American Innovation
Curriculum Connections

The following Michigan Grade Level and High School Content Expectations and national standards are met by The Henry Ford's resources on the theme American Innovation:

Michigan Science Grade Level & High School Content Expectations

Grade 2

S.RS.02.16	Identify technology used in everyday life.
E.FE.02.21	Describe how rain collects on the surface of the Earth and flows downhill into bodies of water (streams, rivers, lakes, oceans) or into the ground.

Grade 3

S.RS.03.16	Identify technology used in everyday life.
S.RS.03.17	Identify current problems that may be solved through the use of technology.
S.RS.03.18	Describe the effect humans and other organisms have on the balance of the natural world.
S.RS.03.19	Describe how people have contributed to science throughout history and across cultures.
E.ES.03.42	Classify renewable (fresh water, fertile soil, forests) and non-renewable (fuels, metals) resources.
E.ES.03.43	Describe ways humans are protecting, extending, and restoring resources (recycle, reuse, reduce, renewal).
E.ES.03.51	Describe ways humans are dependent on the natural environment (forests, water, clean air, Earth materials) and constructed environments (homes, neighborhoods, shopping malls, factories, and industry).
E.ES.03.52	Describe helpful or harmful effects of humans on the environment (garbage, habitat destruction, land management, renewable, and non-renewable resources).

Grade 4

S.RS.04.16	Identify technology used in everyday life.
S.RS.04.18	Describe the effect humans and other organisms have on the balance of the natural world.
S.RS.04.19	Describe how people have contributed to science throughout history and across cultures.
E.ST.04.31	Explain how fossils provide evidence of the history of the Earth.
P.PM.04.53	Identify objects that are good conductors or poor conductors of heat and electricity.
P.CM.04.11	Explain how matter can change from one state (liquid, solid, gas) to another by heating and cooling.
L.EC.04.21	Explain how environmental changes can produce a change in the food web.

Grade 5

S.RS.05.17 Describe the effect humans and other organisms have on the balance in the natural world.

S.RS.05.19 Describe how science and technology have advanced because of the contributions of many people throughout history and across cultures.

Grade 6

S.IP.06.11 Generate scientific questions based on observations, investigations, and research.

S.IP.06.12 Design and conduct scientific investigations.

S.IP.06.13 Use tools and equipment (spring scales, stop watches, meter sticks and tapes, models, hand lens, thermometer, models, sieves, microscopes) appropriate to scientific investigations.

S.IP.06.16 Identify patterns in data.

S.RS.06.17 Describe the effect humans and other organisms have on the balance of the natural world.

S.RS.06.19 Describe how science and technology have advanced because of the contributions of many people throughout history and across cultures.

P.EN.06.41 Explain how different forms of energy can be transferred from one place to another by radiation, conduction, or convection.

P.EN.06.42 Illustrate how energy can be transferred while no energy is lost or gained in the transfer.

L.OL.06.51 Classify producers, consumers, and decomposers based on their source of food (the source of energy and building materials).

L.OL.06.52 Distinguish between the ways in which consumers and decomposers obtain energy.

L.EC.06.11 Identify and describe examples of populations, communities, and ecosystems including the Great Lakes region.

L.EC.06.23 Predict how changes in one population might affect other populations based upon their relationships in the food web.

L.EC.06.31 Identify the living (biotic) and nonliving (abiotic) components of an ecosystem.

L.EC.06.32 Identify the factors in an ecosystem that influence changes in population size.

L.EC.06.41 Describe how human beings are part of the ecosystem of the Earth and that human activity can purposefully, or accidentally, alter the balance in ecosystems.

Grade 7

S.RS.07.17 Describe the effect humans and other organisms have on the balance of the natural world.

S.RS.07.19 Describe how science and technology have advanced because of the contributions of many people throughout history and across cultures.

E.ES.07.41 Explain how human activities (surface mining, deforestation, overpopulation, construction and urban development, farming, dams, landfills, and restoring natural areas) change the surface of the Earth and affect the survival of organisms.

E.ES.07.42 Describe the origins of pollution in the atmosphere, geosphere, and hydrosphere, (car exhaust, industrial emissions, acid rain, and natural sources), and how pollution impacts habitats, climatic change, threatens or endangers species.

E.ES.07.81 Explain the water cycle and describe how evaporation, transpiration, condensation, cloud formation, precipitation, infiltration, surface runoff, ground water, and absorption occur within the cycle.

Grades 9-12 - Biology

B3.1A Describe how organisms acquire energy directly or indirectly from sunlight.

B3.4C Examine the negative impact of human activities.

B3.5e Recognize that and describe how the physical or chemical environment may influence the rate, extent, and nature of population dynamics within ecosystems.

Grades 9-12 - Earth Science

E2.1B Analyze the interactions between the major systems (geosphere, atmosphere, hydrosphere, biosphere) that make up the Earth.

E2.1C Explain, using specific examples, how a change in one system affects other Earth systems

E2.4B Explain how the impact of human activities on the environment (e.g., deforestation, air pollution, coral reef destruction) can be understood through the analysis of interactions between the four Earth systems

Michigan Social Studies Grade Level & High School Content Expectations

Grade 2

H2.0.3 Use an example to describe the role of the individual in creating history.

H2.0.4 Describe changes in the local community over time (e.g., types of businesses, architecture and landscape, jobs, transportation, population).

Grade 3

H3.0.1 Identify questions historians ask in examining the past in Michigan (e.g., What happened? When did it happen? Who was involved? How and why did it happen?)

H3.0.8 Use case studies or stories to describe how the ideas or actions of individuals affected the history of Michigan.

Grade 4

H3.0.1 Use historical inquiry questions to investigate the development of Michigan's major economic activities (agriculture, mining, manufacturing, lumbering, tourism, technology, and research) from statehood to present. (C, E)

- What happened?
- When did it happen?
- Who was involved?
- How and why did it happen?
- How does it relate to other events or issues in the past, in the present, or in the future?
- What is its significance?

H3.0.7 Use case studies or stories to describe the ideas and actions of individuals involved in the Underground Railroad in Michigan and in the Great Lakes region.

Grade 6

H1.2.1 Explain how historians use a variety of sources to explore the past (e.g., artifacts, primary and secondary sources including narratives, technology, historical maps, visual/mathematical quantitative data, radiocarbon dating, DNA analysis).

H1.2.5 Identify the role of the individual in history and the significance of one person's ideas.

H1.4.1 Describe and use cultural institutions to study an era and a region (political, economic, religion/belief, science/technology, written language, education, family).

H1.4.2 Describe and use themes of history to study patterns of change and continuity.

Grade 7

H1.2.6 Identify the role of the individual in history and the significance of one person's ideas.

H1.4.1 Describe and use cultural institutions to study an era and a region (political, economic, religion/belief, science/technology, written language, education, family).

H1.4.2 Describe and use themes of history to study patterns of change and continuity.

Grades 9-12 - U.S. History & Geography

6.1.1 Factors in the American Industrial Revolution – Analyze the factors that enabled the United States to become a major industrial power, including

- gains from trade
- organizational "revolution" (e.g., development of corporations and labor organizations)
- increase in labor through immigration and migration
- technological advances

6.1.5 A Case Study of American Industrialism – Using the automobile industry as a case study, analyze the causes and consequences of this major industrial transformation by explaining

- the impact of resource availability
- entrepreneurial decision making by Henry Ford and others
- the development of an industrial work force
- the impact on Michigan
- the impact on American society

9.1.1 Economic Changes – Using the changing nature of the American automobile industry as a case study, evaluate the changes in the American economy created by new markets, natural resources, technologies, corporate structures, international competition, new sources and methods of production, energy issues, and mass communication.

Michigan Mathematics Grade Level Content Expectations

Grade 4

N.FL.04.08 Add and subtract whole numbers fluently.

N.FL.04.34 Estimate the answers to calculations involving addition, subtraction, or multiplication.

N.FL.04.36 Make appropriate estimations and calculations fluently with whole numbers using mental math strategies.

M.UN.04.01 Measure using common tools and select appropriate units of measure.

Grade 5

N.FL.05.05 Solve applied problems involving multiplication and division of whole numbers.

Michigan English Language Arts Grade Level Content Expectations

Grade 3

W.GN.03.03 Write an informational piece including a report that demonstrates the understanding of central ideas and supporting details using an effective organizational pattern (e.g., compare/contrast, cause/effect, problem/solution) with a title, heading, subheading, and a table of contents.

W.GN.03.04 Use the writing process to produce and present a research project; initiate research questions from content area text from a teacher-selected topic; and use a variety of resources to gather and organize information.

W.PR.03.02 Apply a variety of pre-writing strategies for both narrative and informational writing (e.g., graphic organizers such as maps, webs, Venn diagrams) in order to generate, sequence, and structure ideas (e.g., sequence for beginning, middle, and end, problem/solution, or compare/contrast).

L.CN.03.02 Listen to or view knowledgeably while demonstrating appropriate social skills of audience behaviors (e.g., eye contact, attentive, supportive) in small and large group settings.

Grade 4

W.GN.04.04 Use the writing process to produce and present a research project using a teacher-approved topic; find and narrow research questions; use a variety of resources; take notes; and organize relevant information to draw conclusions.

W.PR.04.02 Apply a variety of pre-writing strategies for both narrative and informational writing (e.g., graphic organizers such as maps, webs, Venn diagrams) in order to generate, sequence, and structure ideas (e.g., plot, setting, conflicts/resolutions, definition/description, or chronological sequence).

W.PR.04.03 Draft focused ideas using a variety of drafting techniques composing coherent and mechanically sound paragraphs when writing compositions.

W.PR.04.04 Revise drafts based on constructive and specific oral and written responses to writing by identifying sections of the piece to improve sequence and flow of ideas (e.g., arranging paragraphs, connecting main and supporting ideas, transitions).

W.PR.04.05 Proofread and edit writing using appropriate resources (e.g., dictionary, spell check, grammar check, grammar references, writing references) and grade-level checklists both individually and in groups.

L.CN.04.01 Ask substantive questions of the speaker that will provide additional elaboration and details.

L.CN.04.02 Listen to or view critically while demonstrating appropriate social skills of audience behaviors (e.g., eye contact, attentive, supportive) in small and large group settings.

Grade 5

W.GN.05.04 Use the writing process to produce and present a research project; use a variety of resources to gather and organize relevant information into central ideas and supporting details for a teacher-approved narrowed focus question and hypothesis.

W.PR.05.02 Apply a variety of pre-writing strategies for both narrative and informational writing (e.g., graphic organizers such as maps, webs, Venn diagrams) in order to generate, sequence, and structure ideas (e.g., role and relationships of characters, settings, ideas, relationship of theory/evidence, or compare/contrast).

W.PR.05.03 Draft focused ideas using linguistic structures and textual features needed to clearly communicate information composing coherent, mechanically sound paragraphs when writing compositions.

W.PR.05.04 Revise drafts based on constructive and specific oral and written responses to writing by identifying sections of the piece to improve organization and flow of ideas (e.g., position/evidence organizational pattern, craft such as titles, leads, endings, and powerful verbs).

L.CN.05.02 Listen to or view critically while demonstrating appropriate social skills of audience behaviors (e.g., eye contact, attentive, supportive) in small and large group settings.

L.CN.05.03 Listen and view critically how verbal and non-verbal strategies enhance understanding of spoken messages and promote effective listening behaviors during a variety of class presentations.

Grade 6

L.CN.06.02 Listen to or view critically while demonstrating appropriate social skills of audience behaviors (e.g., eye contact, attentive, supportive); critically examine the verbal and non-verbal strategies during speeches and presentations.

Michigan Content Standards Arts Education

Standard 3 All students will analyze, describe, and evaluate works of art.

Standard 4 All students will understand, analyze, and describe the arts in their historical, social and cultural contexts.

Standard 5 All students will recognize, analyze, and describe connections among the arts; between the arts and other disciplines; between the arts and other disciplines; between the arts and everyday life.

Michigan Career and Employability Skills Standards

Strands

1 All students will apply basic communication skills (e.g., reading, writing, speaking, and listening), apply scientific and social studies concepts, perform mathematical processes, and apply technology in work-related situations.

5 All students will display personal qualities such as responsibility, self-management, self-confidence, ethical behavior, and respect for self and others.

6 All students will identify, organize, plan, and allocate resources (such as time, money, material, and human resources) efficiently and effectively.

7 All students will work cooperatively with people of diverse backgrounds and abilities, identify with the group's goals and values, learn to exercise leadership, teach others new skills, serve clients or customers, and will contribute to a group process with ideas, suggestions, and efforts.

National Science Content Standards

Life science
Science and technology
Science in personal and social perspectives
History and nature of science

National Curriculum Standards for Social Studies

Strands

II Time, Continuity, and Change
VII Production, Distribution, and Consumption
VIII Science, Technology, and Society

National Curriculum Standards for History 5-12

Era 2 Colonization and Settlement
Era 3 Revolution and the New Nation
Era 4 Expansion and Reform
Era 5 Civil War and Reconstruction
Era 6 The Development of an Industrial, Urban and Global United States
Era 7 The Great Depression and WWII
Era 8 Post-WWII United States
Era 9 America in a new global age

National Principles and Standards for School Mathematics

Strands

Number and Operation
Measurement
Problem Solving
Communication
Connections

National Standards for the English Language Arts

Strands

4 Students adjust their use of spoken, written, and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes

12 Students use spoken, written, and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion, and the exchange of information).