

STRAND	STANDARD	Enduring Understandings	Essential Questions
1. Creativity & Innovation	1a: Apply existing knowledge to generate new ideas, products, or processes.	<ul style="list-style-type: none"> <li>Every new breakthrough is grounded in existing knowledge.</li> </ul>	<ul style="list-style-type: none"> <li>How do I use what I know to explore something new?</li> </ul>
	1b: Create original works as a means of personal or group expression.	<ul style="list-style-type: none"> <li>True creativity requires devotion to and abandonment of brilliant ideas.</li> <li>The development of original expression requires extensive and predictable pre-planning.</li> </ul>	<ul style="list-style-type: none"> <li>Where do great ideas come from?</li> <li>How do I develop them?</li> <li>What does quality work look like?</li> </ul>
	1c: use models and simulations to explore complex systems and issues.	<ul style="list-style-type: none"> <li>Models create a visualization and complex systems/issues so that connections can be drawn and applications to specific circumstances can be made.</li> </ul>	<ul style="list-style-type: none"> <li>How do I create/use a model to represent specific situations?</li> <li>What makes a representation appropriate, useful, and or thought provoking?</li> </ul>
	1d: Identify trends and forecast possibilities.	<ul style="list-style-type: none"> <li>Every new breakthrough is grounded in existing knowledge</li> <li>Description of change are necessary to reasonably predict what will happen</li> </ul>	<ul style="list-style-type: none"> <li>What's the next big thing?</li> <li>What is the logic behind my reasoning?</li> </ul>

2: Communication and Collaboration	2a: Interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media.	<ul style="list-style-type: none"> <li>• Digital environments include resources to promote collaboration and creativity.</li> <li>• Collaboration among diverse people creates a powerful flow of ideas.</li> </ul>	<ul style="list-style-type: none"> <li>• How do I work as the member of a group to produce a quality product?</li> <li>• How do I show respect for others' work?</li> </ul>
	2b: Communicate information and ideas effectively to multiple audiences using a variety of media and formats.	<ul style="list-style-type: none"> <li>• The integrity of communications is dependent on the way information is presented to an audience and how it is interpreted by the audience.</li> <li>• The way data is processed and presented impacts the viability of decision making.</li> </ul>	<ul style="list-style-type: none"> <li>• Who is my audience and how does that affect the way I communicate ideas?</li> <li>• How do I present my work so the audience understands and respects it?</li> </ul>
	2c: Develop cultural understanding and global awareness by engaging with learners of other cultures.	<ul style="list-style-type: none"> <li>• Successful communication is measured by the degree in which it is understood by the audience.</li> <li>• Easy access to people across the world promotes networking and understanding.</li> <li>• Collaboration among diverse people creates a powerful flow of ideas.</li> </ul>	<ul style="list-style-type: none"> <li>• Who is my audience and how does that affect the way I communicate ideas?</li> <li>• How do I think and work with other people?</li> </ul>
	2d: Contribute to project	<ul style="list-style-type: none"> <li>• Task coherence requires the</li> </ul>	<ul style="list-style-type: none"> <li>• How do we work</li> </ul>

	teams to produce original works or solve problems.	<p>assignment of individual components as well as the establishment of interdependence.</p> <ul style="list-style-type: none"> <li>• Every team member deserves the opportunity to leverage individual strengths/talents.</li> <li>• Tolerance for inefficiency, disagreement, and criticism is necessary to come up with an innovative solution/product.</li> </ul>	<p>together to solve a problem?</p> <ul style="list-style-type: none"> <li>• How do I work as a member of a group to produce a quality product?</li> </ul>
3: Research and Information Fluency	3a: Plan strategies to guide inquiry.	<ul style="list-style-type: none"> <li>• Efficiency and production requires preparation and planning.</li> <li>• Clarity of purpose impacts the integrity of the design/inquiry and the efficiency of the development/research.</li> </ul>	<ul style="list-style-type: none"> <li>• What information do I have? What information do I need? How do I find what I am looking for?</li> <li>• What is my plan? How is it working? What do I do if I get stuck?</li> </ul>
	3b: Locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media.	<ul style="list-style-type: none"> <li>• Research is a cyclical process of formulating and answering a question/understanding a problem.</li> <li>• All information must be examined for bias and accuracy</li> <li>• The information that is included and the way it is applied shows the bias and ethics of the researcher</li> </ul>	<ul style="list-style-type: none"> <li>• What makes a source trustworthy?</li> <li>• Who owns this information and how do I give them credit?</li> <li>• How do I make sense of the</li> </ul>

			information I have found?
	3c: Evaluate and select information sources and digital tools based on the appropriateness to specific tasks.	<ul style="list-style-type: none"> <li>• The relevance of the information or the appropriateness of the tool is dependent upon the task.</li> <li>• The quality of the search affects the effectiveness of the results.</li> </ul>	<ul style="list-style-type: none"> <li>• What's the right tool for the job? What do I see when I look at the evidence?</li> <li>• How does that affect what I do next?</li> <li>• How do I handle different points of view on the same issue/topic?</li> </ul>
	3d: Process data and report results.	<ul style="list-style-type: none"> <li>• The way the information is presented is a direct reflection of the process of the research and the intent of the researcher.</li> <li>• All information must be examined for bias and accuracy</li> <li>• The way data is processed and presented impacts the viability of decision making.</li> </ul>	<ul style="list-style-type: none"> <li>• When do I have enough information so that I can draw a trend/conclusion?</li> <li>• What am I trying to say? How do I use the information I found to support my thinking?</li> </ul>
4: Problem Solving and	4a: Identify and define authentic problems and	<ul style="list-style-type: none"> <li>• Problem solvers apply a systematic process to make sense of new and/or</li> </ul>	<ul style="list-style-type: none"> <li>• What kind of problem is it?</li> </ul>

Decision Making	significant questions for investigation.	complex problems.	<p>What do I want to know?</p> <ul style="list-style-type: none"> <li>•</li> <li>• What do I see/visualize/think when I look at this problem: (M))</li> </ul>
	4b: Plan and manage activities to develop a solution or complete a project.	<ul style="list-style-type: none"> <li>• Efficiency in production requires preparation and planning.</li> <li>• Clarity of purpose impacts the integrity of the design/inquiry and the efficiency of the development/research.</li> <li>• Some answers to questions cannot be found.</li> </ul>	<ul style="list-style-type: none"> <li>• What is my plan?</li> </ul>
	4c: Collect and analyze data to identify solutions and/or make informed decisions.	<ul style="list-style-type: none"> <li>• Accurate information is necessary to make informed decisions.</li> <li>• Data illustrates relationships, trends, and/or patterns so actions can be taken.</li> </ul>	<ul style="list-style-type: none"> <li>• How do I collect and record data to remember what is important? (S)</li> <li>• When do I have enough data to establish a trend/draw a conclusion? (S, SS)</li> <li>• Does my answer/solution visual display make sense? How do I defend/prove my answer/solution/vi</li> </ul>

			sual display? (M)
	4d: Use multiple process and diverse perspectives to explore alternative solutions.	<ul style="list-style-type: none"> <li>There are potentially multiple solutions to the same problem.</li> <li>The process used impacts the solution found.</li> </ul>	<ul style="list-style-type: none"> <li>What strategy did I decide to use to solve the problem? What strategies did other students use? What strategy is best?</li> </ul>
5 Digital Citizenship	5a. Advocate and practice safe, legal, and responsible use of information and technology	<ul style="list-style-type: none"> <li>Individuals have the power to decide what to share and what to keep private</li> <li>Individuals have rights and responsibilities that impacts the use of technology</li> <li>The way a person conducts themselves using technologies, has a significant impact on themselves and the lives of others</li> <li>Damage that is done in cyberspace is complicated, if to impossible to undo</li> </ul>	<ul style="list-style-type: none"> <li>Who owns this information and how do I give them the credit?</li> <li>How do I work to take care of myself, others, and the world around me:?</li> <li>How do copyright laws affect my decisions?</li> <li>How do I take something back that either I or someone else has published electronically?</li> </ul>
	5b. Exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity.	<ul style="list-style-type: none"> <li>The way a person conducts themselves has a significant impact on the quality of the product and the contributions of others</li> </ul>	<ul style="list-style-type: none"> <li>How does the way I work affect the result?</li> </ul>

	5c. Demonstrate personal responsibility for lifelong learning.	<ul style="list-style-type: none"> <li>● Fluency with new technologies broadens communication and deepens expertise.</li> </ul>	<ul style="list-style-type: none"> <li>● How do I use this technology?</li> <li>● What potential applications does it have for me?</li> </ul>
	5d. Exhibit leadership for digital citizenship.	<ul style="list-style-type: none"> <li>● Individuals have rights and responsibilities that impact the use of technology.</li> <li>● The way a person conducts themselves using technologies has significant impact on themselves and the lives of others.</li> </ul>	<ul style="list-style-type: none"> <li>● How do my choices model ethical and legal behavior?</li> </ul>
6 Technology Operations and Concepts	6a. Understand and use technology systems.	<ul style="list-style-type: none"> <li>● Students' understanding of technologies may open unexpected avenues for exploration and insight.</li> <li>● The power of technologies lies within the interaction between the user and the tool.</li> </ul>	<ul style="list-style-type: none"> <li>● What are the parts of the system and how do they work together? (S)</li> <li>● How do I use the resources to get the job done right?</li> <li>● How do I work to get what i want? (SS)</li> </ul>
	6b. Select and use applications effectively and productivity.	<ul style="list-style-type: none"> <li>● Students' application choices directly influence the productivity of the task at hand.</li> </ul>	<ul style="list-style-type: none"> <li>● Which technologies can I use for learning?</li> <li>● How do I use the resources to get the job done right?</li> <li>● How do I work to get what I want?(SS)</li> </ul>

	6c. Troubleshoot systems and applications	<ul style="list-style-type: none"> <li>• Effective troubleshooting requires knowledge of the most predictable problems/errors.</li> <li>• There are likely fixes/choices that a user can make to resolve most problems.</li> <li>• Seeking expertise (technical manual, other people) grow your capacity when you have exhausted your existing knowledge base.</li> </ul>	<ul style="list-style-type: none"> <li>• What is the best way to solve this problem?</li> <li>• What are the steps I take when something doesn't work?</li> <li>• What do I do if I get stuck?(M, LA)</li> </ul>
	6d. Transfer current knowledge to learning of new technologies	<ul style="list-style-type: none"> <li>• Self awareness of background knowledge, motivations, and level of confidence shape how students use and respond to new technologies.</li> </ul>	<ul style="list-style-type: none"> <li>• How can this idea be represented in different ways? How does that range of possibilities help me?</li> <li>• How does what I'm working on today relate to what I already know/have experiences? What do I learn from that connection?</li> </ul>