Vision Statement: (Ideal State)

Each Iowa student will have the academic and social skills as well as the personal characteristics that empower them to be productive, caring, and competent citizens.

Rationale:

Employers are demanding that employees demonstrate the skills to work productively in teams, communicate effectively, think innovatively and solve problems creatively. An overwhelming number of students leave their educational experience unprepared for the world of work. Employers are unable to locate, hire and retain competent, responsible, and accountable employees.

According to the Partnership for 21st Century Skills,

"…academic and cognitive skills, as essential as they are, are not all that is necessary for a successful life. In our global technological age, young people also need to work with and learn from diverse groups, be flexible in a variety of work and social settings, and be adaptable to changing times. They need to demonstrate leadership and take responsibility for results, show initiative and resourcefulness, and be productive and accountable for their actions."

Integration of these critical skills will allow students to make a seamless transition from the theory in the classroom to the complexity of the workforce, thus preparing students to compete in an increasingly complex and unknown global market. The availability of a knowledgeable and skilled workforce will result in a profitable economy for Iowa, our nation, and our world.

Essential Concept TL 1: Creativity and Innovation. Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology.					
	Grade 6 - 8	Grade 9 – 12	Integrations with Core Areas	Sample Activities: Preface to Activity TL1: It is the year 2010 and energy prices have continued to skyrocket. It has become obvious, that in order to comfortably live, you and your family group need to have a plan to supply your own personal power needs. New technologies are your friend in this endeavor.	
Key Elements:	*Skill sets needed:*	*Skill sets needed:*			
1.1 Apply existing knowledge to generate new ideas, products, or processes		Students design, develop, create, and/or test self-generated digital learning objects that are accessible by as many users as possible and demonstrate knowledge and skills related to curriculum content.		Quadrant C: Your group will follow your plan of investigation and create a model (physical, mathematical, etc.) to test the efficacy of your chosen power supply under various conditions. You are to run your model and analyze your data.	Quadrant D: As a group, you are to create a means to publish your findings and share them with others. An explanation of how your family group will use the power supply should be the framework for your published works. Your works will appear on a class website, so they must meet accessiblity guidelines. Evaluation of the risks and benefits of your power supply method must be included.

| 1.2 Create original works as a means of personal or group expression. | | Students individually or collaboratively create media-rich products to be displayed, published, or performed for a variety of audiences. | . | Quadrant A: As a small "family" group, you are to do an online search to find different means of supplying personal-use power. Before beginning work, as a class you are to generate a list of keywords to help in your online searching. Digital research notes are required and websites are to be noted.

Teacher note: Possible key searchwords: (solar power, nano solar, wind turbine, geothermal, hydrogen fuel cell, generators, ethanol) | Quadrant B: Your family group should choose a personal power supply method that is both sustainable and technologically innovative. Your group is to formulate a plan for investigation to discover how technology will enhance the generation and/or use of your chosen power supply method. Your plan should include investigation of both the capabilities and the limitations of the technology services. |
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| 1.3 Use models and simulations to explore complex systems and issues. | | Students employ curriculum-specific, technology-based simulations to aid them | | | |

		in understanding complex, real-world systems. Simulations studies include formulating problems, developing models, running models, and analyzing outputs that help predict behaviors and outcomes.		
1.4 Identify trends and forecast possibilities.		Students investigate complex global issues, make informed choices based on capabilities and limitations of technology systems, resources, and services, and apply this learning to personal and workplace needs.		

Essential Concept TL2: 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.				
	Grades 6 - 8	Grades 9 - 12	Integrations with Core Areas	Sample Activities Preface to Activity TL2: Health care for you and your family has evolved in recent decades to include global interactions and options in many medical fields. X-rays are read by radiologists in countries across the world while you sleep, pace-maker patients download data from their devices by telephone, surgeons do procedures using robotic tools, diabetics report blood sugar levels to research facilities by email, etc. Telemedicine is the use of telecommunications technology for medical diagnosis and patient care when the provider and client are separated by distance.
Key Elements:	*Skills needed:*	*Skills needed:*		
2.1 Interact, collaborate, and publish with peers, experts or others employing a variety of digital environments and media		Using technology, students interact and collaborate with peers, experts, and others to contribute to a content-related, media-rich knowledge base by compiling, synthesizing, producing, and disseminating information, models, and other creative works.		Quadrant C: You are to listen to all of the podcasts created by your classmates, compile digital notes over the information presented, and create a comprehensive list of telemedicine examples. Using your notes and lists, compare traditional medicine with telemedine,	Quadrant D: Go to Wikipedia and read "About Wikipedia," making sure you read for understanding about the structure of this free online encyclopedia and how you can add to its wealth of knowledge. As a small group, you are to contribute to the Wikipedia page for telemedicine.

				identifying the strengths and weaknesses of each and what affect the use of telemedicine might have on the future of health care.	Your group is to analyze the information given on the Wikipedia telemedicine page and determine what additional information could be added to the page from your research and study. Your group is to then write a collaborative piece to be added to the telemedicine page. Before publishing your work, you are to choose a panel of reviewers for your work and give rationale for the choices you make. Finally, you are to have your work reviewed by your chosen panel, edit your work as necessary, and publish your piece on the Wikipedia telemedicine page.
2.2 Communicate information and ideas effectively to multiple audiences using a variety of media and		Students use technology tools and resources, including distance and distributed education, for effectively exchanging information with a variety		Quadrant A: As a class, generate keywords and questions you could use to research the	Quadrant B: As a small group, you are to interview health experts about the uses of telemedicine in their areas of

formats.		of audiences in an array of media-rich formats.		concept of telemedicine. As a small group, investigate telemedicine using the keywords and questions generated by your class. Teacher notes: Possible investigation questions: What is telemedicine? What are examples of telemedicine happening around the world? How could telemedicine be used to enhance your health care in your foreseeable future?	care. The experts can be from your local area, from across the country, or from around the world. You are to create a podcast to be uploaded on to the class website sharing your interview information.
2.3 Develop cultural understanding and global awareness by		Students use a variety of existing online tools and emerging technologies for			

engaging with learners of other cultures		communicating with and learning about people of other cultures. Students investigate, communicate, and understand cultural norms manifested in music, literature, painting and sculpture, theater and film resulting in greater global awareness.		
2.4 Appropriately contribute to project teams to produce original works or solve problems.		Students share knowledge and skills with local or distance teams of peers, experts, or others using technological tools and resources to create collaborative works and/or innovative sustainable solutions.		

Essential Concept TL3:				
Research and Information Fluency Students apply digital tools to gather, evaluate, and use information.				
	Grade 6 -8	Grades 9 - 12	Integrations with Core Areas	Sample Activities Preface to Activity TL3: A group of business leaders are collectively looking to relocate their businesses to a community with a larger potential employee base. Your community wants this group to relocate to your area. You have been asked to research what types of skills they are looking for in potential employees, discover how your community can meet those needs and present your findings to a board of community members
Key Elements:	*Skills needed:*	*Skills needed:*		
3.1 Plan strategies to guide inquiry.		Students design a process which establishes criteria for selecting digital tools and resources to use for in-depth investigation of a real-world task and justify the selection based on efficiency and effectiveness.		Quadrant C: Produce and implement an online survey for community members using a free online survey tool to determine what skills they perceive they possess. Compare the results of your survey to the findings of your research on the specific skills the business group is looking for. Indicate specific skills that are prevalent in your community and skills that are not as common. Report your findings to the community group via	Quadrant D: Based on the comparison of your research and community survey, determine employability strengths and weaknesses of potential employees in your community. Find areas (skills) where there are ample potential employees and where there is a deficit of potential employees. Develop a digital marketing campaign to attract potential employees with skills in areas of deficit to your

				the local Chamber of Commerce listserv. Evaluate the online survey and digital organizational tool to see they produced the information you needed to present useful information.	community. An aspect of that campaign needs to include retaining current community members so as not to lose that bank of potential employees. Use any digital resources available to create an effective campaign that can be included on the community website, uploaded to youtube! or other online resources (to reach a wider audience), or sent to the group of business leaders to demonstrate what your community has to offer and is willing to do to attract their businesses.
3.2 Locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media.		Students model legal and ethical behaviors when using information and technology by properly selecting, acquiring, and citing resources for research, information analysis, problem solving, and decision making in content learning.		Quadrant A: Define "employability" and create a list of employability skills based on current research and information available from various resources, including but not limited to print material, the	Quadrant B: Create a digital organizational tool to help you in your research to discover what specific skills are required for employees in each of the industries in the business group. Conduct your

				Internet, industry publications/websites, and interviews with business leaders. Write an article to be included on the community website detailing your findings to inform the public.	research and complete the organizational tool in a manner that allows you to report your findings to the community board in a concise and effective manner.
3.3 Evaluate and select information sources and digital tools based on the appropriateness to specific tasks.		Students access information efficiently and effectively, evaluate information critically and competently and use digital information and tools accurately and creatively for the issue or problem at hand.			
3.4 Process data and report results		Students use technological tools to select, organize, and analyze data, convert that information into easily understood knowledge and effectively convey the results to an intended audience.			

Essential Concept TL4: 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 tools and resources.

	Grades 6 - 8	Grades 9 - 12	Integrations with Core Areas	Sample Activities Preface to Activity TL4: Voters of a growing school district need to vote on what kind of schools need to be built to accommodate future growth within the next five years. Your consulting firm has been hired by the district to research how that growth needs to be addressed to ensure equitable access to technology for all students with the increased enrollment. Your findings will be made public to help the voters make informed choices.	
Key Elements:	*Skills needed:*	*Skills needed:*			
4.1 Identify and define authentic, real-world problems and significant questions for investigation.		Students identify global issues and analyze capabilities and limitations of current and emerging technology resources in order to develop and refine investigatible questions.			
4.2 Plan and manage activities to develop a solution or complete a project.		Students effectively use multiple technologies and resources to develop a systematic plan for conducting research in order to assess potential sustainable solutions, or to develop a complete product to		Quadrant A: Research what future technologies are currently being developed and are anticipated to be developed within the next five years. Create a	

		demonstrate knowledge and skills.		presentation for the district school board, superintendent, and community detailing what future technologies are on the horizon and which ones will be useful in an educational setting.	
4. 3 Collect and analyze data to identify trends, solutions, or make informed decisions		Students use technology to gather appropriate data, analyze its application to a task, and assess its effectiveness in order to design, develop and test possible solutions that assist students in making decisions.			
4.4 Use multiple processes and diverse perspectives to explore alternative solutions		Students use multiple perspectives to analyze and evaluate information from a variety of technological resources. Students critically assess numerous solutions and investigate them from differing viewpoints.			

Essential ConceptTL5: Digital Citizenship - Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.					
	Grades 6 - 8	Grades 9 - 12	Integrations with Core Areas	Sample Activities Preface to Activity TL5: Intellectual property rights are a major issue because the Internet makes sharing information so easy.	
Key Elements:	*Skills needed:*	*Skills needed:*			
5.1 Advocate and practice safe, legal, and responsible use of information and technology at an age-appropriate level.		Students use technology efficiently and in a manner that does not harm them or others. Their choices demonstrate and advocate for legal and ethical behaviors among peers, family, and community regarding the use of technology and information. Students understand the concept of acceptable use of copyrighted materials, and how disregarding intellectual property affects others.		Quadrant C - Analyze the factors affecting the price of recorded music. Assess the importance, validity, or limitations of each factor, and hypothesize how the cost of each factor could be minimized to reduce the final cost for the consumer.	Quadrant D - You and your friends have organized a band and decided to sell your recordings. Describe the steps you would take to accomplish this goal and make the music available to others for purchase. Identify several steps you could take to ensure that your digital rights are protected and your

					profits from your recordings are maximized.
5.2 Exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity.		Students willingly and routinely use online resources to meet needs for collaboration, research, publication, communication, and productivity. Evidence for a positive attitude includes a proclivity to help others with the use of technology in their learning.		Quadrant A - Create a report providing an overview of the current laws regarding the duplication and distribution of recorded music.	Quadrant B - Create an overview of the current methods for legally obtaining music.
5.3 Demonstrate personal responsibility for lifelong learning.		Students use their skills to identify capabilities and limitations of contemporary and emerging technology resources and assess the potential of these systems and services to address personal, lifelong learning, and workplace			

		needs. They use this knowledge to make informed choices among technology systems, resources, and services.			
5.4 Exhibit leadership for digital citizenship.		Students with digital leadership are willing to adopt new technologies and make practical use of them. Leaders finish projects they begin, help others, accept responsibility for their success and failures, and embrace the excitement of a challenge in using new technologies.			

Essential Concept TL6: Technology Operations and Concepts - Students demonstrate a sound understanding of technology concepts, systems and operations.

	Grades 6 - 8	Grades 9 - 12	Integrations with Core Areas	Sample Activities	
Key Elements:	Skills needed:	Skills needed:			
6.1 Understand and use technology systems		Students adapt to evolving technology systems and apply them for everyday use. They also interpret the underlying structure of the system so it can be used for multiple purposes and applied to unique situations.		Quadrant C - Evaluate the effectiveness of two different CAD programs. Use two of them to draw the layout of	Quadrant D - Locate several examples of personal budgets and identify at least one positive and one negative aspect to each

				your classroom and determine which program is more suitable and why.	one. Select a potential career for yourself as you enter the job market, including a reasonable salary based on where you would like to live. Use examples of budgets you located to create your own budget based on your anticipated needs. Justify each expense in your budget. Do the same for a second budget reflecting where you would like to be 10 years later.
6.2 Select and use applications effectively and productively		Students select and apply technology tools for research, information analysis, problem solving, and decision making. Students use technology tools and resources for managing and		Quadrant A - Teach a lesson to a group of elementary students demonstrating how to use a	Quadrant B - Research several careers you are interested in and report the average salary, market

				spreadsheet program. Utilize the elementary students' knowledge of word processing programs to teach them the basics of the spreadsheet program.	demand, and education requirements of each one.
		communicating personal and professional information (e.g., finances, schedules, addresses, purchases, correspondence).			
6. 3 Troubleshoot systems and applications.		Students utilize a working knowledge of technology or technological support services to identify a problem/issue and its solution.			
6.4 Transfer current knowledge to learning of new technologies.		Students apply what they know of one technology to intuitively utilize other technologies.			

The technology literacy committee has chosen to endorse the work of the International Society for Technology in Education's National Educational Technology Standards for Students: The Next Generation. ISTE has set the bar with The National Educational Technology Standards (NETS) for integration of technology in education. The standards have received acceptance and wide-spread use across the United States and in many other countries. Seventy-two percent of the states have adopted, adapted, referenced, or aligned their technology standards to the NETS.

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