Museum of Cultural and Natural History
Inspiring curiosity • imagination • memory

Education Standards for Museum Programs
High School

Great Lakes

S.IP.E.1 Inquiry involves generating questions, conducting investigations, and developing solutions to problems through reasoning and observation.
S.IA.E.1 Inquiry includes an analysis and presentation of findings that lead to future questions, research, and investigations.
S.RS.E.1 Reflecting on knowledge is the application of scientific knowledge to new and different situations. Reflecting on knowledge requires careful analysis of evidence that guides decision making and the application of science throughout history and within society.
ESS3.C: Human Impacts on Earth Systems—The sustainability of human societies and the biodiversity that supports them requires responsible management of natural resources.

- **HS-ESS3-1** Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.
- **HS-ESS3-2** Science and technology may raise ethical issues for which science, by itself, does not provide answers and solutions.
- **HS-ESS3-2** Science knowledge indicates what can happen in natural systems—not what should happen. The latter involves ethics, values, and human decisions about the use of knowledge.
- **HS-ESS3-2** Analysis of costs and benefits is a critical aspect of decisions about technology.
- **HS-ESS3-2** Many decisions are not made using science alone, but rely on social and cultural contexts to resolve issues.
- **HS-ESS3-3** New technologies can have deep impacts on society and the environment, including some that were not anticipated.

ETS1.B: Developing Possible Solutions—When evaluating solutions, it is important to take into account a range of constraints, including cost, safety, reliability, and aesthetics, and to consider social, cultural, and environmental impacts.
ETS1.B: Developing Possible Solutions—Scientists and engineers can make major contributions by developing technologies that produce less pollution and waste and that preclude ecosystem degradation.
ETS1.C: Optimizing the Design Solution—Criteria may need to be broken down into simpler ones that can be approached systematically, and decisions about the priority of certain criteria over others (trade-offs) may be needed.
LS2.C: Ecosystem Dynamics, Functioning, and Resilience—A complex set of interactions within an ecosystem can keep its numbers and types of organisms relatively constant over long periods of time under stable conditions. If a modest biological or physical disturbance to an ecosystem occurs, it may return to its more or less original status (i.e., the ecosystem is resilient), as opposed to becoming a very different ecosystem. Extreme fluctuations in conditions or the size of any population, however, can challenge the functioning of ecosystems in terms of resources and habitat availability.
LS2.C: Ecosystem Dynamics, Functioning, and Resilience—Moreover anthropogenic changes (induced by human activity) in the environment—including habitat destruction, pollution, introduction of invasive species, overexploitation, and climate change—can disrupt an ecosystem and threaten the survival of some species.
LS2.C: Ecosystem Dynamics, Functioning, and Resilience—thus sustaining biodiversity so that ecosystem functioning and productivity are maintained is essential to supporting and enhancing life on Earth. Sustaining biodiversity also aids humanity by preserving landscapes of recreational or inspirational value.

- **HS-LS2-6; HS-LS2-7** Much of science deals with constructing explanations of how things change and how they remain stable.
- **HS-LS2-8** Evaluate the evidence for the role of group behavior on individual and species' chances to survive and reproduce.

LS4.C: Adaptation—Changes in the physical environment, whether naturally occurring or human induced, have thus contributed to the expansion of some species, the emergence of new distinct species as populations diverge under different conditions, and the decline—and sometimes the extinction—of some species.

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LS4.C: Adaptation—Species become extinct because they can no longer survive and reproduce in their altered environment. If members cannot adjust to change that is too fast or drastic, the opportunity for the species' evolution is lost.

LS4.D: Biodiversity and Humans—Humans depend on the living world for the resources and other benefits provided by biodiversity. But human activity is also having adverse impacts on biodiversity through overpopulation, overexploitation, habitat destruction, pollution, introduction of invasive species, and climate change.

- **HS-LS4-1; HS-LS4-3** Different patterns may be observed at each of the scales at which a system is studied and can provide evidence for causality in explanations of phenomena.
- **HS-LS4-1; HS-LS4-4** Scientific knowledge is based on the assumption that natural laws operate today as they did in the past and they will continue to do so in the future.
- **HS-LS4-2; HS-LS4-4; HS-LS4-5** Empirical evidence is required to differentiate between cause and correlation and make claims about specific causes and effects.
- **HS-LS4-5** Evaluate the evidence supporting claims that changes in environmental conditions may result in: (1) increases in the number of individuals of some species, (2) the emergence of new species over time, and (3) the extinction of other species.

RST.9-10.8 Assess the extent to which the reasoning and evidence in a text support the author's claim or a recommendation for solving a scientific or technical problem.

RST.11-12.7 Integrate and evaluate multiple sources of information presented in diverse formats and media in order to address a question or solve a problem.

WHST.9-11.9 Draw evidence from informational texts to support analysis, reflection, and research.

MP.2 Reason abstractly and quantitatively.