

*HIGH SCHOOLS THAT WORK*  
**COURSE DESCRIPTION GUIDE**

(INCLUDING INSTRUCTIONS FOR CLASSIFYING COURSES)

**Updated in 2007**

**The Southern Regional Education Board**

## **The Importance of Collecting and Analyzing Transcript Data**

Much of our strategy for improving the achievement and life prospects of our students depends on encouraging students to take more challenging courses in school. Once students graduate and the school year ends, few of us have the luxury of time to go back to the files and conduct research on whether our students actually moved in the desired direction. Fewer still find the time to conduct the research necessary to find out if the strategy worked: Did students who took more challenging courses actually score higher on the assessment? Yet, this information is important to demonstrate to parents, administrators and ourselves that progress is being made and that our schools are making a significant difference.

The Course Experience section of the Student Survey is where course-taking information is collected for analysis. This information is then combined with assessment performance and reported back to you with comparative data of other participating schools similar to yours. This information also forms the basis for selecting students who qualify for the Award of Educational Achievement. SREB encourages schools to complete this section of the survey for students before the test begins. Doing may yield more accurate data and reduce the amount of testing time required to complete the survey.

In order to prepare for this component of the survey, it will be necessary to collect a copy of the transcript (or course history) and current course schedule (including spring courses) for each student participating in the assessment. Remember to be certain that grades for the previous marking period have been posted before transcripts are retrieved and prepared for the assessment.

It will also be necessary to match your school's course titles to common SREB titles. This allows us to gather this information across a network of states. In order to do so, you will need this Course Matching Guide and the Course Matching Chart. Instructions for classifying and matching courses and collecting student transcripts or course histories follow on the next few pages.

## COURSE CLASSIFICATION AND MATCHING INSTRUCTIONS

1. Course classification and course matching should be completed between October and December 2007.
2. The test coordinator should ask the department heads or curriculum chairs in English/language arts, mathematics and science to identify and classify high school courses by using the Course Description Guide and Course Matching Chart.
  - a. The **Course Description Guide** contains descriptions of high school courses according to nationally accepted definitions that are routinely used in research and analysis efforts.
  - b. The **Course Matching Chart** is the document that your department heads in English/language arts, mathematics and science will complete. It will list your school's courses equivalent to SREB's course titles.
3. Give each department head or curriculum chair in English/language arts, mathematics and science copies of the Course Description Guide (or the appropriate parts, including the general instructions on page iv) and the Course Matching Chart. They are in the best position to review each course description and to write local course titles in the blanks below each description (in the Course Description Guide).
4. Department chairs should include the names of courses offered over the past four years on the Course Matching Chart (starting with the 2004-05 school year). This ensures the course names date back to participating students' first year of high school.
5. Set an early deadline for department chairs to complete their work, remembering that the process should be complete by December, 2007. As the deadline approaches drop them a note as a friendly reminder. This will help maintain your schedule.
6. After the department chairs complete their review of the Course Description Guide, consolidate their work into one final copy of the Course Matching Chart with all the appropriate course titles for each subject area.
7. Keep the final Course Matching Chart in a safe location until the start of testing when students will need this information to complete the Course Experience portion of the Student Survey.

8. Prior to administering the assessment, make one copy of the Course Matching Chart for each participating student. Staple the Course Matching Chart to the copy of their transcript (or course history) and the list of courses they are currently taking. See the following section of this guide for information on gathering student transcripts and current course schedules.
9. If school personnel will complete the Course Experience portion of the survey for students, step eight and nine will not be necessary. (See the Test Administration Guide for more information on this option.)

### **STEPS FOR COLLECTING TRANSCRIPTS OR COURSE HISTORIES**

1. Student transcripts should be collected as soon as possible prior to administering the assessment (i.e., November – December, 2007).
2. A copy of the official student transcript or course history should be made for each student who will be assessed and the five alternates. A list of courses each student is currently taking, or will take, is also necessary.
3. Once the student roster is complete, the appropriate school official should be notified that transcripts should be prepared for students selected to participate in the assessment. Because transcript/counselor offices are often busy updating student records with grades from the previous marking period and fulfilling transcript requests for college applications at this time of year, it is important to give them as much notice as possible. You should provide them a well-marked copy of the student roster to minimize the amount of time it takes to find the necessary documents. You will need them to provide you:
  - a. A copy of the transcript or course history for each student listed on the student roster.
  - b. A list of the courses each student is currently taking or will take in the Spring.
4. Make sure school officials know that students will use these documents to record their course experience information on a survey. Students have access to this information in virtually every state. Contact your school principal, state coordinator or SREB for assistance if you experience difficulty in obtaining these records.
5. If students will complete the Course Experience survey themselves, arrange student transcripts and course schedules by assessment session to speed distribution during the test.

## GENERAL INSTRUCTIONS FOR COURSE MATCHING

The *High Schools That Work* Assessment will be administered to high school seniors between January 7 and February 1, 2008. The assessment consists of subject tests in reading, mathematics and science and a student survey. Section 1 of the student survey is a Course Experience Survey. Students are asked to use their transcripts to complete a series of questions related to the courses they took in grades nine through twelve (including courses they expect to complete by the end of grade 12).

Course matching facilitates the transcript coding process for students by matching local course names to a common set of SREB course titles. The process may be completed at the school or district level, depending on local circumstances. At the school level, it may be completed by school administrators, counselors or individual department heads. **Course matching should take place between October and December, 2007.** The Course Description Guide and Course Matching Chart should be returned to the test coordinator upon completion.

### **Please follow these steps to complete the course matching process:**

1. Review the course descriptions in this guide and write the names of courses that contain the *same content and level of expectations for students* in your school or district in the blanks below each description. Please include the names of any courses offered over the last four years (starting with the 2004-05 school year). This ensures that the course titles you provide date back to participating students' first year of high school.
2. After writing applicable course titles in the blanks in this guide, complete the Course Matching Chart. It is important to be as thorough as possible. This chart will be used as a reference by students or school personnel as they complete Section One of the student survey .

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## **Mathematics**

### **Course Titles and Course Descriptions**

This subject area encompasses courses that concern the science of numbers and their operations, interrelations, combinations, generalizations and abstractions; space configurations and their structure, measurement and transformations; and the application of mathematical thought to related endeavors.

#### **Basic, Fundamental, Practical or Essential Mathematics; General Mathematics; Consumer Mathematics; Business Mathematics**

Basic, Fundamental, Practical, or Essential Mathematics courses emphasize attainment of basic mathematics skills for students who have not yet mastered these skills. Basic Mathematics includes the study of general mathematics topics: arithmetic using rational numbers, numeration systems and place value, basic geometry, basic statistics and application of these skills to real-world problems and situations.

General Mathematics courses reinforce basic mathematics skills for students who have previously attained them and extend these skills to further applications and concepts. General Mathematics includes the study of general mathematics topics, such as arithmetic using rational numbers, basic geometry, basic statistics and application of these skills to real-world problems and situations. Topics may also include ratio and proportion, solving and graphing simple equations and operations with real numbers. This course may refer to Integrated Mathematics courses that do not count as required college-preparatory-level mathematics courses at your state's four-year college or universities.

Consumer Mathematics courses reinforce general mathematics skills for students who have previously attained them, may extend these skills to include some pre-algebra and algebra topics and use these skills in a wide variety of practical, consumer, business and occupational applications. Consumer Mathematics courses reinforce general mathematics topics, such as arithmetic using rational numbers, fractions and percents, measurement and basic statistics.

Business Mathematics courses reinforce general mathematics skills for students who have previously attained them, emphasizes speed and accuracy in computations, may extend general mathematics skills to cover additional mathematics concepts and uses these skills in a variety of business applications. Business Mathematics reinforces general mathematics topics such as arithmetic using rational numbers, measurement and basic statistics. In addition, these courses apply these skills to business problems and situations; applications might include wages, hourly rates, payroll deductions, sales, receipts, accounts payable and receivable, financial reports, discounts and interest.


**Pre-algebra or Algebra Foundations**

These courses are generally intended to provide an extra year of study for students who have attained general mathematics objectives but are not yet ready to enter Algebra I. Pre-Algebra, Algebra Foundations or Introduction to Algebra courses cover topics such as properties of rational numbers (i.e., number theory), ratio, proportion, estimation, exponents and radicals, the rectangular coordinate system, sets and logic, formulas and solving first-degree equations and inequalities.


**Basic Algebra 1, Elementary Algebra, Algebra 1-A and Algebra 1-B**

Basic Algebra 1 and Elementary Algebra courses are designed for students who may benefit from a slightly slower pace or additional reinforcement of their current mathematics skills. However, most of the typical algebraic concepts are covered, such as properties and operations of the real number system; evaluating rational algebraic expressions; solving and graphing first degree equations and inequalities; and the factoring of polynomials.

Algebra 1-A and 1-B are two courses in a two-year sequence of Algebra I. The first year generally covers topics such as the properties of rational numbers, ratio, proportion, estimation, exponents and radicals, the rectangular coordinate system, sets and logic, formulas and solving first degree equations and inequalities. The second year covers the study of properties of the real number system and operations, evaluating rational algebraic expressions, solving and graphing first degree equations and inequalities, translating word problems into equations, operations with and factoring of polynomials and solving simple quadratics.

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**Regular, Advanced or College-prep Algebra I**

Algebra I courses include the study of properties and operations of the real number system; evaluating rational algebraic expressions; solving and graphing first degree equations and inequalities; translating word problems into equations; operations with and factoring of polynomials; and solving simple quadratic equations. These courses may include solving systems of linear equations and inequalities and solving and graphing more complex quadratic equations.

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**Algebra 2**

Algebra 2 course topics include field properties and theorems; set theory; operations with rational and irrational expressions; factoring of rational expressions; in-depth study of linear equations and inequalities; quadratic equations; solving systems of linear and quadratic equations; graphing of constant, linear and quadratic equations; properties of higher degree equations; and operations with rational and irrational exponents.

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**Geometry**

Geometry courses, emphasizing an abstract, formal approach to the study of geometry, include topics such as properties of plane and solid figures; deductive methods of reasoning and use of logic; geometry as an axiomatic system including the study of postulates, theorems and formal proofs; rules of congruence, similarity, parallelism and perpendicularity; and rules of angle measurement in triangles, including trigonometry, coordinate geometry and transformational geometry.

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**First-year Applied Mathematics or Technical Mathematics I**

This category should be used for the first half of the curriculum developed by the Center for Occupational Research and Development (CORD) or for other mathematics courses teaching algebraic concepts with an emphasis on occupationally-related applications and problem-solving techniques. CORD's Applied Mathematics course covers the following topics: estimation; measurement; working with data (including the use of graphs, charts and tables); lines and angles; two- and three-dimensional figures; ratio and proportion; scale drawings; signed numbers and vectors; scientific notation; precision, accuracy and tolerance; exponents and radicals; formulas; linear and nonlinear equations; statistics and probability; right-triangle relationships; and trigonometric functions.

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**Second-year Applied Mathematics or Technical Mathematics II**

This category should be used for the second half of the curriculum developed by the Center for Occupational Research and Development (CORD) or for other mathematics courses teaching algebraic concepts with an emphasis on occupationally-related applications and problem-solving techniques. With the completion of this second year of Applied Mathematics, students typically receive credit for Algebra 1. (See the above description for the topics included in CORD's Applied Mathematics course.)

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**Trigonometry, Algebra 3, Mathematics Analysis or Advanced Mathematics**

Trigonometry courses prepare students for eventual work in calculus and include the study the following topics: trigonometric and circular functions; their inverses and graphs; relations among the parts of a triangle; trigonometric identities and equations; solutions of right and oblique triangles; and complex numbers.

Algebra III courses review and extend algebraic concepts for students who have already taken Algebra II. Course topics include (but are not limited to) operations with rational and irrational expressions, factoring of rational expressions, linear equations and inequalities, quadratic equations, solving systems of linear and quadratic equations, properties of higher degree equations and operations with rational and irrational exponents. The courses may introduce topics in discrete mathematics, such as elementary probability and statistics including binomial expansion; matrices and determinants; and sequences and series.

Mathematics Analysis courses include the study of polynomial, logarithmic, exponential and rational functions and their graphs; vectors; set theory; Boolean algebra and symbolic logic; mathematical induction; matrix algebra; sequences and series; and limits and continuity. This category should also be used for other advanced mathematics courses such as Number Theory, Linear Algebra and Discrete Mathematics.

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**Pre-calculus or Calculus**

Pre-calculus courses combine the study of Trigonometry, Elementary Functions, Analytic Geometry and Mathematics Analysis topics as preparation for calculus. Topics include the study of complex numbers; polynomial, logarithmic, exponential, rational, right trigonometric and circular functions, trigonometric identities and equations; vectors; the polar coordinate system; conic sections; Boolean algebra and symbolic logic; matrix algebra; sequences and series; and limits and continuity. Calculus includes the study of derivatives, antiderivatives, differentiation, integration, the definite and indefinite integral and applications of calculus. **Advanced Placement Calculus should not be included in this section.**

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## Statistics

Statistics courses focus on the science and practice of collecting, organizing, and interpreting numerical data in order to describe certain characteristics of a particular group. Four broad themes dominate the study of statistics: data exploration; probability theory; experimental design; and statistical inference. Topics related to these themes should be studied in the context of real-world applications, with technology serving as a tool for investigating and illustrating fundamental statistical concepts. **Advanced Placement Statistics should not be included in this section.**

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## Integrated Mathematics

The specific content of Integrated Mathematics courses varies, but emanates from the suggestions made by the National Council of Teachers of Mathematics (NCTM). A sequential, multi-year program of study, Integrated Mathematics courses emphasize the teaching of mathematics as problem solving, communication and reasoning. Intended to replace the traditional sequence of secondary mathematics courses, the Integrated Mathematics sequence covers the following topics: algebra, functions, geometry from both a synthetic and an algebraic perspective, trigonometry, statistics and probability, discrete mathematics, the conceptual underpinnings of calculus and mathematical structure. There are courses that fulfill the mathematics requirements or college-preparatory-level courses at your state's four-year colleges or universities.

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## Advanced Placement Calculus AB

Advanced Placement Calculus AB, designed by The College Board, parallels a college-level calculus course and is concerned with developing students' understanding of the concepts of calculus and providing experience with its methods and applications.

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**Advanced Placement Calculus BC**

Advanced Placement Calculus BC, designed by The College Board, parallels a college-level calculus course and is an extension of AP Calculus AB, covering the same topics plus additional topics.

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**Advanced Placement Statistics**

Advanced Placement Statistics, designed by The College Board, parallels an introductory college statistics course. Course content focuses on exploring data by describing patterns and departures from patterns; sampling and experimentation by planning and conducting studies; anticipating patterns by exploring random phenomena using probability and simulation; and statistical inference by estimating population parameters and testing hypotheses.

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**Computer Science  
Course Titles and Course Descriptions**

**Keyboarding/word Processing**

The content of these courses is directed to the fundamental development of computer familiarity and rudimentary skills associated with navigating the computer domain, maintaining electronic files and using one or more word-processing programs.

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**Advanced Placement Computer Science A**

Advanced Placement Computer Science A, designed by The College Board, parallels a first-semester college-level course in computer science. It emphasizes object-oriented programming methodology with a concentration on problem solving and algorithm development.

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**Advanced Placement Computer Science AB**

Advanced Placement Computer Science AB, designed by The College Board, includes all the topics of Computer Science A, as well as a more formal and in-depth study of algorithms, data structures, design and abstraction.

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**Other Computer Course**

The content of these courses may be diverse. It is assumed, however, that course content is concentrated on developing an understanding and necessary skills for using the Web, programming, maintaining computers and computer networks. Also included here are courses for specific software and management systems.

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## **English Language and Literature Course Titles and Course Descriptions**

This subject area encompasses courses that concern primarily the use of the English language as it is written, read, spoken and understood; courses included here may combine these goals, or may deal with them separately, as individual courses in literature, composition, speech or reading.

### **Note to English Department Head:**

The predominant English language instructional style seems to be one in which all four communication aspects of the English language (reading, writing, speaking and listening) are taught in an holistic manner all four years of high school. Students typically read literature selections and write essays and compositions on topics generated from those readings. We realize that many schools emphasize one aspect (literature or composition) in particular semesters and name their courses accordingly. However, in order to simplify this process, this distinction has been eliminated.

You will notice that the descriptions within each grade level's English courses are identical, except for the general descriptors directly before the course title. Defining these terms has been deliberately avoided, because schools across the country have different levels of progression and specific performance standards or competencies for the various levels at each grade level. We wanted to avoid problems of connotation and interpretation. However, your general guidelines are thus:

***Remedial, functional, basic, practical or skills level classes*** are typically designed for students who are reading or writing below grade level and whose language arts skills need substantial improvement.

***Standard, general or regular level classes*** are typically designed for the student who may or may not be headed for further education. These classes are usually acceptable for college entrance, but may not enable a student to receive a "merit" diploma (if one is offered).

Schools that do not track their English courses should place their English classes within course descriptions labeled as *standard*.

***Accelerated, academic, college prep or honors level classes*** are classes in which students have to read 10-15 books in and out of class, make presentations, write short assignments daily and complete at least one major research paper

***Advanced Placement level classes***, designed by The College Board, parallel college-level freshman English courses and emphasize craftsmanship in composition and the critical evaluation of literature.

**Basic, Functional, Practical or Skills English 9**

English/language arts I (9th grade) for students who may be reading or writing below grade level. These courses build upon the students’ prior knowledge of grammar, vocabulary, word usage and mechanics of writing and usually include the four aspects of language use: reading, writing, speaking and listening. Usually, the various genres of literature are introduced and defined, with writing exercises often linked to reading selections.

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**Standard, General, Regular or Mixed-group English 9**

English/language arts I (9th grade) for the student who may or may not be headed for further education. These courses, however, would normally be acceptable for college entrance, but may not enable the student to receive a “merit” diploma (if one is offered). These courses build upon the students’ prior knowledge of grammar, vocabulary, word usage and mechanics of writing and usually include the four aspects of language use: reading, writing, speaking and listening. Usually, the various genres of literature are introduced and defined, with writing exercises often linked to reading selections.

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**Accelerated, Academic, College-prep or Honors English 9**

English/language arts I (9th grade) courses build upon the students’ prior knowledge of grammar, vocabulary, word usage, mechanics of writing and usually include the four aspects of language use: reading, writing, speaking and listening. Usually, the various genres of literature are introduced and defined, with writing exercises often linked to reading selections.

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**Basic, Functional, Practical or Skills English 10**

English/language arts II (10th grade) for students who may be reading or writing below grade level. These courses usually offer a balanced focus on composition and literature. Typically, students learn about the alternate aims and audiences of written compositions by writing persuasive, critical and creative multi-paragraph thematic essays and compositions. The study of literature encompasses various genres as students improve their reading rate and comprehension and develop the skills to determine authors’ intents and themes and to recognize the techniques employed by authors to achieve their goals.

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**Standard, General, Regular or Mixed-group English 10**

English/language arts II (10th grade) for the student who may or may not be headed for further education. These courses, however, would normally be acceptable for college entrance, but may not enable the student to receive a “merit” diploma (if one is offered). These courses usually offer a balanced focus on composition and literature. Typically, students learn about the alternate aims and audiences of written compositions by writing persuasive, critical and creative multi-paragraph thematic essays and compositions. The study of literature encompasses various genres as students improve their reading rate and comprehension and develop the skills to determine authors’ intents and themes and to recognize the techniques employed by authors to achieve their goals.

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**Accelerated, Academic, College-prep or Honors English 10**

English/language arts II (10th grade) courses usually offer a balanced focus on composition and literature. Typically, students learn about the alternate aims and audiences of written compositions by writing persuasive, critical and creative multi-paragraph thematic essays and compositions. The study of literature encompasses various genres as students improve their reading rate and comprehension and develop the skills to determine authors’ intents and themes and to recognize the techniques employed by authors to achieve their goals.

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**Basic, Functional, Practical or Skills English 11**

English/language arts III (11th grade) for students who may be reading or writing below grade level. These courses continue to develop students’ writing skills, emphasizing clear, logical writing patterns, word choice and usage, as students write essays and begin to learn the techniques of writing research papers. Students continue to read works of literature, which often form the backbone of the writing assignments. Literary conventions and stylistic devices may receive greater emphasis than in previous courses. Preparation for the PSAT may be included.

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**Standard, General, Regular or Mixed-group English 11**

English/language arts III (11th grade) for the student who may or may not be headed for further education. These courses, however, would normally be acceptable for college entrance, but may not enable the student to receive a “merit” diploma (if one is offered). These courses continue to develop students’ writing skills, emphasizing clear, logical writing patterns, word choice and usage, as students write essays and begin to learn the techniques of writing research papers. Students continue to read works of literature, which often form the backbone of the writing assignments. Literary conventions and stylistic devices may receive greater emphasis than in previous courses. Preparation for the PSAT may be included.

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**Tech-Prep English, Applied English or Applied Communication 11**

Tech-Prep English, Applied English or Applied Communications 11 continue to develop students’ writing skills, but in a manner which emphasizes the English language as applied in the “real world.” The study of literature is typically included (in accordance with state guidelines), but the emphasis is usually on the practical application of communication as a business tool and may focus on technical reports and manuals, business letters and résumés, as opposed to the course being designed around scholarly and literary applications. Typically, these courses include some or all of the 15 modules developed by the Agency for Instructional Technology (AIT). Gathering and using information, problem solving, presentation, evaluation, communicating with different audiences and occupationally-specific topics are included in courses using AIT’s curriculum.

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**Accelerated, Academic, College-prep or Honors English 11**

English/language arts III (11th grade) courses continue to develop students’ writing skills, emphasizing clear, logical writing patterns, word choice and usage, as students write essays and begin to learn the techniques of writing research papers. Students continue to read works of literature, which often form the backbone of the writing assignments. Literary conventions and stylistic devices may receive greater emphasis than in previous courses. Preparation for the PSAT may be included.

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**Basic, Functional, Remedial, Practical or Skills English 12**

English/language arts IV (12th grade) for students who may be reading or writing below grade level. These courses blend composition and literature into a cohesive whole, as students write critical and comparative analyses of selected literature. Typically, multi-paragraph essays predominate as the form of student composition, but one or more major research papers may also be written.

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**Standard, General, Regular or Mixed-group English 12**

English/language arts IV (12th grade) for the student who may or may not be headed for further education. These courses, however, would normally be acceptable for college entrance, but may not enable the student to receive a “merit” diploma (if one is offered). These courses blend composition and literature into a cohesive whole, as students write critical and comparative analyses of selected literature. Typically, multi-paragraph essays predominate as the form of student composition, but one or more major research papers may also be written.

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**Tech-Prep English, Applied English or Applied Communication 12**

Tech-Prep English, Applied English or Applied Communication blend students' reading and writing skills, but emphasize the practical applications of communicating (reading, writing, presenting and listening). The study of literature is typically included (in accordance with state guidelines), but the course emphasis is usually on the practical application of communication as a business tool and may focus on technical reports and manuals, business documentation and correspondence, résumés and applications. Typically, these courses include some or all of the 15 modules developed by the Agency for Instructional Technology (AIT). Gathering and using information, problem solving, presentation, evaluation, communicating with different audiences and occupationally-specific topics are included in courses using AIT's curriculum.

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**Accelerated, Academic, College-prep or Honors English 12**

English/language arts IV (12th grade) courses blend composition and literature into a cohesive whole, as students write critical and comparative analyses of selected literature. Typically, multi-paragraph essays predominate as the form of student composition, but one or more major research papers may also be written.

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**Advanced Placement English**

Advanced Placement English courses, designed by The College Board, parallel college-level freshman English and emphasize craftsmanship in composition and the critical evaluation of literature. Applicable courses include Advanced Placement English Language or Advanced Placment English Literature.

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**Journalism**

Journalism courses are typically associated with the production of a school newspaper, yearbook or literary magazine; therefore, they not only emphasize writing style and technique, but also production values and organization. Beginning journalism courses introduce students to the concepts of news worthiness and press responsibility; develop students' skills in writing and editing stories, headlines and captions; and teach students the basics of production design, layout and printing of a publication. Advanced students learn and practice more refined journalistic techniques, participate to a greater extent in the formation and/or management of the production team and gain experience in critical evaluation of story content and the publication as a whole. Photography and photojournalism skills may be included.

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**Business English**

Business English courses teach students communication skills of reading, writing, listening and speaking. Courses emphasize the practical application of communication as a business tool and may focus on technical reports, manuals, business letters, resumes and applications.

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**Debate (including Speech and Public Speaking courses)**

Debate courses offer students the opportunity to learn how to employ oral skills effectively in formal and informal situations. Logic and reasoning, the organization of thought and supporting materials and effective presentation of one's voice and body are the skills imparted in forensics courses. Often linked to an extracurricular program, numerous public speaking situations are introduced, and students learn the methods, aims and styles of a variety of events. Participation in competition is typically encouraged.

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## **Reading**

Reading courses offer students the opportunity to focus on their reading skills. Assistance is targeted to students' particular weaknesses and is designed to bring poor readers' reading comprehension up to the desired level (often a standardized test required for graduation) or to develop strategies to read more efficiently in order to progress at a steady rate through high school.


## **English as a Second Language**


## **Life and Physical Sciences Course Titles and Course Descriptions**

This subject area encompasses courses that concern bodies of knowledge about the natural world and its phenomena, including the study of living organisms and life processes as well as non-living materials and the laws that govern them.

### **Note to Science Department Head:**

You will notice that the descriptions for the three Physical Science and the three Biology courses are identical, except for the general descriptors within parentheses directly under the course title. Defining these terms has been deliberately avoided, because schools across the country have different levels of progression and specific performance standards or competencies for the various levels. However, your general guidelines are thus:

***Basic, practical or fundamental*** level classes are typically designed for students who do not intend to go to college and therefore may not need a lab science. These courses have few, if any, laboratory experiments and students are not expected to use math skills other than simple computation to solve scientific problems.

***Regular or general level*** classes are typically designed for the average student who may or may not be headed for further education. These classes should be acceptable for college entrance, but may not enable a student to receive a “merit” diploma (if one is offered). These courses are usually considered lab courses, are acceptable to colleges for their laboratory science requirements and include problem solving using mathematics.

***Advanced, academic, college-prep or honors level*** classes are typically designed for students who intend to pursue postsecondary education. Laboratory experimentation is integral to these classes and students often use mathematics when problem solving.

***Advanced Placement level courses*** level classes, designed by The College Board, parallel college-level freshman science courses.

**General Science**

General Science courses involve a balanced introductory study of several branches of science, including biological and physical science. Typically, general science courses emphasize the scientific process of inquiry and the practical implications of scientific phenomena and discoveries. General science courses may also include an investigation of the effect of technology on life on earth. Count Integrated Science under this title if such a course does not count as a required college-preparatory-level science course at your state’s four-year colleges or universities.

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**Environmental Science**

Environmental Science courses examine the mutual relationships between organisms and their environment. In studying the interrelationships among plants, animals and humans, the following subjects may be covered: photosynthesis, recycling and regeneration, ecosystems, population and growth studies, pollution and conservation of natural resources.

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**Life Science**

Life Science courses provide students with a basic understanding of living organisms. Topics typically include basic biological functions and systems, identification and classification of types of organisms and the similarities and differences (e.g., structure, function) between various life forms.

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**Earth Science**

Earth Science courses offer insight into the environment on Earth and the Earth’s environment in space. While teaching the concepts and principles essential to an understanding of the dynamics and history of the Earth, the following topics may be explored: **oceanography, geology, astronomy and meteorology.**

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**Basic, Practical or Fundamental Physical Science**

Physical Science courses involve the study of the structures and states of matter. Typically (but not always) an introductory survey course, topics covered may include forms of energy, wave phenomena, electromagnetism and physical and chemical interactions.

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**Regular or General Physical Science**

Physical Science courses involve the study of the structures and states of matter. Typically (but not always) an introductory survey course, topics covered may include forms of energy, wave phenomena, electromagnetism, and physical and chemical interactions.

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**Advanced, Academic, College-prep or Honors Physical Science**

Physical Science courses involve the study of the structures and states of matter. Typically (but not always) an introductory survey course, topics covered may include forms of energy, wave phenomena, electromagnetism and physical and chemical interactions.

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**Basic, Practical or Fundamental Biology**

Biology courses are designed to provide information regarding the fundamental concepts of life and life processes. Topics covered include (but are not restricted to) cell structure and function, general plant and animal physiology, genetics and taxonomy.

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**Regular or General Biology**

Biology courses are designed to provide information regarding the fundamental concepts of life and life processes. Topics covered include (but are not restricted to) cell structure and function, general plant and animal physiology, genetics and taxonomy.

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**Advanced, Academic, College-prep or Honors Biology**

Biology courses are designed to provide information regarding the fundamental concepts of life and life processes. Topics covered include (but are not restricted to) cell structure and function, general plant and animal physiology, genetics and taxonomy.

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**Biology 2**

Biology 2 courses cover biological systems in more detail. Topics that may be explored include cell organization, function and reproduction; energy transformation; human anatomy and physiology; and organisms' evolution and adaptation. These concepts are typically studied on a college level. **Advanced Placement Biology should not be included here.**

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**Anatomy and Physiology**

Usually taken after a first-year Biology course, Anatomy and Physiology courses present the human body and biological systems in more detail. In order to understand the structure of the human body and its functions, students learn anatomical terminology, study cells and tissues, explore functional systems (e.g., skeletal, muscular, circulatory, respiratory, digestive, reproductive, nervous) and may dissect mammals.

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### **Basic or General Chemistry**

Basic chemistry courses involve the composition, properties and reactions of substances. The behaviors of solids, liquids and gases; acid/base and oxidation/reduction reactions; and atomic structure are typical concepts explored in Chemistry courses. Chemical formulas and equations and nuclear reactions are also studied.

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### **Honors or College-prep Chemistry**

Honors or College-prep Chemistry courses involve the composition, properties and reactions of substances. The behaviors of solids, liquids and gases; acid/base and oxidation/reduction reactions; and atomic structure are typical concepts explored in Chemistry courses. Chemical formulas and equations and nuclear reactions are also studied. **Advanced Placement Chemistry should not be included here.**

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### **Physics**

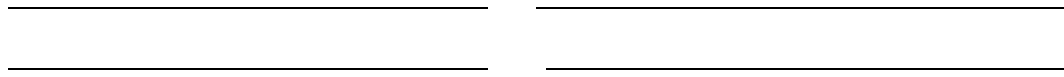
Physics courses involve the study of the forces and laws of nature affecting matter: equilibrium, motion, momentum and the relationships between matter and energy. The study of physics includes examination of sound, light, magnetic and electric phenomena. (All types and levels of Physics courses should be included here **except** CORD's Principles of Technology and Advanced Placement Physics.) **Advanced Placement Physics should not be included here.**

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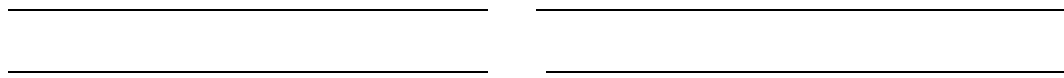
**First-Year Principles of Technology (Applied Physics)**

Principles of Technology courses, designed by CORD and AIT, teach traditional physics concepts in the context of their relationship to four energy systems—mechanical, fluid, electrical and thermal. The curriculum focuses on the study of forces and laws of nature and includes the study of the following and their application to modern technology: force, work, rate, resistance, energy, power, force transformers, momentum, waves and vibrations, energy converters, transducers, radiation, light and optical systems and time constants. Demonstrations, mathematics labs and applied laboratory experiments are an integral part of the 14-unit Principles of Technology curriculum. These courses enable students to gain a solid foundation for careers in electronics, robotics, telecommunications and other technological fields.



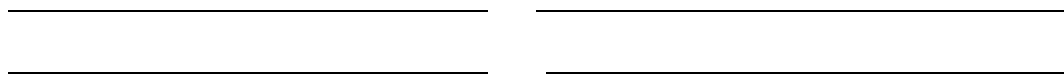
**Second-Year Principles of Technology (Applied Physics)**

Principles of Technology courses, designed by CORD and AIT, teaches traditional physics concepts in the context off their relationship to four energy systems—mechanical, fluid, electrical and thermal. The curriculum focuses on the study of forces and laws of nature and includes the study the following and their application to modern technology: force, work, rate, resistance,energy, power, force transformers, momentum, waves and vibrations, energy converters, transducers, radiation, light and optical systems and time constants. Demonstrations, math labs and applied laboratory experiments are an integral part of the 14-unit Principles of Technology curriculum. These courses enable students to gain a solid foundation for careers in electronics, robotics, telecommunications and other technological fields.



**Applied Biology/Chemistry**

Applied Biology/Chemistry courses (as designed by CORD) integrate biology and chemistry into a unified domain for study and present the resulting body of knowledge in the context of work, home, society and the environment, emphasizing field and laboratory activities. Topics include natural resources, water, air and other gases, nutrition, disease and wellness, plant growth and reproduction, life processes, microorganisms, synthetic materials, waste and waste management and the community of life.



**Integrated Science**

The specific content of Integrated Science courses varies, but emanates from suggestions made by the American Association for the Advancement of Science (AAAS) and the National Association for the Advancement of Science. Typically a multi-year program of study, Integrated Science courses draw from the principles of several scientific specialties—earth science, physical science, biology, chemistry and physics—and organize the material around thematic units. Common themes include systems, models, energy, patterns, change and constancy. Appropriate aspects from each specialty are used to investigate applications of the theme. There are courses that fulfill the science requirements as college-preparatory-level courses at your state’s four-year colleges or universities.

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**Advanced Placement Biology**

Advanced Placement Biology, designed by The College Board, parallels a two-semester college introductory biology course. It differs significantly from the usual first high school course in biology with respect to the kind of textbook used, the range and depth of topics covered, the type of laboratory work done by students, and the time and effort required by students.

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**Advanced Placement Chemistry**

Advanced Placement Chemistry, designed by The College Board, parallels a first-year college general chemistry course. It differs qualitatively from the usual first high school course in chemistry with respect to the kind of textbook used, the topics covered, the emphasis on chemical calculations and the mathematical formulation of principles, and the kind of laboratory work done by students. Quantitative differences appear in the number of topics treated, the time spent on the course by students, and the nature and the variety of experiments done in the laboratory.

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**Advanced Placement Physics B**

Advanced Placement Physics B, designed by The College Board, parallels a first-year college physics course. It covers topics in mechanics, electricity and magnetism, fluid mechanics and thermal physics, waves and optics, and atomic and nuclear physics.

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**Advanced Placement Physics C: Electricity and Magnetism**

Advanced Placement Physics C: Electricity and Magnetism, designed by The College Board, parallels a first-year college physics course and covers electricity and magnetism is greater depth including electrostatics; conductors, capacitors, and dielectrics; electric circuits; magnetic fields; and electromagnetism..

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**Advanced Placement Physics C: Mechanics**

Advanced Placement Physics C: Mechanics, designed by The College Board, parallels a first-year college physics course and covers mechanics is greater depth including kinematics; Newton’s laws of motion; work, energy, and power; systems of particles and linear momentum; circular motion and rotation; and oscillations and gravitation.

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**Advanced Placement Environmental Science**

Advanced Placement Environmental Science, designed by The College Board, parallels a one-semester introductory college environmental science course. It provides students with the scientific principles, concepts, and methodologies required to understand the inter-relationships of the natural world, to identify and analyze environmental problems both natural and human-made, to evaluate the relative risks associated with these problems, and to examine alternative solutions for resolving or preventing them.

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**Other Advanced Science**

This category is made available for those courses offered to students who desire to study a branch (or several branches) of science in greater depth. This category is intended to capture other advanced courses such as Biochemistry or Advanced Astronomy which may not have been described adequately in the above course descriptions.

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