Seven Strands for Advancing Digital Age Learning - (6, 7, 8)

ISTE-S (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.**
1.1. Articulate and set personal learning goals, develop strategies leveraging technology to achieve them and reflect on the learning process itself to improve learning outcomes.	**1.1.1.** Write a personal learning goal(s). **1.1.2.** Propose three ways how to achieve that goal(s). **1.1.3.** Prepare a digital presentation that describes how you will achieve your goal(s). **1.1.4.** Use technology to create a tool to receive feedback from classmates in order to improve your presentation.
1.2. Build networks and customize their learning environments in ways that support the learning process.	**1.2.1.** Students engage in positive, safe, legal and ethical behavior when using technology to communicate with others. **1.2.2.** Collaborate using a social media tool with a group of classmates to discuss a topic. **1.2.3.** Demonstrate how to share digital learning opportunities with others.
1.3. Use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.	**1.3.1.** Create a digital class poll that measures students' responses. **1.3.2.** Students use learning based software that reinforces classroom curriculum. **1.3.3.** Use digital resources (discussion groups, blogs, podcasts, videoconferences) to collaborate with peers, experts, and other audiences.
1.4. 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.	**1.4.1.** Choose a new technology and demonstrate how it works. **1.4.2.** Demonstrate to others how to troubleshoot problems that arise. **1.4.3.** Research new technologies and describe the purpose of one new technology. **1.4.4.** Design a plan for a new technology that could be used in the future.

ISTE – S (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.**
2.1. Cultivate and manage their digital identity and reputation and are aware of the permanence of their actions in the digital world.	**2.1.1**. Explain how to create a strong password. **2.1.2.** Discuss why passwords shouldn't be shared. **2.1.3.** Explain what you should do if you receive an unkind email. **2.1.4.** Explain what the word "permanent" means and how it can affect your digital identity.
2.2. Engage in positive, safe, legal and ethical behavior when using technology, including social interactions online or when using networked devices.	**2.2.1.** List ways to stay safe when using technology. **2.2.2.** Describe what legal and ethical behaviors mean when using technology. **2.2.3.** Discuss why it is important to not send mean or hurtful email to a classmate. **2.2.4.** Explain what you should do if you receive an email from someone you don't know. **2.2.5.** Discuss the long term effects (your digital footprint) of participating in questionable online activities, which could include posting photos of risqué poses, underage drinking or making threats to others.
2.3. Demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property.	**2.3.1.** Describe how a citation is used. **2.3.2.** Discuss issues related to acceptable and responsible use of technology such as privacy, security, copyright, plagiarism, viruses, and file-sharing. **2.3.3**. Explain why it's not acceptable to use someone else's work that is posted on the Internet without their permission. **2.3.4.** Research a topic and write a summary that includes citations.
2.4. Manage their personal data to maintain digital privacy and security and are aware of data-collection technology used to track their navigation online.	**2.4.1.** Explain the term data-collection technology and what it can do. **2.4.2**. Research and describe what two-factor authentication is. **2.4.3.** Learn how to turn on and off permissions on devices. **2.4.4.** Explain why devices need to be updated on a regular basis.

ISTE-S (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.**
3.1. Plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits.	**3.1.1.** Use a variety of digital resources to locate information. **3.1.2.** Explain why using information from a single Internet source might result in the reporting of erroneous facts. **3.1.3.** Explain the differences between .org, .com, .net, .edu, .gov, and .mil. **3.1.4.** Choose a topic to research on the Internet and site the websites that are used to gather facts.
3.2. Evaluate the accuracy, perspective, credibility and relevance of information, media, data or other resources.	**3.2.1.** Research information for a topic from multiple resources. **3.2.2**. Evaluate information found in online resources on the basis of accuracy, validity, and appropriateness. **3.2.3.** Compare information from two sources for accurate data, facts or perspectives.
3.3. Curate information from digital resources using a variety of tools and methods to create collections of artifacts that demonstrate meaningful connections or conclusions.	**3.3.1.** Choose a topic to research on the Internet. **3.3.2.** Use the Internet to collect information about the topic. **3.3.3**. Organize information from digital online resources. **3.3.4.** Create a digital presentation that demonstrates meaningful connections.
3.4. Build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.	**3.4.1.** Provide examples of current events and discuss their importance. **3.4.2.** Choose a current world event to research. **3.4.3.** Locate resources on the Internet that report the details of a current event. **3.4.4.** Write a proposal to resolve a real-world problem that is currently happening.

ISTE-S (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.**
4.1. Know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.	**4.1.1.** Use a series of steps to solve a problem. **4.1.2.** Work in teams to write possible solutions to the problem. **4.1.3.** Share best solution with classmates. **4.1.4.** Test the solution to determine if it's practical. **4.1.5.** Amend process if solution doesn't work on first iteration. **4.1.6.** Apply learned knowledge to solve similar problems.
4.2. Select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.	**4.2.1.** Make artifacts created by new methods, original thinking or make improvements to an existing artifact. **4.2.2.**. Explore 3D printing, creating computer programs, robotics, simulations, virtual representations, prototypes, etc. as possible ways to design objects. **4.2.3.** Illustrate a challenging concept using a model, simulation, or concept-mapping software.
4.3. Develop, test and refine prototypes as part of a cyclical design process.	**4.3.1.** Brainstorm steps to solve a problem and design a solution. **4.3.2.** Design a prototype of an object that provides a solution. **4.3.3.** Test the prototype. **4.3.4.** Modify prototype as needed. **4.3.5.** Test prototype again until the problem is solved.
4.4. Exhibit a tolerance for ambiguity, perseverance and the capacity to work with open-ended problems.	**4.4.1.** Choose a problem and discuss multiple possible solutions to that problem. **4.4.2.** Explain how it is possible to have no solution to a problem. **4.4.3.** Describe a problem you had with no directions to fix it and how you resolved the problem. **4.4.4.** Draw a diagram that demonstrates a problem and its solution.

ISTE-S (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.**
5.1. Formulate problem definitions suited for technology-assisted methods such as data analysis, abstract models and algorithmic thinking in exploring and finding solutions.	**5.1.1.** Discuss what data is and how it can be used. **5.1.2.** Research a topic and collect data relevant to that topic. **5.1.3.** Build a model of a process using a flowchart. **5.1.4.** Demonstrate how the model can be used to solve problems. **5.1.5.** Create a step by step process to solve a real world problem.
5.2. 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	**5.2.1.** Build a data set which contains a collection of numbers or values that relate to a particular subject. **5.2.2.** Create a data table that has columns and rows. **5.2.3.** Label the columns and rows with descriptive names. **5.2.4.** Fill the columns with data. **5.2.4.** Write a statement using the data from the table to describe items, events, people, money, weather, etc.
5.3. Break problems into component parts, extract key information, and develop descriptive models to understand complex systems or facilitate problem-solving.	**5.3.1.** Find and discuss a problem in your local community. **5.3.2**. Break the problem into parts by topic. **5.3.3.** Draw a model that demonstrates the problem. **5.3.4.** Discuss ways to solve the problem. **5.3.5.** Propose a solution and write or draw the solution.
5.4. Understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.	**5.4.1.** Explain what it means to be automated. **5.4.2.** Locate and research an example of automation. **5.4.3.** Plan a step-by-step process to build an object or process. **5.4.4.** Create a diagram to model the object or process. **5.4.5.** Build the object or process using the plan.

ISTE-S (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.**
6.1. Choose the appropriate platforms and tools for meeting the desired objectives of their creation or communication.	**6.1.1.** Use digital media to explain a process. **6.1.2.** Choose a topic that involves a process. **6.1.3.** Take pictures or video to illustrate the main idea of the process. **6.1.4.** Collaborate with classmates to write the narrative for the presentation. **6.1.5.** Present the final product to the class.
6.2. Create original works or responsibly repurpose or remix digital resources into new creations.	**6.2.1.** Choose a current events topic and create a digital story. **6.2.2.** Search the Internet for related images of the current event. **6.2.3.** Record a narrative that explains the topic. **6.2.4.** Share the final product with classmates.
6.3. Communicate complex ideas clearly and effectively by creating or using a variety of digital objects such as visualizations, models or simulations.	**6.3.1.** Research and choose a current news topic. **6.3.2.** Using concept maps or flowcharts write a summary of facts about the topic to communicate to classmates. **6.3.3.** Choose a media tool to create a presentation using info graphics, word clouds, interactive charts or graphs. **6.3.4.** Share the presentation with classmates.
6.4. Publish or present content that customizes the message and medium for their intended audiences.	**6.4.1.** Use your birthday to discover an important fact in history. **6.4.2.** Research historical documents online to find related events on your birthdate. **6.4.3.** Create a tri-fold flyer that explains the historical event which occurred on that date. **6.4.4.** Share the flyer information with classmates.

ISTE-S (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.**
7.1. 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.	**6.1.1.** Use the Internet to research customs in various countries around the world. **6.1.2.** Choose a country to focus your research. **6.1.3.** Collect information about the country such as the language, foods, holidays, or other customs. **6.1.4.** Contact and communicate with students from the chosen country by using conferencing software to meet and discuss cultural differences. **6.1.5.** Prepare a presentation summarizing the experience.
7.2. Use collaborative technologies to work with others, including peers, experts or community members, to examine issues and problems from multiple viewpoints.	**6.2.1.** Identify a problem in your school or neighborhood. **6.2.2.** Use a digital tool to post possible solutions to solve the problem. **6.2.3.** Research who from your school, neighborhood, or state can help resolve the problem. **6.2.4.** Choose a solution that you believe will solve the problem. **6.2.5.** Write an email detailing the problem. **6.2.6.** Send the email to a person who can help resolve the problem.
7.3. Contribute constructively to project teams, assuming various roles and responsibilities to work effectively toward a common goal.	**6.3.1.** Form groups to work on a project. **6.3.2.** Assign member roles including a team leader, note taker and research members. **6.3.3.** Encourage all group members to contribute to project. **6.3.4.** Use positive words when critiquing others work. **6.3.5.** Assist where needed to help group members. **6.3.6.** Share successes and failures with the group.
7.4. Explore local and global issues and use collaborative technologies to work with others to investigate solutions.	**6.4.1.** Use the Internet to find a local or global issue. **6.4.2.** Identify the issue and research possible solutions. **6.4.3.** Use video conferencing, chats, virtual field trips and other digital tools to help form local or global school partnerships. **6.4.4.** Create a digital presentation to share your solutions with your local or global schools.