Human Body in Action: The Brain & the Nervous System [N6751]
correlated to the Kansas Science Standards

7 2. Design and do scientific inquiry.

By The End Of EIGHTH GRADE : STANDARD 1: SCIENCE AS INQUIRY Experiences in grades 5-8 will allow all students to develop the abilities to do scientific inquiry, be able to demonstrate how scientific inquiry is applied, and develop understandings about scientific inquiry. : Benchmark 1: The students will demonstrate abilities necessary to do the processes of scientific inquiry. Students can develop the skills of investigation and the understanding that scientific inquiry is guided by knowledge, observations, questions, and a design which identifies and controls variables to gather evidence to formulate an answer to the original question, given appropriate curriculum and adequate instruction. Students are to be provided opportunities to engage in full and partial inquiries in order to develop the skills of inquiry. Teachers help students succeed by showing how to choose interesting questions, checking designs, giving examples of good experimental strategies and instructing in the proper use of instruments and technology. Students at the middle level need special guidance in using evidence to build explanations, inference, and models, and guidance to think critically and logically and to see the relationships between evidence and explanations. : Indicators: The students will:

Grade Level Required: 5 - 8

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7 1. Relate the structure of cells, organs, tissues, organ systems, and whole organisms to their functions.

By The End Of EIGHTH GRADE : STANDARD 3: LIFE SCIENCE Experiences in grades 5-8 will allow all students to apply scientific process skills to investigate and understand the structure and function of organisms, reproduction and inheritance, behavior and regulation, ecosystems and populations, and adaptations and diversity of organisms. : Benchmark 1: The students will model structures of organisms and relate functions to the structures. Living things at all levels of organization demonstrate the complimentary nature of structure and function. Disease is a breakdown in structure or function of an organism. It is useful for middle level students to think of life as being organized from simple to complex, such as a complex organ system includes simpler structures. Understanding the structure and function of a cell can help explain what is happening in more complex systems. Students must also understand how parts relate to the whole, such as each structure is distinct and has a set of functions that serve the whole. Teachers can help students understand this organization of life by comparing and contrasting the levels of organization in both plants and animals. Teachers reinforce understanding of the cellular nature of life by providing opportunities to observe live cultures, such as pond water; creating models of cells; and using the Internet to observe and describe electron micrographs. Early adolescence is an ideal time to investigate the human body systems as an example of relating structure and function of parts to the whole. : Indicators: The students will:

Grade Level Required: 5 - 8

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7 2. Compare and contrast organisms composed of single cells with organisms that are multi-cellular.

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Grade Level Required: 5 - 8

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7 2. Identify behaviors of an organism that are a response made to an internal or environmental stimulus.

By The End Of EIGHTH GRADE : STANDARD 3: LIFE SCIENCE Experiences in grades 5-8 will allow all students to apply scientific process skills to investigate and understand the structure and function of organisms, reproduction and inheritance, behavior and regulation, ecosystems and populations, and adaptations and diversity of organisms. : Benchmark 3: The students will describe the effects of a changing external environment on the regulation/balance of internal conditions and processes of organisms. All organisms perform similar processes to maintain life. They take in food and gases, eliminate wastes, grow and progress through their life cycle, reproduce, and maintain stable internal conditions while living in a constantly changing environment. An organism's behavior changes as its environment changes. Students need opportunities to investigate a variety of organisms to realize that all living things have similar fundamental needs. After observing an organism's way of moving, obtaining food, and responding to danger, students can alter the environment and observe the effects on the organism. This is an appropriate time to study the human nervous and endocrine systems. Students can compare and contrast how messages are sent through the body and how the body responds. An example is how fright causes changes within the body, preparing it for fighting or fleeing. : Indicators: The students will:

Grade Level Required: 5 - 8

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10 3. Explain that all organisms must be able to maintain and regulate stable internal conditions to survive in a constantly changing external environment.

By The End Of EIGHTH GRADE : STANDARD 3: LIFE SCIENCE Experiences in grades 5-8 will allow all students to apply scientific process skills to investigate and understand the structure and function of organisms, reproduction and inheritance, behavior and regulation, ecosystems and populations, and adaptations and diversity of organisms. : Benchmark 3: The students will describe the effects of a changing external environment on the regulation/balance of internal conditions and processes of organisms. All organisms perform similar processes to maintain life. They take in food and gases, eliminate wastes, grow and progress through their life cycle, reproduce, and maintain stable internal conditions while living in a constantly changing environment. An organism's behavior changes as its environment changes. Students need opportunities to investigate a variety of organisms to realize that all living things have similar fundamental needs. After observing an organism's way of moving, obtaining food, and responding to danger, students can alter the environment and observe the effects on the organism. This is an appropriate time to study the human nervous and endocrine systems. Students can compare and contrast how messages are sent through the body and how the body responds. An example is how fright causes changes within the body, preparing it for fighting or fleeing. : Indicators: The students will:

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2. Replicate historic experiments to understand principles of science.

By The End Of EIGHTH GRADE : STANDARD 7: HISTORY AND NATURE OF SCIENCE Experiences in grades 5-8 will allow all students to examine and develop an understanding of science as a historical human endeavor. : Benchmark 2: The students will research contributions to science throughout history. Scientific knowledge is not static. New knowledge leads to new questions and new discoveries that may be beneficial or harmful. Contributions to scientific knowledge can be met with resistance causing a need for replication and open sharing of ideas. Scientific contributions have been made over an expanse of time by individuals from varied cultures, ethnic backgrounds, and across gender and economic boundaries. Students should engage in research realizing that the process may be a small portion of a larger process or of an event that takes place over a broad historical context. Teachers should focus on the contributions of scientists and how the culture of the time influenced their work. Reading biographies, interviews with scientists, and analyzing vignettes are strategies for understanding the role of scientists and the contributions of science throughout history. : Indicators: The students will:

Grade Level Required: 5 - 8