TECHNOLOGY INTEGRATION STANDARDS SECOND REVISED DRAFT 2.12.2020

This revised draft reflects the consensus decisions of the Computer Science, Library Media/Information Literacy, and Technology Integration Negotiated Rulemaking Committee, held on February 12, 2020.

Please visit the OPI K-12 Content Standards and Revision webpage for meeting agenda, minutes, video recording, and other meeting materials.

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2   1. The content areas covered by the technology integration standards include skills for:
3   a. empowered learners
4   b. digital citizens
5   c. knowledge constructors
6   d. innovative designers
7   e. computational thinkers
8   f. creative communicators
9   g. global collaborators
10   h. reflective users

1   TECHNOLOGY INTEGRATION CONTENT STANDARDS FOR KINDERGARTEN

2   1. The empowered learner content standards for kindergarten are that each student will:
3   a. identify a variety of technologies that will help in learning
4   2. The digital citizen content standards for kindergarten are that each student will:
5   a. practice appropriate use of devices
6   b. share information and respect the work of others
7   c. recognize the importance of keeping personal information private
8   3. The innovative designer content standards for kindergarten are that each student will:
9   a. use a design process with digital and non-digital tools
10 4. The computational thinker content standards for kindergarten are that each student will:
11   a. identify how technology is used to make a task easier

1   TECHNOLOGY INTEGRATION CONTENT STANDARDS FOR FIRST GRADE

2   1. The empowered learner content standards for first grade are that each student will:
3   a. identify a variety of technologies that will help in learning
4   2. The digital citizen content standards for first grade are that each student will:
5   a. practice responsible use of technology
6   b. practice appropriate use of devices
7   c. share information and respect the work of others
8   d. recognize the importance of keeping personal information private and how to be
9   safe online
10   3. The innovative designer content standards for first grade are that each student will:
11   a. use a design process to develop ideas or creations
12   b. use digital and non-digital tools to design a product
13   4. The computational thinker content standards for first grade are that each student will:
14   a. break down a problem into parts and identify ways to solve the problem

1. TECHNOLOGY INTEGRATION CONTENT STANDARDS FOR SECOND GRADE
2. 1. The empowered learner content standards for second grade are that each student will:
3.   a. use a variety of technologies that will help in learning
4. 2. The digital citizen content standards for second grade are that each student will:
5.   a. practice responsible use of technology
6.   b. practice appropriate use of devices
7.   c. recognize ownership of information
8.   d. explain the importance of keeping personal information private and how to be
9.   safe online
10. 3. The knowledge constructor content standards for second grade are that each student
11.   will:
12.   a. use a tool to organize information
13. 4. The innovative designer technology content standards for second grade are that each
14.   student will:
15.   a. use a design process to develop ideas or creations
16.   b. use digital and non-digital tools to design a product
17. 5. The computational thinker content standards for second grade are that each student will:
18.   a. break down a problem into parts and identify ways to solve the problem
19.   b. explain how technology can make a task easier
20. 6. The creative communicator content standards for second grade are that each student
21.   will:
22.   a. use tools to create something that communicates an idea to others

1 TECHNOLOGY INTEGRATION CONTENT STANDARDS FOR THIRD GRADE

2 1. The empowered learner content standards for third grade are that each student will:
3   a. use appropriate tools to set and support a personal learning goal
4   b. recognize how skills can be transferred between tools
5 2. The digital citizen content standards for third grade are that each student will:
6   a. practice responsible use of technology
7   b. demonstrate appropriate use of devices
8   c. practice how to be safe online
9   d. identify ownership of information and acknowledge the work of others
10   e. recognize the importance of keeping personal information private
11 3. The knowledge constructor content standards for third grade are that each student will:
12   a. identify digital tools and resources to find information on topics of interest
13   b. explore the accuracy, credibility, and relevance of sources
14   c. use a variety of tools to organize information
15 4. The innovative designer content standards for third grade are that each student will:
16   a. define questions, find solutions, test ideas to solve problems and share learning
17   b. use digital and non-digital tools to design a product with a step-by-step design
18   process
19 5. The computational thinker content standards for third grade are that each student will:
20   a. define a problem and select appropriate technology tools to explore and find
21   solutions
22   b. identify patterns and categories in a data set
23   c. break down problems into smaller parts, identify key information, and propose
24   solutions
25   d. evaluate how technology is used to make a task easier or repeatable
26 6. The creative communicator content standards for third grade are that each student will:
27   a. use strategies for remixing or repurposing resources to create new works
28   b. create digital objects to communicate ideas visually and graphically
29 7. The global collaborator content standards for third grade are that each student will:
30   a. practice working with others using collaborative technologies
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TECHNOLOGY INTEGRATION CONTENT STANDARDS FOR FOURTH GRADE

1. The empowered learner content standards for fourth grade are that each student will:
   a. develop learning goals and choose the appropriate technology tools to achieve them
   b. explore technologies and transfer learned skills to different tools or learning environments
2. The digital citizen content standards for fourth grade are that each student will:
   a. recognize the role an online identity plays in the digital world and in real life
   b. practice safe, legal and ethical behavior when using technology and interacting online
   c. identify ownership of intellectual property and acknowledge the work of others
   d. identify what personal data is, the importance of keeping it private, and how it might be shared online
3. The knowledge constructor content standards for fourth grade are that each student will:
   a. use research techniques to locate digital resources
   b. explore the accuracy, perspective, cultural sensitivity, credibility, and relevance of sources
   c. use a variety of strategies to organize information and make meaningful connections between resources
4. The innovative designer technology content standards for fourth grade are that each student will:
   a. practice using digital and non-digital tools to plan and manage a design process
   b. use a design process to solve a problem
5. The computational thinker content standards for fourth grade are that each student will:
   a. solve problems by selecting technology, analyzing data, and creating models
   b. break down problems into smaller parts, identify key information, and propose solutions
6. The creative communicator content standards for fourth grade are that each student will:
   a. identify the features and functions of a variety of creation or communication tools
   b. create original works by practicing strategies for remixing or repurposing
   c. create digital objects to communicate ideas visually and graphically
7. The global collaborator content standards for fourth grade are that each student will:
   a. use collaborative technologies to connect with people from different backgrounds or cultures, including peers, experts and community members, to explore different points of view on various topics

TECHNOLOGY INTEGRATION CONTENT STANDARDS FOR FIFTH GRADE

1. The empowered learner content standards for fifth grade are that each student will:
    a. develop learning goals, select the technology tools to achieve them, and reflect on and revise the learning process as needed to achieve goals
    b. transfer learned skills to different tools or learning environments
2. The digital citizen content standards for fifth grade are that each student will:
    a. demonstrate an understanding of the role an online identity plays in the digital world and the permanence of decisions when interacting online
    b. engage in safe, legal and ethical behavior when using technology and interacting online
    c. demonstrate respect for intellectual property when using and sharing the work of others
    d. explain what personal data is, how to keep it private, and how it might be shared online
3. The knowledge constructor content standards for fifth grade are that each student will:
    a. employ appropriate research techniques to locate digital resources
    b. evaluate the accuracy, perspective, cultural sensitivity, credibility, and relevance of sources
    c. organize information and make meaningful connections between resources
4. The innovative designer technology content standards for fifth grade are that each student will:
    a. use digital and non-digital tools to plan and manage a design process
    b. use a design process to develop and test prototypes
5. The computational thinker content standards for fifth grade are that each student will:
    a. explore or solve problems by selecting technology for data analysis, modeling and algorithmic thinking
    b. break down problems into smaller parts, identify key information, and propose solutions
    c. identify basic concepts related to automation, patterns, and algorithmic thinking
6. The creative communicator content standards for fifth grade are that each student will:
    a. identify and use the features of a variety of creation or communication tools
    b. use a variety of strategies for remixing or repurposing to create new works
    c. create digital objects to communicate ideas visually and graphically
7. The global collaborator content standards for fifth grade are that each student will:
    a. use appropriate digital tools to work with people from a variety of different backgrounds or cultures
    b. perform a variety of roles within a team using age-appropriate technology to complete a project or solve a problem

TECHNOLOGY INTEGRATION CONTENT STANDARDS FOR SIXTH - EIGHTH GRADES

1. The empowered learner content standards for sixth-eighth grades are that each student will:
   a. define personal learning goals, select and manage appropriate technologies to achieve them, and reflect on successes and areas of improvement in working toward those goals
   b. navigate a variety of technologies and transfer personal knowledge and skills to learn how to use new technologies
2. The digital citizen content standards for sixth-eighth grades are that each student will:
   a. manage digital identities and demonstrate an understanding of how the digital footprint is permanent and can impact reputation
   b. demonstrate positive, safe, legal and ethical habits when using technology and when interacting with others online
   c. demonstrate and model the appropriate use of intellectual property of print and digital media, including copyright, permission and fair use, by creating a variety of media products that include appropriate citation and attribution elements
   d. demonstrate how to keep personal data secure and understand how data-collection technologies work
3. The knowledge constructor content standards for sixth-eighth grades are that each student will:
   a. use research strategies effectively to locate appropriate digital resources in support of learning
   b. evaluate the accuracy, perspective, cultural sensitivity, credibility and relevance of resources
   c. define and consider potential biases in resources
   d. locate and collect resources from a variety of sources and organize into collections for a range of projects and purposes
4. The innovative designer technology content standards for sixth-eighth grades are that each student will:
   a. select and use digital tools to support design processes, identify constraints and trade-offs, and weigh risks
   b. engage in a design process to develop, test and revise prototypes or create innovative products
   c. use the process of trial and error and understand problems or setbacks as potential opportunities for improvement
5. The computational thinker content standards for sixth-eighth grades are that each student will:
   a. investigate and practice solving problems by using data analysis, modeling or algorithmic thinking

  b. organize data and use technology to display, analyze, solve problems and make decisions

  c. break down problems into component parts, identify key pieces and use that information to problem solve

  d. demonstrate an understanding of how automation works and use algorithmic thinking to design and automate solutions

6. The creative communicator content standards for sixth-eighth grades are that each student will:

  a. select appropriate platforms and tools to create, share, and communicate work

  b. create original works or responsibly remix and repurpose other digital resources into new creative works

  c. communicate complex ideas clearly using various digital tools to convey the concepts in a variety of accessible formats

7. The global collaborator content standards for sixth-eighth grades are that each student will:

  a. identify and use collaborative technologies to connect with others

  b. identify and select a role within a team to meet goals, based on knowledge of technology and content, as well as personal preference

8. The reflective user content standards for sixth-eighth grades are that each student will:

  a. evaluate personal preferences for use of technology tools for different tasks or purposes

TECHNOLOGY INTEGRATION CONTENT STANDARDS FOR NINTH-TWELFTH GRADES

1. The empowered learner content standards for ninth-twelfth grades are that each student will:
   a. set personal learning goals, develop strategies leveraging technology to achieve them, and reflect on the learning process to improve learning outcomes
   b. build personal learning networks and customize learning environments in ways that support the learning process
   c. use technology to seek feedback that informs and improves practice and to demonstrate learning in a variety of ways
   d. demonstrate the ability to choose, use, and troubleshoot current technologies, and transfer knowledge to explore emerging technologies
2. The digital citizen content standards for ninth-twelfth grades are that each student will:
   a. cultivate and manage a positive digital identity and demonstrate an understanding of how the digital footprint is permanent and can impact reputation
   b. engage in positive, safe, legal and ethical behavior when using technology, including social interactions online or when using networked devices
   c. respect the rights and obligations of creating, using, and sharing intellectual property
   d. manage personal data to maintain digital privacy and security
3. The knowledge constructor content standards for ninth-twelfth grades are that each student will:
   a. use research strategies to locate information and resources for intellectual or creative pursuits
   b. evaluate the accuracy, perspective, cultural sensitivity, credibility, and relevance of information, media, data, or other resources
   c. evaluate potential biases in resources
   d. curate information from digital resources using a variety of tools and methods to create collections of artifacts that are connected to a theme or support a thesis
4. The innovative designer technology content standards for ninth-twelfth grades are that each student will:
   a. initiate a deliberate design process for generating ideas, testing theories, creating innovative artifacts, or solving authentic problems
   b. select and use digital tools to plan and manage a design process that considers design constraints and calculated risks
   c. develop, test and refine prototypes as part of a cyclical design process
5. The computational thinker content standards for ninth-twelfth grades are that each student will:
   a. identify problems suited for technology-assisted methods for data analysis, abstract models, and algorithmic thinking

    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

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

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

6. The creative communicator content standards for ninth-twelfth grades are that each student will:

    a. choose the appropriate platforms and tools for meeting the desired objectives of the creation or communication

    b. create original works or responsibly repurpose or remix digital resources into new creative works

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

    d. publish, present, and defend content that customizes the message and medium for the intended audiences

7. The global collaborator content standards for ninth-twelfth grades are that each student will:

    a. identify and 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

    b. identify and use collaborative technologies to work with others to examine global and local issues, problems and solutions from multiple viewpoints

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

8. The reflective user content standards for ninth-twelfth grades are that each student will:

    a. evaluate historical, cultural, and social impacts of technology innovations on individuals and groups, including urban, rural and reservation communities

    b. reflect on and explain how technological innovations influence selection of tools and resources appropriate to a task

1   TECHNOLOGY INTEGRATION PROGRAM DELIVERY STANDARDS

2   Chapter 55

3   1. In general, a basic program in technology integration education shall:
4   a. meet the following conditions:
5   i. development of skills that lead to lifelong pursuits;
6   ii. provide opportunities for authentic application, work experience, and or
7   articulation with postsecondary education
8   iii. integrate and transfer technology skills across grade levels, content
9   areas, and programs
10   iv. provide access to emerging technology across grade levels, content
11   areas, and programs
12   b. include the following practices:
13   i. progression of skills and knowledge from basic to advanced
14   ii. integration of technology competencies with academic knowledge in a
15   contextual setting
16   iii. incorporate a range of instructional strategies, including personalized
17   learning