

Girl Scouts Journeys

Content Unit Report

Grades: 9, 10

States: Michigan Curriculum Standards

SOW WHAT?

Summary: SOW WHAT? On this journey, ninth- and tenth-graders get down to the roots of their food network to see how complex and how global food and land issues can be. They'll meet scientists, artists and others who have plenty of knowledge to serve up, and they'll have a chance to explore what makes a meal truly happy. This journey will also have girls asking tough questions about their own "food print" as they develop their "leader print" and speak up about what they believe in. (978-0-88441-735-4)

Michigan Curriculum Standards

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

Grade: **9** - 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 2.1.2.	Make supported inferences and draw conclusions based on informational print and multimedia features (e.g., prefaces, appendices, marginal notes, illustrations, bibliographies, author's pages, footnotes, diagrams, tables, charts, maps, timelines, graphs, and other visual and special effects) and explain how authors and speakers use them to infer the organization of text and enhance understanding, convey meaning, and inspire or mislead audiences.
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 2.1.11.	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.2.3.	Reading, Listening, and Viewing: Develop as a reader, listener, and viewer for personal, social, and political purposes, through independent and collaborative reading.
STANDARD	CE 2.3.1.	Read, listen to, and view diverse texts for multiple purposes such as learning complex procedures, making work-place decisions, or pursuing in-depth studies.

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.
STANDARD	CE 2.3.3.	Critically read and interpret instructions for a variety of tasks (e.g., completing assignments, using software, writing college and job applications).
STANDARD	CE 2.3.5.	Engage in self-assessment as a reader, listener, and viewer, while monitoring comprehension and using a variety of strategies to overcome difficulties when constructing and conveying meaning.
STRAND / STANDARD CATEGORY	MI.3.1.	Literature and Culture: Develop the skills of close and contextual literary reading.
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.
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 3.2.4.	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).
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: 10 - 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 2.1.2.	Make supported inferences and draw conclusions based on informational print and multimedia features (e.g., prefaces, appendices, marginal notes, illustrations, bibliographies, author's pages, footnotes, diagrams, tables, charts, maps, timelines, graphs, and other visual and special effects) and explain how authors and speakers use them to infer the organization of text and enhance understanding, convey meaning, and inspire or mislead audiences.
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 2.1.11.	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.2.3.	Reading, Listening, and Viewing: Develop as a reader, listener, and viewer for personal, social, and political purposes, through independent and collaborative reading.
STANDARD	CE 2.3.1.	Read, listen to, and view diverse texts for multiple purposes such as learning complex procedures, making work-place decisions, or pursuing in-depth studies.
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.
STANDARD	CE 2.3.3.	Critically read and interpret instructions for a variety of tasks (e.g., completing assignments, using software, writing college and job applications).
STRAND / STANDARD CATEGORY	MI.3.1.	Literature and Culture: Develop the skills of close and contextual literary reading.
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.
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 3.2.4.	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).
STRAND / STANDARD	MI.4.1.	Language: Understand and use the English language

CATEGORY		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: 9 - 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.
GRADE LEVEL EXPECTATION	B1.2i.	Explain the progression of ideas and explanations that leads to science theories that are part of the current scientific consensus or core knowledge.
STRAND / STANDARD CATEGORY	MI.B2.	Biology: Organization and Development of Living Systems: Students describe the general structure and function of cells. They can explain that all living systems are composed of cells and that organisms may

		be unicellular or multicellular.
STANDARD	L2.p3.	Plants as Producers (prerequisite)
GRADE LEVEL EXPECTATION	L2.p3B.	Explain the origins of plant mass. (prerequisite)
GRADE LEVEL EXPECTATION	L2.p3C.	Predict what would happen to plants growing in low carbon dioxide atmospheres. (prerequisite)
STRAND / STANDARD CATEGORY	MI.B2.	Biology: Organization and Development of Living Systems: Students describe the general structure and function of cells. They can explain that all living systems are composed of cells and that organisms may be unicellular or multicellular.
STANDARD	B2.3.	Maintaining Environmental Stability
GRADE LEVEL EXPECTATION	B2.3C.	Explain how stability is challenged by changing physical, chemical, and environmental conditions as well as the presence of disease agents.
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.p2.	Relationships Among Organisms (prerequisite)
GRADE LEVEL EXPECTATION	L3.p2B.	Describe common ecological relationships between and among species and their environments (competition, territory, carrying capacity, natural balance, population, dependence, survival, and other biotic and abiotic factors). (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	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	B3.2.	Ecosystems
GRADE LEVEL EXPECTATION	B3.2C.	Draw the flow of energy through an ecosystem. Predict changes in the food web when one or more

		organisms are removed.
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	B3.4A.	Describe ecosystem stability. Understand that if a disaster such as flood or fire occurs, the damaged ecosystem is likely to recover in stages of succession that eventually result in a system similar to the original one.
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.
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	C1.2i.	Explain the progression of ideas and explanations that lead to science theories that are part of the current scientific consensus or core knowledge.
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	E1.2i.	Explain the progression of ideas and explanations that lead to science theories that are part of the current scientific consensus or core knowledge.
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.
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	P1.2i.	Explain the progression of ideas and explanations that lead to science theories that are part of the current scientific consensus or core knowledge.

Grade: 10 - 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.
GRADE LEVEL EXPECTATION	B1.2i.	Explain the progression of ideas and explanations that leads to science theories that are part of the current scientific consensus or core knowledge.
STRAND / STANDARD CATEGORY	MI.B2.	Biology: Organization and Development of Living Systems: Students describe the general structure and function of cells. They can explain that all living systems are composed of cells and that organisms may be unicellular or multicellular.
STANDARD	L2.p3.	Plants as Producers (prerequisite)
GRADE LEVEL EXPECTATION	L2.p3B.	Explain the origins of plant mass. (prerequisite)
GRADE LEVEL EXPECTATION	L2.p3C.	Predict what would happen to plants growing in low carbon dioxide atmospheres. (prerequisite)
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STANDARD	B2.3.	Maintaining Environmental Stability
GRADE LEVEL EXPECTATION	B2.3C.	Explain how stability is challenged by changing physical, chemical, and environmental conditions as well as the presence of disease agents.
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.p2.	Relationships Among Organisms (prerequisite)
GRADE LEVEL EXPECTATION	L3.p2B.	Describe common ecological relationships between and among species and their environments (competition, territory, carrying capacity, natural balance, population, dependence, survival, and other biotic and abiotic factors). (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	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)
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STANDARD	B3.2.	Ecosystems
GRADE LEVEL EXPECTATION	B3.2C.	Draw the flow of energy through an ecosystem. Predict changes in the food web when one or more organisms are removed.
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GRADE LEVEL EXPECTATION	B3.4A.	Describe ecosystem stability. Understand that if a disaster such as flood or fire occurs, the damaged ecosystem is likely to recover in stages of succession that eventually result in a system similar to the original one.
GRADE LEVEL EXPECTATION	B3.4C.	Examine the negative impact of human activities.
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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.
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	C1.2i.	Explain the progression of ideas and explanations that lead to science theories that are part of the current scientific consensus or core knowledge.
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.
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STANDARD	E1.2.	Scientific Reflection and Social Implications
GRADE LEVEL EXPECTATION	E1.2i.	Explain the progression of ideas and explanations that lead to science theories that are part of the current scientific consensus or core knowledge.
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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.
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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.
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	P1.2i.	Explain the progression of ideas and explanations that lead to science theories that are part of the current scientific consensus or core knowledge.

SOW WHAT? -

Summary: SOW WHAT?: A HOW-TO GUIDE FOR ADULT VOLUNTEERS (978-0-88441-741-5)

Michigan Curriculum Standards

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

Grade: 9 - 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).
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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 2.1.2.	Make supported inferences and draw conclusions based on informational print and multimedia features (e.g., prefaces, appendices, marginal notes, illustrations, bibliographies, author's pages, footnotes, diagrams, tables, charts, maps, timelines, graphs, and other visual and special effects) and explain how authors and speakers use them to infer the organization of text and enhance understanding, convey meaning, and inspire or mislead audiences.
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 2.1.11.	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.2.3.	Reading, Listening, and Viewing: Develop as a reader, listener, and viewer for personal, social, and political purposes, through independent and collaborative reading.
STANDARD	CE 2.3.1.	Read, listen to, and view diverse texts for multiple purposes such as learning complex procedures, making work-place decisions, or pursuing in-depth studies.
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.
STANDARD	CE 2.3.3.	Critically read and interpret instructions for a variety of tasks (e.g., completing assignments, using software, writing college and job applications).
STANDARD	CE 2.3.5.	Engage in self-assessment as a reader, listener, and viewer, while monitoring comprehension and using a variety of strategies to overcome difficulties when constructing and conveying meaning.
STRAND / STANDARD CATEGORY	MI.3.1.	Literature and Culture: Develop the skills of close and contextual literary reading.
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.
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 3.2.4.	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).
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: 10 - 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 2.1.2.	Make supported inferences and draw conclusions based on informational print and multimedia features (e.g., prefaces, appendices, marginal notes, illustrations, bibliographies, author's pages, footnotes, diagrams, tables, charts, maps, timelines, graphs, and other visual and special effects) and explain how authors and speakers use them to infer the organization of text and enhance understanding, convey meaning, and inspire or mislead audiences.
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 2.1.11.	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.2.3.	Reading, Listening, and Viewing: Develop as a reader, listener, and viewer for personal, social, and political purposes, through independent and collaborative reading.
STANDARD	CE 2.3.1.	Read, listen to, and view diverse texts for multiple purposes such as learning complex procedures,

		making work-place decisions, or pursuing in-depth studies.
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.
STANDARD	CE 2.3.3.	Critically read and interpret instructions for a variety of tasks (e.g., completing assignments, using software, writing college and job applications).
STRAND / STANDARD CATEGORY	MI.3.1.	Literature and Culture: Develop the skills of close and contextual literary reading.
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.
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 3.2.4.	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).
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: 9 - 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.
GRADE LEVEL EXPECTATION	B1.2i.	Explain the progression of ideas and explanations that leads to science theories that are part of the current scientific consensus or core knowledge.
STRAND / STANDARD CATEGORY	MI.B2.	Biology: Organization and Development of Living Systems: Students describe the general structure and function of cells. They can explain that all living systems are composed of cells and that organisms may be unicellular or multicellular.
STANDARD	L2.p3.	Plants as Producers (prerequisite)
GRADE LEVEL EXPECTATION	L2.p3B.	Explain the origins of plant mass. (prerequisite)
GRADE LEVEL EXPECTATION	L2.p3C.	Predict what would happen to plants growing in low carbon dioxide atmospheres. (prerequisite)
STRAND / STANDARD CATEGORY	MI.B2.	Biology: Organization and Development of Living Systems: Students describe the general structure and function of cells. They can explain that all living systems are composed of cells and that organisms may be unicellular or multicellular.
STANDARD	B2.3.	Maintaining Environmental Stability
GRADE LEVEL EXPECTATION	B2.3C.	Explain how stability is challenged by changing physical, chemical, and environmental conditions as well as the presence of disease agents.
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.p2.	Relationships Among Organisms (prerequisite)
GRADE LEVEL EXPECTATION	L3.p2B.	Describe common ecological relationships between and among species and their environments (competition, territory, carrying capacity, natural balance, population, dependence, survival, and other biotic and abiotic factors). (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	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	B3.2.	Ecosystems
GRADE LEVEL EXPECTATION	B3.2C.	Draw the flow of energy through an ecosystem. Predict changes in the food web when one or more organisms are removed.
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	B3.4A.	Describe ecosystem stability. Understand that if a disaster such as flood or fire occurs, the damaged ecosystem is likely to recover in stages of succession that eventually result in a system similar to the original one.
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.
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	C1.2i.	Explain the progression of ideas and explanations that lead to science theories that are part of the current scientific consensus or core knowledge.
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	E1.2i.	Explain the progression of ideas and explanations that lead to science theories that are part of the current scientific consensus or core knowledge.
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.
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	P1.2i.	Explain the progression of ideas and explanations that lead to science theories that are part of the current scientific consensus or core knowledge.

Grade: 10 - 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.
GRADE LEVEL EXPECTATION	B1.2i.	Explain the progression of ideas and explanations that leads to science theories that are part of the current scientific consensus or core knowledge.
STRAND / STANDARD CATEGORY	MI.B2.	Biology: Organization and Development of Living Systems: Students describe the general structure and function of cells. They can explain that all living systems are composed of cells and that organisms may be unicellular or multicellular.
STANDARD	L2.p3.	Plants as Producers (prerequisite)
GRADE LEVEL EXPECTATION	L2.p3B.	Explain the origins of plant mass. (prerequisite)
GRADE LEVEL EXPECTATION	L2.p3C.	Predict what would happen to plants growing in low carbon dioxide atmospheres. (prerequisite)

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STANDARD	B2.3.	Maintaining Environmental Stability
GRADE LEVEL EXPECTATION	B2.3C.	Explain how stability is challenged by changing physical, chemical, and environmental conditions as well as the presence of disease agents.
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STANDARD	L3.p2.	Relationships Among Organisms (prerequisite)
GRADE LEVEL EXPECTATION	L3.p2B.	Describe common ecological relationships between and among species and their environments (competition, territory, carrying capacity, natural balance, population, dependence, survival, and other biotic and abiotic factors). (prerequisite)
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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	B3.2.	Ecosystems
GRADE LEVEL EXPECTATION	B3.2C.	Draw the flow of energy through an ecosystem. Predict changes in the food web when one or more organisms are removed.
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STANDARD	B3.4.	Changes in Ecosystems
GRADE LEVEL EXPECTATION	B3.4A.	Describe ecosystem stability. Understand that if a disaster such as flood or fire occurs, the damaged ecosystem is likely to recover in stages of succession that eventually result in a system similar to the original one.
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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.
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	C1.2i.	Explain the progression of ideas and explanations that lead to science theories that are part of the current scientific consensus or core knowledge.
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	E1.2i.	Explain the progression of ideas and explanations that lead to science theories that are part of the current scientific consensus or core knowledge.
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.
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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.
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	P1.2i.	Explain the progression of ideas and explanations that lead to science theories that are part of the current scientific consensus or core knowledge.
