points, lines, angles, and polygons) 	<ul style="list-style-type: none"> Grade 4 problem sets Assignment of the Year (100 equations) These will haunt you Wise Wizards 3 Problem poster project Famous mathematicians research project
5	<ul style="list-style-type: none"> 10-minute drills Short multiplication (3x1) Short division (3x1) Integer addition (3x3) 	<ul style="list-style-type: none"> Problem of the day Problem set assignments (see independent assignments) 	<ul style="list-style-type: none"> Relocation property Signed numbers Order of operations Factors, multiples & primes Number sets 	<ul style="list-style-type: none"> Mastermind Assignment of the Year (100 equations, all having digits in the same order) Fifty mix
6	<ul style="list-style-type: none"> Short multiplication (3x1) Long multiplication (up to 5 digits, with decimals) Fraction addition Decimal expansion up to 11/12 Percent drills 	<ul style="list-style-type: none"> Integrated into independent assignments 	<ul style="list-style-type: none"> Rationals: Adding and subtracting using LCMs, multiplying and dividing using prime factoring, distance on a number line, ordering rationals Rates, ratios, and percents Geometry 	<ul style="list-style-type: none"> Grade 6 Problem Set Brain Beggles I and II Mind Benders

GRADE	DRILLS	CORE CONTENT	INDEPENDENT ASSIGNMENTS
7	<ul style="list-style-type: none"> Fraction addition Perfect squares 	In-depth focus on problem solving topics: <ul style="list-style-type: none"> Counting shapes Arrangements of letters in a word Pathways with factorials Pascal's triangle Patterns Prime factoring Measurement and conversions Venn diagrams Number bases Angles on a clock 	<ul style="list-style-type: none"> Math Challenges
8	<ul style="list-style-type: none"> Radicals 	<ul style="list-style-type: none"> Radicals Exponents Algebra: Solving and graphing equations and inequalities Linear relations 	<ul style="list-style-type: none"> Jet Sets
9	<ul style="list-style-type: none"> No drills in Grade 9; skills are consolidated through core topics 	<ul style="list-style-type: none"> Geometry & algebra review Solving systems of equations Factoring polynomials Absolute value Graphing techniques & transformations 	<ul style="list-style-type: none"> Cerebral Contortions Big 100
10	<ul style="list-style-type: none"> Mental Arithmetic Radian/Degree Equivalents Unit Circle Trigonometry drills 	<ul style="list-style-type: none"> Trigonometry Logarithms Complex Numbers & Polar Coordinates Conics 	<ul style="list-style-type: none"> Cerebral Contortions Alphametrics Math challengers Trigonometry contest questions
11	<ul style="list-style-type: none"> Mental arithmetic 	Calculus: <ul style="list-style-type: none"> Limits and derivative rules 2nd & 3rd degree derivatives Derivatives of logarithmic, exponential & trigonometric functions Implicit differentiation Partial differentiation Maximum-minimum problems Rates of Change Problems Curve sketching Integrals & applications 	<ul style="list-style-type: none"> Functions Problems Logarithms Problems Algebraic Equations Problem Set Geometry Mania Sequences and Series

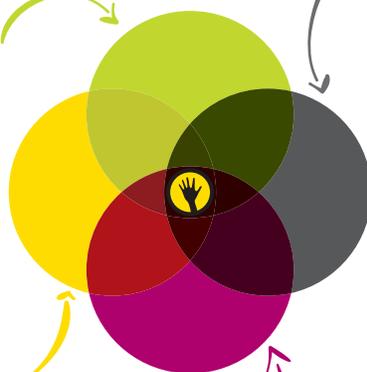
Our program integrates Four Key Elements

CORE CURRICULUM

Students delve deeply into math concepts from the earliest grades in Spirit of Math. Rather than just introducing math topics on the surface to students, Spirit of Math spends time exploring and practicing the topics and ideas to a greater depth. This gives students the skills and understanding to be able to work with others in a cooperative team, tackling interesting and difficult problem-solving questions. Engagement is intensive and exciting.

COLLABORATIVE GROUP WORK

Spirit of Math's program introduces students to unique problems which have been crafted in such a way that students quickly realize that they need collaboration with others to solve the problems. Our students learn how to share their ideas while learning from their teachers and their peers. Students are encouraged to discuss their homework, collaboratively problem-solve in class, and present their results to their classmates.



DRILLS

In simple language, practicing our drills makes it easy to have math facts, like multiplication tables, ready in your mind so you can focus on the more complex math material. Drills also help increase speed and accuracy when solving problems. Whether in kindergarten or in university, it is a base that matters and stays with you. Our approach to drills is a complete system that we designed from the ground up, tracking success and promoting students to work together to achieve new goals in the classroom.

PROBLEM SOLVING

Spirit of Math's problem-solving stream is unique and hardly routine; students learn to read critically, to think creatively, to work cooperatively and to press on when the answer isn't immediately obvious. In every grade our students complete a minimum of 400 competition-level problems over the course of the year and apply their skills in international and national math contests.

Note: Not all grades are offered at all locations. Please contact your Campus Principal for more information.

Why our formula works?

Spirit of Math Schools is a system of after-school schools for high-performing students in mathematics. The program was developed over a 25-year period with students in a Canadian public school through a process of gradually implementing crucial changes in the curriculum to see what worked. The intent was to improve the fundamental skill sets of students. The initial students were brought up to a level of learning that was far above the norm, and a fundamentally new way of teaching mathematics was born.

This program was not designed to accelerate students through topics, but rather to delve deeper into the fundamental topics of mathematics and develop a solid mathematical skill set. Students end up doing work that is above their day school grade because of the depth of the program.

Students attend their scheduled class once a week, working with the same group of students for an entire school year. Instruction is not individualized; instead it is a classroom structure in which the students must keep up with the intensive, fast-paced instruction.



Inspiring Confidence

At Spirit of Math, we believe that confidence is developed in a person by providing a challenging and supportive environment where he or she is able to celebrate the ability to excel, and also where a student is safe to struggle a bit. When a student is able to succeed at a very challenging task, their confidence rises.



Student Admissions

All students and parents must go through a screening process that includes an interview, and the following is required:

- B+ or higher overall average on the student's report card.
- Students must be willing to accept the challenging nature of the program and the discipline that it takes to keep up with their studies; parents must also agree to this.

Entrance Skills: Kindergarten to Grade 3

KINDERGARTEN

- Ability to read sight words and understand sentence context
- Ability to write words and numerals neatly
- Ability to work cooperatively and follow directions
- Ability to recognize two-digit numbers
- One-digit addition
- Ability to recognize patterns
- Entrance assessment given during the interview process

GRADE 1

- Ability to read at a Grade 2 level minimum for problem-solving purposes
- Ability to copy text from blackboard for simple note-taking
- Ability to work independently for a minimum of 15 minutes
- Ability to work cooperatively in groups
- Basic geometric shapes: square, rectangle, circle, triangle
- Number facts, addition and subtraction to 10, with understanding of extensions to 100

GRADE 2

- Ability to read with understanding at a Grade 4 level minimum
- Ability to make notes through oral dictation
- Ability to follow directions independently from written instructions
- Ability to work independently for a minimum of 30 minutes
- Multiplication facts to 3
- Addition with carrying to three digits, subtraction with borrowing to three digits
- Problem solving involving two operations

GRADE 3

- Ability to read/write at a Grade 6 level minimum
- Ability to follow directions from written text or oral instructions
- Ability to work cooperatively in groups, taking a leadership position
- Short multiplication and division operations to 5
- Signed numbers (addition, subtraction, multiplication, division)