Brandon Valley School District

District Learning Plan

March 23-27, 2020

Grade 6 Math

Brandon Valley School District Distance Learning Plan

LESSON/UNIT: Number Sense/Geometry **SUBJECT/GRADE: 6th Grade Math** **DATES: March 23 - 27, 2020**

What do students need to do? **PART ONE link to BV instructional video for week of March 23-27, 2020** **PART TWO link to BV instructional video for week of March 23-27, 2020**	Monday (3/23): ● Students will review decimal operations completing the **Decimal Worksheet.** Examples are provided on the worksheet. Tuesday (3/24): ● Students will review fraction operations by completing the **Fraction Worksheet.** Examples are provided on the worksheet. Wednesday (3/25): ● Students will percent problems by completing the **Percent Worksheet.** Examples are provided on the worksheet. Thursday (3/26): ● Students will use pages 740-742 in the math textbook as examples to complete **page 743 (1-9)** in the math textbook. Friday (3/27): ● Students will use pages 740-742 in the math textbook as examples to complete the **Volume Worksheet.**
What do students need to bring back to school?	● Decimal Worksheet ● Fraction Worksheet ● Percent Worksheet ● math textbook page 743 ● Volume Worksheet ● math textbook ● countdown packet (if applicable)
What standards do the lessons cover?	6.G Solve real-world and mathematical problems involving area, surface area, and volume. 1. Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas V = lwh and V = Bh where B is the area of the base to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real world and mathematical problems. 6. NS Apply and extend previous understandings of multiplication and division to divide fractions by fractions. 1. Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem. 6.NS Compute fluently with multi-digit numbers and find common factors and multiples.

	3. Fluently add, subtract, multiply, and divide multi-digit decimals using an algorithm including but not limited to the standard algorithm for each operation. 6.RP Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.
What materials do students need? What extra resources can students use?	Need: ● math textbook (online book is available) ● worksheets (see PDF documents below) Extra: ● Video examples of Decimal Operations ○ Multiplying: https://youtu.be/JEHejQphIYc ○ Dividing: https://youtu.be/7JPIX3odZrY ● Video examples of Fraction operations ○ Multiplying: https://youtu.be/CTKMK1ZGLuk ○ Dividing: https://youtu.be/tnkPY4UqJ44 ● Video examples of Percent Problems ○ https://youtu.be/FaDtge_vkbg ○ https://youtu.be/-lUEWEEpmIo ● Video examples of Volume ○ https://youtu.be/I9efKVtLCf4 ○ https://youtu.be/E8tuMaDxgJM ● Multiplication Table ○ https://www.mathsisfun.com/tables.html
What can students do if they finish early?	ALEKS topics- https://my.mheducation.com/ *Continue working your topics *QuickTables (math fact practice) *assignments (if your teacher has assigned them) Khan Academy- https://www.khanacademy.org/math Countdown Packet
Who can we contact if we have questions?	**Brandon Valley Intermediate School** **Principal**- Mr. Skibsted- Nick.Skibsted@k12.sd.us **Assistant Principal**- Mr. Pearson- Rick.Pearson@k12.sd.us **Math Teachers:** Ms. VanRoekel: Rebecca.VanRoekel@k12.sd.us (blue team) Ms. Lewis: Layne.Lewis@k12.sd.us (white team) Ms. Wiese: Stacey.Wiese@k12.sd.us (red team) Mr. Kocer: Cassius.Kocer@k12.sd.us (silver team)

Notes: **Worksheets do not have to be printed off. Problems can be answered on blank or lined paper. The math textbook can also be accessed online at https://my.mheducation.com/login.**

Instructional materials are posted below (if applicable)

NAME _____ DATE _____ PERIOD _____

Decimal Operation Examples

Example 1

Find 2.3 × 0.02.

2.3 ← one decimal place
× 0.02 ← two decimal places
0.046 ← Annex a zero to make three decimal places.

The product is 0.046.

Example 2

Find 8.58 ÷ 12.

0.715 ← Place the decimal point.
12) 8.580
–84
18
–12
60
–60
0

Annex a zero to continue dividing.

8.58 ÷ 12 = 0.715

Example 3

Find 4.09 ÷ 0.02.

0.02) 4.09 →

204.5 — Place the decimal point.
2)409.0 — Divide.
– 4
00
– 0
09
– 8
10 — Write a zero in the dividend and continue to divide.
–10
0

4.09 divided by 0.02 is 204.5.
Check 204.5 × 0.02 = 4.09 ✓

NAME _____ DATE _____ PERIOD _____

Decimal Worksheet

Evaluate.

1. 7.2 × 2.1

2. 14.23 × 8.21

3. 5.01 × 11.6

4. 0.9 × 11.2

5. 27.8 × 0.023

6. 1.54 × 7.01

7. 11.8 ÷ 4

8. 7.6 ÷ 8

9. 4.56 ÷ 3

10. 9.8 ÷ 1.4

11. 4.41 ÷ 2.1

12. 8.652 ÷ 1.2

NAME _____ DATE _____ PERIOD _____

Fraction Operations Examples

Example 1

Find $\frac{2}{5} \times \frac{3}{4}$.

$\frac{2}{5} \times \frac{3}{4} = \frac{2 \times 3}{5 \times 4}$ Multiply the numerators. Multiply the denominators.

$= \frac{6}{20}$ or $\frac{3}{10}$ Simplify.

Example 2

Find $1\frac{1}{3} \times 2\frac{1}{4}$.

$1\frac{1}{3} \times 2\frac{1}{4} = \frac{4}{3} \times \frac{9}{4}$ Convert mixed numbers to improper fractions.

$= \frac{\cancel{4}^{1}}{\cancel{3}_{1}} \times \frac{\cancel{9}^{3}}{\cancel{4}_{1}}$ Divide the numerator and denominator by their common factors, 3 and 4.

$= \frac{3}{1}$ or 3 Simplify.

Example 3

Find $4 \div \frac{1}{3}$.

$4 \div \frac{1}{3} = \frac{4}{1} \times \frac{3}{1}$ Multiply by the reciprocal, $\frac{3}{1}$.

$= \frac{12}{1}$ or 12 Simplify.

Example 4

Find $\frac{1}{2} \div \frac{1}{5}$.

$\frac{1}{2} \div \frac{1}{5} = \frac{1}{2} \times \frac{5}{1}$ Multiply by the reciprocal, $\frac{5}{1}$.

$= \frac{5}{2}$ or $2\frac{1}{2}$ Multiply numerators and denominators.

Example 5

Find $2\frac{2}{3} \div 1\frac{1}{5}$.

$2\frac{2}{3} \div 1\frac{1}{5} = \frac{8}{3} \div \frac{6}{5}$ Write mixed numbers as improper fractions.

$= \frac{8}{3} \times \frac{5}{6}$ Multiply by the reciprocal, $\frac{5}{6}$.

$= \frac{\cancel{8}^{4} \times 5}{3 \times \cancel{6}_{3}}$ Divide 8 and 6 by the GCF, 2.

$= \frac{20}{9}$ or $2\frac{2}{9}$ Simplify.

NAME _____ DATE _____ PERIOD _____

Fraction Worksheet

Evaluate. <u>Write in simplest form.</u>

1. $\frac{1}{3} \times \frac{5}{7}$

2. $\frac{1}{8} \times \frac{5}{9}$

3. $\frac{4}{9} \times 10$

4. $\frac{5}{6} \times \frac{9}{15}$

5. $\frac{1}{3} \times 1\frac{1}{3}$

6. $1\frac{1}{9} \times 3\frac{2}{5}$

7. $\frac{2}{3} \times 1\frac{3}{5}$

8. $8\frac{1}{5} \times 1\frac{1}{4}$

9. $\frac{4}{5} \div \frac{1}{2}$

10. $\frac{4}{5} \div \frac{1}{10}$

11. $\frac{5}{12} \div \frac{5}{6}$

12. $\frac{9}{10} \div \frac{1}{3}$

13. $5\frac{2}{5} \div \frac{9}{10}$

14. $2\frac{1}{4} \div \frac{2}{7}$

15. $3 \div \frac{2}{5}$

16. $7\frac{1}{2} \div 1\frac{2}{3}$

NAME _____ DATE _____ PERIOD _____

Percent Problem Examples

Example 1

Find 25% of 260.

Method 1:

Write 25% as a fraction in simplest form.
Use the fraction in a multiplication problem.

$25\% = \frac{25}{100}$ or $\frac{1}{4}$

$25\% \text{ of } 260 = \frac{1}{4} \times 260$

$= 65$

Method 2:

Write 25% as a decimal.
Then write a multiplication problem.

25% = 0.25

25% of 260 = 0.25 × 260

= 65

Example 2

Find 175% of 56.

Method 1:

Write 175% as a fraction in simplest form.
Use the fraction in a multiplication problem

$175\% = \frac{175}{100}$ or $\frac{7}{4}$

$175\% \text{ of } 56 = \frac{7}{4} \times 56$

$= \frac{7}{\cancel{4}_{1}} \times \frac{\cancel{56}^{14}}{1}$

$= 98$

So, 175% of 56 is 98.

Method 2:

Write 175% as a decimal.
Then write a multiplication problem.

175% = 1.75

175% of 56 = 1.75 × 56

= 98

In a **percent proportion,** one ratio compares a part to the whole. The other ratio is the equivalent percent written as a fraction with a denominator of 100.

$$\left.\begin{matrix}\text{part} \rightarrow \frac{p}{w} = \frac{n}{100} \\ \text{whole} \rightarrow\end{matrix}\right\} \text{percent}$$

Example 3

What percent of 25 is 18?

$\frac{p}{w} = \frac{n}{100}$ Percent proportion

$\frac{18}{25} = \frac{n}{100}$ Write the proportion.

$\frac{18}{25} \overset{\times 4}{\underset{\times 4}{}} \frac{n}{100}$ Since 25 × 4 = 100, multiply 18 by 4.

$72 = n$

So, 18 is 72% of 25

Example 4

What is 60% of 300?

$\frac{p}{w} = \frac{n}{100}$ Percent proportion

$\frac{n}{33} = \frac{60}{100}$ Write the proportion.

$\frac{180}{300} = \frac{60}{100}$ Since 300 ÷ 3 = 100, divide 180 by 3.

$n = 180$

So, 180 is 60% of 300.

NAME _____ DATE _____ PERIOD _____

Percent Worksheet

Find the percent of each number.

1. 48% of 50

2. 40% of 95

3. 75% of 116

4. 8% of 85

5. 350% of 60

6. 0.3% of 460

Write a proportion and solve each problem.

7. What number is 25% of 20?

8. What percent of 50 is 30?

9. 30 is 60% of what number?

10. 40% of what number is 4?

11. What number is 20% of 700?

12. 12 is what percent of 25?

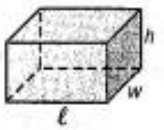
Key Concept

Volume of a Rectangular Prism

Words The volume V of a rectangular prism is the product of its length ℓ, width w, and height h.

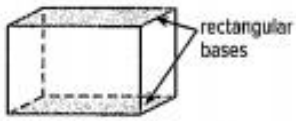
Symbols $V = \ell wh$ or $V = Bh$

Model

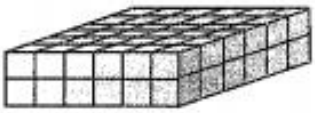


Work Zone

A **three-dimensional figure** has length, width, and height. A **prism** is a three-dimensional figure with two parallel bases that are congruent polygons. In a **rectangular prism**, the bases are congruent rectangles.



Volume is the amount of space inside a three-dimensional figure. It is measured in **cubic units**, which can be written using abbreviations and an exponent of 3, such as units^3 or in^3.

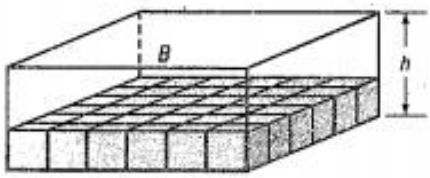


Cubes

Cubes are special rectangular prisms. All three side lengths are equal. So, the volume of a cube can be written using the formula $V = s^3$.

Decomposing the prism tells you the number of cubes of a given size it will take to fill the prism. The volume of a rectangular prism is related to its dimensions, length, width, and height.

Another method to decompose a rectangular prism is to find the area of the base (B) and multiply it by the height (h).



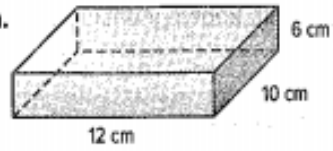
$V = Bh$ ← number of rows of cubes needed to fill the prism

area of the base, or the number of cubes needed to cover the base

Example

Tutor

1. **Find the volume of the rectangular prism.**



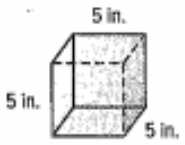
B, or the area of the base, is 10×12 or 120 square centimeters. The height of the prism is 6 centimeters.

$V = Bh$	Volume of rectangular prism
$V = 120 \times 6$	Replace B with 120 and h with 6.
$V = 720$	Multiply.

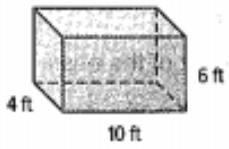
The volume is 720 cubic centimeters.

Got it? **Do these problems to find out.**

a.

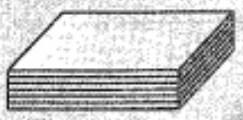


b.



Decomposing Figures

You can think of the volume of the prism as consisting of six congruent slices. Each slice contains the area of the base, 120 cm^2, multiplied by a height of 1 cm.



show your work.

a. _____

b. _____

Real World Example

Tutor

2. **A cereal box has the dimensions shown. What is the volume of the cereal box?**

Estimate $10 \times 3 \times 10 = 300$

$V = \ell wh$	Volume of a rectangular prism.
$V = 8 \times 3\frac{1}{4} \times 12\frac{1}{2}$	Replace ℓ with 8, w with $3\frac{1}{4}$, and h with $12\frac{1}{2}$.
$V = \frac{\overset{1}{\cancel{8}}}{1} \times \frac{13}{\underset{1}{\cancel{4}}} \times \frac{25}{\underset{1}{\cancel{2}}}$	Write as improper fractions. Then divide out common factors.
$V = \frac{325}{1}$ or 325	Multiply.

The volume of the cereal box is 325 cubic inches.

Check for Reasonableness $325 \approx 300$ ✓

Got it? **Do this problem to find out.**

c. Find the volume of a container that measures 4 inches long, 5 inches high, and $8\frac{1}{2}$ inches wide.

c. _____

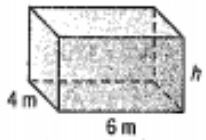
Find Missing Dimensions

To find missing dimensions of a rectangular prism, replace the variables with known measurements. Then solve for the unknown measurement.

Example

Tutor

3. **Find the missing dimension of the prism.**



$V = 84 \text{ m}^3$

$V = \ell wh$	Volume of rectangular prism
$84 = 6 \times 4 \times h$	Replace V with 84, ℓ with 6, and w with 4.
$84 = 24h$	Multiply.
$\frac{84}{24} = \frac{24h}{24}$	Divide each side by 24.
$3.5 = h$	Simplify.

Show your work.

The height of the prism is 3.5 meters.

Check $6 \times 4 \times 3.5 = 84$ ✓

Got it? **Do this problem to find out.**

d. _____

d. $V = 94.5 \text{ km}^3$, $\ell = 7$ km, $h = 3$ km, $w = ?$

Guided Practice

Check

1. A rectangular kitchen sink is 25.25 inches long, 19.75 inches wide, and 10 inches deep. Find the amount of water that can be contained in the sink. (Examples 1 and 2) _____

Show your work.

2. Find the missing dimension of a rectangular prism with a volume of 126 cubic centimeters, a width of $7\frac{7}{8}$ centimeters, and a height of 2 centimeters. (Example 3) _____

3. **Building on the Essential Question** Why can you use either the formula $V = \ell wh$ or $V = Bh$ to find the volume of a rectangular prism?

_____

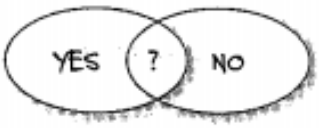
_____

_____

_____

Rate Yourself!

Are you ready to move on? Shade the section that applies.



For more help, go online to access a Personal Tutor.

Tutor

FOLDABLES Time to update your Foldable!

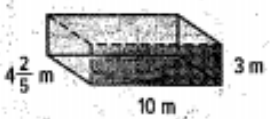
Name _____ My Homework _____

Independent Practice

Go online for Step-by-Step Solutions eHelp

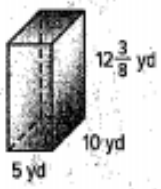
Find the volume of each prism. (Example 1)

1. _____

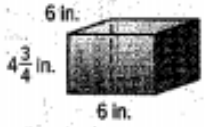


Show your work.

2. _____



3 _____



4. A fishing tackle box is 13 inches long, 6 inches wide, and $2\frac{1}{2}$ inches high. What is the volume of the tackle box? (Example 2)

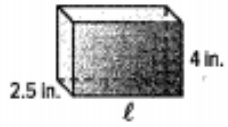
_____

5. Find the length of a rectangular prism having a volume of 2,830.5 cubic meters, width of 18.5 meters, and height of 9 meters. (Example 3)

_____

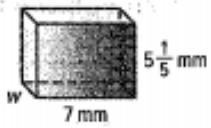
Find the missing dimension of each prism. (Example 3)

6. _____



$V = 60$ in^3

7. _____

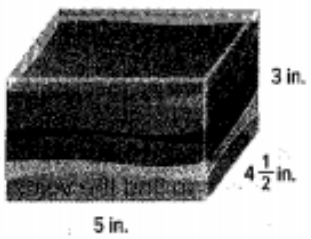


$V = 109\frac{1}{5}$ mm^3

8. MP **Be Precise** In Japan, farmers have created watermelons in the shape of rectangular prisms. Find the volume of a prism-shaped watermelon in cubic inches if its length is 10 inches, its width is $\frac{2}{3}$ foot, and its height is 9 inches.

_____

9 The glass container shown is filled to a height of 2.25 inches.



a. How much sand is currently in the container?

_____

b. How much more sand could the container hold before it overflows? _____

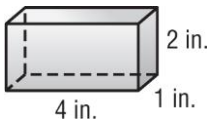
c. What percent of the container is filled with sand? _____

NAME _____ DATE _____ PERIOD _____

Volume Worksheet

Find the volume of each prism. Make sure you label your answer.

1.



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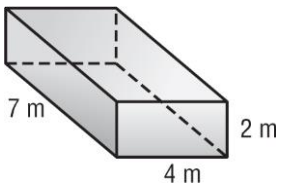

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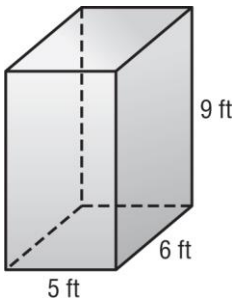

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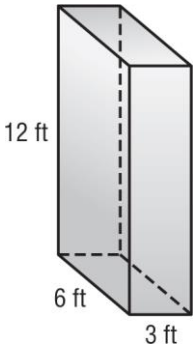

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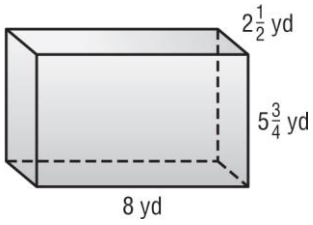

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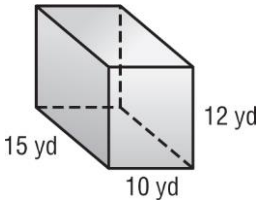

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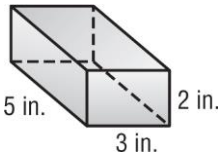
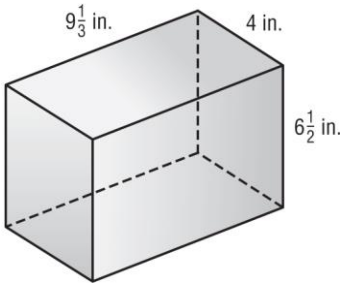


8.

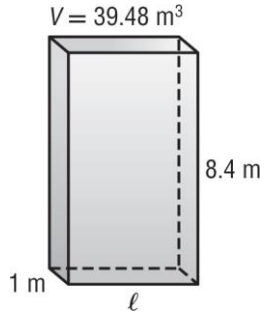
9.



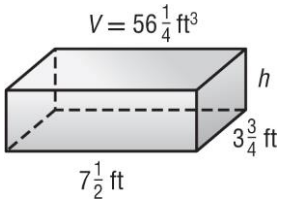
NAME _____ DATE _____ PERIOD _____

Find the missing dimension of each prism.

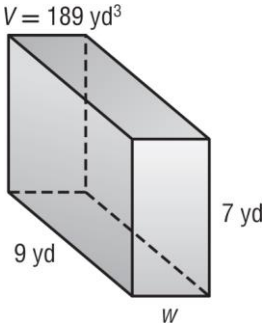
10.



11.



12.



13. Geneva's younger brother has a toy box that is 3.6 feet long, 2.4 feet wide, and 1.5 feet high. What is the volume of the toy box?

14. Find the volume of the CD box shown at the right.