

Standard

CT – 7.2.b - Many organisms, including humans, have specialized organ systems that interact with each other to maintain dynamic internal balance.

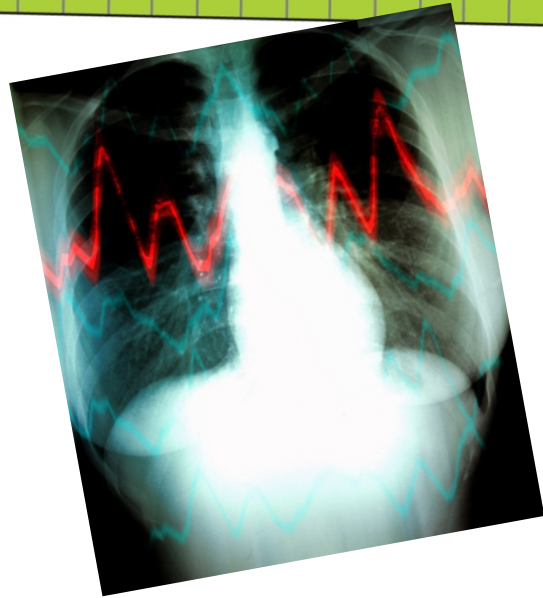
MA – Life Science (Biology) Gr. 6-8 # 6

I Know My Body

Connecticut

Science

Center



Created By:

Joanna Correa,
Staff Scientist,
Connecticut Science Center

Updated: February 2012



Connecticut Science Center | 250 Columbus Blvd, Hartford, CT 06103



CT Science Standard 7.2- Organ Systems

Many organisms, including humans, have specialized organ systems that interact with each other to maintain dynamic internal balance.

Table of Contents

Section	Page
Table of Contents	2
Summary	3
Inquiry Standards	4
CT Science Standards, Grade Level Concepts & Expectations, & CMT Correlation.....	5
Massachusetts Learning Standards	8
Safety Standards	9
Misconceptions and Facts.....	10
Discovery Center Classroom Visit Activity	13
Trail Guides	28
OWC Student Trail Guide.....	28
Teacher Resources.....	30
Professional Development.....	31
Interdisciplinary Connections	32
Additional Human Body Resources for Teachers.....	34
Videos.....	36
Literature Links.....	37
Classroom Kits	38
Software	39
Home/School/Community Connection.....	40
Student Resources	41
Popular Human Body Science Activities	41
Student Websites.....	42

CT Science Standard 7.2- Organ Systems

Many organisms, including humans, have specialized organ systems that interact with each other to maintain dynamic internal balance.

Summary

This program provides you and your students with materials and investigations related to the topic of organs and organ systems of mammalian animals such as humans. During your visit, your students will enjoy opportunities to make observations, raise questions, and learn about the structure and function of some of these organs, such as the heart and the lungs, circulation and respiration in one of our Discovery Center Classrooms.

In addition, your students will tour the **Health and Sports Gallery** and the **River of Life Gallery**. During their gallery visits, your students will be provided with Trail Guides that will help them make observations and raise further questions about specific exhibits within the galleries that are related to biological organs and systems of animal bodies with circulatory and respiratory systems.

Also included in this program are lessons that provide interdisciplinary connections, as well as additional resources such as websites, literature links, career information, home and school connections, and related videos.

This program is supported by **Connecticut Health and Educational Facilities Authority (CHEFA)**. During the visit at the Connecticut Science Center, activities and videos related to specific scientific and health careers in fields of interest to the anatomy and physiology of mammalian organisms, such as humans will be shared with the students.

This unit has been developed to complement some of the core themes, content standards and expected performances of the CT Core Science Frameworks, as well as the National Science Education Standards. It is a supplemental series of "hands-on" investigations that are inquiry-based and designed to engage students as well as to enhance and build upon their prior content knowledge. It may be integrated with other subjects or it may be taught in its entirety within the science classroom.

The complete CT Core Science Curriculum Frameworks is available at the website:
<http://www.sde.ct.gov/sde/cwp/view.asp?a=2618&q=320890>.

Direct link to PDF:

http://www.sde.ct.gov/sde/lib/sde/pdf/curriculum/science/pk8_science_curriculumstandards2011.pdf



CT Science Standard 7.2- Organ Systems

Many organisms, including humans, have specialized organ systems that interact with each other to maintain dynamic internal balance.

Inquiry Standards

<p>Following are the specific sections from the CT Core Science Curriculum Framework that are addressed in this unit.</p>	
<p>Grade 7 Core Scientific Inquiry, Literacy, and Numeracy</p> <p>How is scientific knowledge created and communicated?</p>	
Content Standards	Expected Performances
<p>SCIENTIFIC INQUIRY</p> <ul style="list-style-type: none"> ◆ Scientific inquiry is a thoughtful and coordinated attempt to search out, describe, explain and predict natural phenomena. <p>SCIENTIFIC LITERACY</p> <ul style="list-style-type: none"> ◆ Scientific literacy includes speaking, listening, presenting, interpreting, reading and writing about science. <p>SCIENTIFIC NUMERACY</p> <ul style="list-style-type: none"> ◆ Mathematics provides useful tools for the description, analysis and presentation of scientific data and ideas. 	<p>C INQ.1 Identify questions that can be answered through scientific investigation.</p> <p>C INQ.2 Read, interpret and examine the credibility of scientific claims in different sources of information.</p> <p>C INQ.3 Design and conduct appropriate types of scientific investigations to answer different questions.</p> <p>C INQ.4 Identify independent and dependent variables, and those variables that are kept constant, when designing an experiment.</p> <p>C INQ.5 Use appropriate tools and techniques to make observations and gather data.</p> <p>C INQ.6 Use mathematical operations to analyze and interpret data.</p> <p>C INQ.7 Identify and present relationships between variables in appropriate graphs.</p> <p>C INQ.8 Draw conclusions and identify sources of error.</p> <p>C INQ.9 Provide explanations to investigated problems or questions.</p> <p>C INQ.10 Communicate about science in different formats, using relevant science vocabulary, supporting evidence and clear logic.</p>

CT Science Standard 7.2- Organ Systems

Many organisms, including humans, have specialized organ systems that interact with each other to maintain dynamic internal balance.

CT Science Standards, Grade Level Concepts & Expectations, & CMT Correlation

<i>Structure and Function -How are organisms structured to ensure efficiency and survival?</i>			
GRADE 7			
7.2 Many organisms, including humans, have specialized organ systems that interact with each other to maintain dynamic internal balance.			
Core Science Curriculum Framework	Underlying Concepts <i>Students should understand that...</i>	Grade-Level Expectations <i>Students should be able to...</i>	CMT Expected Performances
<p>7.2.a. All organisms are composed of one or more cells; each cell carries on life-sustaining functions.</p> <p>7.2.b. Multicellular organisms need specialized structures and systems to perform basic life functions.</p>	<p>GRADE-LEVEL CONCEPT 7.2.a.</p> <ol style="list-style-type: none"> Living things have characteristics that distinguish them from nonliving things. Living things use energy, respond to their environment, grow and develop, produce waste and reproduce. Organisms are made of tiny cells that perform the basic life functions and keep the organism alive. Many organisms (for example yeast, algae) are single-celled, and many organisms (for example plants, fungi and animals) are made of millions of cells that work in coordination. All cells come from other cells and they hold the genetic information needed for cell division and growth. When a body cell reaches a certain size, it divides into two cells, each of which contains identical genetic information. This cell division process is called mitosis. The cell is filled with a fluid called <i>cytoplasm</i>; cells contain discrete membrane-enclosed structures called <i>organelles</i> that perform specific functions that support the life of the organism. The structure of the organelle is related to its function. <ul style="list-style-type: none"> <input type="checkbox"/> The nucleus contains the genetic materials (chromosomes), and it directs the cell activities, growth and division. <input type="checkbox"/> The mitochondrion contains enzymes that break down sugars and release chemical energy. One cell can contain hundreds of mitochondria. <input type="checkbox"/> The entire cell is surrounded by the plasma membrane that controls the flow of materials into and out of the cell. 	<ol style="list-style-type: none"> Compare and contrast living organisms that are single celled with multicellular organisms. Illustrate and describe in writing the structure and the function of the cell membrane, cytoplasm, mitochondria and nucleus in an animal cell. Explain how the structure and function of multicellular organisms (animals) is dependent on the interaction of cells, tissues, organs and organ systems. Investigate and explain in writing the basic structure and function of the human skeletal system. 	<p>C15. Describe the basic structures of an animal cell, including the nucleus, cytoplasm, mitochondria and cell membrane, and how they function to support life.</p> <p>C16. Describe the structures of the human digestive, respiratory and circulatory systems and explain how they function to bring oxygen and nutrients to the cells and expel waste materials.</p> <p>C17. Explain how the human musculoskeletal system supports the body and allows movement.</p>

CT Science Standard 7.2- Organ Systems

Many organisms, including humans, have specialized organ systems that interact with each other to maintain dynamic internal balance.

	<p>GRADE-LEVEL CONCEPT 7.2.b.</p> <ol style="list-style-type: none"> 1. Systems consist of parts that interact with and influence each other. Parts of a system work together to make the whole entity work. Similarly, each part of an animal body has a specific job to do, and all the different parts work together to support life. 2. Although all cells have similar basic structures, in multicellular organisms cells have specialized shapes that enable them to perform specific roles (for example, muscle, nerve, and skin cells can be identified by their distinct shapes). 3. Groups of similar cells are organized in tissues that have specific functions (for example, providing support, connecting parts, carrying messages, protecting internal and external surfaces). 4. Different tissues work together to form an organ, and organs work together as organ systems to perform essential life functions. 5. The human skeletal system includes bones joined together by ligaments. The skeletal system functions to shape and support the body, protect internal organs, enable movement, form blood cells, and store minerals such as calcium and phosphorous. 6. Joints are places where two bones come together and body movement can occur. The structure of a joint (for example, ball and socket, hinge or pivot) determines the kind of movement possible at that point. 7. The human muscular system includes skeletal, smooth and cardiac muscles. The skeletal muscles are attached to bones by tendons and they are responsible for the movement of the body. The cardiac muscle is responsible for the pumping action of the heart and the smooth muscles are related to the movement of the internal organs. 8. The muscular and skeletal systems interact to support the body and allow movement. 9. The major parts of the human respiratory system are the nose, trachea, bronchi and lungs. This system is responsible for breathing and exchange of gases between the body and its surroundings. 	<ol style="list-style-type: none"> 5. Differentiate between the structures and range of motion associated with ball, socket and hinge joints and relate human joints to simple machines. 6. Demonstrate how the muscles, tendons, ligaments and bones interact to support the human body and allow movement. 7. Label the major parts of the human respiratory system and explain in writing the function of each part (nasal cavity, trachea, bronchi, lungs and diaphragm). 8. Label the major parts of the human circulatory system and explain in writing the function of each part (heart, veins, arteries and capillaries). 9. Design and conduct controlled variable experiments to analyze the interaction between the circulatory and respiratory systems as the demand for 	
--	---	---	--

CT Science Standard 7.2- Organ Systems

Many organisms, including humans, have specialized organ systems that interact with each other to maintain dynamic internal balance.

	<p>10. The major parts of the human circulatory system are the heart, arteries, veins and capillaries. The right side of the heart pumps blood to the lungs for gas exchange; the left side of the heart pumps the oxygenated blood around the body.</p> <p>11. The blood is made of plasma, red and white blood cells, and platelets. Its main role is to carry small food molecules and respiratory gases (oxygen and carbon dioxide) to and from cells. Blood cells are also responsible for destroying invading particles, preventing diseases, and stopping bleeding after injuries.</p> <p>12. The respiratory and circulatory systems work together to provide all cells with oxygen and nutrients. When the body's need for oxygen changes, the circulatory and respiratory systems respond by increasing or decreasing breathing and heart rates. These changes can be measured by counting breaths, heartbeats or pulses per minute.</p> <p>13. The major parts of the human digestive system are the mouth, esophagus, stomach, small intestine and large intestine. This system is responsible for breaking down food, absorbing nutrients and water, and eliminating waste. The liver and pancreas support the functions of the major digestive organs by producing and releasing digestive liquids into the digestive tract.</p> <p>14. The nervous, immune and excretory systems interact with the digestive, respiratory and circulatory systems to maintain the body's dynamic internal balance (homeostasis).</p> <p>SCIENTIFIC LITERACY TERMINOLOGY: structure, function, cell, mitosis, organelle, cytoplasm, nucleus, cell membrane, mitochondrion, tissue, organ, system</p>	<p>oxygen changes.</p> <p>10. Label the major parts of the human digestive system and explain in writing the function of each part in the chemical and physical breakdown of food (mouth, esophagus, stomach, small intestine, large intestine and rectum).</p>	
--	---	---	--

CT Science Standard 7.2- Organ Systems

Many organisms, including humans, have specialized organ systems that interact with each other to maintain dynamic internal balance.

Massachusetts Learning Standards

Life Science (Biology) Grades 6-8

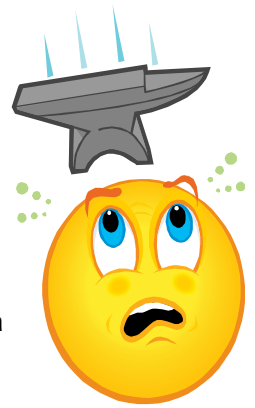
6. Identify the general functions of the major systems of the human body (digestion, respiration, reproduction, circulation, excretion, protection from disease, and movement, control, and coordination) and describe ways that these systems interact with each other.

CT Science Standard 7.2- Organ Systems

Many organisms, including humans, have specialized organ systems that interact with each other to maintain dynamic internal balance.

Safety Standards

- The ear tips of Stethoscopes need to be sanitized by each student after being used, to avoid the spread of germs. In the classroom they will be wiped with rubbing alcohol 70 %.
- Each student will use one disposable individual mouthpiece to blow air into the lung volume bags.
- Lung Models have a glass dome bell, exercise care when using them. Use a strong secure grip to hold them.
- Review appropriate behavior expectations and cooperative peer or group work standards.
- Review the appropriate use of materials.
- Make any necessary individual student modifications.
- Monitor students to make sure they are following directions, handling materials with care and working cooperatively.
- For more comprehensive information on science safety, consult the following guidelines from the Council of State Science Supervisors; Connecticut Department of Education http://www.csss-science.org/downloads/scisaf_cal.pdf
- or visit the website of the state of Connecticut Department of Education and consult the guidelines for Prudent Practices and Regulations for Connecticut Middle School Science Safety http://www.sde.ct.gov/sde/lib/sde/pdf/curriculum/science/safety/middleschool_sciencesafety.pdf
- Prudent Practices and Regulations for Connecticut High School Science Safety http://www.sde.ct.gov/sde/lib/sde/pdf/curriculum/science/safety/science_safety.pdf
- and also Prudent Practices and Regulations for Connecticut Elementary Science Safety http://www.sde.ct.gov/sde/lib/sde/pdf/curriculum/science/safety/scisaf_cal.pdf
- CT Department of Education – http://www.sde.ct.gov/sde/lib/sde/pdf/curriculum/science/safety/science_safety.pdf



CT Science Standard 7.2- Organ Systems

Many organisms, including humans, have specialized organ systems that interact with each other to maintain dynamic internal balance.

Misconceptions and Facts

Misconceptions	Facts
Humans are not animals	<p>Humans are animals. Philosophical and Taxonomical analysis:</p> <p>All living creatures have characteristics or traits and behaviors in common or different to other living creatures. The similarities and differences between living creatures establish relationships of former common ancestors more or less closely related to each other. The existence of shared former common ancestors in a past time, and the similarities and differences between creatures has led to the classification of species in groups that share similarities and common ancestors. ALL LIVING CREATURES ARE CLASSIFIED INTO A GROUP.</p> <p>In order to refer to the creatures in a consistent manner, the scientific community gives every species of creature a unique name that identifies all the individual creatures of a same kind as a species, and relates the group known as specie to other species that are similar and share common ancestors.</p> <p>The scientific name of humans as a specie is <i>Homo sapiens</i>. <i>Homo sapiens</i>, from the Latin language, means "homo" = "self", or "just like myself", "looks like myself", or "the same as me". Therefore, <i>HOMO</i> is used to mean "US": Human. <i>SAPIENS</i>, in Latin means "THINKING", or "that thinks." Together, <i>Homo sapiens</i> translates human that thinks, or <i>THINKING HUMAN</i>.</p> <p>The purpose of the name, besides naming of course, is relating. The first part of the name, in our case: <i>HOMO</i>, means our species is in the group of <i>HOMINIDS</i>. Hominid means great ape characterized by an upright gait, increased brain size and intelligence compared with other primates, a flattened face, and reduced size of teeth and jaw. Besides <i>Homo sapiens</i>, Hominids also includes the extant species of other <i>Homos</i>, like <i>Homo erectus</i>. Hominids belong to the group of <i>PRIMATES</i>.</p> <p>Primates are characterized by having hands, hand like feet, and forward facing eyes, and, with the exception of humans, are typically agile tree-dwellers. Some primates are lemurs, tarsiers, humans, orangutans, gorillas and all monkeys. Primates are classified into the group of <i>MAMMALS</i>. Mammal means warm blooded vertebrate animal distinguished by the possession of hair or fur, the secretion of milk by females and typically the birth of live young. Beside primates, some other mammals are bears, all dogs and wolves, all felines, and cetaceans like dolphins.</p> <p>All Mammals are chordate, which means that they have a backbone or central nerve cord, or that in some part of their living period had one. Humans and so many others, have a backbone. This large group of which humans are part of, also share the supper common trait of dependency of ingestion of other organisms for survival, that is, the need to eat. This one characteristic very specially classifies Humans as <i>ANIMALS</i>.</p>
Even if the Human is an animal, it is a "special" one. The Human	To scientific concern and effects, the human body is an animal body, sharing a general structure, or body architecture (anatomy), and very similar

CT Science Standard 7.2- Organ Systems

Many organisms, including humans, have specialized organ systems that interact with each other to maintain dynamic internal balance.

<p>body is "different" among all other animals' bodies.</p>	<p>functioning (physiology) common for all mammals. In Science the word "Special" is not used to describe living things. The words and phrases that are used in science to describe living things are words such as: more or less, volume, size, speed, weight, agility, sensitive, irritable, more or less attractive, weaker, stronger, longer, shorter, lifespan, more fit, less fit, adaptable, range of function and / or limitations</p>
<p>Only careers in human healthcare study or know the body.</p>	<p>Besides careers in human healthcare, there are careers in Science that dedicate to the study of bodies: How the Bodies are structured and how do they work. The structure and function of bodies is the main focus for scientific careers such as Biology in Anatomy and Physiology, others such as Immunology, Wildlife Science, Biomedical Engineers, for example. There are also non-human related healthcare careers like Veterinary in which the structure and function of the body is the subject matter of knowledge and work. We should also consider that not only animals have bodies, so do all of the other organisms on earth, which also have organs and systems: Like Plants, fungi and even bacteria. In reality any and all the careers that study the structure and function of any living thing is a career that studies bodies, their organs and how they function: Many of the careers in Biology and almost all of the careers in Healthcare.</p>
<p>A body is alive if it "eats", "breathes" and "moves"</p>	<p>Not all alive organisms "eat". Most plants don't eat other things; they synthesize their own food compounds from solar energy, water and gases like carbon dioxide in a process known as photosynthesis. All other organisms that do not photosynthesize do "eat".</p> <p>While it is true that all living things breathe because their bodies and cells perform some kind of gas exchange with the external environment, not all things that are alive necessarily move. There are sessile animals like marine sponges that do not move and most plants do not move.</p>
<p>A body is dead if it is not breathing or doesn't have a heartbeat.</p>	<p>Not true: A body is only dead when it cannot process oxygen anymore. A body could not be breathing by itself for instance, and receive oxygen in some mechanical way. The body's cells will live as long as they still receive and use that oxygen. A Heart can also stop beating for some reason, and still blood could be keep circulating by some mechanical means (As CPR or machines). As long as blood circulates oxygen and other gases in, out and through the body and the cells use the oxygen, the body is alive. So the ultimate and real cause of death, all deaths, is cellular suffocation.</p>
<p>If you lose a body organ you will die.</p>	<p>You could remove a large part of your internal organs and survive.</p> <p>It is possible to survive even with the removal of the stomach, the spleen, 75 percent of the liver, 80 percent of the intestines, one kidney, one lung, and virtually every organ from the pelvic and groin area. You might not feel too great, but the missing organs wouldn't kill you.</p>
<p>The largest internal organ is the stomach or the brain</p>	<p>The largest internal organ is the small intestine.</p> <p>Despite being called the smaller of the two intestines, your small intestine is actually four times as long as the average adult is tall. If it weren't looped</p>

CT Science Standard 7.2- Organ Systems

Many organisms, including humans, have specialized organ systems that interact with each other to maintain dynamic internal balance.

	back and forth upon itself it wouldn't fit inside the abdominal cavity.
Lungs inflate and deflate by themselves. Or by our nose breathing in air into them.	Lungs do not inflate and deflate by themselves. Lungs inflate and deflate passively as a response to the consequence of the movement of the Diaphragm muscle. As the diaphragm muscle moves up and down (involuntary, by the action of the involuntary nervous system), the pleural cavity in which the lungs are enclosed by the pleural membrane and the diaphragm expands or compresses. According to the law of Boyle of Gas Pressure and Volume, when the volume increases, the gas pressure decreases. The difference of pressure between the cavity's pressure and the atmospheric pressure drives air in. the air is "sucked in" through the nose and trachea, and gets to the lungs, inflating them passively. As the Diaphragm moves back up, it squeezes the thoracic cavity, lowering the volume. This creates a rise in the air pressure. The air is forced out of the lungs to exit through the only possible opening: the trachea and nose. This is the exhalation of air.
Blood in the veins is blue, and blood in the arteries is red.	Arterial blood is bright red because it is oxygenated. Venous blood is not blue. It is non-oxygenated and its color is still red, but a darker red, a rich almost wine color with a purple tint to it.

Source of list of misconceptions:

<https://www.msu.edu/~nixonjos/armadillo/taxonomy.html>

<http://www.thefreedictionary.com/Hominids>

<http://www.snopes.com/medical/myths/8glasses.asp>

<http://www.snopes.com/science/stats/10percent.asp>

<http://factoidz.com/popular-misconceptions-about-the-human-body/>

<http://www.factivestats.com/2011/03/amazing-myths-and-facts-about-the-brain/>

<http://library.thinkquest.org/C0122781/>

<http://amasci.com/miscon/miscon.html>

CT Science Standard 7.2- Organ Systems

Many organisms, including humans, have specialized organ systems that interact with each other to maintain dynamic internal balance.

Discovery Center Classroom Visit Activity

The following highlighted GLCs and GLES are covered in this section:

<i>Structure and Function -How are organisms structured to ensure efficiency and survival?</i>			
<i>GRADE 7</i>			
<i>7.2 Many organisms, including humans, have specialized organ systems that interact with each other to maintain dynamic internal balance.</i>			
<i>Core Science Curriculum Framework</i>	<i>Underlying Concepts</i> Students should understand that...	<i>Grade-Level Expectations</i> Students should be able to...	<i>CMT Expected Performances</i>
<p>7.2.a. All organisms are composed of one or more cells; each cell carries on life-sustaining functions.</p> <p>7.2.b. Multicellular organisms need specialized structures and systems to perform basic life functions.</p>	<p>GRADE-LEVEL CONCEPT 7.2.a.</p> <p>1. Living things have characteristics that distinguish them from nonliving things. Living things use energy, respond to their environment, grow and develop, produce waste and reproduce.</p> <p>2. Organisms are made of tiny cells that perform the basic life functions and keep the organism alive. Many organisms (for example yeast, algae) are single-celled, and many organisms (for example plants, fungi and animals) are made of millions of cells that work in coordination.</p> <p>3. All cells come from other cells and they hold the genetic information needed for cell division and growth. When a body cell reaches a certain size, it divides into two cells, each of which contains identical genetic information. This cell division process is called mitosis.</p> <p>4. The cell is filled with a fluid called cytoplasm; cells contain discrete membrane-enclosed structures called organelles that perform specific functions that support the life of the organism. The structure of the organelle is related to its function.</p> <p>☐The nucleus contains the genetic materials (chromosomes), and it directs the cell activities, growth and division.</p> <p>☐The mitochondrion contains enzymes that break down sugars and release chemical energy. One cell can contain hundreds of mitochondria.</p> <p>☐The entire cell is surrounded by the plasma membrane that controls the flow of materials into and out of the cell.</p>	<p>1. Compare and contrast living organisms that are single celled with multicellular organisms.</p> <p>2. Illustrate and describe in writing the structure and the function of the cell membrane, cytoplasm, mitochondria and nucleus in an animal cell.</p> <p>3. Explain how the structure and function of multicellular organisms (animals) is dependent on the interaction.</p> <p>4. Investigate and explain in writing the basic structure and function of the human skeletal system.</p> <p>5. Differentiate between the structures and range of motion associated with ball, socket and hinge joints and relate human joints to simple machines.</p> <p>6. Demonstrate how the muscles, tendons, ligaments and bones interact to support the human body and allow movement.</p>	<p>C15. Describe the basic structures of an animal cell, including the nucleus, cytoplasm, mitochondria and cell membrane, and how they function to support life.</p> <p>C16. Describe the structures of the human digestive, respiratory and circulatory systems and explain how they function to bring oxygen and nutrients to the cells and expel waste materials.</p> <p>C17. Explain how the human musculoskeletal system supports the body and allows movement.</p>

CT Science Standard 7.2- Organ Systems

Many organisms, including humans, have specialized organ systems that interact with each other to maintain dynamic internal balance.

	<p>GRADE-LEVEL CONCEPT 7.2.b.</p> <p>1. Systems consist of parts that interact with and influence each other. Parts of a system work together to make the whole entity work. Similarly, each part of an animal body has a specific job to do, and all the different parts work together to support life.</p> <p>2. Although all cells have similar basic structures, in multicellular organisms cells have specialized shapes that enable them to perform specific roles (for example, muscle, nerve, and skin cells can be identified by their distinct shapes).</p> <p>3. Groups of similar cells are organized in tissues that have specific functions (for example, providing support, connecting parts, carrying messages, protecting internal and external surfaces).</p> <p>4. Different tissues work together to form an organ, and organs work together as organ systems to perform essential life functions.</p> <p>5. The human skeletal system includes bones joined together by ligaments. The skeletal system functions to shape and support the body, protect internal organs, enable movement, form blood cells, and store minerals such as calcium and phosphorous.</p> <p>6. Joints are places where two bones come together and body movement can occur. The structure of a joint (for example, ball and socket, hinge or pivot) determines the kind of movement possible at that point.</p> <p>7. The human muscular system includes skeletal, smooth and cardiac muscles. The skeletal muscles are attached to bones by tendons and they are responsible for the movement of the body. The cardiac muscle is responsible for the pumping action of the heart and the smooth muscles are related to the movement of the internal organs.</p> <p>8. The muscular and skeletal systems interact to support the body and allow movement.</p> <p>9. The major parts of the human respiratory system are the nose, trachea, bronchi and lungs. This system is responsible for breathing and exchange of gases between the body and its surroundings.</p>	<p>7. Label the major parts of the human respiratory system and explain in writing the function of each part (nasal cavity, trachea, bronchi, lungs and diaphragm).</p> <p>8. Label the major parts of the human circulatory system and explain in writing the function of each part (heart, veins, arteries and capillaries).</p> <p>9. Design and conduct controlled variable Design and conduct controlled variable experiments to analyze the interaction between the circulatory and respiratory systems as the demand for oxygen changes.</p> <p>10. Label the major parts of the human digestive system and explain in writing the function of each part in the chemical and physical breakdown of food (mouth, esophagus, stomach, small intestine, large intestine and rectum).</p>	
--	--	--	--

CT Science Standard 7.2- Organ Systems

Many organisms, including humans, have specialized organ systems that interact with each other to maintain dynamic internal balance.

	<p>10. The major parts of the human circulatory system are the heart, arteries, veins and capillaries. The right side of the heart pumps blood to the lungs for gas exchange; the left side of the heart pumps the oxygenated blood around the body.</p> <p>11. The blood is made of plasma, red and white blood cells, and platelets. Its main role is to carry small food molecules and respiratory gases (oxygen and carbon dioxide) to and from cells. Blood cells are also responsible for destroying invading particles, preventing diseases, and stopping bleeding after injuries.</p> <p>12. The respiratory and circulatory systems work together to provide all cells with oxygen and nutrients. When the body's need for oxygen changes, the circulatory and respiratory systems respond by increasing or decreasing breathing and heart rates. These changes can be measured by counting breaths, heartbeats or pulses per minute.</p> <p>13. The major parts of the human digestive system are the mouth, esophagus, stomach, small intestine and large intestine. This system is responsible for breaking down food, absorbing nutrients and water, and eliminating waste. The liver and pancreas support the functions of the major digestive organs by producing and releasing digestive liquids into the digestive tract.</p> <p>14. The nervous, immune and excretory systems interact with the digestive, respiratory and circulatory systems to maintain the body's dynamic internal balance (homeostasis).</p> <p>SCIENTIFIC LITERACY TERMINOLOGY: structure, function, cell, mitosis, organelle, cytoplasm, nucleus, cell membrane, mitochondrion, tissue, organ, system</p>		
--	---	--	--

CT Science Standard 7.2- Organ Systems

Many organisms, including humans, have specialized organ systems that interact with each other to maintain dynamic internal balance.

Discovery Center Class Activity

The main goal of the classroom activity is to get students to consider their bodies as a complete living system that has parts or other subsets of systems working together to maintain the whole function of the biological unit.

Students will be asked to consider what a body is? What makes it work the way it does? What types of bodies can they think of? Does it have parts? What parts and /or organs, structure these bodies? Bodies have organs. What are some organs and systems of the human body? There are several systems that are of primary importance to an animal's body, this class will focus on two very important systems: the circulatory and respiratory system. Through these activities the students should have an understanding of the structure and function of these two systems and how they interact together to make possible for the whole body to carry out the ultimate life sustaining process: the utilization of oxygen. The class activities will stimulate the students to make observations and generate questions that the students will be able to explore further in their classrooms.

Introduction (9 minutes)

The purpose of the introduction is to elicit the student's general knowledge of what are some of the systems that allow their bodies to operate. What are some key organs and systems that sustain functionality in a body? What are some possible interactions between some of these organ systems? Following the engagement of the students into the previous discussions, the students will be explained how to work on the activity stations: They will be directed to read the task cards that contain the instructions for each activity, they will be informed of necessary actions they are required to observe for their safety, they will be shown the materials, and they will be explained how to cycle through the activity stations.

Materials:

- Starboard
- Task cards at the activity stations
- Materials at the activity stations: "Somebody" game, stethoscopes, cotton balls, isopropyl alcohol, lung models, diverse sport equipment, pulse oxymeters, calculators.

CT Science Standard 7.2- Organ Systems

Many organisms, including humans, have specialized organ systems that interact with each other to maintain dynamic internal balance.

Activity A. How much do you know your body? (6 minutes):

Students will be presented with a game in which they are challenged to list in writing the names of 22 body organs they are provided, which are represented by scale images of the body organs, similar in relative sizes and colors. They are to place these organs on a body outline.

Materials:

- Task Card
- Somebody Game
- Paper
- Pencils

Task Card

Station A

1. Place the organs on the body.
2. To which organs do you know the name of? Write the organs that you know on a piece of paper. Count how many organs were you able to write on your list.

When you are done, please remove all the organs and place them again outside of the body, like you found them; for the next person that will do the activity. Please count that there are 22 organ stickers before you leave the station.

CT Science Standard 7.2- Organ Systems

Many organisms, including humans, have specialized organ systems that interact with each other to maintain dynamic internal balance.

Activity B. The Circulatory System: what's the difference between heartbeat and pulse? (6 minutes):

Students will be prompted to express their current knowledge about the anatomical location of their heart, heartbeat and pulses by placing stickers on their body on the places the heart, heartbeats and pluses they believe are or should be. Then through investigation by searching for their heartbeat with a stethoscope and taking their pulse they find the accurate locations. They are asked why they can't find their pulse with the stethoscope. Why do they feel it through touch? What is it that they are feeling? What is the difference between heartbeats and pulses and what is the relation between these.

Materials:

- Stickers
- Stethoscopes
- Paper
- Pencils
- Isopropyl alcohol and cotton balls, to clean stethoscopes

Task Card

Station B

1. Place a sticker on your body, marking the spot where you think your heart is. Place another sticker on your body, where you believe you have pulse.
2. Now use a stethoscope to find the sound of your heartbeat. Place a sticker where the heartbeats seem to sound louder.
3. Now use your fingertips of your index finger and middle finger, and if you want to, also your ring finger, to find your pulse. Do not use your thumb to search for your pulse. Find a spot where you feel your pulse clearly. Can you find pulse at more than one site of the body? Where does it feel strongest? Why? Once you have found your pulse, place some stickers there also.
4. Were you correct the first time about where your heart and pulse is?
5. Did you try to find your pulse with the stethoscope? Does that work? Why or why not? Can you hear your pulse?
6. Discuss with your partner how are heartbeats and pulses different. How do heartbeats and pulses relate to the heart?

Before you leave the station, make sure you clean the ear tips of the stethoscope you used with a cotton ball soaked in alcohol.

CT Science Standard 7.2- Organ Systems

Many organisms, including humans, have specialized organ systems that interact with each other to maintain dynamic internal balance.

Activity C. The Respiratory System: what's the difference between heartbeat and pulse? (6 minutes):

Students will be provided with a functional model of the respiratory system made up of balloons enclosed in a compartment made of transparent acrylic material and a rubber membrane. They will be instructed to operate the respiratory system model and make observations.

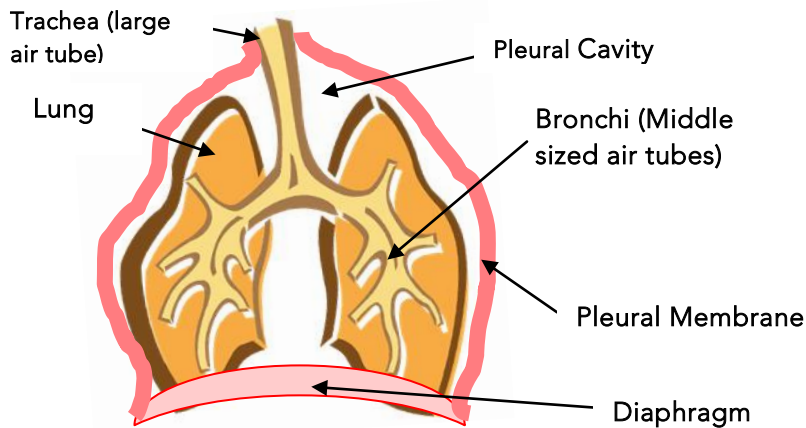
Materials:

- Respiratory system functional model
- Paper
- Pencils

Task Card

Station C

Diagram of the respiratory systems of mammals.



Picture of Model goes here

The object at this work station is a Respiratory System Model.

- 1) Compare it to the Diagram of the Respiratory System on the left
- 2) Now, hold the model securely by the top part, and gently pull from the wood knob at the bottom. You can press the model gently against your stomach for more support and a more secure grip as you pull. Make sure you pull gently. Observe what happens as you pull the knob down.
- 3) Wait one or two seconds and then gently push the wood knob back up. Notice the changes in the model. Repeat the push and pull a couple of times. What do you notice?
- 4) By comparing to the diagram, which organs can you identify represented in this respiratory system model? Make a diagram of the model and label the organs that the model simulates.

Task Card

Page 2

Station C

5) In the model, when do the balloons inflate? When do they deflate? Does something cause it?

How is the change in the balloons similar to what happens in real respiratory organs?

6) Using your model, describe how does an inhalation and exhalation cycle occur. What does the diaphragm do? What do you notice about it?

7) What happens if you cover the hole of the rubber stopper with your finger and try to pull or push on the wood knob?

8) After using the model can you explain how do the lungs work?

Think about this: ...

- What would happen if the pleural cavity got a hole, or did not exist?
- How can the functioning of the respiratory system be explained by the following statement:

"Volume is inversely proportional to pressure"

CT Science Standard 7.2- Organ Systems

Many organisms, including humans, have specialized organ systems that interact with each other to maintain dynamic internal balance.

Activity D. The Relationship between physical activity and Heart Rate. (6 minutes):

Materials:

- Pulse Oxymeters
- Dumbbells of 2 pounds, 3 pounds and 5 pounds
- Yoga Mats
- Stationary Bicycles
- Calculators
- Paper
- Pencils

Task Card

Station D

This machine is a Pulse Oximeter: It measures Heart Rate. Your Heart Rate is how many times your heart beats in one minute.

- 1) Put the pulse oximeter on your index finger like this:

This number here is the Heart Rate. It is usually named PR in pulse oximeters. PR means pulse rate, and is equivalent to heart rate. **This is number you need to focus on for this activity.** This number is changing constantly. That is normal.

This other number here is called Percentage of Oxygen Saturation. It is labeled SpO₂%, and tends to be very stable, staying around the range of 94 to 99 %. That is also normal.



- 2) Before doing ANY exercise, measure your initial heart rate with the pulse oximeter, or alternatively, you may measure your heart rate by counting your pulses during 15 seconds and multiplying by 4, if you know how to do it. Record this number.
- 3) TAKE THE PULSE OXYMETER OFF AND LEAVE IT ON A TABLE.
- 4) Now chose some of the sport equipment items and get moving!! 😊 Exercise for a few minutes. You can use the bike, lift weights, do pushups, stretch, do crunches, ride the bike again, whatever you want! Just try to do as more and as fast as possible for a few minutes. Let's see what you got!

Task Card

Page 2

Station D

- 5) After exercise measure your heart rate again. Record your heart rate after exercise.
- 6) What happened to your heart rate? How can you explain it?
- 7) Do your muscles and heart interact with one another?
- 8) Why do people breathe more heavily when they exercise?

Think about this: ...

- What materials or “ingredients” do your muscles cells, or any other animal cells need to have access to, to be able to make energy so that you can move, think, and do all the things your body does?

“ something? + something? = Cells with Energy = Alive cells ”

Does your body store these “ingredients” somewhere?

CT Science Standard 7.2- Organ Systems

Many organisms, including humans, have specialized organ systems that interact with each other to maintain dynamic internal balance.

Wrap up discussion (11 minutes)

Discuss all the activity stations as a class.

Science skills used in this class program:

- Observing
- Inferring
- Predicting
- Designing
- Testing
- Communicating
- Comparing
- Contrasting

CT Science Standard 7.2- Organ Systems

Many organisms, including humans, have specialized organ systems that interact with each other to maintain dynamic internal balance.

Trail Guides

We have created a set of "Trail Guides" for use by you and your students. The first section consists of the trail guides with teacher notes; the second section has the exact same Trail Guides without the teacher notes. You may copy these directly as handouts.

OWC Student Trail Guide

Sponsored by State of Connecticut Office for Workforce Competitiveness

Putting Science to Work in Connecticut

Go to the **Picture of Health Gallery** on the 5th floor

Find the Putting Science to Work in Connecticut video kiosk. View the two videos filmed at the following locations in the State of Connecticut:

- Mount Sinai Rehabilitation Hospital, a SAINT FRANCIS *Care* Provider
- Ahlstrom Nonwovens LLC

Please answer the following questions related to each video:

- Mount Sinai Rehabilitation Hospital, a SAINT FRANCIS Care Provider:
What is a Lokomat? What is it used for and how could it help a patient?

- Ahlstrom Nonwovens LLC:
What is a Nonwoven composite? Why is it important to maintaining good health?

- What health or science careers are included in these videos?

There are many people that live and work in our State of Connecticut that contribute to keeping us healthy in our communities.

- Have you ever thought about pursuing a health science related career in the future?

CT Science Standard 7.2- Organ Systems

Many organisms, including humans, have specialized organ systems that interact with each other to maintain dynamic internal balance.

OWC Teacher Trail Guide

Sponsored by State of Connecticut Office for Workforce Competitiveness
Putting Science to Work in Connecticut

Go to the **Picture of Health Gallery** on the 5th floor

Find the Putting Science to Work in Connecticut video kiosk. View the two videos filmed at the following locations in the State of Connecticut:

- **Mount Sinai Rehabilitation Hospital, a SAINT FRANCIS Care Provider**

- **Ahlstrom Nonwovens LLC**

Please answer the following questions related to each video:

- Mount Sinai Rehabilitation Hospital, a SAINT FRANCIS Care Provider:

What is a Lokomat? What is it used for and how could it help a patient?

A Lokomat is advanced robotic therapy equipment that is able to train stroke damaged brains to regain control over their bodies. It allows people to recover and improve their lives. Patients basically relearn how to walk. Not only stroke victims but patients with spinal cord injuries and Multiple Sclerosis patients are now using this technology.

- Ahlstrom Nonwovens LLC:

What is a Nonwoven composite? Why is it important to maintaining good health?

A nonwoven composite is a web of material- synthetic material is compressed into a sheet. It is a breathable viral barrier. Specialized plastics are used to create the non-woven, multi-layered materials which allow air and moisture to pass through, but block the passage of bacteria and even viruses. These materials are used in hospitals to protect both the patients and medical staff from potentially deadly contamination.

- **What health or science careers are included in these videos?**

Physical therapist and Product Development Scientist

There are many people that live and work in our State of Connecticut that contribute to keeping us healthy in our communities.

- **Have you ever thought about pursuing a health science related career in the future?**

CT Science Standard 7.2- Organ Systems

Many organisms, including humans, have specialized organ systems that interact with each other to maintain dynamic internal balance.

Teacher Resources

Safety Disclaimer:

The content of this Teacher's Resource section is intended to serve as an educational resource for teachers and students.

Preparing for the safety of yourself and your students is a critical step in planning for any hands-on science-related activities. Prior to conducting any of the activities included in this resource section, please familiarize yourself and your students with any potential hazards, and take the necessary precautions appropriate for each specific activity.

Connecticut Science Center is not responsible for the contents of any books, videos, websites or other resources to which we provide a reference and does not necessarily endorse the opinions, activities, services, products or information expressed within them.

CT Science Standard 7.2- Organ Systems

Many organisms, including humans, have specialized organ systems that interact with each other to maintain dynamic internal balance.

Professional Development

Introduction to Inquiry

The Connecticut Science Center's Introduction to Inquiry Professional Development workshop was launched in the summer of 2005 and funded by the GE Education Foundation. Based upon the Exploratorium's Institute for Inquiry in San Francisco, our Science Center's professional development workshop is a five day immersion experience in inquiry-based learning and teaching plus an additional two days at the Annual Follow Up Conference.



The Center's Introduction to Inquiry workshop is tied directly to the CT Science Framework Connecticut adopted in 2004. The workshop's programming addresses requirements in Connecticut's Common Core of Teaching and Common Core of Learning as well. Please visit <http://www.CTScienceCenter.org/pd> for more information and to register.

CT Science Standard 7.2- Organ Systems

Many organisms, including humans, have specialized organ systems that interact with each other to maintain dynamic internal balance.

Interdisciplinary Connections

Literacy Resources for Language and Arts

Develop students' understanding of the human body through reading and writing exercises with these language arts resources for kindergarten through twelfth grade. Increase students' knowledge of science terms with vocabulary printable, projects, and homework assignments on organ systems, cell biology, and heredity. From lessons on analogies to reading passages about the central nervous system, there are a variety of activities below that connect science with language arts.

<http://www.teachervision.fen.com/body-parts/reading-and-language-arts/56186.html#ixzz1QxotGPC2>

Art: Body Art Projects

http://www.teachervision.fen.com/tv/tvsearch/site=TV&lowest_grade=100&highest_grade=112&type=web-resource%7Cgraphic-organizer%7Cslideshow%7Clesson-plan%7Carticle%7Creference%7Csample-worksheets%7Cquiz-lab-quiz%7Cprintable&sort_on=rank&theme=human-body&max=250&fmt=adv&title=More%20Human%20Body%20Activities%20for%20Art%20Class&termname=art

Social Studies Connection: Human Body Activities for Social Studies

http://www.teachervision.fen.com/tv/tvsearch/site=TV&lowest_grade=100&highest_grade=112&type=web-resource%7Cgraphic-organizer%7Cslideshow%7Clesson-plan%7Carticle%7Creference%7Csample-worksheets%7Cquiz-lab-quiz%7Cprintable&sort_on=rank&theme=human-body&max=250&fmt=adv&title=More%20Human%20Body%20Activities%20for%20Social%20Studies%20Class&termname=social-studies

History Connection

<http://www.teachervision.fen.com/body-parts/teacher-resources/6632.html>

Math Connection: Human Body Resources for Math

http://www.teachervision.fen.com/tv/tvsearch/site=TV&lowest_grade=100&highest_grade=112&type=web-resource%7Cgraphic-organizer%7Cslideshow%7Clesson-plan%7Carticle%7Creference%7Csample-worksheets%7Cquiz-lab-quiz%7Cprintable&sort_on=rank&theme=human-body&max=250&fmt=adv&title=More%20Human%20Body%20Resources%20for%20Math%20Class&termname=math



CT Science Standard 7.2- Organ Systems

Many organisms, including humans, have specialized organ systems that interact with each other to maintain dynamic internal balance.

Technology Connection

<http://www.teachervision.fen.com/body-parts/teacher-resources/6632.html>

Medicine Connection: Medical Resources on Human Biology

http://www.teachervision.fen.com/tv/tvsearch/site=TV&lowest_grade=100&highest_grade=112&type=web-resource%7Cgraphic-organizer%7Cslideshow%7Clesson-plan%7Carticle%7Creference%7Csample-worksheets%7Cquiz-lab-quiz%7Cprintable&sort_on=rank&theme=human-body&max=250&fmt=adv&title=More%20Medical%20Resources%20on%20the%20Human%20Body&termname=medicine

Psychology Resources on Humans: <http://www.teachervision.fen.com/body-parts/teacher-resources/6632.html>

Health and Nutrition Connection: Popular Health & Nutrition Resources on the Human Body

These health & nutrition printables, articles, and references are great resources for teaching your students about the human body. Use activities on the digestive, nervous, and circulatory systems to supplement your health or science units. Your students will be fascinated with facts on the human brain. You'll also find resources on the immune system and disease prevention to help your students keep their bodies healthy. <http://www.teachervision.fen.com/health/body-parts/53371.html#ixzz1QxzzGirh>

Physical Education Connection: The Body and Physical Activity

http://www.teachervision.fen.com/tv/tvsearch/site=TV&lowest_grade=100&highest_grade=112&type=web-resource%7Cgraphic-organizer%7Cslideshow%7Clesson-plan%7Carticle%7Creference%7Csample-worksheets%7Cquiz-lab-quiz%7Cprintable&sort_on=rank&theme=human-body&max=250&fmt=adv&title=More%20Human%20Body%20Activities%20for%20Physical%20Education&termname=physical-education

Safety Education Connection: Safety Resources on the Human Body

http://www.teachervision.fen.com/tv/tvsearch/site=TV&lowest_grade=100&highest_grade=112&type=web-resource%7Cgraphic-organizer%7Cslideshow%7Clesson-plan%7Carticle%7Creference%7Csample-worksheets%7Cquiz-lab-quiz%7Cprintable&sort_on=rank&theme=safety&max=250&fmt=adv&title=More%20Safety%20Resources%20on%20the%20Human%20Body&termname=human-biology

CT Science Standard 7.2- Organ Systems

Many organisms, including humans, have specialized organ systems that interact with each other to maintain dynamic internal balance.

Additional Human Body Resources for Teachers

Popular Human Body Science Activities

Investigate the wonders of the human body with these fascinating science activities for kindergarten through twelfth grade. Teach students about genetics and blood type through observation and experiments. From DNA fingerprinting to modeling immune response, students of all ages will enjoy learning about the parts and systems of the human body. There are resources on the five senses, nutrition, digestion, and the heart. You'll also find activities on the skeletal and respiratory systems.
<http://www.teachervision.fen.com/body-parts/childrens-science-activities/56185.html>

Teacher Websites

Browse these human body printable, lessons, and references to find great cross-curricular teaching resources on the immune system, anatomy, and the five senses. Supplement units on health or biology with activities on the digestive, nervous, and circulatory systems. Students of all ages will enjoy learning about genetics through hands-on science experiments, such as DNA fingerprinting. You'll also find quizzes on the human body to test student's knowledge of the brain and skeletal system.

<http://www.teachervision.fen.com/body-parts/teacher-resources/6632.html>

Health and Science Lesson Plans for school districts of Missouri

<http://www.healerwithin.org/IMLS/index.htm>

Virtual body <http://www.ehc.com/vbody.asp>

Teacher Created Resources: <http://www.teachercreated.com/url-updates/2448>

Human Biology Teacher resources from Teacher Vision:

http://www.teachervision.fen.com/tv/browse.php?lowest_grade=107&highest_grade=107&term=240314000000&site=TV&tab=Subjects&scn=339

Cells! www.cellsalive.com

BIOLOGY! <http://www.biology4kids.com/index.html>

More Human Body References:

http://www.teachervision.fen.com/tv/tvsearch/site=TV&lowest_grade=100&highest_grade=112&type=reference&sort_on=rank&theme=human-body&max=250&fmt=adv&title=More%20Human%20Body%20References

CT Science Standard 7.2- Organ Systems

Many organisms, including humans, have specialized organ systems that interact with each other to maintain dynamic internal balance.

Free Downloadable IMAGES from Microsoft Office on Line: <http://office.microsoft.com/en-us/images/?CTT=97>



CT Science Standard 7.2- Organ Systems

Many organisms, including humans, have specialized organ systems that interact with each other to maintain dynamic internal balance.

Videos

Nurse teacher simulates a simple, a clear scenario with school students. Review of Basics.

<http://www.youtube.com/watch?v=TZhfRJS9gAc&feature=related>

Nursing Team at work

<http://www.youtube.com/watch?v=PQHPUkEViKk&feature=related>

Lungs simulation anatomy and physiology

<http://www.youtube.com/watch?v=Aw9OJLTICIQ&feature=fvsr>

CT Science Standard 7.2- Organ Systems

Many organisms, including humans, have specialized organ systems that interact with each other to maintain dynamic internal balance.

Literature Links

Children's Books:

- Parker, Steve. How the Body Works. 1994. Dorling Kindersley Limited. London. (ISBN: 0-89577-5751)
- Scholastic Reference. All About People. 1995. Scholastic Inc. Hong Kong. (ISBN: 0-590-47525-8)

For Teachers:

- Levenson, Elain. 1985. Teaching Children about Science. Prentice Hall, Inc. Englewood Cliffs, NJ. (ISBN: 0-13-891730-2)
- Elaine B. Levenson (1994) Teaching Children About Life and Earth Science: Ideas and Activities Every Teacher and Parent Can Use (ISBN-13: 9780070376557)
- Poppe, Carol A., and Nancy A. Van Matre. Science Learning Centers for the Primary Grades. 1985. The Center for Applied Research in Education, Inc. West Nyack, NY. (ISBN: 0-87628-749-6)

CT Science Standard 7.2- Organ Systems

Many organisms, including humans, have specialized organ systems that interact with each other to maintain dynamic internal balance.

Classroom Kits

Carolina Biological <http://www.carolina.com/>

Wards Natural Science <http://wardsci.com/>

Teacher Planet / Catalogs: Extensive listing of catalogs of Science Companies

[http://www.catalogs4teachers.com/?_utma=1.102936767.1281458472.1281458472.1281458472.1&_utmb=1.4.10.1281458472&_utmc=1&_utmz=1.1281458472.1.1.utmcsr=bing|utmccn=\(organic\)|utmcmd=organic|utmctr=teacher%20resources%20for%20senses&_utmv=-&_utmk=19381688](http://www.catalogs4teachers.com/?_utma=1.102936767.1281458472.1281458472.1281458472.1&_utmb=1.4.10.1281458472&_utmc=1&_utmz=1.1281458472.1.1.utmcsr=bing|utmccn=(organic)|utmcmd=organic|utmctr=teacher%20resources%20for%20senses&_utmv=-&_utmk=19381688)

Laerdal Medical <http://www.laerdal.com/us/>

CT Science Standard 7.2- Organ Systems

Many organisms, including humans, have specialized organ systems that interact with each other to maintain dynamic internal balance.

Software

Downloadable Interactive Software **The Visible Body**: <http://www.visiblebody.com/start>

CT Science Standard 7.2- Organ Systems

Many organisms, including humans, have specialized organ systems that interact with each other to maintain dynamic internal balance.

Home/School/Community Connection

- You could invite parents to come to class to read a book to the students or be involved in an art activity.
- Students could write newsletters home describing their experience at the CT Science Center and what they've learned about the **body**.
- Ask for parent volunteers to chaperone the trip to the CT Science Center.
- Invite different relevant professionals into your classroom to speak to the class about their careers related to **anatomy** and **physiology**.

CT Science Standard 7.2- Organ Systems

Many organisms, including humans, have specialized organ systems that interact with each other to maintain dynamic internal balance.

Student Resources

Safety Disclaimer:

The content of this Student's Resource section is intended to serve as an educational resource for students.

Preparing for your own personal safety and that of any others that may be around you is a critical step in planning for any hands-on science- related activities. Prior to conducting any of the activities included in this resource section, please familiarize yourself with any potential hazards, and take the necessary precautions appropriate for each specific activity.

Connecticut Science Center is not responsible for the contents of any books, videos, websites or other resources to which we provide a reference and does not necessarily endorse the opinions, activities, services, products or information expressed within them.

Popular Human Body Science Activities <http://www.teachervision.fen.com/body-parts/childrens-science-activities/56185.html>

CT Science Standard 7.2- Organ Systems

Many organisms, including humans, have specialized organ systems that interact with each other to maintain dynamic internal balance.

Student Websites

- ORACLE Think Quest- activities related to the body:
<http://library.thinkquest.org/body>
- Your Gross and Cool Body: <http://yucky.discovery.com/flash/body/>
- <http://kidshealth.org/body>
- Challenge- series of questions related to the human body:
<http://www.bbc.co.uk/science/humanbody/body/interactives>
- Downloadable Interactive Software The Visible Body: <http://www.visiblebody.com/start>
- Britannica Kids Encyclopedia Science:
<http://kids.britannica.com/comptons/browse/subject?id=1662&subject=Science>
- Free Downloadable IMAGES for your school projects and more:
<http://office.microsoft.com/en-us/images/?CTT=97>