

Roanoke County Public Schools



Registration Guide

2023-2024

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Dear Parents and Students:

Welcome to the beginning stages of planning for your 2023-2024 academic year with Roanoke County Public Schools. We are pleased to offer an extensive variety of opportunities for our students, designed to meet a wide range of needs. Our goal is to prepare every student, in every school, and in every classroom to be Opportunity Ready with the skills needed for success in today's classroom and workplace.

The RCPS Profile of a Graduate describes the long-term vision for accomplishing this goal and calls for a commitment to providing deeper, meaningful learning experiences that go beyond the narrower types of learning that can be measured by standardized tests. We aim for an accountability balance between content knowledge and the workplace "C" skills (communication, collaboration, critical thinking, citizenship, and creativity), while leveraging technology to transform learning experiences.

Please carefully read the course options described within this guide as you prepare to register for the 2023-2024 school year. As in the past, we can ensure that the core areas of study (English, math, science, and social studies) will be available for each student; however, we cannot ensure that a student's first choice of elective will be available. Since we must have a certain number of students register for a class prior to assigning a teacher, there may be instances when electives may not be offered due to an insufficient number of students registering for those electives. In cases in which none of a student's elective choices are available, the school will contact the parent and assign the student an available elective. Requests for changes to a student's schedule will be considered only under the following circumstances:

- a- Failure of a course that is a prerequisite for a scheduled course or a graduation requirement
- b- Human or computer error
- c- Grouping adjustments and/or balancing class sizes
- d- Recommendations of the Child Study Committee or IEP Committee

We thank you for partnering with us regarding your child's education. We look forward to continuing excellent instruction and excellent opportunities for our students in Roanoke County.

Sincerely,



Mike Riley
Executive Director of Secondary Instruction

GRADUATION REQUIREMENTS

The requirements for a student to earn a diploma from a Virginia high school shall be those in effect when that student enters the ninth grade for the first time.

RISING 6th – 12th GRADE GRADUATING CLASSES OF 2024-2030

STANDARD DIPLOMA 22 credits		ADVANCED STUDIES DIPLOMA 26 credits	
ENGLISH	4	ENGLISH	4
MATH	3	MATH	4
Courses shall be at or above the level of Algebra and shall include two course selections from among: Algebra I; Geometry; Algebra, Functions, and Data Analysis; Algebra II; or other math courses above the level of Algebra and Geometry. Computer math may be used in conjunction with Algebra I and Geometry to satisfy mathematics graduation requirements if the student also completes a CTE concentration (at least 2 CTE courses that total 72 weeks in an approved sequence).		Courses completed to satisfy this requirement shall include at least three different course selections from among: Algebra I, Geometry, Algebra II, or other mathematics courses above the level of Algebra II. Algebra, Functions, and Data Analysis can be used as a fourth course in this sequence, but must be taken prior to Algebra II. Algebra II is a requirement for the Advanced Studies Diploma.	
LABORATORY SCIENCE	3	LABORATORY SCIENCE	4
Courses shall include three selections from two different science disciplines: 1) Earth Science, 2) Biology, Ecology (classified under Biology), 3) Chemistry, and 4) Physics.		Courses shall include four selections from three different science disciplines: 1) Earth Science, 2) Biology, Ecology (classified under Biology), 3) Chemistry, and 4) Physics.	
HISTORY/SOCIAL SCIENCE	3	HISTORY/SOCIAL SCIENCE	4
US and VA History (required) US and VA Government (required) Students may choose one from the following courses: World Geography, World History I, World History II, AP World History.		US and VA History (required) US and VA Government (required) Students may choose two from the following courses: World Geography, World History I, World History II, AP World History	
HEALTH AND P.E.*	2	HEALTH AND P.E.*	2
ECONOMICS AND PERSONAL FINANCE**	1	ECONOMICS AND PERSONAL FINANCE**	1
* All students must receive training in first aid, CPR, and AED. This training will be included in the RCPS Health and PE 9 curriculum. ** All students must complete one online course for graduation. Students completing the required RCPS Economics and Personal Finance course (which includes an online component) satisfy this requirement.			
		WORLD LANGUAGES	3 or 4
		Three years of one language or two years each of two languages.	
FINE ARTS/WORLD LANGUAGES/CAREER AND TECHNICAL EDUCATION	2	FINE ARTS/CAREER AND TECHNICAL EDUCATION	1
Credits earned for this requirement shall include one credit in fine or performing arts or CTE. See course listing for options.		Credits earned for this requirement shall include one credit in fine or performing arts or CTE. See course listing for options. See additional graduation requirements.	
SEQUENTIAL ELECTIVES	2	SEQUENTIAL ELECTIVES	2
Students graduating with a Standard Diploma must include at least two sequential electives which may include courses from a variety of options.		Students graduating with an Advanced Diploma must include at least two sequential electives which may include courses from a variety of options.	
OTHER ELECTIVES	2	OTHER ELECTIVES	0 or 1
Of the total credits shown above, students must earn a minimum of FIVE VERIFIED CREDITS from the following disciplines:		Of the total credits shown above, students must earn a minimum of FIVE VERIFIED CREDITS from the following disciplines:	
English 11 *Writing & Reading/Literature/Research	2	English 11 *Writing & Reading/Literature/Research	2
Mathematics	1	Mathematics	1
Science	1	Science	1
History/Social Science	1	History/Social Science	1
*The writing SOL can be earned through locally developed and locally scored “authentic performance assessments”.		*The writing SOL can be earned through locally developed and locally scored “authentic performance assessments”.	
VERIFIED CREDIT means passing the course and the end-of-course SOL test.			

Additional graduation requirements

Demonstration of the 5 Cs

Students shall acquire and demonstrate foundational skills in critical thinking, creative thinking, collaboration, communication, and citizenship in accordance with the Profile of a Virginia Graduate approved by the board.

AP, Honors, IB, Dual Enrollment, Work-Based learning, or CTE Credential

Students shall (i) complete an Advanced Placement, honors, International Baccalaureate, or dual enrollment course; or (ii) complete a high-quality work-based learning experience, as established by Board guidance on work-based learning; or (iii) earn a career and technical education credential approved by the board, except when a career and technical education credential in a particular subject area is not readily available or appropriate or does not adequately measure student competency, in which case the student shall receive satisfactory competency-based instruction in the subject area to satisfy the advanced studies diploma requirements. The career and technical education credential, when required, could include the successful completion of an industry certification, a state licensure examination, a national occupational competency assessment, or the Virginia workplace readiness assessment.

Career Investigations:

(6th graders and beyond) Students will use an online platform (Major Clarity) to explore careers and begin development of an Academic and Career plan (ACP).

GRADUATION (DIPLOMA) SEALS OF ACHIEVEMENT

BOARD OF EDUCATION SEAL OF BILITERACY will be awarded to students who earn a Board of Education approved diploma and (i) pass all required End-of-Course Assessments in English, reading, and writing at the proficient or higher level; and (ii) be proficient at the intermediate-mid level or higher in one or more languages other than English, as demonstrated through an assessment from a list to be approved by the Superintendent of Public Instruction. This assessment is at the student's expense.

BOARD OF EDUCATION SEAL will be awarded to students who complete the requirements for Standard or Advanced Studies Diploma with an average grade of "A".

CAREER AND TECHNICAL EDUCATION SEAL will be awarded to students who earn either a Standard or Advanced Studies Diploma, complete a prescribed sequence of courses in a career and technical education concentration, and (a) maintain a "B" or better average in each course, or (b) pass an examination in a career and technical education concentration, or (c) acquire a professional license in a career and technical education field from the Commonwealth of Virginia.

EXCELLENCE IN CIVICS EDUCATION SEAL will be awarded to students who meet each of the following four criteria: 1) Satisfy the requirement to earn a Standard or Advanced Studies Diploma; AND 2) Complete Virginia and United States History and Virginia and United States Government courses with a grade of "B" or higher in each course; 3) Complete 50 hours of voluntary participation in community service or extracurricular activities related to civics AND 4) Have good attendance and no disciplinary infractions as determined by local school board policies.

EXCELLENCE IN SCIENCE AND THE ENVIRONMENT SEAL is awarded to students who meet the following criteria: 1) Earn a Standard or Advanced Studies Diploma; 2) Complete at least three first-level board-approved laboratory science courses and at least one rigorous advanced-level or postsecondary-level laboratory science course, each with a grade of "B" or higher; 3) Complete laboratory or field-science research and present that research in a formal, juried setting; 4) Complete at least 50 hours of voluntary participation in community service or extracurricular activities that involve the application of science such as environmental monitoring, protection, management, or restoration.

GOVERNOR'S SEAL will be awarded to students who complete the requirements for an Advanced Studies Diploma with an average grade of "B" or better, and successfully complete college-level coursework that will earn nine transferable college credits.

STEM SEAL shall be awarded to students who earn either a Standard Diploma or an Advanced Studies Diploma and satisfy all Math and Science requirements for the Advanced Studies Diploma with a "B" average or better in all coursework, and successfully complete more than 50 hours or more work-based learning opportunity in a STEM area, and satisfy all requirements for a Career and Technical Education concentration (A concentration is a coherent sequence of two or more state-approved courses as identified in the course listing within the CTE Administrative Planning Guide, and pass one of the following: a Board of Education CTE STEM-H credential examination, or an examination approved by the Board that confers a college-level credit in a STEM field.

Section 1 - Scheduling and Grades

SELECTING COURSES

When selecting courses for the upcoming school year, students and parents/guardians should carefully select the courses to be taken.

The courses chosen should be based on the student's ability, past record of academic achievement, interest in the subject, the career goal(s) of the student, and teacher recommendations. The pursuit of a course of studies leading to entrance into college can include those courses not directly related to college entrance. Art, music, and career and technical courses offer students the opportunity to explore new areas of study as well as gain knowledge and skills that may likely prove useful to them in whatever career they choose.

Students pursuing training in career and technical-oriented courses should take those academic courses specifically required for their career goal.

Through careful course selection and close cooperation between the student and school counselor, a student will be able to pursue a career goal and still have time for other course offerings without excluding any particular area of study.

This catalog is a listing of courses taught in RCPS middle and high schools. All courses are not taught in all schools.

Many courses which are offered are done so contingent upon sufficient student interest. This may result in some courses not being available in certain schools even though they are listed for those schools. The schools in which each subject is taught are indicated by the initials of the school(s) shown below the course's descriptive paragraph.

The initials for each school are as follows:

HS	All regular high schools
MS	All middle schools
BCAT	Burton Center for Arts & Technology
CSH	Cave Spring High School
GH	Glenvar High School
HVH	Hidden Valley High School
NH	Northside High School
WBH	William Byrd High School
CSM	Cave Spring Middle School
GM	Glenvar Middle School
HVM	Hidden Valley Middle School
NM	Northside Middle School
WBM	William Byrd Middle School

Students desiring to take a course offered at a school other than their assigned school should contact their school counselor for details.

HOW TO READ COURSE DESCRIPTIONS

Course title

AP ENGLISH 11: LANGUAGE AND COMPOSITION

Number of Credits

Credit(s): 1w

Prerequisite(s): English 10

School(s) offering course: All HS

Schools offering this course

Courses needed or other requirements to be met before you can take this course

Dual Enrollment with VWCC available

Course Number(s)

1196

1196D

Dual Enrollment:

Grade level(s): 11-12

Course offered to students in these grade levels

Course Description

This course will give students the opportunity and experiences to become sophisticated readers and writers. Students will study prose written from a variety of periods, disciplines, and rhetorical contexts written for a variety of purposes. Instruction incorporates the Standards of Learning set forth by the state of Virginia. Students will be encouraged to take the AP exam. **Summer reading is required.**

STANDARD DIPLOMA WITH CREDIT ACCOMMODATIONS

Credit accommodations provide alternatives for students with disabilities in earning the standard and verified credits required to graduate with a Standard Diploma. Credit accommodations for students with disabilities may include:

- Alternative courses to meet the standard credit requirements
- Modifications to the requirements for locally awarded verified credits
- Additional tests approved by the Board of Education for earning verified credits
- Adjusted cut scores on tests for earning verified credits
- Allowance of work-based learning experiences through career and technical education (CTE) courses

While credit accommodations provide alternate pathways and flexibility, students receiving accommodations must earn the 22 standard credits and five verified credits required to graduate with a Standard Diploma.

Eligibility Criteria: Credit accommodations for the Standard Diploma shall be determined by the student's Individualized Education Program (IEP) team or 504 plan committee, including the student where appropriate, at any point after the student's eighth-grade year. The school must secure the informed written consent of the parent/guardian and the student, as appropriate, to choose credit accommodations after review of the student's academic history and full disclosure of the student's options.

The student must meet the following criteria to be eligible to receive credit accommodations for the Standard Diploma:

- Student must have a current IEP or 504 plan with standards-based content goals.
- Student has a disability that precludes him or her from achieving and progressing commensurate with grade level expectations, but is learning on grade level content.
- Student needs significant instructional supports to access grade level Standards of Learning (SOL) content and to show progress.
- Based on multiple objective measures of past performance, student might not be expected to achieve the required standard and verified units of credit within the standard time frame.

For more information, please see the student's school counselor or case manager.

GRADE LEVEL DESIGNATIONS

High school grade level assignments will be made according to the total number of credits the student has earned as follows:

Grade	Units of Credit Earned
9 (freshman)	0
10 (sophomore)	6
11 (junior)	12
12 (senior)	18

FULL DAY SCHEDULE

All students in the secondary schools shall maintain a full day schedule. A full day schedule is defined as a minimum of five credit-bearing courses per semester.

Criteria for exemption from full-day attendance at the high school level are as follows.

Student must meet all of the following criteria:

- a senior and qualify for a hardship, health problem(s), or an Individualized Education Plan (IEP).
- currently enrolled or have completed the necessary courses to meet graduation requirements.
- employed and/or enrolled in a program approved by the principal.

All exceptions to a full-day schedule must be approved on an individual basis by the high school principal and the superintendent.

COURSE LOAD

All students shall be expected to carry the normal load of classroom work required to meet the minimum standards necessary for graduation and the attendance requirements of the state.

Students on the secondary level may be permitted to carry additional courses provided their records indicate their ability to handle such courses, their presence in the class will not cause overcrowding, and the needs of the students requiring the courses have been fulfilled.

SCHEDULING ADJUSTMENT POLICY

1. Changes from one course to another will be made under the following circumstances only:

- Failure of a course that is a prerequisite for a scheduled course or a graduation requirement;
- Human or computer error;
- Grouping adjustments and/or balancing of class sizes;
- Recommendation of Child Study Committee or IEP Committee.
- Acceptance or removal from an Apprenticeship

2. Dropping a credit-bearing course:

Students who withdraw from a course after the drop dates described below will receive a failing grade for the course. In grades 9-12 a student must be enrolled in a minimum of five (5) credit-producing courses at all times.

COURSE TYPE	DROP DATE
Full-year course	When parents have been notified of grades at midpoint of the first nine weeks grading period.
RCPSOnline Academy	6 weeks after course has begun
Semester course	2 ½ weeks after course has begun
RCPSOnline Academy	3 weeks after course has begun
2-3 credit block course	2 ½ weeks after course has begun
Chemistry, Biology II, AP Biology, AP Chemistry, AP Physics, any mathematics course, any world languages course, any specialty center course of one or more credits, COE/Co-op portion of a CTE course	When the first report card is sent home for the first nine weeks grading period. 5 days after the end of the first nine weeks for 1st semester RCPS Online Academy courses. 5 days after the end of the 3rd nine weeks for 2nd semester RCPS Online Academy courses.
Dual enrollment courses	Follow VWCC policy

3. Adding a credit-bearing course:

- No student may add a credit-bearing course after the drop period for the course. This applies to all RCPSOnline Academy courses.
- Exception: Middle School students taking Algebra I or Geometry may be moved to an alternative math at semester.
- Exception: No student may add Chemistry, Biology II, AP Biology, AP Chemistry, AP Physics, any mathematics course*, any world languages course, or any specialty center course of one or more credits after parents have been notified of grades at midpoint of the first nine weeks grading period.
- *Students may add AFDA or College Algebra at the end of the first nine weeks grading period once report cards have been sent home.
- In transferring from one course to another in the same discipline, the student will have both grades counted in the nine-weeks in proportion to the time spent in each class.

4. Transfer students from other accredited schools will be the exception to this policy and will be evaluated and placed based upon the merits of the individual cases.

REMOVAL OF CREDIT-BEARING COURSE FROM THE SCHOLASTIC RECORD (Middle School Students)

The parent/guardian of any student enrolled in a middle school, taking a credit-bearing course, may request that the credit-bearing course be removed from their child's record prior to the beginning of the 9th grade year.

If the parent/guardian elects to remove their child's credit-bearing course from their record and if it is the first course in a sequence of courses, i.e., a prerequisite for further courses in the same curricular area, then that course must be taken again for credit and completed satisfactorily before the student can be enrolled in any other course(s) in the sequence.

All requests must be made on a standard form that can be obtained from the school counseling office of the school the student attends.

PROMOTION POLICY

The schools of Roanoke County shall develop such programs that best meet the needs of all students and which can be efficiently administered by the staff of the respective schools in compliance with the provision established by the State Board of Education in Regulations Establishing Standards for Accrediting Public Schools in Virginia. Promotion or retention of a student is of necessity based upon state and local requirements. Please see School Board Policy 6.18 for promotion/retention specifics for each grade level.

GRADING SCALE

- A - 90-100 Superior student performance in relation to objectives established for the course
- B - 80-89 Above average student performance in relation to objectives established for the course
- C - 70-79 Average student performance in relation to objectives established for the course
- D - 60-69 Minimal student performance in relation to objectives established for the course
- F - 0-59 Performance that does not meet minimal objectives established for the course

GRADE POINT AVERAGE (WEIGHTED COURSES)

A student's grade point average in RCPS is computed on a four-point scale using the final yearly average with computation beginning with high school credit-bearing courses and continuing through the end of the senior year.

Weighted courses include Advanced Placement courses, dual-enrolled courses, certain Governor's School courses, and certain Specialty Center courses.

When a student repeats the same course he or she has already taken, the highest final grade will be used for class rank computation. Both grades will be shown on the transcript unless the course is repeated in the summer school session immediately following the school year in which the course was first taken. Credit will be awarded on the transcript the first time the course is passed.

Class rank computation methods will be consistent throughout the county. Grades and credits established by a transfer student from an accredited school are included in the computation of that student's GPA according to the Roanoke County Schools policy. According to policy, transfer students' grades are weighted only if those courses are weighted in Roanoke County.

Grade Point Values

Non-weighted courses are assigned the following quality point values:	Weighted courses are assigned the following quality point values:
A = 4 points	A = 5 points
B = 3 points	B = 4 points
C = 2 points	C = 3 points
D = 1 point	D = 1 point
F = 0 points	F = 0 points

In this Registration Guide, weighted courses are indicated by "w" next to the course credit. See page 9 for an example.

Section 2 – Education Requirements

STANDARDS OF LEARNING (SOL) TESTS

The Virginia SOL tests are developed to measure student progress on the SOL objectives. The SOL tests are designed to assess knowledge as well as critical thinking skills. Students are assessed as they move through the educational program in each of the following core content areas: English, mathematics, science, and history/social science.

High school SOL tests are given in certain high school courses and are referred to as End-of-Course (EOC) tests. Students are administered the EOC tests in the spring of each year with opportunities for retesting in the summer and fall.

Middle school students are administered the following SOL tests:		High school students take the following EOC tests:	
Grade 6	Math Reading	English	Grade 11 Reading, Literature, Research
Grade 7	Math *Algebra I Reading	Mathematics	Algebra I Algebra II Geometry
Grade 8	English Math *Algebra I *Geometry Science Civics Writing	History/Social Science	World History & Geography to 1500 World History & Geography 1500 to Present U.S. & Virginia History World Geography
*Courses used for high school verified credit		Science	Earth Science Biology Chemistry

*Once students meet their high school verified credit requirements in a subject, they no longer are required to take an SOL in that subject

CTE CREDENTIAL REQUIREMENT

Students must complete an AP, DE, work-based learning, or CTE credential. See additional graduation requirements.

REQUIREMENT FOR TRAINING IN FIRST AID, CPR, AND AED

The Code of Virginia requires that all students receive training in emergency first aid, CPR, and the use of AEDs. This training will be included in the RCPS Health and PE 9 curriculum.

SEQUENTIAL ELECTIVES REQUIREMENT

Students who will graduate with a standard or advanced studies diploma will be required to take at least two sequential electives that may include a concentration of courses selected from a variety of options. The options include an approved sequential combination of eighteen or thirty-six week elective courses.

Sequential electives may be in any discipline as long as the courses are not specifically required for graduation. An introductory course followed by another level of the same course of study in any content area can be used. CTE completer sequences may count as sequential electives.

Students who attend Burton Center for Arts and Technology (BCAT) must take two years of study in the same program to satisfy the sequential elective requirement with exceptions in business and culinary. Please see a counselor for details.

PERSONAL FINANCE REQUIREMENT

The Code of Virginia requires that all middle and high school students master objectives developed by the State Department of Education for economics education and financial literacy. Roanoke County students meet this requirement by successfully completing a course in Economics and Personal Finance, described in the Business and Information Technology section of this guide.

ONLINE COURSE REQUIREMENT

The Code of Virginia requires that all students take at least one online course in order to earn a standard or advanced studies diploma. VDOE has determined that this requirement may be met via a hybrid online/face-to-face class. The RCPS Economics and Personal Finance course qualifies as a hybrid course since it includes an online component.

FINE ARTS/CAREER AND TECHNICAL EDUCATION REQUIREMENT

The Commonwealth of Virginia requires that each student pass at least one credit in the field of Fine Arts or Career and Technical Education for Advanced Studies diploma and 2 credits in Fine Arts, CTE, or World Languages for the Standard diploma in order to meet the requirements for graduation. Following is a listing of the courses and credits that meet this requirement.

The Fine Arts are primarily 9-12 grade courses offered in art, music, dance, or theater.

Course Name Credit(s)

AP Studio Art	1.0
Art I	1.0
Art II	1.0
Art III	1.0
Art IV	1.0
Chorale	1.0
Graphic Design I	1.0
Graphic Design II	1.0
Concert Band	1.0/1.5
Instrumental Ensemble	1.0
Journalism	1.0
Mixed Chorus	1.0
Music Theory I	1.0
Performing Arts I*	2.0
Performing Arts II*	2.0
Performing Arts III*	2.0
Performing Arts IV*	2.0
Digital Photography / Art I	1.0
Digital Photography / Art II	1.0
Photojournalism	1.0
Stage Band	1.0
Symphonic Band	1.0/1.5
Theater Arts	1.0
Visual Arts I – Cultures*	2.0
Visual Arts II – Styles*	2.0
Visual Arts III – Personal Style*	2.0
Visual Arts IV – Careers*	2.0
Art Internship*	1.0
Vocal Ensemble	1.0

CAREER AND TECHNICAL EDUCATION

Course Name Credit(s)

Accounting/COE	1.0/2.0
Adulting 101	1.0
Advanced Marketing	1.0/2.0
AP Computer Science A	1.0
Architectural Design and Civil Engineering	1.0
Auto Service Technology I	2.0
Auto Service Technology II	2.0
Auto Service Technology III	2.0
Building Trades I	2.0
Building Trades II	2.0
Building Trades III	2.0
Business Law	1.0
Child Development	1.0
Computer-Aided Design (CAD)	1.0
Computer Information Tech I	2.0
Computer Information Tech II	2.0
Computer Programming	1.0
Cosmetology I	2.0
Cosmetology II	2.0
Cosmetology III	2.0
Criminal Justice I	2.0
Criminal Justice II	2.0
Criminal Justice III	2.0
Culinary Arts I	2.0
Culinary Arts II	2.0
Cybersecurity I	2.0
Cybersecurity II	2.0
Design and Fabrication Shop	1.0
Early Childhood Education I	2.0
Early Childhood Education II	2.0
Electronics	1.0
Emergency Medical Technician I	2.0
Emergency Medical Technician II	2.0
Engineering Analysis and Appl II*	1.0

Engineering Design and 3D Modeling	1.0
Engineering Drawing	1.0
Engineering Economy*	0.5
Engineering Exploration I*	1.0
Engineering Internship*	1.0
Engineering Methods*	1.0
Engineering Research*	1.0
Entrepreneurship	1.0
Fashion Marketing*	1.0/2.0
Game Design and Programming I	2.0
Game Design and Programming II	2.0
Graphic Communication I*	2.0
Graphic Communication II*	2.0
Introduction to Mass Comm*	1.0
Introduction to Culinary Arts	1.0
Intro to Marketing (8111 / WBH)	0.5
Introduction to Marketing (8110)	1.0
Introduction to Nursing Careers I	2.0
Introduction to Nursing Careers II	2.0
Marketing	1.0/2.0
Masonry I	2.0
Masonry II	2.0
Masonry III	2.0
Mass Communication Capstone*	1.0
Mechatronics/Robotics I	2.0
Mechatronics/Robotics II	2.0
Communication Strategies*	1.0
Multimedia Storytelling*	1.0
Senior Seminar and Internship*	1.0
Motorsports Technology I	2.0
Motorsports Technology II	2.0
Motorsports Technology III	2.0
Networking Concepts	2.0
NNDCC I	1.0
Nutrition and Wellness	1.0
Photography and Digital Imaging	1.0
Principles of Business	1.0
Principles of Business Ownership and Advertising	1.0
Radiologic Technology I	2.0
Robotics	1.0
Sports, Entertainment and Recreation Marketing	1.0/2.0
Teachers for Tomorrow	1.0
Teaching Internship	2.0
Video Design and Multimedia	1.0
Welding I	2.0
Welding II	2.0
Welding III	2.0
Wood Shop I	1.0
Wood Shop II	1.0

WORLD LANGUAGES

French I	1.0
French II	1.0
French III	1.0
French IV	1.0
AP French	1.0
German I	1.0
German II	1.0
German III	1.0
German IV	1.0
AP German	1.0
Latin I	1.0
Latin II	1.0
Latin III	1.0
Latin IV	1.0
AP Latin	1.0
Spanish I	1.0
Spanish II	1.0
Spanish III	1.0
Spanish IV	1.0
AP Spanish	1.0

*Students must be enrolled in Specialty Centers.

Section 3 – Programs and Services

MIDDLE SCHOOL EXPLORATORY PROGRAM

Each middle school offers exploratory courses to sixth grade and seventh grade students which are designed to allow young adolescents to explore a variety of interests. These courses may vary from school to school but topics are generally aligned to the elective options available in the high schools.

Students in Grades 6/7 may select from the following electives and/or interest block program.

1. Band
2. Chorus
3. Interest Block – Courses at each school are based on available staffing.

SUMMER SCHOOL

A listing of courses offered and additional information will be available in late May in the principal's office and the school counseling office.

ADVANCED CLASSES

Who Should Enroll in These Courses?

These courses are higher level versions of existing courses that are open to ANY student who wants or needs a more challenging curriculum.

Division Philosophy and Procedures Regarding Advanced Courses

- They are available to ANY student who wants a higher challenge. No prerequisites or artificial barriers are put in place.
- Students can mix regular level and advanced courses.
- Advanced courses will focus on developmentally appropriate preparation in the skills necessary for future success in high school coursework such as AP and dual enrollment.
- Advanced courses are not weighted higher in GPA calculations.
- While the amount of work may be the same, advanced coursework and assessments are significantly different and more challenging from those given in the equivalent regular level course.

ADVANCED PLACEMENT PROGRAM

Advanced Placement (AP) courses offer students the opportunity to do college-level work while still in high school. They are available to qualified, academically oriented students in the tenth, eleventh, and twelfth grades. Students may take the nationally administered examinations in May. According to their performance on the examination and depending on the requirements of individual colleges, they may receive college credit hours for each examination they take. This makes it possible for a student who is successful on a number of the exam(s) to enter college at or near the sophomore level.

RCPS offers a wide variety of AP courses:

AP Biology	AP Calculus AB	AP World History
AP Physics B	AP Calculus BC	AP US Govt. & Politics
AP Chemistry	AP Computer Science A	AP US and Virginia History
AP Statistics	AP English 11: Lang. and Comp.	AP Latin
AP Studio Art	AP English 12: Lit. and Comp	AP French Lang.
AP German	AP Psychology	AP Spanish Lang.

INDEPENDENT STUDY

An independent study provides the student the opportunity to pursue a program of his/her own design in the areas of mathematics, world languages, music, art, science or trade and industry. **An independent study will only be considered if all other Roanoke County courses in that field of study have been exhausted by the student.** Students who wish to be considered for this program must submit in writing **prior to May 1** their proposed program.

The proposal must contain the following:

- the area(s) of concentration;
- a description of the study;
- the terminal objectives of the study;
- the methods for meeting terminal objectives;
- types of assistance needed to complete the study;
- the evaluation processes to be used;
- a description of the method(s) to be used to document the work;

This is a highly selective program designed for students who have shown academic excellence, a high interest level, and the ability to work independently. Interested students should consult with their school counselor during the registration process. Eligible students will be asked to confer with a member of the respective department involved. Upon mutual agreement, final approval for the independent study program will be made by the Director of Instruction, principal, subject area supervisor, and supervising teacher. A student may enroll in no more than one independent study per year. Independent study is an elective course carrying at least one full, unweighted local credit and **cannot be substituted for a required or another elective course.**

DISTANCE LEARNING

Depending on course enrollment and availability, high school courses may be taught via real-time distance learning instruction, with the teacher broadcasting from one RCPS high school to students located in another RCPS school.

VIRTUAL VIRGINIA

Grades 9-12 only

Virtual Virginia is a state online course provider that offers required or supplemental courses as available. These courses may be available if they are not otherwise provided in the base school or are not accessible due to scheduling conflicts. See your counselor for details regarding these opportunities. Principals must approve any student who takes a class through the Virginia Virtual Advanced Placement School. Fees may be required.

Virtual Virginia courses are rigorous and require good organizational skills and study habits. Students who are not successful in a VVA course will need to enroll in the course at their home school.

EARLY COLLEGE SCHOLARS

Early College Scholars is a program that encourages juniors and seniors who are prepared and interested in accelerating their coursework toward a college degree while still in high school. A student who wishes to be part of this program must sign an agreement along with his parent, counselor, and principal, and agree to

- have a "B" average or better;
- be pursuing an Advanced Studies Diploma;
- be completing or have completed college level course work (i.e., Advanced Placement or dual enrollment) that will earn at least 15 transferable college credits.)



Grades 9-12 only

For more than seventeen years, Roanoke County Schools has offered online learning for high school students through RCPSOnline Academy. We have developed a rich curriculum, delivered by our teachers, since the very beginning of the program. Our experience with online learning puts us in a unique position to meet the wide range of current needs.

RCPSOnline Academy classes differ from regular classes in several ways. Aside from the obvious lack of face-to-face time in a classroom, they are structured, paced, and scheduled using best practices for online teaching. Some of the key differences are:

- The courses are largely self-paced with deadlines set by the instructor.
- With the exception of world language courses, there are no set times a student must be online with the instructor.
- Students have ready access to their instructors for help, guidance, and individual attention.
- Every course is offered through Blackboard, our learning management system.
- Except for a few dual enrollment courses (with VWCC), most courses are completed in a semester.
- Some courses, specifically courses with end-of-course SOL tests, do require in-person testing. With these, we offer flexibility of time and place to meet the individual needs of the student.

We offer several ways to take advantage of the opportunities offered by RCPSONline Academy:

Full-time RCPSONline Academy –

We have developed a pathway to graduation for students seeking both standard and advanced diplomas. Our course offerings include both core and elective choices that will satisfy the graduation requirements put forth by the Virginia Department of Education.

A full time RCPSONline Academy student will have a schedule that looks more like college, or a 4x4 block schedule. The student will take three or four classes per semester. Please note that World Language courses require two semesters to complete and require two synchronous meetings a week for communicative purposes. Because the schedule is very different from a face-to-face, A/B block schedule, a student who chooses the RCPSONline Academy full-time must stay in RCPSONline Academy for a full year. Students who are enrolled in the RCPSONline Academy are eligible to participate in VHSL athletic and academic activities and school-related events such as prom, homecoming and clubs. Roanoke County residents can attend the RCPSONline Academy tuition-free.

NO-COST Courses –

These are individual courses students take for a variety of reasons. Registration for NO-COST courses takes place only during the registration period and may not be added after the window closes. The only exception is for newly enrolled students. Students enrolling in NO-COST courses will be assigned fall or spring session depending on course and instructor availability. Students may not request a specific session.

Supplemental Courses –

These are individual courses students **pay tuition** (\$400 per credit) to take and fall outside of their regular schedule. Students may register for supplemental courses at any time during the school year. Registration for a supplemental course is not complete until tuition is paid in full. Students enrolled in an online SOL course are required to take the corresponding SOL test. The drop-without-penalty date for any online course is three weeks from the beginning of the course. Students dropping an RCPSONline Academy course after the drop date will receive a failing grade. No tuition refunds will be given after the course begins.

Students should

- avoid procrastinating behavior;
- possess motivation to learn;
- possess the ability to follow written directions;
- learn independently;
- have access to an online service that is reliable;
- have access to a reliable a printer
- possess a working knowledge of technology, including Internet research skills and skilled use of the above software;
- communicate effectively with their instructor regarding subject matter and any other problem.
- read and comprehend a variety of written communications.

Online courses have no exam exemptions. The following online classes are offered:

½ Credit Courses

Health 9 (Special circumstance only)	V7320	Health 10 (Special circumstance only)	V7420
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1 Credit Courses

Requires both fall and spring sessions

VA/US Government (Dual)	V2440D	German III	V5230
VA/US History (Dual)	V2360D	Latin I	V5310
AP English 11	V1196	Latin II	V5320
Dual Enrollment	V1196D	Latin III	V5330
French II	V5120	Spanish I	V5510
French III	V5130	Spanish II	V5520
German II	V5220	Spanish III	V5530

1 Credit Courses

Completed in one session

Advanced Algebra I	V3130.1P	College Algebra	V3137
Advanced Algebra II	V3135.1P	Computer Math	V3184
Advanced Geometry	V3143.1P	Computer Programming	V6640.2P
Advanced Biology	V4310.1P	Cybersecurity II (2 credits)	V6304
Advanced Chemistry	V4410.1P	Digital Photography I	V9190.1
Advanced English 9	V1130.1P	Digital Photography II	V9190.2
Advanced English 10	V1140.1P	Earth Science	V4210
Advanced World History I	V2215.1P	Ecology	V4340
Advanced World History II	V2216.1P	Economics & Personal Finance	V6120
AFDA	V3134	English 9 CB	V1130CB
African American History	V2370	English 10 CB	V1140CB
Algebra I	V3130	English 11 CB	V1150CB
Algebra II	V3135	English 12 CB	V1160CB
AP English 12	V1195	Entrepreneurship	V9093
Dual Enrollment	V1195D	Geometry	V3143
AP Psychology	V2902	Health and PE 10	V7400
AP Calculus AB	V3177	Health and PE 9	V7300
Dual Enrollment	V3177D	Marketing	V8120
AP Calculus BC	V3180	Precalculus	V3164
Dual Enrollment	V3180D	Precalculus (Dual)	V3164D
AP Statistics	V3192	Principles of Business	V6115
AP US Govt and Politics	V2445	Psychology	V2996
AP US History	V2319	VA/US Government	V2440
AP World History	V2380	VA/US History	V2360
Bio II: Anatomy & Physiology	V4330	World Geography	V2210
Biology	V4310	World History I	V2215
Chemistry	V4410	World History II	V2216

*All supplemental courses may be dropped for full refund prior to the first day of the course. No refunds will be issued once the course has begun.

DUAL ENROLLMENT

RCPS has a rigorous course of study that includes the offering of dual enrollment classes for college credit from Virginia Western Community College. High school graduation credit will also be given for successful completion of the course.



Dual enrollment courses are taught at the high school by a VWCC-credentialed high school staff member. Books for the course will be furnished at no charge to the student. As the tuition at VWCC changes, the cost for dual enrollment classes will reflect that change. **Tuition will be announced in the spring after VWCC announces its tuition.**

In order to participate in a dual enrollment class, a student must complete a VWCC application, earn a satisfactory score on the corresponding section of the Virginia Placement Test, and have met the necessary prerequisites. The payment of tuition is required depending on current VWCC tuition agreements. Registration for dual enrollment courses is completed at the local high school. Credits from Virginia Western may be transferred to many colleges and universities, dependent upon individual admission practices.

To enroll in a second course within a series of dual enrollment courses, VWCC recommends that a student have earned a grade of "C" or better in the first course. Note: many colleges will not accept a grade of "D" for transfer credit.

For some dual enrollment courses, VWCC may have different grading expectations than listed on the RCPS syllabus for that course. Therefore, it is possible for a VWCC grade for a course to differ from the high school grade. Instructors should note grading differences on their syllabi. Dual enrollment students are not eligible for exam exemptions.

Dual Enrollment course offerings are based on the instructor credentialing required by the VCCS and SACSCOC requirements and Dual Enrollment courses are subject to change. In order to participate in a dual enrollment class, a student must apply to VWCC and meet the Math and English criteria for admission to the college as well as any specific course pre- or co-requisites. Dually Enrolled students may take a maximum of 18 credits per semester through VWCC.

Students seeking to enroll in a dual enrollment course that transfers to a four-year college, must have a 3.0 high school GPA and successfully completed Algebra 1. Some course may have additional pre-requisites that are noted in the college's on-line catalog.

Students seeking to enroll in a CTE trade and industry class must have a 2.0 GPA and have passed the Algebra I SOL. For more information about VWCC DE Admission criteria, refer to the VWCC website: <https://www.virginiawestern.edu/get-started/dual-enrollment/placement-testing/> Please refer to the VWCC Dual Enrollment website for additional information. <https://www.virginiawestern.edu/dualenrollment/index.php>

ASSOCIATES DEGREE AVAILABLE THROUGH VWCC AND RCPS

A Roanoke County student may earn a General Studies AS degree or certificate through Virginia Western Community College by taking dual enrollment courses and AP courses (a 3 or better must be achieved on the AP College Board exam before VWCC credit is awarded). Many courses may be taken through the student's regular high school schedule, taught by VWCC-credentialed faculty. For required courses not offered through RCPS, students may complete degree work through online, hybrid, evening, or weekend classes offered by the college. Please contact your school counselor for more information and consult the VWCC Dual Enrollment website (virginiawestern.edu) and refer to "HB1184".

SPECIAL EDUCATION SERVICES

Roanoke County Public Schools provides intervention services through various models to identified students receiving special education services. Special education courses are offered to provide students with specialized instruction. These courses are designed to meet the Individualized Education Program (IEP) needs of students with disabilities, and when appropriate, incorporate the Standards of Learning (SOL) necessary to satisfy course requirements.

ENGLISH LANGUAGE PROFICIENCY

English language proficiency instruction is offered to students who are identified as learning English in addition to their primary language. This program provides intensive instruction and/or support in reading, writing, listening to, and speaking English.

GIFTED EDUCATION SERVICES

Opportunities within the Regular School Day, Grades 6-8

The sixth through eighth grade gifted curriculum focuses on the areas of creative problem solving, team building, and leadership. Sessions are offered for academically gifted students at each middle school once per nine weeks

Gifted Art, Grades 6-8

The Roanoke County Schools Gifted Art Program offers after school and summer enrichment programs for students in grades three through eight identified as exceptionally talented in art. A student may be nominated for screening beginning in second grade until the second semester of seventh grade. Any transfer student with proof of previous identification should contact the Supervisor of Art. Any adult may nominate a student for the gifted art program.

Insight: Unveiling Career Opportunities, Grades 11-12

INSIGHT is a 0.5 credit elective course for identified gifted eleventh and twelfth grade students. This course provides students with opportunities to explore a career through direct contact with a professional working in the career and through related seminar work. Students work with a mentor for a minimum of 50 hours outside of the school days. Students also meet with the INSIGHT Coordinator and participate in 25 hours of seminars focusing on related career exploration topics. These seminars are scheduled on a monthly basis throughout the school year.

Every effort is made to help find a suitable mentor; however, participation in the course is contingent upon mentor availability. Students who successfully complete the first-year course will have the option of participating in the INSIGHT program for a second year. Students do not have to participate in their junior year in order to participate in their senior year.

As all hours are worked on personal time, students are asked to seriously assess their academic, extracurricular, and personal time commitments prior to

enrolling in the INSIGHT program. Registration course numbers are 6291 and 6292.

Destination Imagination, Grades K-12

Destination Imagination (DI) is an international organization for students which teaches 21st century skills (critical thinking, collaboration, creativity, communication) and expands imagination through team-based creative problem solving. Parents, teachers, and/or other interested individuals who serve as Team Managers prepare for their roles by participating in training sessions led by the regional DI association.

Roanoke County includes funds in its instructional budget to defray the costs of team memberships, regional and state registration fees, and a portion of expenses incurred by teams advancing to the Global Tournament.

Summer Residential Governor's School

The Summer Residential Governor's School program includes academic, agricultural, artistic, and language programs. Each Summer Residential Governor's School focuses on one special area of interest. These programs provide gifted rising juniors and seniors opportunities for intensive educational experiences in visual and performing arts, humanities, agriculture, life sciences, math, science and technology, and engineering.

Students live on a college or university campus for four weeks. During this time, students are involved in classroom and laboratory work, field studies, research, individual and group projects and performances, and seminars with noted scholars, visiting artists, and other professionals. A director and student-life staff provide supervision of students 24 hours a day, throughout the course of study.

One of the most important aspects of the Summer Residential Governor's School is the opportunity participants have to live, study, and get to know other students with similar interests and abilities from across Virginia. Both co-curricular and extracurricular activities are designed to encourage students' interests and abilities.

Each school division has a specific number of nominations it may send to the Virginia Department of Education. There is no cost to the student except transportation to and from the site and spending money.

ROANOKE VALLEY GOVERNOR'S SCHOOL FOR SCIENCE AND TECHNOLOGY

The Roanoke Valley Governor's School for Science and Technology opened in August 1985. It is a rigorous half-day program designed for ninth through twelfth grade students from Bedford County, Botetourt County, Craig County, Franklin County, Roanoke County, Roanoke City, and the City of Salem, who have creative, capable minds and a strong interest in academics. The screening process for this program begins in January. Students must attend a meeting at the Governor's School in order to receive an application. For additional information concerning next year's program, contact your school counselor or the Governor's School. Acceptance to Governor's School is highly competitive. The following criteria is heavily weighted in the application process: OLSAT scores, SOL scores, and grade point averages of all courses taken beginning with the 6th grade. A student essay is also considered.

COURSES AND CREDITS

SCIENCE OFFERINGS:

RVGS Physics
RVGS Chemistry
AP Chemistry
RVGS Biology+
AP Physics
AP Environmental Science

ELECTIVES:

1.0^W Biotechnology and
1.0^W Bioinformatics
2.0^W Chemical Research
2.0^W Computational Biology
2.0^W Directed Study
2.0^W Environmental Research
2.0^W Engineering Design and
Fabrication

MATHEMATICS OFFERINGS:

RVGS Algebra II
RVGS Precalculus
AP Calculus AB
AP Accelerated Calculus BC+
AP Statistics+
AP Calculus BC
Multivariable Calculus
1.0^W Fundamentals of Research
1.0^W Mentorship
1.0^W Product Design Engineering
1.0^W Python Coding
1.0^W Research Psychology
0.5
0.5^W
0.5^W
0.5^W
0.5^W
0.5^W
0.5^W

+May be dually enrolled

Courses other than mathematics or science will be taken at the student's base school. Placement in the courses listed above is dependent on having the prerequisite and the student's choice.

THE VIRGINIA WESTERN REGIONAL ACADEMY FOR ADVANCED TECHNOLOGY

The regional center for the study of engineering and advanced mechatronics is a career pathway, a focused half-day program, designed for eleventh and twelfth grade students from Craig County, Botetourt County, Franklin County, Roanoke County, Roanoke City, and the City of Salem, who have creative, capable minds and a strong interest in applied academics. All classes will be taught in the Advanced Technology Center on the Virginia Western Community College Campus. The screening process for this program begins in January. Students must attend a meeting at the Academy in order to receive an application. For additional information concerning next year's program, contact your school counselor for the Academy contact information. Parents will provide transportation to the Academy and back to the student's base school.

The Academy will make every effort to stress critical skills and behaviors identified as being the most important skills and behaviors for success for workers in modern business, integrating core academic, workplace readiness skills, and enhanced computer literacy into all curricula.

REGIONAL ACADEMY PROGRAMS: AC & Refrigeration, Engineering, Health Sciences, Mechatronics, Pharmacy Technician, Pre-Health Program

BURTON CENTER FOR ARTS & TECHNOLOGY (BCAT)

Burton Center for Arts and Technology (BCAT) provides courses that are not available at the five county high schools in the areas of technology and the arts. Students attending BCAT usually take four to six classes at their base high school, with the actual number dependent on individual student need, RCPS regulations, and scheduling logistics. Students interested in applying to BCAT should apply online at <https://www.rcps.us/BCAT>.

BCAT is an extension of the base high school. Classes offered at BCAT provide unique educational experiences that can only be provided by the county at a central location because of the facility needed and instructor expertise required. Students attending BCAT classes usually earn two credits toward graduation for each BCAT class they complete. Students who successfully complete a sequence of classes within a program, fulfill attendance requirements, and complete a specified program of professional development are eligible to receive a competency certificate.

Students completing a sequence of certain courses may have the opportunity to earn industry certifications or credentials.

BCAT students are also strongly encouraged to participate in the appropriate student organization for their program. Student organizations are designed to develop leadership skills, develop technical skills, and encourage students to do research and enrichment activities related to their BCAT classes. Student organization activities are co-curricular, although some activities occur in the evenings and on weekends.

Following is a list of courses offered at BCAT. Descriptions of the courses are found in the registration guide section that is listed in bold type above each set of courses.

Specialty Centers	BCAT Programs
Engineering Engineering Economy Engineering Design Engineering Internship Engineering Methods Engineering Research Engineering Exploration I Engineering Analysis and Application II AP Calculus BC Advanced Algebra II AP Calculus AB Integrated Precalculus Advanced Chemistry Integrated Physics Mass Communication Mass Communication Capstone Graphic Communication I & II Introduction to Mass Communication Senior Seminar and Internship Communication Strategies Multimedia Storytelling Advanced English 9 Advanced English 10 AP/DE English 11 Performing Arts Performing Arts I, II, III, IV Visual Arts Visual Arts I - Cultures Visual Arts II- Styles Visual Arts III - Personal Style Visual Arts IV/AP Studio Art – Careers Art Internship	Computer Science and Technology Computer Information Technology I, II Game Design and Programming I & II Networking Concepts Family and Consumer Sciences Culinary Arts I& II Early Childhood Education I& II Teaching Internship Health and Medical Services Emergency Medical Technician I Emergency Medical Technician II Introduction to Nursing Careers I Introduction to Nursing Careers II Radiologic Technology I Trade & Industrial Auto Service Technology I, II, III Building Trades I, II, III Cosmetology I, II, III Criminal Justice I, II, III Masonry I, II, III Mechatronics/Robotics I,& II Motorsports Technology I, II, III Welding I, II, III

RCPS SPECIALTY CENTERS

An Overview

Specialty Centers concentrate on special interests or talents of students. The centers offer Roanoke County students choices to focus their learning experiences and offer rigorous courses to students who have specific interests and career goals.

Four of the RCPS Specialty Centers are located at BCAT and are open to all RCPS high school students. Two of these programs form part of the core of the Governor's STEM Academy. Transportation is provided between BCAT and the student's base school. A fifth specialty center with a business and marketing focus is operated at WBHS as a school-within-a school model and is available to WBHS students.

The application process for RCPS Specialty Centers begins with exploratory meetings and a visit to BCAT in the late fall. Students must complete an application and be accepted before they enter a specialty center. If students complete the four-year sequence of classes at the center, they will be awarded a special seal on their diploma. Classes are offered pending sufficient enrollment.

Center for Engineering

Governor's STEM Academy at Burton Center for Arts & Technology

As part of the Roanoke County Governor's STEM Academy at BCAT, the Center for Engineering offers a four-year advanced curriculum integrating math, science, and technology as a study of the profession of engineering. The Center's curriculum focuses on the development of the theoretical understandings of the engineering discipline and on the practical skills and understandings necessary for any engineer.

Acceptance to the Center for Engineering is very competitive. The following criteria is utilized in the application process: Ability test scores (OLSAT), math SOL scores, a student's math and science average GPA starting from 6th grade. Teacher recommendations and a written essay are used for tie-breaking purposes only.

Goals and Objectives:

- To establish a foundation for the understanding of engineering as a profession;
- To introduce and cultivate the development of engineering analysis, problem solving, and design skills;
- To integrate mathematical and scientific concepts into practical engineering applications;
- To provide individual and group hands-on learning experiences for students;
- To offer real-world engineering experiences through mentoring/internships in a professional setting.

Course Descriptions

ENGINEERING EXPLORATION

C8450

Credit(s): 1

Grade level(s): 9

Prerequisite(s): Meet selection criteria

Students will, through applications in civil/mechanical, electrical/computer, and mechanics engineering, explore the qualitative and fundamental quantitative aspects of engineering. Students will use fundamental math, science, and computer knowledge and skills to gain exposure to the analytical and problem-solving processes associated with engineering and will develop an interest in the discipline in general. Several projects are presented which teach valuable application (hands-on) skills as well as reaffirming theoretical knowledge.

ENGINEERING ANALYSIS AND APPLICATION II

C8451

Credit(s): 1^W

Grade level(s): 10

Prerequisite(s): "C" or above in Engineering Exploration

Students will continue to explore selected disciplines of engineering (civil/mechanical, electrical/computer, biomechanics) in greater depth and complexity to understand foundational math, science, and engineering concepts and their applications and relationships in various related fields. Greater emphasis will be placed on system analysis and complexity. Students will receive instruction in engineering skills such as 3D modeling, technical presentation, data analysis, and digital electronics, and begin to explore the interrelated aspects of engineering and the vast presence of engineering in everyday objects. Projects related to content instruction will be completed.

Center for Engineering Burton Center for Arts and Technology

Four-Year Curriculum For Completion of Specialty Center Program

Grade 9	Grade 10	Grade 11	Grade 12
Engineering Exploration I	Engineering Analysis and Application II	Engineering Methods	Engineering Research
Advanced Algebra II**	Integrated Precalculus**	AP Calculus AB**	Engineering Internship
		Advanced Chemistry**	AP Calculus BC**
		Integrated Physics**	Engineering Design
			Engineering Economy
English	English	English	English
Social Studies	Social Studies	Social Studies	Social Studies
Science	Science	Elective*	Science
Health and PE	Health and PE	Elective*	Elective*
Language	Language		
Elective*	Elective*		

*Optimum suggested course of study includes programming as an elective for two of the four years.

**Counts toward graduation requirements for mathematics and science.

ENGINEERING METHODS

C8452

Dual Enrollment

C8452D

Credit(s): 1^W

Grade level(s): 11

Prerequisite(s): "C" or above in Engineering Analysis and Application II

This course introduces the engineering profession, professionalism, engineering education, and ethics; it covers problem presentation, engineering graphics, digital computer application, coding, logical operations, word processing, and programming in current software systems. Students can dually enroll in two engineering courses: Introduction to Engineering, and Introduction to Engineering and Engineering Methods. Projects related to content instruction will be completed.

ENGINEERING RESEARCH

C8491

Credit(s): 1^W

Grade level(s): 12

Prerequisite(s): "C" or above in Engineering Methods or written teacher recommendations

Students enrolled in Engineering Research must have mastered and completed the Engineering Methods course and are concurrently enrolled in Engineering Professional Development and Internship. Students will, develop public speaking skills, learn to write a technical research report and present the report verbally to a panel of industry professionals, as well as develop and complete a research project in a field of engineering.

ENGINEERING INTERNSHIP **C8453**
Credit(s): 1W **Grade level(s): 12**
Prerequisite(s): "C" or above in Engineering Methods or written teacher recommendations

Students must have mastered and completed the Engineering Methods course to be enrolled in Engineering Internship. This course starts with lessons in on-the-job safety and professional development. The students will explore the engineering profession through experiences in local industry and research facilities. Students will work with a mentor during this time and complete research related to their area of interest. Correlation with the Engineering Research class will be heavily incorporated. Business-casual attire is required.

ENGINEERING ECONOMY **C8465**
Credit(s): 0.5W **Dual Enrollment** **C8465D**
Grade level(s): 12
Prerequisite(s): "C" or better in Engineering Methods

Engineering Economy presents economic analysis of engineering alternatives. Studies include economic and cost concepts, calculating economic equivalence, comparing alternatives, replacement economy, economic optimization in design and operation, depreciation, and after-tax analysis. Dual enrollment with Virginia Western will be offered.

ENGINEERING DESIGN **C8404**
Credit(s): 0.5W **Grade level(s): 12**
Prerequisite(s): "C" or better in Engineering Methods

Building on principles and practice of engineering design and problem solving, this course will be centered on a hands-on development of a team-based design project. New material covered will include fundamental concepts of statics for 3 dimensional cases using vector notations. The development of equilibrium concepts will be beneficial to students in critical evaluations of their prototype (design solution). Students will be expected to participate in a hands-on team-based design project which will include modeling and visual representations of their design, and the development/presentation of financial analysis of the design solution. The design projects will be selected from one of the engineering challenges in health, safety or environmental fields. Students will be required to prepare an e-portfolio that could be placed on the departmental website.

ADVANCED ALGEBRA II **C3135.1P**
Credit(s): 1 **Grade level(s): 9**
Prerequisite(s): "B" or above in Geometry or "C" with teacher recommendation

In this course, a thorough treatment of advanced algebraic concepts will be provided through the study of functions, equations, inequalities, systems of equations, polynomials, rational and radical equations, complex numbers, and sequences and series. Emphasis will be placed on practical applications and modeling throughout the course of study. Oral and written communication concerning the language of algebra, logic of procedures, and interpretation of results will permeate the course. This course includes a transformational approach to graphing functions. Transformational graphing uses translation, reflection, dilation, and rotation to generate a "family of functions" from a given "parent" function and builds a strong connection between algebraic and graphic representations of functions. Students will vary the coefficients and constants of an equation, observe the changes in the graph of the equation, and make generalizations that can be applied to many graphs. Graphing utilities (calculators, computers, and other technology tools) will be used to assist in teaching and learning.

INTEGRATED PRECALCULUS **C3162**
Credit(s): 1W **Dual Enrollment** **C3162D**
Grade level(s): 10
Prerequisite(s): "C" or above in Algebra II or written teacher recommendations

Students enrolled in Integrated Precalculus must have mastered basic algebraic concepts. New concepts introduced in Integrated Precalculus will be reinforced with engineering and CAD coursework and laboratories. Some of the mathematics topics will include an introduction to functions; linear functions; exponential and logarithmic functions; transformations of functions; trigonometric functions; composite, inverse, and combination functions; polynomial and rational functions; trigonometry of vectors; and related topics including geometric series, parametric equations, implicitly defined curves, and complex numbers. Graphing calculators and laptop computers will be an integral part of this course. This course includes a study of topics in linear algebra.

AP CALCULUS AB **C3177**
Credit(s): 1W **Dual enrollment** **C3177D**
Grade level(s): 11-12

Prerequisite(s): Integrated Precalculus
 Advanced Placement Calculus AB consists of a full year of work in calculus and related topics.

This course is intended for students who have a thorough knowledge of analytic geometry and elementary functions in addition to college preparatory algebra, geometry, and trigonometry. The purpose of the course is to prepare the student for advanced placement in college calculus.

AP CALCULUS BC **C3180**
Credit(s): 1W **Dual Enrollment** **C3180D**
Grade level(s): 12

Prerequisite(s): AP Calculus AB
 AP Calculus BC is a course designed to build on the concepts learned in AP Calculus AB and to prepare students for the higher levels of mathematics. The diversity of topics and versatility of the knowledge gained in this course will enable students to solve problems in many fields of study, including physics, engineering, biology, and chemistry. The course includes vectors and dynamical systems, series and approximation, advanced integration techniques, parametric and polar functions, multiple variable functions, differential equations, and real-world modeling examples. The students will extend the applications of calculus to a wider arena of physical phenomena through the use of graphing calculators and computer software.

ADVANCED CHEMISTRY **C4410.1P**
Credit(s): 1 **Grade level(s): 11**
Prerequisite(s): Biology; "B" or above in Geometry.
Corequisite: Algebra II
May take Biology concurrently.

Advanced Chemistry is a challenging, math-intensive, fast-paced course which requires competence and depth in solving chemical problems, sharp reasoning and analyzing skills, advanced intellectual engagement, rigorous laboratory work, and intensive and independent out of class writing and problem-solving assignments. This course will cover interaction of matter and energy, quantitative and qualitative studies of substance changes, experimental and analytical investigations, manipulation of chemical quantities, extensive research, language of chemistry, chemical calculations, and formulation of principles. The use of technology including calculators and computers with scientific probes and sensors will be employed where feasible.

INTEGRATED PHYSICS **C4510**
Credit(s): 1W **Grade level(s): 11**
Prerequisite(s): Advanced Chemistry

Integrated physics emphasizes a complex understanding of experimentation, the analysis of data, and the use of reasoning and logic to evaluate evidence. The use of higher mathematics, including algebra, inferential statistics, and trigonometry is important, as well as a conceptual understanding of physical systems. Students build on basic physical science principles. Key areas covered include force and motion, kinetic molecular theory, energy transformations, wave phenomena and the electromagnetic spectrum, light, electricity, magnetic fields, and non-Newtonian physics. Technology including graphing calculators and computers will be employed. The course stresses the practical applications of physics in the field of engineering.

As part of the Roanoke County Governor's STEM Academy at BCAT, the Center for Mass Communication provides a four-year course of study exploring all aspects of the communication industry. Students will study the history and development of different media and their effects on individuals and society. Students will learn the skills necessary to analyze and create sophisticated communications. Other focus topics include marketing techniques, media, radio, and print production along with legal and ethical industry issues. A supervised internship in one or more of the following areas will be a part of the final year of the program: television, radio, web, and print.

Goals and Objectives:

- To provide students an opportunity to focus on the major elements of the communications industry including journalism and public relations;
- To afford students a hands-on experience in television, radio, web, and print media production;
- To equip students for success in college and beyond.

Course Descriptions

GRAPHIC COMMUNICATION I CV8415.1

Credit(s): 2^W Grade level(s): 10-11

Prerequisite(s):

Students will develop a foundation for communication through design with both print and web. Students will learn industry standard programs such as Adobe Photoshop and Adobe Illustrator, as well as other digital platforms. The class will culminate in a digital portfolio.

GRAPHIC COMMUNICATION II CV8458.1

Credit(s): 2^W Grade level(s): 12

Prerequisite(s): "C" in Graphic Communication I

Students will develop advanced skills with communication through design. This course is for the student willing to work independently on projects, including designing with industry professionals. Students will continue learning digital media programs, in addition to web platforms such as Adobe Dreamweaver and Adobe XD.

ADVANCED ENGLISH 9 C1130.1P

Credit(s): 1 Grade level(s): 9

Prerequisite(s): English 8

The intent of this course is to develop the skills, thought processes, and concepts that will facilitate student success in high school Advanced Placement English courses. Critical thinking skills are developed through literature, non-fiction text, oral presentation, and the writing process. Heavy emphasis is placed on becoming an analytical reader and writer. The content of this course will be delivered in an integrated fashion with History and Introduction to Mass Communication. **Summer reading is required.**

ADVANCED ENGLISH 10 C1140.1P

Credit(s): 1 Grade level(s): 10

Prerequisite(s): English 9

The intent of this course is to develop the skills, thought processes, and concepts that will facilitate student success in high school Advanced Placement English courses. Critical thinking skills are developed through literature, non-fiction text, oral presentation, and the writing process. Heavy emphasis is placed on becoming an analytical reader and writer. **Summer reading is required.**

AP ENGLISH 11: LANGUAGE AND COMPOSITION C1196

Credit(s): 1^W Dual enrollment C1196D

Grade level(s): 11

Prerequisite(s): English 10

This course will give students the opportunity and experiences to become sophisticated readers and writers. Students will study prose written from a variety of periods, disciplines, and rhetorical contexts written for a variety of purposes. Instruction incorporates the Standards of Learning set forth by the state of Virginia. Students will be encouraged to take the AP exam. **Summer reading is required.**

INTRODUCTION TO MASS COMMUNICATION C8455.1

Credit(s): 1^W Dual enrollment C8455D

Grade level(s): 9

Prerequisite(s): Meet selection criteria

Students will be introduced to the effects of mass communication on culture and society. They will explore the many fields within the Mass Communication industries including television, print, radio, Internet, public relations, advertising,

**Center for Mass Communication Studies
Burton Center for Arts and Technology**

**Four-Year Curriculum
For Completion of Specialty Center Program**

Grade 9	Grade 10	Grade 11	Grade 12
Introduction to Mass Communication	Graphic Communication I	Graphic Communication I	Mass Communication Capstone
Advanced English 9	Communication Strategies	Multimedia Storytelling	Senior Seminar and Internship
	Advanced English 10	AP/DE English 11	Graphic Communication II (optional)
Math	Math	Math	AP/DE English 12
Social Studies	Social Studies	US History	Math
Science	Science	Science	Government
Health and PE	Health and PE	Elective	Science
Electives	Elective		Elective

and marketing. Students will become familiar with the vocabulary and process of multi-media production through project-based learning and industry professionals.

COMMUNICATION STRATEGIES C9093

Dual enrollment C9093D

Credit(s): 1^W Grade level(s): 10

Prerequisite(s): Introduction to Mass Communication

Students will learn how to think and work like media producers by engaging in hands-on production projects. Students will also gain proficiency with the media production process while using industry-standard tools. They will explore jobs and careers in the dynamic and growing industry of television and media production and understand the impact of media and its function as entertainment, persuasion, information, and instruction.

MULTIMEDIA STORYTELLING C8688

Dual enrollment C8688D

Credit(s): 1^W Grade level(s): 11 C9071

Prerequisite(s): Communication Strategies

Students will become media producers as they take real-world projects from conception to production. They will continue to develop and master skills that are essential to the industry as they function in various professional roles. In addition, the students will gain both breadth and depth in their abilities with the sophisticated tools and equipment involved in professional media production. They will develop an increased understanding of postsecondary and career pathways and will develop plans and portfolios to help them achieve their goals.

MASS COMMUNICATION CAPSTONE C8689.1

Dual enrollment C8689.1D

Credit(s): 1^W Grade level(s): 12

Prerequisite(s): Multimedia Storytelling

Students will demonstrate mastery of media production knowledge and skills. They will function as media producers by creating original productions as they develop and market programs for target audiences. Students will assemble a professional digital portfolio to advance postsecondary and career goals. They will investigate the dynamic media production industry and identify opportunities for real-world experiences including internships and job shadowing. Students will research postsecondary opportunities and formulate strategies for both college and career success. (36 weeks, 280 hours)

SENIOR SEMINAR AND INTERNSHIP C8690

Dual enrollment C8690D

Credit(s): 1^W Grade level(s): 12 C9093

Prerequisite(s): Multimedia Storytelling

This course must be taken along with Mass Communication Capstone. Students will work with the instructor to identify the student's primary area of interest and skill within the industry. Students will be placed in a community business for an internship experience to take place throughout the school year. The student must complete 140 hours. The course instructor will supervise all student placements and work closely with industry mentors to assess student progress and further develop student skills. In addition, students will spend 40 hours in classroom seminars focused on job and employment related skills. Seminar includes study of postgraduate opportunities.

The Center for the Performing Arts is a four-year course of study which will expose talented and interested students to musical theatre. Students will study acting, voice, and dance and will have several performance opportunities throughout the course of the year.

Goals and Objectives:

- To provide in-depth training in musical theatre(acting, voice, and dance);
- To offer knowledge of artistic skills necessary for successful careers in the performing arts;
- To provide instruction by professional faculty and artists-in-residence;
- To provide opportunities for students to be showcased in the community.

Course Descriptions

PERFORMING ARTS I

C9416

Credit(s): 2

Grade level(s): 9

Prerequisite(s): Acceptance into the program

Each year the students will have activities in acting, dance, and voice. Acting, first year, is an introduction to basic acting concepts and techniques including improvisation, pantomime, method acting, character development, acting for film and television, monologue writing, music theatre history, and technical theatre. First year dance is an introduction to the genres of ballet, tap, jazz, and modern presented in cultural and historical context, focusing on vocabulary, principals, and basic elements of each style. The voice portion of the course begins the development of essential skills required in singing and vocal production. Music theory, sight-singing, vocal health, and ear training, along with performance etiquette, and musical styles will all be integrated to build a well-rounded singer.

PERFORMING ARTS II

C9417

Credit(s): 2^W

Grade level(s): 10

Prerequisite(s): Performing Arts I

Acting, second year, builds upon the foundation of Acting 1 by working with students in script analysis, method acting, character analysis, and skit writing. The class reinforces and refines the skills developed in Acting 1. Second year dance builds upon the basic technical facility and kinesthetic body awareness attained in Dance 1. The class reinforces and refines fundamental skills and allows students greater exposure to performance opportunities. Voice 2 will be a continuation of Voice 1, building upon the basic vocal techniques and musical principals of Voice 1.

PERFORMING ARTS III

C9418

Credit(s): 2^W

Grade level(s): 11

Prerequisite(s):

Performing Arts II

Acting, third year, emphasizes the development of the total actor through a more in-depth study of acting techniques, including playwriting and script writing. Dance 3 emphasizes development of the total dancer by integrating each student's physical, analytical, and creative growth. Students will study specific genres more in-depth while continuing to take classes in other genres. Voice 3 will be a continuation of Voice 2, emphasizing on the development of the total singer.

PERFORMING ARTS IV

C9419

Credit(s): 2^W

Grade level(s): 12

Prerequisite(s): Performing Arts III

Acting, fourth year, is the culmination of the total actor by integrating techniques and skills developed throughout the course of study, preparation for college auditions and applications, and directing. Dance 4 culminates the training of the total dancer by integrating student's techniques, perception, artistic interpretation, and the understanding of dance as a creative expression in cultural/historical context. Voice 4 culminates the training of the total singer by integrating all aspects of vocal production and musicianship learned over the course of study.

**Center for the Performing Arts
Burton Center for Arts and Technology**

**Four-Year Curriculum
For Completion of Specialty Center Program**

Grade 9	Grade 10	Grade 11	Grade 12
Performing Arts I	Performing Arts II	Performing Arts III	Performing Arts IV
English Social Studies Math Science Health and PE Elective	English Social Studies Math Science Health and PE Elective	English Social Studies Math Science Electives	English Social Studies Math Science Electives

The Center for Visual Arts offers a four-year advanced program for students who are talented and motivated in the visual arts. Students accepted into the program will participate in accelerated and enriched artistic experiences that integrate studio work, research, critique, and aesthetics in the visual arts.

Goals and Objectives:

- To provide talented and motivated students with an opportunity to study the visual arts in an enriched and accelerated environment;
- To immerse students in creative and intensive visual arts experiences;
- To provide students with a specific understanding of the history and impact of the visual arts;
- To facilitate internships with professional artists and businesses;
- To encourage participation in visual arts electives, extra-curricular, and co-curricular activities.

Course Descriptions

VISUAL ARTS I **C9200**

Credit(s): 2 **Grade level(s): 9**

Prerequisite(s): Meet selection criteria

Visual Arts I – Cultures is an advanced course where students will study art principles and techniques through studio-based experiences. Art history through the Renaissance will be emphasized. Hands-on-training, museum experiences, and interaction with artists will allow the students to acquire extensive understanding of the development and importance of art throughout world cultures. Students will create a portfolio and keep a sketchbook journal. Students will begin Museum Studies at the Taubman Museum of Art.

VISUAL ARTS II **C9201**

Credit(s): 2^W **Grade level(s): 10**

Prerequisite(s): Meet selection criteria

Visual Arts II – Styles is a studio/lecture class exploring art, culture, and society from the Mannerism period through Contemporary times with an in-depth look into styles and movements that developed during this time. The students' studio experiences will include drawing, printmaking, computer graphics, ceramics, sculpture, jewelry making, and painting using oils, acrylics, and watercolors. The students will continue to develop their research journals and portfolios that were started in the Visual Arts I – Cultures class. Field trips and exposure to local artists will be an integral part of this curriculum. Summer assignments are required. Students will continue Museum Studies at the Taubman Museum of Art.

VISUAL ARTS III **C9202**

Credit(s): 2^W **Grade level(s): 11**

Prerequisite(s): Meet selection criteria

Visual Arts III – Personal Style is a studio lab environment in which the students focus on the development of their own personal styles as artists using a variety of media. Students will engage in a comprehensive exploration of modern cultures and artists that relate to their individual fields of concentration. Students will correspond with people prominent in their chosen fields for professional guidance and will continue Museum Studies at the Taubman Museum of Art. Students will produce work suitable for exhibiting and will be responsible for all aspects of organizing and setting up a professional student art show. Work on their sketch journals and portfolios will continue. Summer assignments are required.

VISUAL ARTS IV / AP STUDIO ART **C9203.1**

Credit(s): 2^W **Grade level(s): 12**

Prerequisite(s): Meet selection criteria

Visual Arts IV/AP Studio Art - Careers is a studio lab environment in which students will demonstrate mastery of artistic production. Students will assemble professional portfolio in one of the following areas: Drawing, 3D Design, or 2D Design. Individual artwork will be evaluated for quality, depth, discovery, and demonstration of superior knowledge of art principles and techniques. Students will continue Museum Studies at the Taubman Museum of Art. Summer assignments will be required.

College credit may be earned through a satisfactory score on the AP College Board Test for AP Studio Art, which requires the submission of a portfolio.

Center for Visual Arts and Museum Studies
Burton Center for Arts and Technology and
The Taubman Museum of Art

Four-Year Curriculum
For Completion of Specialty Center Program

Grade 9	Grade 10	Grade 11	Grade 12
Visual Arts I	Visual Arts II	Visual Arts III	Visual Arts IV / AP Studio Art Art Internship (optional)
English Science Math Health/PE Social Studies Elective	English Science Math Health/PE Social Studies Elective	English Science Math Social Studies Elective Elective	English Science Math Social Studies Elective Elective

ART INTERNSHIP **C9150.1**

Credits: 1W **Grade level: 12**

Prerequisite: Meet selection criteria

This course is taken along with Visual Arts 4/AP Studio Art. Students will intern under the direction of local artists and educators and develop personally as an artist within a community. The student must complete 140 internship hours. The course instructor will assess student progress and further develop student skills.

COURSE DESCRIPTIONS BY CONTENT AREA

Art

ART EXPLORATORY 6 (Interest Block Program)

Credit(s): 0

Grade level(s): 6

Prerequisite(s): None

Art Exploratory is a hands-on course that will offer students the opportunity to personally explore art through drawing, painting, sculpture, graphics, and critique. Emphasis will be on the students' creative experiences while exploring basic art concepts and materials.

School(s) offering course: All MS

ART EXPLORATORY 7 (Interest Block Program)

Credit(s): 0

Grade level(s): 7

Prerequisite(s): None

Art Exploratory 7 is a studio-oriented course that will offer the students the opportunity to study art through exploration and investigation of the creative process. The students will acquire knowledge that permits them to identify art styles and art concepts while using an array of art supplies. Students will explore perspective, drawing, painting, sculpture, graphics, and critique.

School(s) offering course: All MS

ART 8 9115

Credit(s): 0

Grade level(s): 8

Prerequisite(s): None

Art 8 is a semester course that will enhance the students' awareness of art concepts through the creation of a variety of art projects. The study of the elements of art and principles of design will be highlighted throughout this class. The students will create in the areas of drawing, painting, sculpture, graphics, and critique.

School(s) offering course: All MS

INTRODUCTION TO CRAFTS 9106

Credit(s): 0

Grade level(s): 8

Prerequisite(s): None

Introduction to Crafts is a hands-on semester course where the students learn methods for creating culturally diverse crafts. Basic art concepts will be used in the exploration of functional and decorative craft projects in fiber, paper, metal, clay, wood, and/or beading.

School(s) offering course: All MS

ART I 9120

Credit(s): 1

Grade level(s): 9-12

Prerequisite(s): None

This full year studio course introduces at a beginner level drawing, painting, sculpture, ceramics, printmaking, photography, and graphic design through hands-on art projects.

Study includes the elements of art and principles of design, art history, criticism, judgment, and aesthetics. A student portfolio of artworks will be developed.

School(s) offering course: All HS

ART II 9130

Credit(s): 1

Grade level(s): 10-12

Prerequisite(s): 1 credit of art

This full year studio course explores at an intermediate level drawing, painting, sculpture, ceramics, printmaking, photography, and graphic design through hands-on art projects.

Study includes the elements of art and principles of design, art history, criticism, judgment, and aesthetics at an intermediate level. A student portfolio of artworks will be continued.

School(s) offering course: All HS

ART III 9140

Credit(s): 1

Grade level(s): 11-12

Prerequisite(s): 2 credits of art or the approval of the instructor

This full year studio course explores at an advanced intermediate level drawing, painting, sculpture, ceramics, printmaking, photography, and graphic design through hands-on art projects.

Study includes the elements of art and principles of design, art history, criticism, judgment, and aesthetics at an advanced intermediate level. A student portfolio of artworks will be continued.

School(s) offering course: All HS

Art Program

6 th Grade	Art Exploratory 6		
7 th Grade	Art Exploratory 7		
8 th Grade	Art 8 and Introduction to Crafts		
Grades 9-12	Art I	Graphic Design I	Digital Photo/Art I
Grades 10-12	Art II	Graphic Design II	Digital Photo/Art II
Grades 11-12	Art III	Art IV	AP Studio Art

ART IV 9145

Credit(s): 1

Grade level(s): 11-12

Prerequisite(s): 3 credits of art or approval of instructor

This full year studio course explores at an advanced level drawing, painting, sculpture, ceramics, printmaking, photography, and graphic design through hands-on art projects.

Study includes the elements of art and principles of design, art history, criticism, judgment, and aesthetics at an advanced level. A student portfolio of artworks will be completed.

School(s) offering course: All HS

AP STUDIO ART 9150.1/9150.2/9150.3

Credit(s): 1^W

Grade level(s): 11-12

Prerequisite(s): 3 credits of art or approval of instructor

This full year weighted art course allows students to pursue college level course work. Students taking this course will focus on one of the following areas: Drawing Portfolio, 3-D Design Portfolio, or 2-D Design Portfolio. Individual artwork will be evaluated for quality, depth, discovery, and demonstration of superior knowledge of art principles and techniques.

Summer assignments will be required. College credit may be earned through a satisfactory score on the AP College Board Test for AP Studio Art, which requires the submission of a portfolio.

School(s) offering course: All HS, BCAT

GRAPHIC DESIGN I 9180

Credit(s): 1

Grade level(s): 9-12

Prerequisite(s): None

This full year course explores at a beginner level graphic design, typography, digital photography, photo editing software, and digital illustration. The students will begin a digital portfolio.

School(s) offering course: All HS

GRAPHIC DESIGN II 9181

Credit(s): 1

Grade level(s): 10-12

Prerequisite(s): Graphic Design I

This full year course explores at an intermediate level graphic design, typography, digital photography, photo editing software, and digital illustration. The students will continue a digital portfolio.

School(s) offering course: All HS

DIGITAL PHOTO/ART I 9190.1

Credit(s): 1

Grade level(s): 9-12

Prerequisite(s): None

This full year course explores at a beginner level digital photography, design techniques, printing processes and photo editing software to achieve a broad range of knowledge for creative expression. Historical and contemporary photographers and their contributions will be explored. A student portfolio of photographs will be developed.

School(s) offering course: All HS

DIGITAL PHOTO/ART II 9190.2

Credit(s): 1

Grade level(s): 10-12

Prerequisite(s): Digital Photography/Art I

This full year course explores at an intermediate level digital photography, design techniques, printing processes and photo editing software to achieve a broad range of knowledge for creative expression. Historical and contemporary photographers and their contributions will be explored. A student portfolio will be developed.

School(s) offering course: All HS

English

ENGLISH 6	1109
Credit(s): 0	Grade level(s): 6
Prerequisite(s): Language Arts 5	
The language arts program is a total language approach to the study of our English language. The program includes the study of reading with emphasis on comprehension, vocabulary building, and the application of spelling and grammar fundamentals in written and oral communication.	
School(s) offering course: All MS	
ADVANCED ENGLISH 6	1109.1P
Credit(s): 0	Grade level(s): 6
Prerequisite(s): Language Arts 5	
The intent of this course is to introduce and develop the skills, thought processes, and concepts that will facilitate student success in high school Advanced Placement English courses. Critical thinking skills are developed through literature, non-fiction text, media messages, and the writing process. Heavy emphasis is placed on becoming an analytical reader and writer. Summer reading is required.	
School(s) offering course: All MS	
ENGLISH 7	1110
Credit(s): 0	Grade level(s): 7
Prerequisite(s): English 6	
English 7 develops the student's skills in literature, vocabulary, composition, language study (a writer-based grammar), and speech. Instruction provides a sequential presentation of skills, incorporating the Standards of Learning set forth by the state of Virginia.	
School(s) offering course: All MS	
ADVANCED ENGLISH 7	1110.1P
Credit(s): 0	Grade level(s): 7
Prerequisite(s): English 6	
The intent of this course is to introduce and develop the skills, thought processes, and concepts that will facilitate student success in high school Advanced Placement English courses. Critical thinking skills are developed through literature, non-fiction text, media messages, and the writing process. Heavy emphasis is placed on becoming an analytical reader and writer. Summer reading is required.	
School(s) offering course: All MS	
ENGLISH 8	1120
Credit(s): 0	Grade level(s): 8
Prerequisite(s): English 7	
English 8 develops the student's skills in literature, vocabulary, composition, language study (a writer-based grammar), and speech. Instruction provides a sequential presentation of skills, incorporating the Standards of Learning set forth by the state of Virginia.	
School(s) offering course: All MS	
ADVANCED ENGLISH 8	1120.1P
Credit(s): 0	Grade level(s): 8
Prerequisite(s): English 7	
The intent of this course is to introduce and develop the skills, thought processes, and concepts that will facilitate student success in high school Advanced Placement English courses. Critical thinking skills are developed through literature, non-fiction text, media messages, and the writing process. Heavy emphasis is placed on becoming an analytical reader and writer. Summer reading is required.	
School(s) offering course: All MS	
ENGLISH 9	1130
Credit(s): 1	Grade level(s): 9
Prerequisite(s): English 8	
English 9 develops the student's skills in literature, vocabulary, composition, language study (a writer-based grammar), and speech. Instruction provides a sequential presentation of skills, incorporating the Standards of Learning set forth by the state of Virginia.	
School(s) offering course: All HS	

ENGLISH 9 (College Bound)	1130CB
Credit(s): 1	Grade level(s): 9
Prerequisite(s): English 8	
English 9 develops the student's skills in literature, vocabulary, composition, language study (a writer-based grammar), and speech. Instruction provides a sequential presentation of skills, incorporating the Standards of Learning set forth by the state of Virginia.	
School(s) offering course: All HS	
ADVANCED ENGLISH 9	1130.1P
Credit(s): 1	Grade level(s): 9
Prerequisite(s): English 8	
The intent of this course is to develop the skills, thought processes, and concepts that will facilitate student success in high school Advanced Placement English courses. Critical thinking skills are developed through literature, non-fiction text, media messages, and the writing process. Heavy emphasis is placed on becoming an analytical reader and writer. Summer reading is required.	
School(s) offering course: All HS	
ENGLISH 10	1140
Credit(s): 1	Grade level(s): 10
Prerequisite(s): English 9	
English 10 develops the student's skills in literature, vocabulary, composition, language study (a writer-based grammar), and speech. Instruction provides a sequential presentation of skills incorporating the Standards of Learning set forth by the state of Virginia. Emphasis is on an in-depth literary study of various genre, including poetry, nonfiction, and short stories. Composition development continues, including practice in sentence combining techniques and appropriate punctuation.	
School(s) offering course: All HS	
ENGLISH 10 (College Bound)	1140CB
Credit(s): 1	Grade level(s): 10
Prerequisite(s): English 9	
English 10 develops the student's skills in literature, vocabulary, composition, language study (a writer-based grammar), and speech. Instruction provides a sequential presentation of skills incorporating the Standards of Learning set forth by the state of Virginia. Emphasis is on more in-depth literary study of various genre and composition development.	
School(s) offering course: All HS	
ADVANCED ENGLISH 10	1140.1P
Credit(s): 1	Grade level(s): 10
Prerequisite(s): English 9	
The intent of this course is to develop the skills, thought processes, and concepts that will facilitate student success in high school Advanced Placement English courses. Critical thinking skills are developed through literature, non-fiction text, media messages, and the writing process. Heavy emphasis is placed on becoming an analytical reader and writer. Summer reading is required.	
School(s) offering course: All HS	
ENGLISH 11	1150
Credit(s): 1	Grade level(s): 11
Prerequisite(s): English 10	
English 11 develops the student's skills in literature, vocabulary, composition, language study (a writer-based grammar), and speech. Instruction provides a sequential presentation of skills incorporating the Standards of Learning set forth by the state of Virginia. The student will receive an introduction to the research process.	
School(s) offering course: All HS	
ENGLISH 11 (College Bound)	1150CB
Credit(s): 1	Grade level(s): 11
Prerequisite(s): English 10	
English 11 develops the student's skills in literature, vocabulary, composition, language study (a writer-based grammar), and speech. Instruction provides a sequential presentation of skills incorporating the Standards of Learning set forth by the state of Virginia. Emphasis is on a more in-depth literary study of various genre and the research process.	
School(s) offering course: All HS	

AP ENGLISH 11: LANGUAGE AND COMPOSITION 1196
Dual Enrollment: 1196D
Credit(s): 1^w
Grade level(s): 11-12
Prerequisite(s): English 10

This course will give students the opportunity and experiences to become sophisticated readers and writers. Students will study prose written from a variety of periods, disciplines, and rhetorical contexts written for a variety of purposes. Instruction incorporates the Standards of Learning set forth by the state of Virginia. Students will be encouraged to take the AP exam. **Summer reading is required.**

School(s) offering course: All HS

ENGLISH 12 1160
Credit(s): 1
Grade level(s): 12
Prerequisite(s): English 11

English 12 develops the student's skills in literature, vocabulary, composition, language study (a writer-based grammar), and speech. Instruction provides a sequential presentation of skills incorporating the Standards of Learning set forth by the state of Virginia. Emphasis is on the résumé, cover letter, and college application process.

School(s) offering course: All HS

ENGLISH 12 (College Bound) 1160CB
Credit(s): 1
Grade level(s): 12
Prerequisite(s): English 11

English 12 develops the student's skills in literature, vocabulary, composition, language study (a writer-based grammar), and speech. Instruction provides a sequential presentation of skills incorporating the Standards of Learning set forth by the state of Virginia. Emphasis is on the résumé, cover letter, college application process and essay, and a more in-depth study of literature.

School(s) offering course: All HS

AP ENGLISH 12: LITERATURE AND COMPOSITION 1195
Dual enrollment: 1195D
Credit(s): 1^w
Grade level(s): 12
Prerequisite(s): English 11

Students will complete and go beyond the regular English 12 curriculum through increased emphasis on independent reading and experiences in more intensified literary analysis, verbalization, and composition. Students will be given the option of taking the AP exam. **Summer reading is required.** (Dual enrollment with Virginia Western Community College and/or AP exam is available. Exam exemption in this class does not apply.)

School(s) offering course: All HS

PHOTOJOURNALISM I (Yearbook) 1215
PHOTOJOURNALISM II 1216
PHOTOJOURNALISM III 1217
PHOTOJOURNALISM IV 1218
Credit(s): 1
Grade level(s): 9-12
Prerequisite(s): Approval of instructor

These courses are for students interested in producing the student yearbook/annual and are designed to explore ethical journalism issues, while producing a high-quality annual publication. Through the course requirements, students are encouraged to develop advanced technology skills (computer, digital photography), enhance peer management techniques, and acquire an appreciation of the diversity of the student body. These courses may require occasional after-school lab work.

School(s) offering course: All HS

JOURNALISM I (Newspaper) 1200
JOURNALISM II 1210
JOURNALISM III 1211
JOURNALISM IV 1212
Credit(s): 1
Grade level(s): 9-12
Prerequisite(s): Approval of instructor

These courses are for students interested in planning, writing, and designing a 12-16 page school newspaper and are designed to introduce the historical and ethical issues associated with news writing. Furthermore, students will assist with all aspects of newspaper production, including selling advertisements, writing and editing, photography, and designing pages. These courses may require some after-school lab work.

School(s) offering course: All HS

STRATEGIC READING
Part I 10101 / 10101S
Part II 10102 / 10102S
Part III 10103 / 10103S
Credit(s): 0
Grade level(s): 6-8
Prerequisite(s): Staff or IEP committee referral

This course provides intensive instruction on reading skills including vocabulary, fluency, and comprehension. Students will learn to read for specific purposes as well as evaluate text.

School(s) offering course: All MS

STRATEGIC READING & LEARNING
Part I 10104
Part II 10105
Part III 10106
Part IV 10107
Part V 10108
Part VI 10109
Part VII 10110
Part VIII 10111
Credit(s): .5
Grade level(s): 9-12
Prerequisite(s): Staff or IEP committee referral

This course is intended to improve students' vocabulary, critical thinking, and reading analysis skills. Fluency and comprehension will also be addressed per student needs. Students will also learn skills in time management, note taking, and evaluating text.

School(s) offering course: All HS

English Language Proficiency

English for ELL MS I – 6th grade 5705
English for ELL MS II – 7th grade 5706
English for ELL MS III – 8th grade 5707

Credit(s): 0
Grade level(s): 6-8
Prerequisite(s): Meet federal, state and local qualifications for LEP program

The English Language Proficiency Program provides students who are English Language Learners (ELL) with extensive instruction in reading, writing, and speaking. The purposes of the program are to help students attain rapid proficiency in English in order to make satisfactory achievement in the regular school programs and to provide instruction which satisfies cultural, as well as linguistic, needs of students with limited English proficiency. ELL students are enrolled in one or two periods.

School(s) offering course: BCAT

English for ELL HS I 5710 5715
English for ELL HS II 5720 5725
English for ELL HS III 5730 5735
English for ELL HS IV 5731 5736

Credit(s): 1 or 2
Grade level(s): 9-12
Prerequisite(s): Meet federal, state and local qualifications for LEP program

This course is for elective credit and cannot satisfy a graduation requirement for English but can satisfy 2 years towards an Advanced Studies Diploma.

The program provides students who are English Language Learners (ELL) with extensive instruction in reading, writing, and speaking. The purposes of the program are to help students attain rapid proficiency in English in order to make satisfactory achievement in the regular school programs and to provide instruction which satisfies cultural, as well as linguistic, needs of students with limited English proficiency. ELL students may be enrolled in one block for one credit or two blocks for two credits.

School(s) offering course: BCAT

WORKPLACE LANGUAGE 1530
Credit(s): 1
Grade level(s): 9-12
Prerequisite(s): Meet federal, state, and local qualifications for LEP program

An advanced ELL course to develop English skills for employment and graduation.

School(s) offering course: All HS and BCAT

English Language Proficiency Resource

ELL Resource 6	5750
ELL Resource 7	5751
ELL Resource 8	5752
ELL Resource 9	5753
ELL Resource 10	5754
ELL Resource 11	5755
ELL Resource 12	5756

Credit(s): 0**Grade level(s): 6–12****Prerequisite(s): Meet federal, state and local qualifications for LEP program**

These courses are for students with limited language proficiency who need additional support in developing listening, speaking, reading, and writing skills in English.

School(s) offering course: BCAT, All MS, All HS

Health and Physical Education

HEALTH & PHYSICAL EDUCATION 6 7110

Credit(s): 0**Grade level(s): 6****Prerequisite(s): None**

This course is a blending of physical and health education. Students will be provided opportunities for the development of physical, mental and social skills in the areas of team, individual and dual activity; rhythms and dance; cooperative games; nutrition and physical activity; healthy relationships and communication, emotional and mental health; safety and emergency preparedness, substance abuse, and family life.

School(s) offering course: All MS

HEALTH & PHYSICAL EDUCATION 7 7120

Credit(s): 0**Grade level(s): 7****Prerequisite(s): None**

This course is a blending of physical and health education and builds on the skills developed in grade 6. Students will be provided opportunities for the continued development of physical, mental and social skills in the areas of team, individual and dual activity; rhythms and dance; cooperative games; nutrition and physical activity; healthy relationships and communication, emotional and mental health; safety and emergency preparedness, substance abuse, disease prevention, and family life.

School(s) offering course: All MS

FIT AND ACTIVE FOR LIFE – PE 8 7200

Full Year**Credit(s): 0****Grade level(s): 8****Prerequisite(s): None**

This course may be taken as a full year or semester. This elective course is designed to encourage physical activity and provide the opportunity to develop the skills, knowledge, and understanding necessary for the development of personal fitness and the competent participation in a variety of fitness activities, recreational pursuits and individual, dual, and team sports.

School(s) offering course: All MS

High School Health and Physical Education Requirements

All students are required to complete Health and PE 9 and Health and PE 10 to satisfy the high school requirements for graduation. Eleventh and twelfth grade students may take additional physical education courses as electives.

HEALTH & PHYSICAL EDUCATION 9 7300

Credit(s): 1**Grade level(s): 9****Prerequisite(s): None**

In this course, students will develop an understanding of the health concepts, behaviors, and skills that reduce health risks and enhance the well-being of self and others. Specific topics include personal fitness, nutrition, mental and emotional health, safety and first aid, family life education, and the prevention and control of disease. Students will complete training in First Aid, CPR and AED, with the option to gain certification in these areas. In the physical educational component, students will demonstrate the ability to use basic skills, strategies, and tactics in a variety of activities including team, individual and dual activity, outdoor adventure, rhythm and dance, and strength training and conditioning and relate these activities to personal wellness and the development of an individual fitness plan.

School(s) offering course: All HS

HEALTH & PHYSICAL EDUCATION with DRIVER EDUCATION 10 7405

Credit(s): 1**Grade level(s): 10****Prerequisite(s): Health & Physical Education 9**

This course includes health, physical education and a nine-week classroom component of driver education. Upon successful completion of this course students may enroll in a commercial driving school program to complete behind-the-wheel instruction required to meet DMV requirements for a provisional license. The classroom health education component provides students an opportunity to develop an understanding of health concepts, behaviors, and skills that reduce health risks and enhance the well-being of self and others. Specific topics include injury prevention, medication and substance abuse, marriage, human reproduction, parenthood, and stages of healthy human development. The focus in physical education is on the development of the skills, knowledge, and understanding necessary for the development of personal fitness and the competent participation in a variety of activities including team, individual and dual activities, outdoor adventure, rhythm and dance, and strength training and conditioning.

School(s) offering course: All HS

ADVANCED PE 7640

Credit(s): 1**Grade level(s): 11-12****Prerequisite(s): HPE 10**

This elective course is designed to encourage physical activity and provide the opportunity to enhance the skills, knowledge, and understanding necessary for the development of personal fitness and proficiency in a variety of fitness activities, recreational pursuits and individual, dual, and team sports.

School(s) offering course: All HS

STRENGTH TRAINING, CONDITIONING & PERSONAL FITNESS 7650

Credit(s): 1**Grade level(s): 11-12****Prerequisite(s): HPE 10**

The focus of this elective course will be physical conditioning with an emphasis on strength training and the skills and knowledge necessary to develop an individualized personal fitness program. A variety of activities will be incorporated to develop and enhance both the health and skill related components of fitness.

School(s) offering course: All HS

Mathematics

ACCELERATED MATHEMATICS PROGRAM (AMP)

Roanoke County Public Schools places great importance on the enrollment of its students in the most appropriate mathematics courses and offers several pathways to insure success for them. The Accelerated Mathematics Program is the pathway for selected students beginning in the sixth grade and allows for these students to take a sixth course in advanced mathematics in high school:

AMP COURSE SEQUENCE

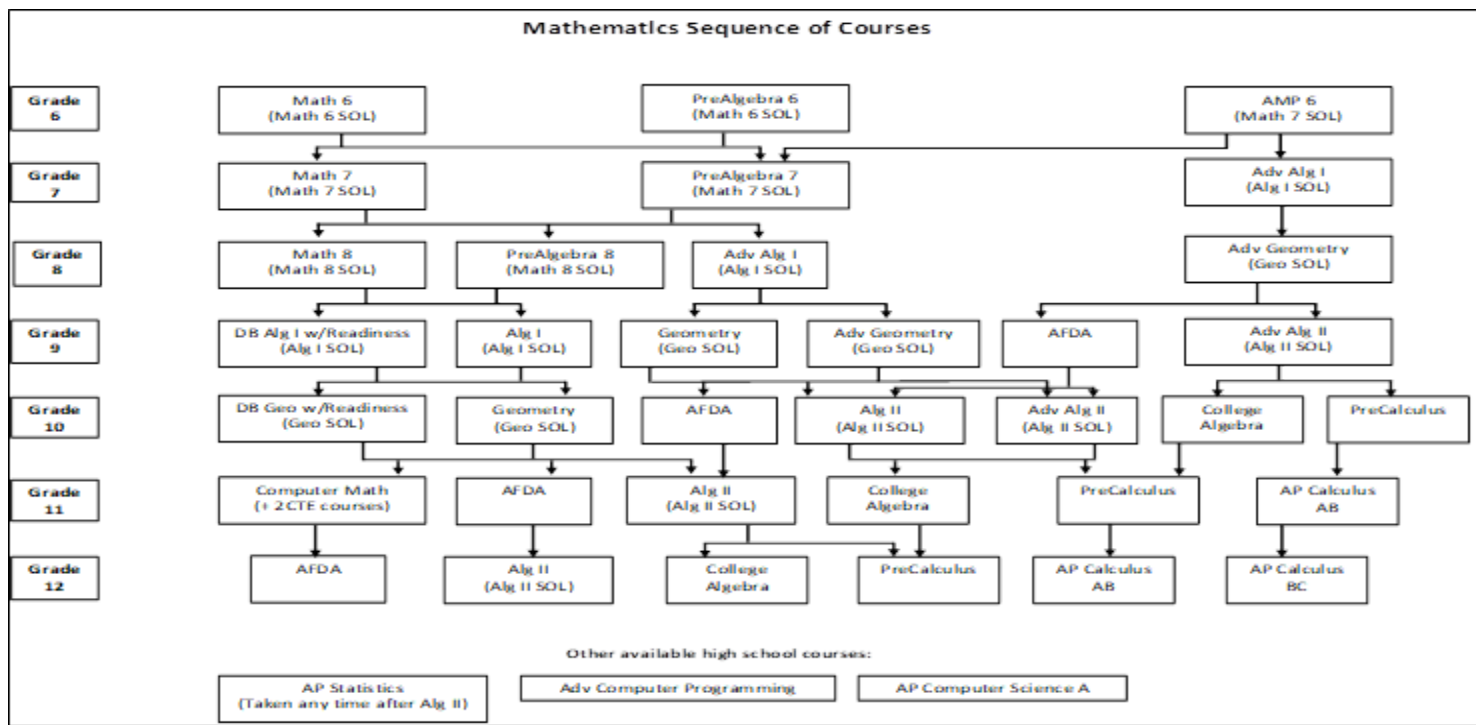
6th Grade	AMP 6	10th Grade	Precalculus
7th Grade	Advanced Algebra I	11th Grade	AP Calculus AB
8th Grade	Advanced Geometry	12th Grade	AP Statistics or
9th Grade	Advanced Algebra II		AP Calculus BC

MATHEMATICS 6 3110

Credit(s): 0**Grade level(s): 6****Prerequisite(s): None**

This course provides a transition from the emphasis placed on whole number arithmetic in the elementary grades to foundations of algebra. The standards include a focus on rational numbers and operations involving rational numbers. Students will use ratios to compare data sets; recognize decimals, fractions, and percents as ratios; solve single-step and multistep problems, using positive rational numbers; and gain a foundation in the understanding of and operations with integers. Students will solve problems involving area and perimeter, and begin to graph in a coordinate plane. In addition, students will build on the concept of graphical representation of data developed in the elementary grades and develop concepts regarding measures of center. Students will solve linear equations and inequalities in one variable, and use algebraic terminology, problem solving strategies, and technology. Students will represent proportional relationships using two variables as a precursor to the development of the concept of linear functions. Students will take the Math 6 SOL test.

School(s) offering course: All MS



PRE-ALGEBRA 6

3110.1P

Credit(s): 0

Grade level(s): 6

Prerequisite(s): teacher recommendation

This course provides a transition from the emphasis placed on whole number arithmetic in the elementary grades to foundations of algebra. The standards include a focus on rational numbers and operations involving rational numbers. Students will use ratios to compare data sets; recognize decimals, fractions, and percents as ratios; solve single-step and multistep problems, using positive rational numbers; and gain a foundation in the understanding of and operations with integers. Students will solve problems involving area and perimeter, and begin to graph in a coordinate plane. In addition, students will build on the concept of graphical representation of data developed in the elementary grades and develop concepts regarding measures of center. Students will solve linear equations and inequalities in one variable, and use algebraic terminology, problem solving strategies, and technology. Students will represent proportional relationships using two variables as a precursor to the development of the concept of linear functions. Students will explore topics from Math 7 and will develop their understanding of solving linear equations and inequalities in one variable by applying the properties of real numbers. Students will discern between proportional and non-proportional relationships and begin to develop a concept of slope as rate of change. Students will take the Math 6 SOL.

School(s) offering course: All MS

ACCELERATED MATH PROGRAM 6 (AMP)

3113.1

Credit(s): 0

Grade level(s): 6

Prerequisite(s): Selection by AMP committee

This is the first course in the Accelerated Mathematics Program and students will complete the Virginia Standards of Learning for Mathematics 6 and Mathematics 7. These standards continue to emphasize the foundations of algebra. The standards address the concept of and operations with rational numbers. Students will build on the concept of ratios to solve problems involving proportional reasoning. Students will solve problems involving volume and surface area and focus on the relationships among the properties of quadrilaterals. Probability is investigated through comparing experimental results to theoretical expectations. Students continue to develop their understanding of solving linear equations and inequalities in one variable by applying the properties of real numbers. Students discern between proportional and non-proportional relationships and begin to develop a concept of slope as rate of change. Students will take the Math 7 SOL test.

School(s) offering course: All MS

MATHEMATICS 7

3111

Credit(s): 0

Grade level(s): 7

Prerequisite(s): Mathematics 6

This course continues to emphasize the foundations of algebra. The standards address the concept of and operations with rational numbers. Students will build

on the concept of ratios to solve problems involving proportional reasoning. Students will solve problems involving volume and surface area and focus on the relationships among the properties of quadrilaterals. Probability is investigated through comparing experimental results to theoretical expectations. Students continue to develop their understanding of solving linear equations and inequalities in one variable by applying the properties of real numbers. Students discern between proportional and non-proportional relationships and begin to develop a concept of slope as rate of change. Students will take the Math 7 SOL test.

School(s) offering course: All MS

PRE-ALGEBRA 7

3111.1P

Credit(s): 0

Grade level(s): 7

Prerequisite(s): "C" or better in Pre-Algebra 6, passing score on Math 6 SOL test, or teacher recommendation

This course continues to emphasize the foundations of algebra. The standards address the concept of and operations with rational numbers by continuing their study from grade six. Students will build on the concept of ratios to solve problems involving proportional reasoning. Students will solve problems involving volume and surface area and focus on the relationships among the properties of quadrilaterals. Probability is investigated through comparing experimental results to theoretical expectations. Students continue to develop their understanding of solving linear equations and inequalities in one variable by applying the properties of real numbers. Students discern between proportional and non-proportional relationships and begin to develop a concept of slope as rate of change. Students will explore topics from Math 8 to include more advanced proportional reasoning, complex three-dimensional figures and transformations, the Pythagorean Theorem, and algebraic expressions, equations, inequalities, and linear functions. Students will take the Math 7 SOL test.

School(s) offering course: All MS

MATHEMATICS 8

3112

Credit(s): 0

Grade level(s): 8

Prerequisite(s): Mathematics 7

The eighth-grade standards continue to build on the concepts needed for success in high school level algebra, geometry, and statistics. Students will explore real numbers and the subsets of the real number system. Proportional reasoning is expounded upon as students solve a variety of problems. Students find the volume and surface area of more complex three-dimensional figures and apply transformations to geometric shapes in the coordinate plane. Students will verify and apply the Pythagorean Theorem creating a foundation for further study of triangular relationships in geometry. Students will represent data, both univariate and bivariate data, and make predictions by observing data patterns. Students build upon the algebraic concepts developed in the standards for grades six and seven mathematics, which include simplifying algebraic expressions, solving multistep equations and inequalities, and graphing linear

functions. The grade eight standards are vital to providing a solid foundation for success in Algebra I. Students will take the Math 8 SOL test.

School(s) offering course: All MS

PRE-ALGEBRA 8 3112P

Credit(s): 0

Grade level(s): 8

Prerequisite(s): "C" or better in Pre-Algebra 7, passing score on Math 7 SOL test, or teacher recommendation

The eighth-grade standards continue to build on the concepts needed for success in high school level algebra, geometry, and statistics. Students will explore real numbers and the subsets of the real number system. Proportional reasoning is expounded upon as students solve a variety of problems. Students find the volume and surface area of more complex three-dimensional figures and apply transformations to geometric shapes in the coordinate plane. Students will verify and apply the Pythagorean Theorem creating a foundation for further study of triangular relationships in geometry. Students will represent data, both univariate and bivariate data, and make predictions by observing data patterns. Students build upon the algebraic concepts developed in the standards for grades six and seven mathematics, which include simplifying algebraic expressions, solving multistep equations and inequalities, and graphing linear functions. Students will explore topics from Algebra I to include patterns and modeling, the use of tables and graphs to analyze behaviors of functions, and the use of a graphing utility. Students will take the Math 8 SOL test.

School(s) offering course: All MS

ADVANCED ALGEBRA I 3130.1P **ALGEBRA I 3130**

Credit(s): 1

Grade level(s): 7-10

Prerequisite(s): Grade 7: "C" or better in AMP 6, passing score on previous math SOL tests or teacher recommendation

Grade 8: "C" or better in Pre-Algebra 7, passing score on previous math SOL tests or teacher recommendation
Grade 9-10: Math 8.

(Advanced Algebra I in the middle school will meet the Virginia Standards of Learning requirements for Algebra I and will include select topics from Math 8 that were not covered in previous courses.) All students are expected to achieve the Algebra I standards. Included in the Algebra I course is a progression of algebraic content in patterning, generalization of arithmetic concepts, proportional reasoning, and the representation of mathematical relationships using tables, symbols, and graphs. This course will assist students in generalizing patterns or modeling relevant, practical situations with algebraic models. In order to assist students in developing meaning and connecting algebraic concepts to geometry and statistics, consideration has been given to the sequential development of concepts and skills by using concrete materials to assist students in making the transition from the numeric to the symbolic. Connections between Algebra I and other subject areas through practical applications will assist in helping students attach meaning to the abstract concepts of algebra. This course requires students to use algebra as a tool for representing and solving a variety of practical problems. Tables and graphs will be used to interpret algebraic expressions, equations, and inequalities and to analyze behaviors of functions. This course will include a transformational approach to graphing functions and writing equations when given the graph of the equation. Graphing utilities (calculators, computers, and other technology tools) will be used to assist in teaching and learning.

School(s) offering course: All MS, All HS

ALGEBRA 1 + 3130DB **ALGEBRA READINESS ELECTIVE 3130ARE**

Credit(s): 1 Math + 1 Elective = 2 Grade level(s): 9-10

Prerequisite(s): Math 8 and recommendation of Math 8 teacher.

The purpose of the Algebra Readiness elective is to prepare students for success in Algebra I by reinforcing critical pre-algebraic skills and concepts. Students will take this course along with Algebra I in a double-block structure. Students are encouraged to develop self-reliance, a questioning attitude, and verbal precision relating to mathematical problems. Topics to be studied include fundamental algebraic language, the real number system, equations and inequalities, polynomials, factoring, coordinate graphing, relations and functions, systems of linear equations and inequalities, rational and radical expressions, quadratics, and data set analysis. Manipulatives and graphing calculators will be used in this course.

School(s) offering course: All HS

ADVANCED GEOMETRY 3143.1P **GEOMETRY 3143**

Gr 8-9

3143.1P

Gr 9-11

3143

Credit(s): 1

Grade level(s): 8-11

Prerequisite(s): Algebra I and teacher recommendation

This course is designed for students who have successfully completed the standards for Algebra I. All students are expected to achieve the Geometry standards. The course includes an emphasis on developing reasoning skills through the exploration of geometric relationships including properties of geometric figures, trigonometric relationships, and mathematical proofs. In this course, deductive reasoning and logic are used in direct proofs. Direct proofs are presented in different formats (typically two-column or paragraph) and employ definitions, postulates, theorems, and algebraic justifications including coordinate methods. This course includes emphasis on two- and three-dimensional reasoning skills, coordinate and transformational geometry, and the use of geometric models to solve problems. A variety of applications and some general problem-solving techniques, including algebraic skills, should be used to implement these standards. Graphing utilities (calculators, computers, and other technology tools) and dynamic geometry applications will be used to assist in teaching and learning.

School(s) offering course: All MS, All HS

GEOMETRY + 3143DB **GEOMETRY READINESS ELECTIVE 3143GRE**

Credit(s): 1 Math + 1 Elective = 2 Grade level(s): 9-11

Prerequisite(s): Algebra I and recommendation of teacher.

The purpose of the Geometry Readiness elective is to prepare students for success in Geometry by reinforcing critical pre-geometric skills and concepts. Students will take this course along with Geometry in a double-block structure. Geometry deals with the study of points, lines, and planes enriched throughout with fundamental concepts of solid geometry. Logical reasoning, the nucleus of the course, is used in developing the concept of inductive and deductive proofs. Algebra, coordinate and transformational geometry are integral parts of the course. Problem-solving strategies and real-world connections are integrated throughout the course.

School(s) offering course: All HS

COMPUTER MATHEMATICS 3184 **(plus 2 courses of a career and technical concentration)**

Credit(s): 1

Grade level(s): 11-12

Prerequisite(s): Algebra I and Geometry

This course is intended to provide students with experiences in using computer programming techniques and skills to solve problems that can be set up as mathematical models. Although computer ideas are introduced in the context of mathematical concepts, problem solving will also be developed in the most general sense, making the techniques applicable by students in many other environments. Strategies include defining the problem; developing, refining, and implementing a plan; and testing and revising the solution. Programming, ranging from simple programs involving only a few lines to complex programs involving subprograms, will permeate the entire course. Programming concepts, problem-solving strategies, and mathematical applications will be integrated throughout the course. These standards identify fundamental principles and concepts in the field of computer science that will be used within the context of mathematical problem solving in a variety of applications. As students develop and refine skills in logic, organization, and precise expression, they will apply those skills to enhance learning in all disciplines.

School(s) offering course: All HS

ALGEBRA, FUNCTIONS, AND DATA ANALYSIS 3134

Credit(s): 1

Grade level(s): 9-12

Prerequisite(s): Algebra I and Geometry (students who have passed Algebra II may not enroll in this course)

The AFDA course is designed for students who have successfully completed the standards for Algebra I and Geometry and may benefit from additional support before their transition to Algebra II. Within the context of mathematical modeling and data analysis, students will study functions and their behaviors, systems of inequalities, probability, experimental design and implementation, and analysis of data. Data will be generated through practical applications arising from science, business, and finance. Students will solve problems that require the formulation of linear, quadratic, exponential, or logarithmic equations or a system of equations. Through the investigation of mathematical models and interpretation/analysis of data from relevant, applied contexts and situations, students will strengthen conceptual understandings in mathematics and further develop connections between algebra and statistics. Students should use the language and symbols of mathematics in representations and communication, both orally and in writing, throughout the course. These standards include a transformational approach to graphing functions and writing equations when

given the graph of the equation. Transformational graphing builds a strong connection between algebraic and graphic representations of functions. Graphing utilities (calculators, computers, and other technology tools) will be used to assist in teaching and learning.

School(s) offering course: All HS

ADVANCED ALGEBRA II Grade 9-10 3135.1P
ALGEBRA II Grade 9-12 3135
Credit(s): 1 **Grade level(s): 9-12**
Prerequisite(s): "B" or higher in Geometry or with written teacher recommendation

In this course, a thorough treatment of advanced algebraic concepts will be provided through the study of functions, equations, inequalities, systems of equations, polynomials, rational and radical equations, complex numbers, and sequences and series. Emphasis will be placed on practical applications and modeling throughout the course of study. Oral and written communication concerning the language of algebra, logic of procedures, and interpretation of results will permeate the course. This course includes a transformational approach to graphing functions. Transformational graphing uses translation, reflection, dilation, and rotation to generate a "family of functions" from a given "parent" function and builds a strong connection between algebraic and graphic representations of functions. Students will vary the coefficients and constants of an equation, observe the changes in the graph of the equation, and make generalizations that can be applied to many graphs. Graphing utilities (calculators, computers, and other technology tools) will be used to assist in teaching and learning.

School(s) offering course: All HS

AP COMPUTER SCIENCE A 3185
 See section on Computer Science and Technology.

COLLEGE ALGEBRA 3137
Credit(s): 1 **Grade level(s): 10-12**
Prerequisite(s): Algebra II; (students who have passed Precalculus may not enroll in this course.)

This is a college preparatory course that extends topics from Algebra II and introduces additional ones. One quarter of the course deals with trigonometry topics. The remainder of the course concentrates on the study of functions, matrices, and probability. This course is recommended for college-bound seniors who do not have the background or interest to take the more in-depth course of Precalculus.

School(s) offering course: All HS

PRECALCULUS 3164
Dual Enrollment 3164D
Credit(s): 1 (1* for dual enrollment) **Grade level(s): 10-12**
Prerequisite(s): "B" or higher in Algebra II or teacher recommendation

This course is designed to prepare students who plan to pursue college studies in mathematics, engineering, or the sciences. The central theme of this course is functions as models of change. Each family of functions is represented symbolically, numerically, graphically, and verbally. Emphasis is placed on problem solving and real-world applications. Topics include an introduction to functions; linear functions; exponential and logarithmic functions; transformations of functions; trigonometric functions; composite, inverse, and combination functions; polynomial and rational functions; trigonometry of vectors; and related topics, including geometric series, parametric equations, implicitly defined curves, and complex numbers. The graphing calculators will be used throughout the course. For dual enrollment, a unit on systems of equations and inequalities using matrices will be included.

School(s) offering course: All HS

AP STATISTICS 3192
Credit(s): 1* **Grade level(s): 10-12**
Prerequisite(s): "B" or higher in Algebra II or teacher recommendation

This course is equivalent to an introductory, non-calculus based, college course in statistics which is typically required for college majors such as engineering, psychology, sociology, health science, and business. The purpose of this course is to introduce students to the major concepts and tools for collecting, analyzing, and drawing conclusions from data. Graphing calculators will be used throughout the course.

School(s) offering course: All HS

AP CALCULUS AB 3177
Dual enrollment 3177D
Credit(s): 1* **Grade level(s): 10-12**
Prerequisite(s): "C" or higher in Precalculus or teacher recommendation

Advanced Placement Calculus AB consists of a full year of work in calculus and related topics. This course is intended for students who have a thorough knowledge of analytic geometry and elementary functions in addition to college preparatory algebra, geometry, and trigonometry. The purpose of the course is to prepare the student for advanced placement in college calculus.

School(s) offering course: BCAT, All HS

AP CALCULUS BC 3180
Dual enrollment 3180D
Credit(s): 1* **Grade level(s): 11-12**
Prerequisite(s): AP Calculus AB

AP Calculus BC is a course designed to build on the concepts learned in AP Calculus AB and to prepare students for the higher levels of mathematics. The diversity of topics and versatility of the knowledge gained in this course will enable students to solve problems in many fields of study, including physics, engineering, biology, and chemistry. The course includes vectors and dynamical systems, series and approximation, advanced integration techniques, parametric and polar functions, multiple variable functions, differential equations, and real-world modeling examples. The students will extend the applications of calculus to a wider arena of physical phenomena through the use of technology.

School(s) offering course: BCAT, All HS

Performing Arts

CHORUS 6 9269
Credit(s): 0 **Grade level(s): 6**
Prerequisite(s): None

The 6th Grade Chorus class provides instruction in ensemble techniques, vocal techniques, and music-reading fundamentals through the use of unison and two part songs. Both sacred and secular music are performed. A minimal number of outside-of-school rehearsals and performances are required unless excused by the director.

School(s) offering course: All MS

CHORUS 7 9270
Credit(s): 0 **Grade level(s): 7**
Prerequisite(s): None

The 7th Grade Chorus class provides instruction in ensemble techniques, vocal techniques, and music-reading fundamentals through the use of unison and two part songs. Both sacred and secular music are performed. A minimal number of outside-of-school rehearsals and performances are required unless excused by the director.

School(s) offering course: All MS

CHORUS 8 9271
Credit(s): 0 **Grade level(s): 8**
Prerequisite(s): None

The 8th Grade Chorus class provides instruction in ensemble techniques, vocal techniques, and music-reading fundamentals through the use of unison, 2, 3, and 4 part songs. Both sacred and secular music are performed. A minimal number of outside-of-school rehearsals and performances are required unless excused by the director.

School(s) offering course: All MS

MIXED CHORUS
Grade 9 9260.09
Grade 10 9260.10
Grade 11 9260.11
Grade 12 9260.12
Credit(s): 1 **Grade level(s): 9-12**
Prerequisite(s): None

This course is open to all grade levels. Correct singing and good musicianship are stressed. Development of musical skills and understanding are emphasized. Both sacred and secular music are performed. Outside-of-school rehearsals and performances are required unless excused by the director.

School(s) offering course: All HS

CHORALE	Grade 9	9292.09
	Grade 10	9292.10
	Grade 11	9292.11
	Grade 12	9292.12

Credit(s): 1

Grade level(s): 9-12

Prerequisite(s): Audition

This course requires the highest degree of performance from each member while further developing individual vocal skills and musical understanding. Previous training in one of the other choral ensembles is helpful but not necessary. Emphasis is placed on individual vocal production, sight-reading, music fundamentals, and vocal techniques. Both sacred and secular music are performed. Strict requirements are placed on each member. Outside-of-school rehearsals and performances are required unless excused by the director.

School(s) offering course: ALL HS

VOCAL ENSEMBLE	Grade 9	9280.09
	Grade 10	9280.10
	Grade 11	9280.11
	Grade 12	9280.12

Credit(s): 1

Grade level(s): 9-12

Prerequisite(s): Recommendation of instructor

Emphasis is on the art of small ensemble singing, individual vocal production, and a cappella singing techniques. Both sacred and secular music are performed. Outside-of-school rehearsals and performances are required unless excused by the director.

School(s) offering course: ALL HS

BAND 6: BEGINNING BAND	9230
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Credit(s): 0

Grade level(s): 6

Prerequisite(s): None

The 6th Grade Beginning Band class provides instrumental group instruction. The class introduces and develops techniques of instrument playing and music reading. A minimal number of outside-of-school rehearsals and performances are required unless excused by the director.

School(s) offering course: ALL MS

BAND 7: INTERMEDIATE BAND	9231
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Credit(s): 0

Grade level(s): 7

Prerequisite(s): Band 6 or permission of instructor

The 7th Grade Band class may have various experience levels and will provide instrumental group instruction at an intermediate level. The class is a continuation of playing techniques and Grade I and II levels of band music. A minimal number of outside-of-school rehearsals and performances are required unless excused by the director. Those students who desire to begin band in the 7th grade should register for this course with permission given by instructor.

School(s) offering course: ALL MS

BAND 8: ADVANCED BAND	9229
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Credit(s): 0

Grade level(s): 8

Prerequisite(s): Band 7 or permission of instructor

The 8th Grade Band class may have various experience levels and will provide instrumental group instruction at an intermediate to advanced level. The class is a continuation of playing techniques and Grade I, II, III levels of band music. A minimal number of outside-of-school rehearsals and performances are required unless excused by the director. Those students who desire to begin band in the 8th grade should register for this course with permission given by the director.

School(s) offering course: ALL MS

JAZZ BAND	Grade 7	9415
	Grade 8	9416

Credit(s): 0

Grade level(s): 7-8

Prerequisite(s): Recommendation of instructor

Jazz Band is a course for students with an interest in learning about and performing all styles of "pop" music from Dixieland to the present with the emphasis on the "big band" style. Wind and percussion players must be members of band classes; rhythm (guitar and piano) may come from the general school population. Outside-of-school rehearsals and performances are required unless excused by director. This class is a zero period class which meets before school 2-3 times per week. Transportation must be provided

School(s) offering course: ALL MS

INSTRUMENTAL ENSEMBLE	Grade 7	9236
	Grade 8	9241

Credit(s): 0

Grade level(s): 7-8

Prerequisite(s): Recommendation of instructor

This course is open to students who are interested in advancing their abilities through small ensemble playing and enlarging their knowledge of the literature

and styles of music for their particular instruments. Students must be members of band classes. Outside-of-school rehearsals and performances are required unless excused by director. This class is a zero period class which meets before school 2-3 times per week. Transportation must be provided

School(s) offering course: ALL MS

CONCERT BAND (with Marching Band)	Grade 9	9232M
	Grade 10	9233M
	Grade 11	9234M
	Grade 12	9244M

Credit(s): 1.5

Grade level(s): 9-12

Prerequisite(s): Recommendation of instructor

This group consists of students who have the ability to play music from Grade I to Grade V. This course stresses performance skills development, sight-reading, and musical understanding; students will perform in several programs throughout the year. Some members may be selected to play with the Symphonic Band as their skills develop to the level of that band. **Members of this organization will participate in the Marching Band with members of the Symphonic Band.** Outside-of-school rehearsals and performances are required unless excused by the instructor.

School(s) offering course: ALL HS

CONCERT BAND (without Marching Band)	Grade 9	9232
	Grade 10	9233
	Grade 11	9234
	Grade 12	9244

Credit(s): 1

Grade level(s): 9-12

Prerequisite(s): Recommendation of instructor

This group consists of students who have the ability to play music from Grade I to Grade V. This course stresses performance skills development, sight-reading, and musical understanding; students will perform in several programs throughout the year. Some members may be selected to play with the Symphonic Band as their skills develop to the level of that band. Outside-of-school rehearsals and performances are required unless excused by the instructor.

School(s) offering course: ALL HS

SYMPHONIC BAND (with Marching Band)	Grade 9	9237M
	Grade 10	9238M
	Grade 11	9239M
	Grade 12	9242M

Credit(s): 1.5

Grade level(s): 9-12

Prerequisite(s): Recommendation of instructor

This course requires the highest degree of performance from each member while further developing individual instrumental skills and musical understanding. **This class requires the student to participate in the Marching Band.** Outside-of-school rehearsals and performances are required unless excused by the instructor.

School(s) offering course: ALL HS

SYMPHONIC BAND (without Marching Band)	Grade 9	9237
	Grade 10	9238
	Grade 11	9239
	Grade 12	9242

Credit(s): 1

Grade level(s): 9-12

Prerequisite(s): Recommendation of instructor

This course requires the highest degree of performance from each member while further developing individual instrumental skills and musical understanding. Outside-of-school rehearsals and performances are required unless excused by the instructor.

School(s) offering course: ALL HS

INSTRUMENTAL ENSEMBLE	Grade 9	9250.09
	Grade 10	9250.10
	Grade 11	9250.11
	Grade 12	9250.12

Credit(s): 1 for HS Only

Grade level(s): 9-12

Prerequisite(s): Recommendation of instructor

This course is open to students who are interested in advancing their abilities through small ensemble playing and enlarging their knowledge of the literature and styles of music for their particular instruments. Students must be members of band classes. Outside-of-school rehearsals and performances are required unless excused by director.

School(s) offering course: ALL HS

JAZZ BAND	Grade 9	9425
	Grade 10	9426
	Grade 11	9427
	Grade 12	9428

Credit(s): 1 **Grade level(s): 9-12**

Prerequisite(s): Recommendation of instructor

This course is for students with an interest in learning about and performing all styles of "pop" music from Dixieland to the present with an emphasis on the "big band" style. Instrumentation for this group could be a combination of the following: saxophones (alto, tenor, baritone); trumpets; trombones; guitar; bass; piano; and traps (with additional instruments as required by the music). Outside-of-school rehearsals and performances are required unless excused by the director.

School(s) offering course: All HS

MUSIC THEORY & COMPOSITION **9225**

Credit(s): 1 **Grade level(s): 9-12**

Prerequisite(s): Previous music experience and recommendation of instructor

This course is the study of the components of music, melody, rhythm, form, and harmony. Emphasis is placed on the practical application of ear training, sight-reading, and part writing.

School(s) offering course: All HS

THEATER ARTS I	1410
THEATER ARTS II	1420
THEATER ARTS III	1423
THEATER ARTS IV	1426

Credit(s): 1 **Grade level(s): 9-12**

Prerequisite(s): None for Theater Arts I

These courses introduce and extend the study of theater crafts with emphasis on the technical aspects of play production: directing, lighting, set construction, scene design, and the reading and studying of contemporary dramas. Classes will be offered contingent upon sufficient enrollment.

School(s) offering course: All HS

RECORDING I: Intro to Studio Recording **9200**

Credit(s): 1 **Grade level(s): 9-12**

Prerequisite(s): None

This class is for students interested in Music, Recording, and Sound Engineering. The course curriculum is designed to offer the student authentic learning experiences in this area. The course will empower students and equip them with the skills necessary to succeed and compete in the field of Music Technology.

School(s) offering course: GHS

Science

The Roanoke County Public Schools in compliance with the Code of Virginia 22.1-200.01 provides alternatives to animal dissection techniques within relevant public school curriculum or courses.

SCIENCE 6 **4105**

Credit(s): 0 **Grade level(s): 6**

Prerequisite(s): None

Sixth grade science continues to emphasize data analysis and experimentation. Methods are studied for testing the validity of predictions and conclusions. Scientific methodology, focusing on precision in stating hypotheses and defining dependent and independent variables, is strongly reinforced. The concept of change is explored through the study of transformations of energy and matter, both in living things and in the physical sciences. A more detailed understanding of the solar system becomes a focus of instruction. Natural resource management and its relation to public policy and cost/benefit tradeoffs are introduced.

School(s) offering course: All MS

ADVANCED SCIENCE 6 **4105.1P**

Credit(s): 0 **Grade level(s): 6**

Prerequisite(s): None

Advanced Science 6 requires advanced intellectual skills such as problem solving, sharp reasoning, and analytical investigation. Advanced writing and

research, as well as laboratory work and the use of technology, are key factors in this course. Students will be required to complete an independent research project. Mathematics applications and research of literary sources require the higher-level math and English emphasis. Science 6 reinforces experimentation, focusing on dependent and independent variables, predictions and their validity, collection and analysis of data, and conclusions. This program will explore sources of energy and its transformation and use in living things, and in the physical sciences, the role of solar energy, matter, properties of water and its role, the structure and dynamics of the air and the Earth's atmosphere, watershed systems and their unique characteristics, the solar system's organization and interrelationships, and management of renewable and nonrenewable resources, including related public policy issues.

School(s) offering course: All MS

LIFE SCIENCE **4115**

Credit(s): 0 **Grade level(s): 7**

Prerequisite(s): Successful completion of Science 6

Life Science continues to emphasize a more complex understanding of change, cycles, patterns, and relationships in the living world. Students build on basic principles related to these concepts by exploring the cellular organization and the classification of organisms, the dynamic relationships among organisms, populations, communities and ecosystems, and change as a result of the transmission of genetic information from generation to generation. Inquiry skills at this level include organization and analysis of data and manipulating variables in experimentation.

School(s) offering course: All MS

ADVANCED LIFE SCIENCE **4115.1P**

Credit(s): 0 **Grade level(s): 7**

Prerequisite(s): Successful completion of Science 6

Advanced Life Science emphasizes a more in-depth understanding of change, cycles, patterns, and relationships in the living world in populations, communities, and ecosystems. Students will explore change as a result of the transmission of genetic information from generation to generation. Advanced Life Science requires higher level critical thinking skills. Students will be required to complete an independent research project. Independent out-of-class assignments are an integral part of this advanced level work. Research projects requiring strong writing skills are emphasized. Advanced Life Science builds on skills of systematic investigation with a clear focus on variables and repeated trials. Validating conclusions through analysis of data is increasingly important at this level. Students will plan and conduct research involving both classroom experimentation and literature reviews from written and electronic resources. Student will propose practical solutions to real-life problems. Work will be shared through written reports and class presentations.

School(s) offering course: All MS

PHYSICAL SCIENCE **4125**

Credit(s): 0 **Grade level(s): 8**

Prerequisite(s): Successful completion of Life Science

Physical Science continues to build on skills of systematic investigation with concentration on variables and repeated trials. Drawing valid conclusions is emphasized using observations and data. Research methods and process skills are utilized to solve practical problems and questions. Physical science stresses an understanding of the nature and structure of matter and the characteristics of energy. The course places emphasis on the technological application of physical science principles. Major areas covered include the periodic table, physical and chemical changes, nuclear reactions, temperature and heat, sound, light, electricity and magnetism, and work, force, and motion.

School(s) offering course: All MS

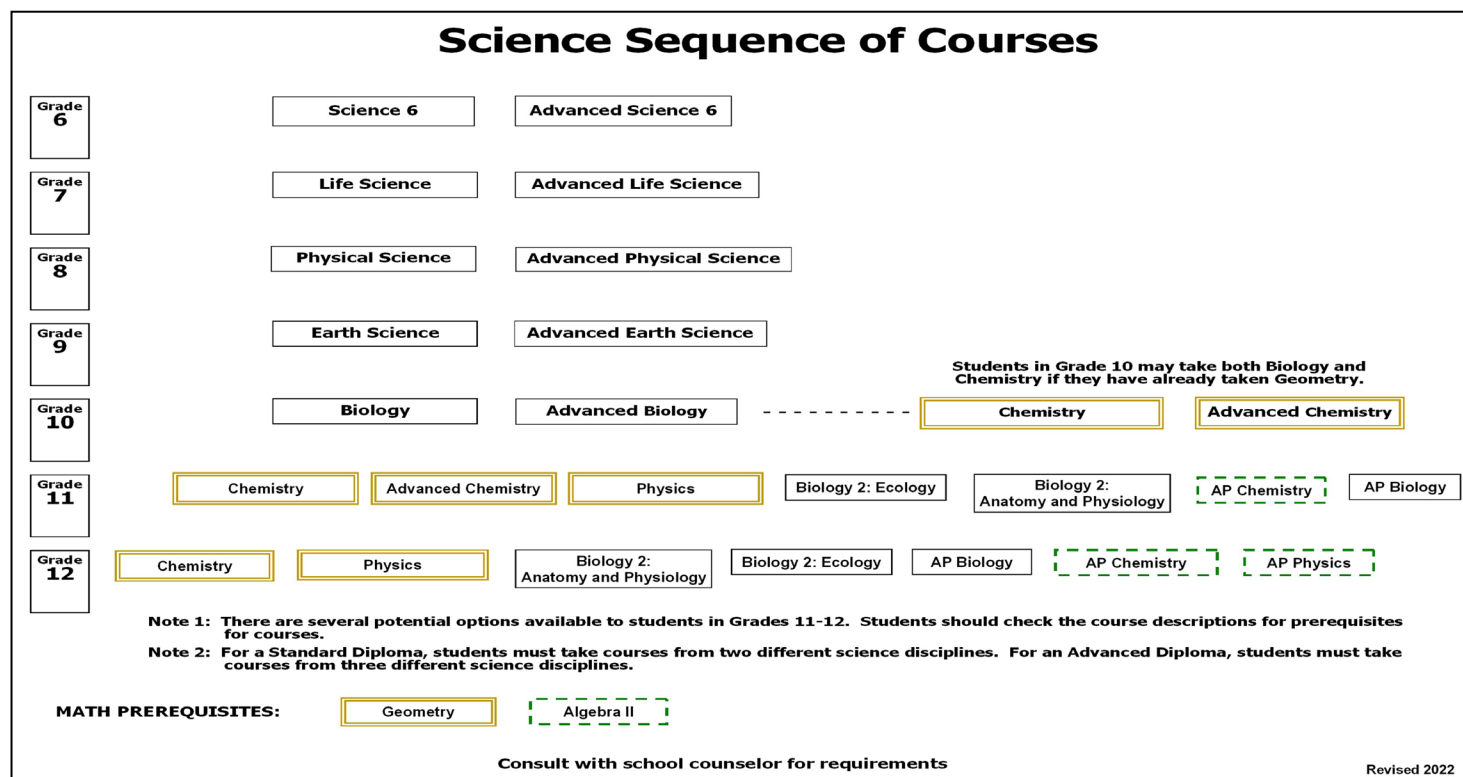
ADVANCED PHYSICAL SCIENCE **4125.1P**

Credit(s): 0 **Grade level(s): 8**

Prerequisite(s): Successful completion of Life Science

Advanced Physical Science requires higher level critical thinking skills. Students will be required to complete an independent research project. Independent out-of-class assignments are an integral part of this advanced level work. Research projects requiring strong writing skills are emphasized. Advanced Physical Science builds on skills of systematic investigation with a clear focus on variables and repeated trials. Validating conclusions through analysis of data is increasingly important at this level. Students will plan and

Science Sequence of Courses



conduct research involving both classroom experimentation and literature reviews from written and electronic resources. Students will propose practical solutions to real-life problems requiring higher mathematics applications. Work will be shared through written reports and class presentations. Advanced Physical Science stresses a more in-depth understanding of the nature and structure of matter and characteristics of energy. This course places considerable emphasis on the technological application of physical science principles.

School(s) offering course: All MS

EARTH SCIENCE 4210

Credit(s): 1 **Grade level(s): 9**
Prerequisite(s): Successful completion of Physical Science

Major topics of study in Earth Science include plate tectonics, the rock cycle, Earth history, the oceans, the atmosphere, weather and climate, and the solar system and the universe. Emphasis is on the interpretation of maps, charts, tables, and profiles; the use of technology to collect, analyze, and report data; and science skills in systematic investigation. Problem solving and decision making are an integral part of the course, especially as they relate to the costs and benefits of utilizing the Earth's resources.

School(s) offering course: All HS

ADVANCED EARTH SCIENCE 4210.1P

Credit(s): 1 **Grade level(s): 9**
Prerequisite(s): "A" or "B" in Physical Science

Advanced Earth Science requires higher level critical thinking skills. Students will be required to complete an independent research project. Skills will be demonstrated in analyzing data-forming hypotheses, designing research, and developing conclusions to scientific inquiry. Emphasis is on the interpretation of maps, charts, tables, and profiles, as well as the use of technology to collect, analyze, and report data and science skills in systematic investigation. Major topics of study include plate tectonics, the rock cycle, Earth history, the oceans, the atmosphere, weather and climate, and the solar system and the universe.

School(s) offering course: All HS

BIOLOGY 4310

Credit(s): 1 **Grade level(s): 10-12**
Prerequisite(s): Successful completion of Earth Science

Biology is designed to provide students with an understanding of living systems. Emphasis is placed on the skills necessary to examine scientific explanations, actively conduct controlled experiments, and analyze and communicate

information. The history of biological thought and the evidence that supports it are explored and provide the foundation for investigating biochemical life processes, cellular organization, mechanisms of inheritance, dynamic relationships among organisms, and the change in organisms through time. Emphasis is placed on student-centered learning, whereby concepts, rather than facts, are taught in an active learning environment with application of these concepts to current technology.

School(s) offering course: All HS

ADVANCED BIOLOGY 4310.1P

Credit(s): 1 **Grade level(s): 10-12**
Prerequisite(s): "A" or "B" in Earth Science

Advanced Biology requires advanced intellectual engagement, sharp problem-solving skills, reasoning and analyzing, sophisticated research experience, broad intellectual horizons, and a devotion to a rigorous, intensive, fast paced level of learning. The laboratory component, technology, and extensive writing are key factors in this course. This course will cover living systems, history of biological thought, evidence that supports it, foundation for investigating biochemical life processes, cellular organization, relationships among organisms and change in organisms through time. Students will also examine alternative scientific explanations, conduct experiments, analyze information, and use scientific literature. Students are required to complete an independent research project which will mostly be completed outside of class.

School(s) offering course: All HS

AP BIOLOGY 4370

Credit(s): 2^W **Dual enrollment 4370D**
Grade level(s): 11-12
Prerequisite(s): 11th or 12th grade students who have successfully completed biology and either chemistry or physics.

Advanced Placement Biology is a second-year laboratory- centered course designed help students develop an understanding of how biological information is collected, analyzed, evaluated, interpreted, and built upon to make further predictions. Students will use mathematics, modeling, and representations to discover and explain scientific phenomenon.

In this college level course, the focus is on four big ideas that include Evolution, Biological systems, Life processes, and Interactions of living systems. Students work individually or in small groups, pursuing experimental investigations with a minimum of dependence on the teacher.

School(s) offering course: All HS

CHEMISTRY (College Bound) 4410CB

Credit(s): 1 **Grade level(s): 10-12**
Prerequisite(s): Biology; "B" or above in Geometry or "C" with teacher recommendation.
Corequisite: Algebra II
May take Biology concurrently.

Chemistry is designed to provide students with a detailed understanding of the interaction of matter and energy. Chemistry is a math-intensive course. This interaction is investigated using laboratory techniques, manipulation of chemical quantities, and problem-solving applications. Scientific methodology will be employed in experimental and analytical investigations, and concepts will be illustrated with practical applications. Technology, including graphing calculators and computers, will be employed where feasible. Students will understand and use safety precautions. The course emphasizes qualitative and quantitative study of substances. Students will be encouraged to share their ideas, use the language of chemistry, discuss problem-solving techniques, and communicate effectively.

School(s) offering course: All HS

ADVANCED CHEMISTRY 4410.1P

Credit(s): 1 **Grade level(s): 10-12**
Prerequisite(s): Biology; "B" or above in Geometry.
Corequisite: Algebra II
May take Biology concurrently.

Advanced Chemistry is a challenging, math-intensive, fast-paced course which requires competence and depth in solving chemical problems, sharp reasoning and analyzing skills, advanced intellectual engagement, rigorous laboratory work, and intensive and independent out of class writing and problem-solving assignments. Students will be required to complete an independent research project. This course will cover interaction of matter and energy, quantitative and qualitative studies of substance changes, experimental and analytical investigations, manipulation of chemical quantities, extensive research, language of chemistry, chemical calculations, and formulation of principles. The use of technology, including calculators and computers with scientific probes and sensors, will be employed where feasible.

School(s) offering course: All HS

AP CHEMISTRY 4470

Credit(s): 2^W **Grade level(s): 11-12**
Prerequisite(s): Chemistry; Algebra II

This college level course is built around six big ideas that include such concepts as; chemical elements and the understanding of them and their characteristics. Chemical and Physical properties, structure, and forces, Changes in matter, Rates of reactions, laws of thermodynamics, as well as Bonds and intermolecular attraction.

Students will utilize mathematics, modeling, representations to explore and explain scientific phenomenon. Student will plan and implement data collection, data analysis, and evaluation strategies as well as utilize scientific explanations and theories.

School(s) offering course: All HS

BIOLOGY 2: ECOLOGY 4340

Credit(s): 1 **Grade level(s): 11-12**
Prerequisite(s): Successful completion of Earth Science and Biology

This course is designed as a survey of the basic principles of ecology. Technology, earth science, biology, physics, and chemistry principles are developed where applicable. Laboratory investigations develop inquiry skills and processes in observing, classifying, identifying, interpreting, and predicting results. Emphasis is on the nature of science and the role it plays in society. This course will stress technology and environmental issues.

School(s) offering course: All HS

BIOLOGY 2: ANATOMY AND PHYSIOLOGY 4330

Credit(s): 1 **Grade level(s): 11-12**
Prerequisite(s): "C" or above in Biology
Corequisite: Chemistry

Anatomy and Physiology is an advanced course designed to stimulate interest in the structure and function of the human body, and to promote inquiry into what scientific developments are taking place today in the fields of medicine,

health, and disease. Emphasis is placed on common medical terms and classroom and laboratory experiences that prepare students to enter scientific professions such as nursing, pharmacy, medical technology, dentistry, medicine, veterinary medicine, etc.

School(s) offering course: All HS

PHYSICS 4510

Credit(s): 1 **Grade level(s): 11-12**
Corequisite(s): Algebra II

Physics emphasizes a more complex understanding of experimentation, the analysis of data, and the use of reasoning and logic to evaluate evidence. The use of mathematics, including algebra, inferential statistics, and trigonometry is important, but conceptual understanding of physical systems remains a primary concern. Students build on basic physical science principles. Key areas covered include force and motion, kinetic molecular theory, energy transformations, wave phenomena and the electromagnetic spectrum, light, electricity, magnetic fields, and non-Newtonian physics. Technology, including graphing calculators and computers, will be employed where feasible. The course stresses the practical application of physics in other areas of science and technology.

School(s) offering course: All HS

AP PHYSICS 4570

Credit(s): 2^W **Grade level(s): 11-12**
Prerequisite(s): "B" or higher in Algebra II

AP Physics is an algebra-based course equivalent to the first and second semesters of a typical introductory, algebra-based, college-level physics course. AP Physics covers the material for two separate AP Exams: AP Physics 1 and AP Physics 2. Topics in the first semester are focused around 5 big ideas involving the following: systems, fields, force interactions, change, and conservation. In addition to the big ideas in the first semester, topics in the second semester also include waves and probability.

School(s) offering course: All HS

Social Studies

UNITED STATES HISTORY TO 1865 2353

Credit(s): 0 **Grade level(s): 6**
Prerequisite(s): None

U.S. History to 1865 is an introductory course in the history of the United States from early Native American settlement through the Civil War. This course is the first of a two-year focus on U.S. History designed to give students a solid American history foundation. The course will focus on fundamental concepts in civics, economics, and geography in the context of United States history through simulations, class debates, projects, or other innovative techniques to make the students' learning experiences lively and memorable. Students will review and strengthen map and globe skills, skills in interpreting and using information, and historical thinking skills.

School(s) offering course: All MS

ADVANCED UNITED STATES HISTORY TO 1865 2353.1P

Credit(s): 0 **Grade level(s): 6**
Prerequisite(s): None

Advanced U.S. History to 1865 is an advanced course in the history of the United States from early Native American settlement through the Civil War. The course will focus on fundamental concepts in civics, economics, and geography in the context of United States history through simulations, class debates, projects, or other innovative techniques to make the students' learning experiences lively and memorable. Students will review and strengthen map and globe skills, skills interpreting and using information, and historical thinking skills. This will be students' first exposure to Advanced social studies techniques designed to equip students with the skills necessary to be successful in high school AP courses. Techniques for technical essay writing and use of document-based questions are a focus in this challenging course.

School(s) offering course: All MS

UNITED STATES HISTORY: 1865 TO THE PRESENT 2354

Credit(s): 0 **Grade level(s): 7**
Prerequisite(s): None

The seventh-grade social studies curriculum will focus on the history of the United States from the end of the Civil War to the present day. Students will continue to learn fundamental concepts in civics, economics, and geography in the context of United States history through simulations, class debates, projects,

or other innovative techniques to make the students' learning experiences lively and memorable. Students will review and strengthen map and globe skills, skills in interpreting and using information, and historical thinking skills.

School(s) offering course: All MS

ADVANCED UNITED STATES HISTORY: 1865 TO THE PRESENT 2354.1P

Credit(s): 0

Grade level(s): 7

Prerequisite(s): None

Advanced U.S. History from 1865 is an advanced course in the study of the United States from the end of the Civil War to the present time. The course will focus on fundamental concepts in civics, economics, and geography in the context of United States history through simulations, class debates, projects, or other innovative techniques to make the students' learning experiences lively and memorable. Students will review and strengthen map and globe skills, skills in interpreting and using information, and historical thinking skills. Students will be exposed to Advanced social studies techniques designed to equip them with the skills necessary to be successful in high school AP courses. Techniques for technical essay writing and use of document-based questions are a focus in this challenging course.

School(s) offering course: All MS

CIVICS AND ECONOMICS 2357

Credit(s): 0

Grade level(s): 8

Prerequisite(s): None

The eighth grade social studies curriculum focuses on the role of the citizen in the American political and economic systems. The emphasis is on gaining essential knowledge of the U. S. and Virginia Constitutions and the structure and functions of government institutions at the national, state, and local levels. Students also learn the basic principles, structure, and operation of the American economy. These standards are intended to foster patriotism, respect for the law, a sense of civic duty, and informed economic decision making. Social science skill development extends into quantitative data organization, interpretation, and the use of technology in presenting information.

School(s) offering course: All MS

ADVANCED CIVICS AND ECONOMICS 2357.1P

Credit(s): 0

Grade level(s): 8

Prerequisite(s): None

Advanced Civics and Economics is an advanced course which will provide an in-depth focus on the role of the citizen in the American political and economic systems. Students will master and go beyond essential knowledge regarding the structure of the various levels of government as well as the principles, structure, and operation of the American economy. The standards of this course are intended to foster patriotism, respect for the law, a sense of civic duty, and informed decision making. In this rigorous course students will begin to develop the skills necessary to succeed in high school AP courses. Higher level thinking skills and essay writing techniques will be extensively practiced.

School(s) offering course: All MS

WORLD GEOGRAPHY 2210

Credit(s): 1

Grade Level(s): 9

Prerequisite(s): None

The World Geography curriculum focuses on the world's people, places, and environments. The knowledge, skills, and perspectives of the course are centered on the world's population and cultural characteristics, its countries and regions, landforms and climates, natural resources and natural hazards, economic and political systems, and migration and settlement patterns. Spatial concepts of geography will be linked to chronological concepts of history to set a framework for studying human interactions. The course will emphasize how people in various cultures influence and are influenced by their physical and ecological environments. Using texts, maps, globes, graphs, pictures, stories, diagrams, charts, a variety of geographic inquiry/research skills, and technology skills, students consider the relationships between people and places while asking and answering geographic questions. The students will develop a mastery of the five themes of geography.

School(s) offering course: All HS

WORLD HISTORY I 2215

Credit(s): 1

Grade level(s): 9

Prerequisite(s): None

World History and Geography to 1500 A.D. will focus its study on pre-history to 1500 A.D. Students will explore the historical development of people, places, and patterns of life from ancient times until 1500 A.D. in terms of the impact on Western Civilization. Students will review and strengthen map and globe skills, skills in interpreting and using information, and historical thinking skills.

School(s) offering course: All HS

ADVANCED WORLD HISTORY I

Credit(s): 1

Grade level(s): 9

Prerequisite(s): None

Advanced World History and Geography to 1500 A.D. is an advanced course in world history from pre-history to 1500 A.D. Students will explore the historical development of people, places, and patterns of life from ancient times until 1500 A.D. in terms of the impact on Western Civilization. Students will review and strengthen map and globe skills, skills in interpreting and using information, and historical thinking skills. This class will be a continuation of the development of Advanced social studies techniques designed to equip students with the skills necessary to be successful in high school AP courses. Techniques for technical essay writing and use of document-based questions are a focus in this challenging course.

School(s) offering course: All HS

ADVANCED WORLD HISTORY II 2216.1P

Credit(s): 1

Grade level(s): 10

Prerequisite(s): None

Advanced World History and Geography from 1500 A.D. to the Present is an advanced course in world history from 1500 A.D. to present, with an emphasis on Western Europe. Geographic influences on history continue to be explored, but increasing attention is given to political boundaries that developed with the evolution of nations. Students will continue to strengthen map and globe skills as well as analysis and interpretation of primary source material and other historical documents. Higher order thinking, historical thinking, and inquiry/research methods will be emphasized through technical essay writing. This class will be a continuation of the development of Advanced social studies techniques designed to equip students with the skills necessary to be successful in high school AP courses.

School(s) offering course: All HS

WORLD HISTORY II 2216

Credit(s): 1

Grade level(s): 10

Prerequisite(s): None

World History and Geography: 1500 A.D. to the Present will enable students to cover history and geography from 1500 A.D. to the present, with an emphasis on Western Europe. Geographic influences on history continue to be explored, but increasing attention is given to political boundaries that developed with the evolution of nations. Significant attention will be given to the ways in which scientific and technological revolutions created new economic conditions that in turn produced social and political changes. Noteworthy people and events of the nineteenth and twentieth centuries will be emphasized for their strong connections to contemporary issues.

School(s) offering course: All HS

AP WORLD HISTORY 2380

Credit(s): 1^W

Grade level(s): 10-12

Prerequisite(s): None

AP World History is designed to provide students with the analytic skills and factual knowledge necessary to critically study global historical events. In this rigorous course, students will study history from prehistory to the present according to both the AP curriculum and Virginia Standards of Learning for World History. This course is the equivalent to a full-year introductory college course and will prepare students for intermediate college courses. Students will take the World History, Part II SOL test. College credit may be earned by taking the AP World History exam. It is recommended, but not required, that students have completed Advanced World History, Part I.

School(s) offering course: All HS

VIRGINIA AND UNITED STATES HISTORY 2360

Credit(s): 1

Grade level(s): 11

Prerequisite(s): None

The eleventh-grade social studies curriculum focuses on the historical development of American ideals and institutions from the Age of Exploration to the present. While focusing on political and economic history, the standards provide students with a basic knowledge of American culture through a chronological survey of major issues, movements, people, and events in United States and Virginia history. Multicultural themes are studied throughout the year.

School(s) offering course: All HS

AP UNITED STATES HISTORY 2319

Credit(s): 1^W

Grade level(s): 11

Prerequisite(s): None

Advanced Placement U.S. and Virginia History is designed to provide students with the analytic skills and factual knowledge necessary to deal critically with the problems and materials in American history. The program should prepare

students for intermediate college courses by offering a course which is equivalent to a full-year introductory college course. Students should learn to assess historical materials by determining their relevance, their reliability, and their importance. This course fulfills the United States and Virginia history requirement for graduation. College credit may be earned by taking the AP U.S. History Exam.

School(s) offering course: All HS

VIRGINIA AND UNITED STATES HISTORY (dual) 2360D

Credit(s): 1^W (Dual enrollment) Grade level(s): 11

Prerequisite(s): None

The course curriculum focuses on the historical development of American ideals and institutions from the Age of Exploration to the present. While focusing on political and economic history, the standards provide students with a basic knowledge of American culture through a chronological survey of major issues, movements, people, and events in United States and Virginia history. Multicultural themes are studied throughout the year. This course is equivalent to a full-year introductory college course with college credit awarded upon successful completion. The instructors will be adjunct faculty members at Virginia Western Community College. The exam exemption will not apply in this course. Students taking this course may take the AP History exam if they wish. This course fulfills the United States and Virginia History requirement for graduation.

School(s) offering course: All HS

AFRICAN AMERICAN HISTORY V2370

Credit(s): 1 Grade level(s): 11-12

Prerequisite or Co-requisite(s): Virginia and United States History

This course will survey African American history from precolonial Africa through the present. Students will be introduced to key concepts in African American history from early beginnings in indigenous Africa through the transatlantic slave trade, the Civil War, Emancipation, Reconstruction, the Civil Rights era, and into the present. The course will give students an opportunity to explore social events and processes, individuals and agency, documents and institutions; and analyze past and present positions for future implications for African Americans. This course does require students to complete a Capstone project. Students will pursue independent research relative to the content on a question or problem of their choice and produce a learning object that reflects a deeper understanding of African American history.

School(s) offering course: RCPSONline Academy

VIRGINIA AND UNITED STATES GOVERNMENT 2440

Credit(s): 1 Grade level(s): 12

Prerequisite(s): None

The twelfth-grade social studies curriculum focus on United States and Virginia government will ensure that graduates of Virginia's public schools understand the origins and workings of the American and Virginia political systems. The students will develop knowledge of the United States and Virginia Constitutions; the structure and operation of United States and Virginia governments; the process of policy-making, with emphasis on economics, foreign affairs, and civil rights issues; and the impact of the general public, political parties, interest groups, and the media on policy decisions. United States political and economic systems are compared to those of other nations, with emphasis on the relationships between economic and political freedoms.

School(s) offering course: All HS

VIRGINIA AND UNITED STATES GOVERNMENT (dual) 2440D

Credit(s): 1^W (Dual enrollment) Grade level(s): 12

Prerequisite(s): None

Students will understand the origins and workings of the American and Virginia political systems. The students will develop knowledge of the United States and Virginia Constitutions; the structure and operation of United States and Virginia governments; the process of policy-making, with emphasis on economics, foreign affairs, and civil rights issues; and the impact of the general public, political parties, interest groups, and the media on policy decisions. United States political and economic systems are compared to those of other nations, with emphasis on the relationships between economic and political freedoms. This course is equivalent to a full-year introductory college level course with college credit awarded upon successful completion. The instructors will be adjunct faculty members at Virginia Western Community College. The exam exemption will not apply in this course. Students taking this course may take the AP United States Government and Politics exam if they wish. This course fulfills the United States and Virginia Government requirement for graduation.

School(s) offering course: All HS

AP UNITED STATES GOVERNMENT & POLITICS 2445

Credit(s): 1^W

Grade level(s): 12

Prerequisite(s): None

AP US Government and Politics will give students an analytical perspective on government and politics in the United States. The course includes both the study of general concepts used to interpret U.S. politics and the analysis of specific examples. Students will become acquainted with the various institutions, groups, beliefs, and ideas that constitute United States politics. Students will also become acquainted with the variety of theoretical perspectives and explanations for various behaviors and outcomes as they pertain to the following topics: constitutional underpinnings of the United States government, political beliefs and behaviors, political parties, interest groups, mass media, institutions of national government, public policy, and civil rights and liberties.

School(s) offering course: All HS

PSYCHOLOGY / SOCIOLOGY 2996

Credit(s): 1

Grade level(s): 11-12

Prerequisite(s): None

Psychology is the science and profession concerned with human behavior. Sociology is the study of society and culture and human social interaction. Through the presentation of the content of a combined survey course, students will have a background for the study of postsecondary psychology and sociology. Topics in the psychology semester of the course include historical development in the field, physiological and social psychology, sensation and perception, learning and intelligence, growth and development, and personality and motivation. The sociology semester of the course includes the study of groups and group interaction, institutions, race, ethnicity, as well as contemporary issues.

School(s) offering course: All HS

AP PSYCHOLOGY 2902

Credit(s): 1^W

Grade level(s): 11-12

Prerequisite(s): None

AP Psychology is a rigorous fourteen-week course. Students will work and pace themselves independently through each unit. In this fast-paced curriculum, students will state, define, and apply psychological concepts along with comparing and contrasting psychological perspectives. This course is the equivalent to a full-year introductory college course and will prepare students for intermediate college courses. College credit may be earned by taking the AP Psychology exam.

School(s) offering course: All HS

World Languages

WORLD LANGUAGES EXPLORATORY (Interest Block Program)

Credit(s): 0

Grade level(s): 6-7

Prerequisite(s): None

Students will explore languages, culture, geography and other information related to current World Language offerings in Roanoke County Public Schools (French, Latin, Spanish and German).

School(s) offering course: All MS

FRENCH I 5110

Credit(s): 1

Grade level(s): 8-12

Prerequisite(s): None

French I provides the beginning-level student with immediately useful language skills in French. It allows maximum conversational interaction both among students and between teacher and student. Speaking, reading, listening, and writing activities, based on real-life situations, are incorporated throughout the program. The student explores culture through authentic readings and digital media.

School(s) offering course: All MS, All HS

FRENCH II 5120

Credit(s): 1

Grade level(s): 9-12

Prerequisite(s): "C" average in French I

French II further develops and advances the skills of speaking, listening, writing, and reading. These skills are incorporated with cultural units. The program continues to provide for the student practice in real-life situations encountered in Francophone cultures.

School(s) offering course: All HS

FRENCH III	5130
Credit(s): 1	Grade level(s): 10-12
Prerequisite(s): "C" average in French II	
French III is designed to increase the student's ability to understand and speak functional French as effectively as possible. The student reads longer, authentic selections which are used to generate more meaningful writing. Listening comprehension focuses on real-life experiences, and cultural knowledge will include France and the Francophone world with their varied customs and points of interest.	
School(s) offering course: All HS	
FRENCH IV	5140
Credit(s): 1	Grade level(s): 11-12
Prerequisite(s): "C" average in French III	
The focus of French IV integrates listening, speaking, reading, writing, and culture to develop increased proficiency in all skills, to promote cultural awareness, and to enhance the ability to discuss important topics and write more complex material which may include activities that follow the format of the Advanced Placement French Language Examination.	
School(s) offering course: All HS	
AP FRENCH LANGUAGE	5170
Credit(s): 1^W	Grade level(s): 12
Prerequisite(s): French I, II, III, IV	
The Advanced Placement Program in French Language is intended for those who have chosen to develop their proficiency in all four language skills: listening, speaking, reading, and writing. The course covers the equivalent of a third-year college course in advanced French writing and conversation. It encompasses aural/oral skills, reading comprehension, grammar, and composition. Course content centers around AP themes. Curriculum will include authentic resources from recordings, films, literature, and current events. Extensive training in the organization and writing of compositions must be an integral part of the Advanced Placement French Language Course. Students who choose this program should have a basic knowledge of the language and culture of French-speaking peoples and should have attained a reasonable proficiency in listening comprehension, speaking, reading, and writing.	
School(s) offering course: All HS	
GERMAN I	5210
Credit(s): 1	Grade level(s): 8-12
Prerequisite(s): None	
German I covers the basic vocabulary, grammar, speaking, and listening skills necessary for simple, functional communication. The student also reads and writes simple texts and explores culture and contemporary life through a multicultural based program providing creative activities within authentic contexts.	
School(s) offering course: NM, WBM, NH, WBH	
GERMAN II	5220
Credit(s): 1	Grade level(s): 9-12
Prerequisite(s): "C" average in German I	
German II continues the program from Level I of vocabulary, grammar, speaking, and listening skills. The content encourages proficiency in conversational skills. The student reads and writes more material than in Level I and continues to explore culture and contemporary life.	
School(s) offering course: NH, WBH	
GERMAN III	5230
Credit(s): 1	Grade level(s): 10-12
Prerequisite(s): "C" average in German II	
German III is designed to increase the student's knowledge of vocabulary and to complete most of the grammar study. The student becomes more at ease with understanding and speaking the normal speech of everyday German. He/she reads longer, more advanced selections and writes short creative and/or expository themes. The student will study the cultural patterns of daily living, as well as topics concerning arts and sciences.	
School(s) offering course: CSH, NH, WBH	
GERMAN IV	5240
Credit(s): 1	Grade level(s): 11-12
Prerequisite(s): "C" average in German III	
This course continues to stress vocabulary and idioms with emphasis on listening and conversation. The student completes the grammatical content of the language and reviews important grammatical items taught in Levels I	

through III. The student reads and writes more complicated material using cultural topics as sources.

School(s) offering course: NH, WBH

AP GERMAN LANGUAGE	5270
Credit(s): 1^W	Grade level(s): 12
Prerequisite(s): German I, II, III, IV	
The Advanced Placement Program in German Language is intended for those who have chosen to develop their proficiency in all four language skills: listening, speaking, reading, and writing. The course covers the equivalent of a third-year college course in advanced German writing and conversation. It encompasses aural/oral skills, reading comprehension, grammar, and composition. Course content centers around AP themes. Curriculum will include authentic resources from recordings, films, literature, and current events. Extensive training in the organization and writing of compositions must be an integral part of the Advanced Placement German Language Course. Students who choose this program should have a basic knowledge of the language and culture of German-speaking peoples and should have attained a reasonable proficiency in listening comprehension, speaking, reading, and writing.	
School(s) offering course: NH, WBH	
LATIN I	5310
Credit(s): 1	Grade level(s): 8-12
Prerequisite(s): None	
First year Latin provides the student with an opportunity to learn the vocabulary and grammar of Latin, while emphasizing its influence and its relationship to English. In addition to basic language skills, there is a strong emphasis on ancient Roman culture, history, and civilization.	
A Latin student will develop reasoning skills, study habits, concentration, and increase his or her English vocabulary and writing skills.	
School(s) offering course: All MS, All HS	
LATIN II	5320
Credit(s): 1	Grade level(s): 9-12
Prerequisite(s): "C" average in Latin I	
The study of Latin II increases the student's knowledge of vocabulary and grammar. The student progresses from simple constructed stories about Roman life to more complicated readings. The student continues to develop an awareness and appreciation of the contributions of Greek and Roman culture to our modern Western Civilization. The student will develop an awareness of background information on Julius Caesar and Caesar's Gallic War campaign.	
School(s) offering course: All HS	
LATIN III	5330
Credit(s): 1	Grade level(s): 10-12
Prerequisite(s): "C" average in Latin II	
By studying the works of Caesar and Cicero, the student will learn about the life and times of the Roman Republic. Opportunity to study selected passages of Latin literature will be given. Grammar reinforcement will be included with each reading selection as needed.	
School(s) offering course: All HS	
SURVEY OF LATIN LITERATURE	5340
Credit(s): 1	Grade level(s): 11-12
Prerequisite(s): Latin I, II, III	
Through selections of Latin history and literature, students will practice reading syntax in context. The historical and cultural context of the chosen selections is emphasized. Latin 4 and AP Latin uses a two-year syllabus with differentiated instruction and assessment that uses Latin prose and poetry in conjunction with AP themes and literature.	
School(s) offering course: All HS	
AP LATIN	5370
Credit(s): 1^W	Grade level(s): 11-12
Prerequisite(s): Latin I, II, III, Survey of Latin Literature	
The AP Latin course promotes reading Latin poetry and prose with historical and literary sensitivity. Students are encouraged to develop linguistic skills by engaging in multiple activities, including translating poetry and prose from the required reading list, precisely and literally; reading passages of poetry and prose with comprehension; and analyzing literary tests in clear, coherent written arguments, supported by textual examples. The readings will be from Vergil's <i>Aeneid</i> and Caesar's <i>Gallic War</i> . Latin 4 and AP Latin uses a two-year syllabus with differentiated instruction and assessment that uses Latin prose and poetry in conjunction with AP themes and literature.	
School(s) offering course: All HS	

SPANISH I 5510
Credit(s): 1 **Grade level(s): 8-12**
Prerequisite(s): None
 Spanish I provides the beginning-level student with immediately useful language skills in Spanish. It allows maximum conversational interaction both among students and between teacher and student. Speaking, reading, listening, and writing activities, based on real-life situations, are incorporated throughout the program. The student explores culture through authentic readings and digital media.

School(s) offering course: All MS, All HS

SPANISH II 5520
Credit(s): 1 **Grade level(s): 9-12**
Prerequisite(s): "C" average in Spanish I
 Spanish II further develops and advances the skills of speaking, listening, writing, and reading. These skills are incorporated with cultural units. The program continues to provide for the student practice in real-life situations encountered in Hispanic cultures.

School(s) offering course: All HS

SPANISH III 5530
Credit(s): 1 **Grade level(s): 10-12**
Prerequisite(s): "C" average in Spanish II
 Spanish III is designed to increase the student's ability to understand and speak functional Spanish as effectively as possible. The student reads longer, authentic selections that are used to generate more meaningful writing. Listening comprehension focuses on real-life experiences, and cultural knowledge will include the Hispanic world with their varied customs and points of interest.

School(s) offering course: All HS

SPANISH IV 5540
Credit(s): 1 **Grade level(s): 11-12**
Prerequisite(s): "C" average in Spanish III
 The focus of Spanish IV is to continue the development of proficiency in speaking, listening, writing, and reading skills. The student will communicate ideas more effectively by linking together the four skills and integrating culture into everyday situations, study authentic readings, and write more complex material which may include activities that follow the format of the Advanced Placement Spanish Language Examination.

School(s) offering course: All HS

AP SPANISH LANGUAGE 5570
Credit(s): 1^W **Grade level(s): 12**
Prerequisite(s): Spanish I, II, III, IV
 The Advanced Placement Program in Spanish Language is intended for those who have chosen to develop their proficiency in all four language skills: listening, speaking, reading, and writing. The course covers the equivalent of a third-year college course in advanced Spanish writing and conversation. It encompasses aural/oral skills, reading comprehension, grammar, and composition. Course content centers around AP themes. Curriculum will include authentic resources from recordings, films, literature, and current events. Extensive training in the organization and writing of compositions must be an integral part of the Advanced Placement Spanish Language Course. Students who choose this program should have a basic knowledge of the language and culture of Spanish-speaking peoples and should have attained a reasonable proficiency in listening comprehension, speaking, reading, and writing.

School(s) offering course: All HS

Career and Technical Education (CTE) Courses

Registered Apprenticeship

Registered Apprenticeship is a career preparation Workplace Based Learning (WBL) method that provides the student with hands-on training from an experienced mentor at the job site in the specified occupation. Student apprentices are paid employees of a company. Apprentices receive wages when they begin work and receive pay increases as they meet benchmarks for skill attainment. Upon completion of a Registered Apprenticeship program, the apprentice receives a nationally recognized credential which consists of a completion certificate and journey worker card and/or

related industry credential(s). This is a portable credential that signifies to employers that employees are fully qualified for the job. Apprenticeships require at least 2000 hours of supervised on-the-job training (OJT) and may take multiple years to complete.

NOTE: Registered Apprenticeship I + II DO NOT satisfy the CTE completer sequence graduation requirement.

REGISTERED APPRENTICESHIP I 8989
Credit(s): 3 Local **Grade level(s): 11-12**
Prerequisite(s): Dependent on area of apprenticeship

Registered Apprenticeship is a structured training program that combines on-the-job training and related technical instruction to train employees in occupations that demand a high level of skill. Students who would like to explore this option should check with their school counselor for related partner businesses and graduation requirements.

School(s) offering course: All HS and BCAT

REGISTERED APPRENTICESHIP II 8990
Credit(s): 3 Local **Grade level(s): 12**
Prerequisite(s): Registered Apprenticeship I
 Registered Apprenticeship II is a direct extension of Registered Apprenticeship I.

School(s) offering course: All HS and BCAT

Business and Information Technology

EXPLORATORY COMPUTER SKILLS 6 (Interest Block Program)
Credit(s): 0 **Grade level(s): 6**
Prerequisite(s): None

Students will become familiar with the RCPS Acceptable Computer Use Policy. Students will better understand the uses and safety precautions needed when using technology. Topics will include cyber-bullying, cyber-predators, email use, social networking, texting, blogs, gaming, copyright infringement, virus/malware, and firewalls.

School(s) offering course: All MS

EXPLORATORY COMPUTER SKILLS 7 (Interest Block Program)
Credit(s): 0 **Grade level(s): 7**
Prerequisite(s): None

Students are introduced to the computer skills needed for success in school and life. Students will learn how to safely navigate the internet, format Microsoft Word documents and develop presentation skills for classroom success. Students will explore the skills needed to make them "Opportunity Ready".

School(s) offering course: All MS

COMPUTER SOLUTIONS 6609
Credit(s): 0 **Grade level(s): 8**
Prerequisite(s): None

Students use the computer as a problem-solving tool to complete a variety of projects. Students are introduced to a variety of software applications such as Microsoft Excel, Word, PowerPoint, Access, and Publisher. Student participate in team-building activities that include both academic and business competencies. Students will participate in FBLA activities.

School(s) offering course: All MS

KEYBOARDING 6153.1
Credit(s): 0 **Grade level(s): 8**
Prerequisite(s): None

Students develop touch keyboarding skills as they learn to key accurately and efficiently. In addition, they will learn to produce a variety of documents which include personal letters, business letters, reports, tables, and employment documents. Students will participate in FBLA activities.

School(s) offering course: All MS

PRINCIPLES OF BUSINESS & MARKETING 6115
Credit(s): 1 **Grade level(s): 9-12**
Prerequisite(s): None

Students learn basic business procedures and how to apply these to their everyday lives, empowering them to make educated decisions as consumers, wage earners, and citizens. Students will participate in FBLA activities.

School(s) offering course: All HS

ACCOUNTING 1 6320
ACCOUNTING/COE 2 6320C
Credit(s): 1 or 2 **Grade level(s): 10-12**

Prerequisite(s): None

This course is designed for the student who might be considering a business or finance major in college or wants to one day operate his or her own business. Students may participate in Cooperative Education and earn an additional unit of credit. Students will participate in FBLA activities.

School(s) offering course: All HS

BUSINESS LEADERSHIP 1 6135
BUSINESS LEADERSHIP /COE 2 6135C
Credit(s): 1 or 2 **Grade level(s): 10-12**

Prerequisite(s): Previous Business classes preferred

Students study basic management concepts and leadership styles as they explore business ownership, planning, operations, marketing, finance, economics, communications, the global marketplace, and human relations. Quality concepts, project management, problem solving, and ethical decision making are an integral part of the course. Students may enhance leadership skills by participation in school-based or virtual enterprises, job shadowing, internships, apprenticeships, cooperative education, and/or the Future Business Leaders of America (FBLA).

School(s) offering course: All HS

BUSINESS LAW 6131
BUSINESS LAW/ COE 6131C
Credit(s): 1 or 2 **Grade level(s): 10-12**

Prerequisite(s): None

Students focus on the individual's legal rights and responsibilities that govern their conduct. Practical guidelines are provided for becoming an effective citizen, both now and in the future. They examine the foundations of the American legal system. Students will participate in FBLA activities.

School(s) offering course: All HS

MS OFFICE APPLICATIONS 1 6612
MS OFFICE APPLICATIONS/COE 2 6612C
Credit(s): 1 or 2 **Grade level(s): 9-12**

Prerequisite(s): Keyboarding experience preferred

Students apply problem-solving skills to real-life situations through MS Office basic and advanced word processing, spreadsheet, database, and multimedia presentation software, and through integrated software activities. Students may have the opportunity to become Microsoft Office Specialists by taking industry certification exams as a part of this class. Students may participate in Cooperative Education and earn an additional unit of credit. Students will participate in FBLA activities.

School(s) offering course: All HS

ECONOMICS AND PERSONAL FINANCE 6120
Credit(s): 1 **Grade level(s): 9-12**

Prerequisite(s): None

Students learn how to navigate the financial decisions they must face and to make informed decisions related to career exploration, budgeting, banking, credit insurance, spending taxes, saving, investing, buying/leasing a vehicle, living independently, and inheritance. This finance course is required for graduation; it may not be used to fulfill the sequential elective requirement or the Fine Arts / CTE elective requirement.

School(s) offering course: All HS

Computer Science and Technology

AP Computer Science A may be considered a standard credit as a mathematics course, a laboratory science, or career and technical education course under the conditions pursuant to House Bill 1054 (2014). Colleges and universities have varying ways of applying computer science course credits during the admission process. Many colleges and universities do not accept computer science as a mathematics or laboratory science course on student transcripts. Consult with school counselor for requirements.

COMPUTER PROGRAMMING 6640.2P
Credit(s): 1 **Grade level(s): 9-12**

Prerequisite(s): None

This course is designed to develop the students' understanding of computer technology, equipment, operating methods, and appropriate vocabulary of the computer system cybersecurity using programming languages. Emphasis will

be placed on programming design by analysis, coding, and documentation of the problems as encountered in mathematics, science, and business applications. This class is a preparatory class for AP Computer Science.

School(s) offering course: All HS

AP COMPUTER SCIENCE A 3185

Credit(s): 1^W **Grade level(s): 10-12**

Prerequisite(s): Computer Programming or permission of instructor

The major emphasis is on programming methodology, algorithms, and data structures. Applications of computing provide the context in which these subjects are treated. Applications are used to develop student awareness of the need for particular algorithms and data structures, as well as to provide topics for programming assignments to which students can apply their knowledge. A particular programming language constitutes the vehicle for implementing computer-based solutions to particular problems. Treatments of computer systems and the social implications of computing are integrated into the course and not isolated as separate units.

School(s) offering course: All HS

COMPUTER INFORMATION TECHNOLOGY I B8622
Dual enrollment B8622D
Grade level(s): 9-11

Credit(s): 2 (1+1^W Dual)

Prerequisite(s): None

Computer Information Technology I is the first half of a comprehensive course covering all knowledge needed to set up, service, and maintain a personal computer under a Windows environment. The class provides hands-on experience and is designed around the nationally recognized CompTIA A+ Technician certification. Each component of a PC will be studied in great detail, as well as configuring peripheral devices such as printers and scanners. Basic networking fundamentals will be taught, including routers and switches. Other topics covered include the usage, installation and maintenance of Windows operating systems, wireless networking, virtualization, computer security, and more.

School(s) offering course: BCAT

COMPUTER INFORMATION TECHNOLOGY II B8623
Dual Enrollment B8623D
Grade level(s): 10-12

Credit(s): 2 (1+1^W Dual)

Prerequisite(s): "C" in CIT I

Computer Information Technology II is a continuation of CIT I with similar topics, but with a strong emphasis on critical thinking to troubleshoot hardware and software issues. By the end of CIT II, students will have been exposed to all knowledge and skills necessary to pass the CompTIA A+ Technician certification. Whether students are bound for college or the workforce, this nationally recognized exam opens doors of opportunity in the high-demand field of Information Technology.

School(s) offering course: BCAT

NETWORKING CONCEPTS B8624.1
Dual Enrollment B8624.1D
Grade level(s): 11-12*

Credit(s): 2 (1+1^W Dual)

Prerequisite(s): None

This advanced, hands-on class in computer networking covers wired and wireless networks and teaches cabling and topologies, subnetting, routing, switching and VLANs, IPv6, virtualization, cloud computing, network monitoring, security, troubleshooting, and more. By the end of the course, students will have been exposed to all knowledge and skills necessary to pass the CompTIA Network+ Technician certification. *Open to seniors who have never taken CIT I or CIT II, and to anyone who has completed CIT I and CIT II. Seniors currently enrolled in CIT II may also co-enroll in Networking Concepts.

School(s) offering course: BCAT

CYBERSECURITY I 6302

Credit(s): 1

Grade level(s): 9-12

Prerequisite(s): None

Cybersecurity affects every individual, organization, and nation. This course focuses on the evolving and all-pervasive technological environment with an emphasis on securing personal and organizational information. Students will be introduced to the principles of cybersecurity, explore emerging technologies, examine threats and protective measures, and investigate the diverse high-skill, high-wage, and high-demand career opportunities in the field of cybersecurity.

School(s) offering course: All HS

CYBERSECURITY II **V6304****Credit(s): 2****Grade level(s): 9-12****Prerequisite(s): "C" in Cybersecurity I**

Cybersecurity II focuses on aspects of secure network administration with an emphasis on support of network users and systems. The topics covered are focused on understanding the responsibilities of cybersecurity professionals such as training end users, evaluating new technology, developing security based system policies, securing workstations, managing network services and protocols, and effectively securing email and business communications. Students learn communication protocols, troubleshooting techniques for systems and client-server networks, website management, and other advanced networking topics. Techniques that are used to install and secure operating systems, set up and manage accounts, load software, and create and implement security plans are taught. This course may provide instruction about software-based network operating systems, such as Windows Server or Linux. Instruction will emphasize preparation for multiple industry certifications. This RCPSONline Academy course is offered in a semesterized format.

School(s) offering course: RCPSONline Academy

GAME DESIGN AND PROGRAMMING I **B6640****Credit(s): 2****Grade level(s): 10-12 preferred****Prerequisite(s): None**

Due to popularity of this program; 9th graders may be considered based on space availability

This course will introduce students to the game industry as well as information technology and programming concepts. Students will learn how to create and test their own games. The occupational objectives are for careers in the Game Level Tween Designer, Game Tester, and Entry Level Programmer.

School(s) offering course: BCAT

GAME DESIGN AND PROGRAMMING II **B6641****Credit(s): 2****Grade level(s): 10-12****Prerequisite(s): "C" in Game Design I**

Students in this course will be introduced to programming and game development with XNA Studio for console application techniques. In addition, there will be a significant focus on the development of apps with an introduction to JAVA programming and mobile app development for the Android and iOS platforms.

School(s) offering course: BCAT

Family and Consumer Sciences**FACS 6 (Interest Block Program)****Credit(s): 0****Grade level(s): 6****Prerequisite(s): None**

Students will explore the skills needed for successful transition to the middle school environment. Topics will include: time management, goal setting; personal safety; completing tasks; getting along with others; taking care of personal space and possessions; personal grooming; saving money; making good food choices, and using problem-solving and decision-making skills.

School(s) offering course: CSM, GM, NM, WBM

FACS 7 (Interest Block Program)**Credit(s): 0****Grade level(s): 7****Prerequisite(s): None**

Students are introduced to Career Pathways as they develop personal plans of study that will be used to help map out their middle and high school curriculum. Students will complete interest surveys to learn more about themselves as they assess their role in society and the future job market.

School(s) offering course: CSM, GM, NM, WBM

TEEN LIVING 8 **8245****Credit(s): 0****Grade level(s): 8****Prerequisite(s): None**

This course helps students learn skills that will make them more independent, and to develop skills needed for caring, respectful and responsible relationships. Students will explore personal values, leadership skills, setting and achieving goals, develop good spending habits, and become better food and retail consumers. Lab work in nutrition and textiles will be included.

School(s) offering course: CSM, GM, NM, WBM

NUTRITION AND WELLNESS **8229****Credit(s): 1****Grade level(s): 9-12****Prerequisite(s): None**

This course helps students develop the skills needed to be their own personal life coach, while promoting a healthy body image. Students will explore the relationship of good nutritional decision making, lifestyle choices and resource management to make beneficial decisions about their well-being.

School(s) offering course: All HS

INTRODUCTION TO CULINARY ARTS **8250****Credit(s): 1****Grade level(s): 9-12****Prerequisite(s): Recommended Nutrition & Wellness**

Introduction to Culinary Arts focuses on food and nutrition issues and guidelines, meal management, food preparation and service skills, and careers related to food and nutrition. Students explore food service careers while experiencing international and gourmet culinary techniques and classic preparation of foods. Teachers highlight the basic skills of math, science, and communication when appropriate in the content. Students participate in FCCLA activities.

School(s) offering course: All HS

CHILD DEVELOPMENT **8232****Credit(s): 1****Grade level(s): 9-12****Prerequisite(s): None**

Students enrolled in Child Development focus on analyzing parenting roles and responsibilities, ensuring a healthy start for mother and child, evaluating support systems that provide services for parents, and evaluating parenting practices that maximize human growth and development. Critical thinking, practical problem-solving using case studies, and entrepreneurship opportunities within the area of parenting responsibilities and child development are emphasized. Basic skills of mathematics, science, and technology are highlighted when appropriate.

School(s) offering course: All HS

ADULTING 101 **8227****Credits: 1****Grade level(s): 9-12****Prerequisite(s): None**

In this course students will learn the skills needed to prepare them for the next chapter in their lives by learning basic skills needed to be an adult. Students will learn the fundamentals of home maintenance, cooking, childcare, sewing, budgeting, career exploration, nutrition and more. Students will participate in FCCLA activities.

School(s) offering course: All HS

EARLY CHILDHOOD EDUCATION I **B8285****Credit(s): 2****Grade level(s): 9-12**

Prerequisite(s): Child Development course recommended. Pass TB screening test; no criminal history related to substance abuse or violence; must adhere to the dress code of the placement center—this may include no visible tattoos, no facial or tongue piercing, appropriate clothing and shoes; hair color and make up must be considered "natural" in appearance.

Students prepare to be primary providers of home-, family-, or institution-based child care services by focusing on the planning, organizing, and conducting of meaningful play and learning activities; child monitoring and supervision; record keeping; and referral procedures. Critical thinking, practical problem solving and entrepreneurship opportunities within the field of early childhood education are emphasized. Practical experiences (e.g., on-site lab, local daycare centers, elementary schools, other institutions) under the supervision of the instructor are required. Students also prepare for continuing education leading to careers in early childhood fields (e.g., medical, social services, and education). Participation in FCCLA co-curricular activities is expected. The cooperative education option may be available for this course. Students combine classroom instruction and supervised on-the-job training in an approved position with continuing supervision throughout the school year.

School(s) offering course: BCAT

EARLY CHILDHOOD EDUCATION II **B8286****Credit(s): 2****Grade level(s): 10-12**

Prerequisite(s): "C" average in Early Childhood Education I; no criminal history related to substance abuse or violence; must adhere to the dress code of the placement center—this may include no visible tattoos, no facial or tongue piercing, appropriate clothing and shoes; hair color and make up must be considered "natural" in appearance.

Students extend and expand their skill development begun in Early Childhood Education I through advanced studies of employment information, basic child development of the infant and school-age child, the exceptional child, functions of workers in childcare centers, types of learning centers, and selection of equipment.

Students focus on occupational skills needed by personnel employed in early childhood-related fields, such as education, medical/health care, social services,

counseling, psychology, and entrepreneurship. Work-based learning experiences (e.g., on-site lab, local daycare centers, elementary schools, other institutions) under the supervision of the instructor are required. Critical thinking, practical problem solving, and entrepreneurship opportunities within the field of early childhood education are emphasized. The cooperative education option may be available for juniors & seniors in this course. Students combine classroom instruction and supervised on-the-job training in an approved position with continuing supervision throughout the school year.

NOTE: If required by a cooperative education or internship agency, students may have to have a tuberculin skin test or submit proof of the test within the past year. Students may also be required to have a state background search. Participation in FCCLA co-curricular activities is expected. Students will have an opportunity complete an Industry Certification exam.

School(s) offering course: BCAT

TEACHERS FOR TOMORROW 9062 9062D

Credit(s): 1 **Grade level(s): 11-12**
Prerequisite(s): Application process and approval of instructor.

Teachers for Tomorrow provides introductory instruction and training for prospective teachers. Students will receive instruction in human cognitive and psychological development, learning styles, diversity, and self-respect. Successful students will learn and practice effective teaching strategies, lesson planning, and lesson delivery. The course includes a classroom practicum. Students must abide by any dress code in effect at their practicum placement. Students planning to enroll in the Teaching Internship as seniors are strongly encouraged to enroll in the Teachers for Tomorrow program in the 11th grade.

School(s) offering course: All HS

TEACHING INTERNSHIP B9072 B9072D

Credit(s): 2 (1+1^W) **Dual Enrollment**
Prerequisite(s): Senior, College Bound, must provide own transportation, excellent attendance, should plan on majoring in Education in college with a career goal of becoming a public school teacher. Must be able to meet the college admissions requirements for Education majors.

The student will observe and participate in a Pre-K-8th grade internship in a public school setting. The student will work with the elementary classroom teacher during the regular school day. Students will work closely with their coordinating teacher, mentoring teacher, and the school principal. Students will work to develop activities and lesson plans suitable for their placement and will work on their implementation. Student access to a home internet connection will be helpful. Students may participate in cooperative education with the permission of the instructor. Students are required to participate in FCCLA activities.

School(s) offering course: BCAT

CULINARY ARTS I B8275

Credit(s): 2 **Grade level(s): 9-12**
Prerequisite(s): None

Have you ever dreamed of being a chef in an upscale restaurant? Now you have the opportunity to get solid hands-on experience as you prepare for occupations such as chef/cook, baker/pastry helper, pastry decorator, hospitality worker, dietetic aide/assistant, food demonstrator, and entrepreneur. Students interested in a career in the food industry will practice managerial, production, and service skills. Students plan, select, store, purchase, prepare, and serve food and food products. Students also learn basic nutrition, sanitation, food safety, the use and care of commercial equipment, and the operation of institutional food establishments.

School(s) offering course: BCAT

CULINARY ARTS II B8276 B8276D

Credits: 2 (1+1^W) **Dual enrollment**
Prerequisite(s): "C" in Culinary Arts I

Culinary Arts II provides students an opportunity to refine skills in serving, dining room management, and other skills learned in Culinary Arts I. Students plan, select, store, purchase, prepare, and serve food and food products through advanced catering opportunities. Students continue to explore: Principles of Culinary Arts, Principles of Hospitality Management, Sanitation and Safety, Stock, Soups, and Sauce Preparation, Application for Nutrition for Food Service, Garde Manger, American Regional Cuisine, Menu Planning and Dining Room Service, Principles of Baking, Food Purchasing, International Cuisine, Fruit, Vegetable & Starch Preparation. Students will test for Servsafe and Allergen Certification.

School(s) offering course: BCAT

Health and Medical Sciences

Health and Medical Sciences programs are available to all high school students in Roanoke County. All coursework occurs at BCAT and requires enrollment in BCAT for program registration. Both RCPS healthcare programs are part of the regional Claude Moore Scholars initiative.

EMERGENCY MEDICAL TECHNICIAN I B8333 B8333D

Credits: 2 (1+1^W Dual) **Dual enrollment**
Grade levels: 10-12
Prerequisite(s): Student must be 16 years old by first day of class and be eligible to enroll in a State EMT program

Students must complete a pre-registration interview and pass a drug screen to participate in the EMT program per State Guidelines. Students explore and apply fundamentals of emergency medical services, anatomy, physiology, and medical terminology. This includes assessing the scene, understanding shock, resuscitation and trauma, supervised field experience outside of school hours. Field experience is required. Dual Enrollment opportunities may be offered. Students will test for the Virginia State EMT Certification at the completion of the class.

School(s) offering course: BCAT

EMERGENCY MEDICAL TECHNICIAN II B8334 B8334D

Credits: 2 (1+1^W Dual) **Dual enrollment**
Grade levels: 10-12
Prerequisite(s): "C" or better in EMT I

Students will continue to explore Emergency Medical Services and related fields discussed in Emergency Medical Technician I. Students will focus on incident management, operations and other related emergency services to enhance their understanding of emergency response. Emphasis will also be placed on advanced anatomy, physiology and medical terminology to better prepare students for additional certification and/or coursework.

School(s) offering course: BCAT

INTRODUCTION TO NURSING CAREERS I B8360 B8360D

Credits: 2 (1+1^W) **Dual enrollment**
Grade Level(s): 11-12
Prerequisite(s): College preparatory courses in science, math and English are recommended

Students explore opportunities in the health care field through lessons, field trips, independent study, projects, and guest speakers. The course focuses on exploration of health assisting careers, medical terminology, body system structures and functions, therapeutic communication, human growth and development, legalities in health care, and others. Certifications that may be offered include American Heart Association Basic Life Support and First Aid, Mental Health Technician, CPI Non-Violent De-escalation, and Revive! for opioid overdose. Students must qualify for and pass these certifications. This course is a pre-requisite to Introduction to Nursing Careers II which in 2021-2022, will qualify the student for the Virginia Board of Nursing Certified Nurse Aide Exam.

School(s) offering course: BCAT

INTRODUCTION TO NURSING CAREERS II B8362 B8362D

Credits: 2 (1+1^W) **Dual enrollment**
Grade Level(s): 12
Prerequisite(s): Successful completion of Introduction to Nursing Careers I

Students will continue to explore opportunities in the health care field by exploring 8 major areas of study that includes: Medical Terminology II*, Pathophysiology and Ethical Care of Patients with Common Conditions in the Acute Care Environment, Diabetes Management Throughout the Lifespan, American Heart Association First Aid*, Ethical Care of Patients with Mental Health Conditions*, Non-Violent De-escalation Techniques*, EKG Technology*, and Phlebotomy Technology*. * Indicates potential credentialing opportunities. Opportunities for learning are provided in healthcare settings, through guest speakers, community health projects, and clinical skills labs.

School(s) offering course: BCAT

RADIOLOGIC TECHNOLOGY I B8375

Credit(s): 2 **Grade level(s): 11-12**
Prerequisite(s): None

Students will gain a basic understanding of the historical development and role of a radiologic technologist within the healthcare setting, as well as obtain basic knowledge of human anatomy, physiology, basic disease processes, and the essentials of patient care. This course will also explain the legal, ethical, and professional responsibilities associated with becoming a radiologic technologist,

while emphasizing the importance of good communication and critical-thinking skills. Mastery of the material in this course would provide students with a strong background should they wish to pursue certification in areas such as first aid, CPR, or AED, as well as a Limited Radiology Technologist License. This class will be held in a Carilion facility and students must provide their own transportation.

School(s) offering course: BCAT

Marketing

Co-op definition—the marketing coordinator visits the workstation and works cooperatively with the student's employer to evaluate job performance.

INTRODUCTION TO MARKETING 8110

Credit(s): 1 **Grade level(s): 9-12**
Prerequisite(s): None

Introduction to Marketing is the basic elective course offered in the three-year Marketing course sequence. The course is designed to provide students with the competencies needed for successful entry-level employment in marketing occupations. It equips students with the social, economic, marketing, and job search competencies necessary for successful employment in retail, wholesale, and service businesses. Manager, assistant manager, supermarket jobs, waitress, hotel/motel manager, cashier, fashion coordinator, salesperson, buyer, and many more jobs will be explored. Students will participate in DECA activities.

School(s) offering course: All HS

MARKETING (Non-Co-op) 8120 (Co-op) 8120C

Credit(s): 1 (Non-Co-op); 2 (Co-op) **Grade level(s): 10-12**
Prerequisite(s): If the student enrolls in Co-op, he/she must have instructor approval and be willing to accept employment in a marketing occupation; student must be 16 by November 1.

Marketing is designed for students pursuing a career in marketing. The course provides students with instruction that enables them to obtain and succeed in their chosen marketing occupation. Students may elect to combine classroom instruction with continuous, on-the-job training during the school year supervised by the marketing coordinator. On-the-job training during summer months also may be counted if supervised by a marketing coordinator with a training agreement and plan. Students concentrate on marketing competencies in the areas of economics, market planning, self-development, marketing math, employment and advancement, human relations, communications, physical distribution, personal selling, and sales promotion. Students will participate in DECA activities.

School(s) offering course: All HS

PRINCIPLES OF BUSINESS OWNERSHIP AND MARKETING 6116

Credits: 1 **Grade Level(s): 9-10**
Prerequisite(s): None

This course will enable students to explore the concept of owning their own business within our Free Enterprise System. Students will explore the many decisions prospective business owners face, including risks and rewards of small business operations, types of ownership, enterprise ideas, analyzing markets and competitors, and planning for staffing, operations, and financing. Students will complete a "going into business project" as a part of the course assignments. Advertising is about what motivates people to buy a product, use a service, or support a cause. This course will also introduce the student to advertising principles and practices that contribute to business success. Students will learn about the process of creating, executing, and evaluating commercial messages. The wide range of careers available in advertising, new electronic media, public perception, advertising history, and methods of production in advertising will be explored. Students will find the world of advertising fascinating.

School(s) offering course: WBHS

FASHION MARKETING Non Co-op 8140 Co-op 8140C

Credits: 1 Non Co-op; 2 Co-op **Grade Level(s): 10-12**
Prerequisite(s): to co-op, student must have instructor approval and be willing to accept employment in apparel and accessory industry; student must be 16 by November 1.

This course introduces students to the world of fashion and the many career opportunities available. The curriculum will concentrate on developing competencies needed by apparel marketing employees in the areas of selling, advertising, display operations, product/ service technology, human relations, economics, market planning, and communications. Students in grades 11-12

may elect to combine classroom instruction with continuous, on-the-job training during the school year supervised by the marketing coordinator. On-the-job training during summer months also may be counted if supervised by the marketing coordinator with a training agreement and plan. Students will participate in DECA activities.

School(s) offering course: WBHS

ADVANCED MARKETING (Non-Co-op) 8130 (Co-op) 8130C

Credit(s): 1 (Non-Co-op); 2 (Co-op) **Grade level(s): 12**
Prerequisite(s): Completion of Marketing, Entrepreneurship, or Sports, Entertainment, and Recreation Marketing.

If the student enrolls in Co-op, he/she must have instructor approval and be willing to accept employment in a marketing occupation; student must be 16 by November 1.

Advanced Marketing enables students to develop competencies needed to advance in full-time employment in marketing. Students develop advanced competencies in several of the same areas studied in Marketing and, in addition, develop competencies in the areas of supervision, merchandising, market research, and management. Students combine classroom instruction with continuous, on-the-job training during the school year supervised by the marketing coordinator. On-the-job training during summer months also may be counted if supervised by the marketing coordinator with a training agreement and plan. Students will participate in DECA activities.

School(s) offering course: All HS

ENTREPRENEURSHIP 9093

Credits: 1 **Grade Level(s): 10-12**
Prerequisite(s): None

This course introduces students to the exciting world of creating, owning, and launching their own business. Students will learn concepts and techniques for planning an innovative business and living the entrepreneurial lifestyle. Students will learn concepts beyond business skills including economics, marketing, finance, and customer service.

School(s) offering course: All HS

SPORTS, ENTERTAINMENT, AND RECREATION MARKETING (Non-Co-op) 8175 (Co-op) 8175C

Credit(s): 1 (Non-Co-op); 2 (Co-op) **Grade level(s): 11-12**
Prerequisite: If the student wants to co-op, he/she must have instructor approval and be willing to accept employment in the sports or entertainment or recreation industry; student must be 16 by Nov. 1.

This Marketing Cooperative Education course is designed to develop skills in the areas of marketing analysis, event marketing, communications, and human relations along with a thorough understanding of the sports, entertainment, and recreation industry, and career options available. Students combine classroom instruction with continuous, on-the-job training during the school year supervised by the marketing coordinator. On-the-job training during summer months also may be counted if supervised by the marketing coordinator with a training agreement and plan. Students will participate in DECA activities.

School(s) offering course: All HS

Technology Education

INTRODUCTION TO TECHNOLOGY (Interest Block Program)

Credit(s): 0 **Grade level(s): 6**
Prerequisite(s): None

As a part of the interest block program, this curriculum is not only hands-on and fun, but highly relevant to students' everyday lives. The goal is to give students a thorough and practical understanding of the importance of technology in both today's and tomorrow's world. Introduction to Technology is offered as the first Technology Education experience for middle school students. Students will study the basic elements of all technology, including processes, energy, information, and people. The four primary systems of technology provide the context for the study of technological systems (i.e., communication, construction, manufacturing, and transportation).

School(s) offering course: All MS

TECHNOLOGICAL SYSTEMS 7 EXPLORATORY (Interest Block Program)

Credit(s): 0 **Grade level(s): 7**
Prerequisite(s): None

Technological Systems 7 is an exploratory course designed to further students' knowledge of the world of technology around them. This experience builds upon what they have learned in the interest block program; however, it is not mandatory that they have had that class. Students will study the basic elements

of all technology, including processes, energy, information, and people. The four primary systems of technology provide the context for the study of technological systems (i.e. communication, construction, manufacturing, and transportation).

School(s) offering course: All MS

PROBLEM SOLVING WITH STEM Full Year 8462
Semester 8462S
Credit(s): 0
Grade level(s): 8
Prerequisite(s): None

Students will begin by learning what Technological systems are. They will then learn a variety of skills that are required to problem solve using technological systems. They will work cooperatively to solve real world challenges and create systems that produce the desired outcomes. It may be that they, and their teammates, need to create an amusement park, design a mass production system, develop electrical circuits, complete a hydraulic system, or program a robot operated assembly line. The specific skills needed will depend on the particular challenge, however, each challenge will require students to cooperate with teammates, design a solution, create a prototype, and produce a model or finished product. Specific skills include, coding, CAD and other modeling software, problem solving, and working cooperatively with others.

School(s) offering course: All MS

PROGRAMMING SOLUTIONS FOR EVERYDAY PROBLEMS 8464
Credit(s): 0
Grade level(s): 8
Prerequisite(s): None

Students will be asked to solve real world problems while learning a wide variety of skills ranging from writing Computer Program Code to using hand tools safely. They will start by learning elements of design and how to use a CAD program. They will then produce their designs using either traditional methods, 3D printing, 3D router, a laser cutter, or a combination of these output devices. Students will be challenged to create unique and creative solutions to open ended real world problems. In addition, they will explore career opportunities and begin the process of exploring tomorrow's careers.

School(s) offering course: All MS

INTRODUCTION TO DIGITAL IMAGING 8410
Credit(s): 0
Grade level(s): 8
Prerequisite(s): None

Students will be challenged to capture, modify and utilize images while creatively solving real world problems and creating one of a kind digital images, posters, brochures, movies and presentations. Using cameras and other digital devices, students are taught the basics of taking good photographs. They will learn elements of design and how to use their pictures in a variety of ways. They will learn to use several programs to both edit and enhance their pictures, as well as create interesting publications. They will use digital printing techniques to produce a wide variety of products. Finished products may include tee shirts, mugs, or portraits. Digital Imaging uses modern techniques to produce real world outcomes.

School(s) offering course: All MS

PHOTOGRAPHY AND DIGITAL IMAGING 8455
Credit(s): 1
Grade level(s): 9-12
Prerequisite(s): None

In Photography and Digital Imaging students will learn how to take and manipulate pictures. Students will create products to inspire, inform, or persuade viewers through images and graphic design. Students design and create projects such as posters, advertisements, tickets, stickers, notepads, and business cards using Adobe Photoshop and other computer programs. This course is highly recommended for anyone interested in graphic design, marketing, advertising, and publishing. Students will participate in TSA activities.

School(s) offering course: All HS

VIDEO DESIGN AND MULTIMEDIA 8458
Credit(s): 1
Grade level(s): 10-12
Prerequisite(s): Photography and Digital Imaging

In Video Design and Multimedia students will create projects that may include short films, social media videos, commercials, and news stories. Students will work individually and in groups to write, shoot, direct, and edit their own projects. They will also work with Adobe Premiere Pro and Adobe Photoshop to create a variety of products using different materials such as fabric, printed artwork, metal creations, and 3-D printed products. Emphasis will be placed on learning camera functions, video editing, media analysis, and filmmaking. This course is highly recommended for anyone interested in video production, graphic design, marketing, advertising, and publishing. Students will participate in TSA activities.

School(s) offering course: All HS

COMPUTER AIDED DESIGN (CAD) 8435

Credit(s): 1
Grade level(s): 9-12

Prerequisite(s): None

In Computer Aided Design (CAD), students will solve problems as they design, sketch, make computer drawings, 3D printed models, and prototypes. Students will use industry standard CAD software in the design process. This course is highly recommended for anyone interested in product design, engineering, architecture. Or building trades. Students will participate in TSA activities.

School(s) offering course: All HS

ENGINEERING DESIGN AND 3D MODELING 8436
Dual enrollment^w 8436D
Credit(s): 1
Grade level(s): 10-12

Prerequisite(s): Computer Aided Design (CAD)

In Engineering Design, students will solve problems as they design 3D printed models, prototypes and create computer drawings. Students will be introduced to 3D design using advanced 3D modeling and visualization technologies such as Autodesk, AutoCAD, and Google Sketch-up. Students will learn how to prepare digital designs for 3D printing and manufacturing processes. This course is highly recommended for anyone interested in product design, engineering, architecture or building trades. Students will participate in TSA activities. This class may be offered only in alternating years.

School(s) offering course: All HS

ARCHITECTURAL DESIGN AND CIVIL ENGINEERING 8437
Dual enrollment^w 8437D
Credit(s): 1
Grade level(s): 10-12

Prerequisite(s): Computer Aided Design (CAD)

In Architectural and Civil Engineering students will design and build 3D models of structures. Students will explore 3D modeling using Revit Architecture or Google Sketchup to produce architectural drawings. Students will learn to plan and prepare construction documents appropriate to the architecture, interior design, landscaping, and construction industries. This course is highly recommended for anyone interested in product design, engineering, architecture or building trades. Students will participate in TSA activities. This class may be offered only in alternating years.

School(s) offering course: All HS

WOOD SHOP I 8447
Credit(s): 1
Grade level(s): 9-12

Prerequisite(s): None

In Wood Shop I students will construct wood projects using a variety of woodworking tools and techniques. Projects may be constructed using hand tools, machine tools, computer-controlled laser cutters, and computer-controlled routers. Students will design, plan, and build these projects both independently and collaboratively. Emphasis is placed on the development of skills in the safe use of both hand and machine woodworking tools. This course is highly recommended for anyone interested in engineering, manufacturing, or building trades. Students will participate in TSA activities.

School(s) offering course: CSH, GH, WBH

WOOD SHOP II 8425
Credit(s): 1
Grade level(s): 10-12

Prerequisite(s): Woods Technology I

In Wood Shop II students will construct wood projects using a variety of woodworking tools and techniques. Students will design, plan, and build projects of their choosing using hand and machine tools. Emphasis is placed on safety, creativity and problem solving as students further develop their interests, talents, and abilities in woodworking. This course is highly recommended for anyone interested in engineering, manufacturing or building trades. Students will participate in TSA activities.

School(s) offering course: CSH, GH, WBH

ELECTRONICS 8416
Credit(s): 1
Grade level(s): 9-12

Prerequisite(s): None

In Electronics students will design and build electrical devices. Students will also design, create, trouble-shoot and repair electrical components. Projects may include robots, house wiring and soldered circuits. This course is highly recommended for anyone interested in robotics, electrical engineering, manufacturing, or building trades. Students will participate in TSA activities.

School(s) offering course: ALL HS

DESIGN AND FABRICATION SHOP 8433
Credit(s): 1
Grade level(s): 9-12

Prerequisite(s): None

In Design and Fabrication Shop, students will develop technical skills using materials such as wood, metal, plastics and leather. Students will design, plan, and build

projects using hand and machine tools, computer aided manufacturing, machining and blacksmithing. Emphasis is placed on safety, creativity and problem solving. This course is highly recommended for anyone interested in robotics, engineering, manufacturing or building trades. Students will participate in TSA activities.

School(s) offering course: CSH, GH, WBH

ROBOTICS 8421

Credit(s): 1

Grade level(s): 9-12

Prerequisite(s): None

In Robotics students create a robot chassis from a variety of materials, assemble a robot capable of multiple tasks using a variety of sensors, and write the code that makes the mechanical pieces work. In addition, students learn basic electronics and work collaboratively to solve real world challenges. This course is highly recommended for anyone interested in robotics, engineering, manufacturing or building trades. Students will participate in TSA activities.

School(s) offering course: All HS

Trade and Industry

Trade and Industry programs are available to all high school students in Roanoke County. All course work occurs at BCAT and requires enrollment in BCAT for program registration.

AUTO SERVICE TECHNOLOGY I B8506

Credit(s): 2 (1+1* Dual)

Dual Enrollment B8506D

Prerequisite(s): None

Grade level(s): 9-10 preferred

Due to the popularity of this program, 9th and 10th graders are preferred. However, 11th and 12th graders may be considered based on space availability.

Passing a 10-hr Safety and Pollution Prevention (SP2) training and a 10-hr OSHA training course are requirements before access is granted into the shop area. Auto Service Technology I is designed to develop mental and manipulative skills relating to basic auto repair operations and the safety procedures for this field of work. Included in this course of study are auto servicing, brake systems, and electrical systems. Training in Auto Service Technology I includes studying theory from text as well as the study and disassembly of nonfunctional and functional automotive assemblies. Text and activities are designed to prepare the student for the ASE certification test. By passing the test, a student can obtain up to 2 verified credits. Participation in SkillsUSA student organization activities is required.

AUTO SERVICE TECHNOLOGY II B8507

Credit(s): 2 (1+1* Dual)

Dual Enrollment B8507D

Grade level(s): 10-12

Prerequisite(s): "C" average in Auto Service Technology I

Auto Service Technology II provides training in theory and hands-on experience in the repair of the modern automobile. Using up-to-date equipment, students are taught to use diagnostic equipment to find problems that have occurred in automobiles with on-board computers and electronic fuel injection. The course provides a concentration in the following areas of preparation for the ASE certification test: brake systems, electrical systems, engine performance, and suspension and steering systems. Students are encouraged to take ASE certification test. A certification test registration cost is required. By passing the test, a student can obtain up to 2 verified credits. Participation in SkillsUSA student organization activities is required.

AUTO SERVICE TECHNOLOGY III B8508

Credit(s): 2 (1+1* Dual)

Dual enrollment B8508D

Grade level(s): 11-12

Prerequisite(s): "C" average in Auto Service Technology II

Auto Service Technology III provides students with the opportunity to complete their ASE certification in the four basic areas. Training in Auto Service Technology III includes the study of automotive electrical and onboard diagnostics theory as well as the development of practical (hands-on) mechanical skills through the study and disassembly of nonfunctional and functional automotive assemblies, automotive trainers, and online interactive simulations. By passing the test, a student can obtain up to 2 verified credits. Participation in SkillsUSA student organization activities is required.

BUILDING TRADES I B8515

Credit(s): 2

Grade level(s): 9-12

Prerequisite(s): Basic math; ability to follow written and oral instructions; good attendance record; desire to learn about and/or work in a building trade.

Passing a 10-hr OSHA training course is a requirement before access is granted into the shop area. Students who have not earned the 10-hr OSHA card by the

pre-established add/drop date may be removed from the course. Building Trades I is designed to introduce the student to the basics of the carpentry, electrical, and plumbing trades. Emphasis is placed on enabling the student to identify and use various hand tools and materials used in each of the trade areas. Field trips will be used when possible to give the student a close-up look at jobs under construction. The course is designed to help the student decide which area to specialize in. Job appropriate clothing, as determined by the student organization, is required. Participation in SkillsUSA student organization activities is required. This course covers the competencies needed to take one or more associated certification test through NCCER.

BUILDING TRADES II B8516

Credit(s): 2

Grade level(s): 10-12

Prerequisite(s): "C" in Building Trades I

The three areas of carpentry, electrical wiring, and plumbing comprise the course of study in Building Trades I and II. (Masonry is a stand-alone course.) Students further their studies in each of these fields and begin to specialize in their highest area of interest. Actual hands-on practice gives the students valuable experience as they develop their skills. As part of their work, students will assemble a floor, wall, and roof section from plans as well as install electrical and plumbing systems typically found in residential structures. Participation in SkillsUSA student organization activities is required.

BUILDING TRADES III B9070

Credit(s): 2

Grade level(s): 11-12

Prerequisite(s): "C" in Building Trades II

Students will finish the final level of Building Trades by performing work experience opportunities with builders in the Roanoke area. Participation in SkillsUSA student organization activities is expected.

COSMETOLOGY I B8527

Credit(s): 2

Grade level(s): 9-10

Prerequisite(s): None

Cosmetology I is designed to develop skills in permanent waving, chemical hair relaxing, hair cutting, cleaning and styling of wigs and hairpieces, hair pressing, and hair color. Additional skills taught are manicures/pedicures, facials, make-up, hairstyling, and finger waving. Students practice skills on mannequins. Participation in SkillsUSA student organization activities is required. A minimum total of 840 hours is needed by the end of the third year of Cosmetology in order to sit for the Cosmetology State Board exam.

COSMETOLOGY II B8528

Credit(s): 2

Grade level(s): 10-11

Prerequisite(s): "C" in Cosmetology I

Cosmetology II students develop advanced skills in tinting hair, lightening hair, salon planning and management, chemistry, and anatomy. Students practice skills on clients in a salon environment. Participation in SkillsUSA student organization activities is highly encouraged.

COSMETOLOGY III B8529

Credit(s): 2

Grade level(s): 11-12

Prerequisite(s): "C" in Cosmetology II

Cosmetology III students refine and enhance the skills learned during the first two years of the program. Emphasis is placed on preparing for both the written and practical parts of the Virginia State Board of Cosmetology Licensure Examination. Students may have the opportunity to practice skills on clients in a salon environment. Students must take and pass the cosmetology licensure exam in order to receive complete certification. Participation in SkillsUSA student organization activities is required.

CRIMINAL JUSTICE I B8702

Credit(s): 2 (1+1* Dual)

Dual Enrollment B8702D

Grade level(s): 9-12
Prerequisite(s): College preparatory courses in social studies and English are recommended.

Criminal Justice I is the first of a three-year sequence of classes designed to prepare students for further study and eventual employment in the field of law enforcement, and courts and corrections. The course includes classroom study of the various aspects of law enforcement, experience using the various law enforcement implements in simulated laboratory situations, and physical training. Guest speakers from the profession will be included. Students planning to work for local police departments, the state police, the park service, the department of forestry, or any other type of law enforcement agency are encouraged to consider this program. Participation in co-curricular SkillsUSA student organization activities is highly encouraged.

CRIMINAL JUSTICE II **B8703**
B8703D

Credit(s): 2 (1+1st Dual) **Dual Enrollment**
Grade level(s): 10-12

Prerequisite(s): "C" in Criminal Justice I

Criminal Justice II provides more in-depth study of the concepts introduced in Criminal Justice I. Students will have the opportunity to explore aspects of law enforcement, courts and corrections and procedures and techniques through simulated experiences. Business casual attire is required for certain class activities. Participation in co-curricular SkillsUSA student organization activities is highly encouraged.

CRIMINAL JUSTICE III **B8704**
B8704D

Credit(s): 2 (1+1st Dual) **Dual enrollment**
Grade level(s): 11-12

Prerequisite(s): "C" in Criminal Justice II

Criminal Justice III will include selected research topics related to furthering the knowledge base obtained during Criminal Justice I and II. An emphasis will be placed on reading and writing skills that will be essential in undergraduate college work and the students' chosen field of criminal justice. This class may continue the study of such topics as criminal and traffic crash investigations, crime scene investigation, court preparation, corrections and punishments, and career related issues. Hands-on activities will enhance and further the development of work related skills in the field. Studies such as comparative criminal justice systems, repeat offenders, serial offenders, and use of force issues will be expanded. Business casual attire is required for certain class activities. Participation in co-curricular SkillsUSA student organization activities is highly encouraged.

MASONRY I **B8512**

Credit(s): 2 **Grade level(s): 9-12**

Prerequisite(s): None

Passing a 10-hr OSHA training course is a requirement before access is granted into the shop area. Instruction is given to develop skills and technical knowledge for laying block and brick, reading blueprint and building specifications, performing straight wall work, and practicing basic record keeping procedures. Instruction is also given on the identification and use of the tools used by masons' helpers. Safety practices are emphasized constantly. Many brick bonds are included in the instructional process. Participation in SkillsUSA student organization activities is highly encouraged. This course covers the competencies needed to take one or more associated certification test through NCCER.

MASONRY II **B8513**

Credit(s): 2 **Grade level(s): 10-12**

Prerequisite(s): "C" average in Masonry I

Students are given instruction in manipulative skills and technical knowledge for mixing and pouring concrete, designing and building fireplaces and chimneys, and other required competencies for masonry workers. Safety practices are emphasized constantly. Participation in SkillsUSA student organization activities is highly recommended. This course covers the competencies needed to take a certification test. Working at offsite jobs is reserved for students of Masonry II and III.

MASONRY III **B8514**

Credit(s): 2 **Grade level(s): 11-12**

Prerequisite(s): "C" average in Masonry II

Students will refine hand skills learned in Masonry I and II. Emphasis in the shop will be on productivity, while maintaining a high degree of quality workmanship. As in earlier classes, safety instruction is of the utmost importance and is constantly stressed. Advanced skill level competencies include building various types of arches, brick stoops and steps, mortared paving, quoin corners, and building radial patios. Participation in SkillsUSA student organization activities is highly encouraged. Working at offsite jobs is reserved for students of Masonry II and III.

MECHATRONICS/ROBOTICS I **B8425**
B8425D

Credit(s): 2 (1+1st Dual) **Dual enrollment**
Grade level(s): 9-12

Prerequisite(s): None

Passing a 10-hour OSHA training course is a requirement before access is granted into the shop area. Students who have not earned the 10-hour OSHA certification by the pre-established add/drop date may be removed from the course. This 2-year program is part of the RCPS Governor's STEM Academy. Students will obtain the core skills needed for entry into the field of advanced manufacturing that include: Precision measurement, computer aided design, computer aided machining, both additive and subtractive manufacturing processes, and materials and processes, robotic design and programming. The program may include a dual enrollment option with VWCC. Participation in the TSA student organization is encouraged.

MECHATRONICS/ROBOTICS II **B8427**
B8427D

Credit(s): 2 (1+1st Dual) **Dual enrollment**
Grade level(s): 10-12

Prerequisite(s): "C" in Mechatronics I

This program is part of the RCPS Governor's STEM Academy. Students will build upon the core skills developed in Mechatronics-I that are needed to become skilled manufacturing technicians. Skills developed include: CAD/CAM computer applications including Autodesk Inventor and Fusion 360, Introduction to robotic design and applications using VEX robots, AC/DC circuits, resistors, conductors, motors, generators, electromagnetic motor starters, and pilot devices like switches and sensors, mechanisms, and applied hydraulics and pneumatics. The program may include a dual enrollment option with VWCC. Additionally, potential opportunities in apprenticeship may be available upon completion of the second year of the program. Participation in the TSA student organization is encouraged.

MOTORSPORTS TECHNOLOGY I **B8509**
B8509D

Credit(s): 2 (1+1st Dual) **Dual Enrollment**
Grade level(s): 10-12

Prerequisite(s): Computer-Aided Drafting & Technical Drawing highly recommended

(9th graders may be considered if space available)

Passing the 10 hr OSHA training course is a requirement before access is granted into the shop area. Students who have not earned the 10-hr OSHA card by the pre-established add/drop date may be removed from the course. This 2-year program is part of the RCPS Governor's STEM Academy. Instruction will be provided in the principles of racecar fabrication and some facets of the Motorsports area including chassis fabrication, welding, racing protocol and regulatory compliance. Work on various types of vehicles from drag cars to go-karts to street rods is part of the course. Also, students work on a school race car trailer, tow truck and school roadster. Students will learn to use English wheels, a planish hammer, a tube bender and a notcher. Fabrication, or building cars from the ground up, is a major focus of the Motorsports program. Students must purchase welding gear and schoolwork shirts. Participation in the SkillsUSA student organization is required.

MOTORSPORTS TECHNOLOGY II **B8510**
B8510D

Credit(s): 2 (1+1st Dual) **Dual Enrollment**
Grade level(s): 10-12

Prerequisite(s): "C" in Motorsports I

This program is part of the RCPS Governor's STEM Academy. Students continue to build on skills from Motorsports I and work on auto body procedures, such as applying fillers and primers and the use of forming hammers, forming heads and bead rollers. Students may begin work on individual projects during this year. GTAW welding will be learned and applied during this year as well. Electrical wiring, running brake lines and other fluid lines will be taught. Work on multi-year project(s) will continue. Workplace Readiness Skills will be emphasized throughout the course and the WRS certification test will be taken. Participation in the SkillsUSA student organization is encouraged.

MOTORSPORTS TECHNOLOGY III **B8511**
B8511D

Credit(s): 2 (1+1st Dual) **Dual Enrollment**
Grade level(s): 11-12

Prerequisite(s): "C" in Motorsports II

This program is part of the RCPS Governor's STEM Academy. Third year students will apply and refine many of the skills developed in Motorsports I and II classes. Third year students will create a major project individually, or with a group, to bring competencies to a focus. Students will continue to work on multi-year projects to apply learned skills and emphasis will be placed on Workplace Readiness Skills as needed. Participation in the SkillsUSA student organization is encouraged.

WELDING I **B8672**
B8672D

Credit(s): 2 (1+1st Dual) **Dual Enrollment**
Grade level(s): 10-12

Prerequisite(s): None

(9th graders may be considered if space available)

Passing a 10-hr OSHA training course is a requirement before access is granted into the shop area. Students who have not earned the 10-hr OSHA card by the pre-established add/drop date may be removed from the course. Emphasis is placed on SMAW and GMAW – Oxy Fuel cutting and safety in the shop. Participation in SkillsUSA student organization activities is required. Students must purchase the following: welding helmet and lens, welding gloves, work gloves, steel-toed boots, blue jeans—no frayed edges, cotton t-shirt, long sleeve cotton work shirt, and other materials.

WELDING II**B8673****B8673D****Credit(s): 2 (1+1^w Dual)****Dual Enrollment
Grade level(s): 10-12****Prerequisite(s): "C" in Welding I**

In addition to a review of what was learned in Welding I, the second year of Welding introduces students to fluxed core arc welding, plasma cutting, and carbon arc cutting. This course covers the competencies needed to take the Workplace Readiness Skills certification test. Students can participate in SkillsUSA activities. Students will earn more hours toward completion of the Welding Society Certification training. Students will have the opportunity to take AWS qualification tests.

WELDING III**B8674****B8674D****Credit(s): 2 (1+1^w Dual)****Dual Enrollment
Grade level(s): 11-12****Prerequisite(s): "C" in Welding II**

Welding III is designed to enhance and refine the skills students learn during the first two years of the program. The final hours of the American Welding Society Certification training will be completed. Students will learn how to use a CNC Plasma Cutting table and study gas tungsten arc welding. Blueprint reading will be covered, and the final skills and written test for certification will be taken. Students can participate in SkillsUSA activities. Students will have the opportunity to take more AWS qualification tests.

Navy National Defense Cadet Corp

The Navy National Defense Cadet Corp program is available to all high school students in Roanoke County. However, all course work occurs at William Byrd High School. If a student is interested in participating in the NNDCC program, they must discuss the details of transportation and scheduling with their base school counselor. The NNDCC program uses the same curriculum and is modeled after the Navy JROTC program but is primarily funded by the school division. The program is designed to expand students' opportunities and to gain the values of citizenship, service to the United States, personal responsibility, and a sense of accomplishment.

Q. What are the student enrollment eligibility requirements?

A. Student enrollment eligibility requirements are:

- Be above 14 years of age.
- Be physically qualified to participate in the school's normal physical education program and in all NNDCC activities.
- Be selected by the NNDCC instructor with the approval of the school principal or his/her representative.
- Maintain acceptable standards of academic achievement and an academic standing that warrants at least normal progression leading to graduation.
- Maintain acceptable standards of conduct.
- Comply with specified personal grooming standards. Common sense and good judgment apply to the attainment of these standards. Standards will not be relaxed so as to reflect disgrace on the naval service.

Q. What are the benefits of NNDCC?

A. Benefits include:

- NNDCC provides the opportunity for secondary school students to learn the basic elements and need for national security and their personal obligations as Americans.
- The program enhances the image of the military in the eyes of the community by providing a chance for success to the nation's youth.
- While the training is along military lines, it is conducted so as to encourage initiative and individuality to develop natural gifts, to teach self-control, develop personal character, responsibility and qualities of integrity, loyalty, and dedication.
- Cadets derive self-esteem from belonging to NNDCC.
- The values, principles, and self-discipline taught in NNDCC promotes positive, productive behaviors and provides a support structure that is critical in helping cadets avoid the use of drugs.
- The NNDCC program is motivational in encouraging cadets to graduate from high school.
- Cadets presenting evidence of successful completion of at least 3 years of NNDCC are entitled to advanced promotion to pay grade E-3

upon initial enlistment in an active or reserve component of the Navy, or Air Force, and pay grade E-2 in the Army or the Marine Corps.

- Cadets accepted for enlistment, who provide evidence of successful completion of 2 years of a NNDCC program are entitled to be enlisted in the Navy in pay grade E-2.
- Senior Naval Science Instructor is authorized to nominate a maximum of three eligible cadets each year to compete for U.S. Naval Academy appointments.
- Administrators of host schools that are designated as Distinguished Units with Academic Honors may nominate three eligible NNDCC cadets as candidates for appointment to the U.S. Naval Academy, U.S. Military Academy, and U.S. Air Force Academy in addition to the three nominations above to the U.S. Naval Academy.

Q. What subjects are included in the curriculum?

A. The wide variety of subjects includes the following:

- CITIZENSHIP -- Instill values and responsibilities of good citizenship.
- NAVAL ORIENTATION -- A basic introduction to the Navy -- its customs, traditions, and way of life.
- NAVAL OPERATIONS/ORGANIZATION -- Familiarizes the student with national strategy and naval forces, daily military operations, training, exercises, drills, and shipboard organization.
- NAVAL HISTORY -- History of the United States Navy from the colonial period to the present.
- NAVIGATION -- An introduction to piloting and celestial navigation.
- SEAMANSHIP -- An introduction to the general subjects of seamanship that include anchoring and mooring, ship handling, small boats, weather, ship construction, and steering and propulsion systems.
- LEADERSHIP -- An ongoing study of the principles and practical application of leadership with emphasis on providing opportunities for students to exercise and develop their own leadership abilities.
- NAUTICAL ASTRONOMY -- A study of astronomy and its application to celestial navigation.
- ELECTRONICS -- An introduction to electronics as the basis for shipboard radar, sonar, communications, and guidance systems.
- OCEANOGRAPHY -- Provides information on the collection and dissemination of hydrographic and navigational data of the world's ocean systems.
- DRILLS, COMMANDS, AND CEREMONIES -- Includes individual, squad, platoon, and company close order drill; rotation of command; physical fitness; personnel inspections; and parade in company review.

NAVY NDCC I**NA7913****Credits: 1****Prerequisites: None****Grade Level 9-12****Suggested Grade Level: 9**

This course introduces students to the Navy Junior Reserve Officer Training Corps program, the importance of citizenship, the elements of leadership, the U.S. government, and the value of scholarship in attaining life goals. Additional instruction includes: the principles of health and first aid, geography, orienteering, map reading skills, survival skills, financial skills, and overview of the U.S. Navy, naval ships and aircraft. The importance and promotion of a healthy lifestyle including physical fitness, proper diet, controlling stress, and drug awareness are pursued at the fundamental level.

NAVY NDCC II**NA7916****Credits: 1****Prerequisites: NA7913****Grade Level 10-12**

This course builds on the general introduction provided in Navy JROTC I, to further develop the traits of citizenship and leadership, introduce cadets to the technical areas of naval science, the role of the U.S. Navy in maritime history, and the vital importance of the world's oceans to the national security of the United States. An introduction to maritime history including the American Revolution, the American Civil War, the rise of the United States to world power status, World Wars I and II, the Cold War era, the 1990s, and conflict in the new millennium is provided. Additional instruction in the nautical sciences will include an introduction to maritime geography, oceanography, meteorology, astronomy, and the physical sciences.

DEVELOPING YOUR CAREER PLAN

DEVELOPING YOUR CAREER PLAN means successfully completing the requirements of the high school curriculum for entry into the world of work AND for post-secondary education.

CAREER PLANNING FOR ALL STUDENTS is a natural and vital part of the Roanoke County Public Schools Comprehensive School Counseling Program. Career awareness activities begin in the elementary years followed by career exploration during the middle school and high school years. It is designed to provide students with a wide range of career opportunities such as: meeting with their counselors to discuss future plans, research projects, career fairs and other exploration experiences.

THE ACADEMIC AND CAREER PLAN (ACP) is a record of academic and career information for each student. Since it is a document that can be used to trace major decisions a student makes, it is a useful tool for educational and career planning. Students complete the portfolio with the guidance and assistance of their parents, teachers and school counselors. The ACP is begun in grades 6 and 7, completed in grade 8 and is updated in grades 9 and 11. Parent(s) and/or guardian(s) must sign the plan. Students will have access to a copy of the completed plan when they graduate.

There are many opportunities available to the successful high school graduate who has developed a concise career plan for the future. Several factors are considered by colleges and universities when making placement decisions. Priority is given to students with the most outstanding academic credentials and consideration is given to those students who demonstrate the greatest potential for academic success.

ADMISSION COMMITTEES CONSIDER THE FOLLOWING CRITERIA WHEN EVALUATING CANDIDATES FOR ADMISSION

- Nature and rigor of course load
- Grades in all courses
- Progress in grades over time
- Performance compared to peers
- Involvement in community activities
- Volunteerism
- Extracurricular activities
- Awards and accomplishments

ACADEMIC POTENTIAL IS TYPICALLY ASSESSED, in part, through either the Scholastic Aptitude Test I (SAT I) or the American College Testing (ACT) Assessment. **We recommend that these tests be taken in the junior year and in the fall of the senior year.**

GRADE 6	GRADE 7	GRADE 8
<ul style="list-style-type: none"> Take all tests very seriously, particularly the Standards of Learning Tests required for high school graduation. Talk with parents, teachers and school counselors about required courses and electives and, if appropriate, discuss the possibility of Advanced courses in English, social studies and science. Make sure the criteria for selection is clear. If continued, these courses enable you to move to more advanced instruction in high school. Take advantage of opportunities to volunteer or work in your neighborhood. Continue career exploration started in elementary school. Explore learning styles, interest inventories and personal strengths. Start Academic and Career Plan (ACP). 	<ul style="list-style-type: none"> Take all tests very seriously, particularly the Standards of Learning Tests required for high school graduation. Talk with parents, teachers and counselors about course requirements. Begin to explore areas of interest through elective courses. Some students may be eligible to enroll in Algebra I and world language in the 7th or 8th grade. When successfully completed, these courses enable you to move to more advanced instruction in high school. High school credit will be awarded for these courses if they are passed in eighth grade. Grades received in these courses figure into grade point averages for high school. Continue to update and add appropriate items to your Academic and Career Plan. Continue to volunteer and keep a record of your experiences. 	<ul style="list-style-type: none"> Take all tests very seriously, including the Standards of Learning Tests required for graduation. When you register for high school, listen to the advice of your teachers, parents and counselors. Make sure your four-year plan for your high school years is up to date. Investigate several careers and determine entrance/training requirements to help you with your four-year plan for high school. During the summer, before your ninth grade year, investigate available post-secondary education institutions in your home state and in other states that you visit. Each visit will give you a better idea of the type of school that best meets your goals and the requirements necessary for entrance. During the summer, before your ninth grade year, investigate volunteer opportunities. Read! You'll gather valuable information, as well as improve your vocabulary for college entrance exams. Newspapers, books and magazines provide a wealth of important data and an opportunity to acquire new knowledge and to develop essential skills. Continue to update your Academic and Career Plan. Visit Burton Center for Arts and Technology
GRADE 9	GRADE 10	
<ul style="list-style-type: none"> Update your Academic and Career Plan (ACP) Explore enrichment opportunities. Volunteer Get to know your counselor. Join clubs and become involved. Read, Read, Read! Take advantage of opportunities to volunteer. Visit colleges, postsecondary institutions, and/or places of future employment. Focus on doing well academically Job Shadowing. Job Shadowing means volunteering to spend some time in a workplace of interest 	<ul style="list-style-type: none"> Review and update your Academic and Career Plan (ACP) Attend College Day in the fall. PSAT testing is available. Practice completing applications for employment. Visit colleges, postsecondary institutions, and/or places of future employment. Stay involved in school and community activities. Volunteer Keep a detailed list of accomplishments and activities. The tenth grade is the final year to begin a world language if you are considering an Advanced Studies Diploma. Consider Advanced Placement/Dual Enrollment opportunities. Attend the Roanoke County Financial Aid Meeting. Consider Burton Center for Arts and Technology Practice interviewing. Develop a list of realistic postsecondary choices. Start to develop a basic resume 	
GRADE 11	GRADE 12	
<ul style="list-style-type: none"> Attend College Day in the fall. Take PSAT (this score qualifies for National Merit competition) if planning to take SAT. (October) Continue to maintain good grades; it is extremely important to do your best. Take SAT I & II and/or ACT if planning to apply to college. Volunteer, continue career exploration Become aware of scholarship opportunities. Update your Academic and Career Plan (ACP) Attend the Roanoke County Financial Aid Meeting. Take the ASVAB when available in your school. Narrow the list of postsecondary choices. Visit colleges and postsecondary institutions. Continue to take the most rigorous courses available. Begin a list of contact persons for future employment. Consider Burton Center for Arts and Technology. Investigate Registered Student Apprenticeships 	<ul style="list-style-type: none"> Attend College Day in the fall. Do job searches. Check your Career Center for assistance or see your school counselor. Volunteer Narrow your list of postsecondary choices. Apply to colleges and/or postsecondary programs. Be aware of all college and scholarship deadlines. Meeting deadlines is YOUR responsibility, not the sole responsibility of your parents or counselor. Attend the Roanoke County Financial Aid Meeting. Complete financial aid forms as needed. Register and send transcripts to the NCAA if you plan to play sports in college. Visit colleges on your list of final choices, schedule visits through the college admissions office or online. Take SAT I & II and/or ACT as required by the colleges of which you plan to apply. Apply for part-time employment Work for Industry Certifications Complete resume 	