Grade 4

3.1.4.B Life Science: From Molecules to Organisms: Structures and Processes

Students who demonstrate understanding can *use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.*

Clarifying Statement: Emphasis is on systems of information transfer.

Assessment Boundary: Assessment does not include the mechanisms by which the brain stores and recalls information or the mechanisms of how sensory receptors function.

Science and Engineering Practices (SEP)	Disciplinary Core Ideas (DCI)	Crosscutting Concepts (CCC)
Developing and Using Models Modeling in 3–5 builds on K–2 experiences and progresses to building and revising simple models and using models to represent events and design solutions. • Use a model to test interactions concerning the functioning of a natural system.	**LS1.D: Information Processing** • Different sense receptors are specialized for particular kinds of information, which may be then processed by the animal's brain. Animals are able to use their perceptions and memories to guide their actions.	**Systems and System Models** • A system can be described in terms of its components and their interactions.

Pennsylvania Context: N/A

PA Career Ready Skills: Identify different ways of expressing a feeling.

Connections to Other Standards Content and Practices

Standard Source	Possible Connections to Other Standard(s) or Practice(s)
Agriculture (AFNR)	CS.02.02.01.a: Identify and summarize the components within AFNR systems (e.g., Animal Systems: health, nutrition, genetics, etc.; Natural Resources Systems: soil, water, etc.).
Science, Environmental Literacy and Sustainability (NAAEE)	K-4 Strand 2.1.B. Earth's living systems: Learners identify basic similarities and differences among a wide variety of living organisms. They explain ways that living organisms, including humans, affect the environment in which they live, and how their environment affects them. K-4 Strand 1.F. Working with models and simulations: Learners use models to represent environmental relationships, patterns, and processes.
PA Core Standards: ELA	CC.1.5.4.A: Engage effectively in a range of collaborative discussions on grade-level topics and texts, building on others' ideas and expressing their own clearly. CC.1.5.4.E: Add audio recordings and visual displays to presentations when appropriate to enhance the development of main ideas or themes.

Science, Technology & Engineering, and Environment Literacy & Sustainability (STEELS)

Standard Source	Possible Connections to Other Standard(s) or Practice(s)
PA Core Standards and Practices: Math	MP.4: Model with mathematics. CC.2.3.4.A.3: Recognize symmetric shapes and draw lines of symmetry. CC.2.4.4.A.2: Translate information from one type of data display to another.
PA Standards: Social Studies	6.1.4.D: Explain what influences the choices people make.
Educational Technology (ISTE)	1.6. Creative Communicator: Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goals.
Technology and Engineering (ITEEA)	STEL-1F: Describe the unique relationship between science and technology, and how the natural world can contribute to the human-made world to foster innovation.