

## Program of Studies – Technology – Intermediate

Technology use in the 21<sup>st</sup> century has become a vital component of all aspects of life. For students in Kentucky to be contributing citizens, they must receive an education that incorporates technology literacy at all levels. Technology literacy is the ability of students to responsibly use appropriate technology to communicate, solve problems, and access, manage, integrate, evaluate, and create information to improve learning in all subject areas and to acquire lifelong knowledge and skills in the 21st century. The Technology Program of Studies provides a framework for integrating technology into all content areas. It reflects the basic skills required for each student to be competitive in the global economy.

For students to gain the technology competencies, it is essential that they have access to technology during the school day in all grade levels. Instruction should provide opportunities for students to gain and demonstrate technology skills that build primary through grade 12.

The technology content standards should be integrated into each curricular discipline. The purpose of integrating technology is to help students make useful connections between what they learn in each content area and the real world. Technology knowledge, concepts and skills should be interwoven into lessons or units and taught in partnership with other content areas. Technology lends itself to curriculum integration and team teaching. Technology can enhance learning for all students, and for some it is essential for access to learning.

The technology content standards are organized by grade spans: primary, intermediate, middle, and high. The technology program of studies at the intermediate level builds upon primary experiences. It continues to build competencies related to technology literacy. Students interpret critique and evaluate digital texts, synthesize information and solve problems. Students create and use technology for developing ideas and opinions, for communicating and collaborating with others and for personal fulfillment. These experiences enhance and extend students' technology skills.

The technology content standards at the intermediate grade span are directly aligned with Kentucky's **Academic Expectations**. Technology standards are organized around three Big Ideas that are important to the discipline of technology. The three Big Ideas in technology are: **1) Information, Communication and Productivity; 2) Safety and Ethical/Social Issues; and 3) Research, Inquiry/Problem-Solving and Innovation**. The Big Ideas are conceptual organizers for technology. Each grade level span ensures students have multiple opportunities throughout their school careers to develop skills and concepts linked to the Big Ideas.

Under each Big Idea are statements of *Enduring Knowledge/Understandings* that represent overarching generalizations linked to the Big Ideas of Technology. The understandings represent the desired results--what learning will focus upon and what knowledge students will be able to explain or apply. *Understandings* can be used to frame development of units of study and lesson plans.

*Skills and Concepts* describe ways that students demonstrate their learning and are specific to each grade level span. The skills and concepts for technology are fundamental to technology literacy, safe use and inquiry. The skills and concepts build on prior learning.

## **Big Idea: Information, Communication and Productivity**

Students demonstrate a sound understanding of the nature and operations of technology systems. Students use technology to learn, to communicate, increase productivity and become competent users of technology. Students manage and create effective oral, written and multimedia communication in a variety of forms and contexts.

### **Academic Expectations**

- 1.11** Students write using appropriate forms, conventions, and styles to communicate ideas and information to different audiences for different purposes.
- 1.16** Students use computers and other kinds of technology to collect, organize, and communicate information and ideas.
- 3.3** Students demonstrate the ability to be adaptable and flexible through appropriate tasks or projects.
- 6.1** Students connect knowledge and experiences from different subject areas.
- 6.3** Students expand their understanding of existing knowledge by making connections with new knowledge, skills, and experiences.

### **Intermediate Enduring Knowledge – Understandings**

*Students will understand that*

- appropriate terminology, computer operations and applications assist in gaining confidence in the use of technology.
- technology requires proper care and maintenance to be used effectively.
- a variety of media is used to support directed and independent learning.
- technology is used to communicate in a variety of ways including global communications.
- technology (e.g. keyboarding, word processing, spreadsheets, presentation) is used effectively and efficiently to accomplish a task.

### **Intermediate Skills and Concepts – Information**

*Students will*

- investigate different technology devices (e.g., CPU, monitor, keyboard, disk drive, printer, mouse)
- describe the uses of technology (e.g., computers, telephones, cell phones, digital and video cameras, Internet) at home, school and workplace
- use appropriate technology terms (e.g., hardware, software, CD, hard drive)
- explain the use of networks and the need for login procedures (e.g., stand alone, network, file server, LANs network resources)
- demonstrate proper keyboarding techniques, optimal posture and correct hand placement (e.g., home row finger placement) at the computer workstation

### **Intermediate Skills and Concepts – Communication**

*Students will*

- use technology to communicate in a variety of modes (e.g., audio, speech to text, print, media)
- participate in online group projects and learning activities using technology communications
- create a variety of tasks using technology devices and systems to support authentic learning
- use technology to collect data for content area assignments/projects
- use a variety of tools and formats (oral presentations, journals and multimedia presentations) to summarize and communicate the results of observations and investigations
- use online collaborative tools (e.g., email, videoconferencing)

### **Intermediate Skills and Concepts – Productivity**

*Students will*

- develop, publish and present information in print and digital formats
- use productivity tools to produce content area assignments/projects



## **Big Idea: Safety and Ethical/Social Issues**

Students understand safe, ethical and social issues related to technology. Students practice and engage in safe, responsible and ethical use of technology. Students develop positive attitudes toward technology use that supports lifelong learning, collaboration, personal pursuits and productivity.

### **Academic Expectations**

- 2.17** Students interact effectively and work cooperatively with the many ethnic and cultural groups of our nation and world.
- 3.6** Students demonstrate the ability to make decisions based on ethical values.
- 4.3** Students individually demonstrate consistent, responsive, and caring behavior.
- 4.4** Students demonstrate the ability to accept the rights and responsibilities for self and others.
- 4.5** Students demonstrate an understanding of, appreciation for, and sensitivity to a multi-cultural and world view.

### **Intermediate Enduring Knowledge – Understandings**

*Students will understand that*

- responsible and ethical use of technology is necessary to ensure safety.
- technology is used in collaborative and interactive projects to enhance learning.
- acceptable technology etiquette is essential to respectful social interactions and good citizenship.
- technology is used in jobs and careers to support the needs of the local and global community.
- assistive technology supports learning to ensure equitable access to a productive life.

### **Intermediate Skills and Concepts – Safety**

*Students will*

- explain the importance of safe Internet use (e.g., iSafe skills)
- apply safe behavior when using technology

### **Intermediate Skills and Concepts – Ethical Issues**

*Students will*

- investigate basic issues related to responsible use of technology and describe personal consequences of inappropriate use (e.g., plagiarism, intellectual property, copyright and the conditions of Acceptable Usage Policy)
- explore, investigate and practice the use of technology in an appropriate, safe and responsible manner
- use ethical behavior while using technology in personal and community contexts

### **Intermediate Skills and Concepts – Social Issues**

*Students will*

- use technology to collaborate and engage in interactive projects with others (e.g., local, national and global) and credit all participants for their contribution to the work
- use proper social etiquette with any technology (e.g., email, blogs, IM, telephone, help desk)
- investigate how assistive technologies supports learning
- explain how technology has had an influence on our world
- explain how technology supports career options and lifelong learning

## **Big Idea: Research, Inquiry/Problem-Solving and Innovation**

Students understand the role of technology in research and experimentation. Students engage technology in developing solutions for solving problems in the real world. Students will use technology for original creation and innovation.

### **Academic Expectations**

- 1.1** Students use reference tools such as dictionaries, almanacs, encyclopedias, and computer reference programs and research tools such as interviews and surveys to find the information they need to meet specific demands, explore interests, or solve specific problems.
- 2.3** Students identify and analyze systems and the ways their components work together or affect each other.
- 5.1** Students use critical thinking skills such as analyzing, prioritizing, categorizing, evaluating, and comparing to solve a variety of problems in real-life situations.
- 5.2** Students use creative thinking skills to develop or invent novel, constructive ideas or products.
- 5.4** Students use a decision-making process to make informed decisions among options.
- 5.5** Students use problem-solving processes to develop solutions to relatively complex problems.
- 6.1** Students connect knowledge and experiences from different subject areas.

### **Intermediate Enduring Knowledge – Understandings**

*Students will understand that*

- technology assists in gathering, organizing and evaluating information from a variety of sources to answer essential questions.
- technology supports critical thinking skills used in inquiry/problem solving to make informed decisions.
- technology is used to produce an innovative product or system.

### **Intermediate Skills and Concepts – Research**

*Students will*

- gather and use accurate information from a variety of electronic sources (e.g. teacher-selected web sites, CDROM, encyclopedias and automated card catalog, online virtual library; word processing, database, spreadsheet) in all content areas
- correctly cite sources
- evaluate the accuracy, relevance, appropriateness, comprehensiveness and bias of electronic information sources
- use technology tools to process data and report results
- use content-specific tools to enhance understanding of content (e.g., environmental probes, sensors, robotics, simulation software and measuring devices)

### **Intermediate Skills and Concepts – Inquiry/Problem-solving**

*Students will*

- determine which technology is useful and select the appropriate tool(s) (e.g., calculators, data collection probes, videos, educational software) to inquire/problem- solve in self-directed and extended learning
- use technology to solve problems using critical thinking and problem-solving strategies
- solve content-specific problems using a combinations of technologies

### **Intermediate Skills and Concepts – Innovation**

*Students will*

- use technology to organize and develop creative solutions, ideas or products
- use technology to express creativity both individually and collaboratively