Handout 3: Module 2, Slide 76, Format of Performance Expectations

### MS-LS2-5  Ecosystems: Interactions, Energy, and Dynamics

Students who demonstrate understanding can:

**MS-LS2-5.** Evaluate competing design solutions for maintaining biodiversity and ecosystem services.* [Clarification Statement: Examples of ecosystem services could include water purification, nutrient recycling, and prevention of soil erosion. Examples of design solution constraints could include scientific, economic, and social considerations.]

The performance expectation above was developed using the following elements from the NRC document *A Framework for K-12 Science Education*:

**Engaging in Argument from Evidence**
- Engaging in argument from evidence in 6–8 builds on K–5 experiences and progresses to constructing a convincing argument that supports or refutes claims for either explanations or solutions about the natural and designed world(s).
- Evaluate competing design solutions based on jointly developed and agreed-upon design criteria.

**LS2.C: Ecosystem Dynamics, Functioning, and Resilience**
- Biodiversity describes the variety of species found in Earth’s terrestrial and oceanic ecosystems. The completeness or integrity of an ecosystem’s biodiversity is often used as a measure of its health.
- 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)

**ETSI.B: Developing Possible Solutions**
- There are systematic processes for evaluating solutions with respect to how well they meet the criteria and constraints of a problem. (secondary)

**Stability and Change**
- Small changes in one part of a system might cause large changes in another part.

**Connections to Engineering, Technology, and Applications of Science**

**Influence of Science, Engineering, and Technology on Society and the Natural World**
- 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.

**Connections to Nature of Science**

**Science Addresses Questions About the Natural and Material World**
- Scientific knowledge can describe the consequences of actions but does not necessarily prescribe the decisions that society takes.

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**Connections to other DCIs in this grade-band:**

**MS.ESS3.C**

**Articulation of DCIs across grade-bands:**


**Common Core State Standards Connections:**

ELA/Literacy -

RST.6-8.8  Distinguish among facts, reasoned judgment based on research findings, and speculation in a text. (MS-LS2-5)

RI.8.8  Trace and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient to support the claims. (MS-LS2-5)

Mathematics -

MP.4  Model with mathematics. (MS-LS2-5)

6.RP.A.3  Use ratio and rate reasoning to solve real-world and mathematical problems. (MS-LS2-5)