

Inquiry Investigations™
Human Biology and Health Issues MODULE - 1287211
Grades: 7-10

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Kentucky Standards
Science
Grade 7

CATEGORY	KY.PS.	Program of Studies 2006
GOAL/UNDERSTANDINGS/SUBDOMAIN	SC-7-STM.	Big Idea: Structure and Transformation of Matter (Physical Science) - A basic understanding of matter is essential to the conceptual development of other big ideas in science. During the middle years, physical and chemical changes in matter are observed, and students begin to relate these changes to the smaller constituents of matter - namely, atoms and molecules. The use of models (and an understanding of their scales and limitations) is an effective means of learning about the structure of matter. Looking for patterns in properties is also critical to comparing and explaining differences in matter. (Academic Expectations 2.1, 2.2, 2.4, 2.5)
AE/SKILLS & CONCEPTS/ORGANIZER	SC-7-STM-U-2.	Program of Studies: Understandings - Students will understand that there are only 92 naturally occurring elements and all matter is made of some combination of them (compounds). <ul style="list-style-type: none"> Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content
AE/SKILLS & CONCEPTS/ORGANIZER	SC-7-STM-U-3.	Program of Studies: Understandings - Students will understand that elements, as well as compounds, can be classified according to their similar properties, including how they react with each other and how they may be used. The patterns, which allow classification, can be used to infer or understand real life applications for those substances. <ul style="list-style-type: none"> Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content
AE/SKILLS & CONCEPTS/ORGANIZER	SC-7-STM-S-2.	Program of Studies: Skills and Concepts - Students will distinguish between elements and compounds and classify them according to their properties <ul style="list-style-type: none"> Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content
CATEGORY	KY.PS.	Program of Studies 2006

GOAL/UNDERSTANDINGS/SUBDOMAIN	SC-7-UD.	<p>Big Idea: Unity and Diversity (Biological Science) - All matter is comprised of the same basic elements, goes through the same kinds of energy transformations, and uses the same kinds of forces to move. Living organisms are no exception. In middle school, students begin to compare, contrast, and classify the microscopic features of organisms - the cells, as well as investigate reproduction as the essential process to the continuation of all species. Expected patterns of genetic traits are predicted. Distinctions are made between learned behaviors and inherited traits. Emphasis at every level should be placed upon the understanding that while every living thing is composed of similar small constituents that combine in predictable ways, it is the subtle variations within these small building blocks that account for both the likenesses and differences in form and function that create the diversity of life. (Academic Expectations 2.1, 2.2, 2.3, 2.4)</p>
AE/SKILLS & CONCEPTS/ORGANIZER	SC-7-UD-U-5.	<p>Program of Studies: Understandings - Students will understand that the observable differences among humans are minor compared to their internal similarity, as evidenced by the ability of people from all over the world to physically mix through reproduction, blood transfusions and organ transplants.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 1 Activity 1: Learning How Our Body is Organized and Functions • Human Biology and Health Issues: Unit 1 Lab 2 Activity 1: Testing Taste Receptors in the Tongue • Human Biology and Health Issues: Unit 1 Lab 2 Activity 2: Thermoreceptors - Responding to Heat and Cold • Human Biology and Health Issues: Unit 1 Lab 2 Activity 3: Distribution and Sensitivity of Touch Receptors • Human Biology and Health Issues: Unit 1 Lab 2 Activity 4: Responding to Sound • Human Biology and Health Issues: Unit 1 Lab 3 Activity 1: Exploring the Eye-Brain Connection • Human Biology and Health Issues: Unit 1 Lab 3 Activity 2: Measuring Vision • Human Biology and Health Issues: Unit 1 Lab 3 Activity 3: Is There a Hole in Your Hand? • Human Biology and Health Issues: Unit 1 Lab 3 Activity 4: Photographic Ambiguities • Human Biology and Health Issues: Unit 1 Lab 3 Activity 5: Typographic Illusions • Human Biology and Health Issues: Unit 1 Lab 3 Activity 6: Contrast and Color Illusions • Human Biology and Health Issues: Unit

		<p>1 Lab 4 Activity 1: Determining ABO-Rh Blood Type</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 4 Activity 2: A Closer Look at Blood • Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content • Human Biology and Health Issues: Unit 2 Lab 6 Activity 1: Demonstrating Selective Permeability in Simulated Skin Cells • Human Biology and Health Issues: Unit 2 Lab 6 Activity 2: Exploring Transdermal Drug Delivery • Human Biology and Health Issues: Unit 2 Lab 7 Activity 1: Modeling Kidney Function • Human Biology and Health Issues: Unit 2 Lab 7 Activity 2: Physical and Microscopic Characteristics of Urine • Human Biology and Health Issues: Unit 2 Lab 7 Activity 3: Protein Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 2 Lab 7 Activity 4: Glucose Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 3 Lab 8 Activity 1: Learning How Pollutants Accumulate in the Lungs • Human Biology and Health Issues: Unit 3 Lab 9 Activity 1: Simulating the Transmission of the Ebola Virus • Human Biology and Health Issues: Unit 4 Lab 10 Activity 1: Measuring Reaction Time • Human Biology and Health Issues: Unit 4 Lab 10 Activity 2: Measuring Range of Vision • Teacher Resource CD: Human Health Issues and Disease • Teacher Resource CD: Human Physiology • Teacher Resource CD: The Human Machine • Virtual Laboratory: Identifying Human Tissues
<p>AE/SKILLS & CONCEPTS/ORGANIZER</p>	<p>SC-7-UD-S-5.</p>	<p>Program of Studies: Skills and Concepts - Students will compare the physiological similarities among people from geographically and culturally diverse origins</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 1 Activity 1: Learning How Our Body is Organized and Functions • Human Biology and Health Issues: Unit

		<p>1 Lab 2 Activity 1: Testing Taste Receptors in the Tongue</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 2 Activity 2: Thermoreceptors - Responding to Heat and Cold • Human Biology and Health Issues: Unit 1 Lab 2 Activity 3: Distribution and Sensitivity of Touch Receptors • Human Biology and Health Issues: Unit 1 Lab 2 Activity 4: Responding to Sound • Human Biology and Health Issues: Unit 1 Lab 3 Activity 1: Exploring the Eye-Brain Connection • Human Biology and Health Issues: Unit 1 Lab 3 Activity 2: Measuring Vision • Human Biology and Health Issues: Unit 1 Lab 3 Activity 3: Is There a Hole in Your Hand? • Human Biology and Health Issues: Unit 1 Lab 3 Activity 4: Photographic Ambiguities • Human Biology and Health Issues: Unit 1 Lab 3 Activity 5: Typographic Illusions • Human Biology and Health Issues: Unit 1 Lab 3 Activity 6: Contrast and Color Illusions • Human Biology and Health Issues: Unit 1 Lab 4 Activity 1: Determining ABO-Rh Blood Type • Human Biology and Health Issues: Unit 1 Lab 4 Activity 2: A Closer Look at Blood • Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content • Human Biology and Health Issues: Unit 2 Lab 6 Activity 1: Demonstrating Selective Permeability in Simulated Skin Cells • Human Biology and Health Issues: Unit 2 Lab 6 Activity 2: Exploring Transdermal Drug Delivery • Human Biology and Health Issues: Unit 2 Lab 7 Activity 1: Modeling Kidney Function • Human Biology and Health Issues: Unit 2 Lab 7 Activity 2: Physical and Microscopic Characteristics of Urine • Human Biology and Health Issues: Unit 2 Lab 7 Activity 3: Protein Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 2 Lab 7 Activity 4: Glucose Test of Simulated Urine Samples
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CATEGORY	KY.PS.	Program of Studies 2006
GOAL/UNDERSTANDINGS/SUBDOMAIN	SC-7-BC.	Big Idea: Biological Change (Biological Science) - The only thing certain is that everything changes. At the middle school level, students study relationships among populations and ecosystems that contribute to the success or demise of a specific population or species. Students construct basic explanations that can account for the great diversity among organisms. (Academic Expectations 2.1, 2.2, 2.5, 2.6)
AE/SKILLS & CONCEPTS/ORGANIZER	SC-7-BC-S-4.	<p>Program of Studies: Skills and Concepts - Students will compare the results from a variety of investigations (based on similar hypotheses) to identify differences between their outcomes/conclusions and propose reasonable explanations for those discrepancies</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 1 Activity 1: Learning How Our Body is Organized and Functions • Human Biology and Health Issues: Unit 1 Lab 2 Activity 1: Testing Taste Receptors in the Tongue • Human Biology and Health Issues: Unit 1 Lab 2 Activity 2: Thermoreceptors - Responding to Heat and Cold • Human Biology and Health Issues: Unit 1 Lab 2 Activity 3: Distribution and Sensitivity of Touch Receptors • Human Biology and Health Issues: Unit 1 Lab 2 Activity 4: Responding to Sound • Human Biology and Health Issues: Unit 1 Lab 3 Activity 1: Exploring the Eye-Brain Connection • Human Biology and Health Issues: Unit 1 Lab 3 Activity 2: Measuring Vision

		<ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 3 Activity 3: Is There a Hole in Your Hand? • Human Biology and Health Issues: Unit 1 Lab 3 Activity 4: Photographic Ambiguities • Human Biology and Health Issues: Unit 1 Lab 3 Activity 5: Typographic Illusions • Human Biology and Health Issues: Unit 1 Lab 3 Activity 6: Contrast and Color Illusions • Human Biology and Health Issues: Unit 1 Lab 4 Activity 1: Determining ABO-Rh Blood Type • Human Biology and Health Issues: Unit 1 Lab 4 Activity 2: A Closer Look at Blood • Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content • Human Biology and Health Issues: Unit 2 Lab 6 Activity 1: Demonstrating Selective Permeability in Simulated Skin Cells • Human Biology and Health Issues: Unit 2 Lab 6 Activity 2: Exploring Transdermal Drug Delivery • Human Biology and Health Issues: Unit 2 Lab 7 Activity 1: Modeling Kidney Function • Human Biology and Health Issues: Unit 2 Lab 7 Activity 2: Physical and Microscopic Characteristics of Urine • Human Biology and Health Issues: Unit 2 Lab 7 Activity 3: Protein Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 2 Lab 7 Activity 4: Glucose Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 3 Lab 8 Activity 1: Learning How Pollutants Accumulate in the Lungs • Human Biology and Health Issues: Unit 3 Lab 9 Activity 1: Simulating the Transmission of the Ebola Virus • Human Biology and Health Issues: Unit 4 Lab 10 Activity 1: Measuring Reaction Time • Human Biology and Health Issues: Unit 4 Lab 10 Activity 2: Measuring Range of Vision • Virtual Laboratory: Identifying Human Tissues
CATEGORY	KY.PS.	Program of Studies 2006

GOAL/UNDERSTANDINGS/SUBDOMAIN	SC-7-ET.	Big Idea: Energy Transformations (Unifying Concepts) - Energy transformations are inherent in almost every system in the universe - from tangible examples at the elementary level, such as heat production in simple Earth and physical systems to more abstract ideas beginning at middle school, such as those transformations involved in the growth, dying and decay of living systems. The use of models to illustrate the often invisible and abstract notions of energy transfer will aid in conceptualization, especially as students move from the macroscopic level of observation and evidence (primarily elementary school) to the microscopic interactions at the atomic level (middle and high school levels). (Academic Expectations 2.1, 2.2, 2.3, 2.4)
AE/SKILLS & CONCEPTS/ORGANIZER	SC-7-ET-U-6.	<p>Program of Studies: Understandings - Students will understand that systems tend to change until they become stable and remain that way unless conditions change.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 1 Activity 1: Learning How Our Body is Organized and Functions • Human Biology and Health Issues: Unit 2 Lab 6 Activity 1: Demonstrating Selective Permeability in Simulated Skin Cells • Human Biology and Health Issues: Unit 2 Lab 6 Activity 2: Exploring Transdermal Drug Delivery • Human Biology and Health Issues: Unit 2 Lab 7 Activity 1: Modeling Kidney Function • Human Biology and Health Issues: Unit 2 Lab 7 Activity 2: Physical and Microscopic Characteristics of Urine • Human Biology and Health Issues: Unit 2 Lab 7 Activity 3: Protein Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 2 Lab 7 Activity 4: Glucose Test of Simulated Urine Samples • Teacher Resource CD: Human Health Issues and Disease • Teacher Resource CD: Human Physiology • Teacher Resource CD: The Human Machine
CATEGORY	KY.AE.	Academic Expectation
GOAL/UNDERSTANDINGS/SUBDOMAIN	AE.1.	Students are able to use basic communication and mathematics skills for purposes and situations they will encounter throughout their lives.
AE/SKILLS & CONCEPTS/ORGANIZER	1.2.	<p>Students make sense of the variety of materials they read.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit

		<p>1 Lab 1 Activity 1: Learning How Our Body is Organized and Functions</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 2 Activity 1: Testing Taste Receptors in the Tongue • Human Biology and Health Issues: Unit 1 Lab 2 Activity 2: Thermoreceptors - Responding to Heat and Cold • Human Biology and Health Issues: Unit 1 Lab 2 Activity 3: Distribution and Sensitivity of Touch Receptors • Human Biology and Health Issues: Unit 1 Lab 2 Activity 4: Responding to Sound • Human Biology and Health Issues: Unit 1 Lab 3 Activity 1: Exploring the Eye-Brain Connection • Human Biology and Health Issues: Unit 1 Lab 3 Activity 2: Measuring Vision • Human Biology and Health Issues: Unit 1 Lab 3 Activity 3: Is There a Hole in Your Hand? • Human Biology and Health Issues: Unit 1 Lab 3 Activity 4: Photographic Ambiguities • Human Biology and Health Issues: Unit 1 Lab 3 Activity 5: Typographic Illusions • Human Biology and Health Issues: Unit 1 Lab 3 Activity 6: Contrast and Color Illusions • Human Biology and Health Issues: Unit 1 Lab 4 Activity 1: Determining ABO-Rh Blood Type • Human Biology and Health Issues: Unit 1 Lab 4 Activity 2: A Closer Look at Blood • Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content • Human Biology and Health Issues: Unit 2 Lab 6 Activity 1: Demonstrating Selective Permeability in Simulated Skin Cells • Human Biology and Health Issues: Unit 2 Lab 6 Activity 2: Exploring Transdermal Drug Delivery • Human Biology and Health Issues: Unit 2 Lab 7 Activity 1: Modeling Kidney Function • Human Biology and Health Issues: Unit 2 Lab 7 Activity 2: Physical and Microscopic Characteristics of Urine • Human Biology and Health Issues: Unit 2 Lab 7 Activity 3: Protein Test of Simulated Urine Samples
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<p>AE/SKILLS & CONCEPTS/ORGANIZER</p>	<p>1.3.</p>	<p>Students make sense of the various things they observe.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 1 Activity 1: Learning How Our Body is Organized and Functions • Human Biology and Health Issues: Unit 1 Lab 2 Activity 1: Testing Taste Receptors in the Tongue • Human Biology and Health Issues: Unit 1 Lab 2 Activity 2: Thermoreceptors - Responding to Heat and Cold • Human Biology and Health Issues: Unit 1 Lab 2 Activity 3: Distribution and Sensitivity of Touch Receptors • Human Biology and Health Issues: Unit 1 Lab 2 Activity 4: Responding to Sound • Human Biology and Health Issues: Unit 1 Lab 3 Activity 1: Exploring the Eye-Brain Connection • Human Biology and Health Issues: Unit 1 Lab 3 Activity 2: Measuring Vision • Human Biology and Health Issues: Unit 1 Lab 3 Activity 3: Is There a Hole in Your Hand? • Human Biology and Health Issues: Unit 1 Lab 3 Activity 4: Photographic Ambiguities • Human Biology and Health Issues: Unit 1 Lab 3 Activity 5: Typographic Illusions • Human Biology and Health Issues: Unit 1 Lab 3 Activity 6: Contrast and Color Illusions • Human Biology and Health Issues: Unit 1 Lab 4 Activity 1: Determining ABO-Rh Blood Type

		<ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 4 Activity 2: A Closer Look at Blood • Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content • Human Biology and Health Issues: Unit 2 Lab 6 Activity 1: Demonstrating Selective Permeability in Simulated Skin Cells • Human Biology and Health Issues: Unit 2 Lab 6 Activity 2: Exploring Transdermal Drug Delivery • Human Biology and Health Issues: Unit 2 Lab 7 Activity 1: Modeling Kidney Function • Human Biology and Health Issues: Unit 2 Lab 7 Activity 2: Physical and Microscopic Characteristics of Urine • Human Biology and Health Issues: Unit 2 Lab 7 Activity 3: Protein Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 2 Lab 7 Activity 4: Glucose Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 3 Lab 8 Activity 1: Learning How Pollutants Accumulate in the Lungs • Human Biology and Health Issues: Unit 3 Lab 9 Activity 1: Simulating the Transmission of the Ebola Virus • Human Biology and Health Issues: Unit 4 Lab 10 Activity 1: Measuring Reaction Time • Human Biology and Health Issues: Unit 4 Lab 10 Activity 2: Measuring Range of Vision • Virtual Laboratory: Identifying Human Tissues
<p>AE/SKILLS & CONCEPTS/ORGANIZER</p>	<p>1.4.</p>	<p>Students make sense of the various messages to which they listen.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 1 Activity 1: Learning How Our Body is Organized and Functions • Human Biology and Health Issues: Unit 1 Lab 2 Activity 1: Testing Taste Receptors in the Tongue • Human Biology and Health Issues: Unit 1 Lab 2 Activity 2: Thermoreceptors - Responding to Heat and Cold • Human Biology and Health Issues: Unit 1 Lab 2 Activity 3: Distribution and Sensitivity of Touch Receptors • Human Biology and Health Issues: Unit

		<p>1 Lab 2 Activity 4: Responding to Sound</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 3 Activity 1: Exploring the Eye-Brain Connection • Human Biology and Health Issues: Unit 1 Lab 3 Activity 2: Measuring Vision • Human Biology and Health Issues: Unit 1 Lab 3 Activity 3: Is There a Hole in Your Hand? • Human Biology and Health Issues: Unit 1 Lab 3 Activity 4: Photographic Ambiguities • Human Biology and Health Issues: Unit 1 Lab 3 Activity 5: Typographic Illusions • Human Biology and Health Issues: Unit 1 Lab 3 Activity 6: Contrast and Color Illusions • Human Biology and Health Issues: Unit 1 Lab 4 Activity 1: Determining ABO-Rh Blood Type • Human Biology and Health Issues: Unit 1 Lab 4 Activity 2: A Closer Look at Blood • Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content • Human Biology and Health Issues: Unit 2 Lab 6 Activity 1: Demonstrating Selective Permeability in Simulated Skin Cells • Human Biology and Health Issues: Unit 2 Lab 6 Activity 2: Exploring Transdermal Drug Delivery • Human Biology and Health Issues: Unit 2 Lab 7 Activity 1: Modeling Kidney Function • Human Biology and Health Issues: Unit 2 Lab 7 Activity 2: Physical and Microscopic Characteristics of Urine • Human Biology and Health Issues: Unit 2 Lab 7 Activity 3: Protein Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 2 Lab 7 Activity 4: Glucose Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 3 Lab 8 Activity 1: Learning How Pollutants Accumulate in the Lungs • Human Biology and Health Issues: Unit 3 Lab 9 Activity 1: Simulating the Transmission of the Ebola Virus • Human Biology and Health Issues: Unit 4 Lab 10 Activity 1: Measuring Reaction Time
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		<ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 4 Lab 10 Activity 2: Measuring Range of Vision • Virtual Laboratory: Identifying Human Tissues
<p>AE/SKILLS & CONCEPTS/ORGANIZER</p>	<p>1.5-1.9.</p>	<p>Students use mathematical ideas and procedures to communicate, reason, and solve problems.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 1 Activity 1: Learning How Our Body is Organized and Functions • Human Biology and Health Issues: Unit 1 Lab 2 Activity 1: Testing Taste Receptors in the Tongue • Human Biology and Health Issues: Unit 1 Lab 2 Activity 2: Thermoreceptors - Responding to Heat and Cold • Human Biology and Health Issues: Unit 1 Lab 2 Activity 3: Distribution and Sensitivity of Touch Receptors • Human Biology and Health Issues: Unit 1 Lab 2 Activity 4: Responding to Sound • Human Biology and Health Issues: Unit 1 Lab 3 Activity 1: Exploring the Eye-Brain Connection • Human Biology and Health Issues: Unit 1 Lab 3 Activity 2: Measuring Vision • Human Biology and Health Issues: Unit 1 Lab 3 Activity 3: Is There a Hole in Your Hand? • Human Biology and Health Issues: Unit 1 Lab 3 Activity 4: Photographic Ambiguities • Human Biology and Health Issues: Unit 1 Lab 3 Activity 5: Typographic Illusions • Human Biology and Health Issues: Unit 1 Lab 3 Activity 6: Contrast and Color Illusions • Human Biology and Health Issues: Unit 1 Lab 4 Activity 1: Determining ABO-Rh Blood Type • Human Biology and Health Issues: Unit 1 Lab 4 Activity 2: A Closer Look at Blood • Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content • Human Biology and Health Issues: Unit 2 Lab 6 Activity 1: Demonstrating Selective Permeability in Simulated Skin Cells • Human Biology and Health Issues: Unit 2 Lab 6 Activity 2: Exploring

		<p>Transdermal Drug Delivery</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 2 Lab 7 Activity 1: Modeling Kidney Function • Human Biology and Health Issues: Unit 2 Lab 7 Activity 2: Physical and Microscopic Characteristics of Urine • Human Biology and Health Issues: Unit 2 Lab 7 Activity 3: Protein Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 2 Lab 7 Activity 4: Glucose Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 3 Lab 8 Activity 1: Learning How Pollutants Accumulate in the Lungs • Human Biology and Health Issues: Unit 3 Lab 9 Activity 1: Simulating the Transmission of the Ebola Virus • Human Biology and Health Issues: Unit 4 Lab 10 Activity 1: Measuring Reaction Time • Human Biology and Health Issues: Unit 4 Lab 10 Activity 2: Measuring Range of Vision • Virtual Laboratory: Identifying Human Tissues
<p>AE/SKILLS & CONCEPTS/ORGANIZER</p>	<p>1.10.</p>	<p>Students organize information through development and use of classification rules and systems.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 2 Activity 1: Testing Taste Receptors in the Tongue • Human Biology and Health Issues: Unit 1 Lab 2 Activity 2: Thermoreceptors - Responding to Heat and Cold • Human Biology and Health Issues: Unit 1 Lab 2 Activity 3: Distribution and Sensitivity of Touch Receptors • Human Biology and Health Issues: Unit 1 Lab 2 Activity 4: Responding to Sound • Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content • Virtual Laboratory: Identifying Human Tissues
<p>AE/SKILLS & CONCEPTS/ORGANIZER</p>	<p>1.11.</p>	<p>Students write using appropriate forms, conventions, and styles to communicate ideas and information to different audiences for different purposes.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 1 Activity 1: Learning How Our

		<p>Body is Organized and Functions</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 2 Activity 1: Testing Taste Receptors in the Tongue • Human Biology and Health Issues: Unit 1 Lab 2 Activity 2: Thermoreceptors - Responding to Heat and Cold • Human Biology and Health Issues: Unit 1 Lab 2 Activity 3: Distribution and Sensitivity of Touch Receptors • Human Biology and Health Issues: Unit 1 Lab 2 Activity 4: Responding to Sound • Human Biology and Health Issues: Unit 1 Lab 3 Activity 1: Exploring the Eye-Brain Connection • Human Biology and Health Issues: Unit 1 Lab 3 Activity 2: Measuring Vision • Human Biology and Health Issues: Unit 1 Lab 3 Activity 3: Is There a Hole in Your Hand? • Human Biology and Health Issues: Unit 1 Lab 3 Activity 4: Photographic Ambiguities • Human Biology and Health Issues: Unit 1 Lab 3 Activity 5: Typographic Illusions • Human Biology and Health Issues: Unit 1 Lab 3 Activity 6: Contrast and Color Illusions • Human Biology and Health Issues: Unit 1 Lab 4 Activity 1: Determining ABO-Rh Blood Type • Human Biology and Health Issues: Unit 1 Lab 4 Activity 2: A Closer Look at Blood • Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content • Human Biology and Health Issues: Unit 2 Lab 6 Activity 1: Demonstrating Selective Permeability in Simulated Skin Cells • Human Biology and Health Issues: Unit 2 Lab 6 Activity 2: Exploring Transdermal Drug Delivery • Human Biology and Health Issues: Unit 2 Lab 7 Activity 1: Modeling Kidney Function • Human Biology and Health Issues: Unit 2 Lab 7 Activity 2: Physical and Microscopic Characteristics of Urine • Human Biology and Health Issues: Unit 2 Lab 7 Activity 3: Protein Test of Simulated Urine Samples • Human Biology and Health Issues: Unit
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		<p>2 Lab 7 Activity 4: Glucose Test of Simulated Urine Samples</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 3 Lab 8 Activity 1: Learning How Pollutants Accumulate in the Lungs • Human Biology and Health Issues: Unit 3 Lab 9 Activity 1: Simulating the Transmission of the Ebola Virus • Human Biology and Health Issues: Unit 4 Lab 10 Activity 1: Measuring Reaction Time • Human Biology and Health Issues: Unit 4 Lab 10 Activity 2: Measuring Range of Vision • Virtual Laboratory: Identifying Human Tissues
<p>AE/SKILLS & CONCEPTS/ORGANIZER</p>	<p>1.12.</p>	<p>Students speak using appropriate forms, conventions, and styles to communicate ideas and information to different audiences for different purposes.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 1 Activity 1: Learning How Our Body is Organized and Functions • Human Biology and Health Issues: Unit 1 Lab 2 Activity 1: Testing Taste Receptors in the Tongue • Human Biology and Health Issues: Unit 1 Lab 2 Activity 2: Thermoreceptors - Responding to Heat and Cold • Human Biology and Health Issues: Unit 1 Lab 2 Activity 3: Distribution and Sensitivity of Touch Receptors • Human Biology and Health Issues: Unit 1 Lab 2 Activity 4: Responding to Sound • Human Biology and Health Issues: Unit 1 Lab 3 Activity 1: Exploring the Eye-Brain Connection • Human Biology and Health Issues: Unit 1 Lab 3 Activity 2: Measuring Vision • Human Biology and Health Issues: Unit 1 Lab 3 Activity 3: Is There a Hole in Your Hand? • Human Biology and Health Issues: Unit 1 Lab 3 Activity 4: Photographic Ambiguities • Human Biology and Health Issues: Unit 1 Lab 3 Activity 5: Typographic Illusions • Human Biology and Health Issues: Unit 1 Lab 3 Activity 6: Contrast and Color Illusions • Human Biology and Health Issues: Unit 1 Lab 4 Activity 1: Determining ABO-Rh Blood Type

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<p>AE/SKILLS & CONCEPTS/ORGANIZER</p>	<p>1.16.</p>	<p>Students use computers and other kinds of technology to collect, organize, and communicate information and ideas.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 1 Activity 1: Learning How Our Body is Organized and Functions • Human Biology and Health Issues: Unit 1 Lab 2 Activity 1: Testing Taste Receptors in the Tongue • Human Biology and Health Issues: Unit 1 Lab 2 Activity 2: Thermoreceptors - Responding to Heat and Cold • Human Biology and Health Issues: Unit 1 Lab 2 Activity 3: Distribution and Sensitivity of Touch Receptors

		<ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 2 Activity 4: Responding to Sound • Human Biology and Health Issues: Unit 1 Lab 3 Activity 1: Exploring the Eye-Brain Connection • Human Biology and Health Issues: Unit 1 Lab 3 Activity 2: Measuring Vision • Human Biology and Health Issues: Unit 1 Lab 3 Activity 3: Is There a Hole in Your Hand? • Human Biology and Health Issues: Unit 1 Lab 3 Activity 4: Photographic Ambiguities • Human Biology and Health Issues: Unit 1 Lab 3 Activity 5: Typographic Illusions • Human Biology and Health Issues: Unit 1 Lab 3 Activity 6: Contrast and Color Illusions • Human Biology and Health Issues: Unit 1 Lab 4 Activity 1: Determining ABO-Rh Blood Type • Human Biology and Health Issues: Unit 1 Lab 4 Activity 2: A Closer Look at Blood • Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content • Human Biology and Health Issues: Unit 2 Lab 6 Activity 1: Demonstrating Selective Permeability in Simulated Skin Cells • Human Biology and Health Issues: Unit 2 Lab 6 Activity 2: Exploring Transdermal Drug Delivery • Human Biology and Health Issues: Unit 2 Lab 7 Activity 1: Modeling Kidney Function • Human Biology and Health Issues: Unit 2 Lab 7 Activity 2: Physical and Microscopic Characteristics of Urine • Human Biology and Health Issues: Unit 2 Lab 7 Activity 3: Protein Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 2 Lab 7 Activity 4: Glucose Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 3 Lab 8 Activity 1: Learning How Pollutants Accumulate in the Lungs • Human Biology and Health Issues: Unit 3 Lab 9 Activity 1: Simulating the Transmission of the Ebola Virus • Human Biology and Health Issues: Unit 4 Lab 10 Activity 1: Measuring
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		<p>Reaction Time</p> <ul style="list-style-type: none"> Human Biology and Health Issues: Unit 4 Lab 10 Activity 2: Measuring Range of Vision Virtual Laboratory: Identifying Human Tissues
CATEGORY	KY.AE.	Academic Expectation
GOAL/UNDERSTANDINGS/SUBDOMAIN	AE.2.	Students shall develop their abilities to apply core concepts and principles from mathematics, the sciences, the arts, the humanities, social studies, practical living studies, and vocational studies to what they will encounter throughout their lives.
AE/SKILLS & CONCEPTS/ORGANIZER	2.2.	<p>Science: Students identify, analyze, and use patterns such as cycles and trends to understand past and present events and predict possible future events.</p> <ul style="list-style-type: none"> Human Biology and Health Issues: Unit 1 Lab 1 Activity 1: Learning How Our Body is Organized and Functions Human Biology and Health Issues: Unit 1 Lab 2 Activity 1: Testing Taste Receptors in the Tongue Human Biology and Health Issues: Unit 1 Lab 2 Activity 2: Thermoreceptors - Responding to Heat and Cold Human Biology and Health Issues: Unit 1 Lab 2 Activity 3: Distribution and Sensitivity of Touch Receptors Human Biology and Health Issues: Unit 1 Lab 2 Activity 4: Responding to Sound Human Biology and Health Issues: Unit 1 Lab 3 Activity 1: Exploring the Eye-Brain Connection Human Biology and Health Issues: Unit 1 Lab 3 Activity 2: Measuring Vision Human Biology and Health Issues: Unit 1 Lab 3 Activity 3: Is There a Hole in Your Hand? Human Biology and Health Issues: Unit 1 Lab 3 Activity 4: Photographic Ambiguities Human Biology and Health Issues: Unit 1 Lab 3 Activity 5: Typographic Illusions Human Biology and Health Issues: Unit 1 Lab 3 Activity 6: Contrast and Color Illusions Human Biology and Health Issues: Unit 1 Lab 4 Activity 1: Determining ABO-Rh Blood Type Human Biology and Health Issues: Unit 1 Lab 4 Activity 2: A Closer Look at Blood Human Biology and Health Issues: Unit

		<p>2 Lab 5 Activity 1: Testing for Food Nutrient Content</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 2 Lab 6 Activity 1: Demonstrating Selective Permeability in Simulated Skin Cells • Human Biology and Health Issues: Unit 2 Lab 6 Activity 2: Exploring Transdermal Drug Delivery • Human Biology and Health Issues: Unit 2 Lab 7 Activity 1: Modeling Kidney Function • Human Biology and Health Issues: Unit 2 Lab 7 Activity 2: Physical and Microscopic Characteristics of Urine • Human Biology and Health Issues: Unit 2 Lab 7 Activity 3: Protein Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 2 Lab 7 Activity 4: Glucose Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 3 Lab 8 Activity 1: Learning How Pollutants Accumulate in the Lungs • Human Biology and Health Issues: Unit 3 Lab 9 Activity 1: Simulating the Transmission of the Ebola Virus • Human Biology and Health Issues: Unit 4 Lab 10 Activity 1: Measuring Reaction Time • Human Biology and Health Issues: Unit 4 Lab 10 Activity 2: Measuring Range of Vision • Virtual Laboratory: Identifying Human Tissues
<p>AE/SKILLS & CONCEPTS/ORGANIZER</p>	<p>2.3.</p>	<p>Science: Students identify and analyze systems and the ways their components work together or affect each other.</p> <ul style="list-style-type: none"> • Teacher Resource CD: Human Health Issues and Disease • Teacher Resource CD: Human Physiology • Teacher Resource CD: The Human Machine
<p>AE/SKILLS & CONCEPTS/ORGANIZER</p>	<p>2.4.</p>	<p>Science: Students use the concept of scale and scientific models to explain the organization and functioning of living and nonliving things and predict other characteristics that might be observed.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 1 Activity 1: Learning How Our Body is Organized and Functions • Human Biology and Health Issues: Unit

		<p>1 Lab 4 Activity 1: Determining ABO-Rh Blood Type</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 4 Activity 2: A Closer Look at Blood • Human Biology and Health Issues: Unit 2 Lab 6 Activity 1: Demonstrating Selective Permeability in Simulated Skin Cells • Human Biology and Health Issues: Unit 2 Lab 6 Activity 2: Exploring Transdermal Drug Delivery • Human Biology and Health Issues: Unit 2 Lab 7 Activity 1: Modeling Kidney Function • Human Biology and Health Issues: Unit 2 Lab 7 Activity 2: Physical and Microscopic Characteristics of Urine • Human Biology and Health Issues: Unit 2 Lab 7 Activity 3: Protein Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 2 Lab 7 Activity 4: Glucose Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 3 Lab 8 Activity 1: Learning How Pollutants Accumulate in the Lungs
<p>AE/SKILLS & CONCEPTS/ORGANIZER</p>	<p>2.5.</p>	<p>Science: Students understand that under certain conditions nature tends to remain the same or move toward a balance.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 1 Activity 1: Learning How Our Body is Organized and Functions • Human Biology and Health Issues: Unit 2 Lab 6 Activity 1: Demonstrating Selective Permeability in Simulated Skin Cells • Human Biology and Health Issues: Unit 2 Lab 6 Activity 2: Exploring Transdermal Drug Delivery • Human Biology and Health Issues: Unit 2 Lab 7 Activity 1: Modeling Kidney Function • Human Biology and Health Issues: Unit 2 Lab 7 Activity 2: Physical and Microscopic Characteristics of Urine • Human Biology and Health Issues: Unit 2 Lab 7 Activity 3: Protein Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 2 Lab 7 Activity 4: Glucose Test of Simulated Urine Samples • Teacher Resource CD: Human Health Issues and Disease

		<ul style="list-style-type: none"> • Teacher Resource CD: Human Physiology • Teacher Resource CD: The Human Machine
AE/SKILLS & CONCEPTS/ORGANIZER	2.6.	<p>Science: Students understand how living and nonliving things change over time and the factors that influence the changes.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 3 Lab 8 Activity 1: Learning How Pollutants Accumulate in the Lungs • Human Biology and Health Issues: Unit 3 Lab 9 Activity 1: Simulating the Transmission of the Ebola Virus • Human Biology and Health Issues: Unit 4 Lab 10 Activity 1: Measuring Reaction Time • Teacher Resource CD: Human Health Issues and Disease
CATEGORY	KY.CC.	Core Content for Assessment v.4.1
GOAL/UNDERSTANDINGS/SUBDOMAIN	SC-07-1.1.	Structure and Transformation of Matter: During the middle years, physical and chemical changes in matter are observed, and students begin to relate these changes to the smaller constituents of matter - namely, atoms and molecules.
AE/SKILLS & CONCEPTS/ORGANIZER	SC-07-1.1.2.	<p>Physical Science: Students will classify elements and compounds according to their properties; compare properties of different combinations of elements.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content
CATEGORY	KY.CC.	Core Content for Assessment v.4.1
GOAL/UNDERSTANDINGS/SUBDOMAIN	SC-07-4.6.	Energy Transformations: Energy transformations are inherent in almost every system in the universe - from tangible examples at the elementary level, such as heat production in simple earth and physical systems to more abstract ideas beginning at middle school, such as those transformations involved in the growth, dying and decay of living systems. The use of models to illustrate the often invisible and abstract notions of energy transfer will aid in conceptualization, especially as students move from the macroscopic level of observation and evidence (primarily elementary school) to the microscopic interactions at the atomic level (middle and high school levels).
AE/SKILLS & CONCEPTS/ORGANIZER	SC-07-4.6.1.	<p>Unifying Concepts: Students will understand that Earth systems have sources of energy that are internal and external to the Earth. The Sun is the major external source of energy.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content

		<ul style="list-style-type: none"> Teacher Resource CD: Human Physiology
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Kentucky Standards
Science
Grade 8

CATEGORY	KY.PS.	Program of Studies 2006
GOAL/UNDERSTANDINGS/SUBDOMAIN	SC-8-STM.	Big Idea: Structure and Transformation of Matter (Physical Science) - A basic understanding of matter is essential to the conceptual development of other big ideas in science. During the middle years, physical and chemical changes in matter are observed, and students begin to relate these changes to the smaller constituents of matter - namely, atoms and molecules. The use of models (and an understanding of their scales and limitations) is an effective means of learning about the structure of matter. Looking for patterns in properties is also critical to comparing and explaining differences in matter. (Academic Expectations 2.1, 2.2, 2.4, 2.5)
AE/SKILLS & CONCEPTS/ORGANIZER	SC-8-STM-U-1.	<p>Program of Studies: Understandings - Students will understand that all matter is made of tiny moving particles called atoms, which are far too small to see directly through a microscope. The atoms of any element are alike but are different from atoms of other elements.</p> <ul style="list-style-type: none"> Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content
AE/SKILLS & CONCEPTS/ORGANIZER	SC-8-STM-U-3.	<p>Program of Studies: Understandings - Students will understand that elements do not break down during chemical reactions (e.g., heating, exposure to electric currents, reaction with acids).</p> <ul style="list-style-type: none"> Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content
CATEGORY	KY.PS.	Program of Studies 2006
GOAL/UNDERSTANDINGS/SUBDOMAIN	SC-8-UD.	Big Idea: Unity and Diversity (Biological Science) - All matter is comprised of the same basic elements, goes through the same kinds of energy transformations, and uses the same kinds of forces to move. Living organisms are no exception. In middle school, students begin to compare, contrast, and classify the microscopic features of organisms - the cells, as well as investigate reproduction as the essential process to the continuation of all species. Expected patterns of genetic traits are predicted. Distinctions are made between learned behaviors and inherited traits. Emphasis at every level should be placed upon the understanding that while every living thing is composed of similar small constituents that combine in predictable ways, it is the subtle variations within these small building blocks that account for both the likenesses and differences in form and function that create the diversity of life.

		(Academic Expectations 2.1, 2.2, 2.3, 2.4)
AE/SKILLS & CONCEPTS/ORGANIZER	SC-8-UD-U-1.	<p>Program of Studies: Understandings - Students will understand that all cells contain specialized parts that are structured to efficiently perform the cell's essential functions.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 2 Lab 6 Activity 1: Demonstrating Selective Permeability in Simulated Skin Cells • Human Biology and Health Issues: Unit 2 Lab 6 Activity 2: Exploring Transdermal Drug Delivery • Human Biology and Health Issues: Unit 2 Lab 7 Activity 1: Modeling Kidney Function • Teacher Resource CD: Human Physiology • Virtual Laboratory: Identifying Human Tissues
AE/SKILLS & CONCEPTS/ORGANIZER	SC-8-UD-U-2.	<p>Program of Studies: Understandings - Students will understand that complex organisms can exist because their genes contain the information needed to create and reproduce cells with specialized functions.</p> <ul style="list-style-type: none"> • Teacher Resource CD: The Human Machine
AE/SKILLS & CONCEPTS/ORGANIZER	SC-8-UD-U-3.	<p>Program of Studies: Understandings - Students will understand that organisms have nervous systems that allow them to react to changes in their surroundings and within themselves. Some of their reactions (e.g. pain response) are determined genetically while others (e.g. pushing a button to obtain food) are learned.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 2 Activity 1: Testing Taste Receptors in the Tongue • Human Biology and Health Issues: Unit 1 Lab 2 Activity 2: Thermoreceptors - Responding to Heat and Cold • Human Biology and Health Issues: Unit 1 Lab 2 Activity 3: Distribution and Sensitivity of Touch Receptors • Human Biology and Health Issues: Unit 1 Lab 2 Activity 4: Responding to Sound • Human Biology and Health Issues: Unit 1 Lab 3 Activity 1: Exploring the Eye-Brain Connection • Human Biology and Health Issues: Unit 1 Lab 3 Activity 2: Measuring Vision • Human Biology and Health Issues: Unit 1 Lab 3 Activity 3: Is There a Hole in Your Hand? • Human Biology and Health Issues: Unit

		<p>1 Lab 3 Activity 4: Photographic Ambiguities</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 3 Activity 5: Typographic Illusions • Human Biology and Health Issues: Unit 1 Lab 3 Activity 6: Contrast and Color Illusions • Human Biology and Health Issues: Unit 4 Lab 10 Activity 1: Measuring Reaction Time • Human Biology and Health Issues: Unit 4 Lab 10 Activity 2: Measuring Range of Vision
<p>AE/SKILLS & CONCEPTS/ORGANIZER</p>	<p>SC-8-UD-S-3.</p>	<p>Program of Studies: Skills and Concepts - Students will investigate how the nervous systems of various organisms allow them to react (e.g. vomiting, avoidance) to internal (e.g., food toxins) and external (e.g., predator encounter) stimuli</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 2 Activity 1: Testing Taste Receptors in the Tongue • Human Biology and Health Issues: Unit 1 Lab 2 Activity 2: Thermoreceptors - Responding to Heat and Cold • Human Biology and Health Issues: Unit 1 Lab 2 Activity 3: Distribution and Sensitivity of Touch Receptors • Human Biology and Health Issues: Unit 1 Lab 2 Activity 4: Responding to Sound • Human Biology and Health Issues: Unit 1 Lab 3 Activity 1: Exploring the Eye-Brain Connection • Human Biology and Health Issues: Unit 1 Lab 3 Activity 2: Measuring Vision • Human Biology and Health Issues: Unit 1 Lab 3 Activity 3: Is There a Hole in Your Hand? • Human Biology and Health Issues: Unit 1 Lab 3 Activity 4: Photographic Ambiguities • Human Biology and Health Issues: Unit 1 Lab 3 Activity 5: Typographic Illusions • Human Biology and Health Issues: Unit 1 Lab 3 Activity 6: Contrast and Color Illusions • Human Biology and Health Issues: Unit 4 Lab 10 Activity 1: Measuring Reaction Time • Human Biology and Health Issues: Unit 4 Lab 10 Activity 2: Measuring Range

		of Vision
CATEGORY	KY.PS.	Program of Studies 2006
GOAL/UNDERSTANDINGS/SUBDOMAIN	SC-8-BC.	Big Idea: Biological Change (Biological Science) - The only thing certain is that everything changes. At the middle school level, students study relationships among populations and ecosystems that contribute to the success or demise of a specific population or species. Students construct basic explanations that can account for the great diversity among organisms. (Academic Expectations 2.1, 2.2, 2.5, 2.6)
AE/SKILLS & CONCEPTS/ORGANIZER	SC-8-BC-U-2.	<p>Program of Studies: Understandings - Students will understand that observations of the fossil record provide evidence that helps to explain why externally diverse organisms are so similar at the molecular level.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 1 Activity 1: Learning How Our Body is Organized and Functions • Human Biology and Health Issues: Unit 1 Lab 2 Activity 1: Testing Taste Receptors in the Tongue • Human Biology and Health Issues: Unit 1 Lab 2 Activity 2: Thermoreceptors - Responding to Heat and Cold • Human Biology and Health Issues: Unit 1 Lab 2 Activity 3: Distribution and Sensitivity of Touch Receptors • Human Biology and Health Issues: Unit 1 Lab 2 Activity 4: Responding to Sound • Human Biology and Health Issues: Unit 1 Lab 3 Activity 1: Exploring the Eye-Brain Connection • Human Biology and Health Issues: Unit 1 Lab 3 Activity 2: Measuring Vision • Human Biology and Health Issues: Unit 1 Lab 3 Activity 3: Is There a Hole in Your Hand? • Human Biology and Health Issues: Unit 1 Lab 3 Activity 4: Photographic Ambiguities • Human Biology and Health Issues: Unit 1 Lab 3 Activity 5: Typographic Illusions • Human Biology and Health Issues: Unit 1 Lab 3 Activity 6: Contrast and Color Illusions • Human Biology and Health Issues: Unit 1 Lab 4 Activity 1: Determining ABO-Rh Blood Type • Human Biology and Health Issues: Unit 1 Lab 4 Activity 2: A Closer Look at Blood • Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food

		<p>Nutrient Content</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 2 Lab 6 Activity 1: Demonstrating Selective Permeability in Simulated Skin Cells • Human Biology and Health Issues: Unit 2 Lab 6 Activity 2: Exploring Transdermal Drug Delivery • Human Biology and Health Issues: Unit 2 Lab 7 Activity 1: Modeling Kidney Function • Human Biology and Health Issues: Unit 2 Lab 7 Activity 2: Physical and Microscopic Characteristics of Urine • Human Biology and Health Issues: Unit 2 Lab 7 Activity 3: Protein Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 2 Lab 7 Activity 4: Glucose Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 3 Lab 8 Activity 1: Learning How Pollutants Accumulate in the Lungs • Human Biology and Health Issues: Unit 3 Lab 9 Activity 1: Simulating the Transmission of the Ebola Virus • Human Biology and Health Issues: Unit 4 Lab 10 Activity 1: Measuring Reaction Time • Human Biology and Health Issues: Unit 4 Lab 10 Activity 2: Measuring Range of Vision • Teacher Resource CD: Human Health Issues and Disease • Teacher Resource CD: Human Physiology • Teacher Resource CD: The Human Machine • Virtual Laboratory: Identifying Human Tissues
CATEGORY	KY.PS.	Program of Studies 2006
GOAL/UNDERSTANDINGS/SUBDOMAIN	SC-8-ET.	<p>Big Idea: Energy Transformations (Unifying Concepts) - Energy transformations are inherent in almost every system in the universe - from tangible examples at the elementary level, such as heat production in simple Earth and physical systems to more abstract ideas beginning at middle school, such as those transformations involved in the growth, dying and decay of living systems. The use of models to illustrate the often invisible and abstract notions of energy transfer will aid in conceptualization, especially as students move from the macroscopic level of observation and evidence (primarily elementary school) to the microscopic interactions at the atomic level (middle and high school levels). (Academic Expectations 2.1, 2.2, 2.3, 2.4)</p>

AE/SKILLS & CONCEPTS/ORGANIZER	SC-8-ET-U-7.	<p>Program of Studies: Understandings - Students will understand that many systems contain feedback mechanisms that serve to keep changes within specified limits.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 1 Activity 1: Learning How Our Body is Organized and Functions • Teacher Resource CD: Human Health Issues and Disease • Teacher Resource CD: Human Physiology • Teacher Resource CD: The Human Machine
AE/SKILLS & CONCEPTS/ORGANIZER	SC-8-ET-S-2.	<p>Program of Studies: Skills and Concepts - Students will identify the energy transformations that occur in the 'production', transmission and use of energy by people in everyday life (e.g., electric power, automotive fuels, food)</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content • Teacher Resource CD: Human Physiology
CATEGORY	KY.AE.	Academic Expectation
GOAL/UNDERSTANDINGS/SUBDOMAIN	AE.1.	Students are able to use basic communication and mathematics skills for purposes and situations they will encounter throughout their lives.
AE/SKILLS & CONCEPTS/ORGANIZER	1.2.	<p>Students make sense of the variety of materials they read.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 1 Activity 1: Learning How Our Body is Organized and Functions • Human Biology and Health Issues: Unit 1 Lab 2 Activity 1: Testing Taste Receptors in the Tongue • Human Biology and Health Issues: Unit 1 Lab 2 Activity 2: Thermoreceptors - Responding to Heat and Cold • Human Biology and Health Issues: Unit 1 Lab 2 Activity 3: Distribution and Sensitivity of Touch Receptors • Human Biology and Health Issues: Unit 1 Lab 2 Activity 4: Responding to Sound • Human Biology and Health Issues: Unit 1 Lab 3 Activity 1: Exploring the Eye-Brain Connection • Human Biology and Health Issues: Unit 1 Lab 3 Activity 2: Measuring Vision • Human Biology and Health Issues: Unit 1 Lab 3 Activity 3: Is There a Hole in

		<p>Your Hand?</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 3 Activity 4: Photographic Ambiguities • Human Biology and Health Issues: Unit 1 Lab 3 Activity 5: Typographic Illusions • Human Biology and Health Issues: Unit 1 Lab 3 Activity 6: Contrast and Color Illusions • Human Biology and Health Issues: Unit 1 Lab 4 Activity 1: Determining ABO-Rh Blood Type • Human Biology and Health Issues: Unit 1 Lab 4 Activity 2: A Closer Look at Blood • Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content • Human Biology and Health Issues: Unit 2 Lab 6 Activity 1: Demonstrating Selective Permeability in Simulated Skin Cells • Human Biology and Health Issues: Unit 2 Lab 6 Activity 2: Exploring Transdermal Drug Delivery • Human Biology and Health Issues: Unit 2 Lab 7 Activity 1: Modeling Kidney Function • Human Biology and Health Issues: Unit 2 Lab 7 Activity 2: Physical and Microscopic Characteristics of Urine • Human Biology and Health Issues: Unit 2 Lab 7 Activity 3: Protein Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 2 Lab 7 Activity 4: Glucose Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 3 Lab 8 Activity 1: Learning How Pollutants Accumulate in the Lungs • Human Biology and Health Issues: Unit 3 Lab 9 Activity 1: Simulating the Transmission of the Ebola Virus • Human Biology and Health Issues: Unit 4 Lab 10 Activity 1: Measuring Reaction Time • Human Biology and Health Issues: Unit 4 Lab 10 Activity 2: Measuring Range of Vision • Virtual Laboratory: Identifying Human Tissues
AE/SKILLS & CONCEPTS/ORGANIZER	1.3.	Students make sense of the various things they observe.

		<ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 1 Activity 1: Learning How Our Body is Organized and Functions • Human Biology and Health Issues: Unit 1 Lab 2 Activity 1: Testing Taste Receptors in the Tongue • Human Biology and Health Issues: Unit 1 Lab 2 Activity 2: Thermoreceptors - Responding to Heat and Cold • Human Biology and Health Issues: Unit 1 Lab 2 Activity 3: Distribution and Sensitivity of Touch Receptors • Human Biology and Health Issues: Unit 1 Lab 2 Activity 4: Responding to Sound • Human Biology and Health Issues: Unit 1 Lab 3 Activity 1: Exploring the Eye-Brain Connection • Human Biology and Health Issues: Unit 1 Lab 3 Activity 2: Measuring Vision • Human Biology and Health Issues: Unit 1 Lab 3 Activity 3: Is There a Hole in Your Hand? • Human Biology and Health Issues: Unit 1 Lab 3 Activity 4: Photographic Ambiguities • Human Biology and Health Issues: Unit 1 Lab 3 Activity 5: Typographic Illusions • Human Biology and Health Issues: Unit 1 Lab 3 Activity 6: Contrast and Color Illusions • Human Biology and Health Issues: Unit 1 Lab 4 Activity 1: Determining ABO-Rh Blood Type • Human Biology and Health Issues: Unit 1 Lab 4 Activity 2: A Closer Look at Blood • Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content • Human Biology and Health Issues: Unit 2 Lab 6 Activity 1: Demonstrating Selective Permeability in Simulated Skin Cells • Human Biology and Health Issues: Unit 2 Lab 6 Activity 2: Exploring Transdermal Drug Delivery • Human Biology and Health Issues: Unit 2 Lab 7 Activity 1: Modeling Kidney Function • Human Biology and Health Issues: Unit 2 Lab 7 Activity 2: Physical and Microscopic Characteristics of Urine • Human Biology and Health Issues: Unit 2 Lab 7 Activity 3: Protein Test of
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		<p>Simulated Urine Samples</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 2 Lab 7 Activity 4: Glucose Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 3 Lab 8 Activity 1: Learning How Pollutants Accumulate in the Lungs • Human Biology and Health Issues: Unit 3 Lab 9 Activity 1: Simulating the Transmission of the Ebola Virus • Human Biology and Health Issues: Unit 4 Lab 10 Activity 1: Measuring Reaction Time • Human Biology and Health Issues: Unit 4 Lab 10 Activity 2: Measuring Range of Vision • Virtual Laboratory: Identifying Human Tissues
<p>AE/SKILLS & CONCEPTS/ORGANIZER</p>	<p>1.4.</p>	<p>Students make sense of the various messages to which they listen.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 1 Activity 1: Learning How Our Body is Organized and Functions • Human Biology and Health Issues: Unit 1 Lab 2 Activity 1: Testing Taste Receptors in the Tongue • Human Biology and Health Issues: Unit 1 Lab 2 Activity 2: Thermoreceptors - Responding to Heat and Cold • Human Biology and Health Issues: Unit 1 Lab 2 Activity 3: Distribution and Sensitivity of Touch Receptors • Human Biology and Health Issues: Unit 1 Lab 2 Activity 4: Responding to Sound • Human Biology and Health Issues: Unit 1 Lab 3 Activity 1: Exploring the Eye-Brain Connection • Human Biology and Health Issues: Unit 1 Lab 3 Activity 2: Measuring Vision • Human Biology and Health Issues: Unit 1 Lab 3 Activity 3: Is There a Hole in Your Hand? • Human Biology and Health Issues: Unit 1 Lab 3 Activity 4: Photographic Ambiguities • Human Biology and Health Issues: Unit 1 Lab 3 Activity 5: Typographic Illusions • Human Biology and Health Issues: Unit 1 Lab 3 Activity 6: Contrast and Color Illusions • Human Biology and Health Issues: Unit 1 Lab 4 Activity 1: Determining ABO-Rh

		<p>Blood Type</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 4 Activity 2: A Closer Look at Blood • Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content • Human Biology and Health Issues: Unit 2 Lab 6 Activity 1: Demonstrating Selective Permeability in Simulated Skin Cells • Human Biology and Health Issues: Unit 2 Lab 6 Activity 2: Exploring Transdermal Drug Delivery • Human Biology and Health Issues: Unit 2 Lab 7 Activity 1: Modeling Kidney Function • Human Biology and Health Issues: Unit 2 Lab 7 Activity 2: Physical and Microscopic Characteristics of Urine • Human Biology and Health Issues: Unit 2 Lab 7 Activity 3: Protein Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 2 Lab 7 Activity 4: Glucose Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 3 Lab 8 Activity 1: Learning How Pollutants Accumulate in the Lungs • Human Biology and Health Issues: Unit 3 Lab 9 Activity 1: Simulating the Transmission of the Ebola Virus • Human Biology and Health Issues: Unit 4 Lab 10 Activity 1: Measuring Reaction Time • Human Biology and Health Issues: Unit 4 Lab 10 Activity 2: Measuring Range of Vision • Virtual Laboratory: Identifying Human Tissues
<p>AE/SKILLS & CONCEPTS/ORGANIZER</p>	<p>1.5-1.9.</p>	<p>Students use mathematical ideas and procedures to communicate, reason, and solve problems.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 1 Activity 1: Learning How Our Body is Organized and Functions • Human Biology and Health Issues: Unit 1 Lab 2 Activity 1: Testing Taste Receptors in the Tongue • Human Biology and Health Issues: Unit 1 Lab 2 Activity 2: Thermoreceptors - Responding to Heat and Cold • Human Biology and Health Issues: Unit 1 Lab 2 Activity 3: Distribution and Sensitivity of Touch Receptors

		<ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 2 Activity 4: Responding to Sound • Human Biology and Health Issues: Unit 1 Lab 3 Activity 1: Exploring the Eye-Brain Connection • Human Biology and Health Issues: Unit 1 Lab 3 Activity 2: Measuring Vision • Human Biology and Health Issues: Unit 1 Lab 3 Activity 3: Is There a Hole in Your Hand? • Human Biology and Health Issues: Unit 1 Lab 3 Activity 4: Photographic Ambiguities • Human Biology and Health Issues: Unit 1 Lab 3 Activity 5: Typographic Illusions • Human Biology and Health Issues: Unit 1 Lab 3 Activity 6: Contrast and Color Illusions • Human Biology and Health Issues: Unit 1 Lab 4 Activity 1: Determining ABO-Rh Blood Type • Human Biology and Health Issues: Unit 1 Lab 4 Activity 2: A Closer Look at Blood • Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content • Human Biology and Health Issues: Unit 2 Lab 6 Activity 1: Demonstrating Selective Permeability in Simulated Skin Cells • Human Biology and Health Issues: Unit 2 Lab 6 Activity 2: Exploring Transdermal Drug Delivery • Human Biology and Health Issues: Unit 2 Lab 7 Activity 1: Modeling Kidney Function • Human Biology and Health Issues: Unit 2 Lab 7 Activity 2: Physical and Microscopic Characteristics of Urine • Human Biology and Health Issues: Unit 2 Lab 7 Activity 3: Protein Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 2 Lab 7 Activity 4: Glucose Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 3 Lab 8 Activity 1: Learning How Pollutants Accumulate in the Lungs • Human Biology and Health Issues: Unit 3 Lab 9 Activity 1: Simulating the Transmission of the Ebola Virus • Human Biology and Health Issues: Unit 4 Lab 10 Activity 1: Measuring
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		<p>Reaction Time</p> <ul style="list-style-type: none"> Human Biology and Health Issues: Unit 4 Lab 10 Activity 2: Measuring Range of Vision Virtual Laboratory: Identifying Human Tissues
AE/SKILLS & CONCEPTS/ORGANIZER	1.10.	<p>Students organize information through development and use of classification rules and systems.</p> <ul style="list-style-type: none"> Human Biology and Health Issues: Unit 1 Lab 2 Activity 1: Testing Taste Receptors in the Tongue Human Biology and Health Issues: Unit 1 Lab 2 Activity 2: Thermoreceptors - Responding to Heat and Cold Human Biology and Health Issues: Unit 1 Lab 2 Activity 3: Distribution and Sensitivity of Touch Receptors Human Biology and Health Issues: Unit 1 Lab 2 Activity 4: Responding to Sound Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content Virtual Laboratory: Identifying Human Tissues
AE/SKILLS & CONCEPTS/ORGANIZER	1.11.	<p>Students write using appropriate forms, conventions, and styles to communicate ideas and information to different audiences for different purposes.</p> <ul style="list-style-type: none"> Human Biology and Health Issues: Unit 1 Lab 1 Activity 1: Learning How Our Body is Organized and Functions Human Biology and Health Issues: Unit 1 Lab 2 Activity 1: Testing Taste Receptors in the Tongue Human Biology and Health Issues: Unit 1 Lab 2 Activity 2: Thermoreceptors - Responding to Heat and Cold Human Biology and Health Issues: Unit 1 Lab 2 Activity 3: Distribution and Sensitivity of Touch Receptors Human Biology and Health Issues: Unit 1 Lab 2 Activity 4: Responding to Sound Human Biology and Health Issues: Unit 1 Lab 3 Activity 1: Exploring the Eye-Brain Connection Human Biology and Health Issues: Unit 1 Lab 3 Activity 2: Measuring Vision Human Biology and Health Issues: Unit 1 Lab 3 Activity 3: Is There a Hole in Your Hand?

		<ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 3 Activity 4: Photographic Ambiguities • Human Biology and Health Issues: Unit 1 Lab 3 Activity 5: Typographic Illusions • Human Biology and Health Issues: Unit 1 Lab 3 Activity 6: Contrast and Color Illusions • Human Biology and Health Issues: Unit 1 Lab 4 Activity 1: Determining ABO-Rh Blood Type • Human Biology and Health Issues: Unit 1 Lab 4 Activity 2: A Closer Look at Blood • Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content • Human Biology and Health Issues: Unit 2 Lab 6 Activity 1: Demonstrating Selective Permeability in Simulated Skin Cells • Human Biology and Health Issues: Unit 2 Lab 6 Activity 2: Exploring Transdermal Drug Delivery • Human Biology and Health Issues: Unit 2 Lab 7 Activity 1: Modeling Kidney Function • Human Biology and Health Issues: Unit 2 Lab 7 Activity 2: Physical and Microscopic Characteristics of Urine • Human Biology and Health Issues: Unit 2 Lab 7 Activity 3: Protein Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 2 Lab 7 Activity 4: Glucose Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 3 Lab 8 Activity 1: Learning How Pollutants Accumulate in the Lungs • Human Biology and Health Issues: Unit 3 Lab 9 Activity 1: Simulating the Transmission of the Ebola Virus • Human Biology and Health Issues: Unit 4 Lab 10 Activity 1: Measuring Reaction Time • Human Biology and Health Issues: Unit 4 Lab 10 Activity 2: Measuring Range of Vision • Virtual Laboratory: Identifying Human Tissues
AE/SKILLS & CONCEPTS/ORGANIZER	1.12.	Students speak using appropriate forms, conventions, and styles to communicate ideas and information to different audiences for different purposes.

		<ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 1 Activity 1: Learning How Our Body is Organized and Functions • Human Biology and Health Issues: Unit 1 Lab 2 Activity 1: Testing Taste Receptors in the Tongue • Human Biology and Health Issues: Unit 1 Lab 2 Activity 2: Thermoreceptors - Responding to Heat and Cold • Human Biology and Health Issues: Unit 1 Lab 2 Activity 3: Distribution and Sensitivity of Touch Receptors • Human Biology and Health Issues: Unit 1 Lab 2 Activity 4: Responding to Sound • Human Biology and Health Issues: Unit 1 Lab 3 Activity 1: Exploring the Eye-Brain Connection • Human Biology and Health Issues: Unit 1 Lab 3 Activity 2: Measuring Vision • Human Biology and Health Issues: Unit 1 Lab 3 Activity 3: Is There a Hole in Your Hand? • Human Biology and Health Issues: Unit 1 Lab 3 Activity 4: Photographic Ambiguities • Human Biology and Health Issues: Unit 1 Lab 3 Activity 5: Typographic Illusions • Human Biology and Health Issues: Unit 1 Lab 3 Activity 6: Contrast and Color Illusions • Human Biology and Health Issues: Unit 1 Lab 4 Activity 1: Determining ABO-Rh Blood Type • Human Biology and Health Issues: Unit 1 Lab 4 Activity 2: A Closer Look at Blood • Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content • Human Biology and Health Issues: Unit 2 Lab 6 Activity 1: Demonstrating Selective Permeability in Simulated Skin Cells • Human Biology and Health Issues: Unit 2 Lab 6 Activity 2: Exploring Transdermal Drug Delivery • Human Biology and Health Issues: Unit 2 Lab 7 Activity 1: Modeling Kidney Function • Human Biology and Health Issues: Unit 2 Lab 7 Activity 2: Physical and Microscopic Characteristics of Urine • Human Biology and Health Issues: Unit 2 Lab 7 Activity 3: Protein Test of
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		<p>Simulated Urine Samples</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 2 Lab 7 Activity 4: Glucose Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 3 Lab 8 Activity 1: Learning How Pollutants Accumulate in the Lungs • Human Biology and Health Issues: Unit 3 Lab 9 Activity 1: Simulating the Transmission of the Ebola Virus • Human Biology and Health Issues: Unit 4 Lab 10 Activity 1: Measuring Reaction Time • Human Biology and Health Issues: Unit 4 Lab 10 Activity 2: Measuring Range of Vision • Virtual Laboratory: Identifying Human Tissues
<p>AE/SKILLS & CONCEPTS/ORGANIZER</p>	<p>1.16.</p>	<p>Students use computers and other kinds of technology to collect, organize, and communicate information and ideas.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 1 Activity 1: Learning How Our Body is Organized and Functions • Human Biology and Health Issues: Unit 1 Lab 2 Activity 1: Testing Taste Receptors in the Tongue • Human Biology and Health Issues: Unit 1 Lab 2 Activity 2: Thermoreceptors - Responding to Heat and Cold • Human Biology and Health Issues: Unit 1 Lab 2 Activity 3: Distribution and Sensitivity of Touch Receptors • Human Biology and Health Issues: Unit 1 Lab 2 Activity 4: Responding to Sound • Human Biology and Health Issues: Unit 1 Lab 3 Activity 1: Exploring the Eye-Brain Connection • Human Biology and Health Issues: Unit 1 Lab 3 Activity 2: Measuring Vision • Human Biology and Health Issues: Unit 1 Lab 3 Activity 3: Is There a Hole in Your Hand? • Human Biology and Health Issues: Unit 1 Lab 3 Activity 4: Photographic Ambiguities • Human Biology and Health Issues: Unit 1 Lab 3 Activity 5: Typographic Illusions • Human Biology and Health Issues: Unit 1 Lab 3 Activity 6: Contrast and Color Illusions • Human Biology and Health Issues: Unit

		<p>1 Lab 4 Activity 1: Determining ABO-Rh Blood Type</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 4 Activity 2: A Closer Look at Blood • Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content • Human Biology and Health Issues: Unit 2 Lab 6 Activity 1: Demonstrating Selective Permeability in Simulated Skin Cells • Human Biology and Health Issues: Unit 2 Lab 6 Activity 2: Exploring Transdermal Drug Delivery • Human Biology and Health Issues: Unit 2 Lab 7 Activity 1: Modeling Kidney Function • Human Biology and Health Issues: Unit 2 Lab 7 Activity 2: Physical and Microscopic Characteristics of Urine • Human Biology and Health Issues: Unit 2 Lab 7 Activity 3: Protein Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 2 Lab 7 Activity 4: Glucose Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 3 Lab 8 Activity 1: Learning How Pollutants Accumulate in the Lungs • Human Biology and Health Issues: Unit 3 Lab 9 Activity 1: Simulating the Transmission of the Ebola Virus • Human Biology and Health Issues: Unit 4 Lab 10 Activity 1: Measuring Reaction Time • Human Biology and Health Issues: Unit 4 Lab 10 Activity 2: Measuring Range of Vision • Virtual Laboratory: Identifying Human Tissues
CATEGORY	KY.AE.	Academic Expectation
GOAL/UNDERSTANDINGS/SUBDOMAIN	AE.2.	Students shall develop their abilities to apply core concepts and principles from mathematics, the sciences, the arts, the humanities, social studies, practical living studies, and vocational studies to what they will encounter throughout their lives.
AE/SKILLS & CONCEPTS/ORGANIZER	2.2.	<p>Science: Students identify, analyze, and use patterns such as cycles and trends to understand past and present events and predict possible future events.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 1 Activity 1: Learning How Our Body is Organized and Functions • Human Biology and Health Issues: Unit

		<p>1 Lab 2 Activity 1: Testing Taste Receptors in the Tongue</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 2 Activity 2: Thermoreceptors - Responding to Heat and Cold • Human Biology and Health Issues: Unit 1 Lab 2 Activity 3: Distribution and Sensitivity of Touch Receptors • Human Biology and Health Issues: Unit 1 Lab 2 Activity 4: Responding to Sound • Human Biology and Health Issues: Unit 1 Lab 3 Activity 1: Exploring the Eye-Brain Connection • Human Biology and Health Issues: Unit 1 Lab 3 Activity 2: Measuring Vision • Human Biology and Health Issues: Unit 1 Lab 3 Activity 3: Is There a Hole in Your Hand? • Human Biology and Health Issues: Unit 1 Lab 3 Activity 4: Photographic Ambiguities • Human Biology and Health Issues: Unit 1 Lab 3 Activity 5: Typographic Illusions • Human Biology and Health Issues: Unit 1 Lab 3 Activity 6: Contrast and Color Illusions • Human Biology and Health Issues: Unit 1 Lab 4 Activity 1: Determining ABO-Rh Blood Type • Human Biology and Health Issues: Unit 1 Lab 4 Activity 2: A Closer Look at Blood • Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content • Human Biology and Health Issues: Unit 2 Lab 6 Activity 1: Demonstrating Selective Permeability in Simulated Skin Cells • Human Biology and Health Issues: Unit 2 Lab 6 Activity 2: Exploring Transdermal Drug Delivery • Human Biology and Health Issues: Unit 2 Lab 7 Activity 1: Modeling Kidney Function • Human Biology and Health Issues: Unit 2 Lab 7 Activity 2: Physical and Microscopic Characteristics of Urine • Human Biology and Health Issues: Unit 2 Lab 7 Activity 3: Protein Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 2 Lab 7 Activity 4: Glucose Test of Simulated Urine Samples
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		<ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 3 Lab 8 Activity 1: Learning How Pollutants Accumulate in the Lungs • Human Biology and Health Issues: Unit 3 Lab 9 Activity 1: Simulating the Transmission of the Ebola Virus • Human Biology and Health Issues: Unit 4 Lab 10 Activity 1: Measuring Reaction Time • Human Biology and Health Issues: Unit 4 Lab 10 Activity 2: Measuring Range of Vision • Virtual Laboratory: Identifying Human Tissues
AE/SKILLS & CONCEPTS/ORGANIZER	2.3.	<p>Science: Students identify and analyze systems and the ways their components work together or affect each other.</p> <ul style="list-style-type: none"> • Teacher Resource CD: Human Health Issues and Disease • Teacher Resource CD: Human Physiology • Teacher Resource CD: The Human Machine
AE/SKILLS & CONCEPTS/ORGANIZER	2.4.	<p>Science: Students use the concept of scale and scientific models to explain the organization and functioning of living and nonliving things and predict other characteristics that might be observed.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 1 Activity 1: Learning How Our Body is Organized and Functions • Human Biology and Health Issues: Unit 1 Lab 4 Activity 1: Determining ABO-Rh Blood Type • Human Biology and Health Issues: Unit 1 Lab 4 Activity 2: A Closer Look at Blood • Human Biology and Health Issues: Unit 2 Lab 6 Activity 1: Demonstrating Selective Permeability in Simulated Skin Cells • Human Biology and Health Issues: Unit 2 Lab 6 Activity 2: Exploring Transdermal Drug Delivery • Human Biology and Health Issues: Unit 2 Lab 7 Activity 1: Modeling Kidney Function • Human Biology and Health Issues: Unit 2 Lab 7 Activity 2: Physical and Microscopic Characteristics of Urine • Human Biology and Health Issues: Unit 2 Lab 7 Activity 3: Protein Test of Simulated Urine Samples

		<ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 2 Lab 7 Activity 4: Glucose Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 3 Lab 8 Activity 1: Learning How Pollutants Accumulate in the Lungs
AE/SKILLS & CONCEPTS/ORGANIZER	2.5.	<p>Science: Students understand that under certain conditions nature tends to remain the same or move toward a balance.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 1 Activity 1: Learning How Our Body is Organized and Functions • Human Biology and Health Issues: Unit 2 Lab 6 Activity 1: Demonstrating Selective Permeability in Simulated Skin Cells • Human Biology and Health Issues: Unit 2 Lab 6 Activity 2: Exploring Transdermal Drug Delivery • Human Biology and Health Issues: Unit 2 Lab 7 Activity 1: Modeling Kidney Function • Human Biology and Health Issues: Unit 2 Lab 7 Activity 2: Physical and Microscopic Characteristics of Urine • Human Biology and Health Issues: Unit 2 Lab 7 Activity 3: Protein Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 2 Lab 7 Activity 4: Glucose Test of Simulated Urine Samples • Teacher Resource CD: Human Health Issues and Disease • Teacher Resource CD: Human Physiology • Teacher Resource CD: The Human Machine
AE/SKILLS & CONCEPTS/ORGANIZER	2.6.	<p>Science: Students understand how living and nonliving things change over time and the factors that influence the changes.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 3 Lab 8 Activity 1: Learning How Pollutants Accumulate in the Lungs • Human Biology and Health Issues: Unit 3 Lab 9 Activity 1: Simulating the Transmission of the Ebola Virus • Human Biology and Health Issues: Unit 4 Lab 10 Activity 1: Measuring Reaction Time • Teacher Resource CD: Human Health

		Issues and Disease
CATEGORY	KY.CC.	Core Content for Assessment v.4.1
GOAL/UNDERSTANDINGS/SUBDOMAIN	SC-08-1.1.	Structure and Transformation of Matter: During the middle years, physical and chemical changes in matter are observed, and students begin to relate these changes to the smaller constituents of matter - namely, atoms and molecules.
AE/SKILLS & CONCEPTS/ORGANIZER	SC-08-1.1.1.	Physical Science: Students will interpret models/representations of atoms of different elements; classify elements based upon patterns in their physical (e.g., density, boiling point, solubility) and chemical (e.g., flammability, reactivity) properties. <ul style="list-style-type: none"> Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content
CATEGORY	KY.CC.	Core Content for Assessment v.4.1
GOAL/UNDERSTANDINGS/SUBDOMAIN	SC-08-3.4.	Unity and Diversity: In middle school, students begin to compare, contrast and classify the microscopic features of organisms - the cells, as well as investigate reproduction as the essential process to the continuation of all species. Expected patterns of genetic traits are predicted. Distinctions are made between learned behaviors and inherited traits.
AE/SKILLS & CONCEPTS/ORGANIZER	SC-08-3.4.1.	Biological Science: Students will explain the relationship between structure and function of the cell components using a variety of representations. <ul style="list-style-type: none"> Human Biology and Health Issues: Unit 2 Lab 6 Activity 1: Demonstrating Selective Permeability in Simulated Skin Cells Human Biology and Health Issues: Unit 2 Lab 6 Activity 2: Exploring Transdermal Drug Delivery Human Biology and Health Issues: Unit 2 Lab 7 Activity 1: Modeling Kidney Function Teacher Resource CD: Human Physiology Virtual Laboratory: Identifying Human Tissues
AE/SKILLS & CONCEPTS/ORGANIZER	SC-08-3.4.2.	Biological Science: Students will understand that in the development of multicellular organisms, cells multiply (mitosis) and differentiate to form many specialized cells, tissues, and organs <ul style="list-style-type: none"> Human Biology and Health Issues: Unit 1 Lab 1 Activity 1: Learning How Our Body is Organized and Functions Teacher Resource CD: The Human Machine Virtual Laboratory: Identifying Human

		Tissues
AE/SKILLS & CONCEPTS/ORGANIZER	SC-08-3.4.3.	<p>Biological Science: Students will form or justify conclusions as to whether a response is innate or learned using data/evidence on behavioral responses to internal and external stimuli.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 2 Activity 1: Testing Taste Receptors in the Tongue • Human Biology and Health Issues: Unit 1 Lab 2 Activity 2: Thermoreceptors - Responding to Heat and Cold • Human Biology and Health Issues: Unit 1 Lab 2 Activity 3: Distribution and Sensitivity of Touch Receptors • Human Biology and Health Issues: Unit 1 Lab 2 Activity 4: Responding to Sound • Human Biology and Health Issues: Unit 1 Lab 3 Activity 1: Exploring the Eye-Brain Connection • Human Biology and Health Issues: Unit 1 Lab 3 Activity 2: Measuring Vision • Human Biology and Health Issues: Unit 1 Lab 3 Activity 3: Is There a Hole in Your Hand? • Human Biology and Health Issues: Unit 1 Lab 3 Activity 4: Photographic Ambiguities • Human Biology and Health Issues: Unit 1 Lab 3 Activity 5: Typographic Illusions • Human Biology and Health Issues: Unit 1 Lab 3 Activity 6: Contrast and Color Illusions • Human Biology and Health Issues: Unit 4 Lab 10 Activity 1: Measuring Reaction Time • Human Biology and Health Issues: Unit 4 Lab 10 Activity 2: Measuring Range of Vision
AE/SKILLS & CONCEPTS/ORGANIZER	SC-08-3.4.5.	<p>Biological Science: Students will understand that multicellular animals have nervous systems that generate behavior. Nerve cells communicate with each other by secreting specific molecules.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 1 Activity 1: Learning How Our Body is Organized and Functions • Human Biology and Health Issues: Unit 1 Lab 2 Activity 1: Testing Taste Receptors in the Tongue • Human Biology and Health Issues: Unit 1 Lab 2 Activity 2: Thermoreceptors -

		<p>Responding to Heat and Cold</p> <ul style="list-style-type: none"> Human Biology and Health Issues: Unit 1 Lab 2 Activity 3: Distribution and Sensitivity of Touch Receptors Human Biology and Health Issues: Unit 1 Lab 2 Activity 4: Responding to Sound Human Biology and Health Issues: Unit 1 Lab 3 Activity 1: Exploring the Eye-Brain Connection Human Biology and Health Issues: Unit 1 Lab 3 Activity 2: Measuring Vision Human Biology and Health Issues: Unit 1 Lab 3 Activity 3: Is There a Hole in Your Hand? Human Biology and Health Issues: Unit 1 Lab 3 Activity 4: Photographic Ambiguities Human Biology and Health Issues: Unit 1 Lab 3 Activity 5: Typographic Illusions Human Biology and Health Issues: Unit 1 Lab 3 Activity 6: Contrast and Color Illusions Human Biology and Health Issues: Unit 4 Lab 10 Activity 2: Measuring Range of Vision Teacher Resource CD: The Human Machine Virtual Laboratory: Identifying Human Tissues
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**Kentucky Standards
Science
Grade 9**

CATEGORY	KY.PS.	Program of Studies 2006
GOAL/UNDERSTANDINGS/SUBDOMAIN	H-STM.	<p>Big Idea: Structure and Transformation of Matter (Physical Science) - A basic understanding of matter is essential to the conceptual development of other big ideas in science. By high school, students will be dealing with evidence from both direct and indirect observations (microscopic level and smaller) to consider theories related to change and conservation of matter. The use of models (and an understanding of their scales and limitations) is an effective means of learning about the structure of matter. Looking for patterns in properties is also critical to comparing and explaining differences in matter. (Academic Expectations 2.1, 2.2, 2.4, 2.5)</p>
AE/SKILLS & CONCEPTS/ORGANIZER	SC-H-STM-U-7.	<p>Program of Studies: Understandings - Students will understand that chemical reactions have a variety of essential real-world applications, such as oxidation and various metabolic processes.</p> <ul style="list-style-type: none"> Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content

		<ul style="list-style-type: none"> Human Biology and Health Issues: Unit 2 Lab 7 Activity 3: Protein Test of Simulated Urine Samples Human Biology and Health Issues: Unit 2 Lab 7 Activity 4: Glucose Test of Simulated Urine Samples Teacher Resource CD: Human Physiology
AE/SKILLS & CONCEPTS/ORGANIZER	SC-H-STM-S-1.	<p>Program of Studies: Skills and Concepts - Students will classify samples of matter from everyday life as being elements, compounds, or mixtures</p> <ul style="list-style-type: none"> Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content Human Biology and Health Issues: Unit 2 Lab 7 Activity 1: Modeling Kidney Function Human Biology and Health Issues: Unit 2 Lab 7 Activity 2: Physical and Microscopic Characteristics of Urine
AE/SKILLS & CONCEPTS/ORGANIZER	SC-H-STM-S-11.	<p>Program of Studies: Skills and Concepts - Students will relate the structure of water to its function as the universal solvent</p> <ul style="list-style-type: none"> Human Biology and Health Issues: Unit 2 Lab 6 Activity 1: Demonstrating Selective Permeability in Simulated Skin Cells
CATEGORY	KY.PS.	Program of Studies 2006
GOAL/UNDERSTANDINGS/SUBDOMAIN	SC-H-UD.	<p>Big Idea: Unity and Diversity (Biological Science) - All matter is comprised of the same basic elements, goes through the same kinds of energy transformations, and uses the same kinds of forces to move. Living organisms are no exception. At the high school level, an in-depth study of the specialization and chemical changes occurring at the cellular level builds upon the foundational ideas developed earlier to investigate deoxyribonucleic acid (DNA) and effects of alterations in DNA for an individual organism as well as for a species. Emphasis at every level should be placed upon the understanding that while every living thing is composed of similar small constituents that combine in predictable ways, it is the subtle variations within these small building blocks that account for both the likenesses and differences in form and function that create the diversity of life. (Academic Expectations 2.1, 2.3, 2.4, 2.5)</p>
AE/SKILLS & CONCEPTS/ORGANIZER	SC-H-UD-U-1.	<p>Program of Studies: Understandings - Students will understand that the many body cells in an individual can be very different from one another even though they are all descended from a single cell and thus have essentially identical genetic instructions. Different parts of the instructions are used in different types of</p>

		<p>cells.</p> <ul style="list-style-type: none"> • Teacher Resource CD: The Human Machine • Virtual Laboratory: Identifying Human Tissues
AE/SKILLS & CONCEPTS/ORGANIZER	SC-H-UD-U-2.	<p>Program of Studies: Understandings - Students will understand that within every cell are specialized parts for the transport of materials, energy transfer, protein building, waste disposal, information feedback and even movement. In addition, most cells in multi-cellular organisms perform specialized functions that others do not.</p> <ul style="list-style-type: none"> • Teacher Resource CD: The Human Machine • Virtual Laboratory: Identifying Human Tissues
AE/SKILLS & CONCEPTS/ORGANIZER	SC-H-UD-S-2.	<p>Program of Studies: Skills and Concepts - Students will identify a variety of specialized cell types and describe how these differentiated cells contribute to the function of an individual organism as a whole</p> <ul style="list-style-type: none"> • Teacher Resource CD: The Human Machine • Virtual Laboratory: Identifying Human Tissues
AE/SKILLS & CONCEPTS/ORGANIZER	SC-H-UD-S-7.	<p>Program of Studies: Skills and Concepts - Students will describe and classify a variety of chemical reactions required for cell functions</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content • Human Biology and Health Issues: Unit 2 Lab 7 Activity 3: Protein Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 2 Lab 7 Activity 4: Glucose Test of Simulated Urine Samples • Teacher Resource CD: Human Physiology
AE/SKILLS & CONCEPTS/ORGANIZER	SC-H-UD-S-8.	<p>Program of Studies: Skills and Concepts - Students will describe the processes by which cells maintain their internal environments within acceptable limits</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 2 Lab 6 Activity 2: Exploring Transdermal Drug Delivery • Human Biology and Health Issues: Unit 2 Lab 7 Activity 1: Modeling Kidney Function

		<ul style="list-style-type: none"> Teacher Resource CD: Human Physiology
AE/SKILLS & CONCEPTS/ORGANIZER	SC-H-UD-S-10.	<p>Program of Studies: Skills and Concepts - Students will compare the structures and functions of viruses to cells and describe the role of viruses in causing a variety of diseases or conditions (e.g., AIDS, common cold, smallpox, warts)</p> <ul style="list-style-type: none"> Human Biology and Health Issues: Unit 3 Lab 9 Activity 1: Simulating the Transmission of the Ebola Virus Teacher Resource CD: Human Health Issues and Disease
CATEGORY	KY.PS.	Program of Studies 2006
GOAL/UNDERSTANDINGS/SUBDOMAIN	SC-H-ET.	<p>Big Idea: Energy Transformations (Unifying Concepts) - Energy transformations are inherent in almost every system in the universe - from tangible examples at the elementary level, such as heat production in simple Earth and physical systems to more abstract ideas beginning at middle school, such as those transformations involved in the growth, dying and decay of living systems. The use of models to illustrate the often invisible and abstract notions of energy transfer will aid in conceptualization, especially as students move from the macroscopic level of observation and evidence (primarily elementary school) to the microscopic interactions at the atomic level (middle and high school levels). Students in high school expand their understanding of constancy through the study of a variety of phenomena. Conceptual understanding and application of the laws of thermodynamics connect ideas about matter with energy transformations within all living, physical and Earth systems. (Academic Expectations 2.1, 2.2, 2.3, 2.4, 2.5)</p>
AE/SKILLS & CONCEPTS/ORGANIZER	SC-H-ET-U-6.	<p>Program of Studies: Understandings - Students will understand that energy stored in food is released by a series of internal chemical reactions that reorganize the molecules into a form useable by the organism.</p> <ul style="list-style-type: none"> Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content Teacher Resource CD: Human Physiology
AE/SKILLS & CONCEPTS/ORGANIZER	SC-H-ET-U-7.	<p>Program of Studies: Understandings - Students will understand that a variety of carbon compounds are essential to the processes that occur in all organisms.</p> <ul style="list-style-type: none"> Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content Human Biology and Health Issues: Unit 2 Lab 7 Activity 3: Protein Test of Simulated Urine Samples

		<ul style="list-style-type: none"> Human Biology and Health Issues: Unit 2 Lab 7 Activity 4: Glucose Test of Simulated Urine Samples Teacher Resource CD: Human Physiology
AE/SKILLS & CONCEPTS/ORGANIZER	SC-H-ET-U-10.	<p>Program of Studies: Understandings - Students will understand that all Earth systems/processes require either an internal or external source of energy to function. Changes to any component, or to the quantity or type of energy input, may influence all components of the system.</p> <ul style="list-style-type: none"> Teacher Resource CD: The Human Machine
AE/SKILLS & CONCEPTS/ORGANIZER	SC-H-ET-S-8.	<p>Program of Studies: Skills and Concepts - Students will explore the composition and function of the carbon compounds involved in metabolism</p> <ul style="list-style-type: none"> Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content Human Biology and Health Issues: Unit 2 Lab 7 Activity 3: Protein Test of Simulated Urine Samples Human Biology and Health Issues: Unit 2 Lab 7 Activity 4: Glucose Test of Simulated Urine Samples Teacher Resource CD: Human Physiology
CATEGORY	KY.AE.	Academic Expectation
GOAL/UNDERSTANDINGS/SUBDOMAIN	AE.1.	Students are able to use basic communication and mathematics skills for purposes and situations they will encounter throughout their lives.
AE/SKILLS & CONCEPTS/ORGANIZER	1.2.	<p>Students make sense of the variety of materials they read.</p> <ul style="list-style-type: none"> Human Biology and Health Issues: Unit 1 Lab 1 Activity 1: Learning How Our Body is Organized and Functions Human Biology and Health Issues: Unit 1 Lab 2 Activity 1: Testing Taste Receptors in the Tongue Human Biology and Health Issues: Unit 1 Lab 2 Activity 2: Thermoreceptors - Responding to Heat and Cold Human Biology and Health Issues: Unit 1 Lab 2 Activity 3: Distribution and Sensitivity of Touch Receptors Human Biology and Health Issues: Unit 1 Lab 2 Activity 4: Responding to Sound Human Biology and Health Issues: Unit 1 Lab 3 Activity 1: Exploring the Eye-

		<p>Brain Connection</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 3 Activity 2: Measuring Vision • Human Biology and Health Issues: Unit 1 Lab 3 Activity 3: Is There a Hole in Your Hand? • Human Biology and Health Issues: Unit 1 Lab 3 Activity 4: Photographic Ambiguities • Human Biology and Health Issues: Unit 1 Lab 3 Activity 5: Typographic Illusions • Human Biology and Health Issues: Unit 1 Lab 3 Activity 6: Contrast and Color Illusions • Human Biology and Health Issues: Unit 1 Lab 4 Activity 1: Determining ABO-Rh Blood Type • Human Biology and Health Issues: Unit 1 Lab 4 Activity 2: A Closer Look at Blood • Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content • Human Biology and Health Issues: Unit 2 Lab 6 Activity 1: Demonstrating Selective Permeability in Simulated Skin Cells • Human Biology and Health Issues: Unit 2 Lab 6 Activity 2: Exploring Transdermal Drug Delivery • Human Biology and Health Issues: Unit 2 Lab 7 Activity 1: Modeling Kidney Function • Human Biology and Health Issues: Unit 2 Lab 7 Activity 2: Physical and Microscopic Characteristics of Urine • Human Biology and Health Issues: Unit 2 Lab 7 Activity 3: Protein Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 2 Lab 7 Activity 4: Glucose Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 3 Lab 8 Activity 1: Learning How Pollutants Accumulate in the Lungs • Human Biology and Health Issues: Unit 3 Lab 9 Activity 1: Simulating the Transmission of the Ebola Virus • Human Biology and Health Issues: Unit 4 Lab 10 Activity 1: Measuring Reaction Time • Human Biology and Health Issues: Unit 4 Lab 10 Activity 2: Measuring Range of Vision • Virtual Laboratory: Identifying Human
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		Tissues
AE/SKILLS & CONCEPTS/ORGANIZER	1.3.	<p>Students make sense of the various things they observe.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 1 Activity 1: Learning How Our Body is Organized and Functions • Human Biology and Health Issues: Unit 1 Lab 2 Activity 1: Testing Taste Receptors in the Tongue • Human Biology and Health Issues: Unit 1 Lab 2 Activity 2: Thermoreceptors - Responding to Heat and Cold • Human Biology and Health Issues: Unit 1 Lab 2 Activity 3: Distribution and Sensitivity of Touch Receptors • Human Biology and Health Issues: Unit 1 Lab 2 Activity 4: Responding to Sound • Human Biology and Health Issues: Unit 1 Lab 3 Activity 1: Exploring the Eye-Brain Connection • Human Biology and Health Issues: Unit 1 Lab 3 Activity 2: Measuring Vision • Human Biology and Health Issues: Unit 1 Lab 3 Activity 3: Is There a Hole in Your Hand? • Human Biology and Health Issues: Unit 1 Lab 3 Activity 4: Photographic Ambiguities • Human Biology and Health Issues: Unit 1 Lab 3 Activity 5: Typographic Illusions • Human Biology and Health Issues: Unit 1 Lab 3 Activity 6: Contrast and Color Illusions • Human Biology and Health Issues: Unit 1 Lab 4 Activity 1: Determining ABO-Rh Blood Type • Human Biology and Health Issues: Unit 1 Lab 4 Activity 2: A Closer Look at Blood • Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content • Human Biology and Health Issues: Unit 2 Lab 6 Activity 1: Demonstrating Selective Permeability in Simulated Skin Cells • Human Biology and Health Issues: Unit 2 Lab 6 Activity 2: Exploring Transdermal Drug Delivery • Human Biology and Health Issues: Unit 2 Lab 7 Activity 1: Modeling Kidney Function

		<ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 2 Lab 7 Activity 2: Physical and Microscopic Characteristics of Urine • Human Biology and Health Issues: Unit 2 Lab 7 Activity 3: Protein Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 2 Lab 7 Activity 4: Glucose Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 3 Lab 8 Activity 1: Learning How Pollutants Accumulate in the Lungs • Human Biology and Health Issues: Unit 3 Lab 9 Activity 1: Simulating the Transmission of the Ebola Virus • Human Biology and Health Issues: Unit 4 Lab 10 Activity 1: Measuring Reaction Time • Human Biology and Health Issues: Unit 4 Lab 10 Activity 2: Measuring Range of Vision • Virtual Laboratory: Identifying Human Tissues
<p>AE/SKILLS & CONCEPTS/ORGANIZER</p>	<p>1.4.</p>	<p>Students make sense of the various messages to which they listen.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 1 Activity 1: Learning How Our Body is Organized and Functions • Human Biology and Health Issues: Unit 1 Lab 2 Activity 1: Testing Taste Receptors in the Tongue • Human Biology and Health Issues: Unit 1 Lab 2 Activity 2: Thermoreceptors - Responding to Heat and Cold • Human Biology and Health Issues: Unit 1 Lab 2 Activity 3: Distribution and Sensitivity of Touch Receptors • Human Biology and Health Issues: Unit 1 Lab 2 Activity 4: Responding to Sound • Human Biology and Health Issues: Unit 1 Lab 3 Activity 1: Exploring the Eye-Brain Connection • Human Biology and Health Issues: Unit 1 Lab 3 Activity 2: Measuring Vision • Human Biology and Health Issues: Unit 1 Lab 3 Activity 3: Is There a Hole in Your Hand? • Human Biology and Health Issues: Unit 1 Lab 3 Activity 4: Photographic Ambiguities • Human Biology and Health Issues: Unit 1 Lab 3 Activity 5: Typographic Illusions

		<ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 3 Activity 6: Contrast and Color Illusions • Human Biology and Health Issues: Unit 1 Lab 4 Activity 1: Determining ABO-Rh Blood Type • Human Biology and Health Issues: Unit 1 Lab 4 Activity 2: A Closer Look at Blood • Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content • Human Biology and Health Issues: Unit 2 Lab 6 Activity 1: Demonstrating Selective Permeability in Simulated Skin Cells • Human Biology and Health Issues: Unit 2 Lab 6 Activity 2: Exploring Transdermal Drug Delivery • Human Biology and Health Issues: Unit 2 Lab 7 Activity 1: Modeling Kidney Function • Human Biology and Health Issues: Unit 2 Lab 7 Activity 2: Physical and Microscopic Characteristics of Urine • Human Biology and Health Issues: Unit 2 Lab 7 Activity 3: Protein Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 2 Lab 7 Activity 4: Glucose Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 3 Lab 8 Activity 1: Learning How Pollutants Accumulate in the Lungs • Human Biology and Health Issues: Unit 3 Lab 9 Activity 1: Simulating the Transmission of the Ebola Virus • Human Biology and Health Issues: Unit 4 Lab 10 Activity 1: Measuring Reaction Time • Human Biology and Health Issues: Unit 4 Lab 10 Activity 2: Measuring Range of Vision • Virtual Laboratory: Identifying Human Tissues
<p>AE/SKILLS & CONCEPTS/ORGANIZER</p>	<p>1.5-1.9.</p>	<p>Students use mathematical ideas and procedures to communicate, reason, and solve problems.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 1 Activity 1: Learning How Our Body is Organized and Functions • Human Biology and Health Issues: Unit 1 Lab 2 Activity 1: Testing Taste Receptors in the Tongue • Human Biology and Health Issues: Unit

		<p>1 Lab 2 Activity 2: Thermoreceptors - Responding to Heat and Cold</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 2 Activity 3: Distribution and Sensitivity of Touch Receptors • Human Biology and Health Issues: Unit 1 Lab 2 Activity 4: Responding to Sound • Human Biology and Health Issues: Unit 1 Lab 3 Activity 1: Exploring the Eye-Brain Connection • Human Biology and Health Issues: Unit 1 Lab 3 Activity 2: Measuring Vision • Human Biology and Health Issues: Unit 1 Lab 3 Activity 3: Is There a Hole in Your Hand? • Human Biology and Health Issues: Unit 1 Lab 3 Activity 4: Photographic Ambiguities • Human Biology and Health Issues: Unit 1 Lab 3 Activity 5: Typographic Illusions • Human Biology and Health Issues: Unit 1 Lab 3 Activity 6: Contrast and Color Illusions • Human Biology and Health Issues: Unit 1 Lab 4 Activity 1: Determining ABO-Rh Blood Type • Human Biology and Health Issues: Unit 1 Lab 4 Activity 2: A Closer Look at Blood • Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content • Human Biology and Health Issues: Unit 2 Lab 6 Activity 1: Demonstrating Selective Permeability in Simulated Skin Cells • Human Biology and Health Issues: Unit 2 Lab 6 Activity 2: Exploring Transdermal Drug Delivery • Human Biology and Health Issues: Unit 2 Lab 7 Activity 1: Modeling Kidney Function • Human Biology and Health Issues: Unit 2 Lab 7 Activity 2: Physical and Microscopic Characteristics of Urine • Human Biology and Health Issues: Unit 2 Lab 7 Activity 3: Protein Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 2 Lab 7 Activity 4: Glucose Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 3 Lab 8 Activity 1: Learning How Pollutants Accumulate in the Lungs
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		<ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 3 Lab 9 Activity 1: Simulating the Transmission of the Ebola Virus • Human Biology and Health Issues: Unit 4 Lab 10 Activity 1: Measuring Reaction Time • Human Biology and Health Issues: Unit 4 Lab 10 Activity 2: Measuring Range of Vision • Virtual Laboratory: Identifying Human Tissues
AE/SKILLS & CONCEPTS/ORGANIZER	1.10.	<p>Students organize information through development and use of classification rules and systems.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 2 Activity 1: Testing Taste Receptors in the Tongue • Human Biology and Health Issues: Unit 1 Lab 2 Activity 2: Thermoreceptors - Responding to Heat and Cold • Human Biology and Health Issues: Unit 1 Lab 2 Activity 3: Distribution and Sensitivity of Touch Receptors • Human Biology and Health Issues: Unit 1 Lab 2 Activity 4: Responding to Sound • Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content • Virtual Laboratory: Identifying Human Tissues
AE/SKILLS & CONCEPTS/ORGANIZER	1.11.	<p>Students write using appropriate forms, conventions, and styles to communicate ideas and information to different audiences for different purposes.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 1 Activity 1: Learning How Our Body is Organized and Functions • Human Biology and Health Issues: Unit 1 Lab 2 Activity 1: Testing Taste Receptors in the Tongue • Human Biology and Health Issues: Unit 1 Lab 2 Activity 2: Thermoreceptors - Responding to Heat and Cold • Human Biology and Health Issues: Unit 1 Lab 2 Activity 3: Distribution and Sensitivity of Touch Receptors • Human Biology and Health Issues: Unit 1 Lab 2 Activity 4: Responding to Sound • Human Biology and Health Issues: Unit 1 Lab 3 Activity 1: Exploring the Eye-Brain Connection

		<ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 3 Activity 2: Measuring Vision • Human Biology and Health Issues: Unit 1 Lab 3 Activity 3: Is There a Hole in Your Hand? • Human Biology and Health Issues: Unit 1 Lab 3 Activity 4: Photographic Ambiguities • Human Biology and Health Issues: Unit 1 Lab 3 Activity 5: Typographic Illusions • Human Biology and Health Issues: Unit 1 Lab 3 Activity 6: Contrast and Color Illusions • Human Biology and Health Issues: Unit 1 Lab 4 Activity 1: Determining ABO-Rh Blood Type • Human Biology and Health Issues: Unit 1 Lab 4 Activity 2: A Closer Look at Blood • Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content • Human Biology and Health Issues: Unit 2 Lab 6 Activity 1: Demonstrating Selective Permeability in Simulated Skin Cells • Human Biology and Health Issues: Unit 2 Lab 6 Activity 2: Exploring Transdermal Drug Delivery • Human Biology and Health Issues: Unit 2 Lab 7 Activity 1: Modeling Kidney Function • Human Biology and Health Issues: Unit 2 Lab 7 Activity 2: Physical and Microscopic Characteristics of Urine • Human Biology and Health Issues: Unit 2 Lab 7 Activity 3: Protein Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 2 Lab 7 Activity 4: Glucose Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 3 Lab 8 Activity 1: Learning How Pollutants Accumulate in the Lungs • Human Biology and Health Issues: Unit 3 Lab 9 Activity 1: Simulating the Transmission of the Ebola Virus • Human Biology and Health Issues: Unit 4 Lab 10 Activity 1: Measuring Reaction Time • Human Biology and Health Issues: Unit 4 Lab 10 Activity 2: Measuring Range of Vision • Virtual Laboratory: Identifying Human
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		Tissues
AE/SKILLS & CONCEPTS/ORGANIZER	1.12.	<p>Students speak using appropriate forms, conventions, and styles to communicate ideas and information to different audiences for different purposes.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 1 Activity 1: Learning How Our Body is Organized and Functions • Human Biology and Health Issues: Unit 1 Lab 2 Activity 1: Testing Taste Receptors in the Tongue • Human Biology and Health Issues: Unit 1 Lab 2 Activity 2: Thermoreceptors - Responding to Heat and Cold • Human Biology and Health Issues: Unit 1 Lab 2 Activity 3: Distribution and Sensitivity of Touch Receptors • Human Biology and Health Issues: Unit 1 Lab 2 Activity 4: Responding to Sound • Human Biology and Health Issues: Unit 1 Lab 3 Activity 1: Exploring the Eye-Brain Connection • Human Biology and Health Issues: Unit 1 Lab 3 Activity 2: Measuring Vision • Human Biology and Health Issues: Unit 1 Lab 3 Activity 3: Is There a Hole in Your Hand? • Human Biology and Health Issues: Unit 1 Lab 3 Activity 4: Photographic Ambiguities • Human Biology and Health Issues: Unit 1 Lab 3 Activity 5: Typographic Illusions • Human Biology and Health Issues: Unit 1 Lab 3 Activity 6: Contrast and Color Illusions • Human Biology and Health Issues: Unit 1 Lab 4 Activity 1: Determining ABO-Rh Blood Type • Human Biology and Health Issues: Unit 1 Lab 4 Activity 2: A Closer Look at Blood • Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content • Human Biology and Health Issues: Unit 2 Lab 6 Activity 1: Demonstrating Selective Permeability in Simulated Skin Cells • Human Biology and Health Issues: Unit 2 Lab 6 Activity 2: Exploring Transdermal Drug Delivery • Human Biology and Health Issues: Unit 2 Lab 7 Activity 1: Modeling Kidney

		<p>Function</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 2 Lab 7 Activity 2: Physical and Microscopic Characteristics of Urine • Human Biology and Health Issues: Unit 2 Lab 7 Activity 3: Protein Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 2 Lab 7 Activity 4: Glucose Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 3 Lab 8 Activity 1: Learning How Pollutants Accumulate in the Lungs • Human Biology and Health Issues: Unit 3 Lab 9 Activity 1: Simulating the Transmission of the Ebola Virus • Human Biology and Health Issues: Unit 4 Lab 10 Activity 1: Measuring Reaction Time • Human Biology and Health Issues: Unit 4 Lab 10 Activity 2: Measuring Range of Vision • Virtual Laboratory: Identifying Human Tissues
<p>AE/SKILLS & CONCEPTS/ORGANIZER</p>	<p>1.16.</p>	<p>Students use computers and other kinds of technology to collect, organize, and communicate information and ideas.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 1 Activity 1: Learning How Our Body is Organized and Functions • Human Biology and Health Issues: Unit 1 Lab 2 Activity 1: Testing Taste Receptors in the Tongue • Human Biology and Health Issues: Unit 1 Lab 2 Activity 2: Thermoreceptors - Responding to Heat and Cold • Human Biology and Health Issues: Unit 1 Lab 2 Activity 3: Distribution and Sensitivity of Touch Receptors • Human Biology and Health Issues: Unit 1 Lab 2 Activity 4: Responding to Sound • Human Biology and Health Issues: Unit 1 Lab 3 Activity 1: Exploring the Eye-Brain Connection • Human Biology and Health Issues: Unit 1 Lab 3 Activity 2: Measuring Vision • Human Biology and Health Issues: Unit 1 Lab 3 Activity 3: Is There a Hole in Your Hand? • Human Biology and Health Issues: Unit 1 Lab 3 Activity 4: Photographic Ambiguities • Human Biology and Health Issues: Unit

		<p>1 Lab 3 Activity 5: Typographic Illusions</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 3 Activity 6: Contrast and Color Illusions • Human Biology and Health Issues: Unit 1 Lab 4 Activity 1: Determining ABO-Rh Blood Type • Human Biology and Health Issues: Unit 1 Lab 4 Activity 2: A Closer Look at Blood • Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content • Human Biology and Health Issues: Unit 2 Lab 6 Activity 1: Demonstrating Selective Permeability in Simulated Skin Cells • Human Biology and Health Issues: Unit 2 Lab 6 Activity 2: Exploring Transdermal Drug Delivery • Human Biology and Health Issues: Unit 2 Lab 7 Activity 1: Modeling Kidney Function • Human Biology and Health Issues: Unit 2 Lab 7 Activity 2: Physical and Microscopic Characteristics of Urine • Human Biology and Health Issues: Unit 2 Lab 7 Activity 3: Protein Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 2 Lab 7 Activity 4: Glucose Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 3 Lab 8 Activity 1: Learning How Pollutants Accumulate in the Lungs • Human Biology and Health Issues: Unit 3 Lab 9 Activity 1: Simulating the Transmission of the Ebola Virus • Human Biology and Health Issues: Unit 4 Lab 10 Activity 1: Measuring Reaction Time • Human Biology and Health Issues: Unit 4 Lab 10 Activity 2: Measuring Range of Vision • Virtual Laboratory: Identifying Human Tissues
CATEGORY	KY.AE.	Academic Expectation
GOAL/UNDERSTANDINGS/SUBDOMAIN	AE.2.	Students shall develop their abilities to apply core concepts and principles from mathematics, the sciences, the arts, the humanities, social studies, practical living studies, and vocational studies to what they will encounter throughout their lives.
AE/SKILLS & CONCEPTS/ORGANIZER	2.2.	Science: Students identify, analyze, and use patterns such as cycles and trends to understand past and

present events and predict possible future events.

- Human Biology and Health Issues: Unit 1 Lab 1 Activity 1: Learning How Our Body is Organized and Functions
- Human Biology and Health Issues: Unit 1 Lab 2 Activity 1: Testing Taste Receptors in the Tongue
- Human Biology and Health Issues: Unit 1 Lab 2 Activity 2: Thermoreceptors - Responding to Heat and Cold
- Human Biology and Health Issues: Unit 1 Lab 2 Activity 3: Distribution and Sensitivity of Touch Receptors
- Human Biology and Health Issues: Unit 1 Lab 2 Activity 4: Responding to Sound
- Human Biology and Health Issues: Unit 1 Lab 3 Activity 1: Exploring the Eye-Brain Connection
- Human Biology and Health Issues: Unit 1 Lab 3 Activity 2: Measuring Vision
- Human Biology and Health Issues: Unit 1 Lab 3 Activity 3: Is There a Hole in Your Hand?
- Human Biology and Health Issues: Unit 1 Lab 3 Activity 4: Photographic Ambiguities
- Human Biology and Health Issues: Unit 1 Lab 3 Activity 5: Typographic Illusions
- Human Biology and Health Issues: Unit 1 Lab 3 Activity 6: Contrast and Color Illusions
- Human Biology and Health Issues: Unit 1 Lab 4 Activity 1: Determining ABO-Rh Blood Type
- Human Biology and Health Issues: Unit 1 Lab 4 Activity 2: A Closer Look at Blood
- Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content
- Human Biology and Health Issues: Unit 2 Lab 6 Activity 1: Demonstrating Selective Permeability in Simulated Skin Cells
- Human Biology and Health Issues: Unit 2 Lab 6 Activity 2: Exploring Transdermal Drug Delivery
- Human Biology and Health Issues: Unit 2 Lab 7 Activity 1: Modeling Kidney Function
- Human Biology and Health Issues: Unit 2 Lab 7 Activity 2: Physical and Microscopic Characteristics of Urine

		<ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 2 Lab 7 Activity 3: Protein Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 2 Lab 7 Activity 4: Glucose Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 3 Lab 8 Activity 1: Learning How Pollutants Accumulate in the Lungs • Human Biology and Health Issues: Unit 3 Lab 9 Activity 1: Simulating the Transmission of the Ebola Virus • Human Biology and Health Issues: Unit 4 Lab 10 Activity 1: Measuring Reaction Time • Human Biology and Health Issues: Unit 4 Lab 10 Activity 2: Measuring Range of Vision • Virtual Laboratory: Identifying Human Tissues
AE/SKILLS & CONCEPTS/ORGANIZER	2.3.	<p>Science: Students identify and analyze systems and the ways their components work together or affect each other.</p> <ul style="list-style-type: none"> • Teacher Resource CD: Human Health Issues and Disease • Teacher Resource CD: Human Physiology • Teacher Resource CD: The Human Machine
AE/SKILLS & CONCEPTS/ORGANIZER	2.4.	<p>Science: Students use the concept of scale and scientific models to explain the organization and functioning of living and nonliving things and predict other characteristics that might be observed.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 1 Activity 1: Learning How Our Body is Organized and Functions • Human Biology and Health Issues: Unit 1 Lab 4 Activity 1: Determining ABO-Rh Blood Type • Human Biology and Health Issues: Unit 1 Lab 4 Activity 2: A Closer Look at Blood • Human Biology and Health Issues: Unit 2 Lab 6 Activity 1: Demonstrating Selective Permeability in Simulated Skin Cells • Human Biology and Health Issues: Unit 2 Lab 6 Activity 2: Exploring Transdermal Drug Delivery • Human Biology and Health Issues: Unit 2 Lab 7 Activity 1: Modeling Kidney Function

		<ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 2 Lab 7 Activity 2: Physical and Microscopic Characteristics of Urine • Human Biology and Health Issues: Unit 2 Lab 7 Activity 3: Protein Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 2 Lab 7 Activity 4: Glucose Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 3 Lab 8 Activity 1: Learning How Pollutants Accumulate in the Lungs
<p>AE/SKILLS & CONCEPTS/ORGANIZER</p>	<p>2.5.</p>	<p>Science: Students understand that under certain conditions nature tends to remain the same or move toward a balance.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 1 Activity 1: Learning How Our Body is Organized and Functions • Human Biology and Health Issues: Unit 2 Lab 6 Activity 1: Demonstrating Selective Permeability in Simulated Skin Cells • Human Biology and Health Issues: Unit 2 Lab 6 Activity 2: Exploring Transdermal Drug Delivery • Human Biology and Health Issues: Unit 2 Lab 7 Activity 1: Modeling Kidney Function • Human Biology and Health Issues: Unit 2 Lab 7 Activity 2: Physical and Microscopic Characteristics of Urine • Human Biology and Health Issues: Unit 2 Lab 7 Activity 3: Protein Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 2 Lab 7 Activity 4: Glucose Test of Simulated Urine Samples • Teacher Resource CD: Human Health Issues and Disease • Teacher Resource CD: Human Physiology • Teacher Resource CD: The Human Machine
<p>AE/SKILLS & CONCEPTS/ORGANIZER</p>	<p>2.6.</p>	<p>Science: Students understand how living and nonliving things change over time and the factors that influence the changes.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 3 Lab 8 Activity 1: Learning How Pollutants Accumulate in the Lungs • Human Biology and Health Issues: Unit 3 Lab 9 Activity 1: Simulating the Transmission of the Ebola Virus

		<ul style="list-style-type: none"> Human Biology and Health Issues: Unit 4 Lab 10 Activity 1: Measuring Reaction Time Teacher Resource CD: Human Health Issues and Disease
CATEGORY	KY.CC.	Core Content for Assessment v.4.1
GOAL/UNDERSTANDINGS/SUBDOMAIN	SC-HS-1.1.	Structure and Transformation of Matter: By high school, students will be dealing with evidence from both direct and indirect observations (microscopic level and smaller) to consider theories related to change and conservation of matter. The use of models (and an understanding of their scales and limitations) is an effective means of learning about the structure of matter. Looking for patterns in properties is also critical to comparing and explaining differences in matter.
AE/SKILLS & CONCEPTS/ORGANIZER	SC-HS-1.1.1.	Physical Science: Students will classify or make generalizations about elements from data of observed patterns in atomic structure and/or position on the periodic table. <ul style="list-style-type: none"> Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content
CATEGORY	KY.CC.	Core Content for Assessment v.4.1
GOAL/UNDERSTANDINGS/SUBDOMAIN	SC-HS-3.4.	Unity and Diversity: At the high school level, an in-depth study of the specialization and chemical changes occurring at the cellular level builds upon the foundational ideas developed earlier to investigate DNA and effects of alterations in DNA for an individual organism as well as for a species. Emphasis at every level should be placed upon the understanding that while every living thing is composed of similar small constituents that combine in predictable ways, it is the subtle variations within these small building blocks that account for both the likenesses and differences in form and function that create the diversity of life.
AE/SKILLS & CONCEPTS/ORGANIZER	SC-HS-3.4.3.	Biological Science: Students will describe cell regulation (enzyme function, diffusion, osmosis, homeostasis); predict consequences of internal/external environmental change on cell function/regulation. <ul style="list-style-type: none"> Human Biology and Health Issues: Unit 2 Lab 6 Activity 2: Exploring Transdermal Drug Delivery Human Biology and Health Issues: Unit 2 Lab 7 Activity 1: Modeling Kidney Function Teacher Resource CD: Human Physiology
AE/SKILLS & CONCEPTS/ORGANIZER	SC-HS-3.4.7.	Biological Science: Students will classify organisms into groups based on similarities; infer relationships based on internal and external structures and chemical

		<p>processes.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 2 Activity 1: Testing Taste Receptors in the Tongue • Human Biology and Health Issues: Unit 1 Lab 2 Activity 2: Thermoreceptors - Responding to Heat and Cold • Human Biology and Health Issues: Unit 1 Lab 2 Activity 3: Distribution and Sensitivity of Touch Receptors • Human Biology and Health Issues: Unit 1 Lab 2 Activity 4: Responding to Sound • Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content • Virtual Laboratory: Identifying Human Tissues
<p>AE/SKILLS & CONCEPTS/ORGANIZER</p>	<p>SC-HS-3.4.8.</p>	<p>Biological Science: Students will understand that multicellular animals have nervous systems that generate behavior. Nerve cells communicate with each other by secreting specific molecules. Specialized cells in sense organs detect light, sound, and specific chemicals enabling animals to monitor what is going on in the world around them.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 1 Activity 1: Learning How Our Body is Organized and Functions • Human Biology and Health Issues: Unit 1 Lab 2 Activity 1: Testing Taste Receptors in the Tongue • Human Biology and Health Issues: Unit 1 Lab 2 Activity 2: Thermoreceptors - Responding to Heat and Cold • Human Biology and Health Issues: Unit 1 Lab 2 Activity 3: Distribution and Sensitivity of Touch Receptors • Human Biology and Health Issues: Unit 1 Lab 2 Activity 4: Responding to Sound • Human Biology and Health Issues: Unit 1 Lab 3 Activity 1: Exploring the Eye-Brain Connection • Human Biology and Health Issues: Unit 1 Lab 3 Activity 2: Measuring Vision • Human Biology and Health Issues: Unit 1 Lab 3 Activity 3: Is There a Hole in Your Hand? • Human Biology and Health Issues: Unit 1 Lab 3 Activity 4: Photographic Ambiguities • Human Biology and Health Issues: Unit 1 Lab 3 Activity 5: Typographic

		<p>Illusions</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 3 Activity 6: Contrast and Color Illusions • Human Biology and Health Issues: Unit 4 Lab 10 Activity 2: Measuring Range of Vision • Teacher Resource CD: The Human Machine • Virtual Laboratory: Identifying Human Tissues
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**Kentucky Standards
Science
Grade 10**

CATEGORY	KY.PS.	Program of Studies 2006
GOAL/UNDERSTANDINGS/SUBDOMAIN	H-STM.	<p>Big Idea: Structure and Transformation of Matter (Physical Science) - A basic understanding of matter is essential to the conceptual development of other big ideas in science. By high school, students will be dealing with evidence from both direct and indirect observations (microscopic level and smaller) to consider theories related to change and conservation of matter. The use of models (and an understanding of their scales and limitations) is an effective means of learning about the structure of matter. Looking for patterns in properties is also critical to comparing and explaining differences in matter. (Academic Expectations 2.1, 2.2, 2.4, 2.5)</p>
AE/SKILLS & CONCEPTS/ORGANIZER	SC-H-STM-U-7.	<p>Program of Studies: Understandings - Students will understand that chemical reactions have a variety of essential real-world applications, such as oxidation and various metabolic processes.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content • Human Biology and Health Issues: Unit 2 Lab 7 Activity 3: Protein Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 2 Lab 7 Activity 4: Glucose Test of Simulated Urine Samples • Teacher Resource CD: Human Physiology
AE/SKILLS & CONCEPTS/ORGANIZER	SC-H-STM-S-1.	<p>Program of Studies: Skills and Concepts - Students will classify samples of matter from everyday life as being elements, compounds, or mixtures</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content • Human Biology and Health Issues: Unit 2 Lab 7 Activity 1: Modeling Kidney Function • Human Biology and Health Issues: Unit

		2 Lab 7 Activity 2: Physical and Microscopic Characteristics of Urine
AE/SKILLS & CONCEPTS/ORGANIZER	SC-H-STM-S-11.	<p>Program of Studies: Skills and Concepts - Students will relate the structure of water to its function as the universal solvent</p> <ul style="list-style-type: none"> Human Biology and Health Issues: Unit 2 Lab 6 Activity 1: Demonstrating Selective Permeability in Simulated Skin Cells
CATEGORY	KY.PS.	Program of Studies 2006
GOAL/UNDERSTANDINGS/SUBDOMAIN	SC-H-UD.	<p>Big Idea: Unity and Diversity (Biological Science) - All matter is comprised of the same basic elements, goes through the same kinds of energy transformations, and uses the same kinds of forces to move. Living organisms are no exception. At the high school level, an in-depth study of the specialization and chemical changes occurring at the cellular level builds upon the foundational ideas developed earlier to investigate deoxyribonucleic acid (DNA) and effects of alterations in DNA for an individual organism as well as for a species. Emphasis at every level should be placed upon the understanding that while every living thing is composed of similar small constituents that combine in predictable ways, it is the subtle variations within these small building blocks that account for both the likenesses and differences in form and function that create the diversity of life. (Academic Expectations 2.1, 2.3, 2.4, 2.5)</p>
AE/SKILLS & CONCEPTS/ORGANIZER	SC-H-UD-U-1.	<p>Program of Studies: Understandings - Students will understand that the many body cells in an individual can be very different from one another even though they are all descended from a single cell and thus have essentially identical genetic instructions. Different parts of the instructions are used in different types of cells.</p> <ul style="list-style-type: none"> Teacher Resource CD: The Human Machine Virtual Laboratory: Identifying Human Tissues
AE/SKILLS & CONCEPTS/ORGANIZER	SC-H-UD-U-2.	<p>Program of Studies: Understandings - Students will understand that within every cell are specialized parts for the transport of materials, energy transfer, protein building, waste disposal, information feedback and even movement. In addition, most cells in multi-cellular organisms perform specialized functions that others do not.</p> <ul style="list-style-type: none"> Teacher Resource CD: The Human Machine Virtual Laboratory: Identifying Human Tissues
AE/SKILLS & CONCEPTS/ORGANIZER	SC-H-	Program of Studies: Skills and Concepts - Students will

	UD-S-2.	<p>identify a variety of specialized cell types and describe how these differentiated cells contribute to the function of an individual organism as a whole</p> <ul style="list-style-type: none"> • Teacher Resource CD: The Human Machine • Virtual Laboratory: Identifying Human Tissues
AE/SKILLS & CONCEPTS/ORGANIZER	SC-H-UD-S-7.	<p>Program of Studies: Skills and Concepts - Students will describe and classify a variety of chemical reactions required for cell functions</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content • Human Biology and Health Issues: Unit 2 Lab 7 Activity 3: Protein Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 2 Lab 7 Activity 4: Glucose Test of Simulated Urine Samples • Teacher Resource CD: Human Physiology
AE/SKILLS & CONCEPTS/ORGANIZER	SC-H-UD-S-8.	<p>Program of Studies: Skills and Concepts - Students will describe the processes by which cells maintain their internal environments within acceptable limits</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 2 Lab 6 Activity 2: Exploring Transdermal Drug Delivery • Human Biology and Health Issues: Unit 2 Lab 7 Activity 1: Modeling Kidney Function • Teacher Resource CD: Human Physiology
AE/SKILLS & CONCEPTS/ORGANIZER	SC-H-UD-S-10.	<p>Program of Studies: Skills and Concepts - Students will compare the structures and functions of viruses to cells and describe the role of viruses in causing a variety of diseases or conditions (e.g., AIDS, common cold, smallpox, warts)</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 3 Lab 9 Activity 1: Simulating the Transmission of the Ebola Virus • Teacher Resource CD: Human Health Issues and Disease
CATEGORY	KY.PS.	Program of Studies 2006
GOAL/UNDERSTANDINGS/SUBDOMAIN	SC-H-ET.	<p>Big Idea: Energy Transformations (Unifying Concepts) - Energy transformations are inherent in almost every system in the universe - from tangible examples at the elementary level, such as heat production in simple Earth and physical systems to</p>

		more abstract ideas beginning at middle school, such as those transformations involved in the growth, dying and decay of living systems. The use of models to illustrate the often invisible and abstract notions of energy transfer will aid in conceptualization, especially as students move from the macroscopic level of observation and evidence (primarily elementary school) to the microscopic interactions at the atomic level (middle and high school levels). Students in high school expand their understanding of constancy through the study of a variety of phenomena. Conceptual understanding and application of the laws of thermodynamics connect ideas about matter with energy transformations within all living, physical and Earth systems. (Academic Expectations 2.1, 2.2, 2.3, 2.4, 2.5)
AE/SKILLS & CONCEPTS/ORGANIZER	SC-H-ET-U-6.	<p>Program of Studies: Understandings - Students will understand that energy stored in food is released by a series of internal chemical reactions that reorganize the molecules into a form useable by the organism.</p> <ul style="list-style-type: none"> Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content Teacher Resource CD: Human Physiology
AE/SKILLS & CONCEPTS/ORGANIZER	SC-H-ET-U-7.	<p>Program of Studies: Understandings - Students will understand that a variety of carbon compounds are essential to the processes that occur in all organisms.</p> <ul style="list-style-type: none"> Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content Human Biology and Health Issues: Unit 2 Lab 7 Activity 3: Protein Test of Simulated Urine Samples Human Biology and Health Issues: Unit 2 Lab 7 Activity 4: Glucose Test of Simulated Urine Samples Teacher Resource CD: Human Physiology
AE/SKILLS & CONCEPTS/ORGANIZER	SC-H-ET-U-10.	<p>Program of Studies: Understandings - Students will understand that all Earth systems/processes require either an internal or external source of energy to function. Changes to any component, or to the quantity or type of energy input, may influence all components of the system.</p> <ul style="list-style-type: none"> Teacher Resource CD: The Human Machine
AE/SKILLS & CONCEPTS/ORGANIZER	SC-H-ET-S-8.	<p>Program of Studies: Skills and Concepts - Students will explore the composition and function of the carbon compounds involved in metabolism</p>

		<ul style="list-style-type: none"> Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content Human Biology and Health Issues: Unit 2 Lab 7 Activity 3: Protein Test of Simulated Urine Samples Human Biology and Health Issues: Unit 2 Lab 7 Activity 4: Glucose Test of Simulated Urine Samples Teacher Resource CD: Human Physiology
CATEGORY	KY.AE.	Academic Expectation
GOAL/UNDERSTANDINGS/SUBDOMAIN	AE.1.	Students are able to use basic communication and mathematics skills for purposes and situations they will encounter throughout their lives.
AE/SKILLS & CONCEPTS/ORGANIZER	1.2.	<p>Students make sense of the variety of materials they read.</p> <ul style="list-style-type: none"> Human Biology and Health Issues: Unit 1 Lab 1 Activity 1: Learning How Our Body is Organized and Functions Human Biology and Health Issues: Unit 1 Lab 2 Activity 1: Testing Taste Receptors in the Tongue Human Biology and Health Issues: Unit 1 Lab 2 Activity 2: Thermoreceptors - Responding to Heat and Cold Human Biology and Health Issues: Unit 1 Lab 2 Activity 3: Distribution and Sensitivity of Touch Receptors Human Biology and Health Issues: Unit 1 Lab 2 Activity 4: Responding to Sound Human Biology and Health Issues: Unit 1 Lab 3 Activity 1: Exploring the Eye-Brain Connection Human Biology and Health Issues: Unit 1 Lab 3 Activity 2: Measuring Vision Human Biology and Health Issues: Unit 1 Lab 3 Activity 3: Is There a Hole in Your Hand? Human Biology and Health Issues: Unit 1 Lab 3 Activity 4: Photographic Ambiguities Human Biology and Health Issues: Unit 1 Lab 3 Activity 5: Typographic Illusions Human Biology and Health Issues: Unit 1 Lab 3 Activity 6: Contrast and Color Illusions Human Biology and Health Issues: Unit 1 Lab 4 Activity 1: Determining ABO-Rh Blood Type Human Biology and Health Issues: Unit 1 Lab 4 Activity 2: A Closer Look at

		<p>Blood</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content • Human Biology and Health Issues: Unit 2 Lab 6 Activity 1: Demonstrating Selective Permeability in Simulated Skin Cells • Human Biology and Health Issues: Unit 2 Lab 6 Activity 2: Exploring Transdermal Drug Delivery • Human Biology and Health Issues: Unit 2 Lab 7 Activity 1: Modeling Kidney Function • Human Biology and Health Issues: Unit 2 Lab 7 Activity 2: Physical and Microscopic Characteristics of Urine • Human Biology and Health Issues: Unit 2 Lab 7 Activity 3: Protein Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 2 Lab 7 Activity 4: Glucose Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 3 Lab 8 Activity 1: Learning How Pollutants Accumulate in the Lungs • Human Biology and Health Issues: Unit 3 Lab 9 Activity 1: Simulating the Transmission of the Ebola Virus • Human Biology and Health Issues: Unit 4 Lab 10 Activity 1: Measuring Reaction Time • Human Biology and Health Issues: Unit 4 Lab 10 Activity 2: Measuring Range of Vision • Virtual Laboratory: Identifying Human Tissues
<p>AE/SKILLS & CONCEPTS/ORGANIZER</p>	<p>1.3.</p>	<p>Students make sense of the various things they observe.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 1 Activity 1: Learning How Our Body is Organized and Functions • Human Biology and Health Issues: Unit 1 Lab 2 Activity 1: Testing Taste Receptors in the Tongue • Human Biology and Health Issues: Unit 1 Lab 2 Activity 2: Thermoreceptors - Responding to Heat and Cold • Human Biology and Health Issues: Unit 1 Lab 2 Activity 3: Distribution and Sensitivity of Touch Receptors • Human Biology and Health Issues: Unit 1 Lab 2 Activity 4: Responding to Sound

		<ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 3 Activity 1: Exploring the Eye-Brain Connection • Human Biology and Health Issues: Unit 1 Lab 3 Activity 2: Measuring Vision • Human Biology and Health Issues: Unit 1 Lab 3 Activity 3: Is There a Hole in Your Hand? • Human Biology and Health Issues: Unit 1 Lab 3 Activity 4: Photographic Ambiguities • Human Biology and Health Issues: Unit 1 Lab 3 Activity 5: Typographic Illusions • Human Biology and Health Issues: Unit 1 Lab 3 Activity 6: Contrast and Color Illusions • Human Biology and Health Issues: Unit 1 Lab 4 Activity 1: Determining ABO-Rh Blood Type • Human Biology and Health Issues: Unit 1 Lab 4 Activity 2: A Closer Look at Blood • Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content • Human Biology and Health Issues: Unit 2 Lab 6 Activity 1: Demonstrating Selective Permeability in Simulated Skin Cells • Human Biology and Health Issues: Unit 2 Lab 6 Activity 2: Exploring Transdermal Drug Delivery • Human Biology and Health Issues: Unit 2 Lab 7 Activity 1: Modeling Kidney Function • Human Biology and Health Issues: Unit 2 Lab 7 Activity 2: Physical and Microscopic Characteristics of Urine • Human Biology and Health Issues: Unit 2 Lab 7 Activity 3: Protein Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 2 Lab 7 Activity 4: Glucose Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 3 Lab 8 Activity 1: Learning How Pollutants Accumulate in the Lungs • Human Biology and Health Issues: Unit 3 Lab 9 Activity 1: Simulating the Transmission of the Ebola Virus • Human Biology and Health Issues: Unit 4 Lab 10 Activity 1: Measuring Reaction Time • Human Biology and Health Issues: Unit 4 Lab 10 Activity 2: Measuring Range
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		<p>of Vision</p> <ul style="list-style-type: none"> • Virtual Laboratory: Identifying Human Tissues
<p>AE/SKILLS & CONCEPTS/ORGANIZER</p>	<p>1.4.</p>	<p>Students make sense of the various messages to which they listen.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 1 Activity 1: Learning How Our Body is Organized and Functions • Human Biology and Health Issues: Unit 1 Lab 2 Activity 1: Testing Taste Receptors in the Tongue • Human Biology and Health Issues: Unit 1 Lab 2 Activity 2: Thermoreceptors - Responding to Heat and Cold • Human Biology and Health Issues: Unit 1 Lab 2 Activity 3: Distribution and Sensitivity of Touch Receptors • Human Biology and Health Issues: Unit 1 Lab 2 Activity 4: Responding to Sound • Human Biology and Health Issues: Unit 1 Lab 3 Activity 1: Exploring the Eye-Brain Connection • Human Biology and Health Issues: Unit 1 Lab 3 Activity 2: Measuring Vision • Human Biology and Health Issues: Unit 1 Lab 3 Activity 3: Is There a Hole in Your Hand? • Human Biology and Health Issues: Unit 1 Lab 3 Activity 4: Photographic Ambiguities • Human Biology and Health Issues: Unit 1 Lab 3 Activity 5: Typographic Illusions • Human Biology and Health Issues: Unit 1 Lab 3 Activity 6: Contrast and Color Illusions • Human Biology and Health Issues: Unit 1 Lab 4 Activity 1: Determining ABO-Rh Blood Type • Human Biology and Health Issues: Unit 1 Lab 4 Activity 2: A Closer Look at Blood • Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content • Human Biology and Health Issues: Unit 2 Lab 6 Activity 1: Demonstrating Selective Permeability in Simulated Skin Cells • Human Biology and Health Issues: Unit 2 Lab 6 Activity 2: Exploring Transdermal Drug Delivery • Human Biology and Health Issues: Unit

		<p>2 Lab 7 Activity 1: Modeling Kidney Function</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 2 Lab 7 Activity 2: Physical and Microscopic Characteristics of Urine • Human Biology and Health Issues: Unit 2 Lab 7 Activity 3: Protein Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 2 Lab 7 Activity 4: Glucose Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 3 Lab 8 Activity 1: Learning How Pollutants Accumulate in the Lungs • Human Biology and Health Issues: Unit 3 Lab 9 Activity 1: Simulating the Transmission of the Ebola Virus • Human Biology and Health Issues: Unit 4 Lab 10 Activity 1: Measuring Reaction Time • Human Biology and Health Issues: Unit 4 Lab 10 Activity 2: Measuring Range of Vision • Virtual Laboratory: Identifying Human Tissues
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<p>AE/SKILLS & CONCEPTS/ORGANIZER</p>	<p>1.5-1.9.</p>	<p>Students use mathematical ideas and procedures to communicate, reason, and solve problems.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 1 Activity 1: Learning How Our Body is Organized and Functions • Human Biology and Health Issues: Unit 1 Lab 2 Activity 1: Testing Taste Receptors in the Tongue • Human Biology and Health Issues: Unit 1 Lab 2 Activity 2: Thermoreceptors - Responding to Heat and Cold • Human Biology and Health Issues: Unit 1 Lab 2 Activity 3: Distribution and Sensitivity of Touch Receptors • Human Biology and Health Issues: Unit 1 Lab 2 Activity 4: Responding to Sound • Human Biology and Health Issues: Unit 1 Lab 3 Activity 1: Exploring the Eye-Brain Connection • Human Biology and Health Issues: Unit 1 Lab 3 Activity 2: Measuring Vision • Human Biology and Health Issues: Unit 1 Lab 3 Activity 3: Is There a Hole in Your Hand? • Human Biology and Health Issues: Unit 1 Lab 3 Activity 4: Photographic Ambiguities • Human Biology and Health Issues: Unit
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		<p>1 Lab 3 Activity 5: Typographic Illusions</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 3 Activity 6: Contrast and Color Illusions • Human Biology and Health Issues: Unit 1 Lab 4 Activity 1: Determining ABO-Rh Blood Type • Human Biology and Health Issues: Unit 1 Lab 4 Activity 2: A Closer Look at Blood • Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content • Human Biology and Health Issues: Unit 2 Lab 6 Activity 1: Demonstrating Selective Permeability in Simulated Skin Cells • Human Biology and Health Issues: Unit 2 Lab 6 Activity 2: Exploring Transdermal Drug Delivery • Human Biology and Health Issues: Unit 2 Lab 7 Activity 1: Modeling Kidney Function • Human Biology and Health Issues: Unit 2 Lab 7 Activity 2: Physical and Microscopic Characteristics of Urine • Human Biology and Health Issues: Unit 2 Lab 7 Activity 3: Protein Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 2 Lab 7 Activity 4: Glucose Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 3 Lab 8 Activity 1: Learning How Pollutants Accumulate in the Lungs • Human Biology and Health Issues: Unit 3 Lab 9 Activity 1: Simulating the Transmission of the Ebola Virus • Human Biology and Health Issues: Unit 4 Lab 10 Activity 1: Measuring Reaction Time • Human Biology and Health Issues: Unit 4 Lab 10 Activity 2: Measuring Range of Vision • Virtual Laboratory: Identifying Human Tissues
<p>AE/SKILLS & CONCEPTS/ORGANIZER</p>	<p>1.10.</p>	<p>Students organize information through development and use of classification rules and systems.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 2 Activity 1: Testing Taste Receptors in the Tongue • Human Biology and Health Issues: Unit 1 Lab 2 Activity 2: Thermoreceptors -

		<p>Responding to Heat and Cold</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 2 Activity 3: Distribution and Sensitivity of Touch Receptors • Human Biology and Health Issues: Unit 1 Lab 2 Activity 4: Responding to Sound • Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content • Virtual Laboratory: Identifying Human Tissues
<p>AE/SKILLS & CONCEPTS/ORGANIZER</p>	<p>1.11.</p>	<p>Students write using appropriate forms, conventions, and styles to communicate ideas and information to different audiences for different purposes.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 1 Activity 1: Learning How Our Body is Organized and Functions • Human Biology and Health Issues: Unit 1 Lab 2 Activity 1: Testing Taste Receptors in the Tongue • Human Biology and Health Issues: Unit 1 Lab 2 Activity 2: Thermoreceptors - Responding to Heat and Cold • Human Biology and Health Issues: Unit 1 Lab 2 Activity 3: Distribution and Sensitivity of Touch Receptors • Human Biology and Health Issues: Unit 1 Lab 2 Activity 4: Responding to Sound • Human Biology and Health Issues: Unit 1 Lab 3 Activity 1: Exploring the Eye-Brain Connection • Human Biology and Health Issues: Unit 1 Lab 3 Activity 2: Measuring Vision • Human Biology and Health Issues: Unit 1 Lab 3 Activity 3: Is There a Hole in Your Hand? • Human Biology and Health Issues: Unit 1 Lab 3 Activity 4: Photographic Ambiguities • Human Biology and Health Issues: Unit 1 Lab 3 Activity 5: Typographic Illusions • Human Biology and Health Issues: Unit 1 Lab 3 Activity 6: Contrast and Color Illusions • Human Biology and Health Issues: Unit 1 Lab 4 Activity 1: Determining ABO-Rh Blood Type • Human Biology and Health Issues: Unit 1 Lab 4 Activity 2: A Closer Look at Blood • Human Biology and Health Issues: Unit

		<p>2 Lab 5 Activity 1: Testing for Food Nutrient Content</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 2 Lab 6 Activity 1: Demonstrating Selective Permeability in Simulated Skin Cells • Human Biology and Health Issues: Unit 2 Lab 6 Activity 2: Exploring Transdermal Drug Delivery • Human Biology and Health Issues: Unit 2 Lab 7 Activity 1: Modeling Kidney Function • Human Biology and Health Issues: Unit 2 Lab 7 Activity 2: Physical and Microscopic Characteristics of Urine • Human Biology and Health Issues: Unit 2 Lab 7 Activity 3: Protein Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 2 Lab 7 Activity 4: Glucose Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 3 Lab 8 Activity 1: Learning How Pollutants Accumulate in the Lungs • Human Biology and Health Issues: Unit 3 Lab 9 Activity 1: Simulating the Transmission of the Ebola Virus • Human Biology and Health Issues: Unit 4 Lab 10 Activity 1: Measuring Reaction Time • Human Biology and Health Issues: Unit 4 Lab 10 Activity 2: Measuring Range of Vision • Virtual Laboratory: Identifying Human Tissues
<p>AE/SKILLS & CONCEPTS/ORGANIZER</p>	<p>1.12.</p>	<p>Students speak using appropriate forms, conventions, and styles to communicate ideas and information to different audiences for different purposes.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 1 Activity 1: Learning How Our Body is Organized and Functions • Human Biology and Health Issues: Unit 1 Lab 2 Activity 1: Testing Taste Receptors in the Tongue • Human Biology and Health Issues: Unit 1 Lab 2 Activity 2: Thermoreceptors - Responding to Heat and Cold • Human Biology and Health Issues: Unit 1 Lab 2 Activity 3: Distribution and Sensitivity of Touch Receptors • Human Biology and Health Issues: Unit 1 Lab 2 Activity 4: Responding to Sound • Human Biology and Health Issues: Unit

		<p>1 Lab 3 Activity 1: Exploring the Eye-Brain Connection</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 3 Activity 2: Measuring Vision • Human Biology and Health Issues: Unit 1 Lab 3 Activity 3: Is There a Hole in Your Hand? • Human Biology and Health Issues: Unit 1 Lab 3 Activity 4: Photographic Ambiguities • Human Biology and Health Issues: Unit 1 Lab 3 Activity 5: Typographic Illusions • Human Biology and Health Issues: Unit 1 Lab 3 Activity 6: Contrast and Color Illusions • Human Biology and Health Issues: Unit 1 Lab 4 Activity 1: Determining ABO-Rh Blood Type • Human Biology and Health Issues: Unit 1 Lab 4 Activity 2: A Closer Look at Blood • Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content • Human Biology and Health Issues: Unit 2 Lab 6 Activity 1: Demonstrating Selective Permeability in Simulated Skin Cells • Human Biology and Health Issues: Unit 2 Lab 6 Activity 2: Exploring Transdermal Drug Delivery • Human Biology and Health Issues: Unit 2 Lab 7 Activity 1: Modeling Kidney Function • Human Biology and Health Issues: Unit 2 Lab 7 Activity 2: Physical and Microscopic Characteristics of Urine • Human Biology and Health Issues: Unit 2 Lab 7 Activity 3: Protein Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 2 Lab 7 Activity 4: Glucose Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 3 Lab 8 Activity 1: Learning How Pollutants Accumulate in the Lungs • Human Biology and Health Issues: Unit 3 Lab 9 Activity 1: Simulating the Transmission of the Ebola Virus • Human Biology and Health Issues: Unit 4 Lab 10 Activity 1: Measuring Reaction Time • Human Biology and Health Issues: Unit 4 Lab 10 Activity 2: Measuring Range of Vision
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		<ul style="list-style-type: none"> Virtual Laboratory: Identifying Human Tissues
AE/SKILLS & CONCEPTS/ORGANIZER	1.16.	<p>Students use computers and other kinds of technology to collect, organize, and communicate information and ideas.</p> <ul style="list-style-type: none"> Human Biology and Health Issues: Unit 1 Lab 1 Activity 1: Learning How Our Body is Organized and Functions Human Biology and Health Issues: Unit 1 Lab 2 Activity 1: Testing Taste Receptors in the Tongue Human Biology and Health Issues: Unit 1 Lab 2 Activity 2: Thermoreceptors - Responding to Heat and Cold Human Biology and Health Issues: Unit 1 Lab 2 Activity 3: Distribution and Sensitivity of Touch Receptors Human Biology and Health Issues: Unit 1 Lab 2 Activity 4: Responding to Sound Human Biology and Health Issues: Unit 1 Lab 3 Activity 1: Exploring the Eye-Brain Connection Human Biology and Health Issues: Unit 1 Lab 3 Activity 2: Measuring Vision Human Biology and Health Issues: Unit 1 Lab 3 Activity 3: Is There a Hole in Your Hand? Human Biology and Health Issues: Unit 1 Lab 3 Activity 4: Photographic Ambiguities Human Biology and Health Issues: Unit 1 Lab 3 Activity 5: Typographic Illusions Human Biology and Health Issues: Unit 1 Lab 3 Activity 6: Contrast and Color Illusions Human Biology and Health Issues: Unit 1 Lab 4 Activity 1: Determining ABO-Rh Blood Type Human Biology and Health Issues: Unit 1 Lab 4 Activity 2: A Closer Look at Blood Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content Human Biology and Health Issues: Unit 2 Lab 6 Activity 1: Demonstrating Selective Permeability in Simulated Skin Cells Human Biology and Health Issues: Unit 2 Lab 6 Activity 2: Exploring Transdermal Drug Delivery Human Biology and Health Issues: Unit

		<p>2 Lab 7 Activity 1: Modeling Kidney Function</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 2 Lab 7 Activity 2: Physical and Microscopic Characteristics of Urine • Human Biology and Health Issues: Unit 2 Lab 7 Activity 3: Protein Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 2 Lab 7 Activity 4: Glucose Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 3 Lab 8 Activity 1: Learning How Pollutants Accumulate in the Lungs • Human Biology and Health Issues: Unit 3 Lab 9 Activity 1: Simulating the Transmission of the Ebola Virus • Human Biology and Health Issues: Unit 4 Lab 10 Activity 1: Measuring Reaction Time • Human Biology and Health Issues: Unit 4 Lab 10 Activity 2: Measuring Range of Vision • Virtual Laboratory: Identifying Human Tissues
CATEGORY	KY.AE.	Academic Expectation
GOAL/UNDERSTANDINGS/SUBDOMAIN	AE.2.	Students shall develop their abilities to apply core concepts and principles from mathematics, the sciences, the arts, the humanities, social studies, practical living studies, and vocational studies to what they will encounter throughout their lives.
AE/SKILLS & CONCEPTS/ORGANIZER	2.2.	<p>Science: Students identify, analyze, and use patterns such as cycles and trends to understand past and present events and predict possible future events.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 1 Activity 1: Learning How Our Body is Organized and Functions • Human Biology and Health Issues: Unit 1 Lab 2 Activity 1: Testing Taste Receptors in the Tongue • Human Biology and Health Issues: Unit 1 Lab 2 Activity 2: Thermoreceptors - Responding to Heat and Cold • Human Biology and Health Issues: Unit 1 Lab 2 Activity 3: Distribution and Sensitivity of Touch Receptors • Human Biology and Health Issues: Unit 1 Lab 2 Activity 4: Responding to Sound • Human Biology and Health Issues: Unit 1 Lab 3 Activity 1: Exploring the Eye-Brain Connection • Human Biology and Health Issues: Unit 1 Lab 3 Activity 2: Measuring Vision

		<ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 3 Activity 3: Is There a Hole in Your Hand? • Human Biology and Health Issues: Unit 1 Lab 3 Activity 4: Photographic Ambiguities • Human Biology and Health Issues: Unit 1 Lab 3 Activity 5: Typographic Illusions • Human Biology and Health Issues: Unit 1 Lab 3 Activity 6: Contrast and Color Illusions • Human Biology and Health Issues: Unit 1 Lab 4 Activity 1: Determining ABO-Rh Blood Type • Human Biology and Health Issues: Unit 1 Lab 4 Activity 2: A Closer Look at Blood • Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content • Human Biology and Health Issues: Unit 2 Lab 6 Activity 1: Demonstrating Selective Permeability in Simulated Skin Cells • Human Biology and Health Issues: Unit 2 Lab 6 Activity 2: Exploring Transdermal Drug Delivery • Human Biology and Health Issues: Unit 2 Lab 7 Activity 1: Modeling Kidney Function • Human Biology and Health Issues: Unit 2 Lab 7 Activity 2: Physical and Microscopic Characteristics of Urine • Human Biology and Health Issues: Unit 2 Lab 7 Activity 3: Protein Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 2 Lab 7 Activity 4: Glucose Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 3 Lab 8 Activity 1: Learning How Pollutants Accumulate in the Lungs • Human Biology and Health Issues: Unit 3 Lab 9 Activity 1: Simulating the Transmission of the Ebola Virus • Human Biology and Health Issues: Unit 4 Lab 10 Activity 1: Measuring Reaction Time • Human Biology and Health Issues: Unit 4 Lab 10 Activity 2: Measuring Range of Vision • Virtual Laboratory: Identifying Human Tissues
AE/SKILLS & CONCEPTS/ORGANIZER	2.3.	Science: Students identify and analyze systems and the

		<p>ways their components work together or affect each other.</p> <ul style="list-style-type: none"> • Teacher Resource CD: Human Health Issues and Disease • Teacher Resource CD: Human Physiology • Teacher Resource CD: The Human Machine
<p>AE/SKILLS & CONCEPTS/ORGANIZER</p>	<p>2.4.</p>	<p>Science: Students use the concept of scale and scientific models to explain the organization and functioning of living and nonliving things and predict other characteristics that might be observed.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 1 Activity 1: Learning How Our Body is Organized and Functions • Human Biology and Health Issues: Unit 1 Lab 4 Activity 1: Determining ABO-Rh Blood Type • Human Biology and Health Issues: Unit 1 Lab 4 Activity 2: A Closer Look at Blood • Human Biology and Health Issues: Unit 2 Lab 6 Activity 1: Demonstrating Selective Permeability in Simulated Skin Cells • Human Biology and Health Issues: Unit 2 Lab 6 Activity 2: Exploring Transdermal Drug Delivery • Human Biology and Health Issues: Unit 2 Lab 7 Activity 1: Modeling Kidney Function • Human Biology and Health Issues: Unit 2 Lab 7 Activity 2: Physical and Microscopic Characteristics of Urine • Human Biology and Health Issues: Unit 2 Lab 7 Activity 3: Protein Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 2 Lab 7 Activity 4: Glucose Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 3 Lab 8 Activity 1: Learning How Pollutants Accumulate in the Lungs
<p>AE/SKILLS & CONCEPTS/ORGANIZER</p>	<p>2.5.</p>	<p>Science: Students understand that under certain conditions nature tends to remain the same or move toward a balance.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 1 Activity 1: Learning How Our Body is Organized and Functions • Human Biology and Health Issues: Unit 2 Lab 6 Activity 1: Demonstrating

		<p>Selective Permeability in Simulated Skin Cells</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 2 Lab 6 Activity 2: Exploring Transdermal Drug Delivery • Human Biology and Health Issues: Unit 2 Lab 7 Activity 1: Modeling Kidney Function • Human Biology and Health Issues: Unit 2 Lab 7 Activity 2: Physical and Microscopic Characteristics of Urine • Human Biology and Health Issues: Unit 2 Lab 7 Activity 3: Protein Test of Simulated Urine Samples • Human Biology and Health Issues: Unit 2 Lab 7 Activity 4: Glucose Test of Simulated Urine Samples • Teacher Resource CD: Human Health Issues and Disease • Teacher Resource CD: Human Physiology • Teacher Resource CD: The Human Machine
AE/SKILLS & CONCEPTS/ORGANIZER	2.6.	<p>Science: Students understand how living and nonliving things change over time and the factors that influence the changes.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 3 Lab 8 Activity 1: Learning How Pollutants Accumulate in the Lungs • Human Biology and Health Issues: Unit 3 Lab 9 Activity 1: Simulating the Transmission of the Ebola Virus • Human Biology and Health Issues: Unit 4 Lab 10 Activity 1: Measuring Reaction Time • Teacher Resource CD: Human Health Issues and Disease
CATEGORY	KY.CC.	Core Content for Assessment v.4.1
GOAL/UNDERSTANDINGS/SUBDOMAIN	SC-HS-1.1.	<p>Structure and Transformation of Matter: By high school, students will be dealing with evidence from both direct and indirect observations (microscopic level and smaller) to consider theories related to change and conservation of matter. The use of models (and an understanding of their scales and limitations) is an effective means of learning about the structure of matter. Looking for patterns in properties is also critical to comparing and explaining differences in matter.</p>
AE/SKILLS & CONCEPTS/ORGANIZER	SC-HS-1.1.1.	<p>Physical Science: Students will classify or make generalizations about elements from data of observed patterns in atomic structure and/or position on the periodic table.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit

		2 Lab 5 Activity 1: Testing for Food Nutrient Content
CATEGORY	KY.CC.	Core Content for Assessment v.4.1
GOAL/UNDERSTANDINGS/SUBDOMAIN	SC-HS-3.4.	Unity and Diversity: At the high school level, an in-depth study of the specialization and chemical changes occurring at the cellular level builds upon the foundational ideas developed earlier to investigate DNA and effects of alterations in DNA for an individual organism as well as for a species. Emphasis at every level should be placed upon the understanding that while every living thing is composed of similar small constituents that combine in predictable ways, it is the subtle variations within these small building blocks that account for both the likenesses and differences in form and function that create the diversity of life.
AE/SKILLS & CONCEPTS/ORGANIZER	SC-HS-3.4.3.	<p>Biological Science: Students will describe cell regulation (enzyme function, diffusion, osmosis, homeostasis); predict consequences of internal/external environmental change on cell function/regulation.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 2 Lab 6 Activity 2: Exploring Transdermal Drug Delivery • Human Biology and Health Issues: Unit 2 Lab 7 Activity 1: Modeling Kidney Function • Teacher Resource CD: Human Physiology
AE/SKILLS & CONCEPTS/ORGANIZER	SC-HS-3.4.7.	<p>Biological Science: Students will classify organisms into groups based on similarities; infer relationships based on internal and external structures and chemical processes.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 2 Activity 1: Testing Taste Receptors in the Tongue • Human Biology and Health Issues: Unit 1 Lab 2 Activity 2: Thermoreceptors - Responding to Heat and Cold • Human Biology and Health Issues: Unit 1 Lab 2 Activity 3: Distribution and Sensitivity of Touch Receptors • Human Biology and Health Issues: Unit 1 Lab 2 Activity 4: Responding to Sound • Human Biology and Health Issues: Unit 2 Lab 5 Activity 1: Testing for Food Nutrient Content • Virtual Laboratory: Identifying Human Tissues
AE/SKILLS & CONCEPTS/ORGANIZER	SC-HS-3.4.8.	Biological Science: Students will understand that multicellular animals have nervous systems that generate behavior. Nerve cells communicate with each

		<p>other by secreting specific molecules. Specialized cells in sense organs detect light, sound, and specific chemicals enabling animals to monitor what is going on in the world around them.</p> <ul style="list-style-type: none"> • Human Biology and Health Issues: Unit 1 Lab 1 Activity 1: Learning How Our Body is Organized and Functions • Human Biology and Health Issues: Unit 1 Lab 2 Activity 1: Testing Taste Receptors in the Tongue • Human Biology and Health Issues: Unit 1 Lab 2 Activity 2: Thermoreceptors - Responding to Heat and Cold • Human Biology and Health Issues: Unit 1 Lab 2 Activity 3: Distribution and Sensitivity of Touch Receptors • Human Biology and Health Issues: Unit 1 Lab 2 Activity 4: Responding to Sound • Human Biology and Health Issues: Unit 1 Lab 3 Activity 1: Exploring the Eye-Brain Connection • Human Biology and Health Issues: Unit 1 Lab 3 Activity 2: Measuring Vision • Human Biology and Health Issues: Unit 1 Lab 3 Activity 3: Is There a Hole in Your Hand? • Human Biology and Health Issues: Unit 1 Lab 3 Activity 4: Photographic Ambiguities • Human Biology and Health Issues: Unit 1 Lab 3 Activity 5: Typographic Illusions • Human Biology and Health Issues: Unit 1 Lab 3 Activity 6: Contrast and Color Illusions • Human Biology and Health Issues: Unit 4 Lab 10 Activity 2: Measuring Range of Vision • Teacher Resource CD: The Human Machine • Virtual Laboratory: Identifying Human Tissues
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