

Math Masterminds

Dates: March 26 - May 21, 2014 (7 weeks)

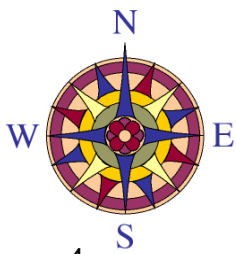
Instructor: Sarah Hogue

Objective: Each week students will tackle math puzzles, challenges, and learn new "tricks" and techniques to solving a variety of math questions, all while learning about the masterminds behind founding principles of modern mathematics. Each week students will overview the life and times of a great mathematician and then explore key concepts, principles, and formulas introduced by the featured master. Students' problem solving skills will be honed as they examine the historical, cultural, and personal context for discoveries in mathematics. Students will learn "when" and "why" these real people made contributions to modern math and "what" lead them to their discoveries. The class will work sample problems and use experiments and manipulatives to demonstrate the formulas, theories, short-cuts, or alternate approaches suggested by famous mathematicians. Students will be exposed to a wide variety of math terms and concepts.

Mathematicians explored in Quarter 4 include: Heron, Babbage, Kovalevsky, Ramanujan, and Galois. This class is not a repeat of Math Masterminds classes from 1st, 2nd, or 3rd quarter and may be taken without prerequisites. This is a 7-week class that will not meet on May 14.

Preliminary Course Outline

<u>Week</u>	<u>Theme/Topic</u>
1.	Heron <ul style="list-style-type: none">• History of Heron• Heron's Formula• The Chocolate Cake Challenge• Homework – Space for Ace
2.	Heron <ul style="list-style-type: none">• Square Root Method• Simplifying Radicals• Diagonal Challenge
3.	Charles Babbage <ul style="list-style-type: none">• History of Babbage• Tournament Time• The "First Computer" – Rings of Circles and Checkerboard Challenge



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4. Sonya Kovalevsky
 - History of Kovalevsky
 - Predictable Patterns and the Chessboard Problem
 - The Snowflake Curve
 - Homework – Paper Punching Patterns

5. Srinivasa Ramanujan
 - History of Ramanujan
 - Counting Partitions
 - Finding Pi
 - The Curious Cab
 - Magic Dominoes

6. Evariste Galois
 - History of Galois
 - Clock Arithmetic
 - Rotating Tires

7. Review of Mathematicians
 - Character Presentation
 - Card Game
 - Bingo

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