



Cass County Conservation Board

Kindergarten-5th Grade Program List



Next Generation Science Standards

Welcome to the Cass County Conservation Kindergarten- 5th grade Curriculum revised to reflect the Next Generation Science Standards. Here you will find any in-school programs we offer and field trip options. Feel free to contact Lora Kanning at lkanning@casscoia.us or 712-769-2372/712-254-0105 (cell) with any questions. The Cass County Conservation Board is dedicated to wildlife habitat development, management and preservation. These goals are reached by purchasing land for wildlife, by improving habitat quality and by providing educational programs for the citizens of the county.

There is specific programs listed per grade and there is also a basic layout for all of the general classes CCCB offers across grades. We have put the programs in the best fit grade by the **Disciplinary Core Idea**, feel free to still ask for the program even though it might not be listed in your grade level. The general classes tie into the standards by utilizing several of the crosscutting concepts and science and engineering practices. If you don't see a class that meets your needs please contact a naturalist to see if we can customize a class for your classroom.

The programs listed are sponsored by the Cass County Conservation Board and are designed to actively involve your students. Call Lora Kanning at 712-769-2372 or e-mail lkanning@casscoia.us to schedule a program (Some require further advance notice)!

Grade Level

We have put the programs in the best fit grade by the **Disciplinary Core Idea**, feel free to still ask for this program even though it might not be listed in your grade level.

Legend/Key
 Program Name **If it is GREEN like this it can be taught outside!** (best fit grade)-
 Description, the **Disciplinary Core Idea**, and **Iowa CORE:**

- Each program will use many of the following Practices and Concepts.
- Science and Engineering Practices**
1. Asking questions (for science) and defining problems (for engineering)
 2. Developing and using models
 3. Planning and carrying out investigations
 4. Analyzing and interpreting data
 5. Using mathematics and computational thinking
 6. Constructing explanations (for science) and designing solutions (for engineering)
 7. Engaging in argument from evidence
 8. Obtaining, evaluating, and communicating information

- Crosscutting Concepts**
1. Patterns
 2. Cause and effect: Mechanism and explanation
 3. Scale, proportion, and quantity
 4. Systems and system models
 5. Energy and matter: Flows, cycles, and conservation
 6. Structure and function
 7. Stability and change



Additional Programs

General Classes for Science and Engineering Practices and Crosscutting Concepts

These general classes tie into the standards by utilizing several of the crosscutting concepts and science and engineering practices.

Kindergarten

Beaver Adaptations (K-3) March Only. Discover all about Nature's Engineers! This nocturnal animal is not only interesting but a picky eater!

ESS2.E Biogeology
 • Plants and animals can change their environment. (KESS2-2)
 Iowa CORE: Science, Science As Inquiry, Life Science

Ready to Recycle- (K) This program focuses on showing the class how simple it is to recycle and how they can become involved at home and in their school. By the end of this program they will know exactly what can and can't be recycled in Cass County and even how to spot recycled products while at the store!

ESS3.A Natural Resources
 • Living things need water, air, and resources from the land, and they live in places that have the things they need. Humans use natural resources for everything they do. (K-ESS3-1)
ESS3.C Human Impacts on Earths Systems
 • Things that people do to live comfortably can affect the world around them. But they can make choices that reduce their impacts on the land, water, air, and other living things. (K-ESS3-3)
 Iowa CORE: Science, Life Science Essential Concept and/or Skill: Understand and apply knowledge of ways to help take care of the environment.

Seasons Safari- (K) Outdoor hike. We will discover all what is changing around us! In fall- human, plant, and animal change are the main topics of the hike. Spring focuses on plants and animals. Your students will not look at your schoolyard the same!

ESS2.E Biogeology
 • Plants and animals can change their environment. (KESS2-2)
LS1.C Organization for Matter and Energy Flow in Organisms
 •All animals need food in order to live and grow. They obtain their food from plants or from other animals. Plants need water and light to live and grow. (K-LS1-1)

4 R's of Recycling - (1-3) In depth learning about recycling and challenge the classroom to a game of Trash or Treasure!

ESS3.C Human Impact on Earth Systems
 Things that people do to live comfortably can affect the world around them. But they can make choices that reduce their impacts on the land, water, air, and other living things. (K-ESS3-3) (secondary to K-ESS2-2)



Gobble, Gobble- (K) November Only. Is this the only sound that turkey's make? Not by far! We will be demonstrating turkey calls, optional craft: for your students to make their very own turkey caller craft. A TV/DVD will be needed for a short introductory video.

Iowa CORE: Science, Science As Inquiry
 _ Ask questions about objects, organisms, and events in the environment
 Life Science
 _ Apply and understand the basic needs of plants.

Feathers for Lunch- (K) The book, Feathers for Lunch uses colors and feathers to match with the birds in the story. We will also use the colors, shapes and feathers in a matching/puzzle game.

1st Grade

Frog n Toad- (1-3) Expand on the life cycle of a frog with learning how to identify them! The focus will be learning about Cass County Frogs and Toads. This program can also integrate tadpole identification.

LS1.A Structure and Function

All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water and air. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow. (1-LS1-1)

LS3.A: Inheritance of Traits

LS3.B: Variation of Traits

Iowa CORE: Life Science,

Essential Concept and/or Skill: Understand and apply knowledge of life cycles of plants and animals.

In a Nutshell- (1-2) We'll read the story In a Nutshell, discuss the job of a seed, and do seed sorting and seed math in groups!

LS2.A Interdependent Relationships in Ecosystems

• Plants depend on water and light to grow. (2-LS2-1)

• Plants depend on animals for pollination or to move their seeds around. (2-LS2-2)

Iowa CORE: Mathematics, Science, Science as Inquiry

Classify objects and count the number of objects in each category

Operations and Algebraic Thinking

Owls (1-3) January – February Only. Iowa's first bird species to nest, kicks off the new year right!

LS1.A Structure and Function

All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water and air. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow. (1-LS1-1)

Iowa CORE: Science, Science As Inquiry, Life Science



Monarch Magic- (K-3) September Only.

Your students will get to know the Monarch Butterfly up close and personal during this program. We will tag some Monarchs with special sticky tags (to aid in research), learn about their migration, and we'll watch a video to learn about the Monarch's life cycle and habitat requirements. Iowa CORE: Science, Science as Inquiry, Life Science

Nature's Yucky- (K-2) The book, Nature's Yucky! uses kids' natural fascination with the stinky, the gross, and the icky to help them learn more about wild animals and why critters behave as they do. Props will be brought as an addition to this program. Iowa CORE: Science, Science As Inquiry

2nd Grade

Discover the Rainforest- (1-5) Discover the rainforest ecosystem and products. students will work together to build a rainforest food chain, and food webs discussed. Desks may need to be moved for this activity.

LS2.A Interdependent Relationships in Ecosystems

The food of almost any kind of animal can be traced back to plants. Organisms are related in food webs in which some animals eat plants for food and other animals eat the animals that eat plants. Some organisms, such as fungi and bacteria, break down dead organisms (both plants or plants parts and animals) and therefore operate as "decomposers." Decomposition eventually restores (recycles) some materials back to the soil. Organisms can survive only in environments in which their particular needs are met. A healthy ecosystem is one in which multiple species of different types are each able to meet their needs in a relatively stable web of life. Newly introduced species can damage the balance of an ecosystem. (5-LS2-1)

Iowa CORE: Science, Life Science

Essential Concept and/or Skill: Understand and apply knowledge of the basic needs of plants and animals and how they interact with each other and their physical environment.

Inflatable Greenhouses- (2) Students will learn what plants need to survive as they build their own greenhouses (made from inflatable, clear latex balloons). The greenhouses will be left in the classroom for your viewing.

LS2.A Interdependent Relationships in Ecosystems

• Plants depend on water and light to grow. (2-LS2-1)

• Plants depend on animals for pollination or to move their seeds around. (2-LS2-2)

Pollutions & Solutions- (2-3) I will bring my 3-D model of a watershed complete with houses, industries, golf courses, etc. as your students get a very basic introduction of water pollution, and most importantly, learn ways to prevent pollution. This is a great hands-on activity that will involve all of the children.

ESS2.A: Earth Materials and Systems

ESS3.C Human Impact on Earth Systems

Things that people do to live comfortably can affect the world around them. But they can make choices



Mammals R' Us- (K-3) Using seven different props and student assistants, your classroom will quickly learn what makes a mammal unique from other critters...and they won't soon forget! Iowa CORE: Science, Science As Inquiry

Batty for Bats- (1-3) October Only. Your students will have fun learning facts about bats and will leave with a new appreciation for the often misunderstood bat. A TV/VCR will be needed for a short video. Iowa CORE: Science, Science As Inquiry

Monarch Migration (1-3) Outdoor-September Only We will begin by reviewing the monarch life cycle. The class will then get to become monarchs as they face migration hazards on their way to Mexico. A great review and fun game! (Space needed to play the game)

2nd & 3rd Grade

Pollutions & Solutions- (2-3)- that reduce their impacts on the land, water, air, and other living things. (K-ESS3-3) (secondary to K-ESS2-2)

ETS1.B Developing Possible Solutions

Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem's solutions to other people. (K-2-ETS1-1) (secondary to K-ESS3-3) (secondary to 2-LS2-2)

Roving Habitats- (2-5) Discover the North American ecosystems and animals. Students will work on building their given ecosystem.

LS4.D Biodiversity and Humans

There are many different kinds of living things in any area, and they exist in different places on land and in water.

Iowa CORE: Science, Life Science

Essential Concept and/or Skill: Understand and apply knowledge of the basic needs of plants and animals and how they interact with each other and their physical environment.

Seeds- (2-5) Fall is a great time to learn about seeds and nuts. We'll look at different types of seeds and nuts, and play the game Maple Seed Mix-Up. (Space needed to play the game)

LS1.A Structure and Function

All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water and air. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow. (1-LS1-1)

LS2.A Interdependent Relationships in Ecosystems

- Plants depend on water and light to grow. (2-LS2-1)
- Plants depend on animals for pollination or to move their seeds around. (2-LS2-2)

LS1.C: Organization for Matter and Energy Flow in Organisms

PS3.D: Energy in Chemical Processes and Everyday Life



Trumpeter Swans- (1st-3rd) Students will participate in a discussion of the life history of trumpeter swans and the history of their populations in North America, and Iowa in particular. January- optional field trip to Atlantic Schildberg Rec. Area to see the swans. Iowa CORE: Science, Life Science LS4.D: Biodiversity and Humans

Classifying Animals- (2-3)

Introduction to the animal classification system. Discussion includes mammals, birds, reptiles, amphibian, insects and fish.

Recycle Magic!- (2-3) After learning facts about deforestation, we will make our very own recycled paper! Iowa Core: Science, Science as Inquiry, Life Science

3rd -5th Grade

Adaptations of our Feathered Friends- (1-3) Why aren't all bird beaks shaped the same? The answer will be obvious, as the students become different birds and try to eat their favorite foods using another bird's beak

LS1.A Structure and Function

All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water and air. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow. (1-LS1-1)

LS4.C Adaptation

For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all. (3-LS4-3)

Iowa CORE: Science, Science As Inquiry, Life Science

Animals Need Food, Water, Shelter and Space (3-5)- During this activity we will define a habitat, predator, prey, and the basic needs of animals. We will follow the discussion with an outdoor (or gym) activity that will allow your students to become animals in search of food and safety in the game of Oh Deer. Will all of the students survive? Why or why not?

4-LS1-1. Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.

LS2.A Interdependent Relationships in Ecosystems

The food of almost any kind of animal can be traced back to plants. Organisms are related in food webs in which some animals eat plants for food and other animals eat the animals that eat plants. Some organisms, such as fungi and bacteria, break down dead organisms (both plants or plants parts and animals) and therefore operate as "decomposers." Decomposition eventually restores (recycles) some materials back to the soil. Organisms can survive only in environments in which their particular needs are met. A healthy ecosystem is one in which multiple species of different types are each able to meet their needs in a relatively stable web of life. Newly introduced species can damage the balance of an ecosystem. (5-LS2-1)



Leaf ID (3-5th)- With real examples students will learn how to key out leaves to identify the tree species, including evergreen trees.

Mending the Majestic Bald Eagle (3-5) – Can we see as good as an eagle? We'll find out! Plus learn about food chains, migration, and some eagle math. Optional DVD video, game, and field trip opportunity! LS4.B: Natural Selection

Vertebrate Animals- (3-5th)Are snakes vertebrates? Most students will be surprised to see the snake skeleton and that they actually do have a lot of bones! After discussing other creatures that have backbones the class will end up playing the Vertebrate Grab game to help review the lesson.

3rd -5th Grade

Cloudy Skies- (3-5) Discover types of clouds and how they can be used to predict the weather. Clouds part in the water cycle will be discussed.

ESS2.D Weather and Climate

Scientists record patterns of the weather across different times and areas so that they can make predictions about what kind of weather might happen next.

Iowa CORE: Science, Life Science

Essential Concept and/or Skill: Understand and apply knowledge of weather and weather patterns.

Oh Deer- ESS2.E: Biogeology LS1.C: Organization for Matter and Energy Flow in Organisms **LS2.C**

Ecosystem Dynamics, Functioning, and Resilience

When the environment changes in ways that affect a place's physical characteristics, temperature, or availability of resources, some organisms survive and reproduce, others move to new locations, yet others move into the transformed environment, and some die. (secondary to 3-LS4-4)

Iowa CORE: Science, life science Essential Concept and/or Skill: Understand and apply knowledge of organisms and their environments, including:

- Structures, characteristics, and adaptations of organisms that allow them to function and survive within their habitats.
- How individual organisms are influenced by internal and external factors.
- The relationships among living and non-living factors in terrestrial and aquatic ecosystems.

Grady's Garden- (2-3) Students will perform a melodrama called Grady's Garden. In Grady's Garden, "bad" insects and animals destroy garden plants, while "hero" insects and animals help the plants. Other roles in the play include flowers, Grady the Gardener and the producer. The whole class will feel important as they actively learn about the relationships between plants and animals.

LS2.A: Interdependent Relationships in Ecosystems

LS1.B Growth and Development of Organisms- Reproduction is essential to the continued existence of every kind of organism. Plants and animals have unique and diverse life cycles. (3-LS1-1)

Iowa CORE: Science, Life Science

Essential Concept and/or Skill: Understand and apply knowledge of the basic needs of plants and animals and how they interact with each other and their physical environment.

Groundwater Flow Model (3-5) - Using a flow model, we will dive into Iowa's underground structures including groundwater. This active lesson will help your students better understand water movement below the surface. Please pre-schedule, flow model is NOT housed in Cass County.

ESS2.C The Roles of Water in Earth's Surface Processes

Iowa Core: Science Earth and Space Essential Concept and/or Skill: Understand and apply knowledge of the water cycle, including consideration of events that impact groundwater quality.



3rd -5th Grade

Everything must go somewhere!- (3-5) Life of a hamburger is the example used to explain everything must go somewhere! Consumerism, packaging, energy, and farming are just a couple topics we touch on.

ESS3.A Natural Resources

Energy and fuels that humans use are derived from natural sources, and their use affects the environment in multiple ways. Some resources are renewable over time, and others are not. (4-ESS3-1)

Metamorphosis Surprise- (3) Did you know that a ladybug and dragonflies goes through metamorphosis?

Ladybugs, dragonflies and other unexpected insects will be shown and discussed as students and teachers alike will be surprised to learn about metamorphosis of animals other than frogs and butterflies!

LS1.B Growth and Development of Organisms

Reproduction is essential to the continued existence of every kind of organism. Plants and animals have unique and diverse life cycles. (3-LS1-1) Iowa CORE: Science, Science As Inquiry, Life Science

Paper VS Plastic Bags (3-5) A great topic for your class to investigate, and then include my program. We will learn about some major differences and how to become better consumers by learning some symbols that are on products.

ESS3.A Natural Resources

Energy and fuels that humans use are derived from natural sources, and their use affects the environment in multiple ways. Some resources are renewable over time, and others are not. (4-ESS3-1)

Iowa CORE: Science, life science Essential Concept and/or Skill: Understand and apply knowledge of environmental stewardship.

Plant Basics- (2-5) Two students will be chosen to become "Chloro" and "Phyll" as they help us learn what gives plants their green color and how they make their own food. We can then move on to discuss how plants disperse seeds to ensure their survival.

LS1.A Structure and Function

All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water and air. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow. (1-LS1-1)

Plants and animals have both internal and external structures that serve various functions in growth, survival, behavior, and reproduction. (4-LS1-1)

PS3.D Energy in Chemical Processes and Everyday Life

The energy released [from] food was once energy from the sun that was captured by plants in the chemical process that forms plant matter (from air and water). (5-PS3-1)

ESS3.C Human Impact on Earth Systems

Human activities in agriculture, industry, and everyday life have had major effects on the land, vegetation, streams, ocean, air, and even outer



space. But individuals and communities are doing things to help protect Earth’s resources and environments. (5-ESS3-1)

Rock It- (3-5)- Focus on rocks, minerals and fossils and where they come from.

ESS1.C The history of the planet earth

Certain features on Earth can be used to order events that have occurred in a landscape.

The Solar System and Beyond- (3-5)-My nine inflatable planets will allow your students to visualize the major size difference of the planets! We can move outside or large space to look at the distance between planets and discuss rotation and revolution. Students won’t soon forget this hands-on lesson!

ESS1.B Earth and the Solar System The solar system consists of the sun and a collection of objects, including planets, their moons, and asteroids that are held in orbit around the sun by its gravitational pull on them.

Iowa CORE: Science, Earth and Space,

Essential Concept and/or Skill: Understand and apply knowledge of the properties, movements, and locations of objects in our solar system.

Star ID- (3-5th) Learn about constellations, focused on star size, and tailored to the month of your program.

ESS1.A The Universe and Its Stars

Patterns of the apparent motion of the sun, the moon, and stars in the sky can be observed, described, predicted, and explained with models.

The Long Haul field trip option (K-5) After the students calculates how many gallons of water they use in a day we will discuss why so much more water is being used today than long ago. Then, they will get a chance to take a turn at hauling their own water. This activity will definitely make them stop and think!

ESS3.A Natural Resources

• Living things need water, air, and resources from the land, and they live in places that have the things they need. Humans use natural resources for everything they do. (K-ESS3-1)

The Lunch Box- (3) April Only. Two ‘picnic lunches’ will be brought to your classroom and your students will be guided through a comparison of the amount of trash each one produces. The program encourages students to make wise choices when selecting foods for their lunches, a great program before the field trip season!

ESS3.C Human Impact on Earth Systems

Human activities in agriculture, industry, and everyday life have had major effects on the land, vegetation, streams, ocean, air, and even outer space. But individuals and communities are doing things to help protect Earth’s resources and environments. (5-ESS3-1)

Iowa CORE: Science, Science as Inquiry, Mathematics- Use mathematics in scientific inquiry

Water Vapor and Water Cycle- (3-5)- during these activity students will become water molecules, and walk their way through the water cycle. After defining terms such as water vapor, condensation, etc. students will again travel through the water cycle, grabbing a partner when they represent a water droplet and will travel alone as water vapor. This active lesson will help your students better understand water vapor and precipitation (large space to play is needed.)

ESS2.C The Roles of Water in Earth’s Surface Processes

Iowa Core: Science Earth and Space Essential Concept and/or Skill: Understand and apply knowledge of the water cycle, including consideration of events

that impact groundwater quality.

Web of Life- (2-5) After the story Pass the Energy, Please!, students will work together to build a food chain, and food webs discussed. Desks may need to be moved for this activity.

4-LS1-1. Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.

LS2.A Interdependent Relationships in Ecosystems

The food of almost any kind of animal can be traced back to plants. Organisms are related in food webs in which some animals eat plants for food and other animals eat the animals that eat plants. Some organisms, such as fungi and bacteria, break down dead organisms (both plants or plants parts and animals) and therefore operate as “decomposers.” Decomposition eventually restores (recycles) some materials back to the soil. Organisms can survive only in environments in which their particular needs are met. A healthy ecosystem is one in which multiple species of different types are each able to meet their needs in a relatively stable web of life. Newly introduced species can damage the balance of an ecosystem. (5-LS2-1)

Iowa CORE: Science, Life Science

Essential Concept and/or Skill: Understand and apply knowledge of the basic needs of plants and animals and how they interact with each other and their physical environment.

What is a Box Turtle? (3) We’ll learn all about land turtles by reading the book Box Turtle at Long Pond. The focus of this program is adaptations of Iowa’s Turtles. Live turtle in session with school’s permission.

LS4.C Adaptation

For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all. (3-LS4-3)

Winter Adaptations- (3) We will read Who lives in the Snow. In depth discussion on animal survival including a fun way to remember the animal’s strategies for surviving winter!

LS4.C Adaptation

For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all. (3-LS4-3)

Iowa CORE: Science, Life Science

Essential Concept and/or Skill: Understand and apply knowledge of the basic needs of plants and animals and how they interact with each other and their physical environment.

Ecofootprint (5th)- Use the book, Material World, to show pictures of what a typical family owns in 3-4 countries including the United States. Have students generate questions about environmental impacts that different countries are having on the earth. Students complete the Ecological Footprint Calculator. The calculator worksheet includes questions on: transportation, water use, clothing, entertainment, food, and school. Each answer is assigned a point value and students calculate their total usage number.

5-ESS3-1. Obtain and combine information about ways individual communities use science ideas to protect the Earth’s resources and environment.

ESS3.C Human activities in ag, industry, and everyday life have major effects on the land, vegetation, streams, ocean, air, and even outer space. But individuals and communities are doing things to help protect the earth’s resources and environments.

IOWATER. (5th) 1) I can do a classroom program showing and discussing the macro invertebrates that I have collected from Cass County streams. Your students will enjoy viewing them up close and can try to identify them as well. In conclusion, they will learn what these creatures can tell us about the water quality of the stream. OR 2) Your class can join me in a stream as we look at the stream habitat, look for water critters, complete simple chemical tests, etc. How much you want to do is up to you. (Four weeks advance notice please)

5-LS2-1. Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment. [Clarification Statement: Emphasis is on the idea that matter that is not food (air, water, decomposed materials in soil) is changed by plants into matter that is food. Examples of systems could include organisms, ecosystems, and the Earth.] [Assessment Boundary: Assessment does not include molecular explanations.]

5-PS3-1. Use models to describe that that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun. [Clarification Statement: Examples of models could include diagrams, and flow charts.]

Stream Table (5th- at Conservation Day)

With the use of the stream table as our model to demonstrate and explain erosion.

4-ESS2.A: Earth Materials and Systems

Water breaks rocks, soils and sediments into smaller particles and move them around.