Milton Public Schools' Elementary Summer Math

Did you know that the average American child loses between 1 and 3 months of learning in reading and math each summer? You can continue to love and enjoy your summer while keeping your children learning! Engaging in at least one math game or activity each day can help prevent summer learning loss.

Students entering grades 1-5 will have summer math calendars to work on. These calendars will be posted on the district website as well as your school page. The activities in our summer math calendars will review concepts and skills that have been completed during the 2017-2018 school year. We ask that your child choose at least 18 of the 24 activities listed for each month to complete. Circle each box as you complete it. The EM4 games listed under play are all games that your child has engaged in at school and they are easy to play at home. Directions have been provided for additional games. Spending a few minutes each day thinking and talking about math will help reinforce skills learned as well as continue to build the foundation for mathematical success in the coming school year. We hope that you have fun with the activities and make sure to have your children share their thinking and reasoning with people in your family.

Links to Calendars

For students entering Grade 1:
July Calendar - Entering Grade 1
August Calendar - Entering Grade 1

For students entering Grade 2:
July Calendar - Entering Grade 2
August Calendar - Entering Grade 2

For students entering Grade 3:
July Calendar - Entering Grade 3
August Calendar - Entering Grade 3

For students entering Grade 4:
July Calendar - Entering Grade 4
August Calendar - Entering Grade 4

For students entering Grade 5:
July Calendar - Entering Grade 5
August Calendar - Entering Grade 5

For students entering grades 3-5 to access your Study Island account: www.Studyisland.com.

If your child is having difficulty with any of the activities or games for their upcoming grade level, just have them try activities and games on the math calendar for the previous grade level. It will be a great review for them and help them build a stronger foundation for their upcoming year of math.

For parents, there is a fantastic site called Talking Math With Your Kids. It contains blog posts about supporting children's early mathematical development, written in large part by Christopher Danielson. You can find out more about him and the blog at:

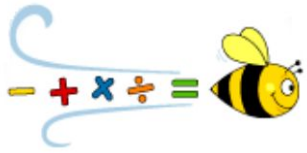
https://talkingmathwithkids.com/about/

Here is a link to one of his posts:
https://talkingmathwithkids.com/category/shape/

Another fun and enriching option over the summer is to take Jo Boaler's free online course with your child to learn about math myths, math and mindset, speed and mistakes, number flexibility, mathematical reasoning and connections, number patterns and recognition, and math in life, nature and work:

https://www.youcubed.org/online-student-course/

And finally don't forget to see and share the math in cooking, gardening, shopping, as well as all around you in nature everyday!



Happy Summer!



Game Directions by Grade

Grade 1 Games

Monster Squeeze

Materials: 2 counters and a number line (0-10) for each player
Players: 2 or more
Skill: Compare numbers while practicing concepts of more than and less than
Object: To guess the mystery number

The leader thinks of a number from 0-10, then calls out a number that is smaller than the mystery number and a number that is larger than the mystery number. Players cover those numbers with the counters and then one player guesses a number between those two numbers. Leader tells whether the mystery number is less than or more than the guessed number and players move their counters accordingly. Play continues until someone guesses the mystery number.

Number Line Variations: number lines can range from 0-5, 0-15 or 5-20 or number lines can begin at a number other than 1 and count on 10-15 numbers.

Penny Plate

Materials: 10 pennies, 1 plate
Players: 2
Skill: To find pairs of numbers that add to 10
Object: To get 5 points

Player 1: Turns the plate upside down and hides some pennies under the plate. Puts the remaining pennies on top of the plate. Player 2: Counts how many pennies are on top of the plate and figures out how many pennies are hidden. Player 2 gets a point for correctly identifying the hidden number. Players alternate roles and each player keeps a tally of points. The winner is the first person to get to 5 points.

Dice Addition

Materials: 2 dice
Players: 2 or more
Skill: Addition facts
Object: To increase addition fact fluency

Player 1 rolls both dice and finds the sum. Player 2 rolls and finds the sum. Each player should check the other player's sum. Larger sum wins the round. Play 5 round each.

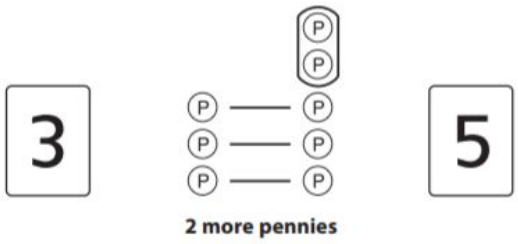
Variation: Roll both dice and find the difference. Whoever has the lower difference wins the round.

The Number Difference Game

Materials: Number cards 1-5 (4 of each)
Bank of 40 pennies, counters or other item.
Players: 2
Skill: Subtraction practice
Object: To compare quantities and find the difference

Each player draw a number card and takes the amount of pennies (or other item) from the bank. Find out how many more pennies one player has. The player with the most pennies wins that difference; the rest of the pennies

go back to the bank. The game ends when there are not enough pennies to continue. The player with more pennies wins.



Variations: Add a “zero” number card or play with 1-10 or 0-10.

Grade 2 Games

Fishing for 10

Materials: Number cards 1-9 (4 of each)
Players: 2 or more
Skill: Combinations of 10
Object: To make pairs that add to 10

Both players look at their hands to see if they can make any pairs that add up to 10. If not, player 1 will ask player 2 for a card that will help them make a pair. If player 2 does not have the requested card, player 1 will “go fish”. Next, players switch roles. Play continues until one person has made at least 5 pairs. The player with the most pairs wins.

Variation 1: players can use as many cards as they like to make a sum of 10 (ex, 3, 2, 5). The player with the most cards wins.
Variation 2: Play Go Fish to 20.

Adding 10 Dice Game

Materials: 1 die
Players: 2-4
Skill: Adding 10 more
Object: To notice patterns when counting on or adding by 10

Player 1 rolls a die, then adds 10 to that number. Player 2 rolls and adds 10. The person with the higher number wins that round. Record your start number and end number. Play at least 5 rounds.
Variation 1: Roll 2 dice; then add 10.

Number Detective

Materials: Small slips of paper
Players: 2
Skill: Building number sense
Object: To use clues to figure out the mystery number.

Mystery Number Player writes a number from 1-20 on a slip of paper.
The Number Detective asks questions until guessing the number. (Ex: Is it less than 10? More than 5?)
Mystery Number Player asks: what question helped you most in guessing the number? Why? Then trade roles

and play again.

Variations: 1) Number Detective can only ask 5 or fewer questions or 2) Write a number from 1-50 or 1-100.

Addition Top-It

Materials: Number cards 1-10 (4 of each)
Players: 2-3
Skill: Addition facts
Object: To increase addition fact fluency

A player shuffles the cards and places the deck number-side down on the playing surface. Each player turns over two cards and calls out their sum. The player with the highest sum wins the round and takes all the cards. In the case of a tie, each player turns over two more cards and calls out their sum. The player with the highest sum then takes all the cards from both plays. Play ends when not enough cards are left for each player to have another turn. The player with the most cards wins.

Salute!

Materials: Number cards 1-10 (4 of each)
Players: 3
Skill: Addition and subtraction facts
Object: To solve for a missing addend in order to increase addition and subtraction fact fluency.

One person starts as the dealer and gives a card each to Player 2 and Player 3. Without looking at the cards, Players 2 and 3 hold their cards on their foreheads with the number facing out. The Dealer calls out the sum of the two numbers. Players 2 and 3 try to guess their numbers using the sum and other player's number as clues. Each player takes a turn being the dealer. Play continues until the deck runs out or each player has been dealer 3 times.

The Number Difference Game

Materials: Number cards 1-10 (4 of each)
Bank of 40 pennies, counters or other item.
Players: 2
Skill: Subtraction practice
Object: To compare quantities and find the difference

Each player draw a number card and takes the amount of pennies (or other item) from the bank. Find out how many more pennies one player has. The player with the most pennies wins that difference; the rest of the pennies go back to the bank. The game ends when there are not enough pennies to continue. The player with more pennies wins.

Grade 3 Games

Addition Top-It

Materials: Number cards 1-10 (4 of each)
Players: 2-3
Skill: Addition facts
Object: To increase addition fact fluency

Addition Top-It

A player shuffles the cards and places the deck number-side down on the playing surface. Each player turns over two cards and calls out their sum. The player with the highest sum wins the round and takes all the cards. In the case of a tie, each player turns over two more cards and calls out their sum. The player with the highest sum then takes all the cards from both plays. Play ends when not enough cards are left for each player to have another turn. The player with the most cards wins.

Salute!

Materials: Number cards 1-10 (4 of each)
Players: 3
Skill: Addition and subtraction facts
Object: To solve for a missing addend in order to increase addition and subtraction fact fluency.
One person begins as the dealer. The dealer gives one card to each of the other two players. Without looking at their cards the players hold them on their foreheads with the numbers facing out. The dealer looks at both cards and states the sum of the two numbers. Each player looks at the other player's card. Using the number the they see and the sum called out by the dealer each player should try to figure out the number of the card they are holding on their own forehead (missing addend). They say that number out loud. Once both players have said their numbers they can look at their own cards to check their answers. Rotate roles clockwise, and play again. Play continues until everyone has been the dealer 5 times.

Quarter-Dime-Nickel-Penny Grab

Materials: 4 quarters, 10 dimes, 8 nickels, 20 pennies (minimum amounts)
Players: 2
Skill: Counting and comparing collections of coins
Object: To develop number sense around money and decimals
Mix all of the coins together in one pile. Each player takes turns grabbing a handful of coins - all coins should be taken. Say, or record your totals on a sheet of paper. Both players should compare the totals to determine who has the greater total. Play for 3 rounds, alternating who grabs coins first. The player with the greatest amount of money in total after 3 rounds wins.

Addition War

Materials: 1 deck of cards/player (Face cards removed, aces count as 1)
Players: 2-4 players
Skill: Addition facts
Object: To increase fluency with addition facts
Each player turns up two cards per round. The player with the highest sum wins and takes all cards that were played in that round. In cases of a tie, each player turns up another two cards. The player with the highest total sum wins. Play ends when one player has all of the cards.

Grade 4 Games

Close to 1000

Materials: Number cards 1-9 (4 of each)
Players: 2 or more
Skill: Strategic thinking, place value understanding, addition, and subtraction
Object: To increase understanding of place value and strategic thinking around values of digits of a number
Deal 8 cards to each player. Use any 6 of your cards to make two 3-digit numbers. Try to get a sum that is close to or equal to 1000. Write these 2 numbers in your journal. Your score is the difference between your number and 1000.

Example: Your eight cards are **1, 5, 4, 3, 1, 8, 3, 8**
You can combine 148 + 853 = 1001. Your score is 1 since the difference between 1001 and 1000 is 1. Discard the 6 used cards and pick 6 new cards. Whoever has the lowest total score after 5 rounds wins the game.

Salute!



The players use the number they can see and the product to figure out the number on their own card.

Materials: Number cards 1-10 (4 of each)
Players: 3
Skill: Multiplication and division facts
Object: To solve for a missing factor in order to increase multiplication and division fact fluency
One person begins as the dealer. The dealer gives one card to each of the other two players. Without looking at their cards the players hold them on their foreheads with the numbers facing out. The dealer looks at both cards and states the product of the two numbers. Each player looks at the other player's card. Using the number the they see and the product called out by the dealer each player should try to figure out the number of the card they are holding on their own forehead (missing factor). They say that number out loud. Once both players have said their numbers they can look at their own cards to check their answers. Rotate roles clockwise, and play again. Play continues until everyone has been the dealer 5 times.

Addition, Subtraction, or Multiplication Top-It

Materials: Number cards 1-10 (4 of each)
Players: 2-3
Skill: Addition, subtraction, or multiplication facts
Object: To increase addition, subtraction or multiplication fact fluency

Addition Top-It

A player shuffles the cards and places the deck number-side down on the playing surface. Each player turns over two cards and calls out their sum. The player with the highest sum wins the round and takes all the cards. In the case of a tie, each player turns over two more cards and calls out their sum. The player with the highest sum then takes all the cards from both plays. Play ends when not enough cards are left for each player to have another turn. The player with the most cards wins.

Subtraction Top-It

Subtraction Top-It is played like Addition Top-It, except players subtract the smaller number from the larger number and call out the difference. The player with the largest difference wins the round and takes all the cards.

Multiplication Top-It

Multiplication Top-It is played like Addition Top-It, except players call out the product of the two numbers turned over. The player with the highest product wins the round and takes all the cards.

Name That Number

Materials: Number cards 1-10 (4 of each) *Variation: You can include Queens as (0) and Aces as (1)
Players: 2-3
Skill: Strategic thinking, order of operations, addition, subtraction, multiplication, and division
Object: To increase fluency with the four main math operations, and use of strategy to get the most cards
1. One player shuffles the cards and deals 5 cards to each player. The dealer places the remaining cards number-side-down on the playing surface, turns over the top card, and places it beside the deck. This is the **target number** for the round.
2. Players try to match the target number by *adding, subtracting, multiplying, or dividing* the numbers on as many of their cards as possible. A card may be used only once.
3. Players write their solutions on a sheet of paper. When players have written their best solutions, they take turns doing the following:

- Set aside the cards they used to name the target number.
- Replace them by drawing new cards from the top of the deck.

- Put the old target number on the bottom of the deck.
- Turn over a new target number, and play another hand.

4. Play continues until there are not enough cards left to replace all of the players' cards. The player who sets aside more cards wins the game.

Example

Target number: 16

A player's cards:



Some possible solutions:

$10 + 8 - 2 = 16$ (3 cards used)

$7 * 2 + 10 - 8 = 16$ (4 cards used)

$8 \div 2 + 10 + 7 - 5 =$ (all 5 cards uses)

The Product Game

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

Players: 2

Skill: Multiplication facts and strategic thinking

Object: To multiplication fact fluency and strategic thinking skills

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 paper clips on the same factor: (5x5=25)

Game board is on the next page.

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

Grade 5 Games:

Addition, Subtraction, or Multiplication Top-It

Materials: Number cards 1-10 (4 of each)
Players: 2-3
Skill: Addition, subtraction, or multiplication facts
Object: To increase addition, subtraction or multiplication fact fluency

Addition Top-It

A player shuffles the cards and places the deck number-side down on the playing surface. Each player turns over two cards and calls out their sum. The player with the highest sum wins the round and takes all the cards. In the case of a tie, each player turns over two more cards and calls out their sum. The player with the highest sum then takes all the cards from both plays. Play ends when not enough cards are left for each player to have another turn. The player with the most cards wins.

Subtraction Top-It

Subtraction Top-It is played like Addition Top-It, except players subtract the smaller number from the larger number and call out the difference. The player with the largest difference wins the round and takes all the cards.

Multiplication Top-It

Multiplication Top-It is played like Addition Top-It, except players call out the product of the two numbers turned over. The player with the highest product wins the round and takes all the cards.

Close to 1000

Materials: Number cards 1-9 (4 of each)
Players: 2 or more
Skill: Strategic thinking, place value understanding, addition, and subtraction
Object: To increase understanding of place value and strategic thinking around values of digits of a number
Deal 8 cards to each player. Use any 6 of your cards to make two 3-digit numbers. Try to get a sum that is close to or equal to 1000. Write these 2 numbers in your journal. Your score is the difference between your number and 1000.

Example: Your eight cards are **1, 5, 4, 3, 1, 8, 3, 8**
You can combine 148 + 853 = 1001. Your score is 1 since the difference between 1001 and 1000 is 1. Discard the 6 used cards and pick 6 new cards. Whoever has the lowest total score after 5 rounds wins the game.

High Number Toss

Materials: 1 die, 2 sheets of paper
Players: 2
Skill: Place value
Object: To use strategic thinking skills when making numbers to maximize place value

1. Each player makes 4 blank lines on their sheet of paper to record the numbers that come up on the rolls of the die.

Player 1 :___ ___ ___ |____
Player 2: ___ ___ ___ |____

1. Player 1 rolls the die and writes the number on one of their 4 blanks. It does not have to be the first blank—it can be any of them. *Players need to keep in mind that the larger number wins!*
2. Player 2 then rolls the die and writes the number on one of their blanks.
3. Players take turns rolling the die and writing the numbers 3 more times each.
4. Each player then uses the 4 numbers on their blanks to build a number.
    - The numbers on the first 3 blanks are the first 3 digits of the number the player builds.
    - The number on the fourth blank tells the number of zeros that come after the first 3 digits.
5. Each player reads their number. The player with the larger number wins the round. The first player to win 4

rounds wins the game.

Example

First 3 digits Number of zeros

Player 1: 1 3 2 | 6 = 132,000,000 (132 million)

Player 2: 3 5 6 | 4 = 3,560,000 (3 million, 560 thousand)

Hundred-Millions	Ten-Millions	Millions	,	Hundred Thousands	Ten-Thousands	Thousands	,	Hundreds	Tens	Ones

Name That Number

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Players: 2-3

Skill: Strategic thinking, order of operations, addition, subtraction, multiplication, and division

Object: To increase fluency with the four main math operations, and use of strategy to get the most cards

1. One player shuffles the cards and deals 5 cards to each player. The dealer places the remaining cards number-side-down on the playing surface, turns over the top card, and places it beside the deck. This is the **target number** for the round.
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3. Players write their solutions on a sheet of paper. When players have written their best solutions, they take turns doing the following:
   - Set aside the cards they used to name the target number.
   - Replace them by drawing new cards from the top of the deck.
   - Put the old target number on the bottom of the deck.
   - Turn over a new target number, and play another hand.
4. Play continues until there are not enough cards left to replace all of the players' cards. The player who sets aside more cards wins the game.

Example

Target number: 16

A player's cards: 7 5 8 2 10

Some possible solutions:

10 + 8 – 2 = 16 (3 cards used)

7 * 2 + 10 – 8 = 16 (4 cards used)

8 ÷ 2 + 10 + 7 – 5 = (all 5 cards uses)