



San Antonio Math Include

Provide Greater Access to STEM Education to All Students

2021-2022 Free Online Courses Syllabi

Website: mathinclude.org | Email: sanantoniomathinclude@gmail.com

Math Classes (by grade level)

Every class has a 20-student limit. Those who sign up after the 20-student limit will be automatically waitlisted.

| Semester | Week | Date | Tadpoles (K-1) | Whirlpool (2-3) | Andromeda (4-5) | Triangulum (6-8) | MAA Pre-AMC (6-8)* | Calculus AB (9-12) |
|-------------|------|----------|----------------|--------------------------|---------------------------------|-----------------------|--------------------------|---|
| Fall 2021 | 1 | 9/25-26 | Addition | Strategies | Factor | Four Operations | Algebra | Functions and Graphs |
| | 2 | 10/2-3 | Subtraction | Rearranging | Prime and Composite | Solving by Assuming | Algebra | A Preview Of Calculus and The Limit of a Function |
| | 3 | 10/9-10 | Skip Counting | Crosstiles | Divisibility and Remainder | Looking for a Pattern | Algebra | The Limit Laws and Continuity |
| | 4 | 10/16-17 | Time | Cancelling | Divisibility by 9 and 3 | Working Backward | Algebra | Defining the Derivative, The Derivative as a Function, and the Derivative Formula Sheet |
| | 5 | 10/23-24 | Even and Odd | All at Once | Prime Factorization | Sequence | Number Theory | The Chain Rule and Implicit Differentiation |
| | 6 | 10/30-31 | Rounding | Equation Paths | Pyramid Descent | Prime | Number Theory | Maxima and Minima and Derivatives and the Shape of a Graph |
| | 7 | 11/6-7 | Fact Families | Parentheses | Divisibility with Factorization | Divisibility | Number Theory | The Mean Value Theorem and L'Hopital's Rule |
| | 8 | 11/13-14 | Patterns | Skip Counting | Nim | Logic | Number Theory | Related Rates |
| Spring 2022 | 9 | 1/8-9 | Number Lines | Challenge Problems | Challenge Problems | Simple Equations | Counting and Probability | Applied Optimization Problems |
| | 10 | 1/15-16 | Money | Twos and Half | Fraction | Remainder | Counting and Probability | Antiderivatives |
| | 11 | 1/22-23 | Integers | Addition and Subtraction | Mixed Numbers | Average Problems | Counting and Probability | Approximating Areas |
| | 12 | 1/29-30 | Place Value | Morehan Two Numbers | Skip Counting | Area | Counting and Probability | The Definite Integral and the Fundamental Theorem of Calculus |
| | 13 | 2/5-6 | Factions | 8's and 9's | Addition and Subtraction | Fractions | Geometry | Integration Formulas and the Net Change Theorem |
| | 14 | 2/12-13 | Geometry | Inside or Outside | Constellation Puzzles | Square | Geometry | Substitution |
| | 15 | 2/19-20 | Multiplication | Checker Board Paths | Mixed Number Arithmetic | Angles and Triangles | Geometry | Areas Between Curves |

*MAA Pre-AMC (6-8) is a competitive math class for students in grades 6-8 designed to prepare students for the AMC competition series. Our other middle school math class, Triangulum, is focused on developing problem solving skills.

Computer Science Classes (by grade level)

Every class has a 20-student limit. Those who sign up after the 20-student limit will be automatically waitlisted.

| Semester | Week | Date | Python for Kids (3-5) | Java (6-12) | C++ (6-12) |
|-------------|------|----------|--|-------------------------|-------------------------|
| Fall 2021 | 1 | 9/25-26 | Not All Snakes Slither | Hello World | Start C++ |
| | 2 | 10/2-3 | Calculations and Variables | Input and Output | Statements |
| | 3 | 10/9-10 | Strings, Lists, Tuples, and Maps | Functions and for Loops | Use Array |
| | 4 | 10/16-17 | Drawing with Turtles | Operations | String |
| | 5 | 10/23-24 | Asking Questions with if and else | Largest Number | Class and Object |
| | 6 | 10/30-31 | Going Loopy | Fibonacci Series | Pointer and Reference |
| | 7 | 11/6-7 | Functions and Modules | Areas | File Operation |
| | 8 | 11/13-14 | Classes and Objects | for and while Loops | Static Exception Vector |
| Spring 2021 | 9 | 1/8-9 | Python's Built-in Functions | 1-D and 2-D Arrays | Loops |
| | 10 | 1/15-16 | Useful Python Modules | Converting to Binary | Perfect Numbers |
| | 11 | 1/22-23 | More Turtle Graphics | File I/O | Prime Numbers |
| | 12 | 1/29-30 | Using tkinter for Better Graphics | System Date and Time | Factorials |
| | 13 | 2/5-6 | Bounce! – 1 | File Operations | Class |
| | 14 | 2/12-13 | Bounce! -2 | Factorials | Power |
| | 15 | 2/19-20 | Creating Graphics for the Mr. Stick Man Game | Search | Roman Number |