The **Summer Program in Mathematical Problem Solving** creates a pathway for underserved New York City middle school students with talent in math to become scientists, mathematicians, engineers, and programmers. We provide students with the preparation, community, and mentoring necessary for them to enter the same selective high schools, summer programs, contests, and research projects as their more affluent peers. These are critical opportunities for motivated but low-income students who, when they grow up, can fill a critical need in the US workforce.

**7th grade:** Students are nominated by their school and interview for admission. Successful applicants demonstrate insight into abstract ideas, determination to solve hard problems, flexible thinking to find multiple approaches, and an ability to work with and learn from adults.

**Summer:** Students do seven hours of mathematics per day on topics such as graph theory, probability and statistics, circuit design, combinatorics, and more. Daily activities range from sports to arts & crafts to karaoke to baking, while field trips expose students to new experiences such as hiking, stargazing, Six Flags, and even the opera!

**8th grade:** Friends from the summer remain connected through sessions on high school and summer program admissions, visits to Google and the Museum of Mathematics, a trip to Yale Splash, and office hours where students can prepare applications to schools and summer programs as well as continue their work on advanced mathematics.

**High school:** Students return to reunions, stay in touch online, continue to attend office hours, and remain connected through an alumni newsletter as they continue their studies.
What Makes Us Different

Focus on both academic and social/emotional preparation. Students learn abstract thinking and problem-solving skills, but they also get new experiences that will help them fit in at future programs: living in a college dorm, lunchtime conversations about math, games like Set and Ultimate Frisbee and Dominion, stargazing, hiking, and more.

Further study is the natural next step. Students learn what the pathway towards becoming a scientist looks like and it feels normal. They discover what programs are out there and get help navigating complicated application and scholarship processes.

Exceptional faculty teaching for learning, not a test. Our instructors are college professors with exceptional teaching backgrounds and outstanding middle and high school teachers. Residential counselors and TAs are highly accomplished college students who can be role models to the students.

Two SPMPS Classes

In Digital Communications, students designed a procedure to send a photo across a room from one computer to another—using nothing but sound.

In Number Theory, students developed a standard for rigorous proof and then proved that there are infinitely many prime numbers.

Selected Outcomes

Student Growth: On the AMC-8, a national competition for mathematically talented middle school students, the median student ranking rose by over 20 percentile points in 3 weeks. (SPMPS 2013)

High School Admissions: Of 29 reporting students, 17 were admitted to selective high schools. (SPMPS 2012)

Find Out More

On the web:
artofproblemsolving.org/spmps

By e-mail:
spmps@artofproblemsolving.org

In the New York Times:
go.gl/PcfnP

SPMPS is run by the Art of Problem Solving Foundation, a 501(c)(3) organization dedicated to creating opportunities for students to experience mathematical problem solving. Find out more and contribute at our website: www.artofproblemsolving.org.