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| **Subject:** Science | **Grade:** 6 | **Unit ID:**  |
| **Unit 4:** Human Body Systems | **Length:**  |
| ***Stage 1: Desired Results*** |
| **Standards:****Content Standards:****6. MS-LS 1-3** Construct an argument supported by evidence that the cbody systems interact to carry out essential functions of life.Clarification Statements: Emphasis is on the functions and interactions of the body systems, not specific body parts or organs. An argument should convey that different types of cells can join together to form specialized tissues, which in turn may form organs which work together as body systems. Body systems to be included are the circulatory, digestive, respiratory, excretory, muscular/skeletal, and nervous systems. Essential functions of life include obtaining food and other nutrients (minerals), releasing energy from food; removing wastes; responding to stimuli; maintaining internal conditions; and growing/developing. An example of interacting systems could include the respiratory system taking in oxygen from the environment which the circulatory system delivers to cells for cellular respiration, ot the digestive system taking in nutrients which the circulatory system transports to cells around the body.**6.W.1** Write arguments to support claims with clear reasonsa. Introduce claim(s) and organize the reasons and evidence clearly.b. Support claim(s) with clear reasons and relevant evidence and demonstrating an understanding of the topic.c. Use words, phrases, and clauses to clarify the relationships among claim(s) and reasons.d. Establish and maintain a formal style.e. Provide a concluding statement or section that follows from the argument presented.**6.MS-ETS1-5(MA).** Create visual representations of solutions to a design problem. Accurately interpret and apply scale and proportion to visual representations.**6.MS-ETS1-6(MA)** Communicate a design solution to an intended user, including design features and limitation of the solution.**Practice Standards/Concepts & Skills:**1.Asking questions (for science) and defining problems (for engineering)2.Developing and using models6.Constructing explanations (for science) and designing solutions (for engineering)7.Engaging in argument from evidence |
| **Overview:**[***Guide***: *This is a brief description of the unit. It explains the unit's focus and/or theme and provides a summary of what students will learn. - delete*]**FOCUS LANGUAGE GOALS:*****Students will be able to independently use their learning to…**** Analyze mechanisms of cause and effect in natural and designed systems based on physical and chemical principles. (ps)
* Engage in sustained, complex and successful scientific inquiry.
* Argue for and act on the importance of energy to life. (ls)
* Assess the energy use of biological and physical systems. (ls)
* Use principles of the physical world and genetic programming to analyze living systems. (ls)
* Make personal and civic decisions that respect how living systems maintain balance and stability, minimizing impact on factors that disturb stability. (ls)
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| **Understandings*** In multi-cellular organisms, the body is a system of multiple interacting subsystems.
* The concept of homeostasis and how the human body works to maintain internal equilibrium despite external variations
 | **Essential Questions*** How are the body systems dependent upon each other?
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| **Knowledge:** *Students will ...***Content:*** hierarchy of levels of organization (cells, tissues, organ, organ system, etc)
* characteristics of living things (made of cells, use energy, homeostasis, etc)
* how organs work together to form a system
* that the body systems are interrelated and work together to create one functioning organism
* circulatory, respiratory, digestive, excretory, muscular/skeletal, nervous

**Language:*** list language knowledge

**Vocabulary:** [**(see definition of CCSS tiered vocabulary)**](https://drive.google.com/open?id=0B1oO5U3iU008Q1ZGaEpFeFpLVnc)

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| **Tier 1** | **Tier 2** | **Tier 3** |
| Everyday words introduced | Words that differ by context | Words specific to content area |

 | **Skills**: *Students can ...***Content:*** constructing explanations and designing solutions
* identifying major body systems (MS-LS 1-3)
* writing arguments to support claims with clear reasons (6.W.1)
* analyzing evidence to develop an argument that no one body system is autonomous

**Language:*** list language knowledge
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| ***Stage 2: Assessments*** |
| **CURRICULUM EMBEDDED PERFORMANCE ASSESSMENT (PERFORMANCE TASKS)** CEPA CHOICE 1:[Human Body Corporation Project](https://docs.google.com/document/d/1DoUKNuJeBBOulL4gzvdlvi91HPWaSIb_GB1VcMI7ZaA/edit?usp=sharing)[Human Body Corporation Rubric](https://docs.google.com/document/d/1wyh8FhamtmyXt5lfUBuaAtmO-qrAGYBGCSut2pILDEU/edit?usp=sharing)[Human Body Corporation Note Sheet](https://docs.google.com/document/d/1KgO6MjWLwmvcfYGd430xoTVMaPe83eXkWRCFQkPZGr4/edit?usp=sharing)[Human Body Corporation Modified Template](https://docs.google.com/document/d/1WUYdIh2qdt6RDFV0G1MmwpXHQLu83RYbq3A6Rw56vgM/edit?usp=sharing)[Human Body Corporation Exemplar](https://docs.google.com/document/d/1j5IksdKWFGM1YJZ4wiNhCyguZFqgB0AA9kcJXIB054Y/edit?usp=sharing)CEPA CHOICE 2:[Human Body Corporation Group/Slideshow Project](https://docs.google.com/document/d/1k4cw-7Y8DBvTDSjjXpl7lsLREvfVa7WtzRWFuk-OALk/edit?usp=sharing)[Human Body Corporation Group/Slideshow Rubric](https://docs.google.com/document/d/1aDe513skVHwgrO7puX1EHBlfiYZTsLY3VYwwAeyoanI/edit?usp=sharing)CEPA CHOICE 3:In the Body System Amusement Parks project, students create amusement parks representing the cardiovascular system, the muscular system, the digestive system, etc. Students will work in teams to create both 3D scale models and presentations to a fictitious wealthy investment firm looking to build a new park in the students’ very own town.[Body System Amusement Park Project](https://www.oercommons.org/authoring/20136-body-system-amusement-parks/view) **OTHER EVIDENCE**: * Scientific notebook
* Structure of the Human Body
* Build Paper Modol of Human Body
* Dissection (Frog, virtual or physical)
* Summative Exam
	+ Unit test

**Self-Assessment:** * [**Self Assessment**](https://docs.google.com/document/d/135vYTlFj_KIIinsthIck1k6aRWlxAl9rqTBLyzGrOsU/edit?usp=sharing)
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| ***Stage 3: Learning Plan*** |
| **Pre-Assessments of Requisite Knowledge, Possible Pre- or Mis-conceptions****Pre-Assessment*** Draw and label the inside of the human body with as much details as possible without using any sources.

**Possible misconceptions*** Body systems can work independently.
* Bones are nonliving material.
* The heart is on the left side of your chest and is shaped as a heart.

**Learning Events:****Hook Question: What would happen if you were missing a body system?****Body Organization****Organization of Life (cells-tissue- organs-organ systems-organism)**Engage students with different activities to understand that cells join together to form specialized tissues, which in turn may form organs that work together as body systems.Resources for Lesson 1:[Body Organization Introduction-Youtube](http://safeyoutube.net/w/LADb)[Body Organization Flip Book](https://docs.google.com/document/d/1gpO2RGohcDb0dNqegpEPzq9riw2XrWSyf74LYQ5DP8Q/edit?usp=sharing)[Organization of Life exit ticket](https://docs.google.com/document/d/1BkNi6j6vgPCw1l-0qgw3L893l1pXHl5v6eXsGsKMo7s/edit?usp=sharing)**Homeostasis**[Homeostasis Lab](https://docs.google.com/document/d/19LjrX8lBP-e-zaedHGqPNBshsFz9IRokDuJA2QoT5co/edit?usp=sharing) **Human Body Systems**Body systems to be included: skeletal /muscular, nervous, digestive, respiratory, circulatory, excretory* [Human Body Systems Chart](https://docs.google.com/document/d/1YHobbFVECGmvforsEqucJeTA4Q7nQK6t92ciC6Xa048/edit?usp=sharing)
* Using a template, groups create skeletons and add to it as each body system is introduced.
* The Body Book by Donald Silver and Patricia Wynne
	+ Skeletal System-chicken wing dissection, bone dissection (pick up a cut bone from the grocery)
		- [Skeleton System Wrap-Up Questions](https://docs.google.com/document/d/1xfQBM5voFazCCYV0M7xCQygCGY32vhxdkDINHDzpn-Y/edit?usp=sharing)
		- [Skeletons picture](https://docs.google.com/document/d/1QjfCjaydPQ0A1r-iBXxdtkZcq3WxHD1_9Pq9kSqpb8I/edit?usp=sharing)
	+ Muscular System-
		- [Muscular System Intro. Video-Youtube](https://www.google.com/search?q=youtube+how+do+our+bodies+move%3F&oq=youtube+how+do+our+bodies+move%3F&aqs=chrome..69i57j69i64.11534j0j7&sourceid=chrome&ie=UTF-8&safe=active&ssui=on#kpvalbx=0)
		- [Voluntary/Involuntary Muscles-Blinking Lab](https://docs.google.com/document/d/13z6XnoPRYs2KE3T_uimK252TvFm2x2LBn2hhTfS1a_A/copy?usp=sharing)
	+ Nervous System-
		- [Brain Hemisphere hat pattern](http://www.ellenjmchenry.com/homeschool-freedownloads/lifesciences-games/documents/BrainHatIndividualDownload.pdf)
	+ Digestive System
		- [Digestive System lessons](https://www.teachengineering.org/lessons/view/cub_human_lesson04)-see summary
		- [Digestive system activity/lab](http://www.teachwithfergy.com/part-2-the-crackers-the-bread-in-a-bag-digestive-system-demonstrations/)
		- [How Long is Your Digestive System? Activity](http://www.kcedventures.com/blog/outdoor-stem-how-long-are-your-small-intestines)
	+ Respiratory System-
		- model of respiratory system straws/balloons
		- [Model of Respiratory System](https://www.slideshare.net/AshleyNicole27/doing-a-recycled-model-of-your-respiratory-system)
	+ Circulatory System-
		- [Coloring sheet Circulatory System](https://www.education.com/worksheet/article/inside-out-anatomy-cardiovascular/)
	+ Excretory System-
		- [Excretory System Challenge](https://docs.google.com/document/d/1BV2kL55dr1ohY0tm1vpUCXQSTpMCDPTvq9G0a9eAhEs/copy?usp=sharing)
		- [Excretory System Challenge Example](https://docs.google.com/document/d/1etz-oZ6Q7BEBTVKfkvn4Jf2Y7UtCf200027skdDTJ3I/edit?usp=sharing)
* [Human Body Systems Reader's Theater](http://www.sps186.org/downloads/basic/579144/ReadersTheateraboutHumanBodySystems.pdf)
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| **Instructional Notes:****Sociocultural implications**[***Guide****: think about the interaction of the student (including his/her identity, knowledge, culture, proficiency in English and home languages, literacy level, academic readiness, beliefs, values, and experiences) with the given academic contexts (including register, genre/text type, and task/situation, and the student’s relationship to other participants’ identities and social roles) - delete*]**Connections to Prior Knowledge*** list

**Connections to Future Knowledge*** list

**Common Misconceptions*** list

**Instructional Strategies*** list
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| **Resources:****Open Resources:** [**Next Generation Science Standards**](http://ngss.nsta.org/)  [OER Commons](https://www.oercommons.org/) **Video:**[Brain Pop Videos and Activities](https://www.brainpop.com/)- Circulatory System, Digestive System, Respiratory System, Bone Structure[Digestive Song - Mr Parr](https://www.youtube.com/watch?v=8sDMVgw9d-c&list=PLSQwifbcqgeut7SkQW4DhuxINRAja5PU2)[Circulartory System - Mr Parr](https://www.youtube.com/watch?v=mDSFxcf2UgQ&list=PLSQwifbcqgeut7SkQW4DhuxINRAja5PU2&index=2)[Respiratory System - Mr Parr](https://www.youtube.com/watch?v=p4zOXOM6wgE&list=PLSQwifbcqgeut7SkQW4DhuxINRAja5PU2&index=3)[Skeleton System - Mr Parr](https://www.youtube.com/watch?v=uzxmKAWiN_U&index=4&list=PLSQwifbcqgeut7SkQW4DhuxINRAja5PU2)[Nervous System - Mr Parr](https://www.youtube.com/watch?v=YRwPMICvbT4&list=PLSQwifbcqgeut7SkQW4DhuxINRAja5PU2&index=7)[Muscles Make You Stronger - Mr Parr](https://www.youtube.com/watch?v=vvBWnQJHGBs&list=PLSQwifbcqgeut7SkQW4DhuxINRAja5PU2&index=5)**Books:** * The Body Book by Donald Silver and Patricia Wynne (Teacher resource)
* Cells, Tissues, and Organs (The Human Machine) by Richard Spilsbury
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