

## **GRADE 8 MIDDLE SCHOOL COURSE DESCRIPTIONS**

### **MATHEMATICS**

#### **Pre-Algebra 8**

This course builds upon the Math 7 course and addresses five areas of the PA Core Standards: The Number System, Expressions and Equations, Functions, Geometry, and Statistics and Probability. There are three major focus areas: (1) formulating and reasoning about expressions and equations, including modeling an association in bivariate data with a linear equation, and solving linear equations and systems of linear equations; (2) grasping the content of a function and using functions to describe quantitative relationships; and (3) analyzing two- and three-dimensional space and figures using distance, angle, similarity, and congruence, and understanding and applying the Pythagorean Theorem. Students will learn the mathematical content through the application of the eight Standards for Mathematical Practice.

#### **Algebra I**

Basic to an understanding of the technical innovations in our society, Algebra I is the first of the math courses geared toward higher education. This course includes a systematic in-depth study of variables, rational numbers, solving equations and inequalities, relations and functions, linear equations and their graphs, systems of equations, exponents, polynomials and factoring, quadratic equations, statistics, and rational expressions. An understanding of the basic computational skills as applied to the rational numbers (whole numbers, fractions, decimals, and integers) is assumed. Problem solving and real world application are emphasized.

#### **Geometry (Prerequisite – Algebra I)**

The purpose of this course is to show the strong student of mathematics how to make the transition from intuitive to demonstrative geometry, and then transfer the procedures learned into effective patterns of thinking. Students develop effective patterns of thought through the study of logical patterns of thinking. An in depth study of the theories of geometry and their development is presented. A mathematical system using the concepts of two- and three-dimensional geometry is developed. The scope of the course includes patterns and inductive reasoning, measurement, reasoning and proof, parallel and perpendicular lines, congruent triangles, relationships within triangles, quadrilaterals, similarity, right triangles and trigonometry, transformations, coordinate geometry, area, surface area and volume, and circles. Problem solving and real world application are emphasized. Practical problems using algebraic computations are routinely included.

#### **Algebra 2 Honors (Prerequisite - Algebra I and Geometry)**

Algebra 2 presents the student with a systematic, in-depth study of properties of real numbers, solving equations and inequalities, absolute value, functions and their graphs, linear systems, matrices, quadratic equations and functions, polynomial and polynomial functions, radical functions and radical exponents, exponential and logarithmic functions, rational functions, quadratic relations and conic sections, sequence and series, probability and statistics, periodic functions and trigonometry, and trigonometric identities and equations. Problem solving and real world application are emphasized.

### **ENGLISH LANGUAGE ARTS**

#### **ELA 8/ ELA 8 Honors**

The language arts course combines literature, language and writing to develop skill in all forms of communication. Literature units include poetry, drama, the novel and the short story. During the study of literature, students analyze the elements of plot and structure, and often respond in written form. Writing instruction integrates the principles of language mechanics and composition. Students follow the writing process to produce many different types of writing.

Honors students must be self-motivated and willing to challenge themselves to engage in the units of study independently, as well as work effectively within a group dynamic. There will be extensive classroom discussion in both whole group and small group formats. Furthermore, there will be extensive reading and writing required outside of the classroom in order to extend the learning. Students will be expected to produce writing pieces that show a sophisticated and engaging use of writing components such as varied syntax, precise diction, organizational strategies, and figurative language.

## **SCIENCE**

### **Science 8**

This course is designed to engage students in a hands-on, inquiry-based approach to learning that focuses on the characteristics and structure of matter and the forces and energy that influence them. By performing a variety of experiments, students will develop the skills necessary to make accurate laboratory measurements, use evidence to support conclusions, and design and conduct controlled experiments.

## **SOCIAL STUDIES**

### **Social Studies 8**

This course is designed to introduce students to early American culture and history from the American Revolution to the turn of the 20th Century, including an awareness of current events. This will include examining the relationship between the United States and the world. Students continue to develop and utilize discipline related writing, study, communication, and critical thinking skills while learning how to analyze primary source historical documents.

## **WORLD LANGUAGE**

### **Mandarin 1**

This proficiency-based course is intended for students who are beginning their study of Mandarin. This course requires active participation from each student as he/she develops written and oral communication skills and reading comprehension skills. The course introduces basic conversational vocabulary, simple grammar, and basic tenses. Students are introduced to the culture and geography of countries where Mandarin is the native language.

### **Mandarin 2**

This proficiency-based course builds upon the skills mastered in Mandarin 1. Listening, speaking, reading, and writing skills are expanded through proficiency-based activities. In this course, more complex grammar structures are introduced. This course requires active participation from each student as he/she develops written and oral communication skills and reading comprehension skills. There is an emphasis on communication in the past tense. Short

reading selections will be introduced. Students continue their study of Mandarin culture and geography.

## **Spanish 1**

This proficiency-based course is intended for students who are beginning their study of Spanish. This course requires active participation from each student as he/she develops written and oral communication skills and reading comprehension skills. The course introduces basic conversational vocabulary, simple grammar, and basic tenses. Students are introduced to the culture and geography of countries where Spanish is the native language.

## **Spanish 2**

This proficiency-based course builds upon the skills mastered in Spanish 1. Listening, speaking, reading, and writing skills are expanded through proficiency-based activities. Complex grammar structures are introduced. This course requires active participation from each student as he/she develops written and oral communication skills and reading comprehension skills. There is an emphasis on communication in the past tense. Short reading selections will be introduced. Students continue their study of Spanish culture and geography.

## **ART**

### **Art 8**

#### **8th Grade Art Studio (Art 8)**

In this course, students will be challenged to use advanced materials and processes to create two- and three-dimensional art forms. Emphasis is placed on the art elements and principles of design throughout the course.

#### **8th grade Art Exploration (Art 8B)**

Students will work independently and collaboratively creating artwork inspired by different cultures, both historic and contemporary. This course will engage students to develop an understanding of art's vital role in the human experience.

## **BUSINESS AND INFORMATION TECHNOLOGY**

### **Computer Literacy 8**

This course will allow students to discover computer science concepts and skills by creating personally relevant, tangible, and shareable projects. Throughout the course, students will learn about programming for the physical world by blending hardware design and software development. They will design and develop a physical computing device, interactive art installation, or wearable, and plan and develop code for microcontrollers that bring their physical designs to life. Physical computing projects will promote student awareness of interactive systems, including Internet of Things (IoT) devices, and broaden their understanding of abstract computer science concepts through meaningful and authentic applications.

## **FAMILY AND CONSUMER SCIENCE**

## **Family and Consumer Science 8**

Family and Consumer Science 8 is split into two units of study. The first half of the semester provides students an opportunity to focus on fashion, clothing, and develop basic hand sewing skills. Students leave the class with a hand sewn pillow. During the second half of the semester, students develop food preparation skills through a variety of food lab experiences. Focus during these labs is on using basic kitchen equipment, safety and sanitation, measuring, and more. 8th grade FCS provides students with a lot of hands-on activity based learning.

## **HEALTH AND PHYSICAL EDUCATION**

### **HPE 8**

Health and Physical Education 8 focuses on the physical development of each student. A healthy body and positive attitude toward physical activity are stressed. Students engage in activities to build their decision-making skills in Nutrition, Drug Prevention, and Disease Prevention. In Physical Education, students will participate in the following types of activities: invasion games, net/wall games, cooperative games, rhythm and gymnastics, field games, and fitness activities. Semester 1 focuses on Health Education content and semester 2 focuses on Physical Education content.

## **MUSIC**

### **Instrumental Music 8 (Band)**

Students are taught the basics of good musicianship with an emphasis on counting and the development of music reading skills. Five major performances are scheduled throughout the school year. Students are required to participate in all performances. Performances include Band Night at a senior high football game, two spring concerts (March and May) and the Memorial Day parade. Students are also required to participate in regularly scheduled sectional rehearsals several times per marking period.

### **Beginning Band Instruments (Band)**

Do you fall into one of these 4 categories?

1. Have never played a band instrument but want to try?
2. Played a band instrument 1 or more year(s) ago (elementary school) and stopped, but want to try again?
3. Switched to a new band instrument coming into 7th grade?
4. Want to learn a secondary instrument?

This class will help brand new band students to learn or re-learn a band instrument with the goal of auditioning into one of Strayer's three bands the next school year. This is a year-long class that meets every other day. Students must already own or rent their own band instrument if choosing flute, clarinet, alto saxophone, trumpet, or trombone. Oboes, bassoons, tenor saxophones, baritone saxophones, french horns, euphoniums, and tubas will be provided by the school and will be capped based on instrument availability. Zero musical background required!

### **Vocal Music 1 (Chorus)**

This course is for students who have not taken chorus at Strayer yet and this would be their first time in Chorus at Strayer. The course provides students the opportunity to study vocal skills and techniques in an organized group instruction format. Sacred and secular music of all historical periods and styles are studied and performed during winter and spring concerts. Students learn many phases and techniques of singing which will aid each chorus member to make

the most expressive use of his/her voice in a performance format. Basic conducting skills, sight singing, part singing, ear training, exercises and proper vocal techniques are applied to a rehearsed and performed repertoire.

### **Vocal Music 2 (Chorus)**

This course is for students who took chorus at Strayer the previous year. This course provides students the opportunity to study vocal skills and techniques in an organized group instruction format. Sacred and secular music of all historical periods and styles are studied and performed during winter and spring concerts. Students learn many phases and techniques of singing which will aid each chorus member to make the most expressive use of his/her voice in a performance format. Basic conducting skills, sight singing, part singing, ear training, exercises and proper vocal techniques are applied to a rehearsed and performed repertoire.

### **Orchestra Level 1**

This class will help brand new orchestra students learn an orchestra instrument (violin, viola, cello, or bass) with the goal of joining Level 2 Orchestra next school year. The Level 1 Orchestra class may also be ideal for those already with experience but who may need a review and reinforcement of music reading, playing fundamentals and technique that are vital for lasting musical development. This is a year-long class that meets every other day. Students must already own or rent their own orchestra instrument. Students learning cello and bass are not required to transport the instrument to school for orchestra class. Cellos and string basses will be provided for use in class by the school and will be capped based on instrument availability. Cello and bass students are required to bring their instrument from home for concert performances.

### **Orchestra Level 2**

Level 2 Orchestra is offered to students who play an orchestra instrument (violin, viola, cello, or bass) that participated in Orchestra (Strings) last school year. This is a year-long class that meets every other day. Students will advance on their instrument and learn how to be an ensemble player in a String Orchestra setting in order to perform in the Winter and Spring Concerts. Students are afforded additional instruction on their instruments through regularly scheduled sectional rehearsals several times per marking period. Students must already own or rent their own orchestra instrument. Students learning cello and bass are not required to transport the instrument to school for orchestra class. Cellos and string basses will be provided for use in class by the school and will be capped based on instrument availability. Cello and bass students are required to bring their instrument from home for concert performances.

### **Keying Into the Musical Keyboard**

This elective is for grade 8 beginning piano students who always wanted to play piano or feel they may need piano skills for their future career choice. This elective runs for one semester meeting every other day. Students with some knowledge of piano skills are also welcome to elect this class.

### **World Drumming Ensemble**

This class will explore percussion instruments from around the world and students will experience putting together drumming ensembles traditional to Africa, Brazil, the Caribbean, the Far East, and more! Even though this is a

performance-based class, no background in music or reading music is required. Available to eighth grade students only. This elective will run for one semester.

### **Intro to Music Theory**

Intro to Music Theory is designed to dig into the "science" of music. Topics will include scales (major and minor), chord building and analyzing, composing basics, aurals skills, and more. This class is designed for students who have a background in reading music and who may want to explore music as a career. Available to eighth grade students only; this elective will run one semester.

## **TECHNOLOGY EDUCATION**

### **Automation and Robotics 8 (Tech Ed 8)**

Automation and Robotics 8 is one of two foundation courses in the Project Lead the Way Gateway Program. Students will learn about the past, present, and future influence of automation and robotics in society. Students will learn about mechanical systems and apply their knowledge to solve unique problems. Students will also work with automated systems through hands-on programming and troubleshooting.

### **TIDE 8 (Tech Ed 8B)**

Technology Innovation Design and Engineering (TIDE) 8 both challenges students and gives them a solid understanding of technological literacy. Students will explore manufacturing processes, engineering, and product development as they engage in problem-solving activities that enhance creative thinking and problem solving skills with a hands-on approach.

## **DANCE**

### **Fundamentals of Dance**

Fundamentals of Dance provides students with an introduction to the principles of movement and basic performance and choreography techniques. Students will study vocabulary, progression, and historic cultural development of various purposes for dance including social, fitness, art, and entertainment. The course is designed to be a performance based course which requires active participation by students. Students are responsible for bringing movement clothes for this course.