Science

Course: Seventh Grade			Designated Six Weeks: 6th Six Weeks		
Unit: Functions of the Human Body on Earth and Beyond			Days to teach: 30 Days (6 days for each TEKS)		
TEKS/Prerequisites	**Guiding Questions/ Specificity**	**Sample Assessment**	**Vocabulary**	**Instructional Strategies/ELPS**	**Resources/ Weblinks**
7.12b--identify the main functions of the systems of the human organism, including the circulatory, respiratory, skeletal, muscular, digestive, excretory, reproductive, integumentary, nervous and endocrine systems. ***(Supporting Standard)*** 7.13a-- investigate how organisms respond to external stimuli found in the environment such as phototropism and fight or flight; and	**Guiding Question:** What are the primary functions of the human body systems? **Teacher Note:** - From this unit students should gain an understanding of what type of work each system performs, not just the anatomical names of the systems, organs, and parts. **Specificity** Emphasize response to stimuli when teaching the nervous system.	Two systems that work closely to maintain overall homeostasis in the body are the _ A. circulatory and endocrine B. respiratory and excretory C. excretory and endocrine D. nervous and endocrine Answer. D	Function System Human organism Circulatory system Respiratory system Skeletal system Muscular system Digestive system Excretory system Reproductive system Integumentary system Nervous system Endocrine system Fight or flight Homeostasis Stimulus Response	**Required Lab:** Earth worm dissection Heart Beat Lab **Other Suggested Activities:** - Order of the Digestive System - Human Body Systems Review - Life Process Notes and Body Systems - Bones, Bones, Everywhere Lab - Muscle Action Lab - How Does Your Heart Rate Lab? - Muscles, Muscles, Everywhere Lab - Reaction Time Lab	**Textbook:** Science Explorer Grade 7, Prentice Hall, 2002. Unit Information from Simple Science Solutions can be found on Safari Montage 7th Grade Playlist. Body System Labs http://www.science-class.net/Biology/Anatomy.htm Body Review Chart http://www.science-class.net/Lessons/Anatomy/General/body_Review_chart.pdf Virtual Worm Dissection http://www.naturewatch.ca/english/wormwatch/virtual_worm/index.html

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				ELPS Strategies: http://ritter.tea.state.tx.us/rules/tac/chapter074/ch074a.html 4C: Word Knowledge 2E: Writing Process	Virtual Frog Dissection http://www.mhhe.com/biosci/genbio/virtual_labs/BL_16/BL_16.html

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7.7a-- contrast situations where work is done with different amounts of force to situations where no work is done such as moving a box with a ramp and without a ramp, or standing still ***(Supporting Standard)***	**Guided Question:** How does the human body perform work? What happens when work is done with different amounts of force? **Specificity** Place emphasis on muscular and skeletal systems. **Teacher Note:** - The human body as a whole system exerts force on other objects to explore "external work". - Teachers will naturally begin with the functions of each system and all systems functioning	Which of the following is an example of work being done on an object? A. A box rests on the floor B. A man pushes a couch across the room. C. A prism scatters ultraviolet light into visible light. D. Water in a pot changes into steam. Answer: B	Work (W) W = F x d Force F = m x a Inclined plane Joule Newton Motion Balanced Force Unbalanced Force Acceleration	**Other suggested activities:** - Muscle Fatigue Lab - Ramp it Up Lab - Working Hard or Hardly Working? - My Cup Runneth Over **ELPS SE/Strategies:** Link: http://ritter.tea.state.tx.us/rules/tac/chapter074/ch074a.html 4C: Word Knowledge 2E: Writing Process	Muscle Fatigue Lab http://www.science-class.net/Lessons/Anatomy/Support/Muscle%20Fatigue.pdf

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	together to enable the human body as a whole to perform work. - Students come from 6th grade with a basic understanding of potential and kinetic energy, inclined planes and pulleys (6.8A,E) - This SE emphasizes that students should contrast situations with different amounts of force (change in energy) rather than a calculation using the formula for work. W=F x d	If a force of 100 Newtons was exerted on an object and no work was done, the object must have: A. Accelerated rapidly B. Remained motionless C. decreased its velocity D. gained momentum Answer: B			

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7.9a-- Analyze the characteristics of objects in our solar system that allow life to exist such as the proximity of the Sun, presence of water, and composition of the atmosphere	**Guiding question:** What conditions allow Earth to support and maintain life? **Specificity:** - Also includes temperate weather, chemical composition of our atmosphere, (SPONCH): Sulfur, Phosphorus, Oxygen, Nitrogen, Carbon and Hydrogen, proximity to the Sun, and presence of water as characteristics of Earth that enable life.	Ozone molecules protect Earth from the harmful effects of the sun by ___ . A. insulating the temperature at the poles B. condensing water particles in clouds C. regulating the heat from the sun D. absorbing ultraviolet radiation Answer: D	Characteristic Solar System Proximity Composition Atmosphere Exploration	**Other Suggested Activities:** Is There Life Beyond Earth? WS Walk the Solar System	• Astronomy (www.science-class.net) • www.nasa.gov

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7.9b-- Identify the accommodations, considering the characteristics of our solar system, that enabled manned space exploration	- What conditions are necessary to support life outside of Earth? **Specificity:** - What is necessary for life in space; air supply, fresh water supply, food supply, waste management, insulation from heat and UV radiation, antigravity adaptations and communication	Which of the following features of the solar system helped humans to master the process of landing on a solid object in outer space and then returning safely to Earth? A. The distant existence of a large' gaseous planet B. The nearby existence of a large, terrestrial moon C. The nearby existence of a small, terrestrial planet D. The nearby existence of large, rock asteroids Answer: B	Accommodation Characteristic Solar System Enable Manned space exploration Terrestrial	Design and Construct a Space Station Meeting Basic Needs in Space	Design and Construct a Space Station http://www.lpi.usra.edu/education/explore/stations/activity_glance.shtml