

Dear Parent,

We're excited to have your student in Mathematics at Whitmore Lake High School.



Each year, we build on the skills that your student has already learned, as well as introduce new ones. See this side of the brochure for details about what we're doing this year in Mathematics.

At home, your student should be encouraged to practice the skills he/she is learning at school. See the other side of this brochure for easy things that you can do to encourage that practice.

By working together, we can make sure that your student acquires the skills he or she needs to be successful in school and life.

We look forward to working with you and your student this year. When you have questions, please feel free to contact us at 449-4461.

Sincerely,
The High School
Mathematics Department

In every grade, we teach Mathematics skills that will help students:

Numbers and Operations

- Develop number concepts and skills, from counting, to paper and pencil calculations.
- Estimate.
- Use calculators and computers when appropriate.
- Solve problems using basic calculations.

Algebra

- Explore and record patterns.
- Represent patterns and relationships using tables, graphs and algebraic symbols.
- Solve problems by representing patterns and relationships using tables, graphs and algebraic symbols.

Measurement

- Use the correct measurement tools and units to accurately measure and describe their world.

Geometry

- Explore and identify one, two and three-dimensional geometric shapes.
- Describe and classify one, two and three-dimensional geometric shapes.
- Construct one, two and three-dimensional geometric shapes.
- Use geometry knowledge to solve problems.

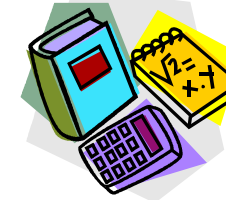
Data and Probability

- Collect, organize data in charts and graphs.
- Interpret data represented in charts, graphs.
- Collect, organize, and interpret data to solve problems, show relationships and make predictions.

In high school, we teach Mathematics skills that will help your student:

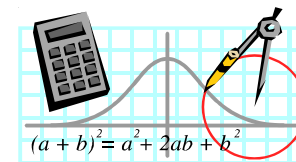
Numbers and Operations

- Compute fluently and accurately without using a calculator.
- Understand the capabilities and the limitations of calculators and computers in performing calculations and solving problems.
- Understand that to solve certain problems and equations, number systems need to be extended from whole numbers to the set of all integers (positive, negative, and zero), from integers to rational numbers (fractions), from rational numbers to real numbers (rational and irrational numbers, non-repeating and non-terminating decimals like Pi).
- * Understand that to solve certain problems and equations, number systems need to be extended from real numbers to complex numbers.
- Define and give examples of each of these types of numbers and be able to order these numbers according to size on a number line.



Algebra

- Perform operations on algebraic expressions fluently and accurately.
- Understand functions, their representations (equations, tables, and graphs), and their properties.



- Apply algebraic operations to solve equations and inequalities.
- Graph a variety of equations and inequalities in one and two variables.
- Demonstrate understanding of the relationships between an equation, the table of values of an equation, and the graph of an equation.
- Interpret the graphs of equations.
- Solve problems by converting information into a mathematical model (equation or system of equations), and analyze and interpret this mathematical model.
- * Represent geometric objects and figures algebraically using coordinates and use algebra to solve geometric problems.

Measurement

- Know that measurements (length, area, perimeter, volume) depend on the choice of unit of measure.
- Know that measurements made on physical objects are approximations.
- Calculate the measurements of common plane geometric figures (rectangle, triangle, circle, trapezoid, etc...) and solid geometric figures (prism, cylinder, cone, sphere, etc.).

Geometry

- Understand similarity of figures and use the scale factor to solve problems.
- Visualize 3-D solids when given 2-D representations (top, bottom, side views).
- Decompose 3-D solids surfaces into a 2-D net (similar to unfolding a box).
- Identify and apply the definitions related to parallel lines, transversals and angles.
- * Apply the definitions related to parallel lines, transversals and angles to perform basic geometric constructions, and to prove geometric theorems.

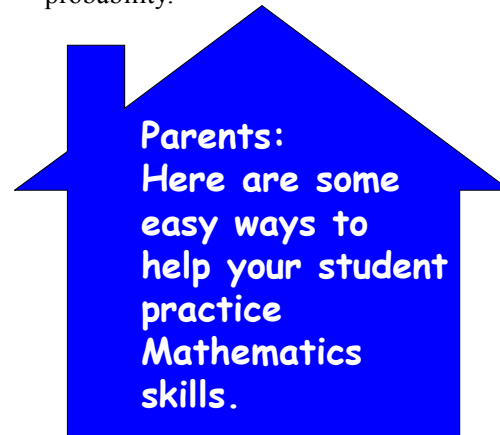
*These concepts are important for students planning to study advanced mathematics such as calculus.

Geometry continued

- Know the theorems about congruent and similar triangles and use them to solve problems.
- Understand the Pythagorean Theorem and apply this knowledge to solve problems.
- Understand basic right triangle trigonometry and apply it to solve problems.
- Use transformations (reflections, lateral and vertical slides) to determine whether two geometric figures are congruent and to create and analyze geometric designs.
- * Understand the different roles played by axioms, definitions, and theorems in the logical structure of mathematics, especially in geometry.
- * Know how trigonometric functions can be extended to periodic functions in a coordinate plane and define them as functions of the unit circle.
- * Use trigonometric functions to solve problems.
- * Know and use the Law of Sines and Law of Cosines to solve problems involving triangles.
- * Know and use trigonometric identities and use them to solve problems.



- Explain the impact of sampling methods, bias, and the phrasing of survey questions.
- Calculate simple probabilities.
- * Understand the binomial theorem, combinatorics, Pascal's triangle, and the connections of these to each other and probability.



Numbers and Operations

- Encourage the use of mental math.
- Continue to review basic addition, subtraction, multiplication, division facts.
- Ask your student, when you are shopping, to estimate the total bill before check-out.
- Cut recipes in half, or double/triple them.
- Have your student calculate the tip to leave when eating out.
- Have your student compare unit pricing when shopping (cost per ounce, etc.).
- Have your student calculate percent discounts when shopping.

Algebra

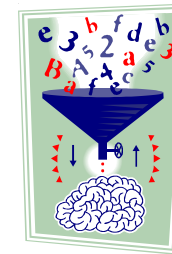
- Involve your student in family budget planning and any other data analysis.
- Have your student calculate what grades s/he needs in order to increase an overall grade to a set goal.
- Examine together tables, charts and graphs found in periodicals, looking for patterns.

Measurement

- Have your student assist when you are measuring. Discuss appropriate accuracy for the situation.
- Ask your student to estimate the size of things (lengths, volumes, areas, etc.) both large and small.
- Work together on home projects (installing wall paper, carpet, tile, etc...). Calculate the costs of these projects based on the area to be refinished.
- Build something together from a scale drawing.

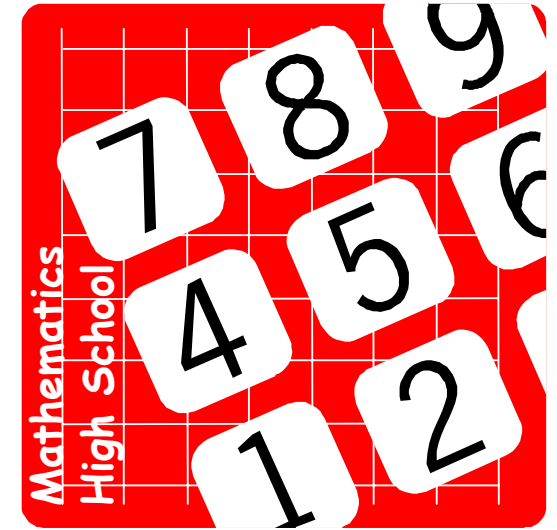
Geometry

- Help your student recognize two and three dimensional figures in your surroundings.
- Have your student present arguments in a logical sequence.



Data and Probability

- Have your student predict how s/he will do on an upcoming test, based on performance on sample questions.
- Play cards and other games that incorporate chance and the use of strategies.



Whitmore Lake High School

In high school,
we're teaching
your student
important
mathematics
skills.


What are these skills?

*How can you help your
student practice them?*

Data and Probability

- Collect, organize and display statistical data.
- Read and interpret tables, charts, and graphs.
- Compute and explain summary statistics for the distribution of a data-set.
- Use and critique alternative ways of presenting statistical information.
- Justify conclusions.

*These concepts are important for students planning to study advanced mathematics such as calculus.



...exceptional,
personalized education

For more good ideas, ask your student's teacher, or contact:
Whitmore Lake High School
8877 Main Street • Whitmore Lake
Michigan • 48189
(734) 449-4461 • <http://www.wlps.net>