Mathematics

What can you do this summer?

- **Please spend one hour a day with your child.**
- **A family that spends time together will stay together.**
- **This is a good investment.**
- **Money doesn’t stay with you, but learning and knowledge do.**

Perseverance Pays

Learning Outcomes (MB)			
Years of Participation	Number of Children	#of Children in top 10 ranks	Percent
1	15,116	139	00.9%
2	5,536	166	03.0%
3	2,742	188	06.9%
4	1,560	195	12.5%
5	869	165	19.0%
6	486	160	32.9%
7	257	100	38.9%
8	108	76	70.4%
9	18	27	150.0%

Genius is one percent inspiration and ninety nine percent perspiration
Edison

The longer a child participates in the NSF Math Bee, the higher the likelihood that the child will earn among the top ten ranks at the National Finals. For example, NSF data shows that if a child stays with NSF for 9 years, there is 100 percent chance that the child will achieve one of the top 10 ranks.

Note: More than 100 percent indicates that the child got top ranks in more than one subject.

Math

Grades 1 through 5

- Acquire **Singapore Math** Books and have your child workout the problems. This is a good investment. They have Work Books, Intensive Practice and Challenging Word Problems.

- Acquire **Math League** books.

Grades 6 through 8

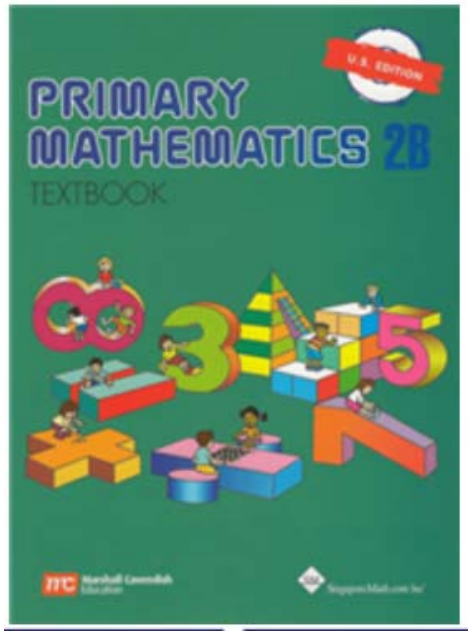
- Use material from **MATHCOUNTS** website. These are free. Start with **Warmups** first and then move up to **Workouts**. Each sheet has 10 problems.

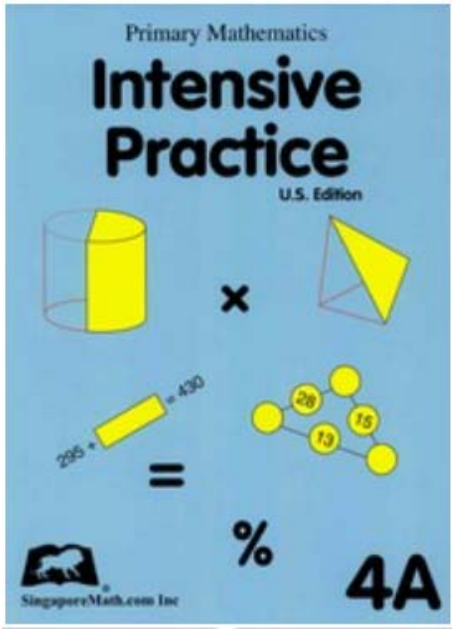
- Acquire **Math League** books.

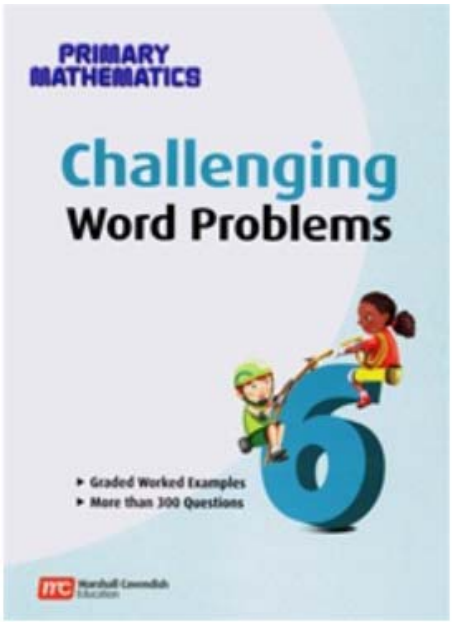
If you just focus on the above alone, you will get 80 percent of the maximum potential. Good Investment.

Singapore Math Books

www.singaporemath.com





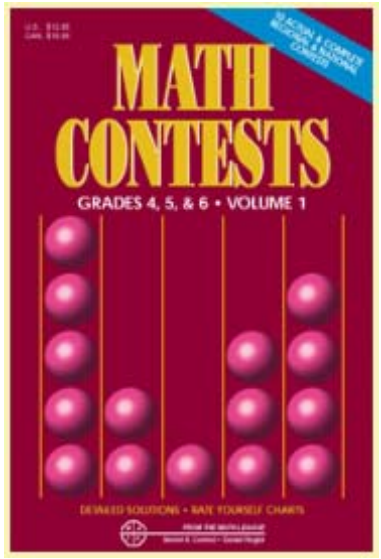


1. **Primary Math Work Books US Edition: 2A, 2B, 3A, 3B, 4A, 4B, 5A, 5B, 6A, 6B**
2. **Primary Math Intensive Practice U.S. Edition: 2A, 2B, 3A, 3B, 4A, 4B, 5A, 5B, 6A, 6B**
3. **Challenging Word Problems for Primary Mathematics: 1, 2, 3, 4, 5, 6**

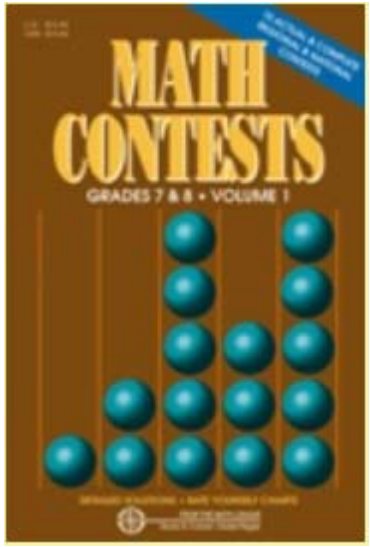
Number indicates grade

http://www.themathleague.com/

Grades 4, 5, 6



Grades 7, 8



Math League Books

MATHCOUNTS **http://www.mathcounts.org/**

http://www.mathcounts.org/resources/school-handbook

Grades 6, 7, 8

SCHOOL HANDBOOK

MATHCOUNTS School Handbook

Each year the *MATHCOUNTS School Handbook* is provided electronically for free to every middle school in the U.S. It contains 300 creative problems meeting National Council of Teachers of Mathematics (NCTM) standards for grades 6-8. Problems are indexed according to topic and difficulty level, and also are mapped to the Common Core State Standards. Download the *2014-2015 MATHCOUNTS School Handbook* here!

*NOTE: This version of the handbook includes an answer key, but not the complete solutions. Registered Competition Series schools receive the hard-copy of the 2014-2015 MATHCOUNTS School Handbook with solutions as part of the School Competition Kit.

Free

Warm-Up 1

1. _____ What is the sum of the two-digit multiples of 11?

2. _____ If $a \# b = a + 2b$, for integers a and b, what is the value of $3 \# 4$?

3. _____ times  Kimba chewed a piece of gum 42 times in one minute. If she continued to chew at the same rate, how many times would she chew her gum in 100 seconds?

4. _____ miles Carver jogs 4 times a week. Last week, his distances were $4\frac{1}{3}$, $3\frac{1}{2}$, $3\frac{5}{6}$ and $4\frac{1}{6}$, all measured in miles. What was Carver's average distance for the 4 days? Express your answer as a mixed number.

5. _____ socks Rob has 10 white, 8 red and 6 blue socks in his drawer. If he selects socks from the drawer randomly, without looking, what is the least number of socks Rob must select to guarantee that he has removed a pair of white socks?

6. _____ hamburgers At a particular restaurant, hamburgers are priced $3 each, 2 for $5 and 5 for $9. What is the maximum number of hamburgers that can be purchased for $48? 

7. _____ Statement
_____ Statement Which two of the following four statements, labeled A through D, are true statements?

A: Statement B is false, but statement C is true.
B: Statement C is true, but statement D is false.
C: Statement D is false, and statement A is false.
D: Statement A is true, and statement B is true.

8. _____ seconds How many seconds are in 3.14 hours?

9. _____  The vertices of the smaller square in the figure are at trisection points of the sides of the larger square. What is the ratio of the area of the smaller square to the area of the larger square? Express your answer as a common fraction.

10. _____ students Students at Central School were surveyed regarding lunch choices. Of the students that responded, exactly $\frac{1}{3}$ wanted more fresh fruits and vegetables as choices. Of those students not wanting more fresh fruits and vegetables, exactly $\frac{1}{8}$ wanted more seafood. What is the minimum number of students that responded to the survey?

Workout 1

21. _____ What is the sum of the prime factors of 2015?

22. _____ What is $(3.5 \times 10^4)^2$ when written in scientific notation with four significant digits?

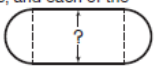
23. _____ meters The area of the shaded region of circle O is 9π m^2, and the measure of $\angle AOB$ is 22.5 degrees. What is the length of the radius of circle O? 

24. _____ $ In Fuelville, the cost of gas averaged $3.50 per gallon at the start of April, then rose 6% during April and dropped 10% during May. What was the cost of a gallon of gas at the end of May?

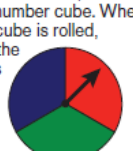
25. _____ ft^2 A square residential lot is measured to be 100 feet on each side, with a possible measurement error of 1% in each of the length and width. What is the absolute difference between the largest and smallest possible measures of the area given this possible error?

26. _____ years old Currently, the sum of the ages of Yumi, Rana and Victoria is 42 years. Four years ago, the sum of the ages of Rana and Victoria was equal to the current age of Yumi. What is Yumi's current age?

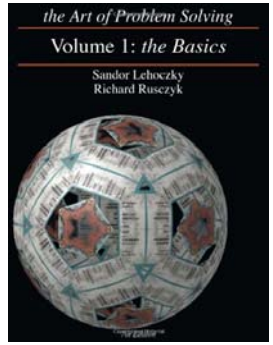
27. _____ students  Of 600 students at Goodnight Middle School in Texas, 85% are not native Texans. Of those non-native students, 60% have lived in Texas more than 10 years, and 30 students have lived in Texas less than a year. How many non-native students have lived in Texas for at least 1 year but not more than 10 years?

28. _____ miles The track at Dividend Middle School, depicted here, has two semicircular ends joined by two parallel sides. The total distance around the track is 1/4 mile, and each of the semicircular ends is 1/4 of the total distance. What is the distance between the two parallel sides of the track? Express your answer as a decimal to the nearest hundredth. 

29. _____ What is the sum of the coordinates of the point at which $y = x - 3$ and $y = -2x + 9$ intersect?

30. _____ A spinner is divided into three congruent sections colored red, blue and green. The numbers 1 through 6 appear on the faces of a fair number cube. When the pointer on the spinner is spun and the number cube is rolled, what is the probability that the pointer lands within the blue section and an even number is rolled? Express your answer as a common fraction.  

Math: For further Study



Volume 1: for middle school children (you can get the cover page picture)
http://www.amazon.com/The-Art-Problem-Solving-Vol/dp/0977304566

Volume 2: for high school children
http://www.amazon.com/The-Art-Problem-Solving-Vol/dp/0977304582/ref=pd_sim_14_2?ie=UTF8&refRID=1MPZD470GHTE3HBG0KMF

For more resources, please visit the preparation section at the NSF Website:
http://www.northsouth.org/public/USContests/Regionals/math/mathPrep.aspx

- **Additional Worksheets:**
  - **http://www.math-drills.com/**

NSF Online Math Coaching Program

Pre-math Counts	**Grades 3, 4, 5**
Mathcounts	**Grades 6, 7, 8**

- **2 hours a week for 15 weeks at a time that is suitable to you.**
- **Registration starts in August**
- **Classes start in late September**

http://www.northsouth.org/public/uscontests/coaching/MathCounts.aspx

Learning Methodologies

Kumon Vs. Aloha

- ✓ Aloha teaches mental math (arithmetic) using abacus methodologies vs. kumon does not teach mental math
- ✓ Kumon was developed by educator Toru Kumon
- ✓ Both are different methodologies and each has its own merits
- ✓ Benefit is very subjective to each child

An overview of all the different methodologies:

- ✓ http://www.schoolsnmore.com/articles/article/53-what-s-the-right-formula-a-look-at-kumon-aloha-singapore-math-and-vedic-math

Learning Methodology - Aloha

- **Information regarding Aloha**
  - http://alohamindmath.com/why-aloha/
- **For juniors – recommended ages 5 thru 6:**
  - http://alohamindmath.com/program/mind-math-junior/
- **For Seniors – recommended ages 7 thru 12:**
  - http://alohamindmath.com/program/mind-math-senior/
- **A demo of the aloha math methodology:**
  - https://www.youtube.com/watch?v=oH5A6msc5Zs&feature=youtu.be

Learning Methodology - Kumon

- **Know more about Kumon method of learning**
  - http://www.kumon.com/aboutkumon/kumonmethod.aspx
  - http://www.kumon.com/math.aspx

- **Kumon Math study levels chart**
  - http://www.kumon.com/miscellaneous/kumon_math_levels.pdf