K.Interdependent Relationships in Ecosystems: Animals, Plants, and Their Environment

Science and Engineering Practices

Developing and Using Models
Modeling in K-2 builds on prior experiences and progresses to include using and developing models (i.e., diagram, drawing, physical replica, diorama, dramatization, or storyboard) that represent concrete events or design solutions.

- Use a model to represent relationships in the natural world.
- Analyzing and Interpreting Data
- Analyzing data in K-2 builds on prior experiences and progresses to collecting, recording, and sharing observations.
- Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions.

Engaging in Argument from Evidence
Engaging in argument from evidence in K-2 builds on prior experiences and progresses to comparing ideas and representations about the natural and designed world(s).

- Construct an argument with evidence to support a claim.

Obtaining, Evaluating, and Communicating Information
Obtaining, evaluating, and communicating information in K-2 builds on prior experiences and uses observations and texts to communicate new information.

- Communicate solutions with others in oral and/or written forms using models and/or drawings that provide detail about scientific ideas.

Disciplinary Core Ideas

- All animals need food in order to live and grow. They obtain their food from plants or from other animals. Plants need water and light to live and grow. (K-LS1-1)

ESS2.E: Biogeology
- Plants and animals can change their environment. (K-ESS2-2)

ESS3.A: Natural Resources
- Living things need water, air, and resources from the land, and they live in places that have the things they need. Humans use natural resources for everything they do. (K-ESS3-1)

ESS3.C: Human Impacts on Earth Systems
- Things that people do to live comfortably can affect the world around them. But they can make choices that reduce their impacts on the land, water, air, and other living things. (secondary to K-ESS2-2)(K-ESS3-3)

ETS1.B: Developing Possible Solutions
- Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem’s solutions to other people. (secondary to K-ESS3-3)

Crosscutting Concepts

Patterns
- Patterns in the natural and human designed world can be observed and used as evidence. (K-LS1-1)

Cause and Effect
- Events have causes that generate observable patterns. (K-ESS3-3)

Systems and System Models
- Systems in the natural and designed world have parts that work together. (K-ESS2-2), (K-ESS3-1)

Connecting to Nature of Science

Scientific Knowledge is Based on Empirical Evidence
- Scientists look for patterns and order when making observations about the world. (K-LS1-1)

Connections to other DCIs in kindergarten:
- K.ETS1.A (K-ESS3-3)

Articulation of DCIs across grade-levels:
- K.LS1.A (K-LS1-1), (K-ESS3-1); 2.LS2.A (K-LS1-1); 2.ESS1.B (K-ESS3-2); 3.LS2.C (K-LS1-1); 3.LS4.B (K-LS1-1); 4.ESS2.E (K-ESS2-2); 4.ESS3.A (K-ESS3-3); 5.LS1.C (K-LS1-1); 5.LS2.A (K-LS1-1), (K-ESS3-1); 5.ESS2.A (K-ESS2-2), (K-ESS3-1); 5.ESS3.C (K-ESS3-3)

Common Core State Standards Connections:

ELA/Literacy –

RI.K.1 With prompting and support, ask and answer questions about key details in a text. (K-ESS2-2)

W.K.1 Use a combination of drawing, dictating, and writing to compose opinion pieces in which they tell a reader the topic or the name of the book they are writing about and state an opinion or preference about the topic or book. (K-ESS2-2)

W.K.2 Use a combination of drawing, dictating, and writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic. (K-ESS2-2), (K-ESS3-3)

W.K.7 Participate in shared research and writing projects (e.g., explore a number of books by a favorite author and express opinions about them). (K-LS1-1)

SL.K.3 Add drawings or other visual displays to descriptions as desired to provide additional detail. (K-ESS3-3)

Mathematics –

MP.2 Reason abstractly and quantitatively. (K-ESS3-1)

MP.4 Model with mathematics. (K-ESS3-1)

K.CC Counting and Cardinality (K-ESS3-1)

K.MD.A.2 Directly compare two objects with a measurable attribute in common, to see which object has “more of”/“less of” the attribute, and describe the difference. (K-LS1-1)

*The performance expectations marked with an asterisk integrate traditional science content with engineering through a Practice or Disciplinary Core Idea.

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