Grade 5 Mathematics Teacher Packet
AoPS Prealgebra and Brilliant

Nantucket New School

Course Overview

Grade 5 mathematics introduces students to AoPS style problem solving with a focus on whole number arithmetic, exponent patterns, early number theory, fraction meaning, and first contact with equations and inequalities. AoPS Prealgebra provides the content spine. Brilliant activities are used for conceptual launch, mid unit deepening, and application tasks.

Core AoPS Chapters

Primary text: *AoPS Prealgebra*

- Chapters 1 through 5
- Selected sections from Chapters 9 through 15

Unit and Resource Map

Unit	AoPS focus	Brilliant focus (main courses)
Number sense and arithmetic foundations	Prealgebra Chapter 1 Sections 1.1–1.7, Chapter 2 Sections 2.1–2.2. Properties of arithmetic, whole number operations, order of operations, and early exponent ideas.	*Arithmetic Thinking* for basic operations and patterns, *Visual Algebra* for early pattern and expression work.
Exponent and number theory patterns	Prealgebra Chapter 2 Sections 2.3–2.4, Chapter 3 Sections 3.1–3.4 with selected stretch from review problems. Squares, higher powers, multiples, divisibility, primes, and factorization.	*Number Theory*, *Arithmetic Thinking* integer and divisibility strands, and selected puzzles from *Math Puzzles*.
Fraction meaning and multiplication	Prealgebra Chapter 4 Sections 4.1–4.2 with selected problems from later sections. Fraction meaning, comparison, and multiplication of fractions with whole numbers.	*Arithmetic Thinking* fraction strands and early *Real World Algebra* tasks that involve fractional quantities in context.

Unit	AoPS focus	Brilliant focus (main courses)
Introductory equations and inequalities	Prealgebra Chapter 5 Sections 5.1, 5.2, 5.5 with limited stretch into 5.3 and 5.4 for ready students. Variables, simple expressions, one step equations, and basic inequalities.	*Visual Algebra* introductory balance and expression lessons and entry *Solving Equations* tasks.
Geometry and measurement sampler	Prealgebra Chapter 10 Section 10.1, Chapter 11 Section 11.1 with selected 11.2 problems, Chapter 12 Section 12.3 at an accessible level. Angles, segments, perimeter, simple area, and quadrilateral families.	*Geometry and Measurement* and *Coordinate Plane* tasks that stress length, angle, and simple area without heavy algebra.
Counting, strategies, and year review	Prealgebra Chapter 14 selected Sections 14.1–14.3, Chapter 15 Sections 15.1–15.4, and mixed review from Chapters 1–5. Introductory counting, simple probability, and strategy review.	*Probability and Chance*, *Everyday Statistics* at an entry level, and *Strategy Puzzles* that match simple counting and casework ideas.

Planning Notes

- Use Brilliant mainly at the start and middle of each unit for concept building and visual hooks.
- Reserve AoPS challenge problems for the second half of each unit once core ideas are secure.
- Keep a running list of which Brilliant lessons landed best for future reuse or revision.