

Curriculum Grade Book

Morgan County School District

Final, 01/11/2010

AP Biology Science

Physical Science (25%)

■ 1.1.2 (DOK) Supporting

The learner will be able to understand that the atom's nucleus is composed of protons and neutrons that are much more massive than electrons; When an element has atoms that differ in the number of neutrons, these atoms are called different isotopes of the element.

■ 1.1.6 (DOK 3) ASSESSED

The learner will be able to identify variables that affect reaction rates; Predict effects of changes in variables (concentration, temperature, properties of reactants, surface area, and catalysts) based on evidence/data from chemical reactions. Rates of chemical reactions vary. Reaction rates depend on concentration, temperature, and properties of reactants. Catalysts speed up chemical reactions.

■ 1.1.7 (DOK 2) ASSESSED

The learner will be able to construct diagrams to illustrate ionic or covalent bonding; Predict compound formation and bond type as either ionic or covalent (polar, nonpolar). Bonds between atoms are created when outer electrons are paired by being transferred (ionic) or shared (covalent). A compound is formed when two or more kinds of atoms bind together chemically.

■ 1.1.8 (DOK 3) ASSESSED

The learner will be able to explain the importance of chemical reactions in a real world context; Justify conclusions using evidence/data from chemical reactions. Chemical reactions (e.g., acids and bases, oxidation, rusting, tarnishing) occur all around us and in every cell

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<p>based on similarities; Infer relationships based on internal and external structures and chemical processes. (Biological classifications are based on how organisms are related. Organisms are classified into a hierarchy of groups and subgroups based on similarities that reflect their relationships. Species is the most fundamental unit of classification. Different species are classified by the comparison and analysis of their internal and external structures and the similarity of their chemical processes.)</p>																															
<p>■ 3.4.8 (DOK) Supporting The learner will be able to 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>																															
<p>■ 3.5.1 (DOK 3) ASSESSED The learner will be able to predict the impact on species of changes to (1) the potential for a species to increase its numbers, (2) the genetic variability of offspring due to mutation and recombination of genes, (3) a finite supply of the resources required for life, or (4) natural selection; Propose solutions to real-world problems of endangered and extinct species. (Species change over time. Biological change over time is the consequence of the interactions of (1) the potential for a species to increase its numbers, (2) the genetic finite of offspring due to mutation and recombination of genes, (3) a finite supply of the resources required for life, and (4) natural selection. The finite of change over time provide a</p>																															

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energy into the environment as heat. Matter and energy are conserved in each change.																														
<p>■ 4.6.2 (DOK 3)</p> <p>The learner will be able to predict wave behavior and energy transfer: Apply knowledge of waves to real life phenomena/investigations. (Waves, including sound and seismic waves, waves on water, and electromagnetic waves, can transfer energy when they interact with matter. Apparent changes in frequency can provide information about relative motion.</p>																														
<p>■ 4.6.5 (DOK 3) ASSESSED</p> <p>The learner will be able to describe and explain the role of carbon-containing molecules and chemical reactions in energy transfer in living systems. (Living systems require a continuous input of energy to maintain their chemical and physical organization since the universal tendency is toward more disorganized states. The energy for life primarily derives from the Sun. Plants capture energy by absorbing light and using it to break weaker bonds in reactants (such as carbon dioxide and water) in chemical reactions that result in the formation of carbon-containing molecules. These molecules can be used to assemble larger molecules (e.g., DNA, proteins, sugars, fats). In addition, the energy released when these molecules react with oxygen to form very strong bonds can be used as sources of energy for life processes.).</p>																														
<p>■ 4.6.10 (DOK 3) ASSESSED</p> <p>The learner will be able to identify the components and mechanisms of energy stored and released from food molecules (photosynthesis and respiration); Apply information to real-world situations. (Energy is released</p>																														

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when the bonds of food molecules are broken and new compound with lower energy temporarily in the phosphate bonds of ATP. During the process of cellular respiration, some energy is lost as heat.)																														
<p>■ 4.7.1 (DOK 3) ASSESSED</p> <p>The learner will be able to analyze relationships and interactions among organisms in organisms; Predict the effects on other organisms of changes to one or more components of the ecosystem. (Organisms both cooperate and compete in ecosystems. Often changes in one component of an ecosystem will have effects on the entire system that are difficult to predict. The interrelationships and interdependencies of these organisms may generate ecosystems that are stable for hundreds or thousands of years.)</p>																														
<p>■ 4.7.2 (DOK 3) ASSESSED</p> <p>The learner will be able to evaluate proposed solutions from multiple perspectives to environmental problems caused by human interaction; Justify positions using evidence/data. (Human beings live within the world's ecosystems. Human activities can deliberately or inadvertently alter the dynamics in ecosystems. These activities can threaten current and future global stability and, if not addressed, stability can be irreversibly affected.</p>																														
<p>■ 4.7.4 (DOK) Supporting</p> <p>The learner will be able to understand that evidence for one-celled forms of life, the bacteria, extends back more than 3.5 billion years. The changes in life over time caused dramatic changes in the composition of the Earth's atmosphere, which did not originally contain</p>																														

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oxygen.).

■ 4.7.5 (DOK 3) ASSESSED

The learner will be able to predict the consequences of changes in resources to a population; Select or defend solutions to real-world problems of population control. (Living organisms have the capacity to produce populations of infinite size. However, behaviors, environments, and resources influence the size of populations. Models (e.g., mathematical, physical, conceptual) can be used to make predictions about changes in size or rate of growth of a population.).

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