

FCJH Essential Learnings

January 2026

Computing Foundations for a Digital Age

Students will be able to:

- Investigate how AI generates responses, using neural networks, transformers, and probabilistic models.
- Critically evaluate AI-generated outputs, identifying bias, misinformation, and hallucinations.
- Explain how computational systems process data and how hardware, software, and operating systems collaborate to perform tasks.
- Identify career pathways in computing and describe how AI and emerging technologies are transforming industries and disciplines.
- Use abstraction, decomposition, and pattern recognition to solve problems related to Internet communication and security.
- Understand the foundations of data science and its interdisciplinary nature.

Robotics

- Use block-based programming to control robotic components and apply key coding concepts such as sequencing, loops, conditionals, and variables
- Debug programs and explain how and why their code works
- Apply the engineering design process to plan, build, test, and improve robot designs
- Identify and properly use robotics hardware, including motors, sensors, and hubs
- Break complex problems into smaller steps and use critical thinking to analyze and improve solutions
- Collaborate effectively by communicating ideas, working in roles, and using evidence to resolve challenges
- Demonstrate creativity and responsible technology use while developing original solutions

Business and Information Technology:

Students will be able to:

- Demonstrate understanding of technology concepts, systems, and interactivity
- Use technology tools to enhance learning, creativity, and productivity
- Analyze personal interests, skills, and values using Naviance career exploration tool
- Create flexible career and education plans using Naviance based on self-analysis
- Apply financial literacy skills, including budgeting, saving, credit, and investing
- Analyze how education, income, and life choices impact financial goals

Family and Consumer Science:

- Food Preparation Skills – Follow recipes accurately, including understanding abbreviations and kitchen terminology.
- Kitchen Safety & Sanitation – Practice safe behaviors, proper cleaning procedures, and correct food storage to prevent accidents and illness.
- Textile Care & Maintenance – Read care labels and properly launder, store, and remove stains from clothing.
- Basic Clothing Repair – Use simple sewing techniques such as basic stitches and button replacement.
- Child Growth & Development Awareness – Understand developmental milestones from birth through adolescence.
- Safe Environments for Children – Identify characteristics of safe settings, including appropriate toy selection.
- Responsible Childcare Practices – Recognize the role of a babysitter and respond appropriately to common emergencies.

Family and Consumer Science Design:

- Apply the elements and principles of design to interior and fashion projects
- Use design vocabulary to explain and evaluate design choices
- Follow the design process to plan, create, and improve projects
- Create functional and visually appealing interior and fashion designs
- Select appropriate colors, materials, and textures to support design goals
- Use tools and technology to develop and present design ideas
- Collaborate, participate in critiques, and connect design skills to real-world applications

Engineering and Technology:

- Apply the engineering design process to analyze and solve open-ended problems.
- Develop structural prototypes using mockups and iterative testing.
- Create 2D and 3D designs using CAD and vectoring software (AutoCAD, TinkerCAD, Inkscape).
- Manage project planning, documentation, and prototyping workflows independently.
- Communicate design intent through written, visual, and oral presentation formats.

7th Grade English:

- Analyze how a theme or central idea is developed in a work of literature.
- Analyze the structural elements of a story and how they contribute to the meaning and plot.
- Identify what is explicitly stated in a text and make inferences based on textual evidence.
- Use the root of the word and context clues to determine the meaning of a word or phrase.
- Determine an author's perspective or purpose in a text and analyze how the author distinguishes his/her position from the positions of others.
- Trace and evaluate the argument and specific claims in a text.

7th Grade Social Studies:

- Explain how civilization developed in each of the early river valley civilizations.
- Describe the historical origins, beliefs, and spread of major religions.
- Explain how climate and geography affect the lives of people in different regions.
- Analyze the effects of imperialism and colonialism on different regions of the Eastern Hemisphere.
- Give examples of different types of government and economic systems and explain how they impact citizens' lives.
- Understand current events within a larger historical context.
- Use data, time period maps, timelines and other resources to draw conclusions and interpretations

7th Grade Science:

- Measure correctly and follow lab procedures.
- Recognize the characteristics of biotic things and the organisms in the 6 Kingdoms.
- Identify animal and plant cell structures and their functions.
- Use a microscope to observe cells and their structures.
- Understand that body systems are comprised of organs, tissues, and cells.
- Construct Punnett squares with the correct alleles and understand patterns of inheritance.

7th Grade Math:

Students will be able to:

- Add, subtract, multiply, and divide positive and negative integers and use them to solve real-world problems.
- Create equivalent algebraic expressions by using the distributive property and combining like terms.
- Solve two-step equations and inequalities and use them to represent real-world problems.
- Create and interpret graphs, tables, and equations of proportional relationships.
- Set up and solve proportions, including problems involving percentages and measurement conversions.
- Calculate area and circumference of circles.
- Calculate probability of a chance event and use it to make predictions.

8th Grade English:

- Analyze what a text says explicitly as well as draw inferences through strong and supportive textual evidence.
- Analyze the development of a theme or central idea over the course of a work of literature, including its relationship to the characters, setting, and plot; provide a detailed summary that supports the analysis.
- Compare and contrast the structure of two or more related works of literature (e.g., similar topic or theme) and analyze and evaluate how the differing structure of each text contributes to its meaning and style.
- Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient; recognize when irrelevant evidence is introduced.
- Identify and analyze persuasive and propaganda techniques used in visual and verbal messages by electronic, print, and mass media, and identify false or misleading information.

8th Grade Social Studies:

- Analyze the causes/effects of the American Revolution, the Founding Era, the drafting of the Constitution, westward expansion, and the Civil War/Reconstruction.
- Understand the principles of the U.S. and Indiana constitutions, the three branches of government, and the rights/responsibilities of citizenship.
- Identify economic factors affecting national development, including industrialization, mercantilism, and the impact of westward expansion on resources.
- Map the physical and political growth of the U.S., including regional differences and the impact of expansion.
- Evaluate the roles of women, minorities, and immigrants, as well as social reform movements in the 19th century.

8th Grade Science:

- Draw diagrams to show the structure of an atom and the differences between atoms, elements, molecules and compounds.
- Identify patterns and trends on the periodic table and be able to predict and identify elements using that information, as well as predict how they will combine to form compounds.
- Identify the differences between chemical and physical changes and prove that atoms can combine or rearrange to form new substances without creating or destroying matter.
- Design and build a multistep machine that uses and demonstrates Newton's 1st, 2nd, and 3rd Laws.
- Develop and use models and tools.
- Analyze and interpret data.
- Use math and computational thinking.

Honors Algebra:

- Use a variety of strategies to solve equations and inequalities that represent real world applications and understand equivalent representations.
- Use systems of linear equations and inequalities to model situations and solve problems.
- Identify characteristics that make a relationship exponential and explore growth and decay.
- Add, subtract and multiply polynomials and express in equivalent forms.
- Factor polynomials.
- Solve and represent real world situations using quadratic functions.

8th Grade Math / 7th Grade Advanced Math:

- Solve one- and two-step equations and inequalities with rational number coefficients and extend to multi-step linear equations using the distributive property, combining like terms, and identifying one, none, or infinitely many solutions.
- Represent and solve real-world situations using linear equations and inequalities in one variable.
- Analyze, construct, and interpret functions (linear and nonlinear) from verbal descriptions, tables, and graphs.
- Recognize and interpret slope-intercept form ($y = mx + b$) by identifying slope and y-intercept, explaining their meaning in context, and creating equations to model and make predictions about real-world situations.
- Construct and interpret scatter plots and model relationships using lines of best fit.
- Solve geometric problems involving volume (cones, spheres, pyramids), surface area of spheres, and apply the Pythagorean Theorem including distance on the coordinate plane.
- Compare irrational numbers, plot them approximately on a number line, and estimate the value of expressions involving irrational numbers.

Geometry:

- Use inductive and deductive reasoning to solve problems
- Write a geometric proof in multiple formats using logical reasoning
- Understand properties of parallel and perpendicular lines
- Use properties to solve problems with congruent and similar triangles
- Classify and implement rigid and non-rigid transformations on 2-D and 3-D figures, including volume of revolution
- Solve problems with polygons and circles with an emphasis on triangles, quadrilaterals and convex regular polygons
- Solve problems using Pythagorean Theorem and right triangle trigonometry

Composition 7:

- Write informative compositions that introduce a topic clearly, support my topic, use transitions in a paragraph, use specific vocabulary, and provide a clear concluding statement
- Write narrative compositions that introduce the narrator, characters, and point of view, organize a story with a beginning, middle, and end, establish conflict, incorporate dialogue, and provide action and events.
- Write research compositions that formulate a research question, use multiple sources as evidence, quote or paraphrase, recognize and avoid plagiarism, and present information using different formats.
- Write argumentative compositions that introduce a claim and support that claim with evidence
- Students will be able to write using simple, compound, and complex sentences, recognizing phrases and clauses as well as subject/verb agreement, and use commas effectively

Composition 8:

- Write informative compositions in a variety of forms that introduces a topic clearly, support a topic with relevant facts, transition between sentences and paragraphs, have a clear introduction, body, and conclusion, and establish and maintain a style appropriate to purpose and audience.
- Write narrative compositions in a variety of forms that use narrative technique, such as dialogue, pacing, and description to develop experiences, events, and/or characters, utilize plot structure to outline a story with plot points, engage the reader by establishing point of view, use precise words and phrases, including sensory language, to portray action and convey experiences, and have an express a theme
- Write research and argumentative writing in a variety of forms so that students plan and develop, draft; revise a piece of writing using appropriate reference materials, formulate a research question, gather information from multiple sources, assess the credibility and accuracy of each source, quote or paraphrase information, avoid plagiarism, introduce and support claims with logical reasoning and relevant evidence while acknowledging and distinguishing between the claims and opposing claims
- Demonstrate command of English grammar and usage by focusing on using a variety of pronouns and variety of phrases/clauses, using verbs in active and passive voice, writing the four types of sentences, correcting fragments and run-on sentences, understanding and using different modifiers, and demonstrating command of conventions of capitalization, punctuation, and spelling

Physical Education:

- Students will be able to understand how movement concepts improve performance, how to make movement more interesting, fun and enjoyable, and how use of movement influences others.
- Students will be able to show personal and social responsibility during physical activity.
- Students will understand the importance of maintaining a healthy lifestyle using different means and modalities.
- Students will demonstrate and understand the importance of warm-up and cool down to prepare the body for activity and prevent injury.
- Students will understand how to evaluate intensity levels using target heart rate zones allowing for safe, progressive, and efficient training.

Health Education:

- Students will be able to understand the difference between health and wellness.
- Students will be able to understand how personal health choices will affect personal wellness and the wellness of others.
- Students will be able to assess and evaluate health information, products, and services which will improve a person's ability to make healthy decisions and improve one's quality of life.
- Students will be able to recognize that decisions influence every aspect of a person's life. Students will also recognize how effective decision-making skills and goal setting influence healthier lifestyle choices.
- Students will be able to understand why it is so difficult to become healthy and physically fit, why it is even harder to stay healthy and physically fit, and how to set challenging fitness goals to stay committed to wellness.
- Students will be able to utilize interpersonal communication skills that aide in developing and maintaining healthy personal relationships.

Game Theory:

- Analyze game mechanics and how they influence strategic reasoning.
- Develop critical thinking and decision-making skills.
- Understand the mathematics behind different strategies incorporated into game decisions with focus on proportionality, probability, and statistics.
- Practice, reason, and defend strategic planning and resource management.
- Evaluate opponent's moves and develop counterstrategies.

Band:

- Identify music on treble and bass staves by pitch letter name
- Identify duration in sound by interpreting musical note values
- Interpret how music will be performed through correctly identifying musical performance vocabulary
- Play their instrument with good characteristic sound and technique.
- Play music in an ensemble with good balance, blend, and tone.
- Understand intonation and how to adjust as an individual as well as in an ensemble.
- Read and perform music within the context of various musical keys and scales

Choir:

Students in Jr. High choir classes will be able to:

- Identify music on treble and bass staves by pitch letter name
- Identify a pitch's position in a musical scale by its solfege syllable
- Identify duration in sound by interpreting musical note values
- Navigate a musical score through successful interpretation of musical direction markings
- Interpret how music will be performed through correctly identifying musical performance vocabulary
- Perform as an individual and in an ensemble.
- Read and perform music within the context of various musical keys and scales

Orchestra:

Students in Jr. High orchestra classes will be able to:

- Identify music on treble, alto or bass clef (dependent on instrument)
- Identify a pitch's position on the musical staff
- Identify duration in sound by interpreting musical note values
- Navigate a musical score through successful interpretation of musical direction markings
- Interpret how music will be performed through correctly identifying musical performance vocabulary.
- Perform as an individual and in an ensemble
- Read and perform music within the context of various musical keys and scales

General Music:

- Play individually and as an ensemble
- Perform on the following instrument groups: Percussion, Tone Chimes, Ukulele, Guitar, and Piano
- Read music notation with attention to pitch
- Read music notation with attention to rhythm and duration
- Interpret music notation for performance on instruments
- Listen to music from varied historical periods and genres

Art:

- Generate, conceptualize, organize, and develop artistic ideas and work.
- Relate artistic ideas and works to knowledge, personal experiences, societal, cultural, and historical context to deepen understanding.
- Interpret intent and meaning in artistic work.
- Organize, develop, refine, and complete artistic work.
- Perceive and analyze artistic work.

World Language:

- Provide information by answering a few simple questions on very familiar topics, using practiced or memorized words and phrases, with the help of gestures or visuals.
- Introduce myself verbally and express my likes and dislikes
- Communicate with others from the target culture in familiar everyday situations, using memorized language and showing basic cultural awareness.
- Connect content from other disciplines to the target language.
- Identify differences and similarities between my community and cultures of the target language.
- Use the target language both within and beyond the school setting.