MS. Interdependent Relationships in Ecosystems

A Performance Expectations MS.LS2.IRE

1. Construct an explanation that predicts patterns of interactions among organisms in a variety of ecosystems. MS.LS2.2
2. Evaluate competing design solutions for maintaining biodiversity and protecting ecosystem stability. MS.LS2.5

B Science and Engineering Practices MS.IRE.SEP

1. Constructing Explanations and Designing Solutions MS.IRE.SEP.1
   a. Construct an explanation that includes qualitative or quantitative relationships between variables that predict phenomena. (MS-LS2-2) MS.IRE.SEP.1A
2. Engaging in Argument from Evidence MS.IRE.SEP.2
   a. Evaluate competing design solutions based on jointly developed and agreed-upon design criteria. (MS-LS2-5) MS.IRE.SEP.2A

C Disciplinary Core Ideas MS.IRE.DCI

1. LS2.A: Interdependent Relationships in Ecosystems MS.IRE.DCI.LS2.A
   a. Similarly, predatory interactions may reduce the number of organisms or eliminate whole populations of organisms. Mutually beneficial interactions, in contrast, may become so interdependent that each organism requires the other for survival. Although the species involved in these competitive, predatory, and mutually beneficial interactions vary across ecosystems, the patterns of interactions of organisms with their environments, both living and nonliving, are shared. (MS-LS2-2) MS.IRE.DCI.LS2.A.1
2. LS2.C: Ecosystem Dynamics, Functioning, and Resilience MS.IRE.DCI.LS2.C
   a. (NYSED) Biodiversity describes the variety of species found in Earth's ecosystems. The completeness or integrity of an ecosystem's biodiversity is often used as a measure of its health. (MS-LS2-5) MS.IRE.DCI.LS2.C.1
3. LS4.D: Biodiversity and Humans MS.IRE.DCI.LS4.D
   a. Changes in biodiversity can influence humans' resources, such as food, energy, and medicines, as well as ecosystem services that humans rely on—for example, water purification and recycling. (secondary to MS-LS2-5) MS.IRE.DCI.LS4.D.1
   b. (NYSED) Humans impact biodiversity both positively and negatively. (secondary to MS-LS2-5) MS.IRE.DCI.LS4.D.2
4. ETS1.B: Developing Possible Solutions MS.IRE.DCI.ETS1.B
   a. There are systematic processes for evaluating solutions with respect to how well they meet the criteria and constraints of a problem. (secondary to MS-LS2-5) MS.IRE.DCI.ETS1.B.1

D Crosscutting Concepts MS.IRE.CC

1. Patterns MS.IRE.CC.1
   a. Patterns can be used to identify cause and effect relationships. (MSLS2-2) MS.IRE.CC.1A
2. Stability and Change MS.IRE.CC.2
   a. Small changes in one part of a system might cause large changes in another part. (MS-LS2-5) MS.IRE.CC.2A
3. Influence of Science, Engineering, and Technology on Society and the Natural World MS.IRE.CC.3
   a. The use of technologies and any limitations on their use are driven by individual or societal needs, desires, and values; by the findings of scientific research; and by differences in such factors as climate, natural resources, and economic conditions. Thus technology use varies from region to region and over time. (MS-LS2-5) MS.IRE.CC.3A
3. Science Addersses Questions About the Natural and Material World MS.IRE.CC.4
   a. Scientific knowledge can describe the consequences of actions but does not necessarily prescribe the decisions that society takes. (MS-LS2-5) MS.IRE.CC.4A