Effective Date: Fall 2008

Hamburg Area School District

Name of Course: Life Science Grade 7
Department: Middle School Science

Grade Level: 7
Instructional Time: 180 days
Length of Course: 1 year
Period Per Cycle: 6
Length of Period: 54 minutes

Texts and Resources:

Prentice Hall: Exploring Life Science

Assessments:

Chapter Tests
Quizzes
Laboratory work
Notebooks
Research Reports
Special Projects
Current Events
Homework
Worksheets

Hamburg Area School District
Course Plan
7th Grade Science

Course Name: Life Science
Unit: Ecology **Time Line: 8 weeks**

Essential Content/ Essential Questions	Performance Objectives	Standards/Anchors
Interactions among Living Things	• Students will be able to define ecosystem and identify the parts of an ecosystem. • Students will be able to identify the interactions between producers, consumers and decomposers. • Students will be able to describe how energy flows through an ecosystem. • Students will be able to discuss the concept of natural selection. • Students will be able to explain why a disturbance in the balance in one part of an ecosystem can affect another part of an ecosystem.	S 8.A.1.3.2 S 8.A.1.3.4 S 8.A.3.1.1 S 8.A.3.1.2 S 8.A.3.1.4 S 8.A.3.2.1 S 8.B. 3.1.1 S 8.B.3.1.2 S 8.B. 3.1.3 S 8.B. 3.2.1 S 8.C. 2.2.1
Cycles in Nature	• Students will be able to describe how biological clocks affect organisms. • Students will be able to give examples in the way in which the rhythms of life are linked to cycles in time. • Students will be able to discuss how matter flows through an ecosystem. • Students will be able to describe how ecosystems are changed by the process of succession.	S 8. A.1.3.3 S 8. A.1.3.4 S 8. A.2.1.4 S 8. A.2.1.5 S 8. A.3.1.3 S 8. A.3.1.4 S 8. A.3.1.5 S 8. A.3.2.3 S 8. A.3.3.2 S 8. B.3.2.3 S 8. B. 3.3.4 S 8. D.1.3.1

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Essential Content/ Essential Questions	Performance Objectives	Standards/Anchors
Exploring Earth's Biomes	• Students will be able to explain how plants and animals move from one area to another. • Students will be able to describe the characteristics of the tundra biome. • Students will be able to compare and contrast the characteristics of the three forest biomes. • Students will be able to compare and contrast the characteristics of the desert and grassland biomes. • Students will be able to identify and describe the characteristics of the major water biomes.	S 8.A.1.3.2 S 8.A.3.1.1 S 8.A.3.1.5 S 8.A.3.2.1 S 8.B.1.1.1 S 8.B.2.1.1 S 8.B.2.1.2 S 8.B.2.1.5 S 8.B.3.1.2 S 8.B.3.1.3 S 8.B.3.2.2 S 8.D.1.3.3 S 8.D.1.3.4

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7th Grade Science

Course Name: Life Science
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Essential Content/ Essential Questions	Performance Objectives	Standards/Anchors
Conservation of Natural Resources	• Students will be able to discuss manmade and natural factors that affect changes in populations. • Students will be able to discuss how maintaining genetic diversity affects the integrity of ecosystems. • Students will be able to discuss the reasons for the extinction of organisms. • Students will be able to explain why people should try to save endangered species. • Students will be able to describe conservation measures aimed at saving wildlife. • Students will be able to discuss the importance of conservation of natural resources. • Students will be able to distinguish between renewable and non-renewable resources. • Students will be able to identify and discuss the uses of fossil fuels. • Students will be able to discuss the impact of fossil fuels on our environment.	S 8.A.1.1.1 S 8.A.1.1.2 S 8.A.1.1.3 S 8.A.1.3.3 S 8.A.1.3.4 S 8.B.3.2.1 S 8.B.3.2.2 S 8.B.3.3.1 S 8.B.3.3.2 S 8.B.3.3.3 S 8.C.2.2.2 S 8.C.2.2.3

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7th Grade Science

Course Name: Life Science
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Essential Content/ Essential Questions	Performance Objectives	Standards/Anchors
Conservation of Natural Resources	• Students will be able to identify the role fossil fuels play in developed and developing nations. • Students will be able to identify alternative energy sources. • Students will be able to discuss the pro's and con's of alternative energy sources.	S 8.A.1.1.1 S 8.A.1.1.2 S 8.A.1.1.3 S 8.A.1.3.3 S 8.A.1.3.4 S 8.B.3.2.1 S 8.B.3.2.2 S 8.B.3.3.1 S 8.B.3.3.2 S 8.B.3.3.3 S 8.C.2.2.2 S 8.C.2.2.3

Hamburg Area School District
Course Plan
Grade 7 Science

Course Name: Life Science
Unit: Plant **Time Line: 4 weeks**

Essential Content/ Essential Questions	Performance Objectives	Standards/Anchors
Plants	• Students will be able to describe the basic parts of a plant. • Students will be able to distinguish between an angiosperm and a gymnosperm plant. • Students will be able to describe the functions of roots, stems, leaves and flowers. • Students will identify the importance of plants in an ecosystem. • Students will be able to discuss the structures and functions of a flower's parts. • Students will distinguish between self and cross-pollination. • Students will be able to distinguish between angiosperm and gymnosperm reproduction.	S 8. A.3.3.2 S 8. B.1.1.1 S 8. B.1.1.2 S 8. B.1.1.3 S 8. B.3.1.1 S 8. B.3.2.3 S 8.B.3.3.2 S 8. B.3.3.3 S 8.C.2.2.2 S 8. D.1.3.1

Hamburg Area School District
Course Plan
Grade 7 Science

Course Name: Life Science
Unit: Characteristics of Living Things **Time Line: 7 weeks**

Essential Content/ Essential Questions	Performance Objectives	Standards/Anchors
The Nature of Life	• Students will be able to identify the characteristics of living things. • Students will be able to describe metabolism. • Students will be able to identify the basic needs of living things. • Students will be able to define homeostasis. • Students will be able to identify the differences between sexual and asexual reproduction. • Students will be able to distinguish between warm and cold blooded animals.	S 8. B.1.1.4 S 8. B.2.2.1 S 8. B.2.1.2
Cells, Tissues and Organ Systems	• Students will be able to discuss the cell theory. • Students will be able to describe the structures and functions of a typical cell and the functions of the organelles. • Students will be able to compare a plant and an animal cell. • Students will be able to discuss some of the life processes performed by a cell. • Students will be able to describe the events that occur in cell division. • Students will be able to describe the five levels of organization of living things. • Students will learn to use a basic light microscope.	S 8.A.2.2.3 S 8. A. 3.1.1 S 8. A. 3.1.2 S 8.A.3.2.1 S 8.A.3.2.3 S 8.B.1.1.4

Hamburg Area School District
Course Plan
Grade 7 Science

Course Name: Life Science
Unit: Heredity and Adaptation **Time Line: 4 weeks**

Essential Content/ Essential Questions	Performance Objectives	Standards/Anchors
Genetics	• Students will be able to describe the role that Gregor Mendel has played in the development of genetics. • Students will be able to describe the functions of genes and chromosomes. • Students will be able to describe the structure of DNA. • Students will be able to differentiate between genotype/phenotype, dominant/recessive, homozygous/heterozygous, purebred/hybrid. • Students will use a Punnett Square to show how traits are passed from one generation to another. • Students will be able to relate the law of probability to the study of genetics. • Students will be able to differentiate between the processes of mitosis and meiosis and understand the role that meiosis plays in human reproduction.	S 8. A.1.2.3 S 8. B.2.1.3 S 8. B.2.1.4 S 8. B.2.2.1 S 8. B.2.2.2

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Course Name: Life Science
Unit: Heredity and Adaptation **Time Line: 4 weeks**

Essential Content/ Essential Questions	Performance Objectives	Standards/Anchors
Genetics	• Students will be able to explain how the basic principles of genetics can be applied to human heredity. • Students will be able to connect certain human disorders to genetic mutations. • Students will be able to discuss the role of genetic engineering with respect to food production, environmental clean-up, and the battle against disease.	S 8. A.1.2.3 S 8. B.2.1.3 S 8. B.2.1.4 S 8. B.2.2.1 S 8. B.2.2.2

Hamburg Area School District
Course Plan
Grade 7 Science

Course Name: Life Science
Unit: Scientific Method / Metric System **Time Line: 6 weeks**

Essential Content/ Essential Questions	Performance Objectives	Standards/Anchors
Scientific Method	• Students will be able to identify the steps of the scientific method. • Students will be able to differentiate between a hypothesis, theory and a law. • Students will be able to form a hypothesis. • Students will perform experiments to test a hypothesis. • Students will be able to identify a control and variables in an experiment. • Students will be able to form conclusions after analyzing data collected.	S 8. A. 1.1.1 S 8 A. 1.1.2 S 8 A. 1.1.3 S 8 A. 1.1.4 S 8 A. 2.1.4 S 8 A. 2.1.5
Metric System	• Students will be able to identify the metric units used in scientific measurements. • Students will be able to identify and use some of the tools used by scientists.	S 8. A.1.3.1 S 8. A. 2.1.1 S 8. A. 2.1.2 S 8. A. 2.1.4 S 8. A. 2.1.5 S 8. A. 2.2.1 S 8. A. 2.2.2.

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Grade 7 Science

Course Name: Life Science
Unit: Classification **Time Line: 3 weeks**

Essential Content/ Essential Questions	Performance Objectives	Standards/Anchors
Classification of Living Things	• Students will be able to give examples of the ways classification is used in science and everyday life. • Students will be able to explain how binomial nomenclature is used to name living things. • Students will be able to list the seven major classification groups. • Students will be able to describe some general characteristics of each of the five kingdoms.	S 8. B.1.1.2 S 8. B.1.1.3

Hamburg Area School District
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Grade 7 Science

Course Name: Life Science
Unit: Bacteria and Viruses **Time Line: 4 weeks**

Essential Content/ Essential Questions	Performance Objectives	Standards/Anchors
Monerans and Viruses	• Students will be able to list the parts of a virus. • Students will be able to describe how a virus reproduces and causes disease. • Students will be able to name and describe the parts of a moneran. • Students will be able to compare and contrast autotrophic and heterotrophic monerans. • Students will be able to discuss the helpful and harmful effects of monerans.	S 8.A.1.2.2 S 8.B.1.1.1 S 8.B.1.1.2 S 8.B.1.1.3 S 8.B.2.1.2 S 8.B.3.2.1