15-Week Sunday Middle School Math Syllabus For Indy Chinese School

Course Goal

Develop strong foundational skills in algebra, geometry, and data analysis with application-based learning and weekly practice.

Unit 1: Foundations of Numbers & Exponents

Week 1: Square Roots & Cube Roots

- Understanding perfect squares and cubes
- Estimating roots
- Real-life applications

Week 2: Real Numbers

- Rational vs irrational numbers
- Number line representation
- Comparing and ordering numbers

Week 3: Properties of Exponents

- Product, quotient, power rules
- Negative exponents
- Practice problems

Unit 2: Scientific Thinking & Equations

Week 4: Scientific Notation

- Writing large/small numbers
- Operations with scientific notation
- Real-world examples (science context)

Week 5: Solving Multi-Step Equations

- Combining like terms
- Distributive property
- Variables on both sides

Unit 3: Relationships & Graphing

Week 6: Proportional Relationships

- Ratios and rates
- Constant of proportionality
- Graphing proportional relationships

Week 7: Linear Relationships (Part 1)

- Slope concept
- Tables, graphs, equations

Week 8: Linear Relationships (Part 2)

- Slope-intercept form
- Real-world modeling

Unit 4: Systems & Functions

Week 9: Systems of Linear Equations

- Graphing method
- Substitution (intro)
- Interpreting solutions

Week 10: Functions

- Function vs relation
- Input/output tables
- Function notation

Unit 5: Geometry Concepts

Week 11: Transformations, Congruence & Similarity

- Translations, reflections, rotations
- Scale factors
- Similar figures

Week 12: Lines, Angles & Triangles

- Angle relationships
- Triangle types
- Interior/exterior angles

Unit 6: Key Theorems & Measurement

Week 13: The Pythagorean Theorem

- Finding missing sides
- Word problems
- Application (distance)

Week 14: Volume

- Volume of prisms and cylinders
- Basic 3D shapes
- Real-world problems

Unit 7: Data & Review

Week 15: Scatter Plots, Two-Way Tables & Review

- Interpreting scatter plots
- Correlation
- Two-way tables
- **Final Review + Assessment**

Ongoing Weekly Structure

Each Sunday (50 min class):

1. Warm-up (5min)
2. Concept teaching (20–25 min)
3. Guided practice (10 min)
4. Activity/game or real-world application (10-15 min)