

Iowa Core Curriculum Ninth - Twelfth Grade

❖ Mathematics

Statistics and Probability (Ninth – Twelfth Grade)

- **Essential Concept and/or Skill:** *Make inferences and justify conclusions from sample surveys, experiments, and observational studies.*
 - **S-IC.3.** Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.
 - **S-IC.4.** Use data from a sample survey to estimate a population mean or proportion; develop a margin of error through the use of simulation models for random sampling.
 - **S-IC.5.** Use data from a randomized experiment to compare two treatments; use simulations to decide if differences between parameters are significant.
 - **S-IC.6.** Evaluate reports based on data.

Geometry - Geometric Measure & Dimension (Ninth – Twelfth Grade)

- **Essential Concept and/or Skill:** *Visualize relationships between two dimensional and three- dimensional objects.*
 - **IA.7.** Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.

❖ Science

Science as Inquiry

- **Essential Concept and/or Skill: *Think critically and logically to make the relationships between evidence and explanations.*** •
 - Thinking critically about evidence includes deciding what evidence should be used and accounting for anomalous data. Specifically, students should be able to review data from a simple experiment, summarize the data, and form a logical argument about the cause-and-effect relationships in the experiment.
- **Essential Concept and/or Skill: *Use technology and mathematics to improve investigations and communications.*** •
 - A variety of technologies, such as hand tools, measuring instruments, and calculators should be an
 - integral component of scientific investigations. The use of computers for the collection, analysis, and display of data is also a part of this standard. Mathematics plays an essential role in all aspects of an inquiry investigation. For example, measurement is used for posing questions, formulas are used for developing explanations, and charts and graphs are used for communicating results.
- **Essential Concept and/or Skill: *Understand and apply knowledge of matter, energy, and organization in living systems.***
 - Ecosystem and population limiting factors
 - Ecosystems have finite resources
 - Environmental factors and finite resources influence ecosystem interactions
 - Living organisms have the capacity to produce populations of infinite size, but environments and resources are finite. The distribution and abundance of organisms and populations in ecosystems are limited by the availability of matter and energy and the ability of the ecosystem to recycle materials.

- **Essential Concept and/or Skill:** *Understand and apply knowledge of the interdependence of organisms.*
 - Human modification of ecosystems
 - Habitat destruction threatens global stability
 - Human beings live within the world's ecosystems. Increasingly, humans modify ecosystems as a result of population growth, technology, and consumption. Human destruction of habitats through direct harvesting, pollution, atmospheric changes, and other factors is threatening current global stability, and if not addressed, ecosystems will be irreversibly affected.

❖ Social Studies

Behavioral Sciences

- **Essential Concept and/or Skill:** *Understand how social status, social groups, social change, and social institutions influence individual and group behaviors.*
 - Understand the concept of stratification.
 - Understand gender, age, health, and socioeconomic status affect social inequality.

History

- **Essential Concept and/or Skill:** *Understand cause and effect relationships and other historical thinking skills in order to interpret events and issues.*
 - Understand how and why events may be interpreted differently depending upon the perspectives of participants, witnesses, reporters, and historians.
- **Essential Concept and/or Skill:** *Understand cause and effect relationships and other historical thinking skills in order to interpret events and issues.*
 - Understand multiple viewpoints within and across cultures related to important events, recurring dilemmas, and issues.

Political Science/Civic Literacy (same as 21st Century Skills, Civic Literacy)

- **Essential Concept and/or Skill: *Understand the rights and responsibilities of each citizen and demonstrate the value of lifelong civic action.***
 - Understand the importance of voluntarism as a characteristic of American society.

English Language Arts

- **Essential Concept and/or Skill: *Writing-Text Types and Purposes (Ninth – Tenth Grade)***
 - **W.9-10.3.** Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.
 - Engage and orient the reader by setting out a problem, situation, or observation, establishing one or multiple point(s) of view, and introducing a narrator and/or characters; create a smooth progression of experiences or events.
 - Use a variety of techniques to sequence events so that they build on one another to create a coherent whole.
 - Use precise words and phrases, telling details, and sensory language to convey a vivid picture of the experiences, events, setting, and/or characters.
 - Provide a conclusion that follows from and reflects on what is experienced, observed, or resolved over the course of the narrative.
- **Essential Concept and/or Skill: *Writing- Text Types and Purposes (Eleventh – Twelfth Grade)***
 - **W.11-12.3.** Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.
 - Engage and orient the reader by setting out a problem, situation, or observation and its significance, establishing one or multiple point(s) of view, and introducing a narrator and/or characters; create a smooth progression of experiences or events.
 - Use a variety of techniques to sequence events so that they build on one another to create a coherent whole and build toward a particular tone and outcome
 - Provide a conclusion that follows from and reflects on what is experienced, observed, or resolved over the course of the narrative.

➤ **Essential Concept and/or Skill: Research to Build and Present Knowledge**

- **W.11-12.7.** Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.

21st Century Skills

Employability Skills - Work 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

Financial Literacy - Demonstrate financial responsibility and planning skills to achieve financial goals for a lifetime of financial health.

- 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.

Financial Literacy - 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.

Technology Literacy - Demonstrate critical thinking skills using appropriate tools and resources to plan and conduct research, manage projects, solve problems and make informed decisions.

- 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 investigable 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.