

What is the ASCA Junior High Math club?

The ASCA Junior High Math club provides enrichment for students taking 6th, 7th, and 8th grade math. All students in these classes are welcome to join, though as our work is a little more challenging, the opportunity is most enjoyable for students who enjoy math.

What is covered and when does it happen?

We typically run two overlapping sessions on Sunday evenings through the fall on topics common to competitions that receive less attention in the classroom (with pizza during the overlap). This builds up to the school-level MATHCOUNTS competition in December, for those who wish to participate.

The earlier session (5-6:15pm) emphasizes math topics related to Number Theory (using materials from a company called Art of Problem Solving). The later session (5:45-7pm) focuses on math topics related to Counting and Probability (again using Art of Problem Solving materials). The 30 minutes of overlap (5:45 – 6:15pm) involve pizza and brief exposure to contest-related topics. Dates and topics below:

Date	Session A (Number Theory) 5:00 - 5:45	Session B (Counting and Probability) 6:15 - 7:00
27-Aug	Introduction	Intro, Lists, and Fundamental Counting*
3-Sep	<i>Labor day weekend</i>	
10-Sep	Primes and Composites	Set Theory basics + Venn diagrams
17-Sep	Multiples and Divisors	More Venn diagrams (PIE)
24-Sep	Prime factorization	More Venn diagrams (PIE)
1-Oct	Euclid, more GCF/LCM	Complementary counting & Restrictions
8-Oct	<i>Columbus day weekend</i>	
15-Oct	Counting Divisors	Complementary counting & Restrictions
22-Oct	More divisors; arithmetic shortcuts	Permutations and strategic over-counting
29-Oct	Decimals and fractions	Committees and combinations
5-Nov	<i>Break</i>	
12-Nov	Base number systems	Committees and combinations
19-Nov	More base numbers and arithmetic	Harder counting problems
26-Nov	<i>Thanksgiving weekend</i>	
3-Dec	Units Digits	Probability
10-Dec	Cryptarithms	Probability (with mini)
17-Dec	<i>Christmas break</i>	

Students are given a worksheet after each session with a few problems to reinforce what was covered (that typically requires 15-30min). Problems of varying difficulty are made available so students can repeat a session from a prior year and still benefit (using different problems). The highest performing students from prior years went through both sessions at least twice (and sometimes even three times), some years joining both sessions.

For those interested in more challenging material (e.g., because they want to do well in math contests or prepare for rigorous high school classes), additional contest prep material is made available via their Google classroom. As the goal is to help students grow through the years, our materials can support students from just starting to support contest prep at the national level.

What commitment is expected?

Students are welcome to come to as many or few of these 12 sessions as they wish, though the benefit increases with attendance.

This opportunity is offered at **no cost**, though the families of participating students are asked to contribute pizza and water to the group one night. Also, one parent volunteer (with the appropriate background clearances with ASCA) needs to be present each week so that we always have at least two adults present. Sign-ups for pizza and volunteers are coordinated at the start of the season.

Students are expected to be respectful and engaged – if behaviors work against the group’s efforts to grow, then that student will not be welcome.

How does participation in math competitions happen?

All Saints participates in math competitions at the junior high level throughout the year:

- Events hosted by local Catholic high schools (Montini, St. Francis, Marmion), for which ASCA competes against other parochial schools, as a team and individually
- School-hosted events (AMC-8, Illinois Math League) for which students participate through school, and top scores in each class are acknowledged
- MATHCOUNTS – the premier national competition for middle school students in which ASCA competes against the largest public and private schools, on both an individual and team basis

These are geared towards 6th graders and above (especially 7th and 8th graders). The high school events involve a group of students, sometimes 5 or 10 per grade, and are typically coordinated by the junior high math teachers. School-hosted events involved everyone. For MATHCOUNTS, all middle school students are invited to participate after-school in the school-level competition around early December to determine who will represent ASCA at regionals.

Do you have to participate in competitions to be in the club?

Nope. Different people are interested in the club for different reasons ... obviously, many enjoy math and or have academic interest in preparing for advanced high school classes supported by the enrichment, while others may enjoy the social aspect and the pizza.

Our goal is to help the students achieve their goals – whatever they may be - and celebrate with them.