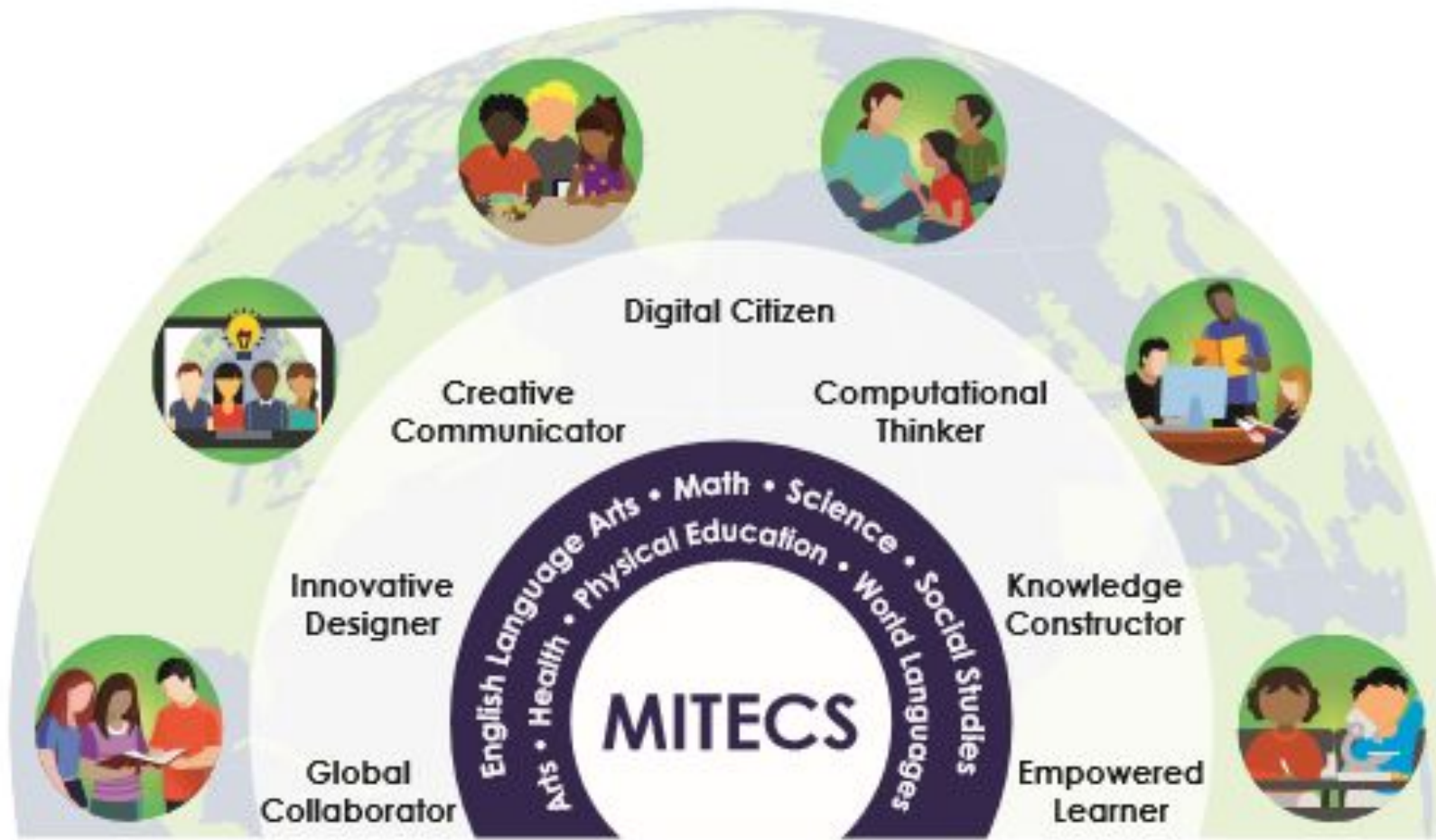


MITECS: Michigan Integrated Technology Competencies for Students

Material extracted from Techplan.org/MITECS materials by C. McCarthy





Michigan Integrated Technology Competencies for Students

These competencies reflect “Next Generation Skills” that learners need to master in order to be prepared for success.

History of MITECS Development

- Stakeholders convened to revise the 2009 MI Educational Technology Standards for Students (METS-S) in June 2017
- Group considered several options, including:
 - Revision of existing standards
 - Creation of new standards
 - Adapting standards from other relevant sources
- Ultimately, recommended adapting the [2016 International Society for Technology in Education \(ISTE\) Standards for Students](#)
 - Michigan branding with no substantive changes

ISTE Standards for Students (ISTE-S)



<http://www.iste.org/standards/for-students>

1 Empowered Learner

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

[VIEW INDICATORS](#)



2 Digital Citizen

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.

[VIEW INDICATORS](#)



3 Knowledge Constructor

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.

[VIEW INDICATORS](#)



4 Innovative Designer

Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.

[VIEW INDICATORS](#)



5 Computational Thinker

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

[VIEW INDICATORS](#)



6 Creative Communicator

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.

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7 Global Collaborator

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

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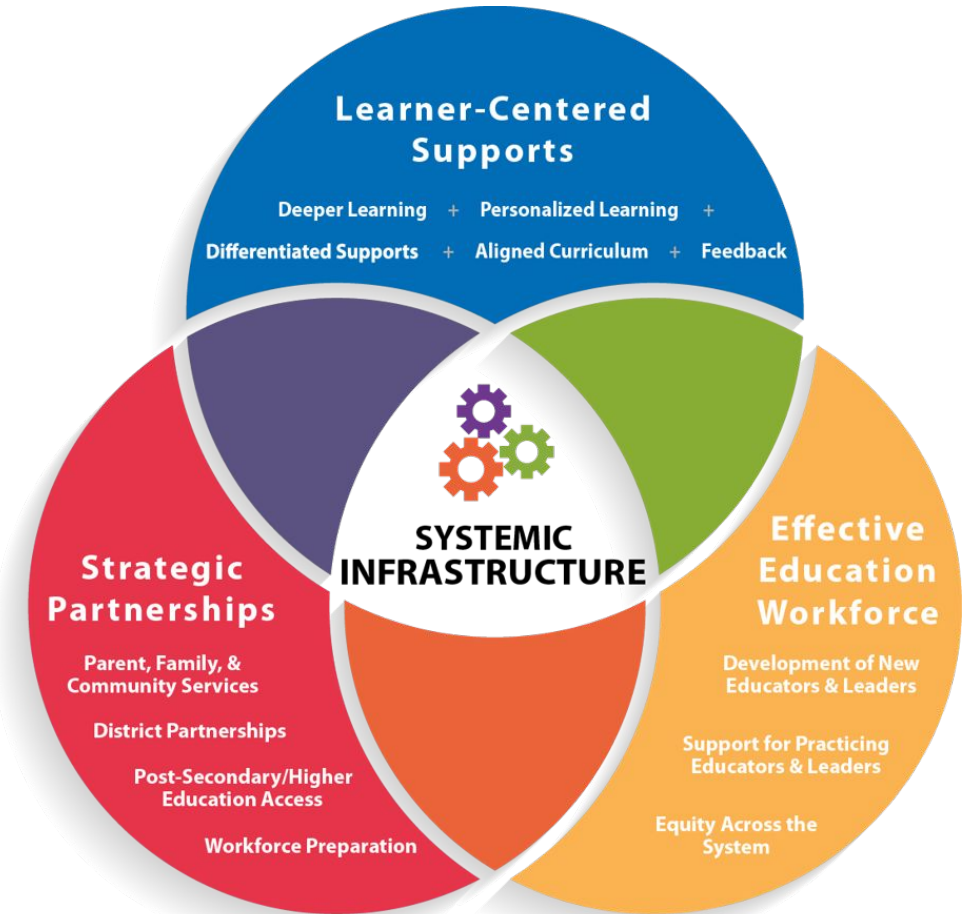
Why Change?



- Technological shifts have impacted and continue to affect our lives
- 2009 METS-S focused on technology tools and basic technology skills
- Proficiency in foundational technology skills is necessary, but it is not the end
- Focus now on learning, harnessing technology when appropriate

MITECS and Top 10 in 10 Strategic Plan

- Address two components of **Learner-Centered Supports**:
Personalized Learning and Deeper Learning
- Require professional learning on technology integration for an **Effective Education Workforce**
- Implementation supported by **Strategic Partnerships**
- Require a robust, connected **Systemic Infrastructure** to enable everywhere, all-the-time learning



Standards

Academic standards outline learning expectations for Michigan's students and are intended to guide local curriculum development.

- Serve as a framework for curriculum development with the curriculum prescribing instructional resources, methods, progressions, and additional knowledge valued by the local community
- Provide a basis for state assessments, which measure how well schools are providing opportunities for all students to learn the content outlined by the standards

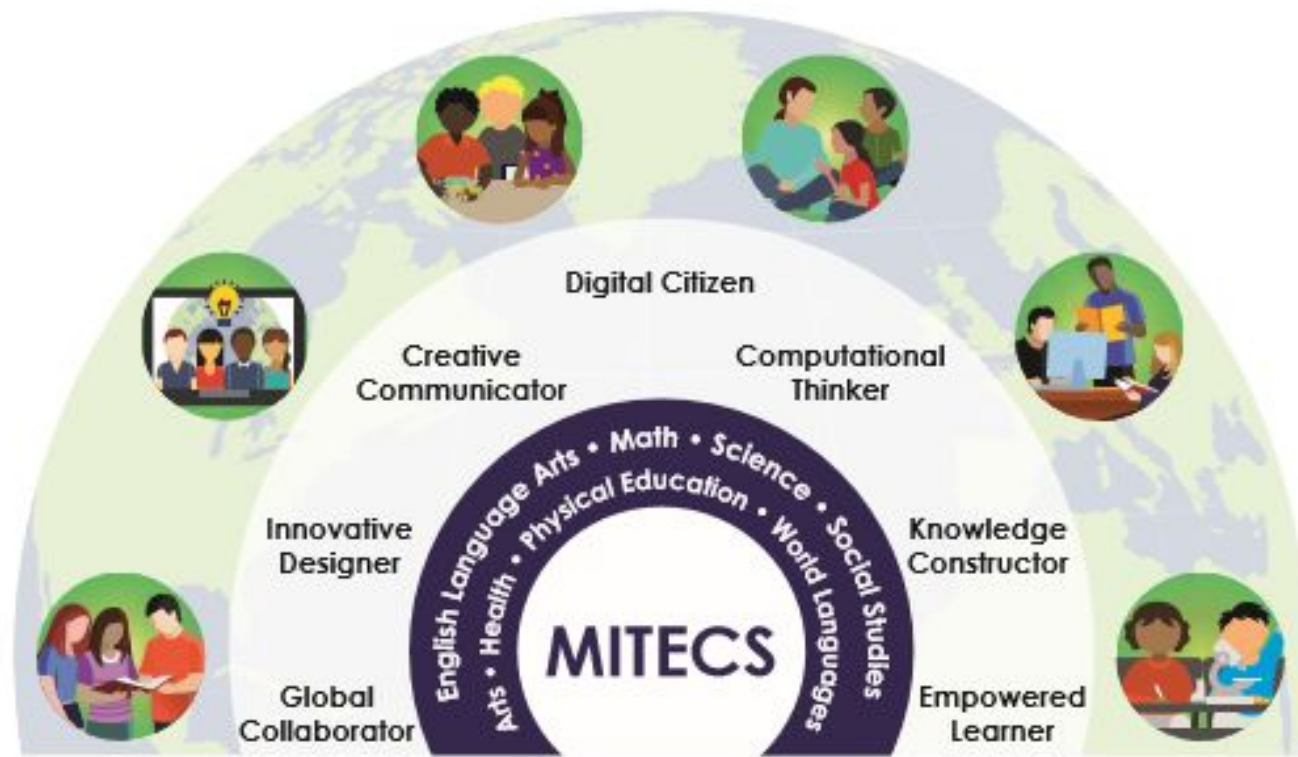
Competencies (MDE working definition)

Competencies are explicit, measurable, transferable learning objectives which include application and creation of knowledge.

They may be **demonstrated** in a variety of learning environments and with a variety of measures of learning.

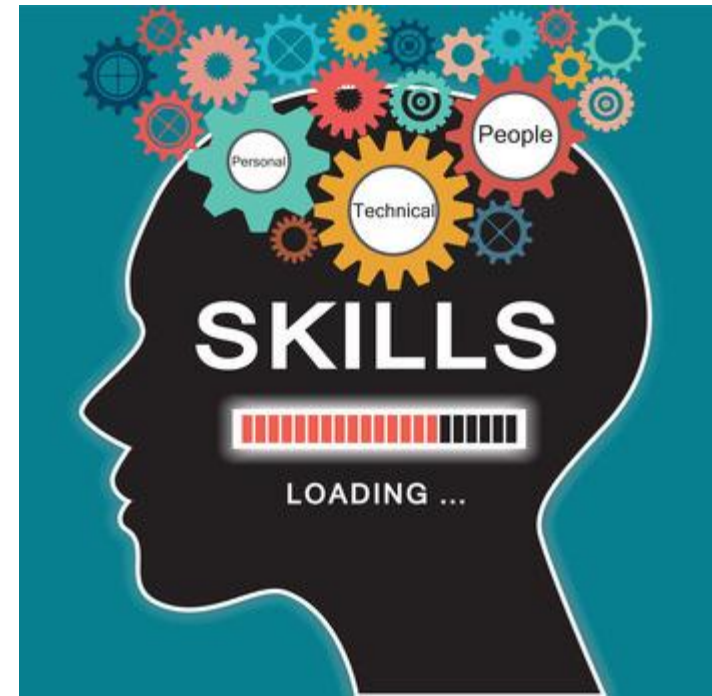
Source: Achieve, iNACOL, GELN white paper

MITECS - identified competencies that reflect “Next Generation Skills” that learners need to master in order to be prepared for success.



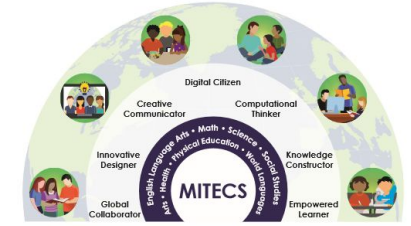
Michigan Integrated Technology Competencies for Students

Empowered Learner



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

Empowered Learner



Michigan Integrated Technology Competencies for Students

- 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.
- b. Build networks and customize their learning environments in ways that support the learning process.
- c. Use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.
- d. 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 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.

Digital Citizen

Students:



Michigan Integrated Technology Competencies for Students

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

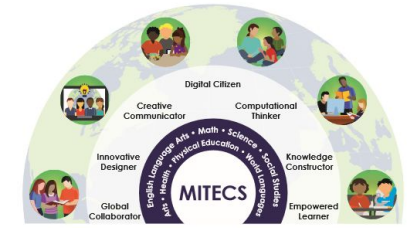
Knowledge Constructor

Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.



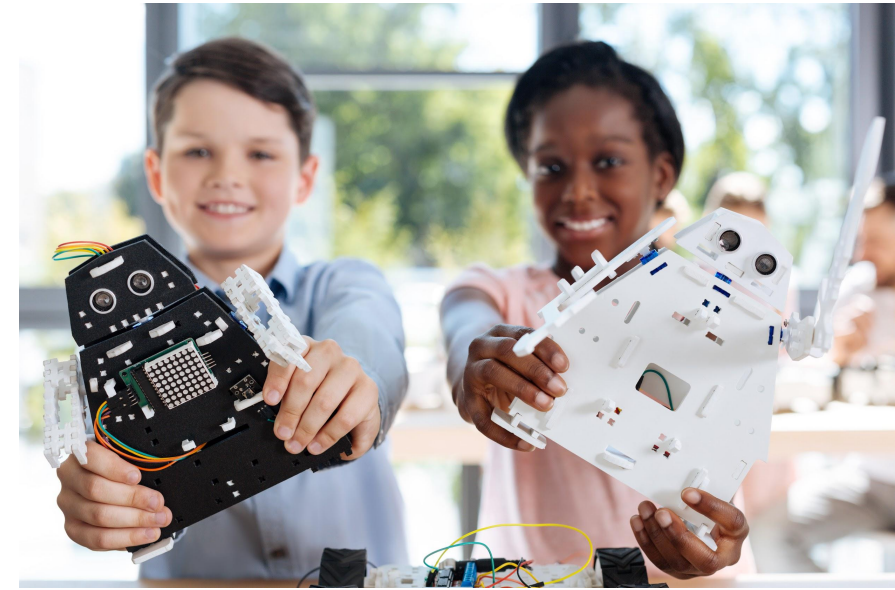
Knowledge Constructor

Students:



Michigan Integrated Technology Competencies for Students

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

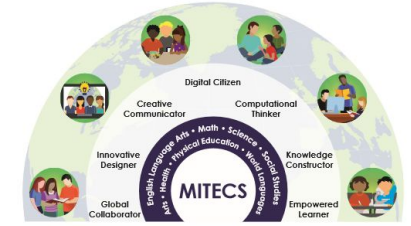


Innovative Designer

Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.

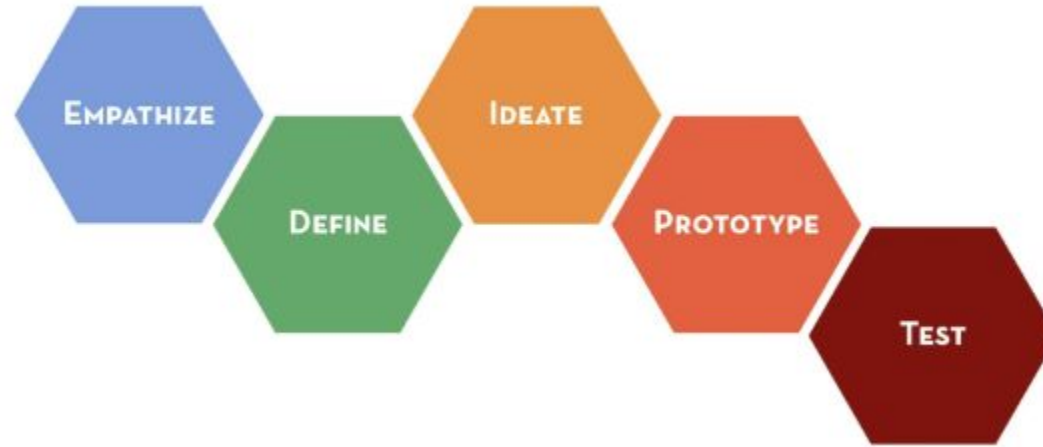
Innovative Designer

Students:



Michigan Integrated Technology Competencies for Students

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

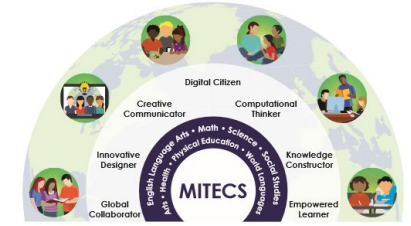


Computational Thinker

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

Computational Thinker

Students:

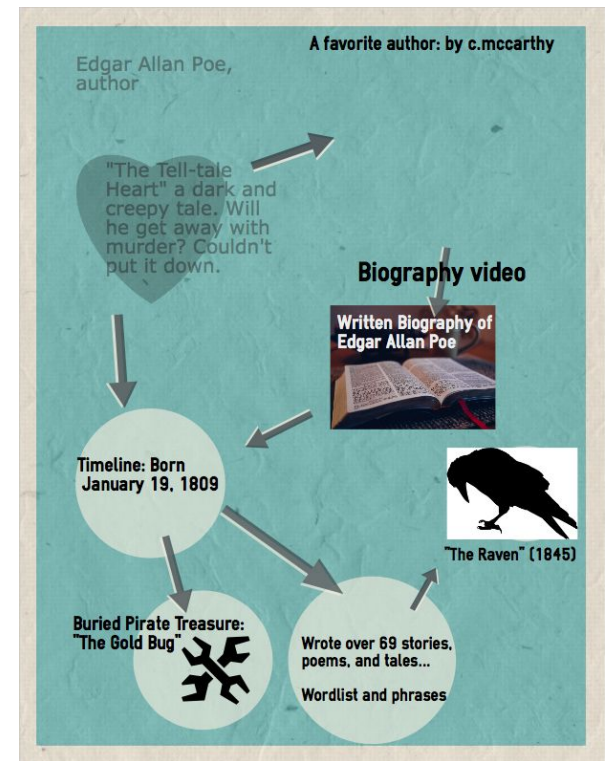


Michigan Integrated Technology Competencies for Students

- a. Formulate problem definitions suited for technology-assisted methods such as data analysis, abstract models and algorithmic thinking in exploring and finding solutions.
- b. Collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problemsolving and decision-making.
- c. Break problems into component parts, extract key information, and develop descriptive models to understand complex systems or facilitate problem-solving.
- d. Understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.

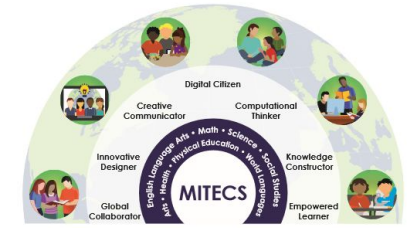
Creative Communicator

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.



Creative Communicator

Students:



Michigan Integrated Technology Competencies for Students

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

Global Collaborator

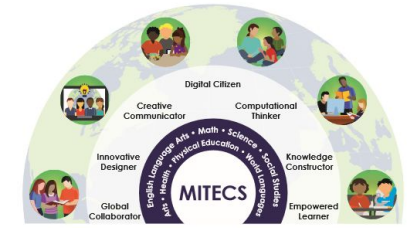
Students use digital tools to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally.



This is not one of the MITECS competencies, but is an ISTE standard

Global Collaborator

Students:



Michigan Integrated Technology Competencies for Students

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

Reflection Questions

1. Now that you have learned about and looked at the MITECS, open the MITECS “[Age Band Articulation](#)” document and go to the section by age range for students you work with.
 - Describe a classroom activity or lesson you have done where students demonstrate some of the competencies.
2. Select a competency area that you would like to learn more about, and how you might integrate into your curriculum and setting
 - Describe why you selected the area and some ideas you have to implement it in your setting.