



PERIMETER, AREA, & VOLUME



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TO THE TEACHER

- This product is meant to be a no frills, all action tool for cementing the concept of perimeter and area in relation to volume in preparation for standardized testing.
- Each activity can be completed in a variety of ways to fit your classroom needs.
- It was created with the following standards in mind:
- TEKS
 - 5.4h represent and solve problems related to perimeter and/or area and related to volume
- COMMON CORE
 - CCSS.MATH.CONTENT.5.MD.C.3 Recognize volume as an attribute of solid figures and understand concepts of volume measurement.
 - CCSS.MATH.CONTENT.5.MD.C.3.A A cube with side length 1 unit, called a “unit cube,” is said to have “one cubic unit” of volume, and can be used to measure volume.
 - CCSS.MATH.CONTENT.5.MD.C.3.B A solid figure which can be packed without gaps or overlaps using n unit cubes is said to have a volume of n cubic units.
 - CCSS.MATH.CONTENT.5.MD.C.4 Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.
 - CCSS.MATH.CONTENT.5.MD.C.5 Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.
 - CCSS.MATH.CONTENT.5.MD.C.5.A Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base.
 - CCSS.MATH.CONTENT.5.MD.C.5.B Apply the formulas $V=lxwxh$ and $v=bxh$ for rectangular prisms to find volumes of right rectangular prisms with whole-number lengths in the context of solving real world and mathematical problems.

PREP RECOMMENDATIONS

- Each activity is created in black and white to conserve color ink.
 - Using colored paper to differentiate different parts in each activity or the different stations will help students to stay organized.
- If you plan to use the activities for small group or partner activities over time, I would recommend laminating them for durability.

CONTENT VOCABULARY

represent
perimeter
volume
width
congruent
square
equation
rule
dimensions
rectangular prism
area of the base

solve
area
length
height
face
rectangle
side length
measure
nearest
base
expression

represent

solve

perimeter

area

volume

length

width

height

congruent

square

face

rectangle

equation

side length

number

measure

dimensions

nearest

rectangular
prism

base

area of
the base

expression

EQUATION MATCH

Match each figure's description
to the equation you would use to
find its volume.

TEACHER SUGGESTIONS

EQUATION MATCH

- In this activity students are asked to match the description of a figure to the equation that would be used to find its volume.
- This activity can be used in a variety of ways:
 - ✓ In a small group with teacher guidance
 - ✓ As a partner activity for practice
 - ✓ Independently to assess

Materials

Included:

- Description Cards
- Equation Cards
- Recording Sheet
- Answer Key

Not Included:

- Pencil

1

A rectangular prism with a height of 9, a width of 7, & length of 12.

2

A rectangular prism with a height of 7 & a base of 4 square units.

3

A rectangular prism with a height of 12, a width of 4, & length of 10.

4

A rectangular prism with a height of 12 & a base of 16 square units.

5

A rectangular prism with a height of 6, a width of 10, & length of 11.

6

A rectangular prism with a height of 11 & a base of 20 square units.

7

A rectangular prism with a height of 6, a width of 9, & length of 5.

8

A rectangular prism with a height of 15 & a base of 25 square units.

9

A rectangular prism with a height of 10, a width of 3, & length of 15.

10

A rectangular prism with a height of 22 & a base of 12 square units.

11

A rectangular prism with a height of 9, a width of 9, & length of 9.

12

A rectangular prism with a height of 13 & a base of 28 square units.

A

$9 \times 7 \times 12 = 756$
cubic units

G

$9 \times 14 = 126$
cubic units

E

$12 \times 4 \times 10 = 480$
cubic units

B

$12 \times 16 = 192$
cubic units

I

$6 \times 10 \times 11 = 660$
cubic units

J

$11 \times 20 = 220$
cubic units

F

$6 \times 9 \times 5 = 270$
cubic units

C

$15 \times 25 = 375$
cubic units

L

$10 \times 3 \times 15 = 450$
cubic units

K

$22 \times 12 = 264$
cubic units

H

$9 \times 9 \times 9 = 729$
cubic units

D

$13 \times 28 = 364$
cubic units

Name _____

Date _____

EQUATION MATCH RESPONSE SHEET

Match each figure's description to the equation you would use to find the volume.

1	2	3	4
5	6	7	8
9	10	11	12

EQUATION MATCH ANSWER KEY

1A

2G

3E

4B

5I

6J

7F

8C

9L

10K

11H

12D

WORD PROBLEMS

Solve each word problem to find perimeter, area, or volume.

TEACHER SUGGESTIONS

WORD PROBLEMS

- In this activity students are asked to find the perimeter, area, or volume as asked for in a word problem.
- This activity can be used in a variety of ways:
 - ✓ In a small group with teacher guidance
 - ✓ As a partner activity for practice
 - ✓ Independently to assess

Materials

Included:

- Word Problem Cards
- Recording Sheet
- Answer Key

Not Included:

- Pencil

1

Birdie Cat has a house in the shape of a rectangular prism. Her house has a square base with a side length of 12 inches and is another 16 inches tall. What is the volume of Birdie Cat's house?

2

A place mat is 18 inches long and 12 inches tall. How much space does the place mat cover?

3

A window is 29 inches tall and 35 inches wide. If you were to build a frame around the window, how much wood would you need?

4

A box of cat litter is a cube with a length of 12 inches. What is the volume of the box of cat litter?

5

Brad's back yard is 12 meters long and 16 meters wide. If he were to lay new sod across the entirety of the yard, how many square yards of sod would he need?

6

A picture frame has a perimeter of 24 inches. If the height of the frame is 7 inches, how wide is it?

7

A refrigerator is 6 feet tall, 3 feet wide, and 4 feet long. What is the cubic size of the refrigerator?

8

A kitchen island is 8 feet long and 6 feet wide. How much counter top would it take to cover it?

9

Carrie is taping the edges of her poster so that it doesn't tear. The poster is 22 inches tall and 18 inches wide. How much tape will she need?

10

A cedar chest is four feet long, two feet tall, and two feet wide. How much space is inside the cedar chest?

11

A door is seven feet tall and 3 feet wide. How large is the surface area of the door?

12

A phone is four inches tall & $2\frac{1}{2}$ inches wide. Alex buys a bumper that goes around the edge of the phone. How long is the bumper?

Name _____

Date _____

WORD PROBLEMS RESPONSE SHEET

Solve each word problem to find the area, perimeter, or volume.

1	2	3	4
5	6	7	8
9	10	11	12

WORD PROBLEMS ANSWER KEY

1 2,304 cubic inches	2 216 square inches	3 128 cubic inches	4 728 cubic inches
5 192 square yards	6 5 inches	7 72 cubic feet	8 48 square feet
9 8 inches	10 16 cubic feet	11 21 square feet	12 13 inches

PERIMETER, AREA, OR VOLUME SORT

Sort each of the cards as having
to do with perimeter, area, or
volume.

TEACHER SUGGESTIONS

PERIMETER, AREA, OR VOLUME SORT

- In this activity students are asked to sort cards as having to do with perimeter, area, or volume.
- This activity can be used in a variety of ways:
 - ✓ Small group with teacher guidance
 - ✓ A partner activity for practice
 - ✓ Independently to assess

Materials

Included:

- Cards
- Recording Sheet
- Answer Key

Not Included:

- Pencil

1

A door is 6 feet tall and has a 3 square foot base. How much space does the door take up?

2

A dog yard is 37 feet long and 9 feet wide. How much sod should you buy to redo it?

3

The hull of a boat is 17 feet long and seven feet wide. How much space is within the hull?

4

The living room at the Royal Palace is 23 feet long and 82 feet wide. They are placing a chair rail around the entirety of the room. How much railing should they buy?

5

A construction project is 137 feet long and the same distance wide. They want to fence in the project to keep people out. How much fencing should they plan on?

6

A crib is four feet tall, five feet long, and three feet wide. How much space does the crib take up?

7

The dining room at a new home is 14 feet long and 12 feet wide. How many 1 foot square tiles will they need to complete it?

8

A DVD case is 6 inches tall and has a 6 square inch base. How much room does the DVD case take up?

9

A patio is 12 feet wide and 14 feet long. How many feet of safety railing would you need to enclose the patio?

10

A recycling bin is 3 feet long, 2 feet tall, and 1 foot wide. How much space does the recycling bin have inside of it?

11

A dining room table is 72 inches long and 36 inches wide. I would like my tablecloth to hang over the edge 12 inches in each direction. How much fabric should I buy for my tablecloth?

12

I am fencing in my new yard that is 117 feet long and 99 feet wide. How many feet of fencing will I need?

13

A box is 14 inches long, 16 inches wide, and 4 inches tall. How many cubic inches are in the box?

14

A bus seat is 16 inches wide and 14 inches long. How much space do you have to sit on a bus seat?

15

Mrs. Palmer wants to hang a flag banner around her classroom that is 22 feet long and 8 feet wide. How many feet of banner will she need?

16

Staci is striping a soccer field for a tournament. The field is 100 meters long and 25 meters wide. How many meters will it take to stripe the out of bounds area only?

17

A chocolate bar is half an inch thick, five inches long, and three inches wide. How many cubic inches of chocolate are there?

18

Evan is adding a deck to his house. He plans for it to be a 16 foot long square. How much space will he be adding to his house?

Name _____

Date _____

PERIMETER, AREA, OR VOLUME SORT RESPONSE SHEET

Sort each card as having to do with perimeter, area, or volume?

1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	18

PERIMETER, AREA, OR VOLUME SORT ANSWER KEY

1 volume	2 area	3 area	4 perimeter	5 perimeter	6 volume
7 area	8 volume	9 perimeter	10 volume	11 area	12 perimeter
13 volume	14 area	15 perimeter	16 perimeter	17 volume	18 area

IDENTIFY THE EQUATION

Name the equation needed to solve for volume in each situation.

TEACHER SUGGESTIONS

IDENTIFY THE EQUATION

- In this activity students are asked to name and record the equation needed to solve for volume in each situation.
- This activity can be used in a variety of ways:
 - ✓ In a small group with teacher guidance
 - ✓ As a partner activity for practice
 - ✓ Independently to assess

Materials

Included:

- Problem Cards
- Recording Sheet
- Answer Key

Not Included:

- Pencil

1

A rectangular prism with a height of 19, a width of 7, & length of 11.

2

A rectangular prism with a height of 4 & a base of 22 square units.

3

A rectangular prism with a height of 2, a width of 14, & length of 16.

4

A rectangular prism with a height of 20 & a base of 24 square units.

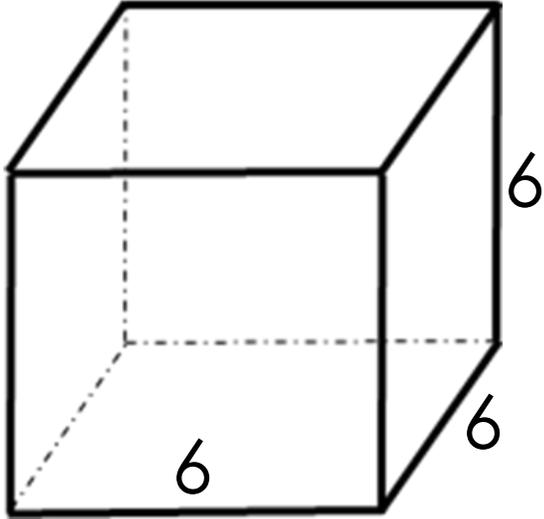
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A rectangular prism with a height of 16, a width of 20, & length of 11.

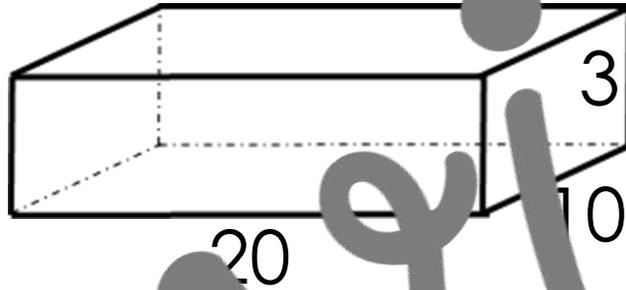
6

A rectangular prism with a height of 15 & a base of 20 square units.

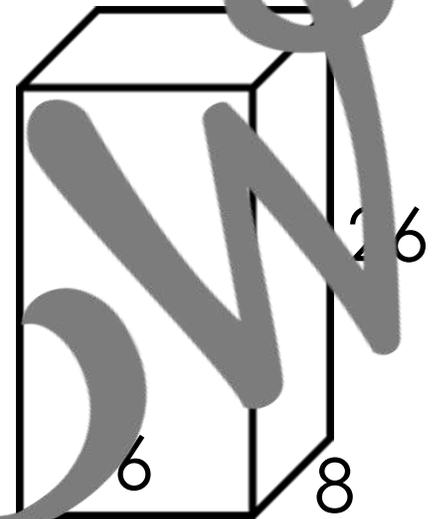
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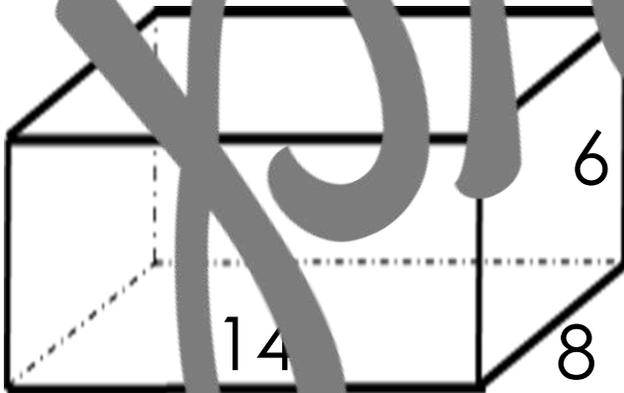
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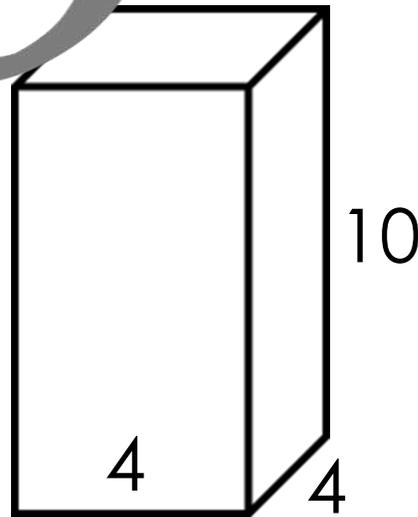
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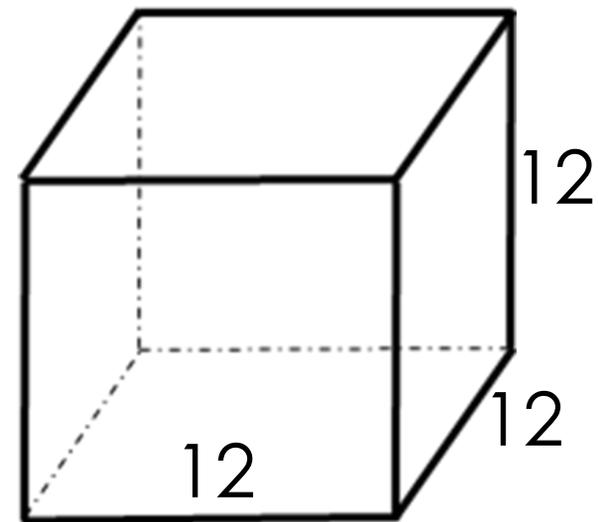
10



11



12



Handwritten watermark text in cursive script, partially obscured by the grid lines.

Name _____

Date _____

IDENTIFY THE EQUATION RESPONSE SHEET

Name the equation needed to solve for volume

1	2	3
4	5	6
7	8	9
10	11	12

IDENTIFY THE EQUATION ANSWER KEY

1 $19 \times 7 \times 11 = 1,463$ cubic units	2 $22 \times 4 = 88$ cubic units	3 $2 \times 14 \times 16 = 448$ cubic units
4 $20 \times 24 = 480$ cubic units	5 $11 \times 20 \times 11 = 3,520$ cubic units	6 $15 \times 20 = 300$ cubic units
7 $6 \times 6 \times 6 = 216$ cubic units	8 $20 \times 10 \times 3 = 600$ cubic units	9 $6 \times 8 \times 26 = 1,248$ cubic units
10 $6 \times 8 \times 14 = 672$ cubic units	11 $4 \times 4 \times 10 = 160$ cubic units	12 $12 \times 12 \times 12 = 1,728$ cubic units

VOLUME WITH UNIT CUBES

Determine the volume of each structure using the unit cubes.

TEACHER SUGGESTIONS

VOLUME WITH UNIT CUBES

- In this activity students are asked to count the unit cubes of a figure to determine its volume.
- This activity can be used in a variety of ways:
 - ✓ Small group with teacher guidance
 - ✓ A partner activity for practice
 - ✓ Independently to assess

Materials

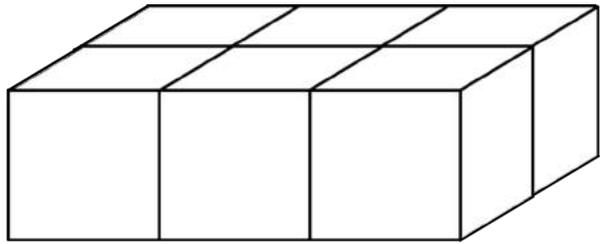
Included:

- Unit Cube Figure Cards
- Recording Sheet
- Answer Key

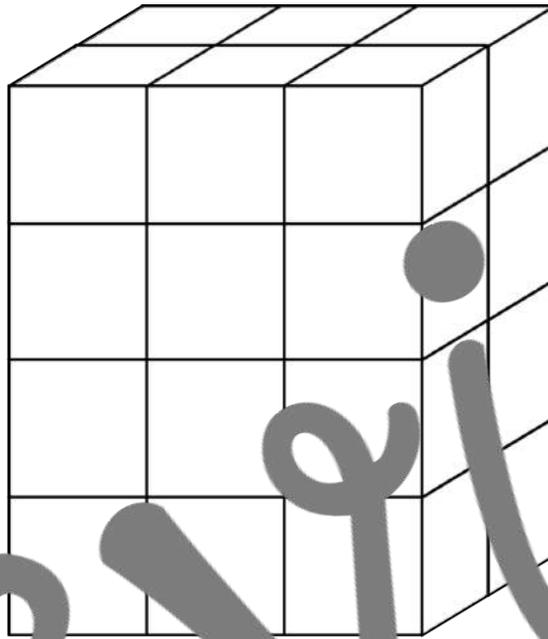
Not Included:

- Pencil

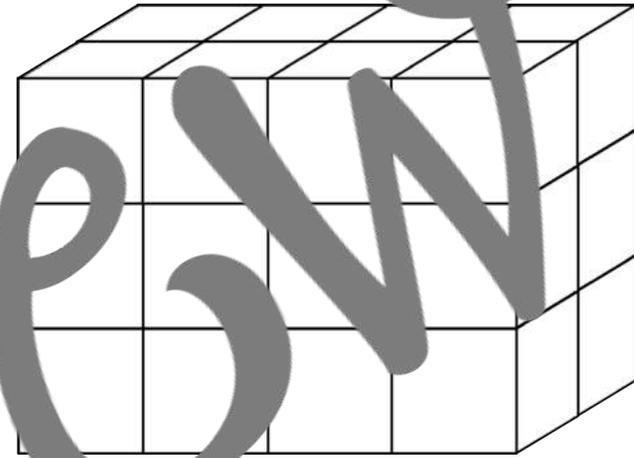
1



2



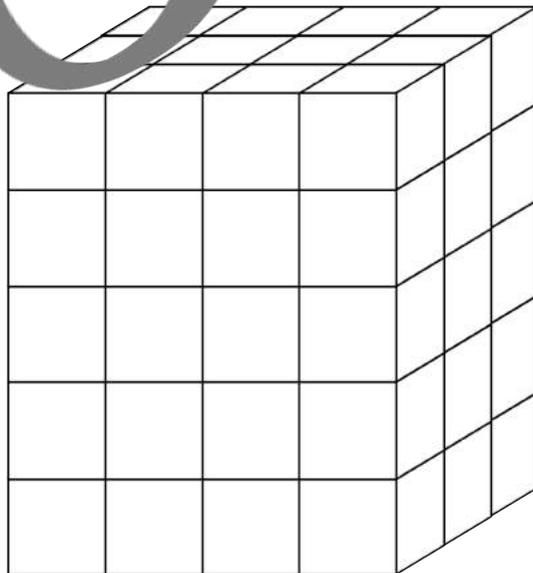
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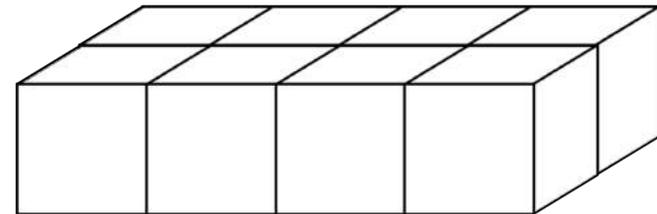
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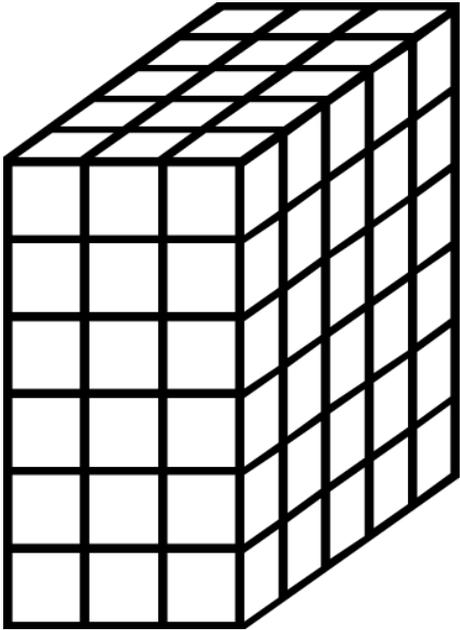
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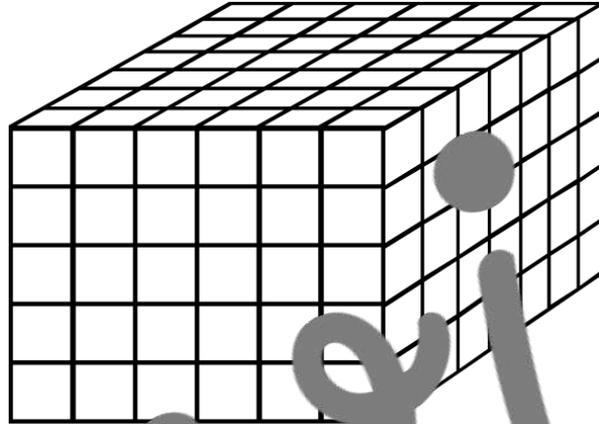
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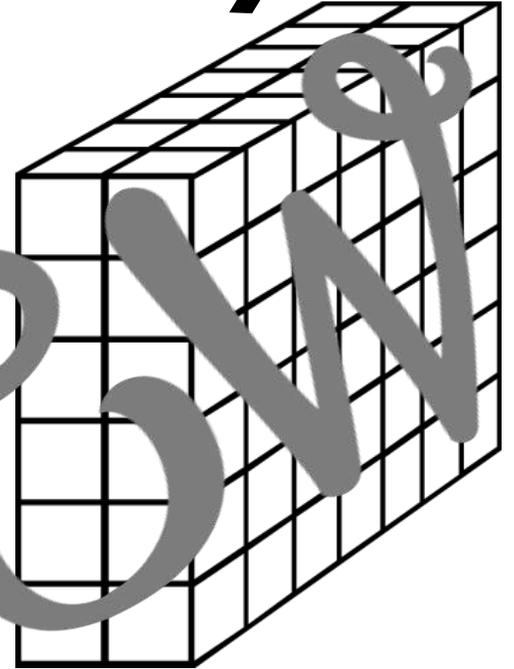
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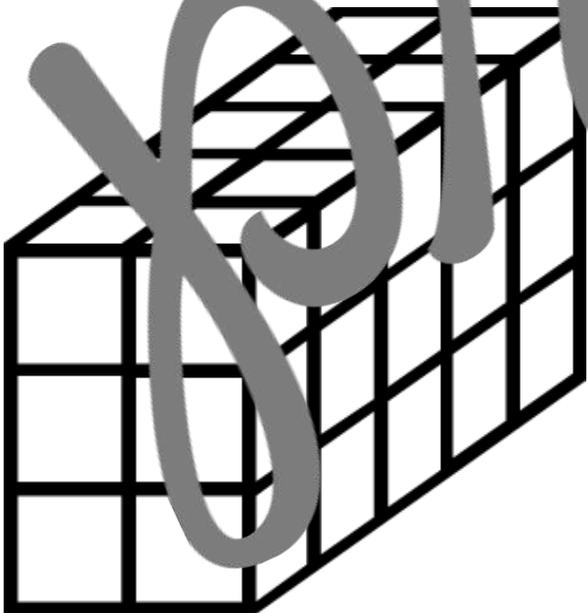
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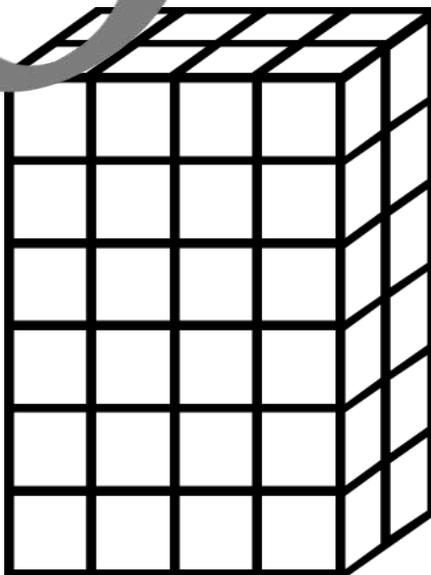
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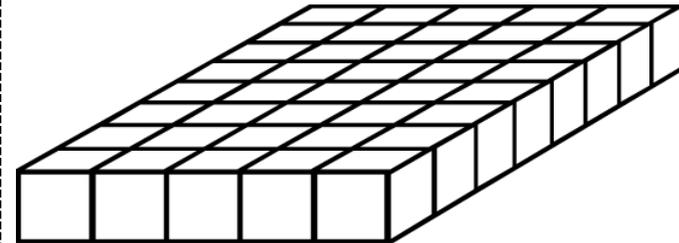
10



11



12



ten

Name _____

Date _____

VOLUME WITH UNIT CUBES RESPONSE SHEET

Determine the volume of each structure using the unit cubes.

1	2	3	4
5	6	7	8
9	10	11	12

VOLUME WITH UNIT CUBES

ANSWER KEY

1 6 cubic units	2 24 cubic units	3 24 cubic units	4 12 cubic units
5 60 cubic units	6 3 cubic units	7 70 cubic units	8 210 cubic units
9 84 cubic units	10 30 cubic units	11 48 cubic units	12 40 cubic units

SPINNA PERIMETER

Use the spinners to determine the number and measurement of the sides of your figure, and then solve for perimeter.

TEACHER SUGGESTIONS

SPIN A PERIMETER

- In this activity students are asked to use spinners to determine the number and measurement of the sides of figure, and then solve for perimeter.
- This activity can be used in a variety of ways:
 - ✓ Small group with teacher guidance
 - ✓ A warmer activity for practice
 - ✓ Independently to assess

Materials

Included:

- Sides spinner
- Measurement Spinner
- Recording Sheet

Not Included:

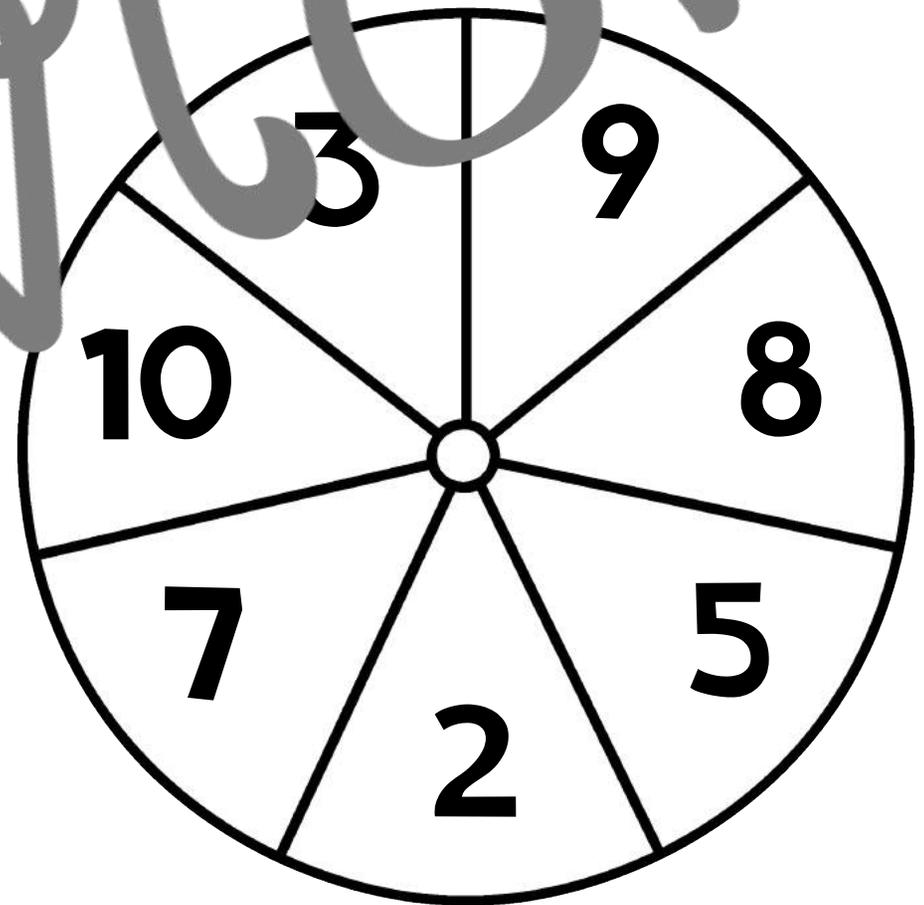
- Pencil
- Paper Clip
- Answer Key

SPIN A PERIMETER

SPIN ONCE FOR EACH
SIDE TO DETERMINE
THEIR LENGTH



NUMBER OF
SIDES ON THE
POLYGON



Name _____

Date _____

SPIN A PERIMETER RESPONSE SHEET

Use the spinners to determine the number of sides and length of each side, and then solve to find the perimeter.

1	2	3	4
5	6	7	8
9	10	11	12

EXPLAIN IT

Use your math vocabulary to respond to the prompt.

TEACHER SUGGESTIONS

EXPLAIN IT

- In this activity students are asked to respond to a writing prompt based on calculating the volume of a rectangular prism using math vocabulary.
- This activity can be used in a variety of ways:
 - ✓ Small group with teacher guidance
 - ✓ A warmer activity for practice
 - ✓ Independently to assess

Materials

Included:

- Writing Prompt with Recording Sheet

Not Included:

- Pencil

Name _____

Date _____

EXPLAIN IT RESPONSE SHEET

Explain the process for finding the volume of a rectangular prism. Use the back of this paper to draw an example including how you would solve.

QR CODES

Scan the "START" card and follow the directions to use all cards stopping at the "END" card.

TEACHER SUGGESTIONS

QR CODES

- In this activity students are asked to scan QR codes and follow the directions by solving for perimeter, area, or volume
- This activity can be used in a variety of ways:
 - ✓ Small group with teacher guidance
 - ✓ A partner activity for practice
 - ✓ Independently to assess

Materials

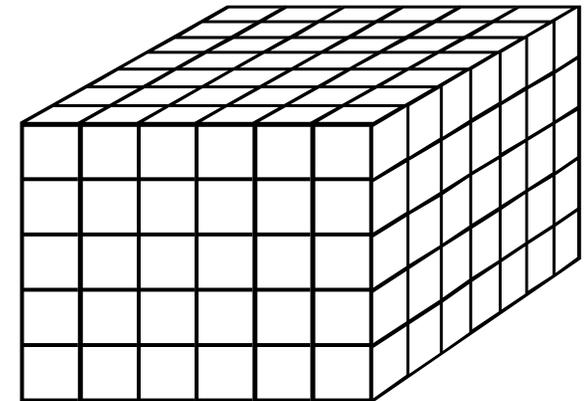
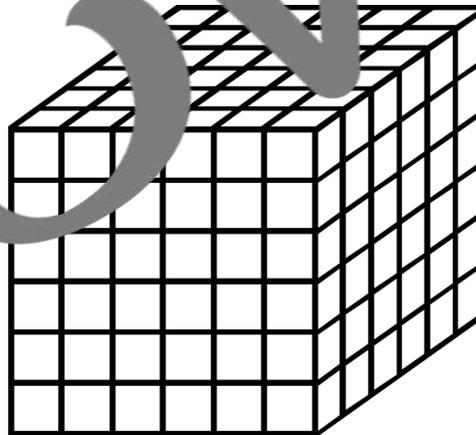
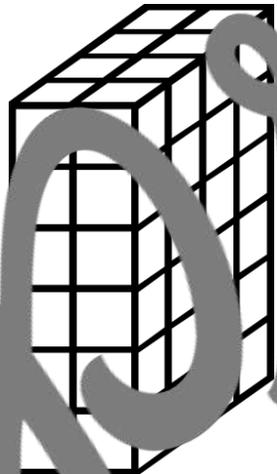
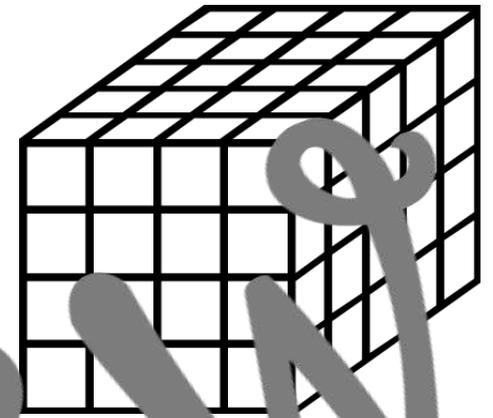
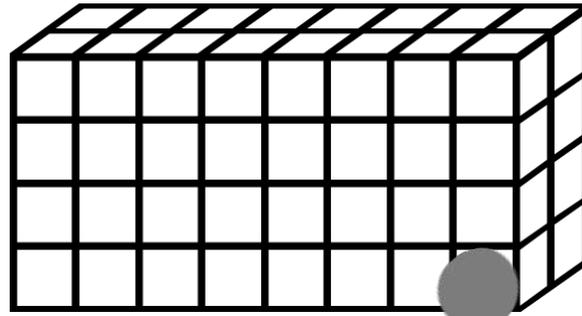
Included:

- QR Code Cards

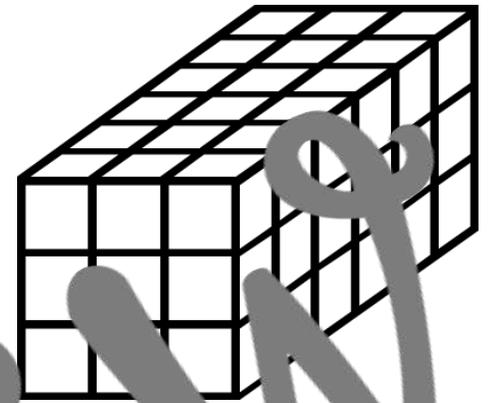
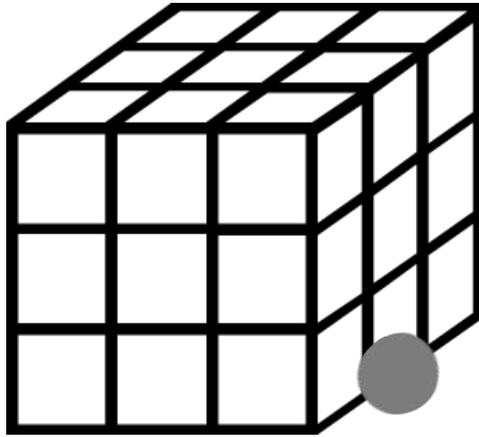
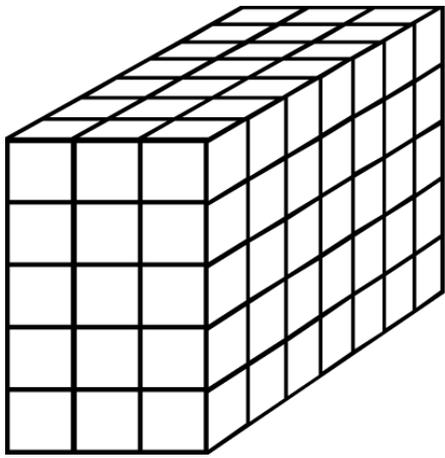
Not Included:

- A device capable of scanning QR Codes such as a smartphone or tablet

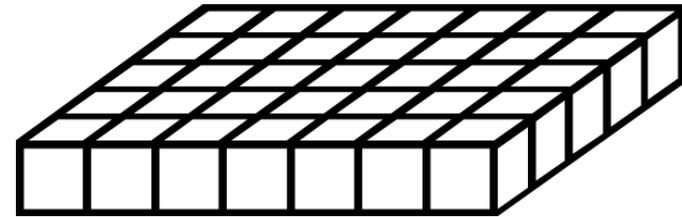
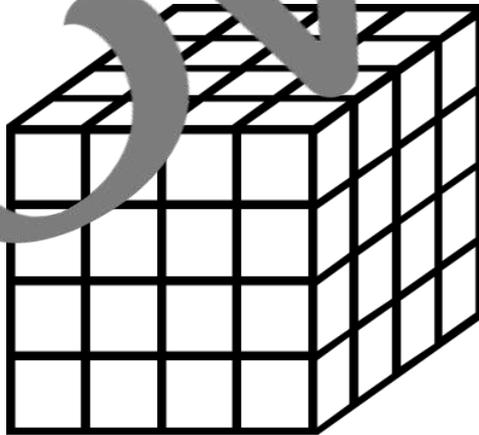
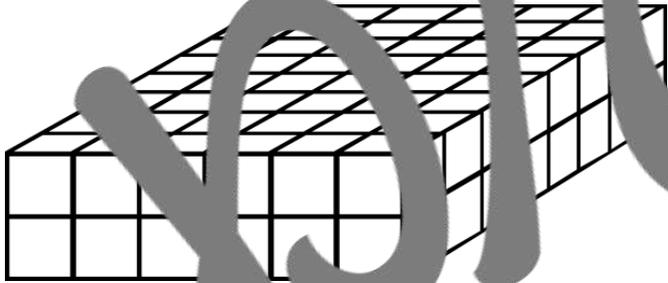
START



one million



sonelien



END

3 WAY MATCHUP

Match each figure to its
perimeter and area.

TEACHER SUGGESTIONS

3 WAY MATCH UP

- In this activity students are asked to match each figure to its perimeter and area.
- This activity can be used in a variety of ways:
 - ✓ Small group with teacher guidance
 - ✓ A partner activity for practice
 - ✓ Independently to assess

Materials

Included:

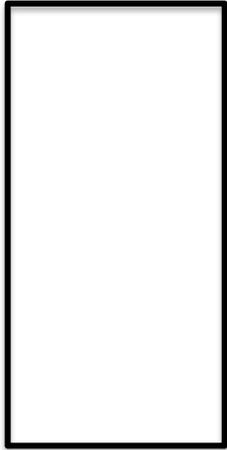
- Figure Cards
- Area Cards
- Perimeter Cards
- Recording Sheet
- Answer Key

Not Included:

- Pencil

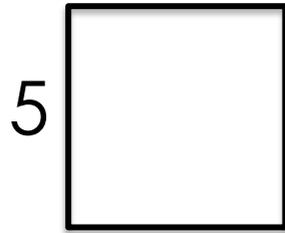
1

4



2

5



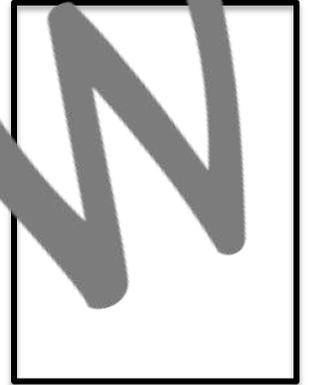
3

9



4

4



11

5

2

8

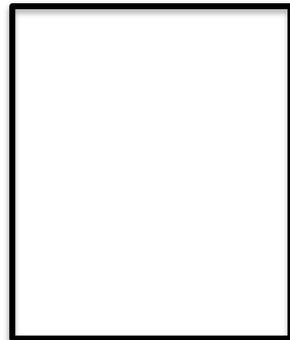
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7



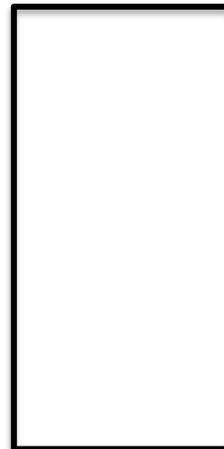
6

5



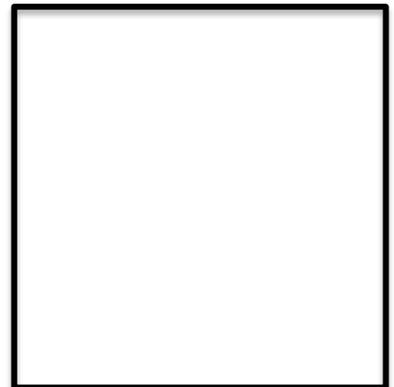
7

5



8

9



6

9

12

9

B

44

square
units

E

25

square
units

G

18

square
units

C

32

square
units

F

42

square
units

D

45

square
units

H

60

square
units

A

81

square
units

Y

30

units

V

20

units

S

22

units

Z

24

units

W

26

units

U

28

units

T

34

units

X

36

units

Name _____

Date _____

3 WAY MATCH UP RESPONSE SHEET

Match each figure to its perimeter and area, and then record the matches below.

1	2	3	4
5	6	7	8

3 WAY MATCH UP ANSWER KEY

1BY

2EV

3GS

4CZ

5FW

6DU

7HT

8AX

ROLL A VOLUME

Roll the dice to find the length, width, and height of each rectangular prism, and then solve for volume.

TEACHER SUGGESTIONS

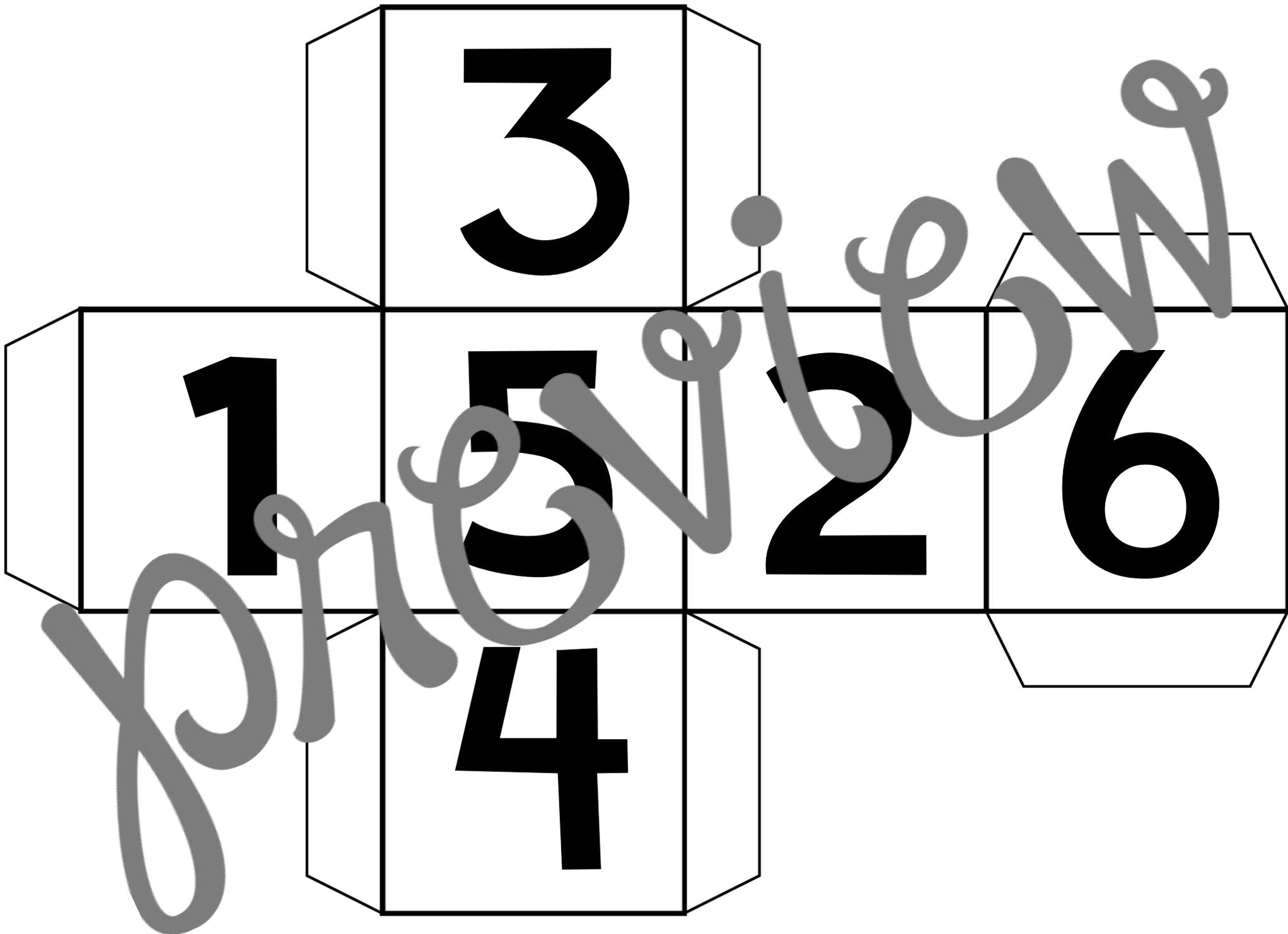
ROLL A VOLUME

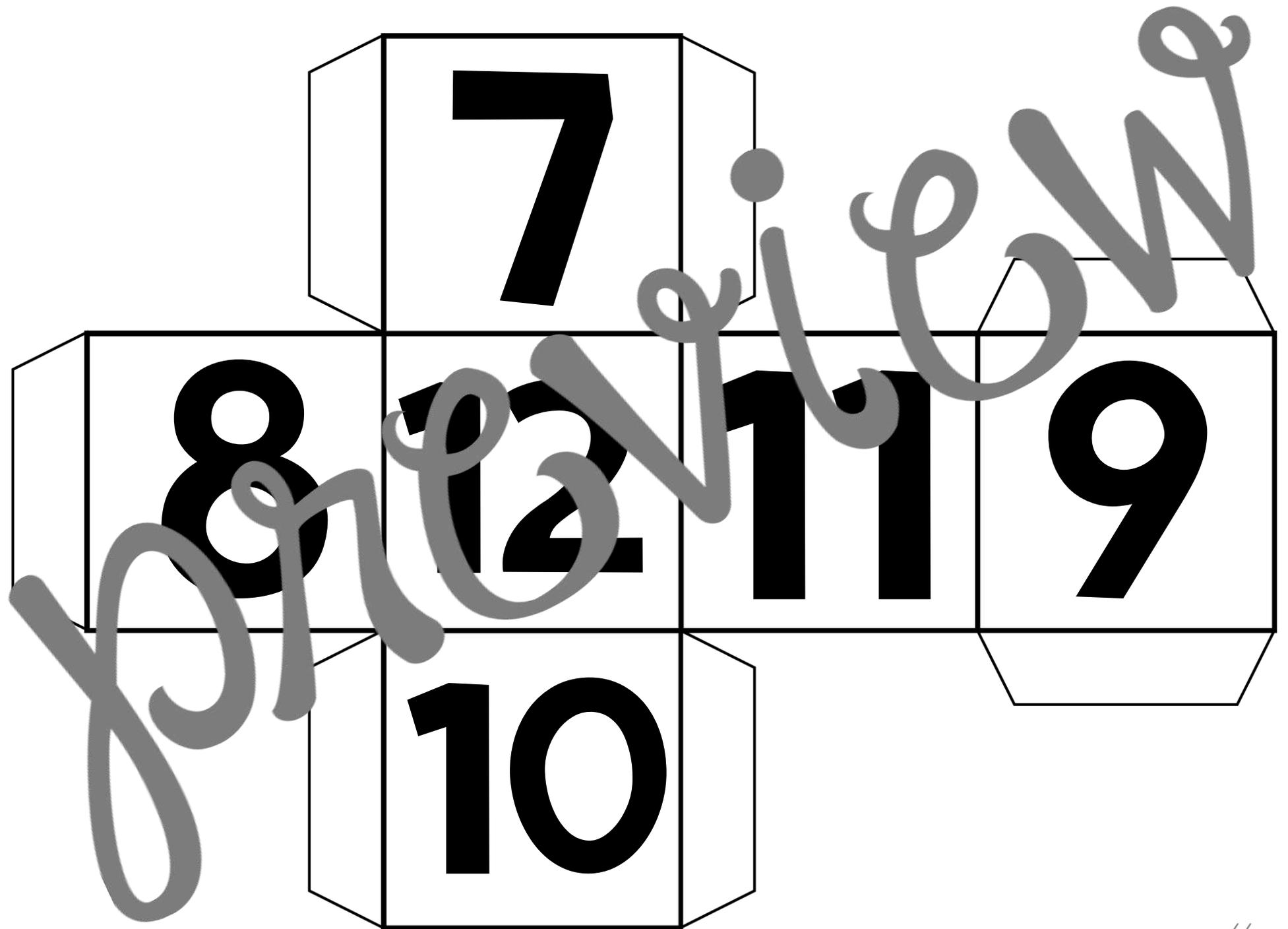
- In this activity students are asked to roll a die three times to determine the length, width, and height of a rectangular prism and then solve for volume.
- This activity can be used in a variety of ways:
 - ✓ Small group with teacher guidance
 - ✓ A warmer activity for practice
 - ✓ Independently to assess

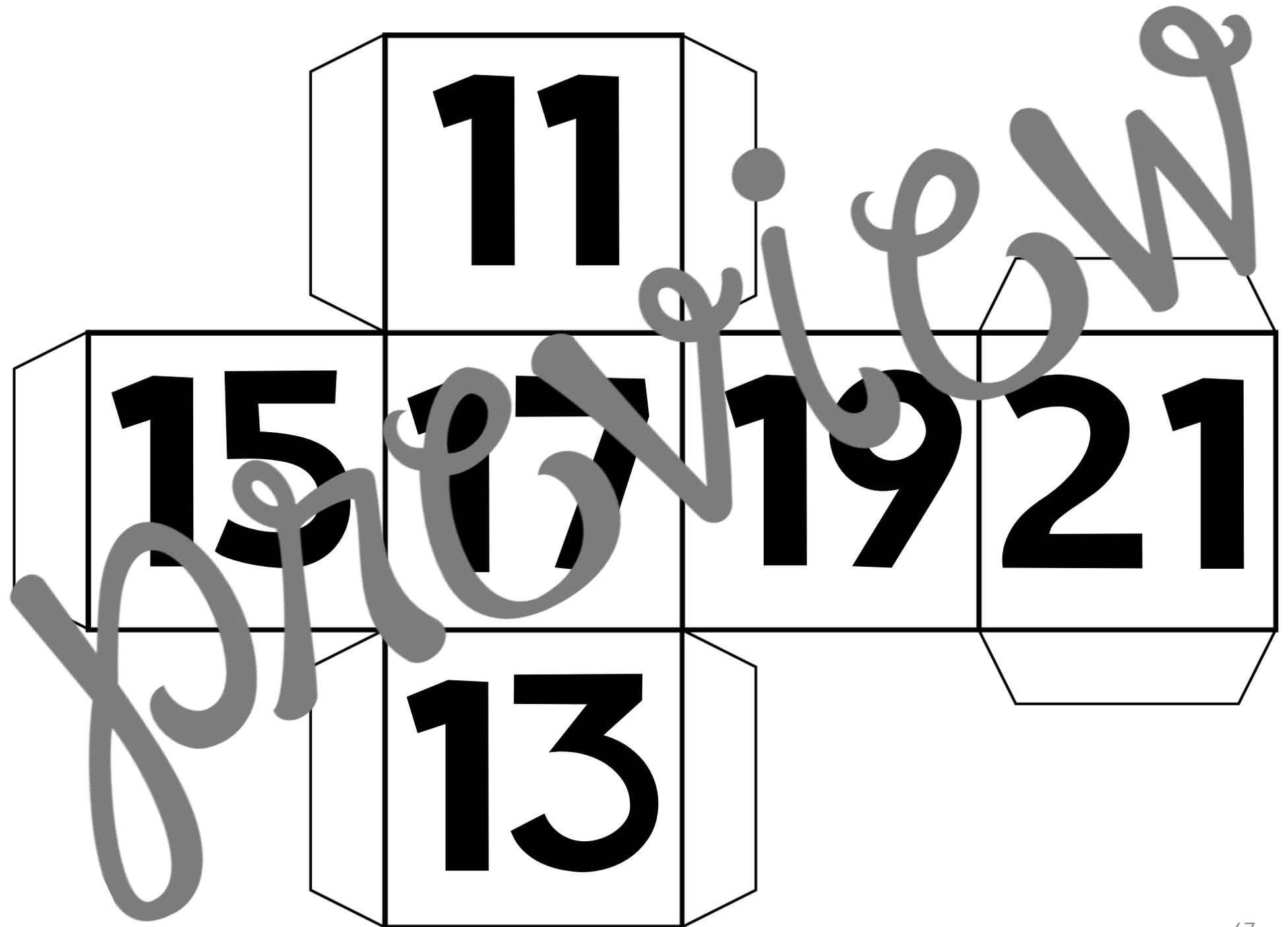
Materials

Included:

- Dice
 - I have provided three dice with different integers for differentiation.
 - Recording Sheet
- #### Not Included:
- Pencil
 - Answer Key







Name _____

Date _____

ROLL A VOLUME RESPONSE SHEET

Roll the die three times to determine the length, width, and height, then find the volume.

1 length _____ width _____ height _____	2 length _____ width _____ height _____	3 length _____ width _____ height _____	4 length _____ width _____ height _____
5 length _____ width _____ height _____	6 length _____ width _____ height _____	7 length _____ width _____ height _____	8 length _____ width _____ height _____
9 length _____ width _____ height _____	10 length _____ width _____ height _____	11 length _____ width _____ height _____	12 length _____ width _____ height _____

Name _____ # _____ Date _____

TEST BRIDGE QUESTIONS

- The base of a rectangular prism has a length of 14 inches and a width of 12 inches. What is the area of the base of the prism in square inches?
 - 2 square inches
 - 52 square inches
 - 168 square inches
 - 158 square inches
- Clarissa bought a fish tank in science class. A model of the fish tank is shown below.

What is the volume, in cubic inches, of the fish tank?
 - 48 cubic inches
 - 288 cubic inches
 - 3,456 cubic inches
 - 1,728 cubic inches
- The side length of a square is 10 inches. Which statement about this square is true?
 - The perimeter of the square is 10 inches, because $10 \times 10 = 100$.
 - The perimeter of the square is 40 inches, because $10 \times 4 = 40$.
 - The area of the square is 20 square inches, because $10 \times 2 = 20$.
 - The area of the square is 40 square inches, because $10 \times 4 = 40$.
- The base of a rectangular prism is 24 square inches. The height of the rectangular prism is also 24 inches. What is the volume of the rectangular prism?
 - 576 cubic inches
 - 48 cubic inches
 - 13,824 cubic inches
 - 578 cubic inches

TEST BRIDGE ANSWER KEY

1. The base of a rectangular prism has a length of 14 inches and a width of 12 inches. What is the area of the base of the prism in square inches?

- a. 2 square inches
- b. 52 square inches
- c. 168 square inches
- d. 158 square inches

3. Clara brought a fish tank to science class. A model of the fish tank is shown below.



What is the volume, in cubic inches, of the fish tank?

- a. 48 cubic inches
- b. 288 cubic inches
- c. 3,456 cubic inches
- d. 1,728 cubic inches

2. The side length of a square is 10 inches. Which statement about this square is true?

- a. The perimeter of the square is 10 inches, because $10 \times 10 = 100$.
- b. The perimeter of the square is 40 inches, because $10 \times 4 = 40$.
- c. The area of the square is 20 square inches, because $10 \times 2 = 20$.
- d. The area of the square is 40 square inches, because $10 \times 4 = 40$.

4. The base of a rectangular prism is 24 square inches. The height of the rectangular prism is also 24 inches. What is the volume of the rectangular prism?

- a. 576 cubic inches
- b. 48 cubic inches
- c. 13,824 cubic inches
- d. 578 cubic inches

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