

Welcome to Math at The Potter's School for 2011-2012

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Welcome to an information page about math classes offered at The Potter's School. On this page, you will find out about math tutorials offered at the school. We can encourage students, explain techniques to solve problems, and tie loose ends together using the textbook. We provide assistance with daily work through email. We correct tests. We just can't make the student do the work that is the principals' (parents') job. We desire to work together with you to help your son or daughter's math experience be the best that it can be. Our program utilizes the curriculum developed by the University of Chicago ([UCSMP](#)).

What math should I take?

"Take as much math as you can ... It will maximize your options for the future."

The University of Chicago Mathematics Program (UCSMP) is an academically rigorous curriculum which builds strong conceptual understanding while moving the student to practical application of skills.

The TPS series of math classes was originally a six year path, beginning with Transition Math and continuing through Algebra, Geometry, Advanced Algebra, Functions, Statistics, and Trigonometry, finishing with Pre-Calculus and Discrete Mathematics. TPS has recently begun offering a Calculus course, which is taught to the BC AP exam offered each year in May.

In 2009, TPS began offering a new math course for our youngest students -- Pre-Transition Math, the latest addition to the UCSMP series.

We are also pleased to add a single year Pre-Calculus course that will give math and science oriented students a rigorous but comprehensive alternative to our current two year FST-PDM path.

Suggested Tracks

“Begin with the end in mind.”

Calculus is in my future – I am interested in pursuing a math, science, engineering, medical related field of study in college.

Grade Level	Track #1	Track #2	Track #3	Track #4
5 th	Pre-Transition Math	---	---	---
6 th	Transition Math	Pre-Transition Math	Pre-Transition Math	---
7 th	Algebra	Transition Math	Transition Math	Pre-Transition Math
8 th	Geometry	Algebra	Algebra	Transition Math
9 th	Advanced Algebra	Geometry	Geometry	Algebra
10 th	Functions, Statistics, and Trigonometry	Advanced Algebra	Advanced Algebra	Geometry
11 th	Pre-Calculus-Discrete Mathematics	Functions, Statistics, and Trigonometry	Pre-Calculus	Advanced Algebra
12 th	Calculus	Pre-Calculus-Discrete Mathematics	Calculus	Pre-Calculus

Calculus is not in my future – I will be pursuing a non-math or science related field of study in college. I realize that the SAT exam includes math through Advanced Algebra and that I need four years of high school math to fulfill college prep graduation requirements.

Grade Level	Track #5
8 th	Transition Math
9 th	Algebra
10 th	Geometry
11 th	Advanced Algebra
12 th	Functions, Statistics, and Trigonometry

Success

At TPS, we are strongly committed to placing students in the correct classes to ensure success. After that placement comes the commitment of the student, parent, and teacher working together to achieve success. As the principal of the home school, it is the parent's responsibility to follow the student's progress and help the student manage his or her time wisely to meet the course requirements.

Commitment of the Student: The student will be expected to keep up with daily work and ask questions when help is needed.

Commitment of the Parent: The parent will be expected to be available to encourage the student, proctor tests, correct daily work, and calculate a final grade using daily work and test scores.

Commitment of the Teacher: In addition to a 90 minute, once a week lecture, the teacher will continually update a calendar of assignments, provide tests and additional worksheets as necessary, answer e-mail daily, and correct tests within a week.

Overview of Course Format

- 1) Class meets for 90 minutes once a week.
- 2) There are typically about fifteen students per class.
- 3) Lessons for the next five days are discussed during the 90 minute class session. The instructor uses a microphone and a digital whiteboard to diagram problems and explain lessons from the textbook. The students interact with the teacher and other students via audio and chat box.
- 4) Daily homework assignments are posted on a calendar on StudyPlace. Students generally spend at least one hour daily on assignments for Pre-Transition Math, Transition Math, and Algebra, and 90 minutes daily on assignments for Geometry, Advanced Algebra, FST, PDM, Pre-Calculus, and Calculus. Either the parent or student (supervised by the parent) corrects the homework using a solution manual. We do have assignments scheduled on the day of class.
- 5) All tests are downloaded from StudyPlace in a PDF file format, printed, and taken by the student. The parent proctors and snail mails the test to the instructor (including a self-addressed stamped envelope). The instructor corrects and returns the test. We strive to have all tests returned within one week.
- 6) Overseas students will convert their tests to PDF documents and upload them to StudyPlace.
- 7) The instructor provides you with a grade for the course based solely on test averages. It is then up to the principal of your home school (the parent) to decide how to average the daily work with the tests for a final grade.

8) The instructor is available via email to answer questions. We use digital whiteboard files to diagram problems and these can be attached to emails. Some of our courses offer an additional “problem solving” course to be taken in conjunction with the actual course. These sessions are an optional resource for the student.

Additional Costs

1) The textbook is ordered directly from the school bookstore. There will be more information about that during the registration process. Solution manuals will be provided by the instructor as PDFs.

2) You will be asked to mail tests to the instructor along with a self-addressed stamped envelope. There are about sixteen tests to be mailed during the year.

3) Geometry is the one course that requires an additional software package. We use Geometer's Sketchpad (a dynamic drawing program). This software is about \$45 including shipping and handling. More information will be available as classes are established.

4) Algebra, Geometry, Advanced Algebra, FST, PDM, Pre-Calculus, and Calculus also require a Graphing Calculator. The TI-83 or TI-84 are the ones that we will be able to tech support in class.

PREREQUISITES

Pre-Transition Math - Permission of Instructor.

Transition Math - Permission of Instructor and a B+ average or better in Saxon 7/6 or equivalent course.

Algebra - Permission of Instructor and a B or better in Transition Math.

Geometry - Permission of Instructor and a B or better in Algebra.

Advanced Algebra - Permission of Instructor and a B or better in Geometry.

FST - Functions, Statistics, and Trigonometry - Permission of Instructor and a B or better in Advanced Algebra.

PDM – Precalculus and Discrete Mathematics - Permission of Instructor and a B or better in FST.

Pre-Calculus - Permission of Instructor.

Calculus – Permission of Instructor.

If this is your first year in the UCSMP curriculum you will need to contact the instructor to find out the correct placement in the series. Some courses require a placement test depending on the student's background.

Why UCSMP?

[Saxon](#) is a fine program for the grammar (elementary) years where math facts and drills are most helpful. However, in our opinion, the "brute force" drill-centered approach which makes it a strong choice for elementary application makes it less desirable in the dialectic and rhetoric (secondary) years where concepts and abstractions become prevalent.

1 Saxon uses a formulaic approach with little emphasis on teaching the students to think their way through a problem. Saxon gives students a rote method of solution and then drills them until they know that method. Experience shows Saxon students often stumble when a similar problem is posed in an unfamiliar form because they don't really understand the reasons behind the method they've been taught. The UCSMP approach, in contrast, stresses first understanding a class of problems and then examines various methods of solution. In short, it encourages the students to think and understand what they're doing.

2 Saxon offers little real-life application of concepts. The "So what?" question is never asked and the student is given no reason to learn the material. Failing to make math relevant is like teaching a student to read words without introducing them to books. The UCSMP series, on the other hand, does a commendable job of applying math to situations which are of interest to the student.

3 For many students, the brute force "drill and kill" approach is demotivating. It is also time-consuming, considering the length of the average Saxon problem set. In the UCSMP approach, though a student must initially exert more effort to understand a particular concept, the rewards are tangible: similar-but-not-identical problems are easy instead of bewildering, less effort is required master new related concepts, and less subsequent review is required because memorization was not the primary learning tool.

4 We find the organization of Saxon's material to be suboptimal. Conceptual math, like most subjects, is a series of interrelated topics. Learning is enhanced when students understand the relationships between the various parts. Saxon presents each topic essentially in isolation from previous ones with little regard for the order of presentation. UCSMP endeavors to build new concepts from past ones, enhancing understanding acquired in earlier chapters.

To summarize, we believe the Saxon approach is not ideal for secondary math courses. It builds few critical thinking skills and provides little foundation for future application; for some it is confusing and demotivating. In our view it does not optimize preparation for college entrance exams such as the SATs, which is probably its primary goal. Even for a liberal arts student, we consider a more conceptual approach to basic secondary mathematics to be the superior alternative. In fact, the traditional classical education included algebra and geometry among the core subjects.