Parents' Guide to Student Success in *Mathematics*
Geometry

Why Are Academic Standards Important?

Academic standards are important because they help ensure that all students, no matter where they live, are prepared for success in college and the workforce. Standards provide an important first step — a clear roadmap for learning for teachers, parents, and students. Having clearly defined goals helps families and teachers work together to ensure that students succeed. They also will help your child develop critical thinking skills that will prepare him or her for college and career.

A Sample of the Work Your Child Will Be Working on in Geometry

Geometry	Probability
• Proving theorems about triangles and other figures • Solving applied problems involving trigonometry of right triangles	▪ Understanding and using independence and conditional probability to interpret data ▪ Using the rules of probability to compute probabilities of compound events in an uniform probability model

Keeping the conversation focused.

Talking to Your Child's Teacher

When you talk to the teacher, do not worry about covering everything. Instead, keep the conversation focused on the most important topics. In high school, these include:

- ▪ Does my child have a strong grounding in arithmetic, including operations on fractions, decimals, and negative numbers?
- ▪ Does my child take a thinking approach to algebra and work with algebraic symbols fluently?
- ▪ Is my child comfortable using coordinates in algebra and geometry?
- ▪ Can my child break a complex problem down into parts and apply the math he or she knows to problems outside of mathematics?
- ▪ Does my child use terms precisely and make logical arguments?
- ▪ Does my child have the knowledge to learn advanced mathematics after high school if he or she so chooses?

Ask to see a sample of your child's work. Ask the teacher questions such as: Is this piece of work satisfactory? How could it be better? Is my child on track? How can I help my child improve or excel in this area? If my child needs extra support or wants to learn more about a subject, are there resources to help his or her learning outside the classroom?

Resource: http://www.pta.org/parents/

Help Your Child Learn at Home

Try to create a quiet place for your child to study, and carve out time every day when your child can concentrate. You should also try to sit down with your child at least once a week for 15 to 30 minutes while he or she works on homework. This will keep you informed about what your child is working on, and it will help you be the first to know if your child needs help with specific topics.

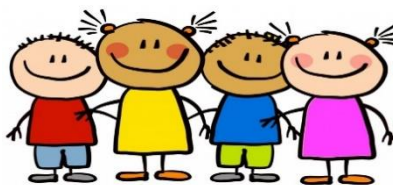# Parent Tips – Planning for College and Career

At the beginning of high school, sit down with your child's teachers, counselor, or other advisor to discuss what it will take for your child to graduate, your child's goals, and his or her plans after high school. Create a plan together to help your child reach these goals, and review it every year to make sure he or she is on track.

This plan should include:

- An appropriate course sequence to meet your child's goals. For example, if your child wants to study biosciences in college, he or she will likely need additional or advanced math and science courses in high school to be prepared for college-level coursework.

- The most appropriate extracurricular activities for your child to participate in. For example, if your child is interested in journalism or photography, encourage him or her to sign up for the school newspaper or yearbook. These activities will help your child expand his or her learning outside of school and may help foster new hobbies or interests.

- Ways you can help your child prepare for college or career. For example, if your child is interested in a particular field, look to see if internships exist to build his or her work experience in that subject area. Look for college fairs to attend, and encourage your child to visit colleges he or she might be interested in.

- Finding ways to pay for college or advanced training. College can be expensive, but there are lots of ways to get financial help, such as scholarships, grants, work study programs, and student loans. You just need to make the time for you and your child to do the research. You can start by helping your child fill out the FAFSA (Free Application for Federal Student Aid) during his or her senior year of high school. Visit www.fafsa.ed.gov for help and more information on FAFSA and financial aid. A

Resource: http://www.pta.org/parents/

Geometry
Nine Week Checkpoints for Parents and Students

First Nine Weeks	Second Nine Weeks
Helpful websites to help students master the first and second nine week concepts: *https://www.khanacademy.org/commoncore/grade-HSG-G-CO* *https://www.khanacademy.org/commoncore/grade-HSG-G-SRT*	
Students should know and be able to: • Compare geometric transformations: translations, reflections, rotations, and dilations • Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software • Given two figures, decide if they are similar by using the definition of similarity in terms of similarity transformations • Explain how the criteria for triangle congruence (ASA, SAS, SSS) follows from the definition of congruence in terms of rigid motions • Make geometric constructions inscribed in a circle (i.e. equilateral triangle, a square, and a regular hexagon)	*Students should know and be able to:* • Prove theorems involving congruence and similarity of triangles • Prove geometric theorems about lines, angles, and parallelograms • Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles • Explain and use the relationship between the sine and cosine of complementary angles • Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems
Third Nine Weeks	**Fourth Nine Weeks**
Helpful websites to help students master the third and fourth nine week concepts: *https://www.khanacademy.org/commoncore/grade-HSG-G-C* *https://www.khanacademy.org/commoncore/grade-HSG-G-GMD* *https://www.khanacademy.org/commoncore/grade-HSG-G-GPE* *https://www.khanacademy.org/commoncore/grade-HSG-G-MG* *https://www.khanacademy.org/commoncore/grade-HSS-S-CP*	
Students should know and be able to: • Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle • Find arc lengths and areas of sectors of circles • Give informal arguments for the formula of the volume of a cylinder, pyramid, and cone using Cavalieri's principle • Use volume formulas for cylinders, pyramids, cones and spheres to solve problems. • Translate between the geometric description and the equation for a conic section	*Students should know and be able to:* • Understand independence and conditional probability and use them to interpret data • Use the rules of probability to compute probabilities of compound events in an uniform probability model