

A photograph of two students, a boy and a girl, sitting at a table in a classroom or lab. They are focused on working with numerous small, cube-shaped components, likely micro:bit boards, which are scattered on the table. The boy is on the left, wearing a red hoodie, and the girl is on the right, wearing a dark hoodie with 'GRADE' visible. In the background, there is a computer monitor displaying a landscape image, a window with a view of a building, and a piece of equipment labeled 'LASER'. The entire image has a light blue overlay.

Grades 6-8

Kentucky Academic Standards for Technology

Middle School 6-8 KAS for Technology

Overview for Middle School 6-8 :

The technology standards at the middle school level expand upon the framework of necessary knowledge, skills, and competencies that equip students for a successful future. This goal requires the understanding of content that helps: empower learners, create responsible digital citizens, facilitate knowledge construction, design and innovate for learning, think computationally, communicate creatively and collaborate with a global mindset.

Application of the technology standards at the middle school level should focus on active learning and integrating the identified skills into other disciplines. These standards provide a clear progression of skills, and students develop a broad conceptual understanding of technology. All content teachers should provide opportunities for students to apply the skills and knowledge identified.

Concept: **Empowered Learner (EL)**

Competency: Students use technology to take an active role in their learning.

Standard:

EL1. Leverage technology to take an active role in choosing, achieving and demonstrating competency in their learning goals, informed by the learning sciences.

Learning Priority:

A. Articulate and set personal learning goals, develop strategies leveraging technology to achieve them and reflect on the learning process itself to improve learning outcomes.

Indicators for grades 6-8:

1. Set personal learning goals and select and manage digital tools that will best support individualized learning ex.: use collaborative documents to revise and reflect on the writing process .
2. Reflect on successes, areas of improvement, and make necessary revisions to improve the learning over time ex.: using digital writing portfolio and reflection log/journal .

Learning Priority:

B. Build networks and customize their learning environments in ways that support the learning process.

Indicators for grades 6-8:

1. Collaborate with a network of self-selected global partners ex.: students, teachers, professionals, and the global community to customize and support the individual learning process.



Learning Priority:

C. Use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.

Indicators for grades 6-8:

1. Seek feedback from an authentic audience and from features embedded in digital tools ex.: share documents with teachers and peers asking for feedback on writing .
2. Use feedback to analyze data and make learning adjustments based on the feedback.

Learning Priority:

D. Understanding the fundamental concepts of how to use technology technology operations .

Indicators for grades 6-8:

1. Understand the fundamental use of technology tools to consider how to use technology to promote creativity, communication, collaboration, and critical thinking.
2. Choose and troubleshoot technology tools to suit purpose.
3. Transfer the knowledge of existing technology to explore new technologies.

Standard:

EL2. Apply the fundamental concepts of technology operations and demonstrate the ability to choose, use, and/or troubleshoot current technologies.

Learning Priority:

A. Demonstrate learning with the use of technology.

Indicators for grades 6-8:

1. Evaluate the effectiveness of different digital tools to communicate information with multiple audiences.

Learning Priority:

B. Apply functions and concepts of technology operations; demonstrate the ability to choose, use and troubleshoot current technologies.

Indicators for grades 6-8:

1. Choose functions and operations appropriate to their task and purpose.

Learning Priority:

C. Transfer knowledge to emerging technology.

Indicators for grades 6-8:

1. Apply and adapt knowledge of existing technology to the modification-based use of new technologies.

Concept: **Digital Citizen (DC)**

Competency: Students manage their digital identity in a safe, positive, and proactive way.

Standard:

DC1. Recognize the rights, responsibilities and opportunities of living, learning and working in an interconnected digital world; act and model in ways that are safe, legal and ethical.

Learning Priority:

A. Cultivate and manage your digital identity and reputation, and be aware of the permanence of your actions in the digital world.

Indicators for grades 6-8:

1. Recognize behaviors, habits, and actions that create, maintain, and influence both positive and negative digital identities, reputations, and footprints in the digital world.
2. Build awareness of public and permanent nature of online actions and the possible present and future consequences in personal, academic, and professional lives.

Learning Priority:

B. Engage in positive, safe, legal and ethical behavior when using technology, including social interactions online or when using networked devices.

Indicators for grades 6-8:

1. Recognize and demonstrate responsible behaviors that are safe, ethical, and legal across a variety of devices, platforms, and settings while considering possible consequences for themselves and/or others.
2. Understand how to be respectful to others online while interacting, communicating, and collaborating and know strategies in order to avoid and/or combat cyberbullying.

Learning Priority:

C. Manage their personal data to maintain digital privacy and security and are aware of data-collection technology used to track their navigation online.

Indicators for grades 6-8:

1. Distinguish between information that is public and personal/private and develop and utilize strategies to secure and protect personal/private data and user accounts.
2. Understand that data-collection technology is used to track online navigation and recognize and avoid online scams and phishing.

Standard:

DC2. Demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property.

Learning Priority:

A. Use information, media and digital resources in a responsible manner.

Indicators for grades 6-8:

1. Demonstrate acceptable use of the internet, information, media and digital resources, including social media according to user agreements, policies, and laws.

Learning Priority:

B. Respect intellectual property rights.



Indicators for grades 6-8:

1. Recognize and respect different intellectual property classifications, including those that are copyrighted, subject to fair use, public domain properties, and/or have creative commons licenses.

Learning Priority:

C. Demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property.

Indicators for grades 6-8:

1. Recognize and seek permission to use the intellectual property of others appropriately.
2. Use and share the intellectual property of others with proper citation and attribution elements.

Concept: Knowledge Constructor (KC)

Competency: Students use various digital tools to find information and make meaning.

Standard:

KC1. Students critically curate a variety of resources using digital tools to construct knowledge.

Learning Priority:

A. Plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits.

Indicators for grades 6-8:

1. Demonstrate effective digital search techniques ex.: filtering searches using advanced settings/tools, keyword/term choices, or phases to locate information or other resources to gather specific information on a subject or research topic.
2. Practice research strategies that outline a process for locating information digitally ex.: tools and effective search techniques .

Learning Priority:

B. Evaluate the accuracy, perspective, credibility and relevance of information, media, data or other resources.

Indicators for grades 6-8:

1. Select a method, tool, or strategy to evaluate source s for credibility, relevance, authority, accuracy, and perspective.
2. Analyze digital information, media, data, and materials for credibility, relevance, authority, accuracy, and perspective.

Learning Priority:

C. Curate information from digital resources using a variety of tools and methods to create collections of artifacts that demonstrate meaningful connections or conclusions.

Indicators for grades 6-8:

1. Combine various tools ex.: spreadsheet, database, saved files and methods ex.: concept mapping, flow charting and outlining software to classify information, observations, or experiments digitally.
2. Compile information from digital resources ex.: search engines, online periodical databases, virtual library/online catalogs, interactive video conferencing .

Standard:

KC2. Produce creative artifacts and make meaningful learning experiences from curated knowledge for themselves and others.

Learning Priority:

A. Produce creative artifacts.

Indicators for grades 6-8:

1. Demonstrate the ability to create new ideas/concepts or products with digital tools.

Learning Priority:

B. Build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.

Indicators for grades 6-8:

1. Build knowledge by generating and testing solutions for exploring real world issues using a variety of technology ex.: data collection tools, models, videos, podcast, simulations, forms .

Concept: **Innovative Designer (ID)**

Competency: Students use a variety of technologies to design and create.

Standard:

ID1. Use a variety of technologies to identify and solve authentic real-world problems.

Learning Priority:

A. Find authentic real-world problems in local and global contexts.

Indicators for grades 6-8:

1. Collaborate with others in and out of the classroom using digital tools to identify real-world problems and propose a solution that affects the local and global community.

Learning Priority:

B. Exhibit a tolerance for ambiguity, perseverance and the capacity to work with open-ended problems.



Indicators for grades 6-8:

1. Demonstrate the ability to investigate and make sense of open-ended problems using digital tools and persevere in solving them.

Standard:

ID2. Use a variety of technologies within a design process to create new, useful and imaginative solutions.

Learning Priority:

A. Know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.

Indicators for grades 6-8:

1. Explore and choose appropriate processes and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.

Learning Priority:

B. Select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.

Indicators for grades 6-8:

1. Investigate and use meaningful digital tools to plan and manage a design process that considers design constraints and calculated risks.

Learning Priority:

C. Develop, test and refine prototypes as part of a cyclical design process.

Indicators for grades 6-8:

1. Create, develop and test prototypes; understand and appreciate that failures are opportunities for growth and improvement.

Concept: **Computational Thinker (CT)**

Competency: Students understand sequences and use them to develop solutions to problems.

Standard:

CT1. Develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.

Learning Priority:

A. Formulate problem definitions suited for technology-assisted methods such as data analysis, abstract models and algorithmic thinking in exploring and finding solutions.

Indicators for grades 6-8:

1. Ask questions, gather data, create/observe abstract models, and think of different processes while finding solutions to real-world problems.



Learning Priority:

B. Collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making.

Indicators for grades 6-8:

1. Solve problems and make decisions by collecting data or identifying relevant data sets, using digital tools ex.: sheets, surveys to analyze the data, and represent their findings through various ways.

Learning Priority:

C. Break problems into component parts, extract key information, and develop descriptive models to understand complex systems or facilitate problem-solving.

Indicators for grades 6-8:

1. Break problems into parts, extract key information, and develop descriptive models to understand complex systems or lead problem solving tasks.

Learning Priority:

D. Understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.

Indicators for grades 6-8:

1. Use digital tools to collect data, conduct analysis, and discuss findings or possible solutions.

Standard:

CT2. Apply strategies for understanding and solving problems by using technological methods to develop and test solutions.

Learning Priority:

A. Use resources to collect, analyze, and represent data.

Indicators for grades 6-8:

1. Use digital tools to ask questions to an audience and digitally collect data, and analyze the findings.

Learning Priority:

B. Deconstruct components to understand systems and facilitate problem-solving.

Indicators for grades 6-8:

1. Use technology-assisted methods to break problems down into smaller, more manageable parts by finding patterns or other methods of decomposition.

Learning Priority:

C. Create and test automated solutions.

Indicators for grades 6-8:

1. Use algorithm design to develop step-by-step instructions for solving a problem.



Concept: **Creative Communicator (CC)**

Competency: *Students communicate clearly and express themselves with a variety of digital tools.*

Standard:

CC1. Communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goals, audience and task.

Learning Priority:

A. Choose the appropriate platforms and tools for meeting the desired objectives of their creation or communication.

Indicators for grades 6-8:

1. Choose from available platforms and tools to meet the designated objectives of their creation or communication.

Learning Priority:

B. Create original works or responsibly repurpose and/or remix digital resources into new creations.

Indicators for grades 6-8:

1. Create original works, or repurpose/remix digital resources into new creations, while demonstrating an understanding of digital citizenship ex.: intellectual property rights or copyrights .

Learning Priority:

C. Communicate complex ideas clearly and effectively by creating or using a variety of digital objects such as visualizations, models or simulations.

Indicators for grades 6-8:

1. Create or incorporate digital content to communicate complex ideas clearly and effectively to a variety of audiences.

Standard:

CC2. Publish and present content customized for their audience s , purpose, and task.

Learning Priority:

A. Publish and present content that customizes the message and medium for their intended audiences.

Indicators for grades 6-8:

1. Publish or present original content to a predetermined audience that appropriately customizes the message and medium.



Concept: **Global Collaborator (GC)**

Competency: *Students use digital tools to connect with learners inside and outside of their classroom.*

Standard:

GC1. Use digital tools to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally.

Learning Priority:

A. Use digital tools to connect with learners from a variety of backgrounds and cultures, engaging with them in ways that broaden mutual understanding and learning.

Indicators for grades 6-8:

1. Use digital tools and resources to connect and collaborate with authentic audiences from various backgrounds and cultures to broaden mutual understanding and learning, while using appropriate digital citizenship skills.

Learning Priority:

B. Contribute constructively to project teams, assuming various roles and responsibilities to work effectively toward a common goal.

Indicators for grades 6-8:

1. Select and use digital tools in diverse collaborative teams within the classroom, assuming specific roles, responsibilities, and perspectives other than your own, to contribute effectively toward a common goal.

Learning Priority:

C. Contribute to the exchange of ideas within and beyond the learning community.

Indicators for grades 6-8:

1. Select and use digital tools in diverse collaborative teams outside the classroom, assuming specific roles, responsibilities, and perspectives other than their own, to contribute effectively toward a common goal.

Standard:

GC2. Use digital tools to connect with a global network of learners and engage with issues that impact local and global communities.

Learning Priority:

A. Use collaborative technologies to work with others, including peers, experts or community members, to examine issues and problems from multiple viewpoints.

Indicators for grades 6-8:

1. Use collaborative technologies to connect with others - including peers, experts, and community members - to learn about issues and problems or to gain diverse local and global perspectives.

Learning Priority:

B. Explore local and global issues and use collaborative technologies to work with others to investigate solutions.



Indicators for grades 6-8:

1. Use collaborative technologies and assume roles within digital creations while maintaining digital citizenship within the team digital workspace to investigate and develop solutions to local and global issues.





Grades 9-12

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