






Trimester:	Unit Title:	Recommended Instructional Days:
3	Volume and Similar Solids	14-18 days
Domain		
<p>Strand:</p> <p> 8.G.C.9 Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.</p> <p>Key:</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  Major Cluster </div> <div style="text-align: center;">  Supporting Cluster </div> <div style="text-align: center;">  Additional Cluster </div> <div style="text-align: center;">  Climate Change Opportunity </div> </div>		
<p>Progress Indicators: ◊ Tests ◊ Homework / Classwork ◊ Projects ◊ Formative Assessments ◊ Summative Assessments</p>		
Mathematical Practices:		
<ol style="list-style-type: none"> 1. Make sense of problems and persevere in solving them. 2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reason of others. 4. Model with mathematics. 5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure. 8. Look for and express regularity in repeated reasoning. 		
Recommended Activities, Investigations, Interdisciplinary Connections, and/or Student Experiences to Explore NJSL-CLKS within Unit		
<p>Essential Questions: What is meant by the volume of a figure, and when might you need to calculate volume? How do you find the volume of a cylinder? How do you find the volume of a cone?</p>		

How are the volumes of cones and cylinders related?
What are the different variables in the formulas for volume of cones and cylinders, and what do they represent?
How do you find the volume of a sphere?
How is finding the volume of a sphere different from finding the volume of a cone or cylinder? How is it similar?

Essential Understandings:

Formulas can be used to find the volume of cones, cylinders and spheres, and calculating volume can help us solve both mathematical and real-world problems.

Vocabulary:

- cone
- sphere
- hemisphere
- similar solids

**Encourage students to practice using the unit vocabulary as they talk and write about mathematics. Understanding vocabulary will aid their understanding of the concepts. When students encounter a new definition, encourage them to write in their Big Ideas Student Journals. They will revisit these definitions during the Chapter Review.*

Suggested Activity Descriptions:

- STEAM Video *Canning Salsa* and Performance Task *Packaging Salsa*
- Getting Ready for Chapter 10 Chapter Exploration TB page 426
- Chapter Explorations TB page 427 Exploring Volume and Finding Volume Experimentally
- Chapter Exploration TB page 433 Finding a Formula Experimentally
- Chapter Exploration TB page 439 Finding a Formula Experimentally
- Chapter Exploration TB page 445 Comparing Similar Solids
- Puzzle Time for each section (teacher resources)
- Enrichment and Extension Worksheets

Interdisciplinary Connections:

Science:

1. Question # 26 TB page 438 *Reasoning*: A vapor cone is a cloud of condensed water that forms when an aircraft breaks the sound barrier...
2. Question # 27 TB page 444 *Problem Solving*: The inner core of Earth begins about 3200 miles below the surface of the Earth and ...
3. Question # 9 TB page 449 Two snails have shells that are similar in shape...

Grade 8 Mathematics
Big Ideas Unit 10: Volume and Similar Solids

Updated
 August 2024

				<ul style="list-style-type: none"> Develop, implement, and model effective problem solving and critical thinking skills.
Assessments (Formative) <i>To show evidence of meeting the standard/s, students will successfully engage within:</i>		Assessments (Summative) <i>To show evidence of meeting the standard/s, students will successfully complete:</i>		
<u>Formative Assessments:</u> • Teacher Observations • Exit Tickets • Quizzes • Self Assessments • Big Ideas Student Journals • Homework/Classwork • Teacher Created Assessments • Progress Monitoring Items • Formative Assessment Tips in Big Ideas Teacher Edition		<u>Benchmarks & Summative Assessments:</u> • Chapter/Unit Assessments • Standardized Tests • Project-based Assessments • Benchmark Tests		
Differentiated Student Access to Content: Teaching and Learning <i>Resources/Materials</i>				
Core Resources	Alternate Core Resources <i>IEP/504/At-Risk/ESL</i>	ELL Core Resources	Gifted & Talented Core Resources	
Big Ideas Student Journal, Dynamic Assessment System, iReady, Khan Academy, Illustrative Mathematics, Learn360, TeacherTube, BrainPOP, Freckle, LearnZillion, MobyMax, 60 minutes of weekly ST Math, Edulastic, Achieve the Core, Desmos	Reteach worksheets, Extra Practice worksheets, Math manipulatives, Scaffolding Instructions in each section of textbook, Tutorial Videos, Skills Review Handbook, Skills Trainer	Dictionary for native language, Video tutorial in native language, ELL Support in each section of Big Ideas Teacher’s Edition	ST Math Challenge Objectives, G&T tasks, Enrichment and Extension worksheets, Art of Problem Solving, Leveled assessments	
Supplemental Resources				
Technology: • Chromebooks • Scientific Calculators • Online math manipulatives Other: • Google Classroom, Google Meets, Schoology, Interactive Workbooks • Illustrative Mathematics • insidemathematics.org • National Library of Virtual Manipulatives				

Differentiated Student Access to Content: Recommended <i>Strategies & Techniques</i>			
Core Resources	Alternate Core Resources <i>IEP/504/At-Risk/ESL</i>	ELL Core Resources	Gifted & Talented Core
Deliver instruction utilizing varied learning styles including audio, visual, and tactile/kinesthetic, provide individual instruction as needed, modify assessments and/or rubrics.	Utilize a multi-sensory (VAKT) approach during instruction, provide alternate presentations of skills by varying the method (repetition, simple explanations, additional examples, modeling, etc.), modify test content and/or format, allow students to retake test for additional credit, provide additional times and preferential seating as needed, review, restate and repeat directions, provide study guides, and/or break assignments into segments of shorter tasks.	Extend time requirements, preferred seating, positive reinforcement, check often for understanding/review, oral/visual directions/prompts when necessary, supplemental materials including use of an online bilingual dictionary, and modified assessment and/or rubric.	Create an enhanced set of introductory activities, integrate active teaching/learning opportunities, incorporate authentic components, propose interest-based extension activities, and connect students to related content.

NJSLS CAREER READINESS, LIFE LITERACIES & KEY SKILLS	Disciplinary Concept(s): Planning and Budgeting	
	Core Ideas:	A budget aligned with an individual's financial goals can help prepare for life events.
	Performance Expectation/s:	9.1.8.PB.1: Predict future expenses or opportunities that should be included in the budget planning process.
	Career Readiness, Life Literacies, & Key Skills Practices	
	Act as a responsible and contributing community member and employee. Attend to financial well-being. Consider the environmental, social and economic impacts of decisions. Demonstrate creativity and innovation. Utilize critical thinking to make sense of problems and persevere in solving them. Model integrity, ethical leadership and effective management.	

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	Plan education and career paths aligned to personal goals. Use technology to enhance productivity, increase collaboration and communicate effectively. Work productively in teams while using cultural/global competence.
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New Jersey Legislative Statutes and Administrative Code (place an "X" before each law/statute if/when present within the curriculum map)									
X	Amistad Law: <i>N.J.S.A. 18A 52:16A-88</i>		Holocaust Law: <i>N.J.S.A. 18A:35-28</i>		LGBT and Disabilities Law: <i>N.J.S.A. 18A:35-4.35</i>		Diversity & Inclusion: <i>N.J.S.A. 18A:35-4.36a</i>		Standards in Action: <i>Climate Change</i>