

# Course Syllabus

## Science, Science-Grade 6

Morgan County Curriculum 4.1 Middle Sch., Final  
Morgan County School District

### Physical Science (25%)

- The learner will be able to explain how or why mixtures can be separate using physical properties; a mixture or substance often can be separate into the original substances by using one or more of its characteristic physical properties.
- The learner will be able to identify and describe evidence of chemical and physical changes in matter.  
\*In chemical reactions, the total mass is conserved. Substances are often classified into groups if they react in similar ways. The patterns that allow classification can be used to infer or understand real life applications for those substances.
- The learner will be able to describe friction and make inferences about its effects on the motion of an object.  
\*When an unbalanced force (friction) acts on an object, the change in speed or direction depends on the size and direction of the force.

### Earth/Space Science (25%)

- The learner will be able to explain and predict phenomena (e.g., day, year, moon phases, eclipses) based on models/representations or data related to the motion of objects in the solar system (e.g., earth, sun, moon)  
\*Observations and investigations of patterns indicate that most objects in the solar system are in regular and predictable motion. Evaluation of this data explains such phenomena as the day, the year, phases of the moon, and eclipses.
- The learner will be able to explain cause and effect relationships in the rock cycle.  
\*Materials found in the lithosphere and mantle are changed in a continuous process called the rock cycle, which can be investigated using a variety of models.
- The learner will be able to compare constructive and destructive forces on Earth in order to make predictions about the nature of landforms.  
\*Landforms are a result of a combination of constructive and destructive forces. Collection and analysis of data indicates that constructive forces

include crustal deformation, faulting, volcanic eruption, and deposition of sediment, while destructive forces include weathering and erosion.

### Biological Science (20%)

- The learner will be able to describe the relationship between cells, tissues, and organs in order to explain their function in multicellular organisms.  
\*Specialized cells perform specialized functions in multicellular organisms. Groups of specialized cells cooperate to form tissues. Different tissues are, in turn, grouped together to form larger functional units called organs. Examination of cells, tissues, and organs reveals that each type has a distinct structure and set of functions that serve the organism.
- The learner will be able to make inferences about the factors influencing behavior based on data/evidence of various organisms' behaviors.  
\*Behavior is one kind of response an organism may make to an internal or environmental stimulus. Observations of organisms, data collection/analysis, support generalizations/conclusions that a behavioral response is a set of actions determined in part by heredity and in part from experience. A behavioral response requires coordination and communication at many levels including cells, organ systems, and organisms.
- The learner will be able to explain that biological change over time accounts for the diversity of species developed through gradual processes over many generations.  
\*Biological adaptations include changes in structures, behaviors, or physiology that enhance survival and reproductive success in a particular environment.
- The learner will be able to understand that regulation of an organism's internal environment involves sensing the internal environment and changing physiological activities to keep conditions within the range required to survive. Maintaining a stable internal environment is essential for an organism's survival.

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### Unifying Ideas (30%)

- The learner will be able to describe or explain the cause and effect relationships between oceans and climate.  
\*Oceans have a major effect on climate, because water in the oceans holds a large amount of heat.
- The learner will be able to describe the effect of the Sun's energy on the Earth system; and the connection/relationship between the Sun's energy and seasons.  
\*The Sun is the major source of energy for Earth. The water cycle, winds, ocean currents, and growth of plants are affected by the Sun's energy. Seasons result from variations in the amount of the Sun's energy hitting Earth's surface.
- The learner will be able to understand that, on its own, heat travels only from higher temperature object/region to lower temperature object or region. Heat will continue to flow in this manner until the objects reach the same temperature. For example, a cup of hot water will continue to cool down until it comes to the same temperature as the surrounding area. Usually when heat is transferred to or from an object, the temperature changes. The temperature increases if heat is added and the temperature decreases if the heat is removed.
- The learner will be able to describe the consequences of change in one or more abiotic factors on a population within an ecosystem.  
\*The number of organisms in an ecosystem can support depends on the resources available and abiotic factors (e.g., quantity of light and water, range of temperatures, soil composition).

### Consumerism [20%]

- The learner will be able to describe consumer actions (reuse, reduce, recycle) and explain how these actions impact the environment (e.g., conserving resources, reducing pollution, reducing solid waste, conserving energy).