Pre-AP Geometry 3-D Unit Daily Lessons

Tues, Apr 30 (0B) – Wed, May 1

Objective: I can recognize, name, and interpret parts of geometric solids. I can find volume of prisms and cylinders and understand why the formula works. I can find volume of pyramids and cones (some classes).

* Warm-up: name solids;
* Test make-up issues. Quiz schedule, etc.
* Demonstration: parts of solids, naming solids, what is a polyhedron? A regular polyhedron?
* Use warm-up to create understanding of the similarity between cylinders and prisms (two parallel congruent bases and the lateral parts connecting them) and how the volume is just V=BH where B is the area of the base and H is the perpendicular height of the solid.
* Practice finding volume. Practice solving for a side. In most classes, we practiced 1-6 on section 11.2.
* In some classes: What about when the solid is a pyramid or cone. Demonstration with beans (0B, 1st, 2nd)
* HW #11b or 12b (11b is B day, 12b is A day): p 545:1-6,8-10, p 549: 1-6. Some classes had also 11-15 on p 546. 4th did not have p 549, 6th did all of this lesson on May 2.

Quiz Mon-Tues next week, 24 pts, on Unit Circle (just like test questions).

Big Quiz over 3-D and volume on May 13-15.

Thurs-Fri, May 2-3, 2019

Objective: I can name solids correctly with multiple names (including type of polyhedron). I can find volume or a dimension for prisms, cylinders, cones or pyramids.

* Naming warm-up: name solids with all possible terms. In some classes, we did some work from p 539.
* Take a grade on HW #11 or 12 and review (5 pts) – 4 pt
* Go over warm-up.
* Go over HW, questions, points to notice, etc.
* Bean demonstration: if a cone and a cylinder have the same radius and height, what fraction of the cylinder is the cone? Discovery: 1/3 the volume of the cylinder. This also works for square pyramid vs. square prism, etc.
* Apply this new idea: try four problems in class. We problems from p 559 in some classes.
* Demonstration: cross-sections of solids; solids of revolution (in some classes)
* HW #12-13 – these assignments are highly varied from class to class. Show complete use of formulas. See blog post for details.

Quiz and Big Quiz as listed on the previous lesson.

Monday-Tuesday, May 6-7, 2019

Objective: I can find volume of rotating solids, spheres, and irregular volume by water displaced in a tank. In some classes: I can derive and apply volume and surface area of a sphere. I can demonstrate mastery over degrees, coordinates, and radians on the unit circle.

* Warm-up: unit circle problem; solid of revolution problem on half sheet of graph paper.
* Answers to warm-up and homework #12-13 shared in detail with explanations as needed.
* Website resource – illustration of solid of revolution. Which is bigger? A short wide cone or a tall skinny one? Calculate from screen. Example.
* Demonstration – why is 4/3 π r3 the formula for volume of a sphere (see investigation on p 542)?
* Irregular volume, mass, and density in 6th and 4th. Volume of sphere in all but 6th. Surface area of sphere in 1st, 2nd, and 0B. These were demonstrations and notes; not much practice yet.
* Unit Circle Quiz – 24 pts

3-D quiz on May 13-15, 2019. May 13th is 0B only. May 15 is 6th only.

Wed-Thurs, May 8-9.

Objective: I can find volume of composite solids and surface area of spheres. I can solve for a missing dimension. I can apply higher level thinking to solve 2 and 3 dimensional problems.

* Take grades on #12 and #13 – 4 pts
* Self-check answers to #13.
* Answer questions on warm-up and #13.
* Demonstrate (using youtube video) of surface area of a sphere derived from volume based on a dissection argument: a sphere could be 1000 pyramids with the same height (r). So surface area is 4πr2, but a hemisphere is 3πr2  because of the base.
* Try this problem: 972π is the volume of a sphere, what is its surface area?
* HW #14: p 547:1-6, p 544: 8,9,12-14. Show work and use of formulas.
* Quiz – Unit Circle – 24 pts
* Work on homework

Quiz over Volume and 3-D next Tues-Wed, 40-50 pts

Thurs-Mon, May 9 - 13

Objective: I can determine and find volume of a solid of revolution. I can apply formulas in real-world context to make decisions related to volume.

* Warm-up: naming and sketching solids, #8 p 554 + solid of revolution
* Take a grade on HW #14 or 15 depending on class – 4 pts
* Pass out topics for quiz.
* Share HW #14-15 answers and warm-up. Questions.
* Try these with a partner: p 560:11, p 574:16, EX A about ball in a box
* Share answers and work.
* HW #15-16 – quiz review – p 578-9: 1-12, 14, 17, 19, 21, 23, 25, 29
* View Unit Circle Quizzes/ make-up issues

Volume and 3-D Quest on Mon-Wed, May 13-15. See posts on website for help if you missed class.

Mon-Wed, May 13-15, 2019 (Monday is 0B, Tues is A day, Wed is 6th)

Objective: I can demonstrate mastery over 3-D and volume and surface area of a sphere.

* Warm-up on board: naming solids, changing radius, volume & SA of sphere.
* Take a grade on #15 (make-ups on #14). (HW #16 if A day)
* Answers to warm-up on board. Self check. Question.
* Self check answers to HW #15-16 (handout on desk).
* Questions over HW
* Volume Quest – 45 pts
* Hand out final topic list and first final review assignment, due next time.

Wed-Thurs, May 15-17, 2019
Objective: I can apply concepts and skills related to right triangles, trigonometry, polygon sum, quads and slope, midpoint, and distance.

* Warm-up: - right triangles and trig (excerpts from unit test)
* Check review #1 – did you at least begin it?
* Textbook turn-in and other issues related to end of year
* Answers to warm-up; questions?
* Self-check review; questions? Go over some details in prep for final
* Try these: fill-in-the-blank, always/sometimes/never, and multiple choice from polygon unit.
* Class share answers/ questions
* Return Circle Unit Tests. Look over. Questions. Can you do these?.
* View Volume Quests (A day was returned to look over). All tests were collected.

Final review sessions:

8 am on Monday for 0B

8:00 on Wednesday for all others