Iowa Core
21st Century Skills

Essential Concepts and Skills with Details and Examples

Introduction

As each Iowa student is provided access to essential concepts and meaningful learning experiences in the core academic content areas, it is imperative that we also look to 21st century skills to build capacity in students so they are prepared to lead productive, satisfying lives. According to Ken Kay, president of the Partnership for 21st Century Skills, the 21st century skills set "is the ticket to economic upward mobility in the new economy" (Gewertz, 2007). Business and industry is providing a very clear message that students need the skills to "work comfortably with people from other cultures, solve problems creatively, write and speak well, think in a multidisciplinary way, and evaluate information critically. And they need to be punctual, dependable, and industrious." (Gewertz, 2007).

The Framework for 21st Century Learning stated, "We believe schools must move beyond a focus on basic competency in core subjects to promoting understanding of academic content at much higher levels by weaving 21st century interdisciplinary themes into core subjects" (2007). 21st century skills bridge the knowledge, skills, and dispositions of students from the core academic areas to real life application.

"The primary aim of education is not to enable students to do well in school, but to help them do well in the lives they lead outside of the school."
-Ray McNulty, ICLE
Iowa High School Summit, December 10, 2007

Descriptions of the new global reality are plentiful, and the need for new, 21st century skills in an increasingly complex environment is well documented. In one form or another, authors cite (1) the globalization of economics; (2) the explosion of scientific and technological knowledge; (3) the increasingly international dimensions of the issues we face, i.e. global warming and pandemic diseases; and (4) changing demographic as the major trends that have resulted in a future world much different from the one that many of us faced when we graduated from high school (Friedman, 2005 and Stewart, 2007). The trends are very clear that each Iowa students will need essential 21st century skills to lead satisfying lives in this current reality.

Descriptions of what constitute essential 21st century skills are plentiful as well. In the 2007 session, the Iowa Legislature established the Iowa 21st century framework as:
   (1) Political Science - Civic literacy
   (2) employability skills
   (3) financial literacy
   (4) health literacy
   (5) technology literacy

Within this 21st century skill framework are the common strands of learning and innovation; communication, information, and technology; and, life and career skills. The development of the Iowa 21st century essential concepts and skills was a collaborative process engaging the expertise of p – 16 educators, business, and industry representatives. Sources used for this work included the 1991 SCANS report, What Work Requires of Schools, and Framework for 21st Century Learning, from the Partnership for 21st Century Skills. The committee surveyed the literature and endeavored to bring together the common elements of these frameworks. The members have outlined the concepts, dispositions and habits of mind believed essential for success in the 21st century.

The reality of building capacity for the 21st century is that we do not know what the work of the future will be like (Darling-Hammond, 2007) or how technology will influence health and financial issues. The challenge is to prepare students to think critically, to engage in mental activity, or habits of mind, that "…use facts to plan, order, and work toward an end; seek meaning or explanations; are self-reflective; and use reason to question claims and make judgments…" (Noddings, 2008). It may be that our task is not only to prepare students to "fit into the future" but to shape it. "…If the complex questions of the future are to be determined… by human beings…making one choice rather than another, we should educate youths - all of them - to join in the conversation about those choices and to influence that future…" (Meier, 2008).

Civic Literacy

NOTE: The Essential Concepts and Skills listed in 21st Century Skills – Civic Literacy are the same as the Essential Concepts and Skills listed in Social Studies – Political Science/Civic Literacy.

High School (9 – 12) Details and Example

Essential Concept and/or Skill: *Understand the rights and responsibilities of each citizen and demonstrate the value of lifelong civic action. (SS.9-12.PSCL.1)*

- Understand rights, roles, and status of the individual in relation to the general welfare.
- Understand that constitutional democracy requires the participation of an attentive, knowledgeable, and competent citizenry.
- Understand personal, political, and economic rights are secured by constitutional government, the rule of law, checks and balances, an independent judiciary, and a vigilant citizenry.
- Understand ways citizens participate in the political process at local, state, and national levels.
- Understand the importance of becoming knowledgeable about public affairs.
- Understand the importance of voluntarism as a characteristic of American society.

Essential Concept and/or Skill: *Understand how the government established by the Constitution embodies the enduring values and principles of democracy and republicanism. (SS.9-12.PSCL.2)*

- Understand the central ideas of American constitutional government and how this form of government has shaped the character of American society.
- Understand the role of government in major areas of domestic and foreign policy.

Essential Concept and/or Skill: *Understand the purpose and function of each of the three branches of government established by the Constitution.*

- Understand the purpose of government and how its powers are acquired, used and justified.
- Understand the necessity of politics and government.
- Understand the purposes, organization, and functions of the legislative, executive, and judicial branches and the independent regulatory agencies.

Essential Concept and/or Skill: *Understand the differences among the complex levels of local, state and national government and their inherent, expressed, and implied powers. (SS.9-12.PSCL.4)*

- Understand the design and features of the Constitution prevent the abuse of power by aggregating power at the national, state, and local levels and using a system of checks and balances.
- Understand provisions of the Constitution and principles of the constitutional system help to insure a government that will not exceed its limits.
- Understand the limits the United States Constitution places on the powers of the states and on the powers of the national government over state governments.
- Understand the policies of state and local governments provide citizens with ways to monitor and influence the actions of members of government and hold them responsible for their actions.

Essential Concept and/or Skill: *Understand strategies for effective political action that impact local, state, and national governance. (SS.9-12.PSCL.5)*

- Understand participation in civic and political life can help citizens attain individual and public goals.
- Understand the role of diversity in American life and the importance of shared values, political beliefs, and civic beliefs in an increasingly diverse American society.

Essential Concept and/or Skill: *Understand how law and public policy are established at the local, state, and national levels of government. (SS.9-12.PSCL.6)*

- Understand the purposes and functions of law.
- Understand the processes by which public policy concerning a local, state, or national issue is formed and carried out.
- Understand issues concerning the relationship between state and local governments and the national government.

Illustration of *Understand how law and public policy are established at the local, state, and national levels of government* in the ICLE's Rigor and Relevance Framework	
Quadrant C Students will predict the fate of a piece of proposed legislation based on an assessment of the current political climate, partisan perspectives, public opinion and media coverage.	**Quadrant D** Students analyze a local, state or national issue and prescribe a legislative response that promotes the public interest or general welfare.
Quadrant A Students will be able to create a sequence diagram that shows how a bill becomes a law at the federal and state level as well as how local statutes are established.	**Quadrant B** Students select a current bill that they support and track it through the legislative session.

Essential Concept and/or Skill: *Understand how various political systems throughout the world define the rights and responsibilities of the individual. (SS.9-12.PSCL.7)*

- Understand ideologies, structures, institutions, processes and political cultures of different political systems in the world.
- Understand the essential characteristics of limited and unlimited governments.

Essential Concept and/or Skill: *Understand the role of the United States in current world affairs. (SS.9-12.PSCL.8)*

- Understand conditions, actions and motivations that contribute to conflict and cooperation within and among nations.
- Understand the significance of foreign policies and events in the United States' relations with the world.
- Understand the idea of national interest and how it is used as a criterion for shaping American foreign policy.
- Understand the effects that significant world political developments have on the United States.
- Understands the influence that American ideas about rights have had abroad and how other peoples' ideas about rights have influenced Americans.

Employability Skills

The vision statement developed by the Iowa Core 21st Century Skills Committee states: **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.** This is consistent with the view that good employees may not be good citizens but good citizens always make good employees.

The employability essential concepts and skill sets represent universal content. They (1) contribute to outcomes that are valued for individuals and for society; (2) bring benefits in a wide variety of contexts and apply to multiple areas of life; and (3) are of use to all individuals, deemphasizing competencies of use only in a specific trade, occupation or walk of life. (OECD, 2005*).

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. The employability concepts connect content and those dispositions required for success in life beyond school.

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 across curricular areas will allow students to make the transition from the classroom to their roles as citizens and workers in an increasingly complex and unknown global market. The availability of a knowledgeable and skilled citizenry will enhance the quality of life and result in a profitable economy for Iowa, our nation, and our world.

*The Definition and Selection of Key Competencies, or the DeSeCo, Project. Overview. Organization for Economic Co-operation and Development, 2005

High School (9 – 12) Details and Examples

Essential Concept and/or Skill: *Communicate and work productively with others, incorporating different perspectives and cross cultural understanding, to increase innovation and the quality of work. (21.9-12.ES.1)*

Work appropriately and productively with others
- Set goals
- Effectively communicate with group and stakeholders
- Demonstrate respectful behavior to group member ideas and opinions
- Manage and resolve conflict when appropriate
- Lead or support when appropriate
- Determine people's strengths and assign roles accordingly
- Contribute to a team by sharing information and expertise
- Agree to disagree in a respectful manner in a group dynamic
- Collaborate effectively with other teams/team members toward a common goal
- Recognize own and other's good efforts

Use different perspectives to increase innovation and the quality of work
- Gather input from all group members
- Capitalize on the diversity of group members
- Accept and provide feedback in a constructive and considerate manner

Use all the appropriate principles of communication effectively
- Listen to understand and appreciate the points of view of others
- Listen for comprehension
- Listen for decision making
- Process information in order to make an informed decision
- Ask appropriate questions in seeking clarification
- Read, understand and create information presented in a variety of forms (e.g. words, charts, graphs, diagrams)
- Follow directions
- Express thoughts and ideas clearly and succinctly
- Use appropriate technology to communicate
- Use appropriate channels of communication (written, verbal, technical, visual)

Illustration of *Communicate and work productively with others, incorporating different perspectives and cross cultural understanding, to increase innovation and the quality of work* in the ICLE's Rigor and Relevance Framework	
Quadrant C Pairs of students conduct interviews with five adults and synthesize their results in order to create a top ten list of teamwork qualities. Students then compare and contrast their lists with research on effective teamwork.	**Quadrant D** Group of students identifies, plans, and completes a Service Learning project.
Quadrant A Students brainstorm a list of qualities needed for effective teamwork.	**Quadrant B** Students participate in the "Amazing Maze Activity". The goal of this activity is to move the entire group across grid by a predetermined, but unknown path. (Use masking tape to develop a grid on the floor.) Following the activity, debrief with the students the qualities which were necessary to complete the task. Compare these qualities to the students' previously brainstormed list.

Essential Concept and/or Skill: *Adapt to various roles and responsibilities and work flexibly in climates of ambiguity and changing priorities. (21.9-12.ES.2)*

Adapt to varied roles, responsibilities, and expectations
- Work independently or as a part of a team
- Learn from mistakes and accept feedback
- Carry out multiple tasks or projects
- Continuously monitor the success of a project or task
- Identify ways to improve project or task
- Consider multiple perspectives and represents a problem in more than one way
- Accept others; tolerant of differences

Work effectively in a climate of ambiguity and changing priorities
- Cope with uncertainty; quickly and calmly change focus and goals as the situation requires
- Demonstrate a sense of comfort with lack of structure
- Remain composed and focused, even under stress
- Adapt to changing requirements and information
- Respond openly and constructively to change
- Approach conflict from win-win perspective

Demonstrate appropriate risk-taking
- Provides innovative and resourceful engagement
- Identifies and suggests alternative ways to achieve goals
- Asks "what if"
- Brainstorms effectively
- Questions assumptions in a non-confrontational manner

Illustration of *Adapt to various roles and responsibilities and work flexibly in climates of ambiguity and changing priorities* in the ICLE's Rigor and Relevance Framework	
Quadrant C Students give an extemporaneous speech having selected a random topic out of a basket.	**Quadrant D** Students prepare and participate in a debate.
Quadrant A Students create a storybook describing how to effectively encounter change in the work place.	**Quadrant B** Have students participate in a game of basketball while the teacher continually changes the rules. Debrief with students about how they had to adapt in order to continue playing the game.

Essential Concept and/or Skill: *Demonstrate leadership skills, integrity, ethical behavior, and social responsibility while collaborating to achieve common goals. (21.9-12.ES.3)*

Use interpersonal skills to influence and guide others toward a goal
- Positively support the work of others
- Facilitate and delegate responsibilities to best accomplish goal(s)
- Build relationships
- Engage in the tasks to accomplish goal
- Know when to listen and when to speak-up
- Maintain an open mind
- Provide constructive feedback

Leverage the strengths of others to accomplish a common goal
- Communicate effectively
- Collaborate effectively
- Appreciate ideas of others
- Facilitate compromise that can lead to group consensus

Demonstrate integrity and ethical behavior
- Accept ownership for actions
- Demonstrate trustworthiness and honesty
- Make decisions based on important core values

Demonstrate mental, physical, and emotional preparedness to accomplish the task
- Organize required materials in a readily accessible format.
- Focus and become energized on the task objectives.

Illustration : ***Demonstrate leadership skills, integrity, ethical behavior, and social responsibility while collaborating to achieve common goals*** in the ICLE's Rigor and Relevance Framework	
Quadrant C Use case study of Enron to evaluate how practices affected employees and the general economy.	**Quadrant D** Students create a code of conduct for their school. Different groups of students are assigned to write different sections of the code. Each group will present their section of the code of conduct to the class. Every person in the class has an assigned stakeholder perspective (teacher, administrator, parent, legislature, etc.) to listen and provide feedback to the group about their code.
Quadrant A Have students develop their own definition of ethics after discussing how students would respond in various ethical dilemmas.	**Quadrant B** Show the video, *Fun with Dick and Jane.* Following the video, have students research corporate codes of conduct and analyze how and why codes of conduct are necessary in outlining guidelines for employees. Also, have students discuss how various stakeholders were impacted by the unethical actions of the characters in the movie.

Essential Concept and/or Skill: *Demonstrate initiative and self-direction through high achievement and lifelong learning while exploring the ways individual talents and skills can be used for productive outcomes in personal and professional life. (21.9-12.ES.4)*

Perform work without oversight
- Assesses the situation and identify the priority/necessary actions to be taken
- Understand the value of the task in relationship to greater goal
- Understand that incomplete work-- even if excellent--is a failure
- Model self-confidence
- Know how to find and evaluate appropriate resources
- Implement solutions
- Demonstrate commitment to self/group/society

Use time efficiently to manage workload
- Segment task into logical steps with appropriate estimates of time
- Build a timeline to facilitate completion of the task
- Prioritize steps in proper order

Assess one's own mastery of skills
- Understand the task
- Identify the depth and breadth of knowledge to be successful at a task
- Identify and utilize appropriate measure of knowledge

Set and achieve high standards and goals
- Understand incremental steps for acquiring goals
- Create a written plan
- Set realistic goals that match aptitudes
- Engage in activities to improve skills that are relative to goals
- Demonstrate core values
- Constructively evaluate progress and takes corrective action when necessary

Engage in effective problem solving process
- Transfer learning from one domain to another
- Identify partners and resources germane to the situation
- Evaluate and select the best resources in context of the problem, and allocates them appropriately
- Identify root cause of problem
- Detail a course of action in writing with sequence of steps involved
- Implement a solution and makes adjustments when there is need/opportunity for improvement

Illustration : *Demonstrate initiative and self-direction through high achievement and lifelong learning while exploring the ways individual talents and skills can be used for productive outcomes in personal and professional life* in the ICLE's Rigor and Relevance Framework	
Quadrant C Students research a career area of interest based on their Choices Interest Inventory results and write a paper outlining the key points for career choices.	**Quadrant D** Student designs questions and conduct an interview of a local business leader while participating in a job shadow experience.
Quadrant A Take the Choices Interest Inventory.	**Quadrant B** Students locate and arrange for a guest speaker from their career area of interest to present to their class.

Essential Concept and/or Skill: *Demonstrate productivity and accountability by meeting high expectations. (21.9-12.ES.5)*

Deliver quality job performance on time
- Recognize and understand required standards needed for successful completion
- Set goals and establish timelines to reach required standards
- Establish assessment checkpoints throughout work processes
- Identify quality control issues and makes needed adjustments to correct problems
- Take initiative to see job completed without compromising quality
- Reassess process on a regular basis to identify any opportunities for improvement
- Demonstrate ethical behavior and works responsibly, reliably, and collaboratively with others

Demonstrate accountability for individual performance
- Come to work regularly and is on time all of the time
- Stay productive when on the job
- Take initiative to help others when own work is completed
- Accept responsibility for errors and corrects errors
- Learn from mistakes
- Follow through with work assignments
- Demonstrate willingness to work overtime
- Demonstrate flexibility to crosstrain

Illustration : *Demonstrate productivity and accountability by meeting high expectations* in the ICLE's Rigor and Relevance Framework	
Quadrant C Students create a presentation over the impact of absenteeism and its cost to the economy.	**Quadrant D** Using Quality Tools and Process students work with local employer to help resolve absenteeism issues.
Quadrant A Students brainstorm a list of consequences that could result from absenteeism on the job.	**Quadrant B** Students develop role plays describing how to effectively demonstrate accountability on the job.

Financial Literacy

Financial literacy is closely connected to an individual's emotional, personal, social, economic, and employment success. An individual needs to understand the basics of money management, and use financial resources appropriately to function well in society at a personal, professional, business and community level. In a broader sense, students need to identify and discuss significant economic issues, important to society and to the world. They should practice examining the consequences of change in economic conditions and public policies. (The enGauge 21st Century Skills, 2003)

As society changes, the skills needed to deal with the complexities of life also change. The meaning of skills like financial literacy may change to reflect context, or current realities. Financial **literacy**, however, is about empowerment, the ability *"...to access, manage, integrate, evaluate, and create information in order to function in a knowledge society..."* (ICT Literacy Panel, 2002)

The vision articulated by the Iowa Core 21st Century Skills Committee states: **Each student in Iowa's schools will learn financial literacy concepts, enabling them to succeed in a complex global environment.** The essential concepts and skill sets for financial literacy address the requirements outlined in Iowa legislation Senate File 2216. They also reflect broader, universal skills that cultivate critical thinking and responsible citizenship. They provide us the framework and knowledge to be proactive. When we accept responsibility for our actions because they have consequences for other people as well as for our personal success, we will also understand what it means to solve the problems and face the collective challenges of an increasingly diverse and interconnected world. (OECD, 2005*)

*The Definition and Selection of Key Competencies, or the DeSeCo, Project. Overview. Organization for Economic Co-operation and Development, 2005

High School (9 – 12) Details and Example

Essential Concept and/or Skill: *Demonstrate financial responsibility and planning skills to achieve financial goals for a lifetime of financial health. (21.9-12.FL.1)*

Develop short- and long-term financial goals.
- Understand the concept of setting short-term (next six months) and long-term (beyond six months) goals.
- Evaluate the role short- and long-term goals play in financial success. Assess the impact of goal setting on personal financial success.
- Describe the impact of goal setting on personal financial success.

Understand needs versus wants.
- Explain the difference between needs and wants. Analyze their own needs and wants to determine importance (prioritize).
- Develop plans to achieve their most important needs and wants.
- Explore individual decisions made as a consumer and distinguish between fact and opinion in advertising.

Illustration of *Demonstrate financial responsibility and planning skills to achieve financial goals for a lifetime of financial health* in the ICLE's Rigor and Relevance Framework	
Quadrant C Prepare a list of short-term goals and a budget to achieve those goals. Prepare a list of long-term goals and a budget for achieving these goals. Determine the financial instruments needed for each. Explain how to measure success or lack of success over a given period of time.	**Quadrant D** Using a lifestyle of your choice, develop short- and long-term goals for acquiring assets and other lifestyle items of choice. How much money will you need as income to afford this lifestyle? Write a justification for the use of credit, how you will use it, and how you plan to repay it.
Quadrant A Define a spending plan and list the key points to consider when developing a personal spending plan.	**Quadrant B** Explain why a spending plan will, or will not, help you live within your current means.

Essential Concept and/or Skill: *Manage money effectively by developing spending plans and selecting appropriate financial instruments to maintain positive cash flow. (21.9-12.FL.2)*

Develop a realistic spending plan for financial independence.
- Understand the concept of developing a spending plan that promotes living within one's means.
- Evaluate spending plans that promote maintaining a larger income than expenditures.
- Develop and assess impact of different spending plans to make informed choices.
- Describe the impact of global issues on financial planning.

Understand various sources of compensation.
- Identify various types of income (e.g., allowances, salary, hourly wage, commission, benefits, gross and net income.)
- Compare various compensation options to determine which best fits individual needs.
- Explain how income affects lifestyle and spending choices.

Understand financial instruments.
- Understand the responsibility of maintaining accounts using financial instruments such as checking accounts, debit cards, and ATM cards.
- Demonstrate the ability to reconcile personal records with financial institution's records.
- Differentiate between interest-bearing and noninterest-bearing accounts.

Recognize the impact of fees and charges.
- Identify options for online financial transactions (buying, making payments, transfers, etc.).
- Understand the distribution of resources.
- Identify options for distributing resources.
- Analyze short- and long-term benefits of different resource allocation opportunities.
- Create a personal spending plan to include savings, spending, giving, and/or investing consistent with their financial goals.

Illustration of *Manage money effectively by developing spending plans and selecting appropriate financial instruments to maintain positive cash flow* in the ICLE's Rigor and Relevance Framework	
Quadrant C Compare three different spending plans to determine which is most effective and which is most realistic. Identify the strengths and limitations of each plan.	**Quadrant D** Using your present income, develop a realistic spending plan to be able to acquire an item of your choice without going into debt. Write a justification for why this plan is the best option.
Quadrant A Define a spending plan and list the key points to consider when developing a personal spending plan.	**Quadrant B** Explain why a spending plan will, or will not, help you live within your current means.

Essential Concept and/or Skill: *Make informed and responsible decisions about incurring and repaying debt to remain both creditworthy and financially secure. (21.9-12.FL.3)*

Identify responsible credit card management.
- Compare and contract offers of credit card, instant loan, and introductory offers (low rate introductory, startup fees, and fixed rate).
- Explain credit card features, including annual fees, interest rates, and incentives.
- Understand implications of making minimum payments, late payments, and late fees.

Understand different types of debt.
- Understand the types of debt consumers encounter.
- Compare loan terms and rates to determine best choice.
- Identify the impact of loans on a personal financial plan, such as auto, student, credit card, major purchase.
- Identify asset-producing debt versus living expense debt.

Understand rights and responsibilities of borrowers.
- Identify factors considered for qualifying for and securing a loan (i.e., what makes a person a good or bad credit risk).
- Understand the meaning of a credit score and how it is used to negotiate better loan options. Identify the steps in checking their own credit score and making corrections if needed.
- Explain the potential consequences for not meeting the requirements of the agreement (i.e., payment amount, due dates, insurance, taxes, etc.).
- Explain an individual's rights and responsibilities under consumer protection laws.

Illustration of *Make informed and responsible decisions about incurring and repaying debt to remain both creditworthy and financially secure* in the ICLE's Rigor and Relevance Framework	
Quadrant C Compare three different credit cards--features, incentives, fees, interest. Complete an Internet search for offers of credit cards--identify differences in features and hidden fees, as appropriate.	**Quadrant D** After comparing various credit card offers, select a credit card that best meets your expected needs. Determine how and when you will use the card and describe when it is better to use a credit card than cash.
Quadrant A Assume that you have a credit card that charges 9% interest. You've charged $650. The minimum payment due is $25. How long will it take you to pay off the $650 if you make only minimum payments?	**Quadrant B** Using credit card offers to at least three different companies, list the advantages and disadvantages of each card. From this information, determine which is the best option for you.

Essential Concept and/or Skill: *Evaluate and identify appropriate risk management options, including types of insurance, non-insurance, and identity protection. (21.9-12.FL.4)*

Establish strategies for protection of identity.
- Describe the importance of protecting their identity.
- Distinguish legitimate from fraudulent solicitations.
- Understand the impact of technology on personal security.
- Identify important identification numbers and explain when they should or should not be shared.
- Explain ways to protect their identity.

Recognize different types of insurance.
- Explain different types of insurance and identify the appropriate need for each.
- Determine appropriate options available to reduce the cost of premiums.

Recognize different types of noninsurance protection.
- Explain importance of legal and written documentation to protect individuals.
- Identify types of documentation used by individuals to prevent personal and financial loss. Analyze the types of protection available and their appropriate use.

Illustration of *Evaluate and identify appropriate risk management options, including types of insurance, non-insurance, and identity protection* in the ICLE's Rigor and Relevance Framework	
Quadrant C Interview an adult to ask the following: What specific steps does he or she take to protect their identity and how do they distinguish legitimate from fraudulent solicitations. Then interview a student to learn how he or she is protecting their identity and compare their responses to those of the adult. What differences did you notice? Similarities?	**Quadrant D** Using a variety of sources, research various aspects of identity theft and determine what steps should be taken to protect against identity theft. Prepare a five-minute presentation to inform peers on the importance of self-protection against identify theft. Explain how they are protecting their identity and what they have done to help recognize fraudulent offers and solicitations.
Quadrant A Describe identity theft, the ways an individual can have an identity stolen, and why it is important to immediately report the theft to appropriate entities. List different ways your identity can be stolen. List ways that an employee's identity can be stolen.	**Quadrant B** List all the important types of numbers that you currently have that should be protected. Share any experience you or someone you know has had with scams or fraudulent activities.

Essential Concept and/or Skill: *Assess the value, features, and planning processes associated with savings, investing, and asset building, and apply this knowledge to achieve long-term financial security with personal and entrepreneurial goals in a global market. (21.9-12.FL.5)*

Recognize investment options.
- Assess the many factors that influence financial planning. Explain the importance of savings.
- Explain the impact of short- and long-term financial goals for asset building.
- Outline the process of adjusting the financial plan to accommodate changes in funds.
- Describe the importance of adjusting goals over a lifetime as well as preparing for retirement and estate planning.

Distinguish investment options.
- Distinguish between the various types of investment options.
- Understand the power of compounding interest.

Understand the relationship between investment risk and return.
- Identify the level of risk involved with investment options.
- Explore the potential returns related to investment options.
- Explain the concept of wealth building.

Illustration of *Assess the value, features, and planning processes associated with savings, investing, and asset building, and apply this knowledge to achieve long-term financial security with personal and entrepreneurial goals in a global market* in the ICLE's Rigor and Relevance Framework	
Quadrant C Compare two long-term savings plan scenarios (offering different interest rates, length of time, amount contributed at different times). Determine which option offers a greater return. Then interview a student to learn how he or she is protecting their identity and compare their responses to those of the adult. What differences did you notice? Similarities?	**Quadrant D** Create a comprehensive savings plan based on current income and needs. Use information you gather from a local financial institution or online to determine the most appropriate savings plan that fits your needs the best. List the reason why you believe this is the best choice for you based on your short- and long-term goals.
Quadrant A Explain the importance of having a savings and setting short- and long-term goals.	**Quadrant B** Students explain why they would want to have savings. Describe short- and long-term goals they currently have. Explain how these goals will change once they are out of school.

Essential Concept and/or Skill: *Understand human, cultural, and societal issues related to financial literacy, and practice legal and ethical behavior.*
(21.9-12.FL.6)

Recognize the local, state, national, and international impact of personal financial habits and actions.
- Analyze the complexity of financial transactions as a member of the international community.
- Evaluate the interconnectedness of the production of goods and services at the local to international levels.

Demonstrate responsible financial behaviors, at the personal, local, state, national, and international levels.
- Manage personal and professional financial interactions following legal and ethical guidelines.
- Respect the rights and responsibilities of others in financial interactions.
- Practice responsible financial behaviors within an international financial environment.

Health Literacy

Health literacy, considered a 21st Century theme by the Partnership for 21st Century Skills, is, "the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions" (Nielsen-Bohlman, 2004). A health literate person is able to make appropriate decisions about their health as he or she progresses through life, as health care changes, and as societal norms change. The benefits of being health literate influence the full range of life's activities—home, school, work, society and culture (Zarcadoolas, 2005).

Lack of physical activity and exercise, poor nutritional choices, increased violence, increased substance abuse and other high risk behaviors are serious threats to living a healthy, active life. The essential concepts and skill sets for health literacy provide a framework for building capacity among Iowa's students to think critically about the decisions that affect health status for themselves, their families and their communities. Learning the concepts will form the knowledge base for the development of attitudes and habits of mind that will lead students to take responsibility for their personal health status. This proactive approach will have profound effects on families and society.

The essential concepts reflect the belief that children need to assess media messages at young ages and then develop critical evaluation skills as they intellectually, emotionally and socially mature (Zarcadoolas, 2005). Children must also take an active role in accessing and appropriately using information which affects their health (Nutbeam, 2000, St. Leger, 2001). Therefore, it is important to integrate the essential concepts and skill sets for health literacy across content areas, providing relevant contexts, problem based and service learning experiences. This will provide students opportunities to practice systemic thinking and problem solving processes that will lead to the creative solutions and proactive policies necessary to enhance health status in an interconnected, global society.

Essential Concept and/or Skill: *Demonstrate functional health literacy skills to obtain, interpret, understand and use basic health concepts to enhance personal, family, and community health. (21.9-12.HL.1)*

Use concepts related to health promotion and disease prevention.
- Predict influence of risk and protective factors.
- Describe the interrelationships of the wellness dimensions: physical, emotional, intellectual, environmental, social, and spiritual.
- Use knowledge of impact of genetics/family history to make informed decisions.
- Contribute to personal/family quality of life through proper prevention/management of health crises, i.e., injury, depression, chronic illness.
- Evaluate the impact of health care access (cost, knowledge, insurance, transportation) on health status.
- Describe how the prevention and control of health problems are influenced by research and medical advances.
- Describe the historical impact of disease and other health problems on contemporary health practices.
- Explain the impact of personal health behaviors on the functioning of body systems.
- Explain how personal choices impact health maintenance and disease prevention.
- Understand preventive physical and mental health measures, including proper diet, nutrition, exercise, risk avoidance and stress reduction.

Analyze influencing factors on health enhancing behaviors.
- Explain how family, peers, cultural practices and attitudes influence health.
- Evaluate the impact of media, technology, research and medical advances on health.
- Understand impact of national and international public health and safety issues on personal and family health status.

Essential Concept and/or Skill: *Synthesize interactive literacy and social skills to establish and monitor personal, family and community goals related to all aspects of health. (21.9-12.HL.2)*

Demonstrate communication skills to enhance health and increase safety.
- Communicate effectively to enhance health of self and others.
- Employ effective conflict management strategies. Utilize methods of obtaining help for self and offer assistance to others.
- Demonstrate ways to communicate care, consideration, empathy, and respect for self and others.

Advocate for personal, family and community health.
- Promote health messages to meet health needs of a target audience.
- Influence and support others to make positive health choices.
- Collaborate with others to improve family and community health.
- Employ the effective communication methods to accurately express health information and ideas.
- Engage in media and legislative advocacy efforts to promote positive health for self and others.
- Advocate for healthy, violence-free behaviors by using knowledge of the dynamics of power and position.

Essential Concept and/or Skill: *Apply critical literacy/thinking skills related to personal, family and community wellness. (21.9-12.HL.3)*

Demonstrate decision-making skills.
- Evaluate healthy and unhealthy alternatives in decision-making.
- Evaluate effectiveness of health-related decisions.
- Employ ethical practices when making health-related decisions.
- Use knowledge of relevant terminology, (i.e., deductible, co-pay, catastrophic, coverage) to ask questions and make decisions about health benefits.
- Seek multiple perspectives when asking for assistance to make health-related decisions.
- Consider immediate and long-term impact on individual, family, community and environment when making health-related decisions.

Demonstrate goal-setting skills.
- Evaluate health status and develop goals to enhance health.
- Engage in an ongoing cycle of goal-setting, implementation, evaluation and readjustment to enhance health status.

Essential Concept and/or Skill: *Use media literacy skills to analyze media and other influences to effectively manage health risk situations and advocate for self and others. (21.9-12.HL.4)*

Analyze the influence of family, peers, health professionals, culture, media, technology, and other health factors.
- Employ appropriate responses to negative and positive health influences.
- Analyze the role of public health policies in prevention and maintenance of school and community health.
- Analyze how cultural diversity enriches and challenges health behaviors.
- Analyze how information from the community, family and peers influences health.
- Determine reliability, accuracy, dependability of health information sources.
- Recognize and reject messages that could lead to bullying or violence.

Access valid information, products and services.
- Evaluate factors that influence selection of health products and services.
- Consider preferred provider status as well as other relevant insurance provisions and/or restrictions when accessing and choosing professional health services.

Essential Concept and/or Skill: *Demonstrate behaviors that foster healthy, active lifestyles for individuals and the benefit of society. (21.9-12.HL.5)*

Achieve and maintain health-enhancing level of physical activity.
- Assess and monitor current physical health to meet fitness goals.
- Engage in activities to maintain appropriate levels of cardiovascular endurance, muscular, strength/flexibility, and body composition.

Practice preventive health behaviors.
- Engage in appropriate stress-management strategies that enhance health.
- Engage in behaviors that promote risk avoidance.
- Identify factors that influence healthy eating.
- Establish healthy eating behaviors.
- Engage in behaviors that promote positive mental and emotional health for the individual, family and community.

Technology Literacy

Each Iowa student will be empowered with the technological knowledge and skills to learn effectively and live productively.

This vision, developed by the Iowa Core 21st Century Skills Committee, reflects the fact that Iowans in the 21st century live in a global environment marked by a high use of technology, giving citizens and workers the ability to collaborate and make individual contributions as never before. Iowa's students live in a media-suffused environment, marked by access to an abundance of information and rapidly changing technological tools useful for critical thinking and problem solving processes. Therefore, technological literacy supports preparation of students as global citizens capable of self-directed learning in preparation for an ever-changing world.

Regardless of current realities, **literacy** in any context is defined as the ability "…to access, manage, integrate, evaluate, and create information in order to function in a knowledge society…" (ICT Literacy Panel, 2002) "….When we teach only for facts … (specifics)… rather than for how to go beyond facts, we teach students how to get out of date." (Sternberg, 2008) This statement is particularly significant when applied to technology literacy. The Iowa essential concepts for technology literacy reflect broad, universal processes and skills.

Although it is important that current technologies be integrated into all teachers' classroom practices and all students' experiences, it is also important to understand the broader implications of the transforming influence of technology on society. For example, creativity, innovation and systemic thinking are requirements for success in this environment. Technology is changing the way we think about and do our work. It has changed our relationships with information and given us access to resources, economic and professional, that were unimaginable just a few years ago

Technological advances also present societal challenges. It is essential that students have a deep understanding of technology literacy concepts in order to deal with technology's challenges and implications. It is also essential that educators partner with "…digital natives"…, teaching ways to mediate the challenges, and to realize the potential of technology literacy. (Palfrey and Gasser, 2008)

NOTE: The technology literacy essential concepts and skills are from the International Society for Technology in Education's National Educational Technology Standards for Students.

High School (9 – 12) Details and Examples

Essential Concept and/or Skill: *Demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology.* *(21.9-12.TL.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.

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.

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. Simulation studies include formulating problems, developing models, running models, and analyzing outputs that help predict behaviors and outcomes.

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.

Illustration of *Demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology* in the ICLE's Rigor and Relevance Framework	
Preface to Activity: It is 2010 and energy prices have continued to skyrocket. It has become obvious, that in order to live comfortably, the students' family group needs to have a plan to supply their own personal power needs. Students consider new technologies their friend in this endeavor.	
Quadrant C Student groups follow their plan of investigation and create a model (physical, mathematical, etc.) to test the efficacy of their chosen power supply under various conditions. Run your model and analyze your data.	**Quadrant D** As a group, create a means to publish findings and share with others. An explanation of how the family group will use the power supply should be the framework for published works. Because works will appear on a class Web site, they must meet accessibility guidelines. Evaluation of the risks and benefits of your power supply method must be included.
Quadrant A As a small "family" group, students conduct an online search to find different means of supplying personal-use power. Before beginning work, as a class, generate a list of keywords to help in online searching. Digital research notes are required and Web sites are to be noted. Teacher note: Possible key search words: (solar power, nano solar, wind turbine, geothermal, hydrogen fuel cell, generators, ethanol)	**Quadrant B** The family group should choose a personal power supply method that is both sustainable and technologically innovative. The group formulates a plan for investigation to discover how technology will enhance the generation and/or use of their chosen power supply method. The plan should include investigation of both the capabilities and the limitations of the technology services.

Essential Concept and/or Skill: *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. (21.9-12.TL.2)*

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.

Communicate information and ideas effectively to multiple audiences using a variety of media and formats.
- Students use technology tools and resources, including distance and distributed education, for effectively exchanging information with a variety of audiences in an array of media-rich formats.

Develop cultural understanding and global awareness by engaging with learners of other cultures.
- Students use a variety of existing online tools and emerging technologies for communicating with and learning about people of other cultures. Students investigate, communicate, and understand cultural norms manifested in music, literature, painting and sculpture, and theater and film, resulting in greater global awareness.

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.

Illustration of *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* in the ICLE's Rigor and Relevance Framework	
Preface to Activity: Health care for students and their families 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 patients sleep; pace-maker patients download data from their devices by telephone; surgeons perform procedures using robotic tools; diabetics report blood sugar levels to research facilities by e-mail, etc. Telemedicine is the use of telecommunications technology for medical diagnosis and patient care when the provider and client are separated by distance.	
Quadrant C Listen to all of the podcasts created by 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 telemedicine, identifying the strengths and weaknesses of each and what effect the use of telemedicine might have on the future of health care.	**Quadrant D** Go to Wikipedia and read "About Wikipedia." 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, students contribute to the Wikipedia page for telemedicine. Student group analyzes the information given on the Wikipedia telemedicine page and determines what other information could be added to the page from their research and study. Group then writes a collaborative piece to be added to the telemedicine page. Before publishing the work, students choose a panel of reviewers and give rationale for their choices. Finally, have work reviewed by the chosen panel, edit work as necessary, and publish the piece on the Wikipedia telemedicine page.
Quadrant A As a class, generate keywords and questions you could use to research the 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 health care in students' foreseeable future?	**Quadrant B** As a small group, interview health experts about the uses of telemedicine in their areas of care. The experts can be from the local area, from across the country, or from around the world. Create a podcast to be uploaded on to the class Web site sharing your interview information.

Essential Concept and/or Skill: *Apply digital tools to gather, evaluate, and use information. (21.9-12.TL.3)*

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.

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.

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.

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.

Illustration of *Apply digital tools to gather, evaluate, and use information* in the ICLE's Rigor and Relevance Framework
Preface to Activity: A group of business leaders are collectively looking to relocate their businesses to a community with a larger potential employee base. The students' community wants this group to relocate to their area. Students are asked to research the types of skills desired in potential employees; discover how the community can meet those needs; and present their findings to a board of community members.

Quadrant C	**Quadrant D**
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 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.	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 community. An aspect of that campaign needs to include retaining current community members so as not to lose that bank of potential employees. Using any digital resources available, create an effective campaign that can be included on the community Web site or uploaded to YouTube! or other online resources to reach a wider audience. Or send the campaign to the group of business leaders to demonstrate what the community has to offer and is willing to do to attract their businesses.
Quadrant A	**Quadrant B**
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 Internet, industry publications/Web sites, and interviews with business leaders. Write an article to be included on the community Web site detailing your findings to inform the public.	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 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.

Essential Concept and/or Skill: *Demonstrate critical thinking skills using appropriate tools and resources to plan and conduct research, manage projects, solve problems and make informed decisions. (21.9-12.TL.4)*

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.

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 demonstrate knowledge and skills.

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.

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 Concept and/or Skill: *Understand human, cultural, and societal issues related to technology and practice legal and ethical behavior. (21.9-12.TL.5)*

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.

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.

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.

Exhibit leadership for digital citizenship.

- 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.

Illustration of *Understand human, cultural, and societal issues related to technology and practice legal and ethical behavior* in the ICLE's Rigor and Relevance Framework	
Preface to Activity: Intellectual property rights are a major issue because the Internet makes sharing information so easy.	
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.
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.

Essential Concept and/or Skill: *Demonstrate a sound understanding of technology concepts, systems and operations. (21.9-12.TL.6)*

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.

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 communicating personal and professional information (e.g., finances, schedules, addresses, purchases, correspondence).

Troubleshoot systems and applications.
- Students utilize a working knowledge of technology or technological support services to identify a problem/issue and its solution.

Transfer current knowledge to learning of new technologies.
- Students apply what they know of one technology to intuitively utilize other technologies.

Illustration of *Demonstrate a sound understanding of technology concepts, systems and operations* in the ICLE's Rigor and Relevance Framework	
Preface to Activity: Intellectual property rights are a major issue because the Internet makes sharing information so easy.	
Quadrant C Evaluate the effectiveness of two different CAD programs. Use two of them to draw the layout of your classroom and determine which program is more suitable and why.	**Quadrant D** Locate several examples of personal budgets and identify at least one positive and one negative aspect to each 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.
Quadrant A Teach a lesson to a group of elementary students demonstrating how to use a spreadsheet program. Utilize the elementary students' knowledge of word processing programs to teach them the basics of the spreadsheet program.	**Quadrant B** Research several careers you are interested in and report the average salary, market demand, and education requirements of each one.