

Discover: What's in Your Watershed? (Grades 3-8)

Program Description:

Students will learn to examine exhibit space and specimen to learn about the Grand River Watershed and some of the special species that call this place home. We will focus on the distinction between native and invasive species as well as the issues facing threatened and endangered species in the region, namely threatened wild rice and lake sturgeon and endangered snuffbox mussels.

What content standards align with this program?

NGSS Performance Expectations: ETS1. Engineering Design, LS1. From Molecules to Organisms: Structures and Processes, LS4.. Unity and Diversity, ESS2. Earth's Systems, ESS3. Earth and Human Activity

NGSS Science & Engineering Practices Asking Questions and Defining Problems, Constructing Explanations and Designing Solutions, Obtaining, Evaluating, and Communicating Information.

Michigan K-12 Social Studies Standards: G2 Places and Regions, G3 Physical Systems, G5 Environment and Society, P1 Reading and Communication, P2 Inquiry Research and Analysis

Museum Program Strand(s):

- *Cultivate a community of empathetic contributors who value diversity*
- *Empower individuals to use observations and inquiry to understand arguments and design creative solutions*

This program is aligned with the following Museum Learner Outcomes:

Holders of Foundational Knowledge	Masters of Fundamental Literacies	Original Thinkers for an Uncertain World	Generous Collaborators for Tough Problems	Learners For Life
X	X	X	X	X

What will students know and be able to do after completing this program?

- Learners will be able to define a watershed and describe the interconnections of species within a watershed, including how native and invasive species interact and impact each other.
- Learners will be able to identify examples of risks organisms face in their environments, as well as possible reasons that species become threatened and how human actions play a role.
- Learners will propose solutions to mitigate the risks against threatened and endangered species.

What questions will students answer?

- What is a watershed? How does water move through a watershed?
- What organisms live in our watershed that we need to help protect?
- What is the difference between native and invasive species?
- What does it mean for a species to be threatened? Endangered?
- How do certain species become threatened or endangered?
- What is already being done to restore populations of threatened and endangered species? Further, how might we help protect them?

Key Vocabulary

Watershed
Runoff
Pollution
Native vs. Invasive Species
Extinct
Endangered
Threatened
Restoration

Materials List and Setup:

Grand River and Great Lakes Watershed maps
Sturgeon scute
Wild rice specimen
Snuffbox mussel shells
Student handout

Program Activities: 60 minutes

1. Introduction: Set expectations and discuss program objectives
2. Instructor leads discussion to draw out student conceptions about program content
 - a. Scientific observation, watershed definition, native vs. invasive species, threatened and endangered species
3. Student inquiry in Wetland habitat:
 - a. Students will be prompted to observe and read about potential causes that might lead swamp organisms to become threatened or endangered. They will use observations of the habitat, the text, and their critical thinking skills.
 - b. Instructor gathers responses, introduces threatened wild rice and discusses efforts being done to restore populations.
4. Student inquiry in lake habitat: Students will be prompted to look for evidence of damage that might be happening to aquatic lake species.
 - a. Instructor gathers responses, introduces endangered snuffbox mussels and discusses efforts being done to restore populations.
5. Student inquiry in Grand Fish, Grand River exhibit.
 - a. Instructor introduces threatened Lake Sturgeon, directs students to gather information on worksheet from exhibit.
 - b. Instructor gathers responses and discusses efforts being done to restore populations.
6. Takeaway Message/Wrap up: Focus on action items; what can we do to protect these threatened and endangered species?