

Effective Date: 2008-2009

Hamburg Area School District

Name of Course: Science

Department: Science

Length of Course: full year

Period Per Cycle: 5

Length of Period: 35 minutes

Grade Level: 5

Instructional Time: 175 minutes per cycle

**Texts and Resources: Harcourt Science
Lab Kits
Internet**

**Assessments: Harcourt Science Tests & Quizzes
Teacher made tests
Projects**

**Hamburg Area School District
Course Plan
Grade 5 Science**

Course Name: Grade 5 Science

Unit: Using Scientific Process Skills

Time Line: Beginning of year

| Essential Content/ Essential Questions | Performance Objectives | Standards/Anchors |
|---|--|---|
| What are the steps of the Scientific Method? | *Identify the steps of the Scientific Method. *List and create a hypothesis. *Make predictions. *Record date. | S8.A.2.1 (all) 3.1.7.B,D,E 3.2.7.A,B,C,D |
| What are the uses of science tools? | *Identify and use science tools. | S8.A.2.1 (all) 3.2.7.B,D 3.7.7.A,B 3.6.7.A,B,C,D |

**Hamburg Area School District
Course Plan
Grade 5 Science**

Course Name: Grade 5 Science

Unit: From Single Cell to Body Systems

Time Line:

| Essential Content/ Essential Questions | Performance Objectives | Standards/Anchors |
|--|---|---|
| What are cells, and what do they do? | *Describe structures that are found in cells. *Analyze processes that take place in cells. *Describe interactions that take place in cells. | S8.B.1.1.1 3.1.7.A,B 3.2.7.A,B,C 3.3.7.A,B,C,D |
| How are Human Body Structures Organized? | *Recognize that many-celled organisms have specialized structures that transport materials Describe how the blood, heart, and lungs work together to help the body take in oxygen and give off carbon dioxide. * Analyze how the parts of the digestive system function. *Explain the role of the excretory system, and identify its organs. | S8.B.1.1.2 S8.B. 1.1.3 S8A.3.1.2 3.3.7.A,B 4.6.7.A 4.7.7.B |
| How do bones, muscles, and Nerves work together? | *Describe the structures that make up the skeletal system. *Identify and describe the structures that make up the muscular system. *Explain how the parts of the nervous system work to carry messages through the body. | S8.B.1.1.4 S8.A.3.1.5 3.3.7.C |
| How does nature reuse materials? | *Identify the significance of the carbon dioxide, oxygen, and nitrogen cycles. *Describe processes responsible for the formation of coal and petroleum. *Conclude that human activities can upset the balance of the carbon dioxide-oxygen cycle. | S8.B.1 3.3.7.A,B,C 3.5.7.A,B |

**Hamburg Area School District
Course Plan
Grade 5 Science**

Course Name: Grade 5 Science
Unit: Cycles in Nature

Time Line:

| Essential Content/ Essential Questions | Performance Objectives | Standards/Anchors |
|---|---|---|
| How does nature reuse materials? | *Identify the significance of the carbon dioxide, oxygen, and nitrogen cycles. *Describe processes responsible for the formation of coal and petroleum. *Conclude that human activities can upset the balance of the carbon dioxide-oxygen cycle. | S8.B.3.1.1 3.3.7.A,B,C 3.5.7.A,B |
| Why is the water cycle important? | *Describe the importance of the water cycle. *Describe the main processes in the water cycle. *Recognize that water is a limited resource that needs to be protected. | S8.D.1.3.1 3.5.7.A,C,D 4.1.&.A,B 4.3.7.B |

**Hamburg Area School District
Course Plan
Grade 5 Science**

Course Name: Grade 5 Science
Unit: Living Things Interact

Time Line:

| Essential Content/ Essential Questions | Performance Objectives | Standards/Anchors |
|---|---|--|
| What are ecosystems? | <ul style="list-style-type: none"> *Describe interactions that occur within an ecosystem. *Analyze adaptive characteristics that result in an organism's unique niche in an ecosystem. *Identify factors that limit the number and type of organisms in an ecosystem. | S8.A.3 4.6.7.A,B,C 3.3.7.A,C 3.8.7.B |
| How does energy flow through an ecosystem? | <ul style="list-style-type: none"> *Identify the roles of producers, consumers, and decomposers in an ecosystem. *Describe how energy flows from one organism to another in food chains and in food webs. *Recognize that because energy is lost as heat at each level of consumption, ecosystems must have more producers than consumers. | S8.B.3.2.1 S8.B.3.2.2 S8.B.3.1.2 S8.A.3.1.3 4.1.7.C,D 4.4.7.B |
| How do organisms compete and survive in an Ecosystem? | <ul style="list-style-type: none"> *Identify ways in which organisms are adapted to compete for resources. *Describe some mutually beneficial interactions that occur within ecosystems. Compare instinctive behaviors with learned ones. | S8.B.3.2.3 4.6.7.B 4.6.7.C |
| What is extinction and what are its causes? | <ul style="list-style-type: none"> *Identify trends in resource use. *Describe some natural and human causes of extinction. *Identify ways humans can work to prevent the extinction of endangered species. | S8.B.3.3.2 4.7.7.C 4.8.7.A,B,C,D,E |

**Hamburg Area School District
Course Plan
Grade 5 Science**

Course Name: Grade 5 Science

Unit: Atoms and Elements

Time Line:

| Essential Content/ Essential Questions | Performance Objectives | Standards/Anchors |
|---|---|---------------------------------------|
| What are atoms and elements? | *Identify an atom and its major parts. *Describe an element. Describe and compare the properties of metals. | S8.C.1.1.1 3.4.7.A,B |
| What are compounds? | *Recognize how the elements are grouped in the periodic table. *Identify a compound as a combination of two or more elements. *Describe what a chemical formula reveals about a molecule. | S8.C.1.1.1 S8.C.3.1.2 3.4.7.A,B |

**Hamburg Area School District
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Grade 5 Science**

Course Name: Grade 5 Science

Unit: Motion

Time Line:

| Essential Content/ Essential Questions | Performance Objectives | Standards/Anchors |
|---|--|--|
| How are motion and speed related? | *Recognize and describe the relationships among speed, velocity, acceleration, and momentum. | S8.C.3.1.1 S8.C.3.1.2 S8.C.3.1.3 3.4.7.C 3.6.7.C |
| What are the three laws of motion? | *Analyze and explain the three laws of motion. | S8.C.3.1.3 3.6.7.C 3.1.7.B |
| Why do the planets stay in orbit? | *Describe how inertia and gravity interact to make an orbit. *Explain the law of universal gravitation. | S8.D.3.1.2 3.4.7.D |

**Hamburg Area School District
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Grade 5 Science**

Course Name: Grade 5 Science

Unit: Forms of Energy

Time Line:

| Essential Content/ Essential Questions | Performance Objectives | Standards/Anchors |
|---|--|--|
| What are kinetic and potential energy? | <ul style="list-style-type: none"> *Describe potential and kinetic energy. *List the various forms of energy. | S8.C.3.1.2 S8.C.2.1.3 3.4.7.C 3.6.7.C |
| What is electric energy? | <ul style="list-style-type: none"> *Explain what electric energy is. *Tell what an electric current is. *Describe how electromagnets work. | S8.C.2.1.1 S8.C.2.1.2 3.4.7.B,C 3.2.7.C |
| What are light and sound energy? | <ul style="list-style-type: none"> *Describe the characteristics of light energy and sound energy. *Identify and compare the characteristics of light waves and sound waves. | S8.C.2.1.1 4.2.7.B 3.4.7.B,C |
| What are thermal and chemical energy? | <ul style="list-style-type: none"> *Describe thermal energy. *Explain how thermal energy moves. *Describe chemical energy. | S8.C.2.1.1 4.2.7.B,D 3.7.7.A |