**MothEd Supported Standards by State**

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Use the clickable links below to quickly navigate to applicable states and standards.

[NGSS](#_gl5f8r7uurii)

[Science and Engineering Practices](#_gcpmpmeebc9y)

[Disciplinary Core Ideas](#_dwpjeedibzqm)

[Crosscutting Concepts](#_394pc4boz6tl)

[Michigan](#_hdfj0fand9up)

[Kindergarten](#_dsamaadwsg8q)

[Grade 2](#_70790xfajg8m)

[Grade 3](#_frnpi9tukf7j)

[Grade 4](#_4ezn1ddo304q)

[Grade 5](#_jvu7rni8jeze)

[Grades 6-8](#_3wvmx0v3r3q4)

[Ohio](#_armg9gr0ctse)

[Grade 1](#_xkd5q3l1c734)

[Grade 2](#_jngtf3dod2pc)

[Grade 3](#_8xvzsa7gjxkk)

[Grade 4](#_6rkv7kduo24l)

[Grade 5](#_79nxgix83z8b)

[Grade 7](#_247vyprw3p1m)

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# NGSS

Link to state standards

## Science and Engineering Practices

1 Asking questions and defining problems

2 Developing and using models

3 Planning and carrying out investigations

4 Analyzing and interpreting data

6 Constructing explanations and design solutions

8 Obtaining, evaluating, and communicating information

## Disciplinary Core Ideas

LS2 Ecosystems: Interactions, Energy, and Dynamics

*MS-LS2-1, 4*

LS4 Biological Evolution: Unity and Diversity

*MS-LS4-4*

*HS-LS4-2, 4, 5*

ESS3 Earth and Human Activity

*MS-ESS3-3*

 ETS1 Earth and Human Activity

*MS-ESS3-3*

## Crosscutting Concepts

 1 Patterns

 2 Cause and Effect

 3 Scale, Proportion, and Quantity

 4 Systems and System Models

 6 Structure and Function

 7 Stability and Change

# Michigan

Academic Standards retrieved from [MI Department of Ed](https://www.michigan.gov/mde/services/academic-standards)

\*\*Meets requirements for local, regional, or Michigan specific context or examples in teaching and assessment.

## Kindergarten

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. \*\*

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.

## Grade 2

2-LS4-1 Make observations of plants and animals to compare the diversity of life in different habitats. \*\*

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.

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.

## Grade 3

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.

## Grade 4

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.

## Grade 5

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.

## Grades 6-8

MS-LS2-4 Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.

MS-ESS3-3 Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment. \*\*

MS-ESS3-4 Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth’s systems.

MS-ETS1-1 Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.

MS-ETS1-2 Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.

MS-ETS1-3 Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.

MS-ETS1-4 Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.

# Ohio

Academic Standards taken from [Ohio’s Learning Standards for Science](https://education.ohio.gov/Topics/Learning-in-Ohio/Science/Ohios-Learning-Standards-and-MC).

## Grade 1

1.LS.1 Living things have basic needs, which are met by obtaining materials from the physical environment.

1.LS.2 Living things survive only in environments that meet their needs.

## Grade 2

2.LS.1 Living things cause changes on Earth.

## Grade 3

3.LS.2 Individuals of the same kind of organism differ in their inherited traits. These differences give some individuals an advantage in surviving and/or reproducing.

3.LS.3 Plants and animals have life cycles that are part of their adaptations for survival in their natural environments.

## Grade 4

4.LS.1 Changes in an organism’s environment are sometimes beneficial to its survival and sometimes harmful.

## Grade 5

5.LS.1 Organisms perform a variety of roles in an ecosystem.

## Grade 7

7.LS.2 In any particular biome, the number, growth and survival of organisms and populations depend on biotic and abiotic factors.