Summer Math Challenge for Madison's Middle School Students

You ask your child to read over the summer… have them practice math skills, too!

Can you imagine how far behind his peers your child would be if he stopped attending math class at the end of March? If a student doesn't practice his or her math skills during the summer, it has the same effect on math achievement. Researchers have found that the lack of math skill practice over the long summer months results in an average loss of 2.6 months of study when measured from year to year.

At Brown School, math teachers have noticed the effects of long summer breaks: for many sixth grade students, their multiplication fact fluency is lower in September than in the previous June, and the average score on beginning of year benchmark tests are also lower than the same test given at the end of fifth grade.

The math teachers at Madison's Middle Schools challenge students to continue to practice math skills over the summer, and will recognize every student who demonstrates that they have participated in math-related activities over the summer. For example, if your child spends just 9 minutes a day, she will have completed 10 hours of math! Practice can include playing multiplication games online to keep fluent with math facts, or can incorporate real-life use of math such as helping to plan parts of a family vacation or estimating costs of back-to-school supplies and clothes while looking at newspaper sales circulars.

How to get started? It's as easy as

Do the Math!" Check out the links below to find some fun websites and activities.

Document what your child completed on the chart found at the end of this document and sign it.

Have your child hand in the chart to his/her math teacher during the first week of school.

Participating in the math challenge is as easy as π !

Students: What can you do? Well, listed below are links to resources and activities that can help you get started!

Multiplication Games:

Fact fluency is one of the first casualties of the long summer vacation.

Multiplication War: Use playing cards. Throw down two cards. The person who finds the product of the two cards first keeps the pair.

Keep those math facts fluent with fun **on-line practice**!

- Multiplication.com has some great games to play by alone or against other kids online! Brown Student favorites include Penguin Jump and Multiplication Grand Prix

- You can print out Mad Minutes to see how much you know at Super Teacher Worksheets, and you can find worksheets covering fractions, decimals, and more at Education.com.

Other Online Games:

Arcademic Skill Builders is a great resource to refresh all math operation areas. Play arcade games to review basic operations, fractions, decimals, and working with money!

Factors and Multiples Jeopardy: Remember the difference between factors and multiples with this fun on-line game!

Go to the Math Playground to practice skills like measuring angles, working with fractions, and creating congruent or similar shapes using transformations

For fun logic games, try out Math Maven's Mysteries!

Math Hunt: fun with math in science, social studies, and finance.

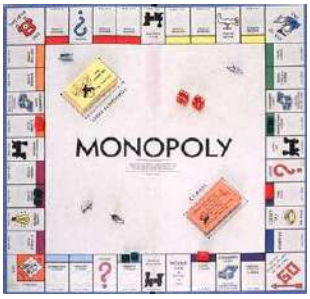
Other favorite sites for Brown School students include: HoodaMath, Johnnie's Math Page, Rush Hour, Set Game, and Games for the Brain. In addition, check out Sylvan Learning Center's list of Top Ten Websites for Math.

Board Games

There are great games you can play to pass a rainy day… and practice your math, too! You probably already have many of them at home. Here are just a few that we like.

Basic Operations:

- *Monopoly*
- *Life*
- *Payday*
- *S'Math*
- *Tripoly*



Patterns and Geometry:

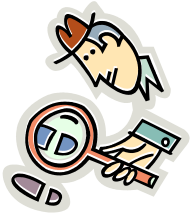
- *Sequence*
- *Blokus*
- *Geoshapes*
- *Quirkle*

Coordinate Graphing:

- *Battleship*

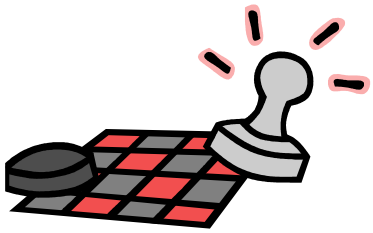
Logical Reasoning:

- *Clue*
- *Stratego*
- *SuDoKu*



Probability:

- *Deal or No Deal?*



Strategy Games:

- *Mancala*
- *Othello*
- *Connect 4*
- *Chess and Checkers*

Math with Cards and Dice

Almost everyone has a deck of cards in their house, and there are so many ways a deck of cards can be used to practice math skills! Check out the activities to reinforce math concepts found on this fantastic website: Educational Card Games to Teach Math.

Add some dice – and have more fun! Here's a great website with 4 great games you have probably already played in school: Marilyn Burns' Favorite Dice Games.

Close to 1000: A fun game with cards 1-10 (here's a scoresheet…)

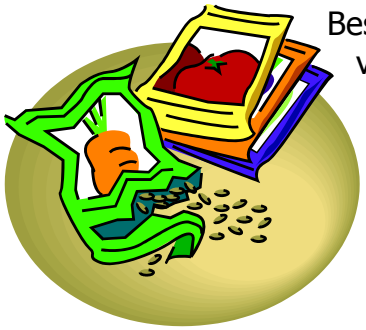
Other real-life math activities:

Take a Vacation!

Before you take off on that family trip, help your parents and get in on the planning! Here are a few examples of where math can be used when taking that family trip:

- Use an atlas and figure out how many miles you'll be driving – the scale of miles is a great example of proportion and measurement used in real life!
- What's your car's fuel efficiency? Add to find out the total cost to fill up the tank throughout your trip; divide to calculate the miles driven per gallon of gas; multiply to determine the cost of a fill-up based on your expected travel distance… is it time to purchase a hybrid vehicle?
- How fast did you get there? Use the car's trip odometer to find out how many miles you've driven, and determine your average speed.

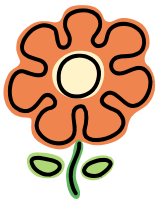
Gardens of Eating… and Math!



Besides providing a great source of delicious summer vegetables and fresh flowers, gardens grow great opportunities to show practical applications for math.

- How big is that garden? How much fencing is needed to keep out the deer? How much fertilizer do you need to keep the garden (or yard) growing?

- How much mulch do you need to order if you want to put it down 3" thick in your flower beds?
- What is the weight of that prize-winning tomato or pumpkin? How many peppers are on the pepper plant? If you need to keep your bean plants 3 inches apart, how many plants will grow on a 12 foot row? How many seeds should you plant?



- Go to the supermarket or farmer's market and find out the cost of fresh vegetables you can grow at home. How much money will you save if you grow it yourself?

Take me out to the ballgame!

Take in a summer baseball game – either at the ballpark or on TV. Baseball's a natural place to see math in action – from a pitcher's ERA to a hitter's on-base percentage. Record the events of the game using a scorecard. To find out all about how to keep score, go to Patrick McGovern's fantastic website: The Baseball Scorecard. Then, calculate some statistics about your favorite players! If you really like baseball, run your own team! Check out Fantasy Baseball and Math! (You can also play fantasy football and soccer, too!)

Take a trip to the grocery store!

- Estimate the total bill based on prices of what you are purchasing.
- How much does that bunch of bananas weigh? How much will it cost?
- What is the unit price of your favorite box of cereal? What is the unit of measurement, and how much is the total cost of that box?

In the kitchen – cook up some math!

- Measure all of the ingredients (especially the liquids in the glass measuring cups).
- Challenge yourself to double the recipe or cut the recipe in half – fractions are everywhere!

Back-To-School

- You've gotten that list of needed school supplies from the Brown School website… how much will that cost! Use the advertisements in the Sunday newspapers to find the best deals… and calculate how much you'll spend to get set for the new school year. The costs add up… do you really need that new backpack that won't fit in your locker, or will what you had last year still work for you?

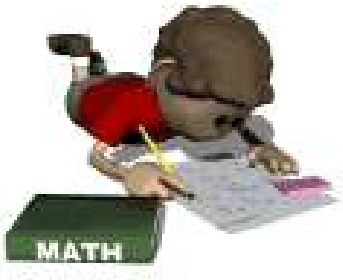
- A new wardrobe? At what cost? We know you grew… corn isn't the only thing that grows during the summer! But can you look just as chic with clothes from the outlets as with clothes from the mall?

And since you're going to read, how about combining reading with math! Check out these great titles… (thanks to the Rosa Parks Elementary School).

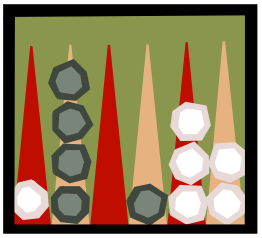
Title	Author
The I Hate Mathematics! Book	Burns, Marilyn
The Phantom Tollbooth	Juster, Norton
Janice Van Cleave's Math for Every Kid: Easy Activities That Make Learning Math Fun	Van Cleave, Janice Pratt
G Is for Googol: A Math Alphabet Book	Schwartz, David M.
Janice Van Cleave's Geometry for Every Kid: Easy Activities That Make Learning Geometry Fun	Van Cleave, Janice Pratt
Math Curse	Scieszka, Jon
Brown Paper School Book: Math for Smarty Pants	Burns, Marilyn
This Book Is about Time	Burns, Marilyn
Math for Kids and Other People, Too!	Pappas, Theoni

There are many other ways to use math in real life over the summer. These are just a few suggestions. Feel free to make up your own ideas! Just remember to keep track of what you do. There's a chart on the next page to help you.

Have a great summer… and don't forget – math is everywhere! So practice, and turn in your log – you'll be recognized on the Math Wall of Fame in the Brown School cafeteria!



Middle School Summer Math Challenge Log



Student Name: _____

Date	Type of Activity	Specific Activity Description	Amount of Time	Parent Initial
Example: *7/3*	*Multiplication fact practice*	*Online game: Multiplication Grand Prix*	*30 minutes*	*KAH*

Total time in minutes_____ Time in hours_____

Parent Signature_____

My child has completed the number of hours stated above doing math activities.