



# San Antonio Math Include

Provide Greater Access to STEM Education to All Students

## 2020-2021 Free Online Courses Syllabi

Website: [mathinclude.org](http://mathinclude.org) | Email: [sanantoniomathinclude@gmail.com](mailto:sanantoniomathinclude@gmail.com)

| Semester  | Date       | Tadpoles (K-1) | Whirlpool (2-3)          | Andromeda (4-5)                    | Triangulum (6-8)         | Calculus AB (9-12)   | Python for Kids (3-5)                        | C++ for Beginners (6-8) |
|-----------|------------|----------------|--------------------------|------------------------------------|--------------------------|--|--|-------------------------|
| FALL 2020 | 9/26-27    | Addition       | Time                     | Pattern                            | Tricks in +/-            | Continuity and Limits  | Not All Snakes Slither                       | Start C++               |
|           | 10/3-4     | Subtraction    | Intervals                | Story of Gauss                     | Tricks in */             | Trigonometric Functions, Limits of a function                    | Calculations and Variables                   | Statements              |
|           | 10/10-11   | Skip Counting  | Addition                 | Using Models                       | Logic                    | Derivatives  | Strings, Lists, Tuples, and Maps             | Use Array               |
|           | 10/17-18   | Time           | Comparison & Replacement | Intervals                          | Speed: Catching Up       | Equations of a tangent line, higher-order derivatives            | Drawing with Turtles                         | String                  |
|           | 10/24-25   | Even and Odd   | Age                      | Comparison & Replacement           | Speed: Encountering      | Antiderivatives and Indefinite Integrals.                        | Asking Questions with if and else            | Class and Object        |
|           | 10/31-11/1 | Rounding       | Division                 | Counting                           | Age                      | Implicit differentiation, differentiation by u-substitution      | Going Loopy                                  | Pointer and Reference   |
|           | 11/7-8     | Fact Families  | Chicken and Rabbit       | Tricks in Addition and Subtraction | Solving Using Models     | Integrals  | Functions and Modules                        | File Operation          |
|           | 11/14-15   | Patterns       | Patterns                 | Tricks in Multiplication           | Comparison & Replacement | Area Under A Curve, Left/Right/Midpoint sums.                    | Classes and Objects                          | Static Exception Vector |
| SPR 2021  | 1/9-10     | Number Lines   | Counting                 | Working Backward                   | Excess-and-Shortage      | Chain Rule and Product Rule                                      | Python's Built-in Functions                  | Coding Practice         |
|           | 1/16-17    | Money          | Logic                    | Chicken and Rabbit                 | Finding Cubes            | Max and Min, Points of Inflections, Concavity                    | Useful Python Modules                        | Coding Practice         |
|           | 1/23-24    | Integers       | Make a List              | Logic                              | IQ Problems              | Fundamental Theorem of Calculus, Riemann sums, definite integral | More Turtle Graphics                         | Coding Practice         |
|           | 1/30-31    | Place Value    | Using Models             | List                               | Interesting Reminders    | Integration by parts and Integration by u-substitution           | Using tkinter for Better Graphics            | Coding Practice         |
|           | 2/6-7      | Factions       | Search of Series         | Excess-and-Shortage                | Finding Perimeter        | Solids of Revolutions  | Bounce! – 1                                  | Coding Practice         |
|           | 2/13-14    | Geometry       | What Comes next          | Math IQ                            | The Page-Number Problem  | Mean Value Theorem, Intermediate Value Theorem, Rolle's Theorem  | Bounce! -2                                   | Coding Practice         |
|           | 2/10-21    | Multiplication | Math IQ                  | Catching Up                        | Counting                 | Cross Section Solids   | Creating Graphics for the Mr. Stick Man Game | Coding Practice         |