Standard 1: Creativity and Innovation

Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology.

As a basis for this, students will:

1.1 Apply existing knowledge to generate new ideas, products, or processes.

1.2 Create original works as a means of personal or group expression.

1.3 Use models and simulations to explore complex systems and issues.

1.4 Identify trends and forecast possibilities.

PRE-K – GRADE 2	GRADES 3 - 5	GRADES 6-8	GRADES 9-12
Examples of ways in which Pre-K – Grade 2 students might engage in the above include: • Illustrate and communicate original ideas and stories using digital tools and media-rich resources. • Identify, research, and collect data on an environmental issue using digital resources and propose a developmentally appropriate solution. • In a collaborative work group, use a variety of technologies to produce a digital presentation or product in a curriculum area. • Use simulations and graphical organizers to explore and depict patterns of growth such as the life cycles of plants and animals.	*Examples of ways in which Grades 3-5 students might engage in the above include:* • Produce a media-rich digital story about a significant local event based in first-person interviews. • Use digital-imaging technology to modify or create works of art for use in a digital presentation.	*Examples of ways in which Grades 6-8 students might engage in the above include:* • Describe and illustrate a content-related concept or process using a model, simulation, or concept-mapping software. • Create original animations or videos documenting school, community, or local events. • Gather data, examine patterns, and apply information for decision making using digital tools and resources. • Integrate a variety of file types to create and illustrate a document or presentation.	*Examples of ways in which Grades 9-12 students might engage in the above include:* • Design, develop, and test a digital learning game to demonstrate knowledge and skills related to curriculum content. • Create and publish an online art gallery with examples and commentary that demonstrate an understanding of different historical periods, cultures, and countries. • Employ curriculum-specific simulations to practice critical-thinking processes. • Identify a complex global issue, develop a systematic plan of investigation, and present innovative sustainable solutions. • Design a Web site that meets accessibility requirements. • Create media-rich presentations for other students on the appropriate and ethical use of digital tools and resources.

Standard 2: Communication and Collaboration

Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.

As a basis for this, students will:

2.1. Interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media.

2.2. Communicate information and ideas effectively to multiple audiences using a variety of media and formats.

2.3. Develop cultural understanding and global awareness by engaging with learners of other cultures.

2.4. Contribute to project teams to produce original works or solve problems.

PRE-K – GRADE 2	GRADES 3 - 5	GRADES 6-8	GRADES 9-12
Examples of ways in which Pre-K – Grade 2 students might engage in the above include: ▪ Illustrate and communicate original ideas and stories using digital tools and media-rich resources. ▪ Engage in learning activities with learners from multiple cultures through e-mail and other electronic means. ▪ In collaborative work group, use a variety of technologies to produce a digital presentation or product in a curriculum area.	*Examples of ways in which Grades 3-5 students might engage in the above include:* ▪ Produce a media-rich digital story about a significant local event based on first-person interviews. ▪ Use digital-imaging technology to modify or create works of art for use in a digital presentation.	*Examples of ways in which Grades 6-8 students might engage in the above include:* ▪ Describe and illustrate a content-related concept or process using a model, simulation, or concept-mapping software. ▪ Create original animations or videos documenting school, community, or local events. ▪ Participate in a cooperative learning project in an online learning community. ▪ Use collaborative electronic authoring tools to explore common curriculum content from multicultural perspectives with other learners.	*Examples of ways in which Grades 9-12 students might engage in the above include:* ▪ Create and publish an online art gallery with examples and commentary that demonstrate an understanding of different historical periods, cultures, and countries. ▪ Identify a complex global issue, develop a systematic plan of investigation, and present innovative sustainable solutions.

Standard 3: Research and Information Fluency

Students apply digital tools to gather, evaluate, and use information.

As a basis for this, students will:

3.1   Plan strategies to guide inquiry.

3.2   Locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media.

3.3   Evaluate and select information sources and digital tools based on the appropriateness to specific tasks.

3.4   Process data and report results.

PRE-K – GRADE 2	GRADES 3 - 5	GRADES 6-8	GRADES 9-12
Examples of ways in which Pre-K – Grade 2 students might engage in the above include: ▪ Identify, research, and collect data on an environmental issue using digital resources and propose a developmentally appropriate solution. ▪ Find and evaluate information related to a current or historical person or event using digital resources. ▪ Use simulations and graphical organizers to explore and depict patterns of growth such as the life cycles of plants and animals.	*Examples of ways in which Grades 3-5 students might engage in the above include:* ▪ Produce a media-rich digital story about a significant local event based on first-person interviews. ▪ Recognize bias in digital resources while researching an environmental issue with guidance from the teacher. ▪ Select and apply digital tools to collect, organize and analyze data to evaluate theories or test hypotheses. ▪ Identify and investigate a global issue and generate possible solutions using digital tools and resources.	*Examples of ways in which Grades 6-8 students might engage in the above include:* ▪ Evaluate digital resources to determine the credibility of the author and publisher and the timeliness and accuracy of the content. ▪ Employ data-collection technology such as probes, handheld devices, and geographic mapping systems to gather, view, analyze, and report results for content-related problems. ▪ Select and use the appropriate tools and digital resources to accomplish a variety of tasks and to solve problems. ▪ Use collaborative electronic authoring tools to explore common curriculum content from multicultural perspectives with other learners.	*Examples of ways in which Grades 9-12 students might engage in the above include:* ▪ Select digital tools or resources to use for a real-world task and justify the selection based on their efficiency and effectiveness. ▪ Identify a complex global issue, develop a systematic plan of investigation, and present innovative sustainable solutions. ▪ Model legal and ethical behaviors when using information and technology by properly selecting, acquiring, and citing resources.

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Standard 4: Critical Thinking, Problem Solving, and Decision Making

Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.

As a basis for this, students will:

- **4.1.** Identify and define authentic problems and significant questions for investigation.
- **4.2.** Plan and manage activities to develop a solution or complete a project.
- **4.3.** Collect and analyze data to identify solutions and/or make informed decisions.
- **4.4.** Use multiple processes and diverse perspectives to explore alternative solutions.

PRE-K – GRADE 2	GRADES 3 - 5	GRADES 6-8	GRADES 9-12
Examples of ways in which Pre-K – Grade 2 students might engage in the above include: - Identify, research, and collect data on an environmental issue using digital resources and propose a developmentally appropriate solution. - Use simulations and graphical organizers to explore and depict patterns of growth such as the life cycles of plants and animals. - Independently apply digital tools and resources to address a variety of tasks and problems.	*Examples of ways in which Grades 3-5 students might engage in the above include:* - Produce a media-rich digital story about a significant local event based on first-person interviews. - Recognize bias in digital resources while researching an environmental issue with guidance from the teacher. - Select and apply digital tools to collect, organize, and analyze data to evaluate theories or test hypotheses. - Identify and investigate a global issue and general possible solutions using digital tools and resources. - Conduct science experiments using digital instruments and measurement devices. - Conceptualize, guide, and manage individual or group learning projects using digital planning tools with teacher support. - Apply previous knowledge of digital technology operations to analyze and solve current hardware and software problems.	*Examples of ways in which Grades 6-8 students might engage in the above include:* - Gather data, examine patterns, and apply information for decision making using digital tools and resources. - Employ data-collection technology such as probes, handheld devices, and geographic mapping systems to gather, view, analyze, and report results for content-related problems. - Select and use the appropriate tools and digital resources to accomplish a variety of tasks and to solve problems. - Use collaborative electronic authoring tools to explore common curriculum content from multicultural perspectives with other learners. - Independently develop and apply strategies for identifying and solving routine hardware and software problems.	*Examples of ways in which Grades 9-12 students might engage in the above include:* - Design, develop, and test a digital learning game to demonstrate knowledge and skills related to curriculum content. - Employ curriculum-specific simulations to practice critical-thinking processes. - Identify a complex global issue, develop a systematic plan of investigation, and present innovative sustainable solutions. - Analyze the capabilities and limitations of current and emerging technology resources and assess their potential to address personal, social, lifelong learning, and career needs. - Configure and troubleshoot hardware, software, and network systems to optimize their use for learning and productivity.

Adopted from the ISTE National Educational Technology Standards (NETS•S) and Performance Indicators for Students   *Singapore American School, January 12, 2009*

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Technology Integration Framework: GRADES K-12

Standard 5: Digital Citizenship

Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.

As a basis for this, students will:

5.1   Advocate and practice safe, legal, and responsible use of information and technology.

5.2   Exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity.

5.3   Demonstrate personal responsibility for lifelong learning.

5.4   Exhibit leadership for digital citizenship.

PRE-K – GRADE 2	GRADES 3 - 5	GRADES 6-8	GRADES 9-12
Examples of ways in which Pre-K - Grade 2 students might engage in the above include:	*Examples of ways in which Grades 3-5 students might engage in the above include:*	*Examples of ways in which Grades 6-8 students might engage in the above include:*	*Examples of ways in which Grades 9-12 students might engage in the above include:*
▪ Demonstrate the safe and cooperative use of technology.	▪ Practice injury prevention by applying a variety of ergonomic strategies when using technology. ▪ Debate the effect of existing and emerging technologies on individuals, society, and the global community.	▪ Use collaborative electronic authoring tools to explore common curriculum content from multicultural perspectives with other learners.	▪ Analyze the capabilities and limitations of current and emerging technology resources and assess their potential to address personal, social, lifelong learning, and career needs. ▪ Design a Web site that meets accessibility requirements. ▪ Model legal and ethical behaviors when using information and technology by properly selecting, acquiring, and citing resources. ▪ Create media-rich presentations for other students on the appropriate and ethical use of digital tools and resources.

Standard 6: Technology Operations and Concepts

Students demonstrate a sound understanding of technology concepts, systems, and operations.

As a basis, students will:

6.1   Understand and use technology systems.

6.2   Select and use applications effectively and productively.

6.3   Troubleshoot systems and applications.

6.4   Transfer current knowledge to learning of new technologies.

PRE-K – GRADE 2	GRADES 3 - 5	GRADES 6-8	GRADES 9-12
Examples of ways in which Pre-K – Grade 2 students might engage in the above include:	*Examples of ways in which Grades 3-5 students might engage in the above include:*	*Examples of ways in which Grades 6-8 students might engage in the above include:*	*Examples of ways in which Grades 9-12 students might engage in the above include:*
▪ Engage in learning activities with learners from multiple cultures through e-mail and other electronic means. ▪ In a collaborative work group, use a variety of technologies to produce a digital presentation or product in a curriculum area. ▪ Independently apply digital tools and resources to address a variety of tasks and problems. ▪ Communicate about technology using developmentally appropriate and accurate terminology. ▪ Demonstrate the ability to navigate in virtual environments such as electronic books, simulation software, and Web sites.	▪ Use digital-imaging technology to modify or create works of art for use in a digital presentation. ▪ Select and apply digital tools to collect, organize, and analyze data to evaluate theories or test hypotheses. ▪ Conduct science experiments using digital instruments and measurement devices. ▪ Conceptualize, guide, and manage individual or group learning projects using digital planning tools with teacher support. ▪ Debate the effect of existing and emerging technologies on individuals, society, and the global community. ▪ Apply previous knowledge of digital technology operations to analyze and solve current hardware and software problems.	▪ Create original animations or videos documenting school, community, or local events. ▪ Employ data-collection technology such as probes, handheld devices, and geographic mapping systems to gather, view, analyze, and report results for content-related problems. ▪ Select and use the appropriate tools and digital resources to accomplish a variety of tasks and to solve problems. ▪ Integrate a variety of file types to create and illustrate a document or presentation. ▪ Independently develop and apply strategies for identifying and solving routine hardware and software problems.	▪ Select digital tools or resources to use for a real-world task and justify the selection based on their efficiency and effectiveness. ▪ Analyze the capabilities and limitations of current and emerging technology resources and assess their potential to address personal, social, lifelong learning, and career needs. ▪ Configure and troubleshoot hardware, software, and network systems to optimize their use for learning and productivity.