



CPS Mathematics Department

Summer Math Learning Packet

for students entering Grade 6



The daily activities in this summer math packet will review math concepts and skills. Just a few minutes each day spent “thinking and talking math” will help reinforce the math that has been learned and begin to bridge the foundation for extending to the concepts that will be developed next year. The goal is for you to have fun thinking and working collaboratively to communicate mathematical ideas. While you are working ask how the solution was found and why a particular strategy was chosen.

The math activities in this math packet address the new Massachusetts Curriculum Framework for Mathematics which incorporates the Common Core Standards within these 4 critical areas in grade 6:

- (1) connecting ratio and rate to whole number multiplication and division, and using concepts of ratio and rate to solve problems;
- (2) completing understanding of division of fractions and extending the notion of number to the system of rational numbers, which includes negative numbers;
- (3) writing, interpreting, and using expressions and equations;
- (4) developing understanding of statistical thinking; and
- (5) reasoning about geometric shapes and their measurements.

The packet consists of a week by week ‘menu of math’, as well as directions for math games that can be played at home. Literature, worksheets, APPs and websites are also recommended. The intention is that you spend 10 minutes a day on the activities.

Directions: Each week has five activities for you to complete. You may complete the activities in any order. Choose one activity to do each day, and then write about that activity in your math journal.

I, _____, have spent _____ minutes this summer engaging in thinking and talking about math.

Scholars Name: _____

Parent/Guardian’s Signature: _____ Date: _____

Week 1

Day 1
When Lisa was 6 years old, her sister Lucy was half her age. If Lida is 40 years old today, how old is Lucy?

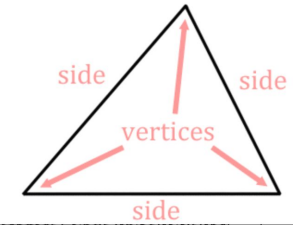
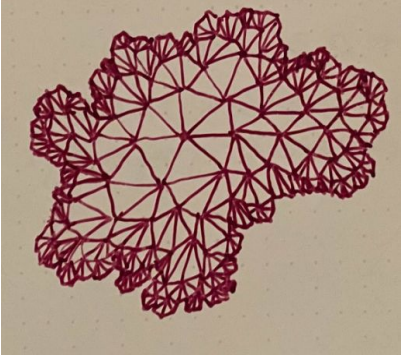
Day 2
Express the number 50 in at least 25 different ways. Use all 4 operations and include fractions and decimals.

Day 3
Write an expression for: *Add 2 and 4 and multiply the sum by 3. Next, add 5 to that product and double the result.*

Day 4
On Saturday $\frac{3}{4}$ of a 5th grade class went to see a new movie. If $\frac{1}{2}$ of the class went to the afternoon session, what fraction of the class went to the evening session?

Day 5
MATH ART CHALLENGE:
MATERIALS NEEDED: writing utensil, writing surface (paper, whiteboard, whatever!)

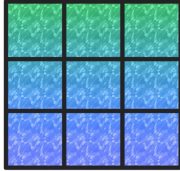
THE CHALLENGE: Draw as many connected triangles as you can. The goal is to have as many vertices with 7 triangles as possible. How far can you go??

Week 2

Day 1
Count cricket chirps for 15 sec. Add 39. This is supposed to give you the temperature outside in degrees Fahrenheit. Try it on 3 different days. Does it work?

Day 2




How many total squares are there?

Day 3
The sum of two mixed numbers with unlike denominators is $5\frac{3}{5}$. What might the two mixed numbers be? Show as many different solutions as you can.

Day 4
A California Condor has a 114 inch wingspan. How many feet is that?

Day 5
FIGURE THIS:
What are three whole numbers whose sum and product are equal?

$$A \times B \times C = D$$

$$A + B + C = D$$


Week 3

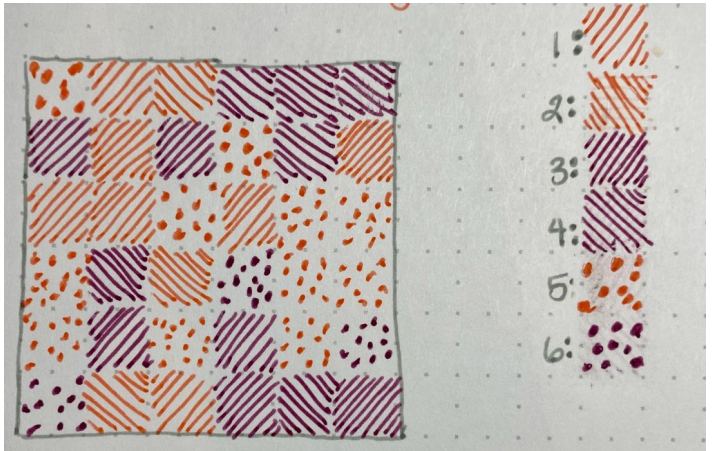
Day 1
 You have $2\frac{5}{8}$ pizzas to share equally with 3 people. How much pizza will each person get?

Day 2
 Monday through Friday a baker uses $1\frac{1}{4}$ sacks of flour when baking cakes. Will the baker use more than or less than 5 sacks of flour from Monday through Friday?

Day 3
 Place parentheses in the following equation to make it true: $6 + 6 \div 6 \times 6 - 6 = 0$

Day 4
 Deal 3 cards to make a 3-digit number. Even numbers are whole numbers. Odd numbers are decimals. Repeat this. Add the 2 #s. Turnover 3 new cards per turn. Continue to add the number to last score. Game to 300.

Day 5
MATH ART CHALLENGE:
 MATERIALS NEEDED: writing utensil, writing surface (paper, whiteboard, whatever!)
 THE CHALLENGE: Use something like a die or a coin to get random outputs. The probabilities don't need to be equally spread! Assign a design to each output, and then get to designing.
 Roll a die, design a grid! Assign a design to each of the 6 outputs of a regular die, and then roll the die to figure out how you should color in a 6x6 grid.



Week 4

Day 1
 Multiply two fractions together to get the number 1. What do you notice?

Day 2
 Write a story for the problem:
 $2 \div \frac{1}{3}$

Day 3
 .75 is the answer. What could the question possibly be? Challenge yourself to think of more questions.

Day 4

Day 5
FIGURE THIS: How long would you have to wait in a line if you held the number 300 in the grocery? At the movies?

Week 5

Day 1

Use four 4's to create problems that will equal 1 - 12. Remember to use the correct order of operations to solve your problems: Parentheses, Exponents, Multiply or Divide, Add or Subtract.

Day 2

The total cost of a pair of shoes and a hoodie is \$150. The hoodie costs \$100 more than the pair of shoes does. How much does each item cost?

Day 3

If you buy 3 books at \$3.95 each, how much change would you get from \$20.00?

Day 4

I am an even, 3 digit palindrome, a number that reads the same backward as forward. (ex: 464) The product of the digits is 8. What number am I?

Day 5

MATH ART CHALLENGE:

MATERIALS NEEDED: Go crazy. Anything can work here.

THE CHALLENGE: Create an array with materials around your house. What do you notice? What do you wonder?



Week 6

Day 1

Is a 3 gallon pitcher large enough to hold 25 pints of juice? Explain.

Day 2

How many blades of grass are in a square yard of your backyard? Use logic, measurement, and problem solving strategies to find the answer.

Day 3

Tom built a backyard pen for his new puppy. The length of the pen was $6\frac{1}{4}$ meters and the width was 4 meters. What is the area of the pen?

Day 4

Can you use $\frac{1}{8} \times \frac{2}{5}$ to solve the problem? There is $\frac{2}{5}$ of a pizza left. If Jamie eats another $\frac{1}{8}$ of the original whole pizza, what fraction of the original pizza will be left over? Explain.

Day 5

FIGURE THIS: I am a number less than 50. When divided by 5, my remainder is 4. Who am I? Is there more than 1 correct answer?

Week 7

Day 1
Write a word problem for the expression: $\frac{1}{2} \times \frac{3}{4}$ Solve it!

Day 2
There are 3 pizzas. Each child will get $\frac{1}{4}$ of a pizza. How many children will get pizza?

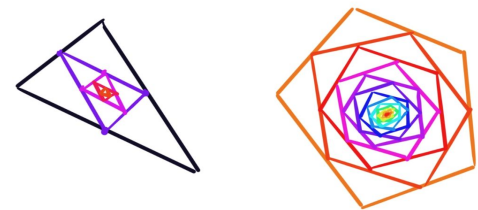
Day 3
Find the sum and difference between two decimals. Compare the two decimals using $>$, $=$, and $<$ symbols.

Day 4
Jen is 12. Amy is 13. In 25 years, what will be the product of their ages?

Day 5
MATH ART CHALLENGE:

MATERIALS NEEDED: writing utensil, writing surface (paper, whiteboard, whatever!)

- 1) Draw a polygon.
- 2) Mark the midpoint of each side.
- 3) Connect the midpoints of each side to make a new polygon.
- 4) Repeat.



Week 8

Day 1
If you spend \$100.00 a day, how many days will it take to spend a million dollars? How many years is that? What would you buy?

Day 2
Complete the magic square so that all columns, rows and diagonals have the same sum of 1.

	$\frac{5}{15}$	
	$\frac{9}{15}$	$\frac{2}{15}$

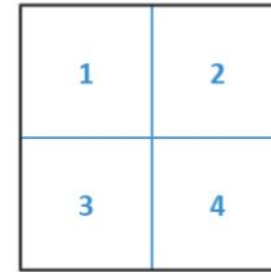
Day 3
Evaluate the following numerical expression. $2 \times (5 + 3 \times 2 + 4)$ Can the parentheses in this expression be removed without changing the value of the expression?

Day 4
What numbers are being covered? What patterns do you see?

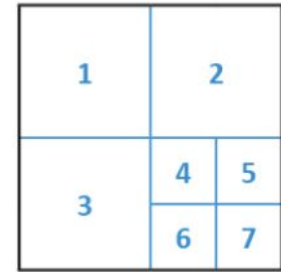
Day 5

FIGURE THIS:

For my party, I want a square cake with square slices.
How many people can attend my party?



Party for 4

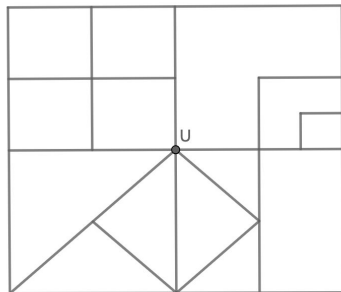


Party for 7

Week 9

Day 1

What creative ways can you shade in $\frac{1}{8}$?

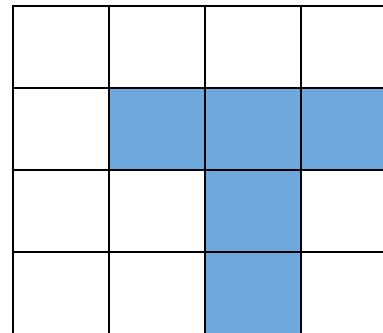


Day 2

A box 2 centimeters high, 3 centimeters wide, and 5 centimeters long can hold 40 grams of clay. A second box has twice the height, three times the width, and the same length as the first box. How many grams of clay can it hold?

Day 3

How many places will the T fit on the grid?



Day 4

Leo and Mia are comparing the product of 60×225 to the product of 30×225 . Mia says she can compare these products without multiplying the numbers. Explain how she might do this.

Day 5

FIGURE THIS:

If you expect 600 people to buy tickets for a rock concert at your school, and the box office opens one half hour before the show, how many tickets sellers do you need?

YOU DID IT! Please bring your journal to your sixth grade teacher on the first day of school.

Websites to Explore:

Here are websites that you can explore on your own. You also can find some great books to read online using digital resources available through the public library. Record your choices on the sheets provided below.

YouCubed - This website provides a variety of fun problem solving tasks

The Math Forum - The Math Forum includes a wonderful Student Center which allows students to choose resources and grade level material they find challenging or interesting. A help area called Ask Dr. Math, an Internet Math Hunt, and Math Tips & Tricks, which includes “BeatCalc”, are just a few of the wonderful resources.

Cool Math For Kids - This website provides a variety of games that explore probability and “race the clock” which allows you to practice basic computation skills. There are also several IQ games and brain thinkers that foster your ability to think logically.

The Quiz - This website provides math activities listed by concept and skills for all grade levels.

Math Playground - An action-packed site for middle school students to practice math skills, play a logic game and have some fun.

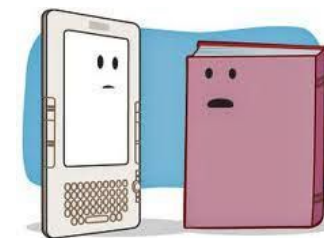
Math Illuminations, National Council of Mathematics - Choose a grade range to access activities and games.

Figure this - This site is designed to challenge middle school students with real world challenges.

Kids.Gov - This website is the official kids’ portal for the U.S. government. It is divided into educational subjects like Arts, Math, and History.

Great Math Books to Read:

- [A Gebra Named Al](#) by Windy Isdell
- [Math Curse](#) by Jon Scieszka
- [Chasing Vermeer](#) by Blue Balliett
- [Sir Cumference & the Dragon of Pi](#) by Cindy Neuschwander
- [Sir Cumference & the First Roundtable](#) by Cindy Neuschwander
- [Sir Cumference & the Great Knight of Angleland](#) by Cindy Neuschwander
- [Sir Cumference & the Sword in the Cone](#) by Cindy Neuschwander
- [Number Devil: A Mathematical Adventure](#) by Hans Magnus Enzensberger
- [Counting on Frank](#) by Rod Clement
- [Guinness Book of Records](#) by Time Inc
- [Mathematicians are People Too](#) by Luetta Reimer & Wilbert Reimer



These resources are intended for you to choose the websites and books that are most interesting to you. Keep in mind that it will be beneficial for you to:

- Solve problems involving addition, subtraction, multiplication, and division of fractions.
- Solve problems involving addition, subtraction, multiplication, and division of decimals.
- Convert fractions, decimals, and percents to find equivalent fractions.
- Solve a variety of problems to strengthen your mathematical skills and knowledge.

APPS to Practice Math!

Here are some free or inexpensive apps on which you can practice your math.

APPS

- Nine Gaps
- Khan Academy
- Math Zombie
- Math Bingo
- Math Hunt
- Symmetry Shuffle
- Kakooma
- Deep sea duel
- Pick a path
- Lobster diver
- Math matrix
- Middle School Math HD

APPS for all Grades

- Fast Math
- Fast Math Challenge HD
- Fraction App by Tap to Learn
- Kakooma
- Math Matrix HD
- Quick Math Game
- PopMath
- iEstimation
- Pick-a-Path
- Sumdog
- Conundra Math

