Mystery Science Alignment with the Michigan Science Standards

Mystery Science is a hands-on curriculum that is fully aligned with the Michigan Science Standards.

Mystery Science's units of study contain:

- Hands-on, easy-prep activities with EVERY lesson
- Engaging, real-world investigative phenomena
- Thoughtful discussions to build background knowledge
- Lesson & unit assessments to evaluate comprehension
- Curated, cross-curricular extensions

Mystery Science also offers the Anchor Layer, which enriches the unit with an anchor phenomenon, incorporates anchor connections after each lesson, & concludes the unit with a performance task.

mystery science

Updated 06/14/2025

All Kindergarten Units • Units may be taught in any order

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Michigan Science Standards:

- K-LS1-1
- K-ESS2-2
- K-ESS3-1

Unit Breakdown:

- 4 Lessons & Activities
- 4 Lesson Assessments
- 4 Extension Blocks

Anchor Layer Adds:
- 1 Anchor Phenomenon
- 4 Anchor Connections
- 1 Performance Task

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Michigan Science Standards:

- K-LS1-1
- K-ESS3-3

Unit Breakdown:

- 3 Lessons & Activities
- 2 Lesson Assessments
- 3 Extension Blocks

Anchor Layer Adds:
- 1 Anchor Phenomenon
- 3 Anchor Connections
- 1 Performance Task

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Michigan Science Standards:

- K-ESS2-1
- K-ESS3-2

Unit Breakdown:

- 3 Lessons & Activities
- 3 Lesson Assessments
- 3 Extension Blocks

Anchor Layer Adds:
- 1 Anchor Phenomenon
- 3 Anchor Connections
- 1 Performance Task

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Michigan Science Standards:

- K-ESS2-1
- K-ESS2-2

Unit Breakdown:

- 3 Lessons & Activities
- 3 Lesson Assessments
- 3 Extension Blocks

Anchor Layer Adds:
- 1 Anchor Phenomenon
- 3 Anchor Connections
- 1 Performance Task

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Michigan Science Standards:

- K-PS3-1
- K-PS3-2
- K-2-ETS1-1
- K-2-ETS1-3

Unit Breakdown:

- 3 Lessons & Activities
- 3 Lesson Assessments
- 3 Extension Blocks

Anchor Layer Adds:
- 1 Anchor Phenomenon
- 3 Anchor Connections
- 1 Performance Task

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Michigan Science Standards:

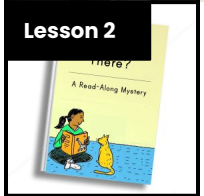
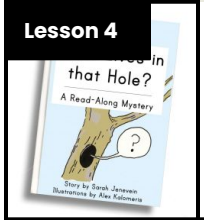
- K-PS2-1
- K-PS2-2
- K-2-ETS1-1
- K-2-ETS1-2
- K-2-ETS1-3

Unit Breakdown:

- 6 Lessons & Activities
- 6 Lesson Assessments
- 6 Extension Blocks

Anchor Layer Adds:
- 1 Anchor Phenomenon
- 6 Anchor Connections
- 1 Performance Task

Animal Needs (Animal Secrets)

	Topic & Guiding Question	Michigan Science Standards (2015)	Science & Eng. Practices (SEPs)	Disciplinary Core Ideas (DCIs)	Crosscutting Concepts (CCCs)
Lesson 1 	**Animal Needs: Food** Why do woodpeckers peck wood?	**K-LS1-1.** Use observations to describe patterns of what plants and animals (including humans) need to survive.	Obtaining, Evaluating, and Communicating Information Engaging in Argument from Evidence	**LS1.C.** Organization for Matter and Energy Flow in Organisms	Patterns
Lesson 2 	📖 **Animal Needs: Shelter** Where do animals live?	**K-ESS3-1** Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live.	Obtaining, Evaluating, and Communicating Information	**ESS3.A.** Natural Resources	Patterns Systems and System Models
Lesson 3 	**Animal Needs: Safety** How can you find animals in the woods?	**K-LS1-1.** Use observations to describe patterns of what plants and animals (including humans) need to survive.	Obtaining, Evaluating, and Communicating Information Engage in Argument from Evidence	**LS1.C.** Organization for Matter and Energy Flow in Organisms	Patterns
Lesson 4 	📖 **Animals & Changing the Environment** How do animals make their homes in the forest?	**K-ESS2-2.** Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs.	Obtaining, Evaluating, and Communicating Information	**ESS2.E.** Biogeology	Systems and System Models

📖 Read-Along Lesson

Plant Needs (Plant Secrets)

	Topic & Guiding Question	Michigan Science Standards (2015)	Science & Eng. Practices (SEPs)	Disciplinary Core Ideas (DCIs)	Crosscutting Concepts (CCCs)
Lesson 1 	**Living & Nonliving** Are plants alive?	**K-LS1-1.** Use observations to describe patterns of what plants and animals (including humans) need to survive.	Analyzing and Interpreting Data	**LS1.C:** Organization for Matter and Energy Flow in Organisms	Patterns
Lesson 2 	**Plant Needs: Water & Light** How do plants and trees grow?	**K-LS1-1.** Use observations to describe patterns of what plants and animals (including humans) need to survive.	Planning and Carrying Out Investigations Analyzing and Interpreting Data	**LS1.C:** Organization for Matter and Energy Flow in Organisms	Patterns Cause and Effect
Lesson 3 	📖 **Human Impacts on the Environment** Why would you want an old log in your backyard?	**K-ESS3-3.** Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.	Obtaining, Evaluating, and Communicating Information	**ESS3.C:** Human Impacts on Earth Systems	Cause and Effect

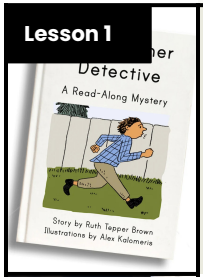
📖 Read-Along Lesson

Severe Weather (Wild Weather)

	Topic & Guiding Question	Michigan Science Standards (2015)	Science & Eng. Practices (SEPs)	Disciplinary Core Ideas (DCIs)	Crosscutting Concepts (CCCs)
Lesson 1 	📖 **Severe Weather & Preparation** How can you get ready for a big storm?	**K-ESS3-2.** Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather.	Obtaining, Evaluating, and Communicating Information	**ESS3.B:** Natural Hazards **ESS2.D:** Weather and Climate	Cause and Effect
Lesson 2 	**Wind & Storms** Have you ever watched a storm?	**K-ESS3-2.** Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather.	Asking Questions and Defining Problems Obtaining, Evaluating, and Communicating Information	**ESS3.B:** Natural Hazards **ESS2.D:** Weather and Climate	Cause and Effect
Lesson 3 	**Weather Conditions** How many different kinds of weather are there?	**K-ESS2-1.** Use and share observations of local weather conditions to describe patterns over time.	Analyzing and Interpreting Data	**ESS2.D:** Weather and Climate	Patterns

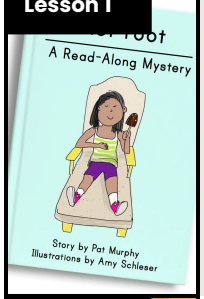
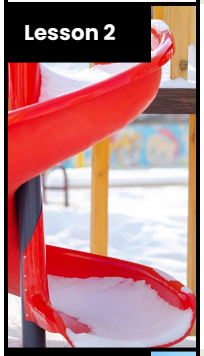
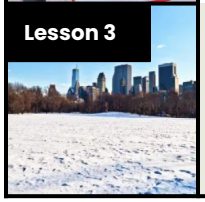
📖 Read-Along Lesson

Weather Patterns (Circle of Seasons)

	Topic & Guiding Question	Michigan Science Standards (2015)	Science & Eng. Practices (SEPs)	Disciplinary Core Ideas (DCIs)	Crosscutting Concepts (CCCs)
Lesson 1 	📖 **Daily Weather Patterns** How do you know what to wear for the weather?	**Foundational for K-ESS2-1.** Use and share observations of local weather conditions to describe patterns over time.	Analyzing and Interpreting Data Obtaining, Evaluating, and Communicating Information Asking Questions and Defining Problems	**ESS2.D:** Weather and Climate	Patterns
Lesson 2 	**Seasonal Weather Patterns** What will the weather be like on your birthday?	**K-ESS2-1.** Use and share observations of local weather conditions to describe patterns over time.	Obtaining, Evaluating, and Communicating Information Engaging in Argument from Evidence	**ESS2.D:** Weather and Climate	Patterns Systems and System Models
Lesson 3 	**Animals Changing their Environment** Why do birds lay eggs in the spring?	**K-ESS2-2.** Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs. **K-ESS2-1.** Use and share observations of local weather conditions to describe patterns over time.	Developing and Using Models	**ESS2.D:** Weather and Climate **ESS2.E:** Biogeology	Structure and Function

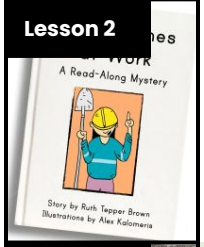
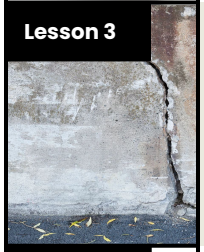
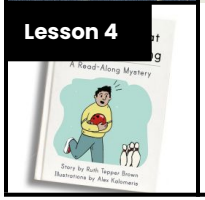
📖 Read-Along Lesson

Sunlight & Warmth (Sunny Skies)

	Topic & Guiding Question	Michigan Science Standards (2015)	Science & Eng. Practices (SEPs)	Disciplinary Core Ideas (DCIs)	Crosscutting Concepts (CCCs)
Lesson 1 	📖 **Sunlight, Heat, & Earth's Surface** How could you walk barefoot across hot pavement without burning your feet?	**K-PS3-1.** Make observations to determine the effect of sunlight on Earth's surface. **K-PS3-2.** Use tools and materials to design and build a structure that will reduce the warming effect of sunlight on an area. **K-2-ETS1-1.** Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.	Asking Questions and Defining Problems Constructing Explanations and Designing Solutions	**PS3.B:** Conservation of Energy and Energy Transfer **ETS1.A:** Defining and Delimiting an Engineering Problem	Cause and Effect Structure and Function
Lesson 2 	**Sunlight, Warming, & Engineering** How could you warm up a frozen playground?	**K-PS3-2.** Use tools and materials to design and build a structure that will reduce the warming effect of sunlight on an area. **K-2-ETS1-1.** Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool. **K-2-ETS1-3.** Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.	Asking Questions and Defining Problems Planning and Carrying Out Investigations Constructing Explanations and Designing Solutions	**PS3.B:** Conservation of Energy and Energy Transfer **ETS1.A:** Defining and Delimiting an Engineering Problem **ETS1.C:** Optimizing the Design Solution	Cause and Effect
Lesson 3 	**Sunlight & Warmth** Why does it get cold in winter?	**K-PS3-1.** Make observations to determine the effect of sunlight on Earth's surface.	Planning and Carrying Out Investigations	**PS3.B:** Conservation of Energy and Energy Transfer	Cause and Effect

📖 Read-Along Lesson

Pushes & Pulls (Force Olympics) • Page 1 of 2

	Topic & Guiding Question	Michigan Science Standards (2015)	Science & Eng. Practices (SEPs)	Disciplinary Core Ideas (DCIs)	Crosscutting Concepts (CCCs)
Lesson 1 	**Pushes & Pulls** What's the biggest excavator?	**Foundational for K-PS2-1.** Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object.	Constructing Explanations and Designing Solutions	**PS2.A:** Forces and Motion **PS2.B:** Types of Interactions **PS3.C:** Relationship Between Energy and Forces	Cause and Effect
Lesson 2 	📖 **Pushes, Pulls, & "Work Words"** Why do builders need so many big machines?	**Foundational for K-PS2-1.** Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object.	Obtaining, Evaluating, and Communicating Information	**PS2.A:** Forces and Motion **PS2.B:** Types of Interactions **PS3.C:** Relationship Between Energy and Forces	Cause and Effect
Lesson 3 	**Motion, Speed, & Strength** How can you knock down a wall made of concrete?	**K-PS2-1.** Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object.	Planning and Carrying Out Investigations Developing and Using Models	**PS2.A:** Forces and Motion **PS2.B:** Types of Interactions **PS3.C:** Relationship Between Energy and Forces	Cause and Effect
Lesson 4 	📖 **Speed & Direction of Force** How can you knock down the most bowling pins?	**Foundational for K-PS2-2.** Analyze data to determine if a design solution works as intended to change the speed or direction of an object with a push or a pull.	Planning and Carrying Out Investigations	**PS2.A:** Forces and Motion	Cause and Effect

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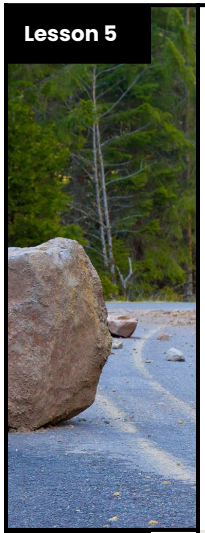
📖 Read-Along Lesson

Pushes & Pulls (Force Olympics) • Page 2 of 2

	Topic & Guiding Question	Michigan Science Standards (2015)	Science & Eng. Practices (SEPs)	Disciplinary Core Ideas (DCIs)	Crosscutting Concepts (CCCs)
Lesson 5 	**Direction of Motion & Engineering** How can we protect a mountain town from falling rocks?	**K-PS2-2.** Analyze data to determine if a design solution works as intended to change the speed or direction of an object with a push or a pull. **K-2-ETS1-1.** Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool. **K-2-ETS1-2.** Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem. **K-2-ETS1-3.** Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.	Developing and Using Models Planning and Carrying Out Investigations Constructing Explanations and Designing Solutions	**PS2.A:** Forces and Motion **ETS1.A:** Defining Engineering Problems **ETS1.B:** Developing Possible Solutions **ETS1.C:** Optimizing the Design Solution	Cause and Effect
Lesson 6 	📖 **Forces & Engineering** How could you invent a trap?	**Foundational for K-2-ETS1-2.** Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.	Constructing Explanations and Designing Solutions	**ETS1.B:** Developing Possible Solutions	Structure and Function

📖 Read-Along Lesson

Michigan Science Standards Alignment

1st Grade • All Units at a Glance

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All 1st Grade Units • Units may be taught in any order

✔ ⭐

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Michigan Science Standards:

- 1-LS1-1
- 1-LS1-2
- 1-LS3-1

Unit Breakdown:

- 5 Lessons & Activities
- 5 Lesson Assessments
- 5 Extension Blocks

Anchor Layer Adds:
- 1 Anchor Phenomenon
- 5 Anchor Connections
- 1 Performance Task

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Michigan Science Standards:

- 1-LS1-1
- 1-LS3-1
- K-2-ETS1-1
- K-2-ETS1-2
- K-2-ETS1-3

Unit Breakdown:

- 3 Lessons & Activities
- 3 Lesson Assessments
- 3 Extension Blocks

Anchor Layer Adds:
- 1 Anchor Phenomenon
- 3 Anchor Connections
- 1 Performance Task

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Michigan Science Standards:

- 1-ESS1-1
- 1-ESS1-2

Unit Breakdown:

- 4 Lessons & Activities
- 4 Lesson Assessments
- 4 Extension Blocks

Anchor Layer Adds:
- 1 Anchor Phenomenon
- 4 Anchor Connections
- 1 Performance Task

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Michigan Science Standards:

- 1-ESS1-1

Unit Breakdown:

- 3 Lessons & Activities
- 3 Lesson Assessments
- 3 Extension Blocks

Anchor Layer Adds:
- 1 Anchor Phenomenon
- 3 Anchor Connections
- 1 Performance Task

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Michigan Science Standards:

- 1-PS4-1
- 1-PS4-2
- 1-PS4-3
- 1-PS4-4
- K-2-ETS1-2

Unit Breakdown:

- 6 Lessons & Activities
- 6 Lesson Assessments
- 6 Extension Blocks

Anchor Layer Adds:
- 1 Anchor Phenomenon
- 6 Anchor Connections
- 1 Performance Task

Michigan Science Standards Alignment

1st Grade • Life Science

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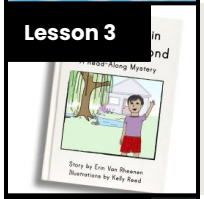
✔ Animal Traits & Survival (Animal Superpowers)

	Topic & Guiding Question	Michigan Science Standards (2015)	Science & Eng. Practices (SEPs)	Disciplinary Core Ideas (DCIs)	Crosscutting Concepts (CCCs)
Lesson 1 	**Parent & Offspring Traits** How can you help a lost baby animal find its parents?	**1-LS3-1.** Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.	Constructing Explanations and Designing Solutions	**LS3.A:** Inheritance of Traits **LS3.B:** Variation of Traits	Patterns
Lesson 2 	✨New!✨ **Offspring Trait Variation** Can you predict what an animal's babies will look like?	**1-LS3-1.** Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.	Constructing Explanations and Designing Solutions	**LS3.A:** Inheritance of Traits **LS3.B:** Variation of Traits	Patterns
Lesson 3 	📖 **Animal Behavior & Offspring Survival** Why do baby ducks follow their mother?	**1-LS1-2.** Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.	Obtaining, Evaluating, and Communicating Information	**LS1.B:** Growth and Development of Organisms	Patterns
Lesson 4 	**Animal Structures & Survival** Why do birds have beaks?	**1-LS1-1.** Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.	Developing and Using Models Planning and Carrying Out Investigations Analyzing and Interpreting Data	**LS1.A:** Structure and Function	Patterns Structure and function
Lesson 5 	**Camouflage & Animal Survival** Why are polar bears white?	**1-LS1-1.** Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.	Developing and Using Models Planning and Carrying Out Investigations Engaging in Argument from Evidence	**LS1.B:** Growth and Development of Organisms	Patterns Structure and function

📖 Read-Along Lesson

✨ New Lesson

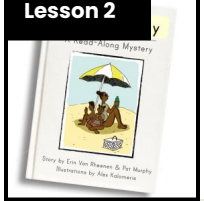
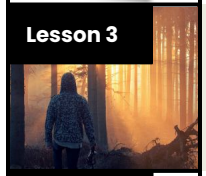
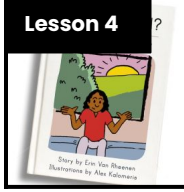
✔ Unit Restructured for the 2025-2026 School Year

Plant Traits & Survival (Plant Superpowers)

	Topic & Guiding Question	Michigan Science Standards (2015)	Science & Eng. Practices (SEPs)	Disciplinary Core Ideas (DCIs)	Crosscutting Concepts (CCCs)
Lesson 1 	**Plant Traits & Offspring** What will a baby plant look like when it grows up?	**1-LS3-1.** Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.	Constructing Explanations and Designing Solutions	**LS3.A:** Inheritance of Traits **LS3.B:** Variation of Traits	Patterns
Lesson 2 	**Plant Survival & Engineering** Why don't trees blow down in the wind?	**1-LS1-1.** Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs. **K-2-ETS1-1.** Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool. **K-2-ETS1-2.** Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem. **K-2-ETS1-3.** Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.	Developing and Using Models Planning and Carrying Out Investigations Constructing Explanations and Designing Solutions	**LS1.A:** Structure and Function **ETS1.A:** Defining and Delimiting Engineering Problems **ETS1.B:** Developing Possible Solutions **ETS1.C:** Optimizing the Design Solution	Structure and function
Lesson 3 	📖 **Plant Movement & Survival** What do sunflowers do when you're not looking?	**Foundational for 1-LS1-1.** Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.	Constructing Explanations and Designing Solutions	**LS1.A:** Structure and Function **LS1.D:** Information Processing	Structure and function

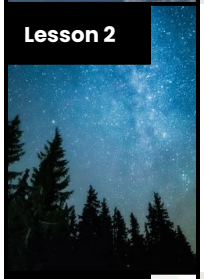
📖 Read-Along Lesson

Day Patterns (Sun & Shadows)

	Topic & Guiding Question	Michigan Science Standards (2015)	Science & Eng. Practices (SEPs)	Disciplinary Core Ideas (DCIs)	Crosscutting Concepts (CCCs)
Lesson 1 	**Sun, Shadows, & Daily Patterns** Could a statue's shadow move?	**1-ESS1-1.** Use observations of the sun, moon, and stars to describe patterns that can be predicted.	Planning and Carrying Out Investigations Analyzing and Interpreting Data	**ESS1.A:** The Universe and its Stars	Patterns
Lesson 2 	📖 **Sun, Shadows, & Daily Patterns** What does your shadow do when you're not looking?	**Foundational for 1-ESS1-1.** Use observations of the sun, moon, and stars to describe patterns that can be predicted.	Analyzing and Interpreting Data	**ESS1.A:** The Universe and its Stars	Patterns
Lesson 3 	**Sun & Daily Patterns** How can the Sun help you if you're lost?	**1-ESS1-1.** Use observations of the sun, moon, and stars to describe patterns that can be predicted.	Developing and Using Models Engaging in Argument from Evidence	**ESS1.A:** The Universe and its Stars	Patterns
Lesson 4 	📖 **Daylight & Seasonal Patterns** Why do you have to go to bed early in the summer?	**1-ESS1-2.** Make observations at different times of year to relate the amount of daylight to the time of year.	Obtaining, Evaluating, and Communicating Information	**ESS1.B:** Earth and the Solar System	Patterns

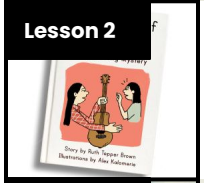
📖 Read-Along Lesson

Night Patterns (Moon & Stars)

	Topic & Guiding Question	Michigan Science Standards (2015)	Science & Eng. Practices (SEPs)	Disciplinary Core Ideas (DCIs)	Crosscutting Concepts (CCCs)
 **Lesson 1**	**Moon Phases & Patterns** When can you see the full moon?	**1-ESS1-1.** Use observations of the sun, moon, and stars to describe patterns that can be predicted.	Analyzing and Interpreting Data	**ESS1.A:** The Universe and its Stars	Patterns
 **Lesson 2**	**Stars & Daily Patterns** Why do stars come out at night?	**1-ESS1-1.** Use observations of the sun, moon, and stars to describe patterns that can be predicted.	Developing and Using Models Planning and Carrying Out Investigations Constructing Explanations and Designing Solutions	**ESS1.A:** The Universe and its Stars	Patterns Cause and Effect
 **Lesson 3**	📖 **Stars & Seasonal Patterns** How can stars help you if you get lost?	**1-ESS1-1.** Use observations of the sun, moon, and stars to describe patterns that can be predicted.	Obtaining, Evaluating, and Communicating Information	**ESS1.A:** The Universe and its Stars	Patterns

📖 Read-Along Lesson

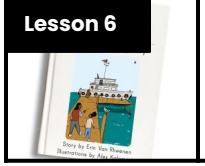
Light, Sound, & Communication (Lights & Sounds) • Page 1 of 2

	Topic & Guiding Question	Michigan Science Standards (2015)	Science & Eng. Practices (SEPs)	Disciplinary Core Ideas (DCIs)	Crosscutting Concepts (CCCs)
Lesson 1 	**Sounds & Vibrations** How do they make silly sounds in cartoons?	**1-PS4-1.** Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.	Constructing Explanations and Designing Solutions	**PS4.A:** Wave Properties	Cause and Effect
Lesson 2 	📖 **Sounds & Vibrations** Where do sounds come from?	**Foundational for 1-PS4-1.** Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.	Constructing Explanations and Designing Solutions	**PS4.A:** Wave Properties	Cause and Effect
Lesson 3 	**Light, Materials, Transparent & Opaque** What if there were no windows?	**1-PS4-3.** Plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light.	Planning and Carrying Out Investigations Engaging in Argument from Evidence	**PS4.B:** Electromagnetic Radiation	Cause and Effect
Lesson 4 	📖 **Light & Illumination** Can you see in the dark?	**1-PS4-2.** Make observations to construct an evidence-based account that objects can be seen only when illuminated.	Planning and Carrying Out Investigations Constructing Explanations and Designing Solutions	**PS4.B:** Electromagnetic Radiation	Cause and Effect

Continued on next page

📖 Read-Along Lesson

Light, Sound, & Communication (Lights & Sounds) • Page 2 of 2

	Topic & Guiding Question	Michigan Science Standards (2015)	Science & Eng. Practices (SEPs)	Disciplinary Core Ideas (DCIs)	Crosscutting Concepts (CCCs)
Lesson 5 	**Light, Communication, & Engineering** How could you send a secret message to someone far away?	**1-PS4-4.** Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance. **K-2-ETS1-2.** Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.	Constructing Explanations and Designing Solutions	**PS4.C:** Information Technologies and Instrumentation **ETS1.B:** Developing Possible Solutions	Patterns
Lesson 6 	📖 **Lights, Sounds, & Communication** How do boats find their way in the fog?	**Foundational for 1-PS4-4.** Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance.	Obtaining, Evaluating, and Communicating Information	**PS4.C:** Information Technologies and Instrumentation	Patterns

📖 Read-Along Lesson

All 2nd Grade Units • Units may be taught in any order

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Michigan Science Standards:

- 2-LS4-1
- K-2-ETS1-1
- K-2-ETS1-2
- K-2-ETS1-3

Unit Breakdown:

- 4 Lessons & Activities
- 4 Lesson Assessments
- 4 Extension Blocks
- 1 Unit Assessment

Anchor Layer Adds:
- 1 Anchor Phenomenon
- 4 Anchor Connections
- 1 Performance Task

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Michigan Science Standards:

- 2-LS4-1
- K-2-ETS1-1
- K-2-ETS1-2
- K-2-ETS1-3

Unit Breakdown:

- 4 Lessons & Activities
- 4 Lesson Assessments
- 4 Extension Blocks
- 1 Unit Assessment

Anchor Layer Adds:
- 1 Anchor Phenomenon
- 4 Anchor Connections
- 1 Performance Task

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Michigan Science Standards:

- 2-LS4-1
- K-2-ETS1-1
- K-2-ETS1-2
- K-2-ETS1-3

Unit Breakdown:

- 4 Lessons & Activities
- 4 Lesson Assessments
- 4 Extension Blocks
- 1 Unit Assessment

Anchor Layer Adds:
- 1 Anchor Phenomenon
- 4 Anchor Connections
- 1 Performance Task

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Michigan Science Standards:

- 2-LS4-1
- K-2-ETS1-1
- K-2-ETS1-2
- K-2-ETS1-3

Unit Breakdown:

- 4 Lessons & Activities
- 4 Lesson Assessments
- 4 Extension Blocks
- 1 Unit Assessment

Anchor Layer Adds:
- 1 Anchor Phenomenon
- 4 Anchor Connections
- 1 Performance Task

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Michigan Science Standards:

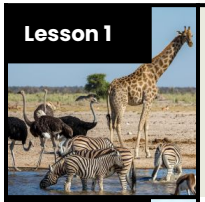
- 2-LS4-1
- K-2-ETS1-1
- K-2-ETS1-2
- K-2-ETS1-3

Unit Breakdown:

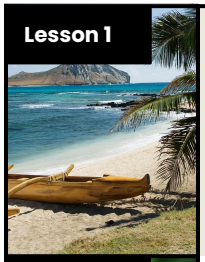
- 4 Lessons & Activities
- 4 Lesson Assessments
- 4 Extension Blocks
- 1 Unit Assessment

Anchor Layer Adds:
- 1 Anchor Phenomenon
- 4 Anchor Connections
- 1 Performance Task

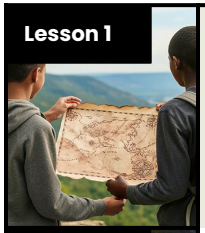
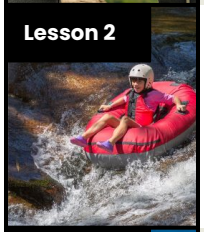
Animal Biodiversity & Habitats (Animal Adventures)

	Topic & Guiding Question	Michigan Science Standards (2015)	Science & Eng. Practices (SEPs)	Disciplinary Core Ideas (DCIs)	Crosscutting Concepts (CCCs)
 Lesson 1	**Biodiversity & Classification** How many different kinds of animals are there?	**Foundational for 2-LS4-1.** Make observations of plants and animals to compare the diversity of life in different habitats.	Obtaining, Evaluating, and Communicating Information	**LS4.D:** Biodiversity and Humans	Patterns
 Lesson 2	**Habitat Diversity** Why would a wild animal visit a playground?	**2-LS4-1.** Make observations of plants and animals to compare the diversity of life in different habitats.	Analyzing and Interpreting Data Planning and Carrying Out Investigations	**LS4.D:** Biodiversity and Humans	Patterns
 Lesson 3	**Biodiversity, Habitats, & Species** Why do frogs say “ribbit”?	**2-LS4-1.** Make observations of plants and animals to compare the diversity of life in different habitats.	Analyzing and Interpreting Data Engaging in Argument from Evidence	**LS4.D:** Biodiversity and Humans	Patterns
 Lesson 4	**Biodiversity & Engineering** How could you get more birds to visit a bird feeder?	**K-2-ETS1-1.** Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool. **K-2-ETS1-2.** Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.	Asking Questions and Defining Problems Constructing Explanations and Designing Solutions Developing and Using Models	**ETS1.A:** Defining and Delimiting Engineering Problems **ETS1.B:** Developing Possible Solutions	Cause and Effect

Plant Growth & Interactions (Plant Adventures)

	Topic & Guiding Question	Michigan Science Standards (2015)	Science & Eng. Practices (SEPs)	Disciplinary Core Ideas (DCIs)	Crosscutting Concepts (CCCs)
Lesson 1 	**Seed Dispersal** How did a tree travel halfway around the world?	**Foundational for 2-LS2-2.** Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants. **K-2-ETS1-2.** Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.	Developing and Using Models Planning and Carrying Out Investigations	**LS2.A:** Interdependent Relationships in Ecosystems	Structure and Function
Lesson 2 	**Animal Seed Dispersal** Why do seeds have so many different shapes?	**2-LS2-2.** Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.	Developing and Using Models	**LS2.A:** Interdependent Relationships in Ecosystems	Structure and Function
Lesson 3 	**Water, Sunlight, & Plant Growth** Could a plant survive without light?	**2-LS2-1.** Plan and conduct an investigation to determine if plants need sunlight and water to grow.	Planning and Carrying Out Investigations Analyzing and Interpreting Data	**LS2.A:** Interdependent Relationships in Ecosystems	Cause and Effect
Lesson 4 	**Plant Needs & Habitats** How much water should you give a plant?	**2-LS2-1.** Plan and conduct an investigation to determine if plants need sunlight and water to grow.	Planning and Carrying Out Investigations	**LS2.A:** Interdependent Relationships in Ecosystems	Cause and Effect

Erosion & Earth's Surface (Work of Water) • Page 1 of 2

	Topic & Guiding Question	Michigan Science Standards (2015)	Science & Eng. Practices (SEPs)	Disciplinary Core Ideas (DCIs)	Crosscutting Concepts (CCCs)
Lesson 1 	✨New!✨ **Mapping Landforms & Bodies of Water** Where's the best place to hide a treasure?	**2-ESS2-2.** Develop a model to represent the shapes and kinds of land and bodies of water in an area.	Developing and Using Models	**ESS2.B:** Plate Tectonics and Large-Scale System Interactions	Patterns
Lesson 2 	**Mapping: Mountains & Rivers** If you floated down a river, where would you end up?	**2-ESS2-2.** Develop a model to represent the shapes and kinds of land and bodies of water in an area. **2-ESS2-3.** Obtain information to identify where water is found on Earth and that it can be solid or liquid.	Developing and Using Models Planning and Carrying Out Investigations	**ESS2.B:** Plate Tectonics and Large-Scale System Interactions **ESS2.C:** The Roles of Water in Erosion & Earth's Surface	Patterns
Lesson 3 	**Rocks, Sand, & Erosion** Why is there sand at the beach?	**2-ESS2-2.** Develop a model to represent the shapes and kinds of land and bodies of water in an area.	Planning and Carrying Out Investigations Developing and Using Models	**ESS2.B:** Plate Tectonics and Large-Scale System Interactions	Cause and Effect Stability and Change
Lesson 4 	**Mapping & Severe Weather** Where do flash floods happen?	**2-ESS1-1.** Use information from several sources to provide evidence that Earth events can occur quickly or slowly. **2-ESS2-2.** Develop a model to represent the shapes and kinds of land and bodies of water in an area.	Developing and Using Models	**ESS2.B:** Plate Tectonics and Large-Scale System Interactions	Patterns
Lesson 5 	**Erosion, Earth's Surface, & Landforms** What's strong enough to make a canyon?	**2-ESS1-1.** Use information from several sources to provide evidence that Earth events can occur quickly or slowly.	Planning and Carrying Out Investigations Constructing Explanations and Designing Solutions	**ESS1.C:** The History of Planet Earth **ESS2.A:** Earth Materials and Systems	Cause and Effect Stability and Change

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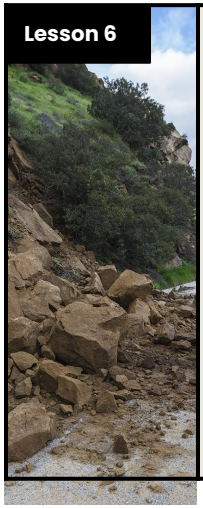
✨ New Lesson

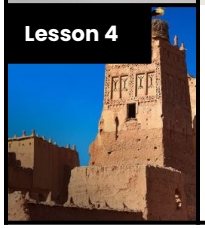
Erosion & Earth's Surface (Work of Water) • Page 2 of 2

	Topic & Guiding Question	Michigan Science Standards (2015)	Science & Eng. Practices (SEPs)	Disciplinary Core Ideas (DCIs)	Crosscutting Concepts (CCCs)
Lesson 6 	**Erosion & Engineering** How can you stop a landslide?	**2-ESS2-1.** Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land. **K-2-ETS1-1.** Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool. **K-2-ETS1-2.** Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem. **K-2-ETS1-3.** Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.	Asking Questions and Defining Problems Constructing Explanations and Designing Solutions	**ESS1.C:** The History of Planet Earth **ESS2.A:** Earth Materials and Systems **ETS1.A:** Defining and Delimiting Engineering Problems **ETS1.B:** Developing Possible Solutions **ETS1.C:** Optimizing the Design Solution	Stability and Change Structure and Function

Michigan Specific Standard: **2-ESS2-2 MI.** Develop a model to represent the state of Michigan and the Great Lakes, or a more local area and water body.

Michigan Specific Standard: **2-ESS2-3 MI.** Obtain information to identify where fresh water is found on Earth, including the Great Lakes and Great Lakes Basin.

✔ Material Properties (Material Magic)

	Topic & Guiding Question	Michigan Science Standards (2015)	Science & Eng. Practices (SEPs)	Disciplinary Core Ideas (DCIs)	Crosscutting Concepts (CCCs)
Lesson 1 	**Material Properties & Engineering** Why do we wear clothes?	**2-PS1-2.** Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose. **K-2-ETS1-1.** Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool. **K-2-ETS1-2.** Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.	Asking Questions and Defining Problems Planning and Carrying Out Investigations Constructing Explanations and Designing Solutions	**PS1.A:** Structure and Properties of Matter **ETS1.A:** Defining and Delimiting Engineering Problems **ETS1.B:** Developing Possible Solutions	Patterns Cause and Effect
Lesson 2 	**Classify Materials: Insulators & Conductors** Can you really fry an egg on a hot sidewalk?	**2-PS1-1.** Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties. **2-PS1-2.** Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.	Planning and Carrying Out Investigations Analyzing and Interpreting Data	**PS1.A:** Structure and Properties of Matter	Patterns Cause and Effect
Lesson 3 	**Material Building Blocks & Engineering** Could you build a house out of paper?	**2-PS1-3.** Make observations to construct an evidence-based account of how an object made of a small set of pieces can be disassembled and made into a new object. **K-2-ETS1-3.** Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.	Constructing Explanations and Designing Solutions Developing and Using Models	**PS1.A:** Structure and Properties of Matter **ETS1.B:** Developing Possible Solutions **ETS1.C:** Optimizing the Design Solution	Energy and Matter Cause and Effect
Lesson 4 	**Soil Properties** How do you build a city out of mud?	**2-PS1-1.** Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties. **2-PS1-2.** Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.	Planning and Carrying Out Investigations Analyzing and Interpreting Data	**PS1.A:** Structure and Properties of Matter	Patterns

✔ Unit Restructured for the 2025-2026 School Year

⭐ States of Matter (States of Matter)

	Topic & Guiding Question	Michigan Science Standards (2015)	Science & Eng. Practices (SEPs)	Disciplinary Core Ideas (DCIs)	Crosscutting Concepts (CCCs)
Lesson 1 	✨New!✨ **Liquid Water & Solid Ice** Where do animals find the water they need?	**2-ESS2-3.** Obtain information to identify where water is found on Earth and that it can be solid or liquid.	Obtaining, Evaluating, and Communicating Information	**ESS2.C:** The Roles of Water in Earth's Surface Processes	Patterns
Lesson 2 	✨New!✨ **Reversible & Irreversible Changes** How is an ice cube like a crayon?	**2-PS1-4.** Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.	Engaging in Argument from Evidence Planning and Carrying Out Investigations	**PS1.B:** Chemical Reactions	Cause and Effect
Lesson 3 	**Heating, Cooling, & States of Matter** Why are so many toys made out of plastic?	**2-PS1-4.** Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot. **2-PS1-2.** Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.	Planning and Carrying Out Investigations Analyzing and Interpreting Data	**PS1.A:** Structure and Properties of Matter **PS1.B:** Chemical Reactions	Cause and Effect Energy and Matter

✨ New Unit or Lesson

All 3rd Grade Units • Units may be taught in any order

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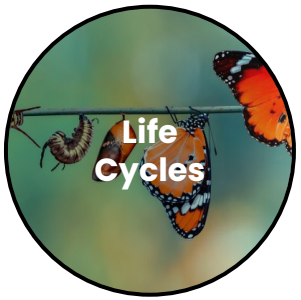
Michigan Science Standards:

- 3-LS4-1

Unit Breakdown:

- 3 Lessons & Activities
- 3 Lesson Assessments
- 3 Extension Blocks
- 1 Unit Assessment

Anchor Layer Adds:
- 1 Anchor Phenomenon
- 3 Anchor Connections
- 1 Performance Task



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Michigan Science Standards:

- 3-LS1-1
- 3-LS4-4
- 3-5-ETS1-2

Unit Breakdown:

- 5 Lessons & Activities
- 5 Lesson Assessments
- 5 Extension Blocks
- 1 Unit Assessment

Anchor Layer Adds:
- 1 Anchor Phenomenon
- 5 Anchor Connections
- 1 Performance Task

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Michigan Science Standards:

- 3-LS2-1
- 3-LS3-1
- 3-LS3-2
- 3-LS4-2
- 3-LS4-3

Unit Breakdown:

- 5 Lessons & Activities
- 5 Lesson Assessments
- 5 Extension Blocks
- 1 Unit Assessment

Anchor Layer Adds:
- 1 Anchor Phenomenon
- 5 Anchor Connections
- 1 Performance Task

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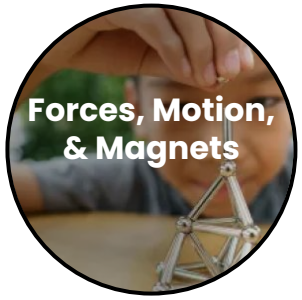
Michigan Science Standards:

- 3-ESS2-1
- 3-ESS2-2
- 3-ESS3-1
- 3-5-ETS1-1
- 3-5-ETS1-2
- 3-5-ETS1-3

Unit Breakdown:

- 5 Lessons & Activities
- 5 Lesson Assessments
- 5 Extension Blocks
- 1 Unit Assessment

Anchor Layer Adds:
- 1 Anchor Phenomenon
- 5 Anchor Connections
- 1 Performance Task



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Michigan Science Standards:

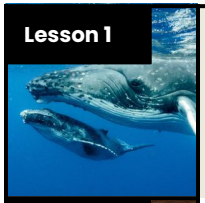
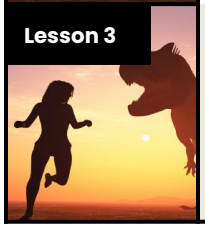
- 3-PS2-1
- 3-PS2-2
- 3-PS2-3
- 3-PS2-4
- 3-5-ETS1-1
- 3-5-ETS1-2
- 3-5-ETS1-3

Unit Breakdown:

- 5 Lessons & Activities
- 5 Lesson Assessments
- 5 Extension Blocks
- 1 Unit Assessment

Anchor Layer Adds:
- 1 Anchor Phenomenon
- 5 Anchor Connections
- 1 Performance Task

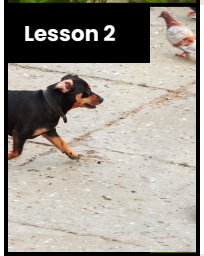
Fossils & Changing Environments (Animals Through Time)

	Topic & Guiding Question	Michigan Science Standards (2015)	Science & Eng. Practices (SEPs)	Disciplinary Core Ideas (DCIs)	Crosscutting Concepts (CCCs)
Lesson 1 	**Habitats, Fossils, & Environments Over Time** Where can you find whales in a desert?	**3-LS4-1.** Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago.	Analyzing and Interpreting Data	**LS4.A:** Evidence of Common Ancestry and Diversity	Scale, Proportion, and Quantity
Lesson 2 	**Fossil Evidence & Dinosaurs** How do we know what dinosaurs looked like?	**3-LS4-1.** Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago.	Analyzing and Interpreting Data Engaging in Argument from Evidence	**LS4.A:** Evidence of Common Ancestry and Diversity	Structure and Function Patterns
Lesson 3 	**Trace Fossil Evidence & Animal Movement** Can you outrun a dinosaur?	**3-LS4-1.** Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago.	Using Mathematics and Computational Thinking Planning and Carrying Out Investigations	**LS4.A:** Evidence of Common Ancestry and Diversity	Patterns

Life Cycles (Circle of Life)

	Topic & Guiding Question	Michigan Science Standards (2015)	Science & Eng. Practices (SEPs)	Disciplinary Core Ideas (DCIs)	Crosscutting Concepts (CCCs)
Lesson 1 	**Animal Life Cycles** How is your life like an alligator's life?	**3-LS1-1.** Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.	Developing and Using Models	**LS1.B:** Growth and Development of Organisms	Patterns
Lesson 2 	**Environmental Change & Engineering** What's the best way to get rid of mosquitoes?	**3-LS4-4.** Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change. **3-5-ETS1-2.** Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.	Obtaining, Evaluating, and Communicating Information Constructing Explanations and Designing Solutions	**LS4.D** Biodiversity and Humans **LS2.C:** Ecosystem Dynamics, Functioning, & Resilience **ETS1.B:** Developing Possible Solutions	Cause and Effect Systems and System Models
Lesson 3 	**Pollination & Plant Reproduction** Why do plants grow flowers?	**Foundational for 3-LS1-1.** Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.	Developing and Using Models Analyzing and Interpreting Data	**LS1.B:** Growth and Development of Organisms	Patterns Structure and Function
Lesson 4 	**Fruit, Seeds, & Plant Reproduction** Why do plants give us fruit?	**Foundational for 3-LS1-1.** Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.	Analyzing and Interpreting Data	**LS1.B:** Growth and Development of Organisms	Patterns Structure and Function
Lesson 5 	**Plant Life Cycles** Why are there so many different kinds of flowers?	**3-LS1-1.** Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.	Developing and Using Models	**LS1.B:** Growth and Development of Organisms	Patterns

Heredity, Survival, & Selection (Fates of Traits) • Page 1 of 2

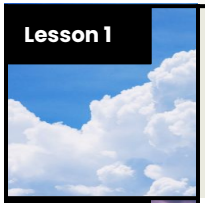
	Topic & Guiding Question	Michigan Science Standards (2015)	Science & Eng. Practices (SEPs)	Disciplinary Core Ideas (DCIs)	Crosscutting Concepts (CCCs)
Lesson 1 	**Traits & Inheritance** How do you identify a mysterious fruit?	**Foundational for 3-LS3-1.** Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms.	Analyzing and Interpreting Data	**LS3.A:** Inheritance of Traits	Patterns
Lesson 2 	**Trait Variation, Inheritance, & Artificial Selection** What do dogs and pigeons have in common?	**3-LS3-1.** Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms.	Analyzing and Interpreting Data	**LS3.A:** Inheritance of Traits **LS3.B:** Variation of Traits	Patterns
Lesson 3 	**Trait Variation, Survival, & Natural Selection** How could a lizard's toes help it survive?	**3-LS3-1.** Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms. **3-LS4-2.** Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing. **3-LS4-3.** Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.	Constructing Explanations and Designing Solutions Analyzing and Interpreting Data Using Mathematics and Computational Thinking	**LS3.A:** Inheritance of Traits **LS3.B:** Variation of Traits **LS4.B:** Natural Selection **LS4.C:** Adaptation	Cause and Effect Patterns Stability and Change

Continued on next page

Heredity, Survival, & Selection (Fates of Traits) • Page 2 of 2

	Topic & Guiding Question	Michigan Science Standards (2015)	Science & Eng. Practices (SEPs)	Disciplinary Core Ideas (DCIs)	Crosscutting Concepts (CCCs)
Lesson 4 	**Animal Groups & Survival** Why do dogs wag their tails?	**3-LS2-1.** Construct an argument that some animals form groups that help members survive.	Obtaining, Evaluating, and Communicating Information Engaging in Argument from Evidence	**LS2.D:** Social Interactions and Group Behavior	Cause and Effect
Lesson 5 	**Traits & Environmental Variation** How long can people (and animals) survive in outer space?	**3-LS3-2.** Use evidence to support the explanation that traits can be influenced by the environment.	Constructing Explanations and Designing Solutions	**LS3.A:** Inheritance of Traits **LS3.B:** Variation of Traits	Cause and Effect

Weather & Climate (Stormy Skies) • Page 1 of 2

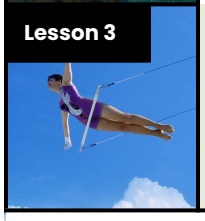
	Topic & Guiding Question	Michigan Science Standards (2015)	Science & Eng. Practices (SEPs)	Disciplinary Core Ideas (DCIs)	Crosscutting Concepts (CCCs)
 **Lesson 1**	**Water Cycle & States of Matter** Where do clouds come from?	**Foundational for 3-ESS2-1.** Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.	Planning and Carrying Out Investigations Developing and Using Models	**ESS2.D:** Weather and Climate	Structure and Function Stability and Change
 **Lesson 2**	**Local Weather Patterns & Weather Prediction** How can we predict when it's going to storm?	**Foundational for 3-ESS2-1.** Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.	Analyzing and Interpreting Data	**ESS2.D:** Weather and Climate	Patterns
 **Lesson 3**	**Seasonal Weather Patterns** Where's the best place to build a snow fort?	**3-ESS2-1.** Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.	Analyzing and Interpreting Data	**ESS2.D:** Weather and Climate	Patterns

Continued on next page

Weather & Climate (Stormy Skies) • Page 2 of 2

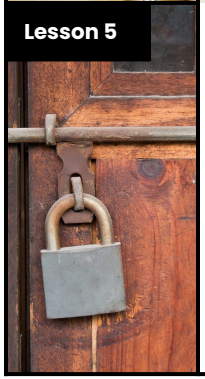
	Topic & Guiding Question	Michigan Science Standards (2015)	Science & Eng. Practices (SEPs)	Disciplinary Core Ideas (DCIs)	Crosscutting Concepts (CCCs)
Lesson 4 	**Climate & Global Weather Patterns** Why are some places always hot?	**3-ESS2-2.** Obtain and combine information to describe climates in different regions of the world. **3-ESS2-1.** Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.	Obtaining, Evaluating, and Communicating Information Analyzing and Interpreting Data	**ESS2.D:** Weather and Climate	Patterns
Lesson 5 	**Natural Hazards & Engineering** How can you keep a house from blowing away in a windstorm?	**3-ESS3-1.** Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard. **3-5-ETS1-1.** Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. **3-5-ETS1-2.** Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem. **3-5-ETS1-3.** Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.	Asking Questions and Defining Problems Constructing Explanations and Designing Solutions Analyzing and Interpreting Data	**ESS3.B:** Natural Hazards **ETS1.A:** Defining and Delimiting Engineering Problems **ETS1.B:** Developing Possible Solutions **ETS1.C:** Optimizing the Design Solution	Cause and Effect

Forces, Motion, & Magnets (Invisible Forces) • Page 1 of 2

	Topic & Guiding Question	Michigan Science Standards (2015)	Science & Eng. Practices (SEPs)	Disciplinary Core Ideas (DCIs)	Crosscutting Concepts (CCCs)
	**Balanced & Unbalanced Forces** How could you win a tug-of-war against a bunch of adults?	**3-PS2-1.** Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.	Planning and Carrying Out Investigations Constructing Explanations and Designing Solutions	**PS2.A:** Forces and Motion **PS2.B:** Types of Interactions	Cause and Effect
	**Balanced Forces & Engineering** What makes bridges so strong?	**3-5-ETS1-1.** Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. **3-5-ETS1-2.** Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem. **3-5-ETS1-3.** Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.	Asking Questions and Defining Problems Constructing Explanations and Designing Solutions	**ETS1.A:** Defining and Delimiting Engineering Problems **ETS1.B:** Developing Possible Solutions **ETS1.C:** Optimizing the Design Solution	Structure and Function
	**Patterns of Motion, Gravity, & Friction** How high can you swing on a flying trapeze?	**3-PS2-2.** Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.	Developing and Using Models Planning and Carrying Out Investigations	**PS2.A:** Forces and Motion	Patterns Cause and Effect

Continued on next page

Forces, Motion, & Magnets (Invisible Forces) • Page 2 of 2

	Topic & Guiding Question	Michigan Science Standards (2015)	Science & Eng. Practices (SEPs)	Disciplinary Core Ideas (DCIs)	Crosscutting Concepts (CCCs)
	**Magnets & Forces** What can magnets do?	**3-PS2-3.** Ask questions to determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other.	Asking Questions and Defining Problems	**PS2.B:** Types of Interactions	Cause and Effect
	**Magnets & Engineering** How can you unlock a door using a magnet?	**3-PS2-4.** Define a simple design problem that can be solved by applying scientific ideas about magnets. **3-5-ETS1-1.** Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. **3-5-ETS1-2.** Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.	Asking Questions and Defining Problems Constructing Explanations and Designing Solutions	**PS2.B:** Types of Interactions **ETS1.A:** Defining and Delimiting Engineering Problems **ETS1.B:** Developing Possible Solutions **ETS1.C:** Optimizing the Design Solution	Cause and Effect

Michigan Science Standards Alignment

4th Grade • All Units at a Glance

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All 4th Grade Units • Units may be taught in any order

Page 35 • Web Link

Michigan Science Standards:

- 4-LS1-1
- 4-LS1-2
- 4-PS4-2

Unit Breakdown:

- 4 Lessons & Activities
- 4 Lesson Assessments
- 4 Extension Blocks
- 1 Unit Assessment

Anchor Layer Adds:
- 1 Anchor Phenomenon
- 4 Anchor Connections
- 1 Performance Task

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Michigan Science Standards:

- 4-LS1-1
- 4-LS1-2

Unit Breakdown:

- 3 Lessons & Activities
- 3 Lesson Assessments
- 3 Extension Blocks
- 1 Unit Assessment

Anchor Layer Adds:
- 1 Anchor Phenomenon
- 3 Anchor Connections
- 1 Performance Task

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Michigan Science Standards:

- 4-ESS1-1
- 4-ESS2-1
- 4-ESS2-2
- 4-ESS3-2
- 3-5-ETS1-2

Unit Breakdown:

- 5 Lessons & Activities
- 5 Lesson Assessments
- 5 Extension Blocks
- 1 Unit Assessment

Anchor Layer Adds:
- 1 Anchor Phenomenon
- 5 Anchor Connections
- 1 Performance Task

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Michigan Science Standards:

- 4-PS4-1
- 4-PS4-3
- 3-5-ETS1-2
- 3-5-ETS1-3

Unit Breakdown:

- 4 Lessons & Activities
- 3 Lesson Assessments
- 3 Extension Blocks
- 1 Unit Assessment

Anchor Layer Adds:
- 1 Anchor Phenomenon
- 3 Anchor Connections
- 1 Performance Task

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Michigan Science Standards:

- 4-PS3-1
- 4-PS3-3
- 4-PS3-4
- 3-5-ETS1-1
- 3-5-ETS1-2
- 3-5-ETS1-3

Unit Breakdown:

- 5 Lessons & Activities
- 5 Lesson Assessments
- 5 Extension Blocks
- 1 Unit Assessment

Anchor Layer Adds:
- 1 Anchor Phenomenon
- 5 Anchor Connections
- 1 Performance Task

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Michigan Science Standards:

- 4-ESS3-1
- 4-PS3-2
- 4-PS3-4
- 3-5-ETS1-1

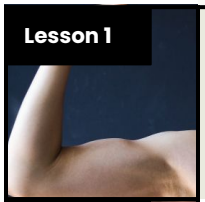
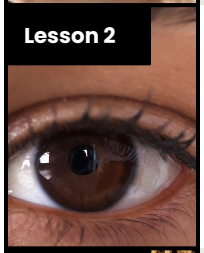
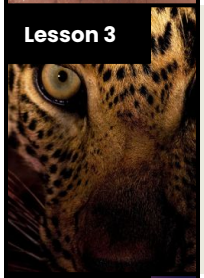
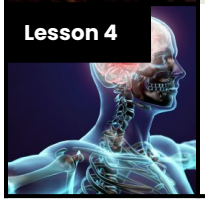
3-5-ETS1-3

Unit Breakdown:

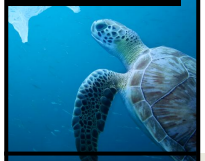
- 3 Lessons & Activities
- 3 Lesson Assessments
- 3 Extension Blocks
- 1 Unit Assessment

Anchor Layer Adds:
- 1 Anchor Phenomenon
- 3 Anchor Connections
- 1 Performance Task

Human Body, Vision, & The Brain (Human Machine)

	Topic & Guiding Question	Michigan Science Standards (2015)	Science & Eng. Practices (SEPs)	Disciplinary Core Ideas (DCIs)	Crosscutting Concepts (CCCs)
 Lesson 1	**Muscles & Skeleton** Why do your biceps bulge?	**4-LS1-1.** Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.	Developing and Using Models Constructing Explanations and Designing Solutions	**LS1.A:** Structure and Function	Systems and System Models Cause and Effect
 Lesson 2	**Light, Eyes, & Vision** What do people who are blind see?	**4-LS1-1.** Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. **4-PS4-2.** Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen.	Developing and Using Models Constructing Explanations and Designing Solutions	**LS1.A:** Structure and Function **PS4.B:** Electromagnetic Radiation	Systems and System Models Cause and Effect
 Lesson 3	**Structure & Function of Eyes** How can some animals see in the dark?	**4-LS1-1.** Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. **4-PS4-2.** Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen.	Planning and Carrying Out Investigations Developing and Using Models Constructing Explanations and Designing Solutions	**LS1.A:** Structure and Function **PS4.B:** Electromagnetic Radiation	Systems and System Models Cause and Effect
 Lesson 4	**Brain, Nerves, & Information Processing** How does your brain control your body?	**4-LS1-2.** Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.	Planning and Carrying Out Investigations Analyzing and Interpreting Data	**LS1.D:** Information Processing	Systems and System Models

Animal & Plant Adaptations (Animal & Plant Adaptations)

	Topic & Guiding Question	Michigan Science Standards (2015)	Science & Eng. Practices (SEPs)	Disciplinary Core Ideas (DCIs)	Crosscutting Concepts (CCCs)
Lesson 1 	**Animal Adaptations** Why do some sea creatures look so strange?	**4-LS1-1.** Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.	Engaging in Argument from Evidence	**LS1.A:** Structure and Function	Systems and System Models
Lesson 2 	**Learned Behavior & Instinct** Why would a sea turtle eat a plastic bag?	**4-LS1-2.** Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.	Developing and Using Models Constructing Explanations and Designing Solutions	**LS1.D:** Information Processing	Systems and System Models
Lesson 3 	**Plant Adaptations** Why don't the same trees grow everywhere?	**4-LS1-1.** Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.	Engaging in Argument from Evidence Developing and Using Models	**LS1.A:** Structure and Function	Systems and System Models

Michigan Science Standards Alignment

4th Grade • Earth & Space Science

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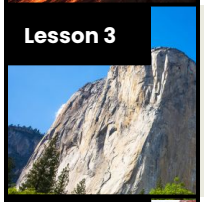
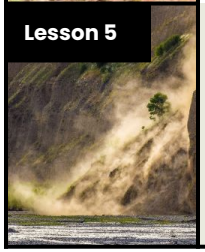
mystery science

Earth's Features & Processes (Birth of Rocks)

	Topic & Guiding Question	Michigan Science Standards (2015)	Science & Eng. Practices (SEPs)	Disciplinary Core Ideas (DCIs)	Crosscutting Concepts (CCCs)
 Lesson 1	**Volcanoes & Patterns of Earth's Features** Could a volcano pop up where you live?	**4-ESS2-2.** Analyze and interpret data from maps to describe patterns of Earth's features.	Analyzing and Interpreting Data Engaging in Argument from Evidence	**ESS2.B:** Plate Tectonics and Large-Scale System Interactions	Patterns
 Lesson 2	**Volcanoes & Rock Cycle** Why do some volcanoes explode?	**4-ESS1-1.** Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time.	Constructing Explanations and Designing Solutions	**ESS1.C:** The History of Planet Earth	Cause and Effect
 Lesson 3	**Weathering & Erosion** Will a mountain last forever?	**4-ESS2-1.** Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation.	Planning and Carrying Out Investigations Analyzing and Interpreting Data	**ESS2.A:** Earth Materials and Systems **ESS2.E:** Biogeology	Cause and Effect
 Lesson 4	**Sedimentary Rock & Fossils** What did your town look like 100 million years ago?	**4-ESS1-1.** Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time.	Constructing Explanations and Designing Solutions Developing and Using Models	**ESS1.C:** The History of Planet Earth	Patterns
 Lesson 5	**Erosion, Natural Hazards, & Engineering** How could you survive a landslide?	**4-ESS3-2.** Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans. **3-5-ETS1-2.** Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.	Constructing Explanations and Designing Solutions	**ESS3.B:** Natural Hazards **ETS1.B:** Designing Solutions to Engineering Problems	Cause and Effect

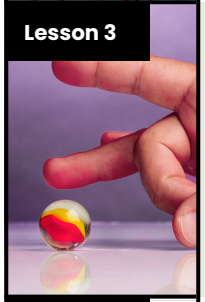
Michigan Specific Standard: **4-ESS1-1 MI.** Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation of Michigan's geologic changes over time.

Michigan Specific Standard: **4-ESS3-2 MI.** Generate and compare multiple solutions to reduce the impacts of natural Earth processes on Michigan's people and places.

Sound, Waves, & Communication (Waves of Sound)

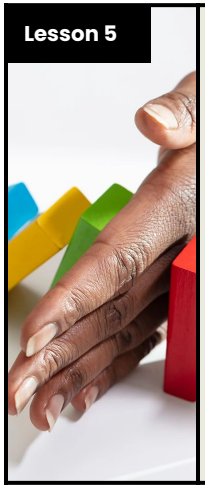
	Topic & Guiding Question	Michigan Science Standards (2015)	Science & Eng. Practices (SEPs)	Disciplinary Core Ideas (DCIs)	Crosscutting Concepts (CCCs)
 Lesson 1	**Pattern Transfer & Technology** How do you send a secret code?	**4-PS4-3.** Generate and compare multiple solutions that use patterns to transfer information. **3-5-ETS1-3.** Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.	Constructing Explanations and Designing Solutions	**PS4.C:** Information Technologies and Instrumentation **ETS1.C:** Optimizing the Design Solution	Patterns
 Lesson 2	**Sound, Vibration, & Engineering** How far can a whisper travel?	**Foundational for 4-PS4-1.** Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move. **3-5-ETS1-2.** Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.	Developing and Using Models Planning and Carrying Out Investigations	**PS4.A:** Wave Properties **ETS1.B:** Developing Possible Solutions	Patterns
 Lesson 3	**Sound & Vibrations** What would happen if you screamed in outer space?	**Foundational for 4-PS4-1.** Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move.	Developing and Using Models	**PS4.A:** Wave Properties	Patterns
 Lesson 4	**Sound Waves & Wavelength** Why are some sounds high and some sounds low?	**4-PS4-1.** Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move.	Developing and Using Models	**PS4.A:** Wave Properties	Patterns

Energy & Energy Transfer (Energizing Everything) • Page 1 of 2

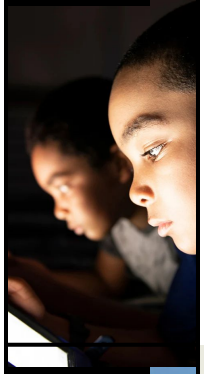
	Topic & Guiding Question	Michigan Science Standards (2015)	Science & Eng. Practices (SEPs)	Disciplinary Core Ideas (DCIs)	Crosscutting Concepts (CCCs)
Lesson 1 	**Speed & Energy** How is your body similar to a car?	**4-PS3-1.** Use evidence to construct an explanation relating the speed of an object to the energy of that object.	Analyzing and Interpreting Data Constructing Explanations and Designing Solutions	**PS3.A:** Definitions of Energy	Energy and Matter Systems and System Models
Lesson 2 	**Gravitational Energy, Speed, & Collisions** What makes roller coasters go so fast?	**4-PS3-1.** Use evidence to construct an explanation relating the speed of an object to the energy of that object. **4-PS3-3.** Ask questions and predict outcomes about the changes in energy that occur when objects collide.	Developing and Using Models Analyzing and Interpreting Data	**PS3.A:** Definitions of Energy **PS3.B:** Conservation of Energy and Energy Transfer	Energy and Matter Systems and System Models
Lesson 3 	**Collisions & Energy Transfer** How can marbles save the world?	**4-PS3-3.** Ask questions and predict outcomes about the changes in energy that occur when objects collide.	Asking Questions and Defining Problems	**PS3.A:** Definitions of Energy **PS3.B:** Conservation of Energy and Energy Transfer **PS3.C:** Relationship Between Energy and Forces	Energy and Matter
Lesson 4 	**Energy Transfer & Engineering** Could you knock down a building using only dominoes?	**4-PS3-4.** Apply scientific ideas to design, test, and refine a device that converts energy from one form to another **3-5-ETS1-1.** Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.	Developing and Using Models	**PS3.B:** Conservation of Energy and Energy Transfer **PS3.C:** Relationship Between Energy and Forces **ETS1.A:** Defining and Delimiting Engineering Problems	Energy and Matter

Continued on next page

Energy & Energy Transfer (Energizing Everything) • Page 2 of 2

	Topic & Guiding Question	Michigan Science Standards (2015)	Science & Eng. Practices (SEPs)	Disciplinary Core Ideas (DCIs)	Crosscutting Concepts (CCCs)
Lesson 5 	**Energy Transfer & Engineering** Can you build a chain reaction machine?	**4-PS3-4.** Apply scientific ideas to design, test, and refine a device that converts energy from one form to another **3-5-ETS1-1.** Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. **3-5-ETS1-2.** Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem. **3-5-ETS1-3.** Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.	Developing and Using Models	**PS3.A:** Definitions of Energy **PS3.C:** Relationship Between Energy and Forces **ETS1.A:** Defining and Delimiting Engineering Problems **ETS1.B:** Developing Possible Solutions **ETS1.C:** Optimizing the Design Solution	Energy and Matter

Electricity, Light, & Heat (Electricity, Light & Heat)

	Topic & Guiding Question	Michigan Science Standards (2015)	Science & Eng. Practices (SEPs)	Disciplinary Core Ideas (DCIs)	Crosscutting Concepts (CCCs)
Lesson 1 	**Renewable Energy & Natural Resources** What's the best way to light up a city?	**4-ESS3-1.** Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.	Obtaining, Evaluating, and Communicating Information Using Mathematics and Computational Thinking	**ESS3.A:** Natural Resources	Energy and Matter Cause and Effect
Lesson 2 	**Electrical Energy** What if there were no electricity?	**4-PS3-2.** Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents. **4-PS3-4.** Apply scientific ideas to design, test, and refine a device that converts energy from one form to another. **3-5-ETS1-1.** Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.	Constructing Explanations and Designing Solutions Developing and Using Models	**PS3.D:** Energy in Chemical Processes and Everyday Life **ETS1.A:** Defining and Delimiting Engineering Problems **ETS1.B:** Developing Possible Solutions **ETS1.C:** Optimizing the Design Solution	Energy and Matter
Lesson 3 	**Heat Energy & Energy Transfer** How long did it take to travel across the country before cars and planes?	**4-PS3-2.** Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents. **4-PS3-4.** Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.	Planning and Carrying Out Investigations	**PS3.B:** Conservation of Energy and Energy Transfer **PS3.D:** Energy in Chemical Processes and Everyday Life	Energy and Matter

Michigan Science Standards Alignment

5th Grade • All Units at a Glance

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All 5th Grade Units • Units may be taught in any order

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Michigan Science Standards:

- 5-LS1-1
- 5-LS2-1
- 5-ESS3-1
- 5-PS3-1

Unit Breakdown:

- 7 Lessons & Activities
- 7 Lesson Assessments
- 7 Extension Blocks
- 1 Unit Assessment

Anchor Layer Adds:
- 1 Anchor Phenomenon
- 7 Anchor Connections
- 1 Performance Task

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Michigan Science Standards:

- 5-ESS2-1
- 5-ESS2-2
- 5-PS1-2
- 3-5-ETS1-1
- 3-5-ETS1-2
- 3-5-ETS1-3

Unit Breakdown:

- 5 Lessons & Activities
- 5 Lesson Assessments
- 5 Extension Blocks
- 1 Unit Assessment

Anchor Layer Adds:
- 1 Anchor Phenomenon
- 5 Anchor Connections
- 1 Performance Task

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Michigan Science Standards:

- 5-ESS1-2

Unit Breakdown:

- 5 Lessons & Activities
- 5 Lesson Assessments
- 5 Extension Blocks
- 1 Unit Assessment

Anchor Layer Adds:
- 1 Anchor Phenomenon
- 5 Anchor Connections
- 1 Performance Task

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Michigan Science Standards:

- 5-ESS1-1
- 5-PS2-1

Unit Breakdown:

- 3 Lessons & Activities
- 3 Lesson Assessments
- 3 Extension Blocks
- 1 Unit Assessment

Anchor Layer Adds:
- 1 Anchor Phenomenon
- 3 Anchor Connections
- 1 Performance Task

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Michigan Science Standards:

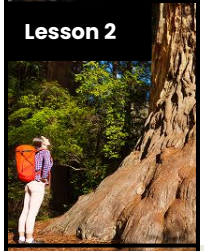
- 5-PS1-1
- 5-PS1-2
- 5-PS1-3
- 5-PS1-4

Unit Breakdown:

- 5 Lessons & Activities
- 5 Lesson Assessments
- 5 Extension Blocks
- 1 Unit Assessment

Anchor Layer Adds:
- 1 Anchor Phenomenon
- 5 Anchor Connections
- 1 Performance Task

Ecosystems & The Food Web (Web of Life) • Page 1 of 2

	Topic & Guiding Question	Michigan Science Standards (2015)	Science & Eng. Practices (SEPs)	Disciplinary Core Ideas (DCIs)	Crosscutting Concepts (CCCs)
Lesson 1 	✨New!✨ **Food Chains & Matter Flow** What if all the ants disappeared?	**5-LS2-1.** Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.	Developing and Using Models	**LS2.A:** Interdependent Relationships in Ecosystems **LS2.B:** Cycles of Matter and Energy Transfer in Ecosystems	Energy and Matter Systems and System Models
Lesson 2 	✨New!✨ **Plant Growth & Matter** How does a tiny seed become one of the heaviest trees on Earth?	**5-LS1-1.** Support an argument that plants get the materials they need for growth chiefly from air and water. **Foundational for 5-LS2-1.** Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.	Engaging in Argument from Evidence Constructing Explanations and Designing Solutions	**LS1.C.** Organization for Matter and Energy Flow in Organisms **LS2.B:** Cycles of Matter and Energy Transfer in Ecosystems	Cause and Effect Energy and Matter
Lesson 3 	✨New!✨ **Decomposers & Matter Flow** Where do fallen leaves go?	**5-LS2-1.** Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.	Developing and Using Models Analyzing and Interpreting Data Constructing Explanations and Designing Solutions	**LS2.A:** Interdependent Relationships in Ecosystems **LS2.B:** Cycles of Matter and Energy Transfer in Ecosystems	Cause and Effect Energy and Matter
Lesson 4 	**Decomposers & Soil Nutrients** Do worms really eat dirt?	**5-LS2-1.** Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.	Planning and Carrying Out Investigations	**LS2.A:** Interdependent Relationships in Ecosystems **LS2.B:** Cycles of Matter and Energy Transfer in Ecosystems	Energy and Matter

Continued on next page

✨ New Lesson

Ecosystems & The Food Web (Web of Life) • Page 2 of 2

	Topic & Guiding Question	Michigan Science Standards (2015)	Science & Eng. Practices (SEPs)	Disciplinary Core Ideas (DCIs)	Crosscutting Concepts (CCCs)
 **Lesson 5**	**Ecosystems & Matter Cycle** Why do you have to clean a fish tank but not a pond?	**5-LS2-1.** Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.	Developing and Using Models	**LS2.A:** Interdependent Relationships in Ecosystems **LS2.B:** Cycles of Matter and Energy Transfer in Ecosystems	Systems and System Models Energy and Matter
 **Lesson 6**	**Protecting Environments** How can we protect Earth's environments?	**5-ESS3-1.** Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.	Obtaining, Evaluating, and Communicating Information	**ESS3.C:** Human Impacts on Earth Systems	Systems and System Models
 **Lesson 7**	**Food Webs & Flow of Energy** Why did the dinosaurs go extinct?	**5-PS3-1.** Use models to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun.	Developing and Using Models Constructing Explanations and Designing Solutions	**PS3.D:** Energy in Chemical Processes and Everyday Life **LS1.C.** Organization for Matter and Energy Flow in Organisms	Energy and Matter Systems and System Models

Michigan Specific Standard: **5-ESS2-1.** Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact in Michigan and the Great Lakes basin..

Michigan Specific Standard: **5-ESS2-2.** Describe and graph the amounts and percentages of water and fresh water in the Great Lakes to provide evidence about the distribution of water on Earth.

Water Cycle & Earth's Systems (Watery Planet)

	Topic & Guiding Question	Michigan Science Standards (2015)	Science & Eng. Practices (SEPs)	Disciplinary Core Ideas (DCIs)	Crosscutting Concepts (CCCs)
Lesson 1 	**Hydrosphere & Water Distribution** How much water is in the world?	**5-ESS2-2.** Describe and graph the amounts and percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth.	Analyzing and Interpreting Data Using Mathematics and Computational Thinking	**ESS2.C:** The Roles of Water in Earth's Surface Processes	Scale, Proportion, and Quantity
Lesson 2 	**Mixtures & Solutions** How much salt is in the ocean?	**5-PS1-2.** Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved.	Developing and Using Models Using Mathematics and Computational Thinking	**PS1.A**: Structure and Properties of Matter	Scale, Proportion, and Quantity
Lesson 3 	**Groundwater as a Natural Resource** When you turn on the faucet, where does the water come from?	**5-ESS2-2.** Describe and graph the amounts and percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth.	Obtaining, Evaluating, and Communicating Information Engaging in Argument from Evidence	**ESS2.C:** The Roles of Water in Earth's Surface Processes	Patterns
Lesson 4 	**Water Cycle** Can we make it rain?	**5-ESS2-1.** Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.	Developing and Using Models Planning and Carrying Out Investigations	**ESS2.A:** Earth Materials and Systems	Systems and System Models
Lesson 5 	**Natural Disasters & Engineering** How can you save a town from a hurricane?	**3-5-ETS1-1.** Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. **3-5-ETS1-2.** Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem. **3-5-ETS1-3.** Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.	Asking Questions and Defining Problems Obtaining, Evaluating, and Communicating Information Using Mathematics and Computational Thinking	**ETS1.A:** Defining and Delimiting Engineering Problems **ETS1.B:** Developing Possible Solutions **ETS1.C:** Optimizing the Design Solution	Systems and System Models

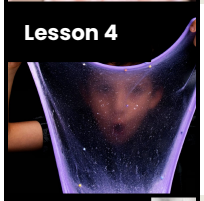
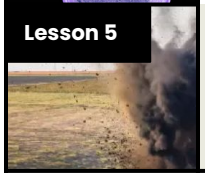
Earth & Space Patterns (Spaceship Earth)

	Topic & Guiding Question	Michigan Science Standards (2015)	Science & Eng. Practices (SEPs)	Disciplinary Core Ideas (DCIs)	Crosscutting Concepts (CCCs)
 Lesson 1	**Day, Night, & Earth's Rotation** How fast does the Earth spin?	**Foundational for 5-ESS1-2.** Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.	Developing and Using Models Using Mathematics and Computational Thinking	**ESS1.B:** Earth and the Solar System	Patterns Cause and Effect
 Lesson 2	**Earth's Rotation & Daily Shadow Patterns** Who set the first clock?	**5-ESS1-2.** Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.	Planning and Carrying Out Investigations Analyzing and Interpreting Data	**ESS1.B:** Earth and the Solar System	Patterns Cause and Effect
 Lesson 3	**Seasonal Changes & Shadow Length** How can the Sun tell you the season?	**5-ESS1-2.** Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.	Analyzing and Interpreting Data Engaging in Argument from Evidence	**ESS1.B:** Earth and the Solar System	Patterns Cause and Effect
 Lesson 4	**Seasonal Patterns & Earth's Orbit** Why do the stars change with the seasons?	**5-ESS1-2.** Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.	Developing and Using Models Constructing Explanations and Designing Solutions	**ESS1.B:** Earth and the Solar System	Patterns Cause and Effect
 Lesson 5	**Moon Phases, Lunar Cycle** Why does the Moon change shape?	**5-ESS1-2.** Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.	Developing and Using Models Planning and Carrying Out Investigations	**ESS1.B:** Earth and the Solar System	Patterns Cause and Effect

Stars & Planets (Stars & Planets)

	Topic & Guiding Question	Michigan Science Standards (2015)	Science & Eng. Practices (SEPs)	Disciplinary Core Ideas (DCIs)	Crosscutting Concepts (CCCs)
Lesson 1 	**Solar System & Sun Brightness** How can the Sun help us explore other planets?	**5-ESS1-1.** Support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from Earth.	Developing and Using Models Engaging in Argument from Evidence	**ESS1.A:** The Universe and its Stars	Scale, Proportion, and Quantity Systems and System Models
Lesson 2 	**Gravity** Why is gravity different on other planets?	**5-PS2-1.** Support an argument that the gravitational force exerted by Earth on objects is directed down.	Using Mathematics and Computational Thinking Analyzing and Interpreting Data	**PS2.B:** Types of Interactions	Patterns Cause and Effect
Lesson 3 	**Star Brightness & Habitable Planets** Could there be life on other planets?	**5-ESS1-1.** Support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from Earth.	Obtaining, Evaluating, and Communicating Information Engaging in Argument from Evidence	**ESS1.A:** The Universe and its Stars	Scale, Proportion, and Quantity

Chemical Reactions & Properties of Matter (Chemical Magic)

	Topic & Guiding Question	Michigan Science Standards (2015)	Science & Eng. Practices (SEPs)	Disciplinary Core Ideas (DCIs)	Crosscutting Concepts (CCCs)
Lesson 1 	**Conservation of Matter** Are magic potions real?	**Foundational for 5-PS1-1.** Develop a model to describe that matter is made of particles too small to be seen. **5-PS1-2.** Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved.	Planning and Carrying Out Investigations Constructing Explanations and Designing Solutions	**PS1.A**: Structure and Properties of Matter **PS1.B:** Chemical Reactions	Cause and Effect Scale, Proportion, and Quantity
Lesson 2 	**Dissolving & Particulate Nature of Matter** Could you transform something worthless into gold?	**Foundational for 5-PS1-1.** Develop a model to describe that matter is made of particles too small to be seen. **5-PS1-2.** Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved.	Planning and Carrying Out Investigations Using Mathematics and Computational Thinking	**PS1.A**: Structure and Properties of Matter **PS1.B:** Chemical Reactions	Energy and Matter Scale, Proportion, and Quantity
Lesson 3 	**Properties of Matter: Acids** What would happen if you drank a glass of acid?	**5-PS1-3.** Make observations and measurements to identify materials based on their properties.	Planning and Carrying Out Investigations Analyzing and Interpreting Data	**PS1.A**: Structure and Properties of Matter	Cause and Effect
Lesson 4 	**Chemical Reactions** What do fireworks, rubber, and Silly Putty have in common?	**5-PS1-4.** Conduct an investigation to determine whether the mixing of two or more substances results in new substances.	Planning and Carrying Out Investigations Constructing Explanations and Designing Solutions	**PS1.B:** Chemical Reactions	Cause and Effect
Lesson 5 	**Gases & Particle Models** Why do some things explode?	**5-PS1-1.** Develop a model to describe that matter is made of particles too small to be seen.	Planning and Carrying Out Investigations Developing and Using Models	**PS1.A**: Structure and Properties of Matter	Scale, Proportion, and Quantity