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   How To
    - Graphing Stories: Blog-why-how-samples; Desmos Stories; STEMlearning; sample search
    - Open Middle (open-ended questions)
    - Estimation 180
    - Number-Math Talks | Same but Different
    - Always, Sometimes, or Never | True-False … and why? | Give example(s) and/or counter-example(s) nrich.maths-ASN | true/false routine
    - Academic Talk protocol(English learners++) | Partner A/Partner B (Academic Talk protocol)
    - Claims-Evidence Writing (graphic organizer support) | Problem-Evidence-Reasoning-Claim (PERC)
    - Mathematical Mindsets by Jo Boaler (Appendix A pgs. 217-268) Appendix A
- 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, and that we have coherence in the course.
- **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.
    - **OpenUp Resources**   *Math Milestones (8th grade)

SEMESTER 1	
Fall FIAB *Congruence & Similarity*	
Unit 1	Unit 2
OpenUp U1: Rigid Transformations & Congruence **OpenUp U2:** Dilations, Similarity, & Introduction to Slope **CMP3:** Butterflies, Pinwheels, & Wallpaper	**OpenUp U3:** Linear Relationships **CMP3:** Thinking with Mathematical Models

SEMESTER 1

Students should build on **prior knowledge** of…	Students should **master**…	Students should be **developing** and will continue to work on…
Proportional Reasoning	Proportional Reasoning	Multi-step equations in one variable

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	Rigid Transformations Dilations Congruence/Similarity Linear Vs non-linear Linear Relationships: (graphing) y = mx =b	

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 (systems taught with linear equations)

SEMESTER 2 Winter FIAB *Proportional Relationships, Lines, & Linear Equations*			
Unit 3	Unit 4	Unit 5	Still Need…
OpenUp U4: Linear Equations & Linear Systems **CMP3:** Say It with Symbols, It's in the System	**OpenUp U7:** Exponents & Scientific Notation **CMP3:** Growing, Growing, Growing	**OpenUp U8:** Pythagorean Theorem & Irrational Numbers **CMP3:** Looking for Pythagoras	**OpenUp U5:** Functions (Lessons 1-10) & Volume (Lessons 111-22) Consider doing the Functions L1-10 between U3 & U4. **OpenUp U6:** Associations in Data

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 Solving multi-step equations—including	Solving multi step equations with distributive property and fractions	Solving multi step equations for different variables Solving for

distributive property and fractions Scientific Notation Linear Relationships: (graphing) y = mx =b Determine slope when given two points Write an equation based on a verbal description or table	Functions with exponents/exponent rules Systems of equations Use of Pythagorean Theorem Volume (cylinders, cones, spheres)	Systems—simultaneous linear equations using elimination Functions SMMUSD SANTA MONICA-MALIBU UNIFIED SCHOOL DISTRICT

Things to keep in mind for semester 2:
● Units 5 and 6 bring the course's focus/critical areas together. Barbie Bungee revisits first semester and early second semester work on linear relationships/functions

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
● Math Milestones

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

Detailed GVC Guide