



# Stubnitz Environmental Education Center

## Environmental Science Programs

### SEEC Student Program Curriculum Alignment with State Standards

Lenawee Intermediate School District Stubnitz Environmental Education Center (SEEC) offers Environmental Science Programs for Lenawee County students. Designed in accordance with Michigan Science Grade Level Content Expectations (GLCEs) for grades K-7, and the secondary Science High School Content Expectations (HSCEs), these programs use a variety of inquiry activities, simulations, and hands-on experiences with the natural environment. Environmental education is presented in an interdisciplinary format of age-appropriate programs. For further information about the Michigan K-7 Science GLCEs, please go to the Michigan Department of Education website at [Michigan.gov/mde](http://Michigan.gov/mde).

## Student Programs for Sixth through Eighth Grades

Standard SEEC program normally lasts 3.25 hours, however, it may be adjusted for school scheduling needs.

### Connecting Ecosystems and Biodiversity - Sixth Grade

Aligned with the new sixth grade State Science Grade Level Content Expectations in Ecosystems, this program explores the interdependence of the variety of populations, communities and ecosystems of the Great Lakes region. Students will participate in lessons using inquiry activities, simulations, and hands-on, minds-on activities in the outdoors to investigate the rich diversity of life in our region, using an orienteering compass to complete the Ecology Challenge course. A lesson on the interrelationships of species in food webs will lead to a food chain simulation. During the Ecologist's Exploration Trail Hike, students will discover ecosystems, food webs, and biodiversity in Heritage Park.



- S.IP.06.11 Generate scientific questions based on observations, investigations, and research.
- S.IP.06.13 Use tools and equipment (spring scales, stop watches, meter sticks and tapes, models, hand lens, thermometer, models, sieves, microscopes) appropriate to scientific investigations.
- S.IP.06.15 Construct charts and graphs from data and observations.
- L.OL.06.51 Classify organisms (producers, consumers, and decomposers) based on their source of energy for growth and development.
- L.OL.06.52 Distinguish between the ways in which consumers and decomposers obtain energy.
- L.EC.06.11 List examples of populations, communities, and ecosystems including the Great Lakes region.
- L.EC.06.21 Describe common patterns of relationships between and among populations (competition, parasitism, symbiosis, predator/prey).
- L.EC.06.23 Predict how changes in one population might affect other populations based upon their relationships in the food web.

## The Big Blue Hydrosphere - Seventh Grade



Focusing on the seventh grade State Earth Science Grade Level Content Expectations on the water cycle, this program will lead students to experience inquiry and hands-on learning. A presentation on the Water Flow Model will illustrate the flow of water between components of a watershed, including surface features and groundwater. Students will demonstrate the relationship between the warming by the sun of the Earth and its effects on the water cycle. On the Walking the Water Cycle Trail Hike, students will use inquiry process skills to record data about water in the hydrosphere and in the River Raisin watershed.

- S.IP.07.11 Generate scientific questions based on observations, investigations, and research.
- S.IP.07.13 Use tools and equipment (spring scales, stop watches, meter sticks and tapes, models, hand lens, thermometer, models, sieves, microscopes, hot plates, pH meters) appropriate to scientific investigations.
- S.IP.07.14 Use metric measurement devices in an investigation.
- S.IP.07.15 Construct charts and graphs from data and observations.
- S.IP.07.16 Identify patterns in data.
- S.RS.07.17 Describe the effect humans and other organisms have on the balance of the natural world.
- E.ES.07.11 Demonstrate, using a model or drawing, the relationship between the warming by the sun of the Earth and the water cycle as it applies to the atmosphere (evaporation, water vapor, warm air rising, cooling, condensation, clouds).
- E.ES.07.81 Explain the water cycle and describe how evaporation, transpiration, condensation, cloud formation, precipitation, infiltration, surface runoff, ground water, and absorption occur within the cycle.
- E.ES.07.82 Analyze the flow of water between the components of a watershed, including surface features (lakes, streams, rivers, wetlands) and groundwater.

## Energy Resources - Eighth Grade

Aligned with the State High School Content Expectations for Earth Science, the Energy Resources investigation program will combine experiences and learning about the carbon cycle, the greenhouse effect, climate change, and renewable and non-renewable energy sources. This all-new program will incorporate the inquiry process, student participation, simulations, and hands-on learning to give students a clearer understanding of those concepts. Students will become Earth Systems Scientists as they ask questions, perform environmental data collection and make observations on an Energy Transfer Trail Hike.



- E1.1C Conduct scientific investigations using appropriate tools and techniques (e.g., selecting an instrument that measures the desired quantity—length, volume, weight, time interval, temperature—with the appropriate level of precision).
- E2.2B Identify differences in the origin and use of renewable (e.g., solar, wind, water, biomass) and nonrenewable (e.g., fossil fuels, nuclear [U-235]) sources of energy.
- E2.3A Explain how carbon exists in different forms such as limestone (rock), carbon dioxide (gas), carbonic acid (water), and animals (life) within Earth systems and how those forms can be beneficial or harmful to humans.
- E2.3d Explain how carbon moves through the Earth system (including the geosphere) and how it may benefit (e.g., improve soils for agriculture) or harm (e.g., act as a pollutant) society.
- E2.4A Describe renewable and nonrenewable sources of energy for human consumption (electricity, fuels), compare their effects on the environment, and include overall costs and benefits.

E2.4B Explain how the impact of human activities on the environment (e.g., deforestation, air pollution, coral reef destruction) can be understood through the analysis of interactions between the four Earth systems.

E2.4d Describe the life cycle of a product, including the resources, production, packaging, transportation, disposal, and pollution.

## Telephone Registration Procedures

▶ ▶ ▶ Registration begins Monday, June 2<sup>nd</sup> for the 2008-2009 School Year! ◀ ◀ ◀

The Stubnitz Environmental Education Center Environmental Science Programs run Tuesday through Friday from Tuesday, September 16, 2008 through Friday, May 29, 2009. Programs are scheduled from 10:00 a.m. - 1:15 p.m., but may be adjusted to suit your school schedule. Program fees are \$3.00 per student. To register for sessions during the 2008-2009 school year, call Pam Bunch at Stubnitz Center, 265-6691, between 8:00 a.m. and 4:30 p.m. or leave a voice mail message and your call will be returned as soon as possible.

**When making reservations, please be ready with the following information:**

- ✓ Date preference
- ✓ Grade level and program
- ✓ Number of students who will attend
- ✓ School name and district
- ✓ Special needs and requests

After telephone assurance from you that transportation has been arranged for that date, you will be sent a Confirmation Form to be returned to SEEC, securing your reservation. You will also receive a letter explaining more about your Environmental Science Program, a parent information letter, and a pre-trip lesson plan, along with blank name cards, to prepare your students for their day here. We look forward to having your class visit us at Stubnitz Environmental Education Center!

**Thank you to the Maurice and Dorothy Stubnitz Foundation, whose grant support makes it possible to keep student fees at a low \$3.00 per person!**

M Be sure to visit the SEEC Website: [seec.lisd.us](http://seec.lisd.us) M

