

**High School - ISTE (International Society for Technology in Edu)
HS ISTE- Technology in the Classroom (2018-19) (170 - 180 Days)
Aug - May**

Last Updated: 6/5/2018

Overview

What transformative learning is possible in a digital world?

The ISTE Standards for students emphasize the skills and qualities we want for our students, enabling them to engage and thrive in a connected, digital world.

Students are inspired to amplify learning with technology and are challenged to be agents of their own learning.

Preparing our students for an unknown future, technology is a critical tool to bringing the 2020 vision to life in our classrooms.

Standards:

- Standard 1: Empowered Learner
 - GLE 1: Students leverage technology to take an active role in choosing, achieving and demonstrating competency in their learning goals, informed by the learning sciences.
 - EO 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.
 - EO b: Students build networks and customize their learning environments in ways that support the learning process.
 - EO c: Students use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.
 - EO d: Students understand the fundamental concepts of technology operations, demonstrate the ability to choose, use and troubleshoot current technologies and are able to transfer their knowledge to explore emerging technologies.
- Standard 2: Digital Citizen
 - GLE 1: Students recognize the rights, responsibilities and opportunities of living, learning and working in an interconnected digital world, and they act and model in ways that are safe, legal and ethical.
 - EO a: Students cultivate and manage their digital identity and reputation and are aware of the permanence of their actions in the digital world.
 - EO b: Students engage in positive, safe, legal and ethical behavior when using technology, including social interactions online or when using networked devices.
 - EO c: Students demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property.
 - EO d: Students manage their personal data to maintain digital privacy and security and are aware of data-collection technology used to track their navigation online.
- Standard 3: Knowledge Constructor
 - GLE 1: Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.
 - EO a: Students plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits.
 - EO b: Students evaluate the accuracy, perspective, credibility and relevance of information, media, data or other resources.
 - EO c: Students curate information from digital resources using a variety of tools and methods to create collections of artifacts that demonstrate meaningful connections or conclusions.
 - EO d: Students build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.
- Standard 4: Innovative Designer
 - GLE 1: Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.
 - EO a: Students know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.
 - EO b: Students select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.
 - EO c: Students develop, test and refine prototypes as part of a cyclical design process.
 - EO d: Students exhibit a tolerance for ambiguity, perseverance and the capacity to work with open-ended problems.
- Standard 5: Computational Thinker
 - GLE 1: Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.
 - EO a: Students formulate problem definitions suited for technology-assisted methods such as data analysis, abstract models and algorithmic thinking in exploring and finding solutions.
 - EO b: Students 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.
 - EO c: Students break problems into component parts, extract key information, and develop descriptive models to understand complex systems or facilitate problem-solving.
 - EO d: Students understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.
- Standard 6: Creative Communicator
 - GLE 1: Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goals.
 - EO a: Students choose the appropriate platforms and tools for meeting the desired objectives of their creation or communication.
 - EO b: Students create original works or responsibly repurpose or remix digital resources into new creations.
 - EO c: Students communicate complex ideas clearly and effectively by creating or using a variety of digital objects such as visualizations, models or simulations.
 - EO d: Students publish or present content that customizes the message and medium for their intended audiences.
- Standard 7: Global Collaborator
 - GLE 1: Students use digital tools to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally.
 - EO a: Students 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.
 - EO b: Students use collaborative technologies to work with others, including peers, experts or community members, to examine issues and problems from multiple viewpoints.
 - EO c: Students contribute constructively to project teams, assuming various roles and responsibilities to work effectively toward a common goal.
 - EO d: Students explore local and global issues and use collaborative technologies to work with others to investigate solutions.

District Unit of Study Updates:

Date	Comments
5/15/2017 12:59:50 AM	This Unit of Study has been updated to reflect the changes to the 2016 ISTE Student Standards. Revisions were made to: Grade Level Expectations Overarching Understandings Overarching Essential Questions Big Ideas Organizing Concepts Essential Questions KUD's Resources
6/9/2017 7:14:12 PM	Added Unit Overview

Desired Results

Big Ideas:

- Empowered Learner, Digital Citizen, Knowledge Constructor, Innovative Designer, Computational Thinker, Creative Communicator, Global Collaborator,

Overarching Understandings:

- Learners are empowered to build collections of tools and resources which help them learn.
- Citizens participate productively in physical and digital societies.
- Research demands curating information in order to come to meaningful conclusions.
- Innovative thinking develops solutions around changing needs.
- The art of blending human ideas and digital tools gives us the power to solve real-world problems.
- Complex ideas can be shared through creative design and clear communication.
- Collaboration expands thinking by enabling us to consider diverse perspectives.

Overarching Essential Questions:

- How do people harness the power of technology to take ownership of their learning?
- What are the rights and responsibilities of being a digital citizen?
- How do I actively pursue constructing knowledge versus passively ingesting information?
- How does the design process support problem-solving?
- How can we solve human problems with computer enabled solutions?
- How can I impact the ways in which a message is received by the audience?
- How might technology connect me to people to broaden my perspective?

Empowered Learner

Students will understand that...

- Technology resources vary based on the desired learning outcomes. (1a)
- Improvement is best achieved through constant reflection and revision of learning goals.(1a)
- Learners customize resources based on what works best for them. (1b)
- Life-long learners seek out opinions and data to improve performance. (1c)
- There are a wide variety of digital tools available and it is critical to choose the right tool for the task.(1d)
- Existing knowledge supports the learning of new technologies.(1d)
- Troubleshooting includes problem solving and collaboration.(1d)

Students will know...

- Measurable goal setting strategies (1a)
- Strategies to choose appropriate tools to support goal setting, progress monitoring, and feedback (eg practice apps, videos to learn from others, commenting features, graphs/charts,calendars) (1a)
- Metacognitive strategies (1a)
- Individualized methods for customizing district approved tools. (1b)
- Resources to connect with life-long learners (1b)
- Methods to seek appropriate feedback mechanisms (responses, reactions, comments, criticism, trends in data) (1c)
- Strategies for analyzing and synthesizing performance feedback (1c)
- Ideal pathways to adjust course based on feedback (1c)
- Transferable operations across multiple tools and devices (1d)
- Strategies to troubleshoot systems and applications (1d)
- Vocabulary: Personalized Learning Network (1b)

Essential Questions

- How do people utilize technology to take ownership of their learning? (1a)
- How do professionals curate and organize networks of resources for their benefit? (1b)
- Why should I value constructive criticism? (1c)
- What do you already know about technology that will help you explore new tools? (1d)

Students will be able to...

- 1a. Articulate and set personal learning goals, develop strategies leveraging technology to achieve them and reflect on the learning process itself to improve learning outcomes.
- 1b. Build networks and customize their learning environments in ways that support the learning process.
- 1c. Use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.
- 1d. Understand the fundamental concepts of technology operations, demonstrate the ability to choose, use and troubleshoot current technologies and are able to transfer their knowledge to explore emerging technologies.

Digital Citizen

Students will understand that...

- Technology requires safe and responsible behavior and use. (2a, 2b)
- Digital identity and reputation is lasting. (2a)
- Digital identities require ongoing management.(2a)
- There are real-world consequences for poor online behavior. (2b)
- Credible and ethical researchers give credit to their sources. (2c)
- Login credentials help protect privacy.(2d)
- Data can be collected regardless of personal awareness. (2d)

Students will know...

- Jeffco's Acceptable Use Policy- JS (2a, 2b)
- Acceptable and unacceptable uses of technology at home and school (2a, 2b)
- Strategies to maintain and monitor their digital footprint (2a)
- Legal ramifications of unethical & illegal online activities (2b)
- Legal restrictions for some online tools (18+ age restrictions) (2b)
- Strategies to prevent plagiarism, including quotations and paraphrasing (2c)
- Copyright laws and fair use policies (2c)
- Proper citation formats and tools for text, images, and ideas (2c)
- Means of data collection (e.g. HTTPS, encryption, cookies, viruses) (2d)
- Strategies for creating and updating strong passwords (2d)
- Vocabulary: cyber bullying, trolling (2b), Works Cited, cite, source, plagiarism, attribution element (2c)

Essential Questions

- How might my online actions now affect my future? (2a)
- What is my personal and social responsibility as a digital citizen?(2a, 2b)
- How will I give credit to my sources in order to demonstrate ethical use of information? (2c)
- How do I know I'm using information in an ethical manner? (2c)
- What is my responsibility for keeping my personal information safe and secure? (2d)

Students will be able to...

- 2a. cultivate and manage their digital identity and reputation and are aware of the permanence of their actions in the digital world.
- 2b. engage in positive, safe, legal and ethical behavior when using technology, including social interactions online or when using networked devices.
- 2c. demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property.
- 2d. manage their personal data to maintain digital privacy and security and are aware of data-collection technology used to track their navigation online.

Knowledge Constructor

Students will understand that...

- The research process is fluid and needs to be adjusted based on strengths, struggles, and new information gathered.(3a)
- Research requires an organizational framework. (3a)
- Researchers consider the source, type, and quality of a piece of evidence when making decisions about its use and relevance.(3b)
- Researchers draw on their curated resources to make meaningful connections and reach defensible conclusions. (3c)
- Pre-searching is crucial to developing new ideas and theories. (3d)

Students will know...

- Application of a variety of appropriate digital tools for research, organization, and/or sharing ideas (3a-d)
- Design, application, and assessment of diverse research strategies (3a)
- Qualities of an authentic research question or hypothesis(3a, 3d)
- A variety of digital informational sources and evidence (primary/secondary sources, expert testimony, anecdotes, statistics, facts, expert analysis) (3a, 3c)
- Strategies to critique and/or defend resources based on evaluation criteria (3b)
- Strategies for the collection and presentation of curated information (3c)
- Synthesizing meaningful conclusions from curated evidence (3c)
- Strategies to improve upon current solutions (3d)
- Vocabulary: databases, Boolean search functionality, Google Scholar (3a) bias, authority, relevance, accuracy, peer review (3b)

Essential Questions

- How can my questions evolve as I undergo the research process?(3a)
- What role do I play in collecting and sharing factual information? (3b)
- What is my role as a researcher in making sense of information and creating new understandings? (3c)
- How can I investigate issues in order to have an impact on the world? (3d)

Students will be able to...

- 3a. plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits.
- 3b. evaluate the accuracy, perspective, credibility and relevance of information, media, data or other resources.
- 3c. curate information from digital resources using a variety of tools and methods to create collections of artifacts that demonstrate meaningful connections or conclusions.
- 3d. build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.

Innovative Designer

Students will understand that...

- Real-world problems require a thoughtful process to develop innovative solutions (4a)
- Choosing the right digital tool depends on the function and possible outcome. (4b)
- Analysis and revision of prototypes can identify possible modifications and improve outcomes. (4c)
- Designing solutions to complex problems requires hard work and perseverance. (4d)

Students will know...

- Authentic design processes (4a)
- Reasoning skills and logic to develop solutions (4a)
- A variety of tools for enhancing creativity and innovation (4b)
- Design revision strategies (4c)
- Effective strategies for maintaining personal and group focus and endurance while working (4d)
- Vocabulary: risks, constraints (4b) prototype (4c)

Essential Questions

- How can I contribute new ideas toward solving real-world problems? (4a)
- Taking into consideration the task or desired outcome, have I/we chosen the best technology resource or tool to achieve our goal? (4b)
- What's the next iteration of my prototype? (4c)
- What is the value in pursuing solutions to messy, complex, ambiguous issues? (4d)

Students will be able to...

- 4a. Know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.
- 4b. Select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.
- 4c. Develop, test and refine prototypes as part of a cyclical design process.
- 4d. Exhibit a tolerance for ambiguity, perseverance and the capacity to work with open-ended problems.

Computational Thinker

Students will understand that...

- Computers can help solve human problems. (5a)
- Multiple patterns can be found from the same data set. (5b)
- Problem solvers use models to translate real world situations into representations that can be used to find/defend solutions. (5c)
- Algorithms/programs are tested to improve solutions. (5d)

Students will know...

- A variety of tools (5a-d)
- Strategies to solve problems with computer enabled solutions (5a)
- Strategies to compile appropriate data (self-collected or retrieved) (5b)
- Varying data representation methods (5b)
- Methods to describe and/or support claims, explanations, conclusions, or solutions (5b)
- Methods for modeling (5c)
- Strategies to predict and test algorithmic outcomes (5d)
- Programming skills to design and develop solution-based applications (5d)

Essential Questions

- How have tools changed the way we solve problems? (5a)
- How does data inform decisions? (5b)
- How might my process be applied to similar problems? (5c)
- What are the effects on people and society from computing innovations? (5d)

Students will be able to...

- 5a. formulate problem definitions suited for technology-assisted methods such as data analysis, abstract models and algorithmic thinking in exploring and finding solutions.
- 5b. 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.
- 5c. break problems into component parts, extract key information, and develop descriptive models to understand complex systems or facilitate problem-solving.
- 5d. understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.

Creative Communicator

Students will understand that...

- Tools can be purposefully selected to help create and communicate with others and reach desired outcomes. (6a)
- Creative expression helps to provide voice for thoughts that might otherwise be silent. (6b)
- Considering and transforming others' ideas can lead to an innovative and creative product. (6b)
- Models and simulations vary in their representation of real life. (6c)
- Intentional visual literacy decisions can impact the ways in which a message is received by the audience. (6c,d)
- Communication requires deliberate considerations of the intended audience. (6d)

Students will know...

- A variety of tools for enhancing creativity and expression (6a)
- Responsible methods for combining and altering pre-existing digital content (6b)
- Strategies for representing ideas/meaning in multiple formats (6c)
- Methods for designing models and/or simulations (6c)
- Strategies to match media and tools to audience and purpose (6d)
- Vocabulary: visual literacy (6c)

Essential Questions

- How do the tools I select support my goals for each project? (6a)
- How do the ideas of others enhance my ability to create quality ideas, products and processes? (6b)
- How does my project demonstrate innovative thinking? (6b)
- How do complex ideas get conveyed clearly and effectively? (6c)
- How does an intended audience shape my communication? (6d)

Students will be able to...

- 6a. choose the appropriate platforms and tools for meeting the desired objectives of their creation or communication.
- 6b. create original works or responsibly repurpose or remix digital resources into new creations.
- 6c. communicate complex ideas clearly and effectively by creating or using a variety of digital objects such as visualizations, models or simulations.
- 6d. publish or present content that customizes the message and medium for their intended audiences.

Global Collaborator

Students will understand that...

- Honoring a variety of ideas and cultural perspectives has value. (7a)
- Collaborating with people with different beliefs and expertise deepens the understanding of issues. (7b)
- Working collaboratively allows for greater problem solving. (7c)
- Contributions to local and global issues impact the lives of others. (7d)

Students will know...

- Strategies for selecting appropriate digital tools which connect to global audiences (7a)
- Strategies to positively engage in with diverse perspectives (7a)
- Strategies to cultivate diverse online learning networks (7b)
- Various group member roles and responsibilities (7c)
- Strategies for working collaboratively (7c)
- Strategies for identifying local and global issues (7d)
- Strategies to create authentic questions for investigating possible solutions (7d)

Essential Questions

- How might technology broaden my interactions and perspectives? (7a)
- Why do other viewpoints matter? (7b)
- How does our project reflect collaboration? (7c)
- What is my role as an advocate for global issues? (7d)

Students will be able to...

- 7a. 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.
- 7b. use collaborative technologies to work with others, including peers, experts or community members, to examine issues and problems from multiple viewpoints.
- 7c. contribute constructively to project teams, assuming various roles and responsibilities to work effectively toward a common goal.
- 7d. explore local and global issues and use collaborative technologies to work with others to investigate solutions.