Grades 9-12

Kentucky Academic Standards for Technology

High School 9-12 KAS for Technology

Overview for High School 9-12 :

The technology standards at the high school level serve as a culmination of the 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 high 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 9-12:
1. Set and articulate personal learning goals and develop strategies leveraging digital tools to achieve those goals.
2. Reflect on successes, areas of improvement, and make necessary revisions to improve the learning over time and adjust for future learning.

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

Indicators for grades 9-12:
1. Initiate collaboration with a network of global partners ex.: students, teachers, professionals, or the global community to support and enhance the 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 9-12:
1. Seek feedback independently through the use of technology ex.: use video chat to share and reflect upon a learning process or product .
2. Use feedback to effectively demonstrate learning in a variety of ways.

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

Indicators for grades 9-12:
1. Understand the fundamental use of technology tools to embrace creativity, communication, collaboration, and critical thinking.
2. Choose and effectively troubleshoot technology tools to suit purpose.
3. Transfer and extend 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 9-12:
1. Select appropriate digital resources to develop, implement and/or evaluate communication with an authentic audience.

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

Indicators for grades 9-12:
1. Choose efficient functions and concepts appropriate to their task and purpose.
2. Apply an understanding of devices to troubleshoot current technology and adjust for future events.

Learning Priority:
C. Transfer knowledge to emerging technology.

Indicators for grades 9-12:
1. Apply and adapt knowledge of existing technology to the innovative redefinition-based use of new technologies.

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 9-12:
1. Actively develop and maintain a positive, authentic digital identity and presence.
2. Comprehend the permanence of actions in the digital world and their potential visibility to future employers, colleagues and social relations.

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 9-12:
1. Make responsible decisions based on ethical standards, positive social behavior and the safety of oneself and others when interacting and collaborating in a digital world.
2. Understand the mental and legal ramifications of cyber bullying and harassment; employ strategies to avoid and/or combat cyberbullying and harassment.

Learning Priority:
C. Manage personal data to maintain digital privacy and/or security, and be aware of data-collection technology used to track your navigation online.

Indicators for grades 9-12:
1. Think critically about the information shared in an online environment in order to keep sensitive personal information safe and secure.
2. Comprehend the presence and ramifications of online data collection and how it is used to track online navigation and influence consumer decisions.

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 9-12:
1. Understand the need for, and comply with, acceptable user policies and agreements.
2. Make responsible decisions in the use of information, media, social media and other digital resources in accordance with acceptable user policies and agreements.

Learning Priority:
B. Respect intellectual property rights.

Indicators for grades 9-12:
1. Respect the importance of intellectual property in encouraging thought, design, innovation and/or creation.
2. Use, share and/or interact with intellectual property in accordance with the rights given by the owner of the intellectual property.

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

Indicators for grades 9-12:
1. Apply understanding of "fair use" and copyright laws when sharing the intellectual property of others, as well as, when producing new intellectual property.
2. Seek permission and properly cite the usage of the intellectual property of others.

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 9-12:
1. Utilize a variety of digital resources effectively and safely by applying a variety of search strategies ex.: filtering searches, advanced settings/tools, file types, database/source selection .
2. Plan and use multiple research strategies to locate information from digital resources for a variety of purposes.

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

Indicators for grades 9-12:
1. Evaluate digital sources for accuracy of information; compare and consider the perspectives of the sources; determine usefulness, and assess the credibility of the sources.

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 9-12:
1. Use multiple digital tools to select, organize, and communicate information from digital sources.
2. Utilize digital tools to communicate information in real world applications, to address or solve a problem, or to make meaningful connections.

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 9-12:
1. Choose and use digital tools to create products that exhibit choice and creativity.
2. Create products independently and collaboratively that incorporate creative elements, and communicate to multiple audiences.

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 9-12:
1. Select and use digital tools to create products that demonstrate meaningful connections or conclusions.
2. Create products independently and collaboratively that explore real-world issues and problems and engage in discussion around current issues.

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 9-12:
1. Use a variety of technologies to independently identify real-world problems in 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 9-12:

1. Use a variety of technologies to independently demonstrate perseverance when dealing with ambiguous and open-ended problems.

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 9-12:

1. Self-select and use a variety of digital tools within a deliberate process for generating ideas, researching, and testing ideas for solving problems or creating original products that demonstrate understanding.

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 9-12:

1. Self-select and use appropriate digital tools to manage work and create original products that take into consideration project constraints, obstacles and outcomes.

Learning Priority:

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

Indicators for grades 9-12:

1. Select and use a variety of digital tools to aid in working collaboratively or independently to create, test and refine prototypes, drafts and concepts based on self-initiated feedback and reflection in design cycles.

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 9-12:

1. Precisely define a problem and develop a solution using digital tools, conducting data analysis, abstract models, and algorithmic thinking.

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 9-12:
1. Use digital tool s to effectively collect, organize, and manipulate data to test, verify, and present possible solutions to a problem.

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 9-12:
1. Evaluate the problem-solving process to deconstruct data and information to develop effective solutions to real-world problems.

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 9-12:
1. Demonstrate their understanding of automation and logic to develop a process to create and verify automated 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 9-12:
1. Use digital tools to collect relevant data, conduct analysis, and prepare data for presentation to facilitate problem-solving and decision-making.

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

Indicators for grades 9-12:
1. Use technology-assisted methods to more easily identify key information by breaking down data to facilitate problem-solving.

Learning Priority:
C. Create and test automated solutions.

Indicators for grades 9-12:
1. Use digital tools and algorithmic thinking to develop automated systems to test solutions.

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 9-12:
1. Evaluate and determine appropriate platforms and digital tools to create or share digital content with an authentic audience for a desired purpose.

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

Indicators for grades 9-12:
1. Create work for an authentic audience and desired purpose that reflects a responsible repurposing of digital media or resources.

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 9-12:
1. Analyze and communicate complex ideas, data, or solutions to an authentic audience for a desired purpose using digital tools.

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 9-12:
1. Present an idea or creative work that expresses ideas or content that is published for a range of authentic audiences outside of the classroom.

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 9-12:
1. Evaluate and use digital collaboration tools to connect with others from a variety of local and global backgrounds/cultures in order to exchange ideas, develop an understanding of diverse perspectives and encourage learning.

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

Indicators for grades 9-12:
1. Use digital tools to contribute to a project team, determine their role and responsibility within the group and work toward a common goal or a solution to a problem.

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

Indicators for grades 9-12:
1. Select digital tools to share and exchange interests, ideas and experiences with others from within and beyond the local learning community.

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.

Indicator s for grades 9-12:
1. Use collaborative technologies to work with others peers, experts, community members to gain knowledge about issues through various perspectives and opinions and to find solutions for social change.

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

Indicators for grades 9-12:
1. Explore and analyze local and global issues and use collaborative digital tools to

investigate, develop a plan and recommend solutions.

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