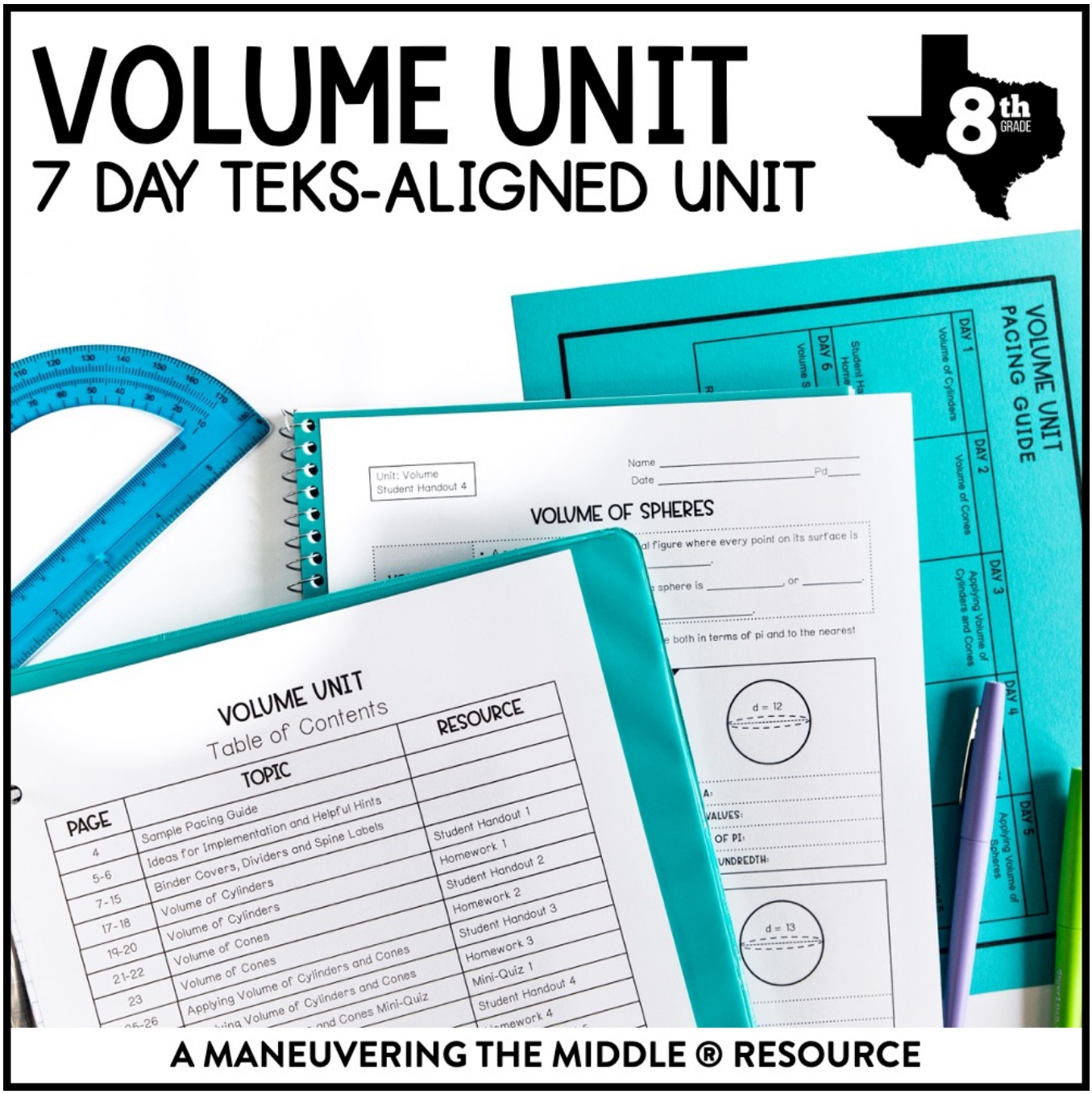
learning focus:

- ✓ use formulas to find the volume of cylinders, cones, and spheres
- ✓ describe the formula for a cylinder in terms of its base area and height
- ✓ use formulas for volume to solve mathematical and real-world problems



VOLUME

a 7 day TEKS-aligned unit
TEKS: 8.6A, 8.7A

ready-to-go, scaffolded student materials

VOLUME UNIT

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A MANEUVERING THE MIDDLE® RESOURCE

VOLUME

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TEKS: 8.6A, 8.7A

student friendly + real-world application

graphic organizers

Unit: Volume
Student Handout 4

Name _____
Date _____ Pd_____

VOLUME OF SPHERES

VOLUME OF SPHERES

- A sphere is a three-dimensional figure where every point on its surface is the same distance from its _____.
- The formula for the volume of a sphere is _____, or _____.
- Half of a sphere is

Use the formula above to find the volume
hundredth.

1

r = 3

FORMULA:
PLUG IN VALUES:
IN TERMS OF PI:
NEAREST HUNDREDTH:

3

r = 9.3

FORMULA:
PLUG IN VALUES:
IN TERMS OF PI:
NEAREST HUNDREDTH:

Use the formula for the volume of spheres to help you answer each question below.

5. A hemisphere has a radius of 7 inches. Find the volume of the hemisphere to the nearest tenth.

6. Gabriel and his brothers built a snowman in their backyard. The snowman's head was in the shape of a sphere with a diameter of 16 inches. Find the volume of the snowman's head to the nearest tenth.

7. A sphere has a volume of 288π in^3. radius of the sphere.

9. Zola solved a question on her math t
below in terms of π. Explain Zola's err

d = 11 in

10. A sphere, cylinder, and cone all hav
equal to the diameter of the sphere. Lo

_____ a. The area of the cylinder's
_____ b. I can find the volume of th
_____ c. The volume of the sphere i

Summarize today's lesson:

Unit: Volume
Homework 4

Name _____
Date _____ Pd_____

VOLUME OF SPHERES

In 1-4, draw a line connecting each sphere to its volume in terms of π, then to the volume rounded to the nearest tenth. Not all choices will be used.

SPHERE	VOLUME (IN TERMS OF PI)	VOLUME (NEAREST TENTH)
1. d = 9	457.3̄π units^3	3,053.6 units^3
	121.5π units^3	67 units^3
2. r = 2	21.3̄π units^3	33.5 units^3
3. d = 14	10.6̄π units^3	381.7 units^3
	972π units^3	10,052.2 units^3
4. r = 9	3,201.3̄π units^3	1,436.8 units^3

5. Find the volume of a hemisphere that has a radius of 8 centimeters to the nearest tenth.

6. A magic 8-ball has a diameter of 5 inches. It is filled 85% full with blue water. How much space is occupied by the water? Round to the nearest tenth.

7. A sphere has a volume of 36π in^3. Find the radius of the sphere. Use 3.14 for pi.

8. A sphere has a volume of 2,304π mm^3. Find the diameter of the sphere.

interactive practice

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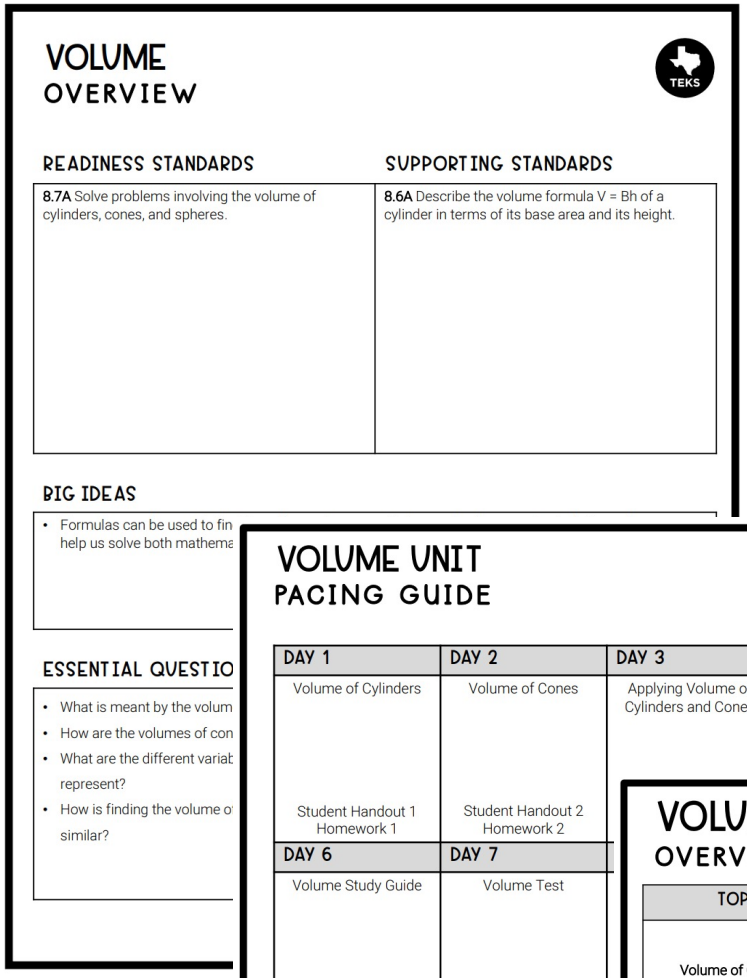
streamline your planning process with unit overviews



VOLUME
OVERVIEW

READINESS STANDARDS

8.7A Solve problems involving the volume of cylinders, cones, and spheres.

SUPPORTING STANDARDS

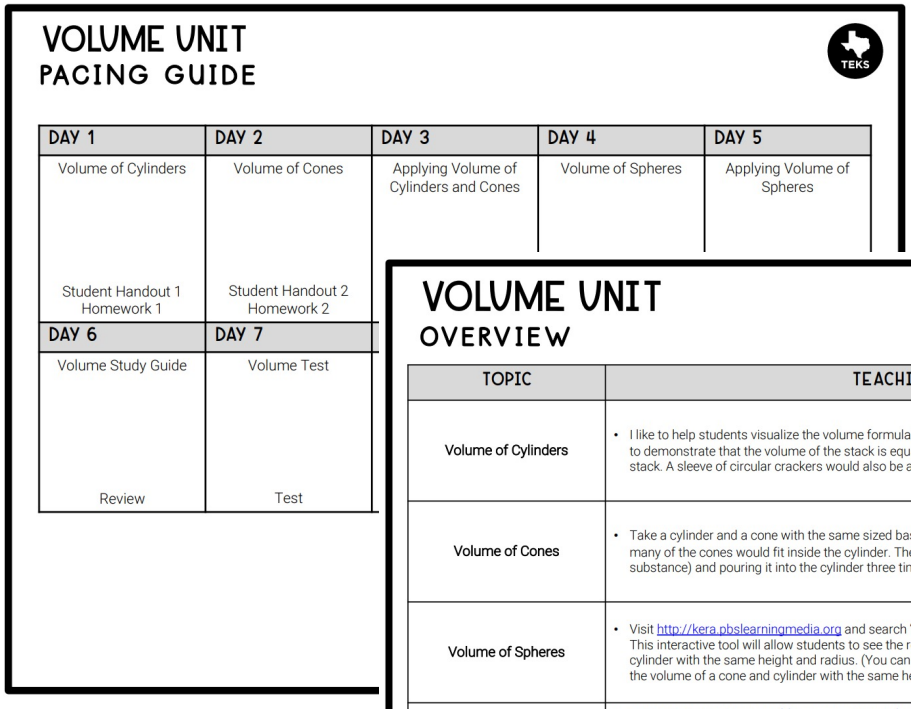
8.6A Describe the volume formula V = Bh of a cylinder in terms of its base area and its height.

BIG IDEAS

- Formulas can be used to fin
  help us solve both mathema

ESSENTIAL QUESTIO

- What is meant by the volum
- How are the volumes of con
- What are the different variat
  represent?
- How is finding the volume o
  similar?

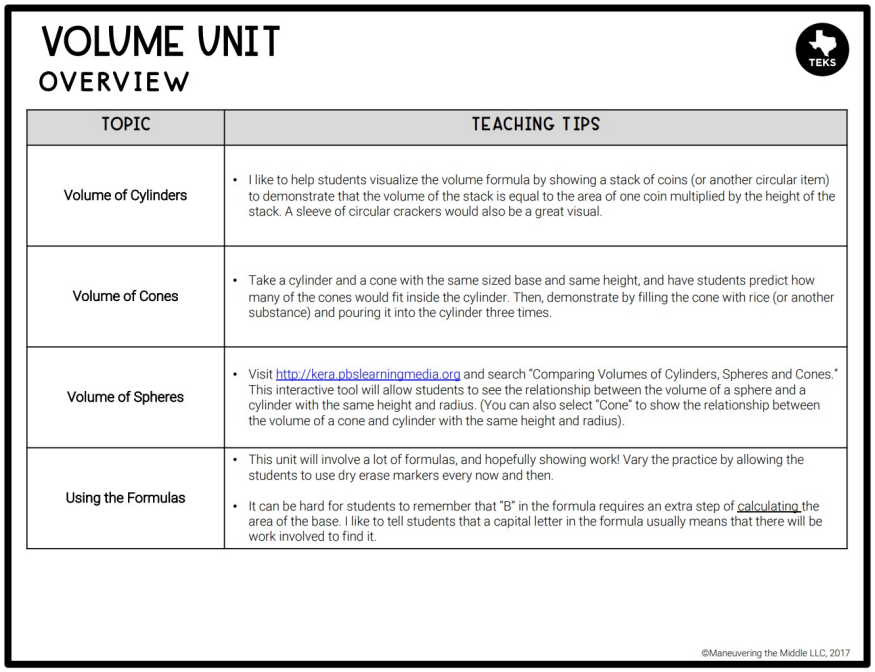


VOLUME UNIT
PACING GUIDE

DAY 1	DAY 2	DAY 3	DAY 4	DAY 5
Volume of Cylinders Student Handout 1 Homework 1	Volume of Cones Student Handout 2 Homework 2	Applying Volume of Cylinders and Cones	Volume of Spheres	Applying Volume of Spheres
DAY 6	**DAY 7**			
Volume Study Guide Review	Volume Test Test			

- ✓ key vocabulary
- ✓ vertical alignment

sample pacing calendar



VOLUME UNIT
OVERVIEW

TOPIC	TEACHING TIPS
Volume of Cylinders	• I like to help students visualize the volume formula by showing a stack of coins (or another circular item) to demonstrate that the volume of the stack is equal to the area of one coin multiplied by the height of the stack. A sleeve of circular crackers would also be a great visual.
Volume of Cones	• Take a cylinder and a cone with the same sized base and same height, and have students predict how many of the cones would fit inside the cylinder. Then, demonstrate by filling the cone with rice (or another substance) and pouring it into the cylinder three times.
Volume of Spheres	• Visit http://kera.pbslearningmedia.org and search "Comparing Volumes of Cylinders, Spheres and Cones." This interactive tool will allow students to see the relationship between the volume of a sphere and a cylinder with the same height and radius. (You can also select "Cone" to show the relationship between the volume of a cone and cylinder with the same height and radius).
Using the Formulas	• This unit will involve a lot of formulas, and hopefully showing work! Vary the practice by allowing the students to use dry erase markers every now and then. • It can be hard for students to remember that "B" in the formula requires an extra step of calculating the area of the base. I like to tell students that a capital letter in the formula usually means that there will be work involved to find it.

teaching ideas

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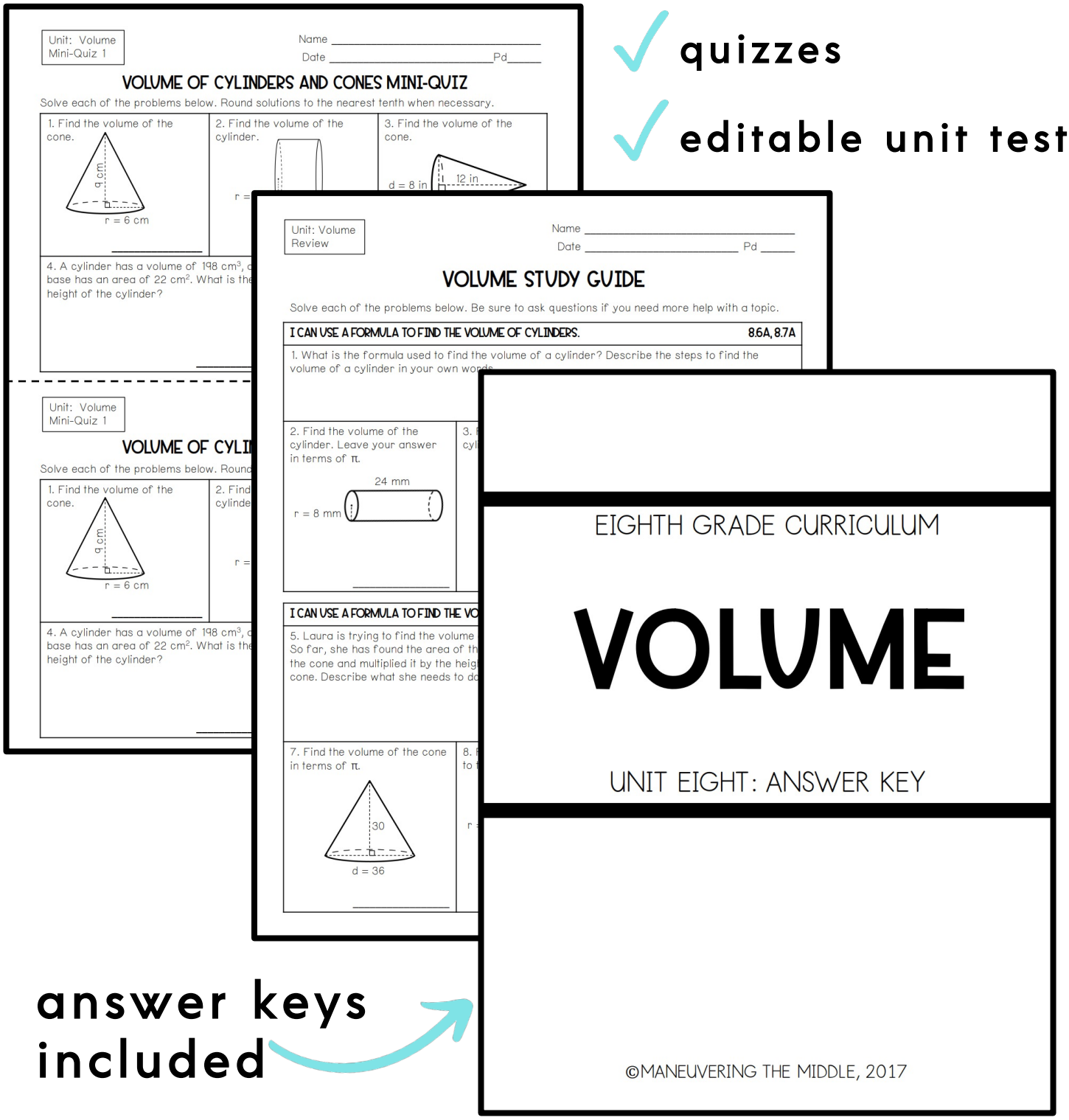
unit study guide + assessments



✓ quizzes

✓ editable unit test

answer keys included

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