CURRICULUM CONNECTIONS

Heroes of the Sky

(http://www.thehenryford.org/exhibits/heroes/home.asp)

Exhibit in Henry Ford Museum. Explore the early days of flight. Online exhibit, downloadable lesson plans and student "pilot logs" available.

Michigan Science Grade Level Content Expectations

Grade 4

S.IP.04.11	Make purposeful observation of the natural world using the appropriate senses.
S.IP.04.12	Generate questions based on observations.
S.IP.04.13	Plan and conduct simple and fair investigations.
S.IP.04.14	Manipulate simple tools that aid observation and data collection (for example: hand lens, balance, ruler, meter stick, measuring cup, thermometer, spring scale, stop watch/timer, graduated cylinder/beaker).
S.IP.04.15	Make accurate measurements with appropriate units (millimeters centimeters, meters, milliliters, liters, Celsius, grams, seconds, minutes) for the measurement tool.
S.IP.04.16	Construct simple charts and graphs from data and observations.
S.IA.04.11	Summarize information from charts and graphs to answer scientific questions.
S.IA.04.12	Share ideas about science through purposeful conversation in collaborative groups.
S.IA.04.13	Communicate and present findings of observations and investigations.
S.IA.04.14	Develop research strategies and skills for information gathering and problem solving.
S.IA.04.15	Compare and contrast sets of data from multiple trials of a science investigation to explain reasons for differences.

Grade 5

S.IP.05.11	Generate scientific questions based on observations, investigations, and research.
S.IP.05.12	Design and conduct scientific investigations.
S.IP.05.13	Use tools and equipment (spring scales, stop watches, meter sticks and tapes, models, hand lens) appropriate to scientific investigations.
S.IP.05.15	Construct charts and graphs from data and observations.
S.IP.05.16	Identify patterns in data.
S.IA.05.12	Evaluate data, claims, and personal knowledge through collaborative science discourse.
S.IA.05.14	Draw conclusions from sets of data from multiple trials of a scientific investigation.
P.FM.05.41	Explain the motion of an object relative to its point of reference.
P.FM.05.42	Describe the motion of an object in terms of distance, time and direction, as the object moves, and in relationship to other objects.

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.06.15	Construct charts and graphs from data and observations.
S.IP.06.16	Identify patterns in data.
S.IA.06.11	Analyze information from data tables and graphs to answer scientific questions.
S.IA.06.12	Evaluate data, claims, and personal knowledge through collaborative science discourse.
S.IA.06.13	Communicate and defend findings of observations and investigations using evidence.
S.IA.06.14	Draw conclusions from sets of data from multiple trials of a scientific investigation.
S.IA.06.15	Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data.
P.EN.06.11	Identify kinetic or potential energy in everyday situations (for example: stretched rubber band, objects in motion, ball on a hill, food energy).

Grade 7

S.IP.07.11	Generate scientific questions based on observations, investigations, and research.
S.IP.07.12	Design and conduct scientific investigations.
S.IP.07.13	Use tools and equipment (spring scales, stop watches, meter sticks and tapes, models, hand lens, thermometer, models, sieves, microscopes, hot plates, pH meters) appropriate to scientific investigations.
S.IP.07.15	Construct charts and graphs from data and observations.
S.IP.07.16	Identify patterns in data.
S.IA.07.11	Analyze information from data tables and graphs to answer scientific questions.
S.IA.07.12	Evaluate data, claims, and personal knowledge through collaborative science discourse.
S.IA.17.13	Communicate and defend findings of observations and investigations.
S.IA.07.14	Draw conclusions from sets of data from multiple trials of a scientific investigation to draw conclusions.
S.IA.07.15	Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data.

Michigan Science High School Content Expectations

Physics

P1.1A	Generate new questions that can be investigated in the laboratory or field.
P1.2D	Evaluate scientific explanations in a peer review process or discussion format.
P1.1E	Describe a reason for a given conclusion using evidence from an investigation.
P2.1A	Calculate the average speed of an object using the change of position and elapsed time.
P2.2A	Distinguish between the variables of distance, displacement, speed, velocity, and acceleration.
P3.1A	Identify the force(s) acting between objects in “direct contact” or at a distance.

P3.1d Identify the basic forces in everyday interactions.

P3.3A Identify the action and reaction force from examples of forces in everyday situations (e.g., book on a table, walking across the floor, pushing open a door).

P4.3A Identify the form of energy in given situations (e.g., moving objects, stretched springs, rocks on cliffs, energy in food).

P4.3C Explain why all mechanical systems require an external energy source to maintain their motion.

Michigan Social Studies Grade Level Content Expectations

Grade 2

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

Grade 6

H1.2.2 Read and comprehend a historical passage to identify basic factual knowledge and the literal meaning by indicating who was involved, what happened, where it happened, what events led to the development, and what consequences or outcomes followed.

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

Grade 7

H1.2.2 Read and comprehend a historical passage to identify basic factual knowledge and the literal meaning by indicating who was involved, what happened, where it happened, what events led to the development, and what consequences or outcomes followed.

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

Michigan Social Studies High School Content Expectations

World History and Geography

7.1.4 Global Technology – Describe significant technological innovations and scientific breakthroughs in transportation, communication, medicine, and warfare and analyze how they both benefited and imperiled humanity.

U.S. History and 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

- technological advances

Michigan English Language Arts Grade Level Content Expectations

Grade 4

R.CM.04.04 Apply significant knowledge from grade-level science, social studies, and mathematics texts.

S.CN.04.03 Speak effectively using facial expressions, hand gestures, and body language in narrative and informational presentations.

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

R.CM.05.04 Apply significant knowledge from grade-level science, social studies, and mathematics texts.

S.CN.05.02 Adjust their use of language to communicate effectively with a variety of audiences and for different purposes including research, explanation, and persuasion.

S.CN.05.03 Speak effectively using varying modulation, volume, and pace of speech to indicate emotions, create excitement, and emphasize meaning in narrative and informational presentations.

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.

Grade 6

R.CM.06.04 Apply significant knowledge from grade-level science, social studies, and mathematics texts.

S.DS.06.04 Plan a focused and coherent informational presentation using an informational organizational pattern (e.g., problem/solution, sequence); select a focus question to address and organize the message to ensure that it matches the intent and the audience to which it will be delivered.

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.

Grade 7

R.CM.07.04 Apply significant knowledge from grade-level science, social studies, and mathematics texts.

S.CN.07.01 Adjust their use of language to communicate effectively with a variety of audiences and for different purposes by using specialized language related to a topic and selecting words carefully to achieve precise meaning when presenting.

S.DS.07.04 Plan and deliver a focused, coherent informational presentation using an informational organizational pattern (e.g., theory/evidence, persuasion, sequence) that incorporates persuasive, non-verbal techniques, and provides explanations and descriptions supportive of the presentation's focus and the backgrounds and interests of the audience.

L.CN.07.02 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.

Grade 8

R.CM.08.04 Apply significant knowledge from grade-level science, social studies, and mathematics texts.

S.CN.08.01 Adjust their use of language to communicate effectively with a variety of audiences and for different purposes by using enunciation to emphasize key ideas and concepts when presenting.

S.CN.08.02 Speak effectively using body language including gestures, posture, facial expressions, tone of voice, and pace of speaking to enhance meaning and influence interpretation in narrative and informational presentations.

S.DS.08.04 Plan, outline, and deliver an informational presentation using precise and vivid language in the active voice; organizing logically to convey the message; applying persuasive non-verbal techniques; making use of rhetorical strategies to support the purpose of the presentation and to positively impact the intended audience.

L.CN.08.02 Listen to or view critically while demonstrating appropriate social skills of audience behaviors (e.g., eye contact, attentive, and supportive); critically examine the verbal and non-verbal strategies during speeches and presentations.

Michigan English Language Arts High School Content Expectations

CE 1.3.1 Compose written, spoken, and/or multimedia compositions in a range of genres (e.g., personal narrative, biography, poem, fiction, drama, creative nonfiction, summary, literary analysis essay, research report, or work-related text): pieces that serve a variety of purposes (e.g., expressive, informative, creative, and persuasive) and that use a variety of organizational patterns (e.g., autobiography, free verse, dialogue, comparison/contrast, definition, or cause and effect).

CE 1.3.9 Use the formal, stylistic, content, and mechanical conventions of a variety of genres in speaking, writing, and multimedia presentations.

CE 1.4.3 Develop and refine a position, claim, thesis, or hypothesis that will be explored and supported by analyzing different perspectives, resolving inconsistencies, and writing about those differences in a structure appropriate for the audience (e.g., argumentative essay that avoids inconsistencies in logic and develops a single thesis; exploratory essay that explains differences and similarities and raises additional questions).

CE 1.5.2 Prepare spoken and multimedia presentations that effectively address audiences by careful use of voice, pacing, gestures, eye contact, visual aids, audio and video technology.

National Science Education Standards

Science as Inquiry
Physical 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

VIII Science, technology, and society