

GVC Companion Guide: Math Core 8

- Start the school year with growth mindset work doing Inspirational Week of Math tasks Start the school year with growth mindset work doing Inspirational Week of Math tasks from YouCubed.org at Stanford. Set classroom norms and excitement for a great year of mathematics ahead! Under Tasks & More <https://www.youcubed.org/week-inspirational-math/> (listed as weeks but is actually year 1, 2, 3, 4... of its existence) Consider using throughout the year with a big kick off week one using parts of any of the “weeks” provided. Work with your PLC to collaborate together on which to use when. Site offers numerous resources to support differentiation/enrichment and community communication.
- Use number talks/sense making routines and mini lessons to bring back past math knowledge. Things to think about including:
 - [“My Favorite No”](#) – My favorite wrong answer/Error Analysis
 - [Which one doesn't belong?](#) (WODB)
 - [Which would you rather?](#)
 - [Silent Board Game](#)
 - [Graphing Stories](#)
 - [Open Middle](#) (open-ended questions)
 - [Academic Talk protocol\(English learners++\)](#) | Partner A/Partner B (Academic Talk protocol)
 - [Number-Math Talks](#) | [Same but Different](#)
 - [Always, Sometimes, or Never](#) | True-False ... and why? | Give example(s) and/or counter-example(s)
 - Claims-Evidence Writing ([graphic organizer support](#)) | Problem-Evidence-Reasoning-Claim (PERC)
 - Mathematical Mindsets by Jo Boaler (Appendix A pgs. 217-268) [Appendix A](#)
- Problem solving is done throughout the course and used to launch/explore/summarize and to engage with and apply mathematical concepts.
- **Changes** have been made in order to have more coherence in the course. There has been an effort to ensure that we are aligned with the CA State Mathematics Standards and that the concepts are organized in a logical, fluid way.
- **Units have been named based on the standards of the unit, not the textbook. Note “Critical Areas of Instruction” also aligned to content standards for eighth grade.**
- Padding built into weeks allowing some “wobble room” for reteaching.

SEMESTER 1

Students should build on prior knowledge of...	Students should master ...	Students should be developing and will continue to work on...
Rigid Transformations Dilations Congruence/Similarity Linear Relationships: (graphing) $y = mx + b$ Determine slope when given two points Write an equation based on a verbal description or table	Linear Vs non-linear Pythagorean Theorem Volume	Multi-step equations in one variable Functions with exponents/exponent rules Systems of equations

District IAB in October will be Geometry

Things to keep in mind for semester 1:

- Rigid Transformations and Scale Factor are part of Unit 1
“Butterflies, Pinwheels, and transformations” is supplemented with Illustrative Mathematics found in Open-Up Resources: Unit 1 = “Rigid Transformation and Congruence” and Open-Up Unit 2 = “Dilations, Similarity, and Introducing Slope”
- “Thinking with Mathematical Models” of Unit 2 is supplemented with Illustrative Mathematics found in Open-Up Resources: Unit 3 = Linear Relationships and Open-Up Unit 4 = Linear Equations and Linear Systems

SEMESTER 2

Students should build on prior knowledge of...	Students should master ...	Students should be developing and will continue to work on...
Rational Vs Irrational Use of Pythagorean Theorem Solving multi-step equations— including distributive property and fractions Volume of cylinders, cones, spheres Scientific Notation	Solving multi step equations with distributive property and fractions	Solving multi step equations for different variables Solving for Systems— simultaneous linear equations using elimination

District IAB in February will be Functions

Things to keep in mind for semester 2:

- Units 5 and 6 have been combined to be one unit devoted to linear equations. The unit also includes systems; the rationale being that systems can be taught with linear equations

For Grade Eight Mathematics, instructional time should focus on three critical areas:

- (1) Formulating and reasoning about expressions and equations, including modeling an association in bivariate data with a linear equation, and solving linear equations and systems of linear equations.**
- (2) Grasping the concept of a function and using functions to describe quantitative relationships.**
- (3) Analyzing two- and three- dimensional space and figures using distance, angle, similarity, and congruence, and understanding and applying the Pythagorean Theorem**

Standards for Mathematical Practices = the how-to of the content standards

MP1: Make sense of problems and persevere in solving them

MP2: Reason abstractly and quantitatively

MP3: Construct viable arguments and critique the reasoning of others

MP4: Model with mathematics

MP5: Use appropriate tools

MP6: Attend to precision

MP7: Look for and make use of structure

MP8: Look for and express regularity in repeated reasoning

Mathematical Practices 1-3-6 = connections to EL/ELD and NGSS standards: See Overview Curriculum Guide for details of grade expectations