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## The Human Body

### Essential Question: How does the human body maintain equilibrium and what can

Enduring Knowledge	Science Concepts	GE	Evidence of Understanding
<p><b><u>Body Systems:</u> The human body is unique in its heredity, body systems, and development and can be affected by the environment.</b></p>	<p>a. The lungs take in the oxygen that the body cells need for the chemical change that releases energy from food, and the lungs eliminate carbon dioxide that was produced during the chemical change.</p> <p>b. The reproductive system enables the whole organism (human) to reproduce.</p> <p>c. In order to maintain equilibrium, internal body systems react to environmental changes through the nervous system (e.g., sweating, increased respiration during exercise, response to environmental stimuli, etc.).</p>	41	<p>Identifying ways that the human body responds to changes to maintain equilibrium</p> <p>Explaining the function of the lungs in respiration</p> <p>Developing models that illustrate the human reproductive system</p>
<p><b><u>Human Disease:</u> The human body is unique in its heredity, body systems and development and can be affected by the environment.</b></p>	<p>a. Viruses, bacteria, fungi, and parasites may infect the human body and interfere with normal body functions.</p> <p>b. The environment may contain dangerous levels of substances that are harmful to human beings.</p>	42	<p>Identifying a variety of microbes (e.g., virus, bacteria, fungi) and toxic materials that can interfere with body systems and cause harm</p>

**affect its equilibrium?**

Concepts in Detail	Potential Inquiries/Activities	Resources/Notes
<ul style="list-style-type: none"> <li>- When the body cells need energy, a chemical change occurs in the cell.</li> <li>- During the chemical change, oxygen and food interact, releasing energy and producing carbon dioxide.</li> <li>- Carbon dioxide is a waste product in the human body.</li> <li>- Oxygen diffuses into the circulatory system from the lungs, and the carbon dioxide diffuses into the lungs from the circulatory system.</li> <li>- Identify the parts and functions of the female and male reproductive system.</li> <li>- A new organism is formed through the combination of a sperm and an egg cell.</li> <li>- The fertilized egg cell divides and grows, and eventually grows into a fetus.</li> <li>- After approximately 9 months of growth, a new human is born.</li> <li>- Environmental changes, like changes in temperature and potentially dangerous or exciting situations (stimuli) can affect a body's equilibrium.</li> <li>- Define stimuli.</li> <li>- The nervous system registers the environmental change and signals certain body systems to react to maintain equilibrium.</li> <li>- Sweating during high environmental temperatures helps keep the core body temperature stable.</li> <li>- The nervous system sends a message to certain body systems to increase heart rate and breathing rate, making your muscles ready to react, and dilating pupils. This prepares the human to protect itself in a potentially dangerous situation.</li> </ul>	<ul style="list-style-type: none"> <li>- Predict and explain how increasing physical exertion affects heart rate.</li> </ul>	
<ul style="list-style-type: none"> <li>- There are certain microbes that may infect the human body and interfere with normal body functions.</li> <li>- Infect: when a disease-causing microbe invades another organism and interferes with normal body functions.</li> <li>- Types of disease-causing microbes include: some bacteria, some fungi, all viruses, and some protists.</li> <li>- Bacteria are simple, single-celled organisms with no nucleus.</li> <li>- Fungi are single or multi-celled organisms that reproduce by spores.</li> <li>- Viruses are packets of genes that can <u>not</u> reproduce on their own.</li> <li>- Protists are simple, single or multi-celled organisms.</li> <li>- Parasites are organisms that infect other organisms.</li> <li>- These microbes infect the human body to gain resources to continue their own survival and reproduction.</li> <li>- Certain types of materials found in our environment are toxic to humans, such as: asbestos, lead, radon, carbon monoxide, ozone, particulate matter, radioactive substances, dioxins, etc.</li> <li>- In some cases, lower levels of some materials may not be toxic for humans.</li> <li>- When these materials are at high levels, they may negatively affect certain human body systems, such as: respiratory, nervous, circulatory.</li> <li>- When one human body system is negatively affected, other systems may be negatively affected, too.</li> </ul>		