

## **Ecosystems & Biodiversity Unit - Web Module Descriptions**

Developed by Michigan Technological University and the Western Upper Peninsula Center for Science, Mathematics & Environmental Education ([http://tecalive.mtu.edu/meec\\_index.htm](http://tecalive.mtu.edu/meec_index.htm))

### **1. Great Lakes Ecosystem**

The five Great Lakes represent the largest surface freshwater system in the world. They contain enough liquid to cover the entire United States with 7 feet of water! The State of Michigan alone has 3,300 miles of shoreline. Over 33 million people live within the Great Lakes watershed. Within this module learn how the Great Lakes were created, how water flows between the lakes, and see the Great Lakes food web come alive with animations and movies! Supports Ecosystems & Biodiversity Unit lessons 1-6, 8 and 9; and Water Quality Unit Lesson 9.

### **2. Coastal Dunes Ecosystem**

Did you know that the Great Lakes are home to the largest collection of freshwater dunes in the world? Or, that Michigan, with 275,000 acres of coastal sand dunes, is home to more freshwater dunes than any other state? This fragile ecosystem offers habitat to a wide variety of plants and animals, some of which are threatened or endangered. In this module, learn about how coastal dunes are formed, the different life zones of coastal dunes, where they are located in Michigan, some of the plants and animals that live in them, and how we can help take care of them. Supports Ecosystems & Biodiversity Unit lessons 1, 4, 5, 6, 8, 9 and 10.

### **3. River and Stream Ecosystems**

Michigan has more than 35,000 miles of rivers and streams. Together with our lakes and groundwater, Michigan has abundant freshwater for farming, industry, recreation, and home use. The waterways also provide habitat for wildlife, including sport and commercial fish. Explore how streams and rivers are formed, and the fish and wildlife that depend on them. Then, learn about Michigan's largest fish, the Lake Sturgeon, why it is threatened, and what can be done to help protect it. Supports Ecosystems & Biodiversity Unit lessons 1, 8 and 10; and Water Quality Unit Lesson 7.

### **4. Forest Ecosystem**

Michigan has over 19.3 million acres of forests covering more than half the land area of the state, mostly in the Upper Peninsula and northern Lower Peninsula. Four main types of forests found in Michigan include northern hardwoods, jack pine, oak-hickory, and boreal forests. These forests provide habitat to a diversity of plants and wildlife, including more than 75 different types of trees. In this module, learn how forests first grew (primary succession), where they are found in Michigan, about the different kinds of forests, and some of the many ways forests are important to people. Supports Ecosystems & Biodiversity Unit lessons 1,2,4,5,6,8,9 and 10.

### **5. Wetland Ecosystem**

Wetlands are areas where soil is wet or soaked with water for at least part of the year, supporting a variety of plants and wildlife that are adapted to live in water or wet conditions. Unfortunately, over the past 200 years more than half of Michigan's wetlands have been destroyed by filling or draining them to provide land for farming, development, or to get rid of mosquitoes. Today, people recognize the importance of wetlands for the services they provide, including flood and erosion control, water purification, and habitat for wildlife. In this module, learn about the types of wetlands, where they are found in Michigan, what lives in them, and why they are so important. Supports Ecosystems & Biodiversity Unit lessons 1, 4, 6 and 8; and Water Quality Unit Lesson 3, 4 and 7.

## **6. Schoolyard and Urban Ecosystems (Introduction to Ecosystems)**

When you think of an ecosystem, you may think of forests where you go hiking or camping. But did you know that your own schoolyard has all of the things required to be an ecosystem? A community of living things (plants, animals, insects, fungi, and bacteria) along with non-living things (sunlight, clouds, soil, water, rocks) make up an ecosystem, and can be found in your schoolyard. Take on the role of an ecologist to learn about the producers, consumers, and decomposers within ecosystems, and the natural processes (water cycle, photosynthesis, and decomposition) that support life within them. Supports Ecosystems & Biodiversity Unit lessons 1, 2 and 3.

### **Credits**

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Ecosystems – River and Stream Ecosystems

Ecosystems – The Great Lakes Ecosystem

Ecosystems – Coastal Dune Ecosystem

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Ecosystems – Wetland Ecosystems

Ecosystems – Schoolyard and Urban Ecosystems

Ecosystems – Forest Ecosystem

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