

Biology A

Teacher: Master Map

Month	Content and Essential Questions	Skills/Standards	Assessment/Standards	Resources
<p>September 2003</p>	<p>All living things exhibit specific characteristics not found in nonliving things.</p> <p>All living things (organisms) must carry on life functions to ensure survival of the species</p> <p>Life functions enable organisms to maintain homeostasis and organisms must react and overcome disruptions in homeostasis to survive.</p> <p>Essential Questions:</p> <p>What are the two types of nutrition?</p> <p>How is cellular respiration different from breathing?</p> <p>What are the two steps that occur during transport?</p> <p>What are two ways in which organisms grow?</p> <p>What is homeostasis? Why do organisms need to maintain homeostasis?</p> <p>Which life function is not required for the survival on an individual organism?</p> <p>What is metabolism? What factors influence and individual's metabolic processes?</p>	<p>describe specific characteristics found in living things and compare/contrast with nonliving things.</p> <p>Explain how the following life functions help an organism maintain homeostasis: transport, regulation, nutrition, excretion, respiration, metabolism and growth.</p> <p>Describe ways in which the body reacts to disruptions in homeostasis.</p>	<p>Vocabulary lists based upon the terms studied</p> <p>Worksheets and lab activities based upon material studied</p> <p>Chart comparing living and nonliving things</p> <p>Textbook assignments (chapter 1)</p> <p>Practice worksheets</p> <p>-----</p> <p>Standard / Assessments : NY_Learning_Standards Subject Area : Math, Science and Technology Items Addressed : •{6 } Students will understand the relationships and common themes that connect mathematics, science, and technology and apply the themes to these and other areas of learning.</p> <p>-----</p> <p>tests and quizzes on life processes</p>	<p>Textbook Lab Equipment Prentice Hall Instructional Resource Materials</p>
<p>October</p>	<p>the scientific method is an ongoing process</p>	<p>Use metric instruments to measure length,</p>	<p>Design an experiment using the scientific</p>	<p>Textbook</p>

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<p>2003</p>	<p>capable of change.</p> <p>-----</p> <p>Standard / Assessments : NY_Learning_Standards Subject Area : Math, Science and Technology Items Addressed : •{1 } Students will use mathematical analysis, scientific inquiry, and engineering design, as appropriate, to pose questions, seek answers, and develop solutions.</p> <p>-----</p> <p>The metric system is used by scientists internationally.</p> <p>-----</p> <p>Standard / Assessments : NY_Learning_Standards Subject Area : Math, Science and Technology Items Addressed : •{1 } Students will use mathematical analysis, scientific inquiry, and engineering design, as appropriate, to pose questions, seek answers, and develop solutions. •{6 } Students will understand the relationships and common themes that connect mathematics, science, and technology and apply the themes to these and other areas of learning.</p> <p>-----</p> <p>-----</p> <p>Standard / Assessments : NY_Learning_Standards Subject Area : Math, Science and Technology Items Addressed :</p>	<p>volume and mass.</p> <p>Develop and conduct experiments using the scientific method.</p> <p>Learn the proper procedure necessary to examine objects under a microscope.</p>	<p>method.</p> <p>-----</p> <p>Standard / Assessments : NY_Learning_Standards Subject Area : Math, Science and Technology Items Addressed : •{1 } Students will use mathematical analysis, scientific inquiry, and engineering design, as appropriate, to pose questions, seek answers, and develop solutions.</p> <p>-----</p> <p>Express measurements in milli, centi, and kilo units.</p> <p>practice worksheets</p> <p>-----</p> <p>Standard / Assessments : NY_Learning_Standards Subject Area : Math, Science and Technology Items Addressed : •{1 } Students will use mathematical analysis, scientific inquiry, and engineering design, as appropriate, to pose questions, seek answers, and develop solutions. •{6 } Students will understand the relationships and common themes that connect mathematics, science, and technology and apply the themes to these and other areas of learning.</p> <p>-----</p> <p>Cookie Lab of Metric Measurement</p> <p>The E-lab (Using a Microscope)</p>	<p>Lab equipment</p> <p>Prentice Hall Instructional Resource</p> <p>Materials</p>

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	<p>•{4 } Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science.</p> <p>-----</p> <p>Application of the scientific method is beneficial in helping students solve problems.</p> <p>Lab safety procedures must be followed during all labs.</p> <p>The microscope is an effective tool in examining microscopic organisms.</p>		Tests and Quizzes on the scientific method and the metric system	
November 2003	<p>Identify the major differences between organic and inorganic molecules.</p> <p>Explain how organic and inorganic molecules enable organisms to maintain homeostasis.</p> <p>Describe how pH influences life activities.</p> <p>Differentiate between types of mixtures</p> <p>Essential Questions: What organic molecules are necessary for life? What are the building blocks of these organic molecules? How are organic molecules combined or simplified within an organism during life processes? How does pH influence life processes?</p>	<p>Students arrange atoms, elements, molecules, compounds in order of complexity and give examples of each.</p> <p>Students give examples of organic molecules and how they are classified as such.</p> <p>Explain the basic building blocks of biochemical molecules and their importance to living things.</p> <p>Explain how dehydration synthesis and hydrolysis influence organic molecules.</p> <p>Use the pH scale to review, acids, bases, and how they interact in organic systems.</p>	<p>Acid/base lab activity</p> <p>Review enzymes and how they influence biochemical reactions</p> <p>Cut and paste lab on organic molecules</p> <p>Review sheets on Basic chemistry/biochemistry</p> <p>Using your Notes Review activities</p> <p>Mixtures lab</p>	<p>textbook</p> <p>Lab equipment</p> <p>Prentice Hall Instructional Resource</p> <p>Practice activities</p>

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<p>December 2003</p>	<p>What are enzymes and how do they work?</p> <p>Developments that led to the cell theory</p> <p>Differences between prokaryotic and eukaryotic cells.</p> <p>All living things are made of cells and are highly organized; each of these cells have specific functions.</p> <p>Structures unique to plant and animal cells.</p> <p>Organelles found within cells have specific functions necessary for life.</p> <p>Materials move in and out of cells in several different ways.</p>	<p>Discuss how advances in technology led to the formation of the cell theory.</p> <p>Explain the major differences between eukaryotic and prokaryotic cells.</p> <p>Explain the organizational hierarchy of the structure of living things: Organelles-cells-tissues-organs-organ systems-organisms</p> <p>List and describe the functions of the following cell organelles: cell membrane, nucleus, cell wall, mitochondria, ribosomes, lysosomes, golgi bodies, chloroplasts, vacuoles, ER, and centrioles.</p> <p>-----</p> <p>Standard / Assessments : NY_Learning_Standards Subject Area : Math, Science and Technology Items Addressed :</p> <ul style="list-style-type: none"> •{1 } Students will use mathematical analysis, scientific inquiry, and engineering design, as appropriate, to pose questions, seek answers, and develop solutions. •{4 } Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science. <p>-----</p> <p>Describe why certain organelles are found exclusively in plant or animal cells.</p> <p>Describe the function of a variety of cell</p>	<p>Organizational pyramid depicting the organizational hierarchy of living things</p> <p>Charts and worksheets reviewing specific cell structures and functions</p> <p>Diagrams where students label and color cell structures to familiarize themselves with their appearance</p> <p>Diffusion and osmosis worksheet</p> <p>-----</p> <p>Standard / Assessments : NY_Learning_Standards Subject Area : Math, Science and Technology Items Addressed :</p> <ul style="list-style-type: none"> •{1 } Students will use mathematical analysis, scientific inquiry, and engineering design, as appropriate, to pose questions, seek answers, and develop solutions. •{4 } Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science. <p>-----</p> <p>Plant and animal cell lab activity</p> <p>Tests and quizzes on the cell and its functions</p> <p>Using your notes questions</p>	<p>textbook</p> <p>Lab equipment</p> <p>Prentice Hall Instructional Resource</p>

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		<p>types within the human body.</p> <p>Explain how diffusion, active transport, and osmosis influence transport within living systems. Organize data into a given table and plot that data on a line graph</p>		
January 2004	<p>Line graphs are helpful in understanding relationships between environmental factors and predicting possible outcomes in experiments.</p> <p>Cellular respiration is required to maintain homeostasis in living things.</p> <p>Organisms must utilize aerobic, anaerobic, or both types of respiration to synthesize energy for life activities.</p> <p>Energy is stored in the high-energy bonds of ATP molecules</p> <p>Cellular respiration requires raw materials (ex. oxygen, nutrients etc.) and produces by-products (ex. lactic acid, ATP) in all living things.</p> <p>How are the processes of respiration and cellular respiration similar?</p>	<p>Develop appropriate scales on labeled axis</p> <p>Develop conclusions based upon graphs and make predictions based upon trends in data</p> <p>Explain why cellular respiration is necessary for life</p> <p>explain the differences between aerobic and anaerobic respiration and compare /contrast the energy (ATP) produced by each.</p> <p>Identify the requirements and by-products of alcoholic fermentation</p>	<p>Practice exercises on line graphs including questions from past regents exams</p> <p>Respiration vocabulary sheet</p> <p>Chart comparing aerobic and anaerobic respiration</p> <p>Review worksheets and activities on cellular respiration</p> <p>Test and Quizzes on graphing and cellular respiration.</p> <p>Using your notes questions</p> <p>Fermentation Lab</p>	<p>Graphing activities</p> <p>Lab equipment</p> <p>textbook</p> <p>Prentice Hall Instructional Resource</p>
February 2004	<p>Classification is necessary to organize living things into manageable units</p> <p>Can organisms of different species reproduce? If so, what is unique about these individuals?</p>	<p>Students explain how living things are organized (classified) and why a system of classification is helpful.</p> <p>Students explain that Genus and species are the most specific classification categories and therefore make up its scientific name</p>	<p>Classification activities</p> <p>Classification Lab</p> <p>photosynthesis review sheets</p> <p>table that compares and contrasts</p>	<p>textbook</p> <p>Lab Equipment</p> <p>Prentice Hall Instructional resource</p> <p>Practice activities</p>

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	<p>Genus and species are the most specific classification categories and represent an organism's scientific name.</p> <p>Nutrition is necessary for all organisms to obtain nutrients essential for life processes.</p> <p>Green plants are capable of synthesizing food through the process of photosynthesis.</p> <p>What substances are required for photosynthesis to take place?</p> <p>What substances are produced during photosynthesis?</p> <p>How does photosynthesis differ from cellular respiration?</p> <p>How do autotrophic and heterotrophic nutrition differ?</p>	<p>(binomial nomenclature)</p> <p>Using tables to compare and contrast similarities and differences between organisms.</p> <p>Students understand that fertile offspring can only be produced by organisms of the same species</p> <p>List the raw materials necessary for photosynthesis to take place.</p> <p>List the products of photosynthetic reactions.</p> <p>Explain how the sun influences virtually all living things.</p>	<p>photosynthesis and cellular respiration</p> <p>Tests and quizzes on photosynthesis and classification</p> <p>Using your notes questions</p>	
<p>March 2004</p>	<p>How are heterotrophic and autotrophic nutrition related?</p> <p>What are some ways in which heterotrophic organisms obtain nutrients?</p> <p>Describe the nutritional processes of the Amoeba and the paramecium.</p> <p>Explain the function of the organs found in the digestive tract of the human digestive system.</p> <p>What are digestive glands? What is their function?</p>	<p>Label the structures of the digestive system and explain the functions of each.</p> <p>-----</p> <p>Standard / Assessments : NY_Learning_Standards Subject Area : Math, Science and Technology Items Addressed : •{4 } Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science.</p> <p>-----</p>	<p>Diagram of the human digestive system</p> <p>Parts and functions chart: human digestive system</p> <p>Amoeba lab</p> <p>Paramecium lab</p> <p>Tests and Quizzes based upon Nutrition content</p> <p>Using your notes questions</p>	<p>Textbook</p> <p>Lab Equipment</p> <p>Practice activities</p> <p>Prentice Hall instructional Resource</p>

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	How does nutrition influence homeostasis in organisms?	Describe the different types of nutrition and structures associated with these		
April 2004	<p>Essential Questions:</p> <p>How does the heart function to pump blood throughout the body?</p> <p>How are the vessels specialized to do their jobs?</p> <p>What is blood and what are the functions of its parts?</p> <p>What are the parts of the immune system?</p> <p>What does it mean to be immune and how might one get immunity?</p> <p>What are the cells of the immune system and how do they work?</p> <p>What happens when the immune system cannot fight disease?</p>	<p>Explain the function of the different blood vessels and how they interact with the other body systems (excretory, respiratory)</p> <p>Discuss the function of blood and its part in maintaining homeostasis</p> <p>Review the immune system and its role in preventing infection</p>	<p>Labeled Diagrams of the heart and blood vessels</p> <p>Pulse rate lab (Making Connections)</p> <p>Worksheets on the heart, blood and immunity</p> <p>Using your notes questions</p>	<p>Textbook</p> <p>Prentice Hall Instructional resource</p> <p>Practice activities</p> <p>Lab equipment</p>
May 2004	<p>What is excretion and what are the products? Why do organisms need to get rid of their waste?</p> <p>Describe the structures and functions of the human respiratory tract.</p> <p>How does the respiratory system work alongside the circulatory system?</p>	<p>Identify the excretory structures and list the waste products of the human. Describe what could happen if the body could not maintain homeostasis in this way.</p> <p>-----</p> <p>Standard / Assessments : NY_Learning_Standards Subject Area : Math, Science and Technology Items Addressed : •{7 } Students will apply the knowledge and thinking skills of mathematics, science, and technology to address real-life problems and make informed decisions.</p> <p>-----</p> <p>Label and describe the structures of the</p>	<p>Diagram of the human respiratory system</p> <p>Worksheets reviewing gas exchange and excretion</p> <p>Using your notes Review Questions</p> <p>Lung Capacity Lab</p> <p>Tests and quizzes on gas exchange and excretion</p> <p>Regents review questions (practice exams)</p>	<p>Textbook</p> <p>Prentice Hall Instructional Resource</p> <p>Lab Equipment</p> <p>Practice activities</p>

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		<p>human respiratory system.</p> <p>Explain the interactions between the circulatory and respiratory systems.</p>		
June 2004	Review of all content and essential questions addressed during the academic year.	Students will explain how living things (primarily humans) maintain homeostasis utilizing life processes, how disruptions may influence homeostasis, and how our bodies react to these changes.	<p>Practice Exams with Regents-style questions for curriculum review</p> <p>test taking skills activities</p> <p>Graphing review</p> <p>Reading comprehension activities</p> <p>Final exam: All topics covered this academic year</p>	<p>Textbook</p> <p>Prentice Hall instructional Resource</p> <p>Practice exams</p>