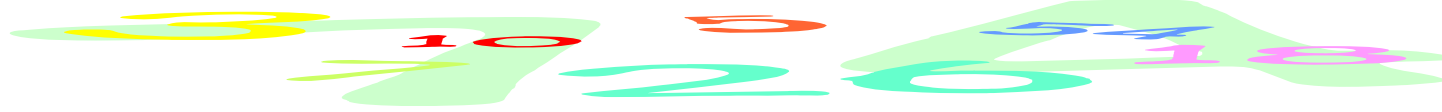


# Summer Math Calendar Entering Fourth Grade Public Schools of Brookline



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 2018*

## Suggested Resources



### Ways to Practice Math Facts (using dice, index cards, deck of cards):

- ✓ Choose addition, subtraction or multiplication math activities on websites (see list)
- ✓ Addition, subtraction, multiplication flashcards—identify a few facts to work on each time
- ✓ Addition, subtraction or multiplication triangle flashcards
- ✓ Roll 2 dice and add, subtract or multiply
- ✓ Flip 2 cards and add, subtract or multiply
- ✓ Practice skip counting by 3s, 4s, 6s, 7s, 8s, or 9s



### Games:

- |                |                        |                             |
|----------------|------------------------|-----------------------------|
| Pairs of 100*  | Product Game*          |                             |
| Close to 1000* | What’s the Difference? | <i>*Directions included</i> |

### Additional Games:

Othello, Blink, 1-2-3 OY!, Monopoly



### Books:

- |   |                    |
|---|--------------------|
| <i>Amanda Bean’s Amazing Dream</i>                  | Cindy Neuschwander |
| <i>Fraction Fun</i>                                 | David Adler        |
| <i>The Best of Times</i>                            | Greg Tang          |
| <i>A Remainder of One</i>                           | Elinor Pinczes     |
| <i>40 Fabulous Math Mysteries Kids Can’t Resist</i> | Marcia Miller      |
| <i>The Grapes of Math</i>                           | Greg Tang          |




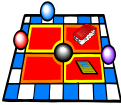

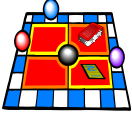




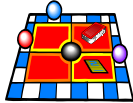

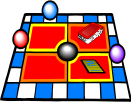


### Websites:

- <http://illuminations.nctm.org> (Concentration, Bobbie Bear)
- <http://figurethis.nctm.org>
- <https://www.youcubed.org/online-student-course/>
- <http://nlvm.usu.edu>
- <http://www.ixl.com/math/grades>
- <http://bedtimemath.org/category/daily-math/>
- <https://talkingmathwithkids.com/>
- <https://www.gamesforyoungminds.com/blog?category=Free%20Games>

# July

## Entering Fourth Grade Math Calendar

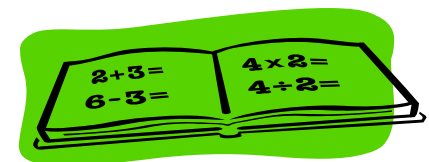
4th

| Sunday   | Monday   | Tuesday   | Wednesday  | Thursday   | Friday   | Saturday   |   |     |   |     |   |     |  |  |
|--|--|---|--|--|--|--|---|-----|---|-----|---|-----|--|--|
| <p>Practice your math facts.</p>  | <p>How many quarters can you have if you have \$3.25? How many nickels?</p>  | <p>Record the temperature for 5 days. What is the difference between the warmest and coolest days?</p>                                | <p>Play the Product Game. (see directions)</p>   | <p>Use the chart to determine the cost of 1, 8, 11, and 20 pencils</p> <table border="1"> <thead> <tr> <th># of pencils</th> <th>cost</th> </tr> </thead> <tbody> <tr> <td>3</td> <td>18¢</td> </tr> <tr> <td>5</td> <td>30¢</td> </tr> <tr> <td>9</td> <td>54¢</td> </tr> </tbody> </table> | # of pencils   | cost   | 3 | 18¢ | 5 | 30¢ | 9 | 54¢ | <p>Read a math book.</p>  | <p>Play Pairs of 100. (see directions)</p> |
| # of pencils   | cost   |   |  |  |  |  |   |     |   |     |   |     |  |  |
| 3  | 18¢  |   |  |  |  |  |   |     |   |     |   |     |  |  |
| 5  | 30¢  |   |  |  |  |  |   |     |   |     |   |     |  |  |
| 9  | 54¢  |   |  |  |  |  |   |     |   |     |   |     |  |  |
| <p>List all the factors of 36. List all the factors of 48.</p>   | <p>Play a math game.</p>                                      | <p>25 x 2    25 x 6<br/>25 x 3    25 x 7<br/>25 x 4    25 x 8<br/>25 x 5    25 x 9<br/>25 x 10</p>                                    | <p>Find a shoebox. Measure the perimeter of the top of the box. If a stamp is 1 x 1 inches, how many are needed to make a border around the top?</p>   | <p>Practice your math facts.</p>    | <p>Play Bobbie Bear. <a href="http://illuminations.nctm.org">http://illuminations.nctm.org</a></p>  | <p>List the ways you can divide 24 buttons into equal groups. What is <math>\frac{1}{3}</math> of 24?</p>  |   |     |   |     |   |     |  |  |
| <p>Read a math book.</p>          | <p>If Mia painted 400 finger nails, how many people did she see?<br/><br/>If the vet examined 26 dogs, how many paws did she see?</p>          | <p>Practice your math facts.</p>                    | <p>Draw a number line from 0 to 5. Label the following fractions: <math>\frac{1}{4}</math>, <math>\frac{1}{2}</math>, <math>\frac{3}{4}</math>, <math>1\frac{1}{2}</math>, <math>4\frac{3}{4}</math></p> | <p>Play Close to 1000. (see directions)</p>    | <p>134 + 10    144 + 100<br/>244 + 20    264 + 200<br/>384 - 30    464 - 10</p> <p>What's your strategy?</p>   | <p>Play the Product Game. (see directions)</p>   |   |     |   |     |   |     |  |  |
| <p>Play a math game.</p>        | <p>325 + ___ = 375<br/>500 = 475 + ___<br/>___ + 550 = 600<br/>275 + ___ = 350<br/>300 - ___ = 225<br/>220 + ___ = 350<br/>440 = 125 + ___</p> | <p>What number am I? I am less than 25 x 10 and greater than 22 x 10. I am a multiple of 5. I am odd. The sum of my digits is 10.</p> | <p>Play What's the Difference: (see directions)</p>    | <p>Pick a two-digit number, multiply it by 10 and subtract the original number. Is this number divisible by 9? Why? Try it 4 more times.</p>   | <p>Practice your math facts.</p>    | <p>How many eggs are in <math>\frac{1}{2}</math> a dozen? <math>\frac{1}{3}</math> of a dozen? <math>\frac{1}{4}</math> of a dozen? <math>\frac{1}{6}</math> of a dozen? <math>\frac{1}{12}</math> of a dozen?</p> |   |     |   |     |   |     |  |  |

**Did you know?**  
The largest umbrella ever created was able to shade 200 people from the hot sun. How many people could 7 of these umbrellas shade?

Child's Name: \_\_\_\_\_


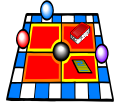






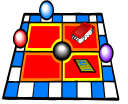


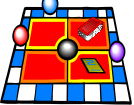
Parent's Signature: \_\_\_\_\_



# August

## Entering Fourth Grade Math Calendar

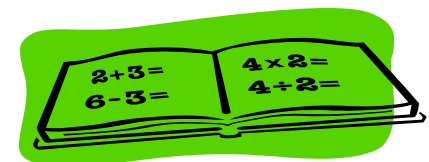
4th

| Sunday   | Monday   | Tuesday  | Wednesday   | Thursday  | Friday   | Saturday   |    |   |     |   |     |   |   |   |
|--|--|--|---|---|--|--|----|---|-----|---|-----|---|---|---|
| Grab 10 coins and record the total value. Grab 10 new coins and record this value. What is the difference?       | Practice your math facts.<br>                                       | Write down 10 fractions that are equivalent to $\frac{1}{2}$ . Write down 10 fractions that are equivalent to $\frac{1}{4}$ .          | Play the Product Game. (see directions)<br>   | 30 people are eating lunch together and want to share sandwiches. If each person eats $\frac{1}{6}$ of a sandwich, how many sandwiches should be ordered? | Read a math book.<br>                   | Play Bobbie Bear: <a href="http://illuminations.nctm.org">http://illuminations.nctm.org</a><br>Choose: Customize<br>How many outfits can you make with 4 shirts and 3 pants?   |    |   |     |   |     |   |   |   |
| Find 4 ways to divide 100 into equal groups.   | Play a math game.<br>   | I am thinking of an even number. It is greater than $7 \times 6$ and less than $6 \times 10$ . It has a factor of 7. What number am I? | Practice your math facts.<br>   | How many hours did you sleep last night?<br><br>Bedtime: _____<br>Woke Up: _____<br>Hours: _____ Min.: _____  | Play Pairs of 100. (see directions)<br> | $60 \div 5 = \underline{\quad}$ $55 \div 5 = \underline{\quad}$<br>$50 \div 5 = \underline{\quad}$ $45 \div 5 = \underline{\quad}$<br>$35 \div 5 = \underline{\quad}$ $30 \div 5 = \underline{\quad}$<br>$25 \div 5 = \underline{\quad}$ $20 \div 5 = \underline{\quad}$ |    |   |     |   |     |   |   |   |
| Draw rectangles that have a perimeter of 20 units. Find the area of each rectangle you drew.                     | Tyrell has a grid made up of 16 equal squares. How many squares should he color if he wants to color $\frac{1}{2}$ ? $\frac{1}{4}$ ? $\frac{1}{8}$ ? | Play a math game.<br>                                | Finish the table. What's the rule?<br><table border="1" data-bbox="926 932 1108 1024"> <thead> <tr> <th>Input</th> <th>Output</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>50</td> </tr> <tr> <td>4</td> <td>100</td> </tr> <tr> <td>6</td> <td>200</td> </tr> </tbody> </table> | Input   | Output   | 2  | 50 | 4 | 100 | 6 | 200 | Practice your math facts.<br> | Draw horizontal and vertical lines that intersect 12 times. How many maps can you make? | Play the Product Game. (see directions)<br> |
| Input  | Output   |  |   |   |  |  |    |   |     |   |     |   |   |   |
| 2  | 50   |  |   |   |  |  |    |   |     |   |     |   |   |   |
| 4  | 100  |  |   |   |  |  |    |   |     |   |     |   |   |   |
| 6  | 200  |  |   |   |  |  |    |   |     |   |     |   |   |   |
| Practice your math facts.<br> | How many minutes are in 1 hour? $\frac{1}{2}$ of an hour? $\frac{1}{3}$ of an hour?<br>$\frac{1}{4}$ of an hour? $\frac{1}{6}$ of an hour?           | Play What's the Difference. (see directions)<br>    | Find an object that is a rectangular prism. How many faces, vertices, and edges does it have?   | How many seconds are in 5 minutes?<br>How many minutes are in 4 hours?<br>How many seconds are in $2\frac{1}{2}$ minutes?                                 | Play a math game.<br>                 | In Mr. Rao's garden, $\frac{4}{12}$ of the flowers are purple. How many sixths are purple? How many thirds?  |    |   |     |   |     |   |   |   |

**Did you know?**  
The first public indoor pool ever opened was the Evelyn Kirrane Aquatic Center, in Brookline in 1897. How many years ago did the pool open?

Child's Name: \_\_\_\_\_

Parent's Signature: \_\_\_\_\_



# 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!

| <u>Activity #</u> | <u>Date Completed</u> | <u>Description of Math Activity</u> |
|-------------------|-----------------------|-------------------------------------|
| 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: \_\_\_\_\_



# Close to 1,000

## You need

- Digit Cards  
(1 deck per pair)
- *Close to 1,000*  
Recording Sheet



## Play with a partner.

- 1 Deal out eight Digit Cards to each player.
- 2 Use any six cards to make two numbers. For example, a 6, a 5, and a 2 could make 652, 625, 526, 562, 256, or 265. Wild cards can be used as any digit. Try to make two numbers that, when added together, give you a total that is close to 1,000.
- 3 Write these numbers and their total on the *Close to 1,000* Recording Sheet. For example,  $652 + 347 = 999$ .
- 4 Find your score. Your score is the difference between your total and 1,000.
- 5 Put the cards you used in a discard pile. Keep the two cards you did not use for the next round.
- 6 For the next round, deal six cards to each player. Make more numbers that have a sum close to 1,000.
- 7 When you run out of cards, mix up the discard pile and use them again.
- 8 After five rounds, add your scores to find your final score. The player with the lower final score wins.

## Variation

Write the score with plus and minus signs to show whether your total is less than or greater than 1,000. For example, if your total is 999, your score is  $-1$ . If your total is 1,005, your score is  $+5$ . The total of these two scores is  $+4$ . Your goal is to get a final score for five rounds that is as close to 0 as possible.



Name \_\_\_\_\_

Date \_\_\_\_\_



**Landmarks and Large Numbers**

# Close to 1,000 Recording Sheet

| Game 1                         | Score |
|--------------------------------|-------|
| Round 1: _____ + _____ = _____ | _____ |
| Round 2: _____ + _____ = _____ | _____ |
| Round 3: _____ + _____ = _____ | _____ |
| Round 4: _____ + _____ = _____ | _____ |
| Round 5: _____ + _____ = _____ | _____ |
| <b>Final Score</b> _____       |       |

| Game 2                         | Score |
|--------------------------------|-------|
| Round 1: _____ + _____ = _____ | _____ |
| Round 2: _____ + _____ = _____ | _____ |
| Round 3: _____ + _____ = _____ | _____ |
| Round 4: _____ + _____ = _____ | _____ |
| Round 5: _____ + _____ = _____ | _____ |
| <b>Final Score</b> _____       |       |

# What's the Difference?

**Object:** Players roll dice to determine two three-digit numbers then find the difference between them. The difference is their score. Players add on to their scores with each round. The player who has 2000 points first is the winner.

**Number of Players:** 2 – 4

**Materials:** Dice, number line work sheets, paper and pencil for recording the scores.

## **Playing:**

1. Players take turns. During a turn, a player rolls three dice (or one die three times) to construct a three-digit number. The player then does this again to make a second three-digit number.
2. The player then finds the difference between the numbers. Players may use a number line, compute on paper, or solve it in their heads.
3. The player reports the difference and records the score for that turn. If another player believes the difference found is not correct, that player can challenge. If the difference was incorrect, the challenging player gets the points for that turn (the correct difference between the two rolled numbers).
4. Players continue play clockwise around the circle. The player to collect 2000 points first is the winner.

## **Modifications:**

\*Players can construct two two-digit numbers and find the difference. In this version, the player who gets 200 points first is the winner.

\*Players can solve only using a number line or by solving mentally. Traditional algorithms are not allowed.

# Open Number Line Recording Sheet

Addition/Subtraction  
8.M.1.1

Station: What's the Difference

Name & Date: \_\_\_\_\_





## The Product Game

Materials: 2 paperclips, and 2 different colored game pieces (for example: coins, beans, or colored cubes. You will need several of each.)

Object of the Game: To be the first to get 4 in a row, horizontally, vertically or diagonally.

How to Play: The first player places the paperclips on any 2 of the 9 numbers below, multiplies the numbers (*factors*), and places a game piece on the answer (*product*) in the grid. ***Factor x Factor = Product***

The second player moves one of the paperclips to a new factor, finds the product, and marks their product with a different color game piece. Play continues until one player has marked four products in a row, column, or diagonal.

Note: It's OK to place 2 paperclips on the same factor: ( $5 \times 5 = 25$ )

(Want to play against the computer? Try <http://illuminations.nctm.org/ActivitySearch.aspx> and search "product")

|    |    |    |    |    |    |
|----|----|----|----|----|----|
| 1  | 2  | 3  | 4  | 5  | 6  |
| 7  | 8  | 9  | 10 | 12 | 14 |
| 15 | 16 | 18 | 20 | 21 | 24 |
| 25 | 27 | 28 | 30 | 32 | 35 |
| 36 | 40 | 42 | 45 | 48 | 49 |
| 54 | 56 | 63 | 64 | 72 | 81 |

1    2    3    4    5    6    7    8    9

# Pairs of 100

**Materials:** Pairs of 100 Recording Sheet  
Numeral Cards from 0 - 9

**Players:** 2

**Object:** To find pairs of numbers with a sum of 100.

*Note: To play the game more than once, make multiple copies of the recording sheet before using it. Alternately, put the recording sheet in a clear sheet protector, use a dry erase marker and the sheet can be reused.*

## How to Play:

1. Mix the cards and place them face down.
2. One player picks a card to be the tens digit of a number. The other picks a card to be the ones digit. Record the number on the recording sheet under **Number We Picked**. Return the cards to the pile.
3. One player colors in the squares on the 10 x 10 grid to represent the number picked, using rows of 10 and ones as needed.
4. The other player determines how many squares are not colored in, and records the number in the row **Number Needed to Make 100**.
5. Players switch roles for each round. Players can challenge themselves to find the second number without using the 100 grid.

# ***Pairs of 100***

|  |  |  |  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|--|--|
|  |  |  |  |  |  |  |  |  |  |
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|  |  |  |  |  |  |  |  |  |  |

|                                  |  |  |  |  |  |
|----------------------------------|--|--|--|--|--|
| <b>Number We Picked</b>          |  |  |  |  |  |
| <b>Number Needed to Make 100</b> |  |  |  |  |  |

|                                  |  |  |  |  |  |
|----------------------------------|--|--|--|--|--|
| <b>Number We Picked</b>          |  |  |  |  |  |
| <b>Number Needed to Make 100</b> |  |  |  |  |  |

# Looking for apps for math practice?

Here are a few free math apps to check out!

(List begins with the earliest concepts)

**Okta's Rescue** (National Council of Teachers of Mathematics)

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

**MathTappers: Find Sums** (iTunes)

**MathTappers: Number Line** (iTunes)

**Learning Center: Geoboard** (iTunes)

**Deep Sea Duel** (National Council of Teachers of Mathematics)

**Door 24 – Math** (iTunes) – *thinking about operations*

**Lobster Diver HD** (iTunes) – *fractions on a number line*

**MathTappers: Multiples** (iTunes)

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

**MathTappers: Estimate Fractions** (iTunes)

**Equivalent Fractions** (National Council of Teachers of Mathematics)

**Polyup** (iTunes)