Summer Math Calendar
Entering Fifth Grade
Public Schools of Brookline

Get ready to discover math all around you this summer! Just as students benefit from reading throughout the summer, it would also benefit them to engage in math activities. Research shows that students better maintain and strengthen their math skills through regular and meaningful practices. The Math Specialists of Brookline have created this summer math calendar to provide your child and your family with a variety of math activities to explore this summer.

Inside, you will find creative mathematics activities to try at home. The goal is for your child to have fun thinking and working collaboratively to communicate mathematical ideas. The activities reflect a range of difficulty with the intent that your child can choose the activities that are at a "just right" level. While working on these activities, ask your child **how** he found a solution or **why** she chose a particular strategy.

This packet consists of 2 calendar pages (July and August) and an alternate summer math calendar that allows you to fill in your own activities. Each month's activities are organized into 28 "math boxes." You can choose which activities you and your child would like to complete on whichever day you want. We encourage your child to complete 20 boxes per month, coloring in each box as it is done. We recommend that you integrate an average of 15-20 minutes of math activities into your child's day, by completing these activities and reviewing basic facts. Return the signed calendars to your child's new teacher in September.

We hope that you enjoy the activities, extend them, create new ones, and **have fun!**

Public Schools of Brookline
K-8 Mathematics Department
Revised Spring 2016

Suggested Resources

Ways to Practice Math Facts (using dice, index cards, deck of cards):
- ✓ Choose multiplication or division math activities on websites (see list of websites)
- ✓ Multiplication or division flashcards—identify a few facts to work on each time
- ✓ Multiplication or division triangle flashcards
- ✓ Flip 2 cards and multiply
- ✓ Practice skip counting by 3s, 4s, 6s, 7s, 8s, or 9s

Games:
Factors Game*   Fraction Dice*
Directions included
Additional Games:
Othello, Blink, 1-2-3 OY!

Books:

One Grain of Rice	Demi
Anno's Mysterious Multiplying Jar	Anno Mitsumasa
How Much is a Million?	David Schwartz
Lemonade for Sale	Stuart Muprhy
G is for Googol	David Schwartz
If the World Were a Village	David J. Smith

Websites:
http://illuminations.nctm.org (Concentration, Pan Balance-Shapes)
http://www.oswego.org/ocsd-web/games/mathmagician/mathsadd.html
http://www.oswego.org/ocsd-web/games/mathmagician/mathssub.html
https://www.xtramath.org/ (personalized program for fact practice)
http://www.aplusmath.com/Games/PlanetBlasterBasics/index.html (Planet Blaster)
http://www.factmonster.com/math/flashcards.html (Flashcards)
http://nlvm.usu.edu
http://www.ixl.com/math/grades
www.lemonadestandgame.com
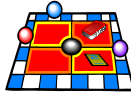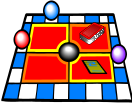
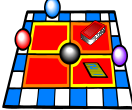| Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Play Pan Balance-Shapes (Fixed Values): illuminations.nctm.org	Fill in the blanks to make the story true: Mr. Smith has ____ sacks. In each sack, he has ____ boxes. In each box, he has ____ apples. He has 24 apples in all.	Practice your math facts.	Record the projected high temperatures for the next 5 days. What is the mean, median, mode and range of your data?	Read a math book.	Play the Factors game. (see directions)	How much must be added to the following #s to equal a sum of 100: 48 36 13 74 58 25 15 64 81
It costs $2.65 to ride the T. If you ride 2 times a day for the month of July, how much would you spend?	Play Fraction Dice. (see directions)	I am > 3,449 and I am < 3,502. I have a 1 in my ones place and a zero in my tens place. What number am I? Create your own number riddle.	Practice your math facts.	Begin with 35 and count by 7s to 77. Begin with 36 and count by 6s to 66.	Play a game.	Imagine you are sharing one giant cookie among yourself and 5 friends. If you share it fairly, what fraction will each of you receive?
Write 4 number equations for each set of numbers: 8, 56, 7 6, 9, 54 4, 32, 8	Play the Factors game. (see directions)	$15 \div 3$ $18 \div 3$ $21 \div 3$ $24 \div 3$ $27 \div 3$ $30 \div 3$ $33 \div 3$ $36 \div 3$	Make lists of fractions: ten that are less than ½, ten equal to ½, and ten greater than ½.	Practice your math facts.	Sophia runs twice as fast as her friend Mia. If Mia runs 3 mph, how long will it take Sophia to run 6 miles? 9 miles?	Read a math book.
Jose swam 3 laps each day and Micah swam four times as many laps as Jose each day. How many laps did Micah swim in 7 days?	Play a game.	Start with 3,542. Add 100 more. Subtract 50. Add 8. What's your number? Is this a square number? Make your own number problem.	Play Fraction Dice. (see directions)	Play the Lemonade Stand game: www.lemonadestandgame.com	Practice your math facts.	Put the following numbers in order from least to greatest: 1, $1\frac{3}{4}$, $1\frac{1}{2}$, $\frac{3}{4}$, $2\frac{1}{4}$, $\frac{1}{2}$, $1\frac{1}{4}$, $\frac{1}{4}$, $2\frac{1}{2}$
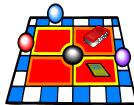
Did you know?
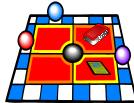The frequency of a cricket chirps fluctuates with the temperature. If you count a cricket's chirps for 15 seconds and add 37, you will have the approximate outdoor temperature in Fahrenheit.

Child's Name:_____

Parent's Signature: _____

2+3=	4×2=
6-3=	4÷2=

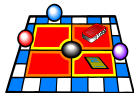| Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
What number am I? The digits in my number are 3, 8, 4, 1. I am odd. I have a 4 in my hundreds place. I am less than 2,000.	Practice your math facts.	$54 \div 6$ $48 \div 6$ $42 \div 6$ $36 \div 6$ $30 \div 6$ $24 \div 6$ $18 \div 6$ $12 \div 6$	In the 2012 Olympics, Usain Bolt ran the 100 meter dash in 9.63 seconds. The 1896 Olympic winner ran it in 12.0 seconds. How much faster was Usain Bolt's time?	What number is 10 more than 4,492? What number is 300 more than 4,830? What number is 500 more than 4,654?	Play the Factors game. (see directions)	What's the rule for my input/output machine? Input | Output 2 | 5 4 | 9 10 | 21
George and his friends drank 3 quarts of water at the playground. How many more cups do they need to drink to make a gallon? How many ounces is that?	Play Fraction Dice. (see directions)	Practice your math facts.	Put these numbers in order from least to greatest: $\frac{1}{3}$, 0.5, 0.97, ¾, 0.01, 0.1, $\frac{2}{5}$	Read a math book.	Build the Number: Put a 0 in the ones place. Put a 3 in the tens place. Put a 5 in the tenths place. Put a 2 in the hundreds place. Put a 1 in the hundredths place.	A marathon is 26.2 miles long. Johann stopped for a drink of water at the 17.3 mile mark. How many more miles must he run to finish the race?
Play the Lemonade Stand game: www.lemonadestandgame.com	Write the following as decimals: $6\frac{3}{10}$, $17\frac{78}{100}$, $62\frac{1}{2}$, $43\frac{8}{100}$, $1\frac{3}{4}$, $50\frac{3}{20}$	Play a game.	The Olympic torch relay will last for 95 days and visit 300 cities and towns in Brazil. On average, how many cities or towns will it pass through in a day?	Practice your math facts.	Kate's garden is in the shape of a square with a perimeter of 32 feet. What is the area of her garden?	Play the Factors game. (see directions)
Determine the pattern. What comes next in each pattern? 1, 1, 2, 4, 7, _____ 4, 9, 16, 25, _____ Create your own patterns	Play Fraction Dice. (see directions)	Team scores on the balance beam are added together and averaged. Kay's score is 8.3. Jill scored 7.9. Jenny scored 6.7. Tania's score is 8.2. What is the team score?	Write a multiplication word problem whose answer is 354. Have someone solve it.	A farm has cows and ducks. There are 78 feet and 27 heads. How many of each animal are there? How do you know?	Practice your math facts.	Would you rather be given a one foot stack of nickels or a one foot line of quarters laid end to end? Estimate the total value of each.

Child's Name:_____

Parent's Signature: _____

2+3=   4×2=
6-3=   4÷2=
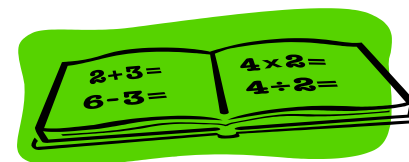
Factors

Object: Players take turns giving and receiving numbers to factor. They score points equivalent to the numbers given and the factors identified.

Number of Players: two (or whole class in two teams)

Materials: paper and pencil

Preparation: Have the players make a playing board, as shown below, or provide them with a copy of the playing board on page 21. The playing board has a scoring column for each player on opposite sides of the paper, and the numbers from 1 to 30 in an array in the center.

✎ Playing

1. Players alternate roles as picker and factorer.

2. On a turn as picker, a player crosses out any legal number on the playing board. (A legal number is any number that is not crossed out and which has *at least one* factor that also has not been crossed out.) The picker writes that number in his scoring column.

3. The factorer then crosses out any of the factors of the number the picker crossed out. The factorer writes all of these numbers in his scoring column. For example, if the picker crosses out 30 as the first play of the game, the factorer can cross out 1, 2, 3, 5, 6, 10 and 15. The factorer may choose to not cross out a factor of the number.

4. Neither player can reuse a number that has been crossed out.

5. Players switch roles after each round.

6. The game ends when there are no more legal numbers to cross out. Players then add the numbers in their columns to find their total score.

✎ Winning

The player with the highest total score wins.

✎ Playing Variations

➤ Have players keep cumulative sums of the numbers they acquire, rather than waiting until the end of the game to find the sum of the numbers.

➤ Use other numbers on the playing board; for example, 1 to 20, 1 to 35, 1 to 40.

➤ Allow the picker to cross out illegal numbers (numbers that have no remaining factors on the playing board). Add the rule that if the picker crosses out an illegal number, then the factorer (who now has no numbers to cross out) gets two consecutive turns as picker.

Emilio	Factors					Sonya
30	~~1~~	~~2~~	~~3~~	4	~~5~~	1
	~~6~~	7	8	9	~~10~~	2
	11	12	13	14	~~15~~	3
	16	17	18	19	20	5
	21	22	23	24	25	6
	26	27	28	29	~~30~~	10
						15

Factors

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23	24	25
26	27	28	29	30

Factors

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23	24	25
26	27	28	29	30

Fraction Dice

Object: Players roll dice to determine the numerator and denominator of a fraction. Players compare the fractions. The player with the larger fraction gets a point for that round. The player who gets 10 points first is the winner.

Number of Players: 2 – 4

Materials: Dice (or cards marked 1 – 6), paper and pencil for recording the fractions and recording the scores.

Playing:
1. During a turn, each player rolls two dice (or one die two times) to create a fraction. The smaller number rolled must be the numerator, and the larger number is the denominator. Each player writes the fraction on a paper in front of them.
2. The players then compare their fractions to see whose is largest. The player with the largest fraction says, "Mine". If more than one fraction are equal to each other, more than one player can say, "Mine". The player(s) with the largest fraction gets a point for that round.
3. The other players check to make sure it is (they are) the biggest. If another player believes the fraction(s) is (are) not the largest, that player can challenge. With a challenge, if the one who said, "Mine" was incorrect, the challenging player gets the point for that turn and another point for correctly explaining why it was not the largest. If the one who said, "Mine" was correct, that player can get an extra point for explaining why is was the largest.
4. Play continues until one of the players has 10 points.

Modifications:
*Players can choose to have either number as the numerator or denominator (allowing for improper fractions).

*When playing with cards, make sure to have 4 of each number (1 – 6) and shuffle all the cards back in after each round. Players then pick two cards to use to make their fraction.

Alternate Summer Math Calendar
Entering Grade _____

If you would prefer to substitute your own math activities for those suggested in the enclosed calendars, please document your created activities below. Remember: the goal is to complete 20 activities each month, so you may need to print this sheet twice!

Activity #	Date Completed	Description of Math Activity
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		

Student's Name:_____ Parent Signature:_____

Looking for apps for math practice?

Here are a few **<u>free</u>** math apps to check out!

(List begins with the earliest concepts)

Line 'Em Up – *order/compare numbers on a number line*

MathTappers: Find Sums

MathTappers: Number Line

Number Concentration (National Council of Teachers of Mathematics)

Learning Center: Geoboard

Deep Sea Duel (National Council of Teachers of Mathematics) – *thinking about operations*

Door24 – Math – *thinking about operations*

LobsterDiver HD - *fractions on a number line*

MathTappers: Multiples

Pick-a-Path (National Council of Teachers of Mathematics) – *thinking about operations*

SolveMe Mobiles (EDC) – *algebraic thinking*

MathTappers: Estimate Fractions