

Girl Scouts Journeys

Content Unit Report

Grades: 11, 12

States: Michigan Curriculum Standards

JUSTICE

Summary: JUSTICE This journey for eleventh- and twelfth-graders tackles the engaging global issue of environmental justice by giving girls the opportunity to create their own equation for justice. Along the way, they will see how "Doing the Math" with even the simplest acts can lead to powerful and positive changes in the world. From scientists and doctors to lawyers and environmentalists, this journey is rich with eye-opening career possibilities -- all focused on caring and collaborative work that helps both people and the planet. (978-0-88441-736-1)

Michigan Curriculum Standards

Health and PE / Language Arts / Mathematics / Science / Social Studies

Grade: **11** - Adopted **2006**

STRAND / STANDARD CATEGORY	MI.1.3.	Writing, Speaking, and Visual Expression: Communicate in speech, writing, and multimedia using content, form, voice, and style appropriate to the audience and purpose (e.g., to reflect, persuade, inform, analyze, entertain, inspire).
STANDARD	CE 1.3.7.	Participate collaboratively and productively in groups (e.g., response groups, work teams, discussion groups, and committees) - fulfilling roles and responsibilities, posing relevant questions, giving and following instructions, acknowledging and building on ideas and contributions of others to answer questions or to solve problems, and offering dissent courteously.
STANDARD	CE 1.3.8.	Evaluate own and others' effectiveness in group discussions and formal presentations (e.g., considering accuracy, relevance, clarity, and delivery; types of arguments used; and relationships among purpose, audience, and content).
STRAND / STANDARD CATEGORY	MI.1.4.	Writing, Speaking, and Visual Expression: Develop and use the tools and practices of inquiry and research - generating, exploring, and refining important questions; creating a hypothesis or thesis; gathering and studying evidence; drawing conclusions; and composing a report.
STANDARD	CE 1.4.2.	Develop a system for gathering, organizing, paraphrasing, and summarizing information; select, evaluate, synthesize, and use multiple primary and secondary (print and electronic) resources.
STANDARD	CE 1.4.4.	Interpret, synthesize, and evaluate information/findings in various print sources and media (e.g., fact and opinion, comprehensiveness of the evidence, bias, varied perspectives, motives and credibility of the author, date of publication) to draw conclusions and implications.
STANDARD	CE 1.4.7.	Recognize the role of research, including student research, as a contribution to collective knowledge, selecting an appropriate method or genre through

		which research findings will be shared and evaluated, keeping in mind the needs of the prospective audience. (e.g., presentations, online sharing, written products such as a research report, a research brief, a multi-genre report, I-Search, literary analysis, news article).
STRAND / STANDARD CATEGORY	MI.2.1.	Reading, Listening, and Viewing: Develop critical reading, listening, and viewing strategies.
STANDARD	CE 2.1.3.	Determine the meaning of unfamiliar words, specialized vocabulary, figurative language, idiomatic expressions, and technical meanings of terms through context clues, word roots and affixes, and the use of appropriate resource materials such as print and electronic dictionaries.
STANDARD	CE 2.1.6.	Recognize the defining characteristics of informational texts, speeches, and multimedia presentations (e.g., documentaries and research presentations) and elements of expository texts (e.g., thesis, supporting ideas, and statistical evidence); critically examine the argumentation and conclusions of multiple informational texts.
STANDARD	CE 2.1.10.	Students will Listen to and view speeches, presentations, and multimedia works to identify and respond thoughtfully to key ideas, significant details, logical organization, fact and opinion, and propaganda.
STANDARD	CE 2.1.11.	Students will Demonstrate appropriate social skills of audience, group discussion, or work team behavior by listening attentively and with civility to the ideas of others, gaining the floor in respectful ways, posing appropriate questions, and tolerating ambiguity and lack of consensus.
STANDARD	CE 2.1.12.	Students will Use a variety of strategies to enhance listening comprehension (e.g., monitor message for clarity and understanding, ask relevant questions, provide verbal and nonverbal feedback, notice cues such as change of pace or emphasis that indicate a new point is about to be made; and take notes to organize essential information).
STRAND / STANDARD CATEGORY	MI.2.2.	Reading, Listening, and Viewing: Use a variety of reading, listening, and viewing strategies to construct meaning beyond the literal level (e.g., drawing inferences; confirming and correcting; making comparisons, connections, and generalizations; and drawing conclusions).
STANDARD	CE 2.2.3.	Interpret the meaning of written, spoken, and visual texts by drawing on different cultural, theoretical, and critical perspectives.
STRAND / STANDARD CATEGORY	MI.2.3.	Reading, Listening, and Viewing: Develop as a reader, listener, and viewer for personal, social, and political purposes, through independent and collaborative

		reading.
STANDARD	CE 2.3.2.	Read, view, and/or listen independently to a variety of fiction, nonfiction, and multimedia genres based on student interest and curiosity.
STRAND / STANDARD CATEGORY	MI.3.1.	Literature and Culture: Develop the skills of close and contextual literary reading.
STANDARD	CE 3.1.3.	Recognize a variety of plot structures and elements (e.g., story within a story, rising action, foreshadowing, flash backs, cause-and-effect relationships, conflicts, resolutions) and describe their impact on the reader in specific literary works.
STANDARD	CE 3.1.5.	Comparatively analyze two or more literary or expository texts, comparing how and why similar themes are treated differently, by different authors, in different types of text, in different historical periods, and/or from different cultural perspectives.
STANDARD	CE 3.1.6.	Examine differing and diverse interpretations of literary and expository works and explain how and why interpretation may vary from reader to reader.
STANDARD	CE 3.1.7.	Analyze and evaluate the portrayal of various groups, societies, and cultures in literature and other texts.
STANDARD	CE 3.1.8.	Demonstrate an understanding of historical, political, cultural, and philosophical themes and questions raised by literary and expository works.
STANDARD	CE 3.1.9.	Analyze how the tensions among characters, communities, themes, and issues in literature and other texts reflect human experience.
STRAND / STANDARD CATEGORY	MI.3.2.	Literature and Culture: Read and respond to classic and contemporary fiction, literary nonfiction, and expository text, from a variety of literary genres representing many time periods and authors (e.g., myth, epic, folklore, drama, poetry, autobiography, novels, short stories, philosophical pieces, science fiction, fantasy, young adult literature, creative non-fiction, hypertext fiction).
STANDARD	CE 3.2.1.	Recognize a variety of literary genres and forms (e.g., poetry, drama, novels, short stories, autobiographies, biographies, multi-genre texts, satire, parody, allegory) and demonstrate an understanding of the way in which genre and form influence meaning.
STANDARD	CE 3.2.4.	Respond by participating actively and appropriately in small and large group discussions about literature (e.g., posing questions, listening to others, contributing ideas, reflecting on and revising initial responses).
STANDARD	CE 3.2.5.	Respond to literature in a variety of ways (e.g., dramatic interpretation, reader's theatre, literature circles, illustration, writing in a character's voice, engaging in social action, writing an analytic essay) providing examples of how texts affect their lives,

		connect them with the contemporary world, and communicate across time.
STRAND / STANDARD CATEGORY	MI.3.3.	Literature and Culture: Use knowledge of literary history, traditions, and theory to respond to and analyze the meaning of texts.
STANDARD	CE 3.3.1.	Explore the relationships among individual works, authors, and literary movements in English and American literature (e.g., Romanticism, Puritanism, the Harlem Renaissance, Postcolonial), and consider the historical, cultural, and societal contexts in which works were produced.
STANDARD	CE 3.3.3.	Draw on a variety of critical perspectives to respond to and analyze works of literature (e.g., religious, biographical, feminist, multicultural, political).
STRAND / STANDARD CATEGORY	MI.4.1.	Language: Understand and use the English language effectively in a variety of contexts and settings.
STANDARD	CE 4.1.3.	Use a range of linguistic applications and styles for accomplishing different rhetorical purposes (e.g., persuading others to change opinions, conducting business transactions, speaking in a public forum, discussing issues informally with peers).

Grade: 12 - Adopted 2006

STRAND / STANDARD CATEGORY	MI.1.3.	Writing, Speaking, and Visual Expression: Communicate in speech, writing, and multimedia using content, form, voice, and style appropriate to the audience and purpose (e.g., to reflect, persuade, inform, analyze, entertain, inspire).
STANDARD	CE 1.3.7.	Participate collaboratively and productively in groups (e.g., response groups, work teams, discussion groups, and committees) - fulfilling roles and responsibilities, posing relevant questions, giving and following instructions, acknowledging and building on ideas and contributions of others to answer questions or to solve problems, and offering dissent courteously.
STANDARD	CE 1.3.8.	Evaluate own and others' effectiveness in group discussions and formal presentations (e.g., considering accuracy, relevance, clarity, and delivery; types of arguments used; and relationships among purpose, audience, and content).
STRAND / STANDARD CATEGORY	MI.1.4.	Writing, Speaking, and Visual Expression: Develop and use the tools and practices of inquiry and research - generating, exploring, and refining important questions; creating a hypothesis or thesis; gathering and studying evidence; drawing conclusions; and composing a report.
STANDARD	CE 1.4.2.	Develop a system for gathering, organizing, paraphrasing, and summarizing information; select, evaluate, synthesize, and use multiple primary and secondary (print and electronic) resources.
STANDARD	CE 1.4.4.	

		Interpret, synthesize, and evaluate information/findings in various print sources and media (e.g., fact and opinion, comprehensiveness of the evidence, bias, varied perspectives, motives and credibility of the author, date of publication) to draw conclusions and implications.
STANDARD	CE 1.4.7.	Recognize the role of research, including student research, as a contribution to collective knowledge, selecting an appropriate method or genre through which research findings will be shared and evaluated, keeping in mind the needs of the prospective audience. (e.g., presentations, online sharing, written products such as a research report, a research brief, a multi-genre report, I-Search, literary analysis, news article).
STRAND / STANDARD CATEGORY	MI.2.1.	Reading, Listening, and Viewing: Develop critical reading, listening, and viewing strategies.
STANDARD	CE 2.1.3.	Determine the meaning of unfamiliar words, specialized vocabulary, figurative language, idiomatic expressions, and technical meanings of terms through context clues, word roots and affixes, and the use of appropriate resource materials such as print and electronic dictionaries.
STANDARD	CE 2.1.6.	Recognize the defining characteristics of informational texts, speeches, and multimedia presentations (e.g., documentaries and research presentations) and elements of expository texts (e.g., thesis, supporting ideas, and statistical evidence); critically examine the argumentation and conclusions of multiple informational texts.
STANDARD	CE 2.1.10.	Students will Listen to and view speeches, presentations, and multimedia works to identify and respond thoughtfully to key ideas, significant details, logical organization, fact and opinion, and propaganda.
STANDARD	CE 2.1.11.	Students will Demonstrate appropriate social skills of audience, group discussion, or work team behavior by listening attentively and with civility to the ideas of others, gaining the floor in respectful ways, posing appropriate questions, and tolerating ambiguity and lack of consensus.
STANDARD	CE 2.1.12.	Students will Use a variety of strategies to enhance listening comprehension (e.g., monitor message for clarity and understanding, ask relevant questions, provide verbal and nonverbal feedback, notice cues such as change of pace or emphasis that indicate a new point is about to be made; and take notes to organize essential information).
STRAND / STANDARD CATEGORY	MI.2.2.	Reading, Listening, and Viewing: Use a variety of reading, listening, and viewing strategies to construct meaning beyond the literal level (e.g., drawing inferences; confirming and correcting; making

		comparisons, connections, and generalizations; and drawing conclusions).
STANDARD	CE 2.2.3.	Interpret the meaning of written, spoken, and visual texts by drawing on different cultural, theoretical, and critical perspectives.
STRAND / STANDARD CATEGORY	MI.2.3.	Reading, Listening, and Viewing: Develop as a reader, listener, and viewer for personal, social, and political purposes, through independent and collaborative reading.
STANDARD	CE 2.3.2.	Read, view, and/or listen independently to a variety of fiction, nonfiction, and multimedia genres based on student interest and curiosity.
STRAND / STANDARD CATEGORY	MI.3.1.	Literature and Culture: Develop the skills of close and contextual literary reading.
STANDARD	CE 3.1.3.	Recognize a variety of plot structures and elements (e.g., story within a story, rising action, foreshadowing, flash backs, cause-and-effect relationships, conflicts, resolutions) and describe their impact on the reader in specific literary works.
STANDARD	CE 3.1.5.	Comparatively analyze two or more literary or expository texts, comparing how and why similar themes are treated differently, by different authors, in different types of text, in different historical periods, and/or from different cultural perspectives.
STANDARD	CE 3.1.6.	Examine differing and diverse interpretations of literary and expository works and explain how and why interpretation may vary from reader to reader.
STANDARD	CE 3.1.7.	Analyze and evaluate the portrayal of various groups, societies, and cultures in literature and other texts.
STANDARD	CE 3.1.8.	Demonstrate an understanding of historical, political, cultural, and philosophical themes and questions raised by literary and expository works.
STANDARD	CE 3.1.9.	Analyze how the tensions among characters, communities, themes, and issues in literature and other texts reflect human experience.
STRAND / STANDARD CATEGORY	MI.3.2.	Literature and Culture: Read and respond to classic and contemporary fiction, literary nonfiction, and expository text, from a variety of literary genres representing many time periods and authors (e.g., myth, epic, folklore, drama, poetry, autobiography, novels, short stories, philosophical pieces, science fiction, fantasy, young adult literature, creative non-fiction, hypertext fiction).
STANDARD	CE 3.2.1.	Recognize a variety of literary genres and forms (e.g., poetry, drama, novels, short stories, autobiographies, biographies, multi-genre texts, satire, parody, allegory) and demonstrate an understanding of the way in which genre and form influence meaning.
STANDARD	CE 3.2.4.	Respond by participating actively and appropriately in small and large group discussions about literature

		(e.g., posing questions, listening to others, contributing ideas, reflecting on and revising initial responses).
STANDARD	CE 3.2.5.	Respond to literature in a variety of ways (e.g., dramatic interpretation, reader's theatre, literature circles, illustration, writing in a character's voice, engaging in social action, writing an analytic essay) providing examples of how texts affect their lives, connect them with the contemporary world, and communicate across time.
STRAND / STANDARD CATEGORY	MI.3.3.	Literature and Culture: Use knowledge of literary history, traditions, and theory to respond to and analyze the meaning of texts.
STANDARD	CE 3.3.1.	Explore the relationships among individual works, authors, and literary movements in English and American literature (e.g., Romanticism, Puritanism, the Harlem Renaissance, Postcolonial), and consider the historical, cultural, and societal contexts in which works were produced.
STANDARD	CE 3.3.3.	Draw on a variety of critical perspectives to respond to and analyze works of literature (e.g., religious, biographical, feminist, multicultural, political).
STRAND / STANDARD CATEGORY	MI.4.1.	Language: Understand and use the English language effectively in a variety of contexts and settings.
STANDARD	CE 4.1.3.	Use a range of linguistic applications and styles for accomplishing different rhetorical purposes (e.g., persuading others to change opinions, conducting business transactions, speaking in a public forum, discussing issues informally with peers).

Grade: 11 - Adopted 2007

STRAND / STANDARD CATEGORY	MI.L.	Quantitative Literacy and Logic (L)
STANDARD	L1:	Reasoning About Numbers, Systems, and Quantitative Situations: Based on their knowledge of the properties of arithmetic, students understand and reason about numbers, number systems, and the relationships between them. They represent quantitative relationships using mathematical symbols, and interpret relationships from those representations.
GRADE LEVEL EXPECTATION	L1.3	Counting and Probabilistic Reasoning
EXPECTATION	L1.3.2	Define and interpret commonly used expressions of probability.
STRAND / STANDARD CATEGORY	MI.A.	Algebra and Functions (A)
STANDARD	A3:	Families of Functions: Students study the symbolic and graphical forms of each function family. By recognizing the unique characteristics of each family, they can use them as tools for solving problems or for modeling real-world situations.

GRADE LEVEL EXPECTATION	A3.2	Exponential and Logarithmic Functions
EXPECTATION	A3.2.4	Understand and use the fact that the base of an exponential function determines whether the function increases or decreases and understand how the base affects the rate of growth or decay.
EXPECTATION	A.3.2.5	Relate exponential and logarithmic functions to real phenomena, including half-life and doubling time.
STRAND / STANDARD CATEGORY	MI.S.	Statistics and Probability (S)
STANDARD	S3:	Samples, Surveys, and Experiments: Students understand and apply sampling and various sampling methods, examine surveys and experiments, identify bias in methods of conducting surveys, and learn strategies to minimize bias. They understand basic principles of good experimental design.
GRADE LEVEL EXPECTATION	S3.1	Data Collection and Analysis
EXPECTATION	S3.1.3	Distinguish between an observational study and an experimental study, and identify, in context, the conclusions that can be drawn from each.
EXPECTATION	S3.1.4	Design simple experiments or investigations to collect data to answer questions of interest; interpret and present results. (Recommended)
STRAND / STANDARD CATEGORY	MI.P.	Precalculus
STANDARD	P2:	Exponential and Logarithmic Functions
GRADE LEVEL EXPECTATION	P2.5	Explain how the parameters of an exponential or logarithmic model relate to the data set or situation being modeled. Find an exponential or logarithmic function to model a given data set or situation. Solve problems involving exponential growth and decay.
STRAND / STANDARD CATEGORY	MI.AI.	Algebra I
STANDARD	A3:	Families of Functions
GRADE LEVEL EXPECTATION	A3.2.	Exponential and Logarithmic Functions
EXPECTATION	A3.2.4.	Understand and use the fact that the base of an exponential function determines whether the function increases or decreases and how base affects the rate of growth or decay.
EXPECTATION	A3.2.5.	Relate exponential functions to real phenomena, including half-life and doubling time.
STRAND / STANDARD CATEGORY	MI.AII.	Algebra II
STANDARD	L1:	Reasoning About Numbers, Systems, and Quantitative Situations
GRADE LEVEL EXPECTATION	L1.3.	Counting and Probabilistic Reasoning
EXPECTATION	L1.3.2.	Define and interpret commonly used expressions of probability.

STRAND / STANDARD CATEGORY	MI.AII.	Algebra II
STANDARD	S3:	Samples, Surveys and Experiments
GRADE LEVEL EXPECTATION	S3.1.	Data Collection and Analysis
EXPECTATION	S3.1.3.	Distinguish between an observational study and an experimental study, and identify, in context, the conclusions that can be drawn from each.

Grade: 12 - Adopted 2007

STRAND / STANDARD CATEGORY	MI.L.	Quantitative Literacy and Logic (L)
STANDARD	L1:	Reasoning About Numbers, Systems, and Quantitative Situations: Based on their knowledge of the properties of arithmetic, students understand and reason about numbers, number systems, and the relationships between them. They represent quantitative relationships using mathematical symbols, and interpret relationships from those representations.
GRADE LEVEL EXPECTATION	L1.3	Counting and Probabilistic Reasoning
EXPECTATION	L1.3.2	Define and interpret commonly used expressions of probability.

STRAND / STANDARD CATEGORY	MI.A.	Algebra and Functions (A)
STANDARD	A3:	Families of Functions: Students study the symbolic and graphical forms of each function family. By recognizing the unique characteristics of each family, they can use them as tools for solving problems or for modeling real-world situations.
GRADE LEVEL EXPECTATION	A3.2	Exponential and Logarithmic Functions
EXPECTATION	A3.2.4	Understand and use the fact that the base of an exponential function determines whether the function increases or decreases and understand how the base affects the rate of growth or decay.
EXPECTATION	A.3.2.5	Relate exponential and logarithmic functions to real phenomena, including half-life and doubling time.

STRAND / STANDARD CATEGORY	MI.S.	Statistics and Probability (S)
STANDARD	S3:	Samples, Surveys, and Experiments: Students understand and apply sampling and various sampling methods, examine surveys and experiments, identify bias in methods of conducting surveys, and learn strategies to minimize bias. They understand basic principles of good experimental design.
GRADE LEVEL EXPECTATION	S3.1	Data Collection and Analysis
EXPECTATION	S3.1.3	Distinguish between an observational study and an experimental study, and identify, in context, the conclusions that can be drawn from each.
EXPECTATION	S3.1.4	

		Design simple experiments or investigations to collect data to answer questions of interest; interpret and present results. (Recommended)
STRAND / STANDARD CATEGORY	MI.P.	Precalculus
STANDARD	P2:	Exponential and Logarithmic Functions
GRADE LEVEL EXPECTATION	P2.5	Explain how the parameters of an exponential or logarithmic model relate to the data set or situation being modeled. Find an exponential or logarithmic function to model a given data set or situation. Solve problems involving exponential growth and decay.
STRAND / STANDARD CATEGORY	MI.AI.	Algebra I
STANDARD	A3:	Families of Functions
GRADE LEVEL EXPECTATION	A3.2.	Exponential and Logarithmic Functions
EXPECTATION	A3.2.4.	Understand and use the fact that the base of an exponential function determines whether the function increases or decreases and how base affects the rate of growth or decay.
EXPECTATION	A3.2.5.	Relate exponential functions to real phenomena, including half-life and doubling time.
STRAND / STANDARD CATEGORY	MI.AII.	Algebra II
STANDARD	L1:	Reasoning About Numbers, Systems, and Quantitative Situations
GRADE LEVEL EXPECTATION	L1.3.	Counting and Probabilistic Reasoning
EXPECTATION	L1.3.2.	Define and interpret commonly used expressions of probability.
STRAND / STANDARD CATEGORY	MI.AII.	Algebra II
STANDARD	S3:	Samples, Surveys and Experiments
GRADE LEVEL EXPECTATION	S3.1.	Data Collection and Analysis
EXPECTATION	S3.1.3.	Distinguish between an observational study and an experimental study, and identify, in context, the conclusions that can be drawn from each.

Grade: 11 - Adopted 2006

STRAND / STANDARD CATEGORY	MI.B1.	Biology: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. Students will demonstrate their understanding that scientific knowledge is gathered through various forms of direct and indirect observations and the testing of this information by methods including, but not limited to, experimentation.
STANDARD	B1.1.	Scientific Inquiry

GRADE LEVEL EXPECTATION	B1.1B.	Evaluate the uncertainties or validity of scientific conclusions using an understanding of sources of measurement error, the challenges of controlling variables, accuracy of data analysis, logic of argument, logic of experimental design, and/or the dependence on underlying assumptions.
STRAND / STANDARD CATEGORY	MI.B1.	Biology: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. Students will demonstrate their understanding that scientific knowledge is gathered through various forms of direct and indirect observations and the testing of this information by methods including, but not limited to, experimentation.
STANDARD	B1.2.	Scientific Reflection and Social Implications
GRADE LEVEL EXPECTATION	B1.2B.	Identify and critique arguments about personal or societal issues based on scientific evidence.
GRADE LEVEL EXPECTATION	B1.2D.	Evaluate scientific explanations in a peer review process or discussion format.
GRADE LEVEL EXPECTATION	B1.2g.	Identify scientific tradeoffs in design decisions and choose among alternative solutions.
GRADE LEVEL EXPECTATION	B1.2h.	Describe the distinctions between scientific theories, laws, hypotheses, and observations.
STRAND / STANDARD CATEGORY	MI.B3.	Biology: Interdependence of Living Systems and the Environment: Students describe the processes of photosynthesis and cellular respiration and how energy is transferred through food webs. They recognize and analyze the consequences of the dependence of organisms on environmental resources and the interdependence of organisms in ecosystems.
STANDARD	L3.p4.	Human Impact on Ecosystems (prerequisite)
GRADE LEVEL EXPECTATION	L3.p4A.	Recognize that, and describe how, human beings are part of Earth's ecosystems. Note that human activities can deliberately or inadvertently alter the equilibrium in ecosystems. (prerequisite)
STRAND / STANDARD CATEGORY	MI.B3.	Biology: Interdependence of Living Systems and the Environment: Students describe the processes of photosynthesis and cellular respiration and how energy is transferred through food webs. They recognize and analyze the consequences of the dependence of organisms on environmental resources and the interdependence of organisms in ecosystems.
STANDARD	B3.4.	Changes in Ecosystems
GRADE LEVEL EXPECTATION	B3.4C.	Examine the negative impact of human activities.
STRAND / STANDARD CATEGORY	MI.C1.	Chemistry: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design,

		execution, and evaluation of scientific investigations. Students will demonstrate their understanding that scientific knowledge is gathered through various forms of direct and indirect observations and the testing of this information by methods including, but not limited to, experimentation.
STANDARD	C1.1.	Scientific Inquiry
GRADE LEVEL EXPECTATION	C1.1B.	Evaluate the uncertainties or validity of scientific conclusions using an understanding of sources of measurement error, the challenges of controlling variables, accuracy of data analysis, logic of argument, logic of experimental design, and/or the dependence on underlying assumptions.
GRADE LEVEL EXPECTATION	C1.1f.	Predict what would happen if the variables, methods, or timing of an investigation were changed.
STRAND / STANDARD CATEGORY	MI.C1.	Chemistry: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. Students will demonstrate their understanding that scientific knowledge is gathered through various forms of direct and indirect observations and the testing of this information by methods including, but not limited to, experimentation.
STANDARD	C1.2.	Scientific Reflection and Social Implications
GRADE LEVEL EXPECTATION	C1.2h.	Describe the distinctions between scientific theories, laws, hypotheses, and observations.
STRAND / STANDARD CATEGORY	MI.E1.	Earth Science: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. Students will demonstrate their understanding that scientific knowledge is gathered through various forms of direct and indirect observations and the testing of this information by methods including, but not limited to, experimentation.
STANDARD	E1.1.	Scientific Inquiry
GRADE LEVEL EXPECTATION	E1.1B.	Evaluate the uncertainties or validity of scientific conclusions using an understanding of sources of measurement error, the challenges of controlling variables, accuracy of data analysis, logic of argument, logic of experimental design, and/or the dependence on underlying assumptions.
GRADE LEVEL EXPECTATION	E1.1f.	Predict what would happen if the variables, methods, or timing of an investigation were changed.
STRAND / STANDARD CATEGORY	MI.E1.	Earth Science: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice

		scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. Students will demonstrate their understanding that scientific knowledge is gathered through various forms of direct and indirect observations and the testing of this information by methods including, but not limited to, experimentation.
STANDARD	E1.2.	Scientific Reflection and Social Implications
GRADE LEVEL EXPECTATION	E1.2B.	Identify and critique arguments about personal or societal issues based on scientific evidence.
GRADE LEVEL EXPECTATION	E1.2h.	Describe the distinctions between scientific theories, laws, hypotheses, and observations.
STRAND / STANDARD CATEGORY	MI.E2.	Earth Science: Earth Systems: Students describe the interactions within and between Earth systems. Students will explain how both fluids (water cycle) and solids (rock cycle) move within Earth systems and how these movements form and change their environment.
STANDARD	E2.4.	Resources and Human Impacts on Earth Systems
GRADE LEVEL EXPECTATION	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.
STRAND / STANDARD CATEGORY	MI.P1.	Physics: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. Students will demonstrate their understanding that scientific knowledge is gathered through various forms of direct and indirect observations and the testing of this information by methods including, but not limited to, experimentation.
STANDARD	P1.1.	Scientific Inquiry
GRADE LEVEL EXPECTATION	P1.1B.	Evaluate the uncertainties or validity of scientific conclusions using an understanding of sources of measurement error, the challenges of controlling variables, accuracy of data analysis, logic of argument, logic of experimental design, and/or the dependence on underlying assumptions.
GRADE LEVEL EXPECTATION	P1.1f.	Predict what would happen if the variables, methods, or timing of an investigation were changed.
STRAND / STANDARD CATEGORY	MI.P1.	Physics: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. Students will demonstrate their understanding that scientific knowledge is gathered through various forms of direct and indirect

		observations and the testing of this information by methods including, but not limited to, experimentation.
STANDARD	P1.2.	Scientific Reflection and Social Implications
GRADE LEVEL EXPECTATION	P1.2h.	Describe the distinctions between scientific theories, laws, hypotheses, and observations.

Grade: 12 - Adopted 2006

STRAND / STANDARD CATEGORY	MI.B1.	Biology: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. Students will demonstrate their understanding that scientific knowledge is gathered through various forms of direct and indirect observations and the testing of this information by methods including, but not limited to, experimentation.
STANDARD	B1.1.	Scientific Inquiry
GRADE LEVEL EXPECTATION	B1.1B.	Evaluate the uncertainties or validity of scientific conclusions using an understanding of sources of measurement error, the challenges of controlling variables, accuracy of data analysis, logic of argument, logic of experimental design, and/or the dependence on underlying assumptions.
STRAND / STANDARD CATEGORY	MI.B1.	Biology: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. Students will demonstrate their understanding that scientific knowledge is gathered through various forms of direct and indirect observations and the testing of this information by methods including, but not limited to, experimentation.
STANDARD	B1.2.	Scientific Reflection and Social Implications
GRADE LEVEL EXPECTATION	B1.2B.	Identify and critique arguments about personal or societal issues based on scientific evidence.
GRADE LEVEL EXPECTATION	B1.2D.	Evaluate scientific explanations in a peer review process or discussion format.
GRADE LEVEL EXPECTATION	B1.2g.	Identify scientific tradeoffs in design decisions and choose among alternative solutions.
GRADE LEVEL EXPECTATION	B1.2h.	Describe the distinctions between scientific theories, laws, hypotheses, and observations.
STRAND / STANDARD CATEGORY	MI.B3.	Biology: Interdependence of Living Systems and the Environment: Students describe the processes of photosynthesis and cellular respiration and how energy is transferred through food webs. They recognize and analyze the consequences of the dependence of organisms on environmental resources and the interdependence of organisms in ecosystems.

STANDARD	L3.p4.	Human Impact on Ecosystems (prerequisite)
GRADE LEVEL EXPECTATION	L3.p4A.	Recognize that, and describe how, human beings are part of Earth's ecosystems. Note that human activities can deliberately or inadvertently alter the equilibrium in ecosystems. (prerequisite)
STRAND / STANDARD CATEGORY	MI.B3.	Biology: Interdependence of Living Systems and the Environment: Students describe the processes of photosynthesis and cellular respiration and how energy is transferred through food webs. They recognize and analyze the consequences of the dependence of organisms on environmental resources and the interdependence of organisms in ecosystems.
STANDARD	B3.4.	Changes in Ecosystems
GRADE LEVEL EXPECTATION	B3.4C.	Examine the negative impact of human activities.
STRAND / STANDARD CATEGORY	MI.C1.	Chemistry: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. Students will demonstrate their understanding that scientific knowledge is gathered through various forms of direct and indirect observations and the testing of this information by methods including, but not limited to, experimentation.
STANDARD	C1.1.	Scientific Inquiry
GRADE LEVEL EXPECTATION	C1.1B.	Evaluate the uncertainties or validity of scientific conclusions using an understanding of sources of measurement error, the challenges of controlling variables, accuracy of data analysis, logic of argument, logic of experimental design, and/or the dependence on underlying assumptions.
GRADE LEVEL EXPECTATION	C1.1f.	Predict what would happen if the variables, methods, or timing of an investigation were changed.
STRAND / STANDARD CATEGORY	MI.C1.	Chemistry: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. Students will demonstrate their understanding that scientific knowledge is gathered through various forms of direct and indirect observations and the testing of this information by methods including, but not limited to, experimentation.
STANDARD	C1.2.	Scientific Reflection and Social Implications
GRADE LEVEL EXPECTATION	C1.2h.	Describe the distinctions between scientific theories, laws, hypotheses, and observations.
STRAND / STANDARD CATEGORY	MI.E1.	Earth Science: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design,

		execution, and evaluation of scientific investigations. Students will demonstrate their understanding that scientific knowledge is gathered through various forms of direct and indirect observations and the testing of this information by methods including, but not limited to, experimentation.
STANDARD	E1.1.	Scientific Inquiry
GRADE LEVEL EXPECTATION	E1.1B.	Evaluate the uncertainties or validity of scientific conclusions using an understanding of sources of measurement error, the challenges of controlling variables, accuracy of data analysis, logic of argument, logic of experimental design, and/or the dependence on underlying assumptions.
GRADE LEVEL EXPECTATION	E1.1f.	Predict what would happen if the variables, methods, or timing of an investigation were changed.
STRAND / STANDARD CATEGORY	MI.E1.	Earth Science: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. Students will demonstrate their understanding that scientific knowledge is gathered through various forms of direct and indirect observations and the testing of this information by methods including, but not limited to, experimentation.
STANDARD	E1.2.	Scientific Reflection and Social Implications
GRADE LEVEL EXPECTATION	E1.2B.	Identify and critique arguments about personal or societal issues based on scientific evidence.
GRADE LEVEL EXPECTATION	E1.2h.	Describe the distinctions between scientific theories, laws, hypotheses, and observations.
STRAND / STANDARD CATEGORY	MI.E2.	Earth Science: Earth Systems: Students describe the interactions within and between Earth systems. Students will explain how both fluids (water cycle) and solids (rock cycle) move within Earth systems and how these movements form and change their environment.
STANDARD	E2.4.	Resources and Human Impacts on Earth Systems
GRADE LEVEL EXPECTATION	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.
STRAND / STANDARD CATEGORY	MI.P1.	Physics: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. Students will demonstrate their understanding that scientific knowledge is gathered through various forms of direct and indirect observations and the testing of this information by

		methods including, but not limited to, experimentation.
STANDARD	P1.1.	Scientific Inquiry
GRADE LEVEL EXPECTATION	P1.1B.	Evaluate the uncertainties or validity of scientific conclusions using an understanding of sources of measurement error, the challenges of controlling variables, accuracy of data analysis, logic of argument, logic of experimental design, and/or the dependence on underlying assumptions.
GRADE LEVEL EXPECTATION	P1.1f.	Predict what would happen if the variables, methods, or timing of an investigation were changed.
STRAND / STANDARD CATEGORY	MI.P1.	Physics: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. Students will demonstrate their understanding that scientific knowledge is gathered through various forms of direct and indirect observations and the testing of this information by methods including, but not limited to, experimentation.
STANDARD	P1.2.	Scientific Reflection and Social Implications
GRADE LEVEL EXPECTATION	P1.2h.	Describe the distinctions between scientific theories, laws, hypotheses, and observations.

JUSTICE -

Summary: JUSTICE: A HOW-TO GUIDE FOR ADULT VOLUNTEERS (978-0-88441-742-2)

Michigan Curriculum Standards

Health and PE / Language Arts / Mathematics / Science / Social Studies

Grade: **11** - Adopted **2006**

STRAND / STANDARD CATEGORY	MI.1.3.	Writing, Speaking, and Visual Expression: Communicate in speech, writing, and multimedia using content, form, voice, and style appropriate to the audience and purpose (e.g., to reflect, persuade, inform, analyze, entertain, inspire).
STANDARD	CE 1.3.7.	Participate collaboratively and productively in groups (e.g., response groups, work teams, discussion groups, and committees) - fulfilling roles and responsibilities, posing relevant questions, giving and following instructions, acknowledging and building on ideas and contributions of others to answer questions or to solve problems, and offering dissent courteously.
STANDARD	CE 1.3.8.	Evaluate own and others' effectiveness in group discussions and formal presentations (e.g., considering accuracy, relevance, clarity, and delivery; types of arguments used; and relationships among purpose, audience, and content).
	MI.1.4.	

STRAND / STANDARD CATEGORY		Writing, Speaking, and Visual Expression: Develop and use the tools and practices of inquiry and research - generating, exploring, and refining important questions; creating a hypothesis or thesis; gathering and studying evidence; drawing conclusions; and composing a report.
STANDARD	CE 1.4.2.	Develop a system for gathering, organizing, paraphrasing, and summarizing information; select, evaluate, synthesize, and use multiple primary and secondary (print and electronic) resources.
STANDARD	CE 1.4.4.	Interpret, synthesize, and evaluate information/findings in various print sources and media (e.g., fact and opinion, comprehensiveness of the evidence, bias, varied perspectives, motives and credibility of the author, date of publication) to draw conclusions and implications.
STANDARD	CE 1.4.7.	Recognize the role of research, including student research, as a contribution to collective knowledge, selecting an appropriate method or genre through which research findings will be shared and evaluated, keeping in mind the needs of the prospective audience. (e.g., presentations, online sharing, written products such as a research report, a research brief, a multi-genre report, I-Search, literary analysis, news article).
STRAND / STANDARD CATEGORY		Reading, Listening, and Viewing: Develop critical reading, listening, and viewing strategies.
STANDARD	CE 2.1.3.	Determine the meaning of unfamiliar words, specialized vocabulary, figurative language, idiomatic expressions, and technical meanings of terms through context clues, word roots and affixes, and the use of appropriate resource materials such as print and electronic dictionaries.
STANDARD	CE 2.1.6.	Recognize the defining characteristics of informational texts, speeches, and multimedia presentations (e.g., documentaries and research presentations) and elements of expository texts (e.g., thesis, supporting ideas, and statistical evidence); critically examine the argumentation and conclusions of multiple informational texts.
STANDARD	CE 2.1.10.	Students will Listen to and view speeches, presentations, and multimedia works to identify and respond thoughtfully to key ideas, significant details, logical organization, fact and opinion, and propaganda.
STANDARD	CE 2.1.11.	Students will Demonstrate appropriate social skills of audience, group discussion, or work team behavior by listening attentively and with civility to the ideas of others, gaining the floor in respectful ways, posing appropriate questions, and tolerating ambiguity and lack of consensus.

STANDARD	CE 2.1.12.	Students will Use a variety of strategies to enhance listening comprehension (e.g., monitor message for clarity and understanding, ask relevant questions, provide verbal and nonverbal feedback, notice cues such as change of pace or emphasis that indicate a new point is about to be made; and take notes to organize essential information).
STRAND / STANDARD CATEGORY	MI.2.2.	Reading, Listening, and Viewing: Use a variety of reading, listening, and viewing strategies to construct meaning beyond the literal level (e.g., drawing inferences; confirming and correcting; making comparisons, connections, and generalizations; and drawing conclusions).
STANDARD	CE 2.2.3.	Interpret the meaning of written, spoken, and visual texts by drawing on different cultural, theoretical, and critical perspectives.
STRAND / STANDARD CATEGORY	MI.2.3.	Reading, Listening, and Viewing: Develop as a reader, listener, and viewer for personal, social, and political purposes, through independent and collaborative reading.
STANDARD	CE 2.3.2.	Read, view, and/or listen independently to a variety of fiction, nonfiction, and multimedia genres based on student interest and curiosity.
STRAND / STANDARD CATEGORY	MI.3.1.	Literature and Culture: Develop the skills of close and contextual literary reading.
STANDARD	CE 3.1.3.	Recognize a variety of plot structures and elements (e.g., story within a story, rising action, foreshadowing, flash backs, cause-and-effect relationships, conflicts, resolutions) and describe their impact on the reader in specific literary works.
STANDARD	CE 3.1.5.	Comparatively analyze two or more literary or expository texts, comparing how and why similar themes are treated differently, by different authors, in different types of text, in different historical periods, and/or from different cultural perspectives.
STANDARD	CE 3.1.6.	Examine differing and diverse interpretations of literary and expository works and explain how and why interpretation may vary from reader to reader.
STANDARD	CE 3.1.7.	Analyze and evaluate the portrayal of various groups, societies, and cultures in literature and other texts.
STANDARD	CE 3.1.8.	Demonstrate an understanding of historical, political, cultural, and philosophical themes and questions raised by literary and expository works.
STANDARD	CE 3.1.9.	Analyze how the tensions among characters, communities, themes, and issues in literature and other texts reflect human experience.
STRAND / STANDARD CATEGORY	MI.3.2.	Literature and Culture: Read and respond to classic and contemporary fiction, literary nonfiction, and expository text, from a variety of literary genres representing many time periods and authors (e.g.,

		myth, epic, folklore, drama, poetry, autobiography, novels, short stories, philosophical pieces, science fiction, fantasy, young adult literature, creative non-fiction, hypertext fiction).
STANDARD	CE 3.2.1.	Recognize a variety of literary genres and forms (e.g., poetry, drama, novels, short stories, autobiographies, biographies, multi-genre texts, satire, parody, allegory) and demonstrate an understanding of the way in which genre and form influence meaning.
STANDARD	CE 3.2.4.	Respond by participating actively and appropriately in small and large group discussions about literature (e.g., posing questions, listening to others, contributing ideas, reflecting on and revising initial responses).
STANDARD	CE 3.2.5.	Respond to literature in a variety of ways (e.g., dramatic interpretation, reader's theatre, literature circles, illustration, writing in a character's voice, engaging in social action, writing an analytic essay) providing examples of how texts affect their lives, connect them with the contemporary world, and communicate across time.
STRAND / STANDARD CATEGORY	MI.3.3.	Literature and Culture: Use knowledge of literary history, traditions, and theory to respond to and analyze the meaning of texts.
STANDARD	CE 3.3.1.	Explore the relationships among individual works, authors, and literary movements in English and American literature (e.g., Romanticism, Puritanism, the Harlem Renaissance, Postcolonial), and consider the historical, cultural, and societal contexts in which works were produced.
STANDARD	CE 3.3.3.	Draw on a variety of critical perspectives to respond to and analyze works of literature (e.g., religious, biographical, feminist, multicultural, political).
STRAND / STANDARD CATEGORY	MI.4.1.	Language: Understand and use the English language effectively in a variety of contexts and settings.
STANDARD	CE 4.1.3.	Use a range of linguistic applications and styles for accomplishing different rhetorical purposes (e.g., persuading others to change opinions, conducting business transactions, speaking in a public forum, discussing issues informally with peers).

Grade: 12 - Adopted 2006

STRAND / STANDARD CATEGORY	MI.1.3.	Writing, Speaking, and Visual Expression: Communicate in speech, writing, and multimedia using content, form, voice, and style appropriate to the audience and purpose (e.g., to reflect, persuade, inform, analyze, entertain, inspire).
STANDARD	CE 1.3.7.	Participate collaboratively and productively in groups (e.g., response groups, work teams, discussion groups, and committees) - fulfilling roles and responsibilities, posing relevant questions, giving and following

		instructions, acknowledging and building on ideas and contributions of others to answer questions or to solve problems, and offering dissent courteously.
STANDARD	CE 1.3.8.	Evaluate own and others' effectiveness in group discussions and formal presentations (e.g., considering accuracy, relevance, clarity, and delivery; types of arguments used; and relationships among purpose, audience, and content).
STRAND / STANDARD CATEGORY	MI.1.4.	Writing, Speaking, and Visual Expression: Develop and use the tools and practices of inquiry and research - generating, exploring, and refining important questions; creating a hypothesis or thesis; gathering and studying evidence; drawing conclusions; and composing a report.
STANDARD	CE 1.4.2.	Develop a system for gathering, organizing, paraphrasing, and summarizing information; select, evaluate, synthesize, and use multiple primary and secondary (print and electronic) resources.
STANDARD	CE 1.4.4.	Interpret, synthesize, and evaluate information/findings in various print sources and media (e.g., fact and opinion, comprehensiveness of the evidence, bias, varied perspectives, motives and credibility of the author, date of publication) to draw conclusions and implications.
STANDARD	CE 1.4.7.	Recognize the role of research, including student research, as a contribution to collective knowledge, selecting an appropriate method or genre through which research findings will be shared and evaluated, keeping in mind the needs of the prospective audience. (e.g., presentations, online sharing, written products such as a research report, a research brief, a multi-genre report, I-Search, literary analysis, news article).
STRAND / STANDARD CATEGORY	MI.2.1.	Reading, Listening, and Viewing: Develop critical reading, listening, and viewing strategies.
STANDARD	CE 2.1.3.	Determine the meaning of unfamiliar words, specialized vocabulary, figurative language, idiomatic expressions, and technical meanings of terms through context clues, word roots and affixes, and the use of appropriate resource materials such as print and electronic dictionaries.
STANDARD	CE 2.1.6.	Recognize the defining characteristics of informational texts, speeches, and multimedia presentations (e.g., documentaries and research presentations) and elements of expository texts (e.g., thesis, supporting ideas, and statistical evidence); critically examine the argumentation and conclusions of multiple informational texts.
STANDARD	CE 2.1.10.	Students will Listen to and view speeches, presentations, and multimedia works to identify and respond thoughtfully to key ideas, significant details,

		logical organization, fact and opinion, and propaganda.
STANDARD	CE 2.1.11.	Students will Demonstrate appropriate social skills of audience, group discussion, or work team behavior by listening attentively and with civility to the ideas of others, gaining the floor in respectful ways, posing appropriate questions, and tolerating ambiguity and lack of consensus.
STANDARD	CE 2.1.12.	Students will Use a variety of strategies to enhance listening comprehension (e.g., monitor message for clarity and understanding, ask relevant questions, provide verbal and nonverbal feedback, notice cues such as change of pace or emphasis that indicate a new point is about to be made; and take notes to organize essential information).
STRAND / STANDARD CATEGORY	MI.2.2.	Reading, Listening, and Viewing: Use a variety of reading, listening, and viewing strategies to construct meaning beyond the literal level (e.g., drawing inferences; confirming and correcting; making comparisons, connections, and generalizations; and drawing conclusions).
STANDARD	CE 2.2.3.	Interpret the meaning of written, spoken, and visual texts by drawing on different cultural, theoretical, and critical perspectives.
STRAND / STANDARD CATEGORY	MI.2.3.	Reading, Listening, and Viewing: Develop as a reader, listener, and viewer for personal, social, and political purposes, through independent and collaborative reading.
STANDARD	CE 2.3.2.	Read, view, and/or listen independently to a variety of fiction, nonfiction, and multimedia genres based on student interest and curiosity.
STRAND / STANDARD CATEGORY	MI.3.1.	Literature and Culture: Develop the skills of close and contextual literary reading.
STANDARD	CE 3.1.3.	Recognize a variety of plot structures and elements (e.g., story within a story, rising action, foreshadowing, flash backs, cause-and-effect relationships, conflicts, resolutions) and describe their impact on the reader in specific literary works.
STANDARD	CE 3.1.5.	Comparatively analyze two or more literary or expository texts, comparing how and why similar themes are treated differently, by different authors, in different types of text, in different historical periods, and/or from different cultural perspectives.
STANDARD	CE 3.1.6.	Examine differing and diverse interpretations of literary and expository works and explain how and why interpretation may vary from reader to reader.
STANDARD	CE 3.1.7.	Analyze and evaluate the portrayal of various groups, societies, and cultures in literature and other texts.
STANDARD	CE 3.1.8.	Demonstrate an understanding of historical, political, cultural, and philosophical themes and questions

		raised by literary and expository works.
STANDARD	CE 3.1.9.	Analyze how the tensions among characters, communities, themes, and issues in literature and other texts reflect human experience.
STRAND / STANDARD CATEGORY	MI.3.2.	Literature and Culture: Read and respond to classic and contemporary fiction, literary nonfiction, and expository text, from a variety of literary genres representing many time periods and authors (e.g., myth, epic, folklore, drama, poetry, autobiography, novels, short stories, philosophical pieces, science fiction, fantasy, young adult literature, creative non-fiction, hypertext fiction).
STANDARD	CE 3.2.1.	Recognize a variety of literary genres and forms (e.g., poetry, drama, novels, short stories, autobiographies, biographies, multi-genre texts, satire, parody, allegory) and demonstrate an understanding of the way in which genre and form influence meaning.
STANDARD	CE 3.2.4.	Respond by participating actively and appropriately in small and large group discussions about literature (e.g., posing questions, listening to others, contributing ideas, reflecting on and revising initial responses).
STANDARD	CE 3.2.5.	Respond to literature in a variety of ways (e.g., dramatic interpretation, reader's theatre, literature circles, illustration, writing in a character's voice, engaging in social action, writing an analytic essay) providing examples of how texts affect their lives, connect them with the contemporary world, and communicate across time.
STRAND / STANDARD CATEGORY	MI.3.3.	Literature and Culture: Use knowledge of literary history, traditions, and theory to respond to and analyze the meaning of texts.
STANDARD	CE 3.3.1.	Explore the relationships among individual works, authors, and literary movements in English and American literature (e.g., Romanticism, Puritanism, the Harlem Renaissance, Postcolonial), and consider the historical, cultural, and societal contexts in which works were produced.
STANDARD	CE 3.3.3.	Draw on a variety of critical perspectives to respond to and analyze works of literature (e.g., religious, biographical, feminist, multicultural, political).
STRAND / STANDARD CATEGORY	MI.4.1.	Language: Understand and use the English language effectively in a variety of contexts and settings.
STANDARD	CE 4.1.3.	Use a range of linguistic applications and styles for accomplishing different rhetorical purposes (e.g., persuading others to change opinions, conducting business transactions, speaking in a public forum, discussing issues informally with peers).

Grade: 11 - Adopted 2007

MI.L.

Quantitative Literacy and Logic (L)

STRAND / STANDARD CATEGORY		
STANDARD	L1:	Reasoning About Numbers, Systems, and Quantitative Situations: Based on their knowledge of the properties of arithmetic, students understand and reason about numbers, number systems, and the relationships between them. They represent quantitative relationships using mathematical symbols, and interpret relationships from those representations.
GRADE LEVEL EXPECTATION	L1.3	Counting and Probabilistic Reasoning
EXPECTATION	L1.3.2	Define and interpret commonly used expressions of probability.
STRAND / STANDARD CATEGORY		
	MI.A.	Algebra and Functions (A)
STANDARD	A3:	Families of Functions: Students study the symbolic and graphical forms of each function family. By recognizing the unique characteristics of each family, they can use them as tools for solving problems or for modeling real-world situations.
GRADE LEVEL EXPECTATION	A3.2	Exponential and Logarithmic Functions
EXPECTATION	A3.2.4	Understand and use the fact that the base of an exponential function determines whether the function increases or decreases and understand how the base affects the rate of growth or decay.
EXPECTATION	A.3.2.5	Relate exponential and logarithmic functions to real phenomena, including half-life and doubling time.
STRAND / STANDARD CATEGORY		
	MI.S.	Statistics and Probability (S)
STANDARD	S3:	Samples, Surveys, and Experiments: Students understand and apply sampling and various sampling methods, examine surveys and experiments, identify bias in methods of conducting surveys, and learn strategies to minimize bias. They understand basic principles of good experimental design.
GRADE LEVEL EXPECTATION	S3.1	Data Collection and Analysis
EXPECTATION	S3.1.3	Distinguish between an observational study and an experimental study, and identify, in context, the conclusions that can be drawn from each.
EXPECTATION	S3.1.4	Design simple experiments or investigations to collect data to answer questions of interest; interpret and present results. (Recommended)
STRAND / STANDARD CATEGORY		
	MI.P.	Precalculus
STANDARD	P2:	Exponential and Logarithmic Functions
GRADE LEVEL EXPECTATION	P2.5	Explain how the parameters of an exponential or logarithmic model relate to the data set or situation being modeled. Find an exponential or logarithmic function to model a given data set or situation. Solve

		problems involving exponential growth and decay.
STRAND / STANDARD CATEGORY	MI.AI.	Algebra I
STANDARD	A3:	Families of Functions
GRADE LEVEL EXPECTATION	A3.2.	Exponential and Logarithmic Functions
EXPECTATION	A3.2.4.	Understand and use the fact that the base of an exponential function determines whether the function increases or decreases and how base affects the rate of growth or decay.
EXPECTATION	A3.2.5.	Relate exponential functions to real phenomena, including half-life and doubling time.
STRAND / STANDARD CATEGORY	MI.AII.	Algebra II
STANDARD	L1:	Reasoning About Numbers, Systems, and Quantitative Situations
GRADE LEVEL EXPECTATION	L1.3.	Counting and Probabilistic Reasoning
EXPECTATION	L1.3.2.	Define and interpret commonly used expressions of probability.
STRAND / STANDARD CATEGORY	MI.AII.	Algebra II
STANDARD	S3:	Samples, Surveys and Experiments
GRADE LEVEL EXPECTATION	S3.1.	Data Collection and Analysis
EXPECTATION	S3.1.3.	Distinguish between an observational study and an experimental study, and identify, in context, the conclusions that can be drawn from each.

Grade: 12 - Adopted 2007

STRAND / STANDARD CATEGORY	MI.L.	Quantitative Literacy and Logic (L)
STANDARD	L1:	Reasoning About Numbers, Systems, and Quantitative Situations: Based on their knowledge of the properties of arithmetic, students understand and reason about numbers, number systems, and the relationships between them. They represent quantitative relationships using mathematical symbols, and interpret relationships from those representations.
GRADE LEVEL EXPECTATION	L1.3	Counting and Probabilistic Reasoning
EXPECTATION	L1.3.2	Define and interpret commonly used expressions of probability.
STRAND / STANDARD CATEGORY	MI.A.	Algebra and Functions (A)
STANDARD	A3:	Families of Functions: Students study the symbolic and graphical forms of each function family. By recognizing the unique characteristics of each family, they can use them as tools for solving problems or for modeling real-world situations.
GRADE LEVEL EXPECTATION	A3.2	Exponential and Logarithmic Functions

EXPECTATION	A3.2.4	Understand and use the fact that the base of an exponential function determines whether the function increases or decreases and understand how the base affects the rate of growth or decay.
EXPECTATION	A.3.2.5	Relate exponential and logarithmic functions to real phenomena, including half-life and doubling time.
STRAND / STANDARD CATEGORY	MI.S.	Statistics and Probability (S)
STANDARD	S3:	Samples, Surveys, and Experiments: Students understand and apply sampling and various sampling methods, examine surveys and experiments, identify bias in methods of conducting surveys, and learn strategies to minimize bias. They understand basic principles of good experimental design.
GRADE LEVEL EXPECTATION	S3.1	Data Collection and Analysis
EXPECTATION	S3.1.3	Distinguish between an observational study and an experimental study, and identify, in context, the conclusions that can be drawn from each.
EXPECTATION	S3.1.4	Design simple experiments or investigations to collect data to answer questions of interest; interpret and present results. (Recommended)
STRAND / STANDARD CATEGORY	MI.P.	Precalculus
STANDARD	P2:	Exponential and Logarithmic Functions
GRADE LEVEL EXPECTATION	P2.5	Explain how the parameters of an exponential or logarithmic model relate to the data set or situation being modeled. Find an exponential or logarithmic function to model a given data set or situation. Solve problems involving exponential growth and decay.
STRAND / STANDARD CATEGORY	MI.AI.	Algebra I
STANDARD	A3:	Families of Functions
GRADE LEVEL EXPECTATION	A3.2.	Exponential and Logarithmic Functions
EXPECTATION	A3.2.4.	Understand and use the fact that the base of an exponential function determines whether the function increases or decreases and how base affects the rate of growth or decay.
EXPECTATION	A3.2.5.	Relate exponential functions to real phenomena, including half-life and doubling time.
STRAND / STANDARD CATEGORY	MI.AII.	Algebra II
STANDARD	L1:	Reasoning About Numbers, Systems, and Quantitative Situations
GRADE LEVEL EXPECTATION	L1.3.	Counting and Probabilistic Reasoning
EXPECTATION	L1.3.2.	Define and interpret commonly used expressions of probability.
	MI.AII.	Algebra II

STRAND / STANDARD CATEGORY		
STANDARD	S3:	Samples, Surveys and Experiments
GRADE LEVEL EXPECTATION	S3.1.	Data Collection and Analysis
EXPECTATION	S3.1.3.	Distinguish between an observational study and an experimental study, and identify, in context, the conclusions that can be drawn from each.

Grade: 11 - Adopted 2006

STRAND / STANDARD CATEGORY		
	MI.B1.	Biology: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. Students will demonstrate their understanding that scientific knowledge is gathered through various forms of direct and indirect observations and the testing of this information by methods including, but not limited to, experimentation.
STANDARD	B1.1.	Scientific Inquiry
GRADE LEVEL EXPECTATION	B1.1B.	Evaluate the uncertainties or validity of scientific conclusions using an understanding of sources of measurement error, the challenges of controlling variables, accuracy of data analysis, logic of argument, logic of experimental design, and/or the dependence on underlying assumptions.
STRAND / STANDARD CATEGORY		
	MI.B1.	Biology: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. Students will demonstrate their understanding that scientific knowledge is gathered through various forms of direct and indirect observations and the testing of this information by methods including, but not limited to, experimentation.
STANDARD	B1.2.	Scientific Reflection and Social Implications
GRADE LEVEL EXPECTATION	B1.2B.	Identify and critique arguments about personal or societal issues based on scientific evidence.
GRADE LEVEL EXPECTATION	B1.2D.	Evaluate scientific explanations in a peer review process or discussion format.
GRADE LEVEL EXPECTATION	B1.2g.	Identify scientific tradeoffs in design decisions and choose among alternative solutions.
GRADE LEVEL EXPECTATION	B1.2h.	Describe the distinctions between scientific theories, laws, hypotheses, and observations.
STRAND / STANDARD CATEGORY		
	MI.B3.	Biology: Interdependence of Living Systems and the Environment: Students describe the processes of photosynthesis and cellular respiration and how energy is transferred through food webs. They recognize and analyze the consequences of the

		dependence of organisms on environmental resources and the interdependence of organisms in ecosystems.
STANDARD	L3.p4.	Human Impact on Ecosystems (prerequisite)
GRADE LEVEL EXPECTATION	L3.p4A.	Recognize that, and describe how, human beings are part of Earth's ecosystems. Note that human activities can deliberately or inadvertently alter the equilibrium in ecosystems. (prerequisite)
STRAND / STANDARD CATEGORY	MI.B3.	Biology: Interdependence of Living Systems and the Environment: Students describe the processes of photosynthesis and cellular respiration and how energy is transferred through food webs. They recognize and analyze the consequences of the dependence of organisms on environmental resources and the interdependence of organisms in ecosystems.
STANDARD	B3.4.	Changes in Ecosystems
GRADE LEVEL EXPECTATION	B3.4C.	Examine the negative impact of human activities.
STRAND / STANDARD CATEGORY	MI.C1.	Chemistry: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. Students will demonstrate their understanding that scientific knowledge is gathered through various forms of direct and indirect observations and the testing of this information by methods including, but not limited to, experimentation.
STANDARD	C1.1.	Scientific Inquiry
GRADE LEVEL EXPECTATION	C1.1B.	Evaluate the uncertainties or validity of scientific conclusions using an understanding of sources of measurement error, the challenges of controlling variables, accuracy of data analysis, logic of argument, logic of experimental design, and/or the dependence on underlying assumptions.
GRADE LEVEL EXPECTATION	C1.1f.	Predict what would happen if the variables, methods, or timing of an investigation were changed.
STRAND / STANDARD CATEGORY	MI.C1.	Chemistry: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. Students will demonstrate their understanding that scientific knowledge is gathered through various forms of direct and indirect observations and the testing of this information by methods including, but not limited to, experimentation.
STANDARD	C1.2.	Scientific Reflection and Social Implications
GRADE LEVEL EXPECTATION	C1.2h.	Describe the distinctions between scientific theories, laws, hypotheses, and observations.
STRAND / STANDARD CATEGORY	MI.E1.	Earth Science: Inquiry, Reflection, and Social Implications: Students will understand the nature of

		science and demonstrate an ability to practice scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. Students will demonstrate their understanding that scientific knowledge is gathered through various forms of direct and indirect observations and the testing of this information by methods including, but not limited to, experimentation.
STANDARD	E1.1.	Scientific Inquiry
GRADE LEVEL EXPECTATION	E1.1B.	Evaluate the uncertainties or validity of scientific conclusions using an understanding of sources of measurement error, the challenges of controlling variables, accuracy of data analysis, logic of argument, logic of experimental design, and/or the dependence on underlying assumptions.
GRADE LEVEL EXPECTATION	E1.1f.	Predict what would happen if the variables, methods, or timing of an investigation were changed.
STRAND / STANDARD CATEGORY	MI.E1.	Earth Science: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. Students will demonstrate their understanding that scientific knowledge is gathered through various forms of direct and indirect observations and the testing of this information by methods including, but not limited to, experimentation.
STANDARD	E1.2.	Scientific Reflection and Social Implications
GRADE LEVEL EXPECTATION	E1.2B.	Identify and critique arguments about personal or societal issues based on scientific evidence.
GRADE LEVEL EXPECTATION	E1.2h.	Describe the distinctions between scientific theories, laws, hypotheses, and observations.
STRAND / STANDARD CATEGORY	MI.E2.	Earth Science: Earth Systems: Students describe the interactions within and between Earth systems. Students will explain how both fluids (water cycle) and solids (rock cycle) move within Earth systems and how these movements form and change their environment.
STANDARD	E2.4.	Resources and Human Impacts on Earth Systems
GRADE LEVEL EXPECTATION	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.
STRAND / STANDARD CATEGORY	MI.P1.	Physics: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. Students will demonstrate their understanding that scientific knowledge is

		gathered through various forms of direct and indirect observations and the testing of this information by methods including, but not limited to, experimentation.
STANDARD	P1.1.	Scientific Inquiry
GRADE LEVEL EXPECTATION	P1.1B.	Evaluate the uncertainties or validity of scientific conclusions using an understanding of sources of measurement error, the challenges of controlling variables, accuracy of data analysis, logic of argument, logic of experimental design, and/or the dependence on underlying assumptions.
GRADE LEVEL EXPECTATION	P1.1f.	Predict what would happen if the variables, methods, or timing of an investigation were changed.
STRAND / STANDARD CATEGORY	MI.P1.	Physics: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. Students will demonstrate their understanding that scientific knowledge is gathered through various forms of direct and indirect observations and the testing of this information by methods including, but not limited to, experimentation.
STANDARD	P1.2.	Scientific Reflection and Social Implications
GRADE LEVEL EXPECTATION	P1.2h.	Describe the distinctions between scientific theories, laws, hypotheses, and observations.

Grade: 12 - Adopted 2006

STRAND / STANDARD CATEGORY	MI.B1.	Biology: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. Students will demonstrate their understanding that scientific knowledge is gathered through various forms of direct and indirect observations and the testing of this information by methods including, but not limited to, experimentation.
STANDARD	B1.1.	Scientific Inquiry
GRADE LEVEL EXPECTATION	B1.1B.	Evaluate the uncertainties or validity of scientific conclusions using an understanding of sources of measurement error, the challenges of controlling variables, accuracy of data analysis, logic of argument, logic of experimental design, and/or the dependence on underlying assumptions.
STRAND / STANDARD CATEGORY	MI.B1.	Biology: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. Students will demonstrate their understanding that scientific knowledge is

		gathered through various forms of direct and indirect observations and the testing of this information by methods including, but not limited to, experimentation.
STANDARD	B1.2.	Scientific Reflection and Social Implications
GRADE LEVEL EXPECTATION	B1.2B.	Identify and critique arguments about personal or societal issues based on scientific evidence.
GRADE LEVEL EXPECTATION	B1.2D.	Evaluate scientific explanations in a peer review process or discussion format.
GRADE LEVEL EXPECTATION	B1.2g.	Identify scientific tradeoffs in design decisions and choose among alternative solutions.
GRADE LEVEL EXPECTATION	B1.2h.	Describe the distinctions between scientific theories, laws, hypotheses, and observations.
STRAND / STANDARD CATEGORY	MI.B3.	Biology: Interdependence of Living Systems and the Environment: Students describe the processes of photosynthesis and cellular respiration and how energy is transferred through food webs. They recognize and analyze the consequences of the dependence of organisms on environmental resources and the interdependence of organisms in ecosystems.
STANDARD	L3.p4.	Human Impact on Ecosystems (prerequisite)
GRADE LEVEL EXPECTATION	L3.p4A.	Recognize that, and describe how, human beings are part of Earth's ecosystems. Note that human activities can deliberately or inadvertently alter the equilibrium in ecosystems. (prerequisite)
STRAND / STANDARD CATEGORY	MI.B3.	Biology: Interdependence of Living Systems and the Environment: Students describe the processes of photosynthesis and cellular respiration and how energy is transferred through food webs. They recognize and analyze the consequences of the dependence of organisms on environmental resources and the interdependence of organisms in ecosystems.
STANDARD	B3.4.	Changes in Ecosystems
GRADE LEVEL EXPECTATION	B3.4C.	Examine the negative impact of human activities.
STRAND / STANDARD CATEGORY	MI.C1.	Chemistry: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. Students will demonstrate their understanding that scientific knowledge is gathered through various forms of direct and indirect observations and the testing of this information by methods including, but not limited to, experimentation.
STANDARD	C1.1.	Scientific Inquiry
GRADE LEVEL EXPECTATION	C1.1B.	Evaluate the uncertainties or validity of scientific conclusions using an understanding of sources of measurement error, the challenges of controlling variables, accuracy of data analysis, logic of

		argument, logic of experimental design, and/or the dependence on underlying assumptions.
GRADE LEVEL EXPECTATION	C1.1f.	Predict what would happen if the variables, methods, or timing of an investigation were changed.
STRAND / STANDARD CATEGORY	MI.C1.	Chemistry: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. Students will demonstrate their understanding that scientific knowledge is gathered through various forms of direct and indirect observations and the testing of this information by methods including, but not limited to, experimentation.
STANDARD	C1.2.	Scientific Reflection and Social Implications
GRADE LEVEL EXPECTATION	C1.2h.	Describe the distinctions between scientific theories, laws, hypotheses, and observations.
STRAND / STANDARD CATEGORY	MI.E1.	Earth Science: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. Students will demonstrate their understanding that scientific knowledge is gathered through various forms of direct and indirect observations and the testing of this information by methods including, but not limited to, experimentation.
STANDARD	E1.1.	Scientific Inquiry
GRADE LEVEL EXPECTATION	E1.1B.	Evaluate the uncertainties or validity of scientific conclusions using an understanding of sources of measurement error, the challenges of controlling variables, accuracy of data analysis, logic of argument, logic of experimental design, and/or the dependence on underlying assumptions.
GRADE LEVEL EXPECTATION	E1.1f.	Predict what would happen if the variables, methods, or timing of an investigation were changed.
STRAND / STANDARD CATEGORY	MI.E1.	Earth Science: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. Students will demonstrate their understanding that scientific knowledge is gathered through various forms of direct and indirect observations and the testing of this information by methods including, but not limited to, experimentation.
STANDARD	E1.2.	Scientific Reflection and Social Implications
GRADE LEVEL EXPECTATION	E1.2B.	Identify and critique arguments about personal or societal issues based on scientific evidence.
GRADE LEVEL EXPECTATION	E1.2h.	

		Describe the distinctions between scientific theories, laws, hypotheses, and observations.
STRAND / STANDARD CATEGORY	MI.E2.	Earth Science: Earth Systems: Students describe the interactions within and between Earth systems. Students will explain how both fluids (water cycle) and solids (rock cycle) move within Earth systems and how these movements form and change their environment.
STANDARD	E2.4.	Resources and Human Impacts on Earth Systems
GRADE LEVEL EXPECTATION	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.
STRAND / STANDARD CATEGORY	MI.P1.	Physics: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. Students will demonstrate their understanding that scientific knowledge is gathered through various forms of direct and indirect observations and the testing of this information by methods including, but not limited to, experimentation.
STANDARD	P1.1.	Scientific Inquiry
GRADE LEVEL EXPECTATION	P1.1B.	Evaluate the uncertainties or validity of scientific conclusions using an understanding of sources of measurement error, the challenges of controlling variables, accuracy of data analysis, logic of argument, logic of experimental design, and/or the dependence on underlying assumptions.
GRADE LEVEL EXPECTATION	P1.1f.	Predict what would happen if the variables, methods, or timing of an investigation were changed.
STRAND / STANDARD CATEGORY	MI.P1.	Physics: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. Students will demonstrate their understanding that scientific knowledge is gathered through various forms of direct and indirect observations and the testing of this information by methods including, but not limited to, experimentation.
STANDARD	P1.2.	Scientific Reflection and Social Implications
GRADE LEVEL EXPECTATION	P1.2h.	Describe the distinctions between scientific theories, laws, hypotheses, and observations.