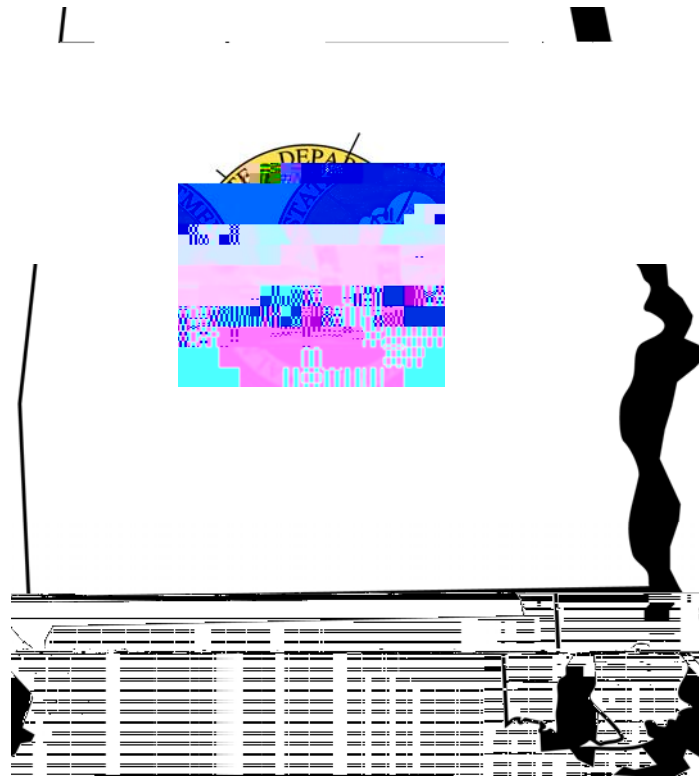


Alabama Course of Study Technology Education



Joseph B. Morton
State Superintendent of Education
ALABAMA DEPARTMENT OF EDUCATION

SUPERINTENDENT OF EDUCATION'S MESSAGE

Dear Educator:

The goal of the *Alabama Course of Study: Technology Education* is technology fluency for all students. The Information Age in which Alabama students live is a challenging and ever-changing time in history. Alabama students must be provided with instruction that integrates the use of a variety of technologies for accessing information, sharpening problem-solving skills, encouraging critical thinking, and working collaboratively. Utilization of technology tools enables students to function effectively whether the technology is used for productive work, enhanced communication, knowledge acquisition, or personal enjoyment.

Local school system teachers and administrators will notice that this new K-12 document contains a challenging set of standards to be mastered by students. Local school systems should develop local curriculum plans that incorporate these statements of what students should know and be able to do and make local decisions regarding how students will meet and perhaps go beyond the scope of these standards.

Local system leadership, school leadership, and effective classroom instruction are key to student success. Important local decisions include **how** students will accomplish these standards, in **what sequence** teachers will address them, and **how much time** will be given to the various components. These decisions are as significant as the identification of **what** students need to know and be able to do.

I believe a sound program of instruction has been developed to guide local school systems in the implementation of their technology education curricula. Using this new course of study as the foundation, let us work together to equip every student with the necessary technological skills for the competitive global

Alabama Course of Study: Technology Education

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Preface

The *Alabama Course of Study: Technology Education* provides the framework for the Grades K-12 study of technology in Alabama's public schools. Content standards in this document define the minimum requirements according to the *Code of Alabama* (1975), §16-35-4. They are fundamental and specific but not exhaustive. When developing local curriculum, school systems may include additional content standards to reflect local philosophies and may add implementation guidelines, resources, and activities.

The 2007-2008 Technology Education Course of Study Committee and Task Force made extensive use of the *National Educational Technology Standards for Students: The Next Generation*, published by the International Society for Technology in Education (ISTE). In addition, Committee and Task Force members reviewed other states' technology curricula and read articles in professional journals and magazines during the development of the minimum required content.

Committee and Task Force members attended state and national conferences, listened to and read suggestions from interested individuals and groups throughout Alabama, and discussed each issue and standard among themselves. The Committee and Task Force reached consensus that the standards contained herein provide a sound technology curriculum for Alabama's students.

Acknowledgments

Mary Nell Shaw, Graphic Arts Specialist, Communication Section; and
Charles V. Creel, Graphic Arts Specialist, Communication Section, assisted in the development of
the graphic design.

Susan J. Blankenship, (retired) Education Specialist, Alabama Department of Education, edited and
proofread the document.

Alabama's K-12 Technology Education Curriculum

General Introduction

occurring changes in technology with the goal of achieving technology proficiency for lifelong learning pursuits.

Cyber Safety

The Internet is an important education resource that has become commonplace in America's classrooms. Teachers, when assigning Internet research, have the added responsibility of teaching cyber safety. The *Alabama Course of Study: Technology Education* document provides cyber safety standards in each cluster to address protection of personal information and avoidance of online predators and cyberbullying. LEAs should establish and strictly enforce local guidelines for Internet use by students. With these guidelines in mind, students and teachers can make optimal use of technology in learning.

Equitable Access

Technology education offers powerful opportunities for reaching, motivating, and teaching all students in all grades. Regardless of background or ability, all students deserve an opportunity to become technologically fluent. Frequent and reliable access to current and emerging technologies and digital resources should be provided for ALL students in Alabama.

Integration of Technology

Alabama's goal of technology fluency for every student necessitates the seamless integration of technology and twenty-first century skills throughout the curricula. The immersion of technology into the curriculum provides an engaging means for students to locate, assemble, and apply relevant information to make connections with essential knowledge. Effectively integrating technology can extend learning beyond the classroom to ensure that all students achieve the technology fluency necessary to succeed in a global society.

Assessment

Twenty-first century skills are not adequately measured using twentieth-century assessments such as paper and pencil objective tests. Technology skills are inherently performance skills and must be evaluated through project- or problem-based assessments, which could be included in a digital portfolio format. While it is important for students to demonstrate technology fluency through performance to meet the high school graduation requirement for one-half credit in computer applications, it is more important for students to apply technology knowledge and skills to problem solving to be better prepared for tomorrow's workforce.

Directions for Interpreting the Minimum Required Content

1. **CONTENT STANDARDS** are statements that define what students should know and be able to do at the conclusion of a course or grade. Content standards in this document contain minimum required content. The order in which standards are listed within a course or grade is not intended to convey a sequence for instruction. Each content standard completes the phrase “*Students will.*”

Students will:

Critique digital content for validity, accuracy, bias, currency, and relevance.

(Computer Applications – Content Standard 11)

2. **BULLETS** denote content that is related to the standards and required for instruction. Bulleted content is listed under a standard and identifies additional minimum required content.

Students will:

Identify common hardware and software problems.

- Determining basic troubleshooting strategies to correct hardware and software problems

(Third-Fifth Grade – Content Standard 3)

3. **EXAMPLES** clarify certain components of content standards or bullets. They are illustrative but not exhaustive.

Students will:

Describe advances in technology and the effects of each on the workplace and society.

Examples: agriculture, manufacturing, medicine, warfare, transportation, communication, education

(Sixth-Eighth Grade – Content Standard 10)

Kindergarten – Second Grade

Technology Operations and Concepts

Students will:

1. Identify basic parts of various technology systems.
 - Naming input and output devices
Examples: input—keyboard, stylus
output—printer
2. Identify applications and operations of various technology systems.
Examples: applications—word processing, multimedia presentation software
operations—opening, closing, and saving files
 - Using accurate terminology related to technology

Third – Fifth Grade Overview

Students in Grades 3-5 begin to expand their horizons and exercise more independent thoughts and actions. Many opportunities to utilize technology should be provided for students to work

Sixth – Eighth Grade Overview

Students in Grades 6-8 possess a wide range of intellectual abilities, learning styles, talents, and interests. These students are experiencing a transitional period that includes physical, social, emotional, and intellectual changes. In addition, students are developing skills to function in a technological society.

The technology content standards for Grades 6-8 are designed to complement all areas of the academic curriculum. In a world where information increases exponentially, students are expected to develop and use critical-thinking and decision-making skills. Digital tools enhance middle school students' emerging abilities to analyze, synthesize, and evaluate information. The integration of technology systems expands and optimizes their ability to use information and to communicate and collaborate with diverse individuals. It is critical for students at these grade levels to expand the knowledge and skills necessary for solving both hypothetical and authentic problems.

In a global world community, students are expected to be responsible digital citizens who practice safe, legal, and responsible use of technology systems and digital media. Students must comprehend the impact of technology on the cultural, social, economic, environmental, and political aspects of society. Positive attitudes toward technology use are essential to support collaboration, learning, and productivity for success in e otwbors-8(f)6(o)-2(r success in-fiommuJ0.(v) .Dwr.0006)uhesiz3tivi

Sixth – Eighth Grade

10. Describe advances in technology and effects of each on the workplace and society.
Examples: agriculture, manufacturing, medicine, warfare, transportation, communication, education

Research and Information Fluency

11. Use digital tools and strategies to locate, collect, organize, evaluate, and synthesize information.
Examples: locating—Boolean searches, graphic organizers, spreadsheets, databases
collecting—probeware, graphing calculators
organizing—graphic organizers, spreadsheets
evaluating—reviewing publication dates, determining credibility
synthesizing—word processing software, concept-mapping software

Communication and Collaboration

12. Use digital tools to communicate and collaborate at all levels from interpersonal to global.
Examples: instant messages, e-mail, blogs, wikis, collaborative authoring tools, online learning communities
- Demonstrating digital file transfer
Examples: attaching, uploading, downloading

Critical Thinking, Problem Solving, and Decision Making

13. Use digital tools to formulate solutions to authentic problems.
Examples: electronic graphing tools, probes, spreadsheets

Creativity and Innovation

14. Use digital tools to generate new ideas, products, or processes.
Examples: ideas—predictions, trends
products—animation, video
processes—models, simulations

Ninth – Twelfth Grade Overview

Students in Grades 9-12 experience significant growth and development as they assume more complex responsibilities such as working and making career choices. They are continuing to develop unique personalities and are making important life decisions. High school students are strengthening and practicing leadership and interpersonal communication skills in the school and community that facilitate entrance into adulthood. They continue to experience physical and emotional changes as well as seek opportunities for realizing independence and individuality.

Grades 9-12 students have broadened their perspective regarding the importance of existing and developing technologies and have an understanding of the scope of technology in today's world. As students progress through the high school years, they are able to address a variety of problems on a variety of topics in a logical manner. Technology offers students an efficient means by which many types of problems may be solved.

Because of cultural and ideological diversity in a technologically-advanced global society, many students have opportunities to interact with others whose backgrounds are different from their own. As the use of technology brings humankind closer together, concepts and skills addressed in the Computer Applications course will assist students in developing skills necessary for becoming productive adults.

The Computer Applications course is designed to provide students with technology fluency appropriate for the twenty-first century. Fluency includes the knowledge of current technology systems as well as skills and attitudes necessary to adopt new technologies and systems as they emerge. Additional components of the course equip students with the ability to conduct research and solve problems; demonstrate creative thinking; develop innovative products; practice safe, ethical, and legal use of technology systems; and use technology and information to communicate and

Alabama High School Graduation Requirements

(Alabama Administrative Code 290-3-1-02(8)(a) (b) and (c))

1. COURSE REQUIREMENTS

The Alabama courses of study shall be followed in determining minimum required content in each discipline. Students seeking the Alabama High School Diploma with Advanced Academic Endorsement shall complete advanced level work in the core curriculum. Students receiving the Alabama High School Diploma with Credit-Based Endorsement shall complete the prescribed credits, including at least one Career and Technical Education course, for the Alabama High School Diploma and pass three of the five sections of the Alabama High School Graduation Exam, including the Mathematics section, Reading section, and one additional section.

COURSE REQUIREMENTS	Alabama High School Diploma <u>Credits</u>	Alabama High School Diploma with Advanced Academic Endorsement <u>Credits</u>	Alabama High School Diploma with Credit-Base Endorsement <u>Credits</u>
ENGLISH LANGUAGE ARTS	4	4	4
Four credits to include the equivalent of:			
English 9	1	1	1
English 10	1	1	1
English 11	1	1	1
English 12	1	1	1
MATHEMATICS	4	4	4

Four credits to include the equivalent of:

- Algebra I
- Geometry
- Algebra II with Trigonometry

Alabama High School Graduation Requirements (continued)

(Alabama Administrative Code 290-3-1-.02(8)(g)1.)

Course and assessment requirements specified below must be satisfied in order to earn the Alabama Occupational Diploma.

1. COURSE REQUIREMENTS

**Guidelines and Suggestions for
Local Time Requirements and Homework**

Total Instructional Time

The total instructional time of each school day in all schools and at all grade levels shall be not less than 6 hours or 360 minutes, exclusive of lunch periods, recess, or time used for changing classes (*Code of Alabama*, 1975, §16-1-1).

Suggested Time Allotments for Grades 1 - 6

The allocations below are based on considerations of a balanced educational program for Grades 1-6. Local school systems are encouraged to develop a general plan for scheduling that supports interdisciplinary instruction. Remedial and/or enrichment activities should be a part of the time schedule for the specific subject area.

<u>Subject Area</u>	<u>Grades 1-3</u>	<u>Grades 4-6</u>
Language Arts	150 minutes daily	120 minutes daily
Mathematics	60 minutes daily	60 minutes daily
Science	30 minutes daily	45 minutes daily
Social Studies	30 minutes daily	45 minutes daily
Physical Education	30 minutes daily*	30 minutes daily*
Health	60 minutes weekly	60 minutes weekly
Technology Education (Computer Applications)	60 minutes weekly	60 minutes weekly
Character Education	10 minutes daily**	10 minutes daily**
Arts Education		

peers and teachers, manipulation of concrete materials, and involvement in many other real-world experiences are needed to provide a balance in the kindergarten classroom.

Grades 7-12

One credit may be granted in Grades 9-12 for required or elective courses consisting of a minimum of 140 instructional hours or in which students demonstrate mastery of Alabama course of study content standards in one credit courses without specified instructional time. (*Alabama Administrative Code* r. 290-3-1-.02 (9)(a))

In those schools where Grades 7 and 8 are housed with other elementary grades, the school may choose the time requirements listed for Grades 4-6 or those listed for Grades 7-12.

Character Education

For all grades, not less than 10 minutes instruction per day shall focus upon the students' development of the following character traits: courage, patriotism, citizenship, honesty, fairness, respect for others, kindness, cooperation, self-respect, self-control, courtesy, compassion, tolerance, diligence, generosity, punctuality, cleanliness, cheerfulness, school pride, respect of the environment, patience, creativity, sportsmanship, loyalty, and perseverance.

Homework

Homework is an important component of every student's instructional program. Students, teachers, and parents should have a clear understanding of the objectives to be accomplished through homework and the role it plays in meeting curriculum requirements. Homework reflects practices that have been taught in the classroom and provides reinforcement and/or remediation for students. It should be student-managed, and the amount should be age-appropriate, encouraging learning through problem solving and practice.

At every grade level, homework should be meaning-centered and mirror classroom activities and experiences. Independent and collaborative pro8(, and perEr153 Tence2809 Tw 18.1.147fo5(m){patiencereativi)6(be mean)T

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