

Davison Community Schools
ADVISORY CURRICULUM COUNCIL
Phase 4, May 1, 2013

CI 1st grade Science	
Course Essential Questions (from Phase I report): <ol style="list-style-type: none"> 1. How do inquiry and reflection help us understand our Scientific Community? 2. How does physical science explain and affect the world around us? 	
Unit 1: Physical Science: Sorting by Properties	
Essential Questions: <ol style="list-style-type: none"> 1. How can objects be sorted? 2. What materials are attracted to magnets? 3. What is water called when it's solid? 4. Do liquids have shape? 	Essential Understanding: <ul style="list-style-type: none"> • Objects and substances can be sorted by their observable properties such as color, shape, size, sinking or floating. • The physical properties of water as a solid and as a liquid are different. Water is ice as a solid. Liquids take the shape of the container. • Magnets can attract and repel other magnets and attract magnetic objects such as objects containing iron.
Curriculum Standards	
<p>S.IP.01.12 Generate questions based on observations.</p> <p>S.IP.01.13 Plan and conduct simple investigations.</p> <p>S.IP.01.14 Manipulate simple tools (for example: hand lens, pencils, rulers, thermometers, rain gauges, balances, non-standard objects for measurement) that aid observation and data collection. S.IP.01.16 Construct simple charts from data and observations.</p> <p>S.IA.01.12 Share ideas about science through purposeful conversation.</p> <p>S.IA.01.13 Communicate and present findings of observations.</p> <p>S.IA.01.14 Develop strategies for information gathering (ask an expert, use a book, make observations, conduct simple investigations, and watch a video).</p> <p>S.RS.01.11 Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.</p> <p>S.RS.01.12 Recognize that science investigations are done more than one time.</p> <p>P.PM.01.11 Demonstrate the ability to sort objects according to observable attributes such as color, shape, size, sinking or floating.</p> <p>P.PM.01.21 Demonstrate that water as a solid keeps its own shape (ice).</p> <p>P.PM.01.22 Demonstrate that water as a liquid takes on the shape of various containers.</p> <p>P.PM.01.31 Identify materials that are attracted by magnets.</p>	
Knowledge/Content I Know ...	Skills/Processes I Can ...
<ul style="list-style-type: none"> • The difference between magnetic and non magnetic • The different states of matter: solids, liquids, gas 	<ul style="list-style-type: none"> • Sort objects • Identify magnetic and non magnetic materials • Observe magnets with poles • Identify ice as a solid • Identify water as a liquid • Demonstrate water changing shape in containers

Phase 3 Purchased Materials	
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Unit 2: Life Science: Animal Life	
Essential Questions: <ol style="list-style-type: none"> 1. What do animals need to live? 2. What are the stages of an animal's life? 3. How are parents and their young alike? 	Essential Understanding: <ul style="list-style-type: none"> • Animals have life needs of: air, water, food and space • Animals have a life cycle that includes egg, young (larva, pupa) and adult. • Animals share some, but not all characteristics of their parents.
Curriculum Standards	
<p>S.IP.01.11 Make purposeful observation of the natural world using the appropriate senses.</p> <p>S.IP.01.12 Generate questions based on observations.</p> <p>S.IP.01.14 Manipulate simple tools (for example: hand lens, pencils, rulers, thermometers, rain gauges, balances, non-standard objects for measurement) that aid observation and data collection.</p> <p>S.IP.01.16 Construct simple charts from data and observations.</p> <p>S.IA.01.12 Share ideas about science through purposeful conversation.</p> <p>S.IA.01.13 Communicate and present findings of observations.</p> <p>S.IA.01.14 Develop strategies for information gathering (ask an expert, use a book, make observations, conduct simple investigations, and watch a video).</p> <p>S.RS.01.11 Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.</p> <p>S.RS.01.12 Recognize that science investigations are done more than one time.</p> <p>L.OL.01.13 Identify the needs of animals.</p> <p>L.OL.01.21 Describe the life cycle of animals including the following stages: egg, young, adult; egg, larva, pupa, adult.</p> <p>L.HE.01.11 Identify characteristics (for example: body coverings, beak shape, number of legs, body parts) that are passed on from parents to young.</p> <p>L.HE.01.12 Classify young animals based on characteristics that are passed on from parents (for example: dogs/puppies, cats/kittens, cows/calves, chicken/chicks).</p>	
Knowledge/Content I Know ...	Skills/Processes I Can ...
<ul style="list-style-type: none"> • The needs of animals : food, water, air • The life cycle stages: egg, young, adult (parent) • How to classify young animals based on their characteristics 	<ul style="list-style-type: none"> • Identify needs of animals • Order the stages of the life cycle. • Identify characteristics of animals and their young • Match parent and young by characteristics.
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Unit 3: Earth Science: The Sun warms the Earth	
Essential Questions: <ol style="list-style-type: none"> 1. What warms the Earth? 2. What is the difference between the daytime temperature and the night time temperature? 3. What is the difference between the summertime temperature and the winter time temperature? 4. How are the seasons related? 5. When does severe weather occur? 	Essential Understanding: <ul style="list-style-type: none"> • The sun warms the Earth. • It is usually warmer in the daytime than at night. • It is usually warmer in the summer than in winter. • Weather is related to the four seasons. • Severe weather can occur throughout the year.
Curriculum Standards	
<p>S.IP.01.11 Make purposeful observation of the natural world using the appropriate senses.</p> <p>S.IP.01.12 Generate questions based on observations.</p> <p>S.IP.01.14 Manipulate simple tools (for example: hand lens, pencils, rulers, thermometers, rain gauges, balances, non-standard objects for measurement) that aid observation and data collection.</p> <p>S.IP.01.15 Make accurate measurements with appropriate (nonstandard) units for the measurement tool.</p> <p>S.IP.01.16 Construct simple charts from data and observations.</p> <p>S.IA.01.12 Share ideas about science through purposeful conversation.</p> <p>S.IA.01.13 Communicate and present findings of observations.</p> <p>S.IA.01.14 Develop strategies for information gathering (ask an expert, use a book, make observations, conduct simple investigations, and watch a video).</p> <p>S.RS.01.11 Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.</p> <p>S.RS.01.12 Recognize that science investigations are done more than one time.</p> <p>E.ES.01.11 Identify the sun as the most important source of heat which warms the land, air, and water of the Earth.</p> <p>E.ES.01.12 Demonstrate the importance of sunlight and warmth in plant growth.</p>	
Knowledge/Content I Know ...	Skills/Processes I Can ...
<ul style="list-style-type: none"> • The reasons for weather: including sun, heat, land, air, water • The relationship of the sun and plants growth. 	<ul style="list-style-type: none"> • Tell that the sun heats the Earth • Tell that the sun and warmth are important for plants to grow.
Phase 3 Purchased Materials	
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Unit 4: Earth Science: Weather	
Essential Questions: <ol style="list-style-type: none"> How is weather related to the four seasons? What do scientists use for observing, recording and predicting weather changes? 	Essential Understanding: <ul style="list-style-type: none"> Weather exhibits patterns Tools can be used to assist the recording and predicting of weather.
Curriculum Standards	
<p>S.IP.01.11 Make purposeful observation of the natural world using the appropriate senses.</p> <p>S.IP.01.12 Generate questions based on observations.</p> <p>S.IP.01.14 Manipulate simple tools (for example: hand lens, pencils, rulers, thermometers, rain gauges, balances, non-standard objects for measurement) that aid observation and data collection.</p> <p>S.IP.01.15 Make accurate measurements with appropriate (nonstandard) units for the measurement tool.</p> <p>S.IP.01.16 Construct simple charts from data and observations.</p> <p>S.IA.01.12 Share ideas about science through purposeful conversation.</p> <p>S.IA.01.13 Communicate and present findings of observations.</p> <p>S.IA.01.14 Develop strategies for information gathering (ask an expert, use a book, make observations, conduct simple investigations, and watch a video).</p> <p>S.RS.01.11 Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.</p> <p>S.RS.01.12 Recognize that science investigations are done more than one time.</p> <p>E.ES.01.21 Compare daily changes in the weather related to temperature (cold, hot, warm, cool); cloud cover (cloudy, partly cloudy, foggy) precipitation (rain, snow, hail, freezing rain); wind (breezy, windy, calm).</p> <p>E.ES.01.22 Describe and compare weather related to the four seasons in terms of temperature, cloud cover, precipitation, and wind.</p> <p>E.ES.01.23 Describe severe weather characteristics.</p> <p>E.ES.01.24 Describe precautions that should be taken for human safety during severe weather conditions (thunder and lightning, strong winds, and heavy precipitation).</p> <p>E.ES.01.31 Identify the tools that might be used to measure temperature, precipitation, cloud cover and wind.</p> <p>E.ES.01.31 Identify the tools that might be used to measure temperature, precipitation, cloud cover and wind.</p>	
Knowledge/Content I Know ...	Skills/Processes I Can ...
<ul style="list-style-type: none"> The components of weather: <ul style="list-style-type: none"> Temperature Precipitation Cloud Cover Wind The seasons: <ul style="list-style-type: none"> Fall Winter Spring Summer The characteristics of severe weather <ul style="list-style-type: none"> Thunderstorms Lightning Tornadoes 	<ul style="list-style-type: none"> Compare and graph daily changes in weather as a class Sort characteristics by seasons Describe severe weather events.
Phase 3 Purchased Materials	

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Phase V Learning Plan	

Davison Community Schools
ADVISORY CURRICULUM COUNCIL
Phase 2, May 1, 2014

<i>CI 2nd grade Science</i>	
Course Essential Questions (from Phase I report): <ol style="list-style-type: none"> How do inquiry and reflection help us understand our Scientific Community? What is life and how is it organized and connected? 	
Unit 1: Life Science: Plant life	
Essential Questions: <ol style="list-style-type: none"> What do plants need to survive? What is a life cycle? 	Essential Understanding: <ul style="list-style-type: none"> Plants need air, water, and sunlight to survive Plants have a life cycle that includes seed, seedling or young plant, adult plant, flower, fruit and seed
Curriculum Standards	
<p>L.OL.02.14 Identify the needs of plants.</p> <p>L.OL.02.22 Describe the life cycle of familiar flowering plants including the following stages: seed, plant, flower, and fruit.</p> <p>L.HE.02.13 Identify characteristics of plants (for example: leaf shape, flower type, color, size) that are passed on from parents to young.</p> <p>S.IP.02.11 Make purposeful observation of the natural world using the appropriate senses.</p> <p>S.IP.02.14 Manipulate simple tools that aid observation and data collection.</p> <p>S.IP.02.15 Make accurate measurements with appropriate units for the measurement tool.</p>	
Knowledge/Content	Skills/Processes
I Know ...	I Can ...
<ul style="list-style-type: none"> The stages of the plant life cycle Key terms: flowering plants, needs of plants, air, water, light, food, life cycle, seed, plant, flower, fruit, characteristics, leaf shape, flower type, color, size, parent plant, young plant, living and non-living. That living things need water, air and sunlight. 	<ul style="list-style-type: none"> Create a model of the plant life cycle. Identify what living things need to survive. Observe the life cycle from seed to plant.
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Unit 2: Earth Science and Physical Science: Uses and Properties of Water	
Essential Questions: <ol style="list-style-type: none"> 1. Where does water come from? 2. How is water used? 3. What are the properties of water? 	Essential Understanding: <ul style="list-style-type: none"> • Water can come from a variety of sources. • Water has a variety of uses. • Liquid water and solid water can be described by their properties.
Curriculum Standards	
<p>P.PM.02.12 Describe objects and substances according to their properties (color, size, shape, texture, hardness, liquid or solid, sinking or floating).</p> <p>P.PM.02.41 Recognize that some objects are composed of a single substance (water, sugar, salt) and others are composed of more than one substance (salt and pepper, mixed dry beans).</p> <p>E.FE.02.11 Identify water sources (wells, springs, lakes, rivers, oceans).</p> <p>E.FE.02.12 Identify household uses of water (drinking, cleaning, food preparation).</p> <p>E.FE.02.13 Describe the properties of water as a liquid (visible, flowing, shape of container and recognize rain, dew, and fog as water in its liquid state. *</p> <p>E.FE.02.14 Describe the properties of water as a solid (hard, visible, frozen, cold) and recognize ice, snow, and hail as water in its solid state.</p> <p>E.FE.02.22 Describe the major bodies of water on the Earth's surface (lakes, ponds, oceans, rivers, streams).</p> <p>S.IP.02.11 Make purposeful observation of the natural world using the appropriate senses.</p> <p>S.IP.02.12 Generate questions based on observations.</p> <p>S.IP.02.13 Plan and conduct simple investigations.</p> <p>S.IP.02.14 Manipulate simple tools (ruler, meter stick, measuring cups, hand lens, thermometer, balance) that aid observation and data collection.</p> <p>S.IP.02.15 Make accurate measurements with appropriate units (meter, centimeter) for the measurement tool.</p> <p>S.IP.02.16 Construct simple charts and graphs from data and observations.</p> <p>S.IA.02.12 Share ideas about science through purposeful conversation.</p> <p>S.IA.02.13 Communicate and present findings of observations.</p> <p>S.RS.02.11 Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.</p> <p>S.RS.02.13 Recognize that when a science investigation is done the way it was done before, similar results are expected.</p> <p>S.RS.02.15 Use evidence when communicating scientific ideas.</p>	
Knowledge/Content I Know ...	Skills/Processes I Can ...
<ul style="list-style-type: none"> • Key Terms: fresh water, salt water, lake, river, ocean, • Students will know that streams, lakes, rivers, and oceans are water sources. • Students will know that water is used for drinking, cleaning, & food preparation in our households. • Students will know that liquid water is visible, flowing, and takes the shape of the container. • Students will know that rain, dew and fog are forms of liquid water. • Students will know that solid water is hard, visible, frozen and cold. • Students will know that ice, snow and hail are forms of solid water. 	<ul style="list-style-type: none"> • identify water sources. • identify household uses of water. • describe the properties of liquid and solid water. • name and recognize the forms of water in its liquid and solid state.

Phase 3 Purchased Materials	
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Unit 3: Physical Science: Measurement of properties**Essential Questions:**

1. How can objects and substances be described and compared?
2. How are tools used to measure objects?

Essential Understanding:

- Objects and substances can be described and compared according to their properties.
- Objects can be measured using a variety of tools.

Curriculum Standards

P.PM.02.12 Describe objects and substances according to their properties (color, size, shape, texture, hardness, liquid or solid, sinking or floating).

P.PM.02.13 Measure the length of objects using rulers (centimeters) and meter sticks (meters).

P.PM.02.14 Measure the volume of liquids using common measuring tools (measuring cups, measuring spoons, graduated cylinders and beakers).

P.PM.02.15 Compare the weight of objects using balances.

P.PM.02.41 Recognize that some objects are composed of a single substances (water, sugar, salt) and others are composed of more than one substance (salt and pepper, mixed dry beans).

S.IP.02.11 Make purposeful observations of water in solid and liquid states.

S.IP.02.12 Generate questions about water based on observations.

S.IP.02.13 Plan and conduct simple investigations into the properties of water as a solid and a liquid.

S.IP.02.14 Manipulate simple tools that aid in observations of water and models of sources of water (hand lens, measuring cups, graduated cylinders).

S.IP.02.15 Make accurate measurements with appropriate units (centimeters, milliliters) for the measurement tool.

S.IP.02.16 Construct simple charts and graphs from data and observations of investigations into the properties of water as a solid and liquid.

S.IA.02.12 Communicate and present finding of observations and investigations into the properties of water as a solid and liquid.

S.IA.02.13 Develop strategies and skills for information gathering about sources and uses of water.

S.IA.02.14 Develop strategies and skills for gathering information about the properties of objects or substances.

S.RS.02.11 Demonstrate a means of classifying objects as single substances or mixtures through various illustrations, performances, exhibits, or activities.

S.RS.02.13 Recognize that when a science investigation on sinking and floating of objects or substances is done the way it was done before, similar results are expected.

S.RS.02.15 Use evidence when communicating ideas about the classification of single substances and mixtures.

S.RS.02.16 Identify technology used to compare objects that is used in everyday life.

Knowledge/Content I Know ...	Skills/Processes I Can ...
<ul style="list-style-type: none"> • Objects and substances can be described by their color, size, shape, texture, hardness, liquid or solid, sinking or floating. • Key terms: color, liquid, mixture, ruler, shape, size, texture, hardness, solid, sink, float, length, meter stick, centimeter (cm), meter (m), volume, measuring cup, measuring spoon. • The measurement of objects can be measured using rulers and meter sticks. • The volume of liquids can be measured using measuring cups and measuring spoons. • Objects can be compared using a balance. 	<ul style="list-style-type: none"> • Classify objects according to their properties. • Demonstrate and record objects that sink and float. • Predict which object has the most mass. • Measure length using a centimeter ruler and meter stick. • Measure volume using measuring cups and spoons. • Participate as a group in measuring
Phase 3 Purchased Materials	
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Unit 4: Earth Science: Landforms Found on Earth's Surfaces	
Essential Questions: <ol style="list-style-type: none"> 1. How does the Earth's surface change over time? 2. How is the Earth's surface affected by water? 3. Why does the Earth have different landforms? 4. How are the major bodies of water different? 	Essential Understanding: <ul style="list-style-type: none"> • Earth's surface has many types of landforms • The surface of the Earth changes • Water moves in predictable patterns • Bodies of water can be identified according to their characteristics
Curriculum Standards	
<p>E.SE.02.21 Describe the major landforms of the surface of the Earth (mountains, plains, plateaus, valleys, hills).</p> <p>E.FE.02.21 Describe how rain collects on the surface of the Earth and flows downhill into bodies of water (streams, rivers, lakes, oceans) or into the ground.</p> <p>E.FE.02.22 Describe the major bodies of water on the Earth's surface (lakes, ponds, oceans, rivers, streams).</p> <p>S.IP.02.11 Make purposeful observations of plant growth that include the needs of plants and the plant life cycle.</p> <p>S.IP.02.12 Generate questions based on observations of plant growth and plant parts.</p> <p>S.IP.02.13 Plan and conduct simple investigations into plant growth and survival to determine the needs of plants.</p> <p>S.IP.02.14 Manipulate simple tools (metric rulers and meter sticks) to determine the growth of plants.</p> <p>S.IP.02.15 Make accurate measurements of the growth of plants in appropriate units (meter, centimeter).</p> <p>S.IP.02.16 Construct simple charts and graphs from data and observations of plant growth and life cycles.</p> <p>S.IA.02.11 Share ideas about observations of how water flows downhill through purposeful conversation.</p> <p>S.IA.02.12 Share ideas about the needs of plants and life cycle stages.</p> <p>S.IA.02.13 Communicate and present findings about plant investigations and their need for air, water and light.</p> <p>S.RS.02.12 Use evidence from their investigations when communicating how rain water collects on the Earth's surface, flows downhill into bodies of water, or into the ground.</p> <p>S.RS.02.13 Recognize that when a science investigation on the needs of plants is done the way it was done before, similar results are expected.</p> <p>S.RS.02.14 Demonstrate landforms, bodies of water, how rain collects on Earth's surface, and flows downhill into bodies of water or into the ground through models or exhibits.</p>	
Knowledge/Content I Know ...	Skills/Processes I Can ...
<ul style="list-style-type: none"> • Key terms: valley, hill, mountain, plain, lake, pond, river, stream, ocean • The difference between a pond, lake and ocean • The difference between a hill and mountain, plain and plateau, stream and river • That lakes, ponds, oceans, rivers and streams are major bodies of water • Mountains, plains, plateaus, valleys and hills are major landforms 	<ul style="list-style-type: none"> • Identify and describe major landforms • Distinguish the difference between major bodies of water • Explain how rain collects on the Earth's surface to form lakes, streams and rivers • Describe how rainwater lands on and soaks into the soil
Phase 3 Purchased Materials	

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CI 3rd grade Science

Course Essential Questions (from Phase I report):

5. How do inquiry and reflection help us understand our Scientific Community?
6. How does physical science explain and affect the world around us?

Unit: Measurement

Essential Questions:

1. How are charts and graphs used to show data and observations?
2. Which tools should be used to measure certain objects?
3. Which units of measurement match each tool?

Essential Understanding:

- Charts and graphs can be used to display data and observations.
- Certain objects require the use of specific measurement tools for accurate measurement.

Curriculum Standards

S.IP.03.12 Generate questions based on observations.
 S.IP.03.13 Plan and Conduct simple and fair investigations.
 SIP.03.15 Make accurate measurements with appropriate units (centimeters, meters, Celsius, grams, seconds, minutes) for the measurement tool.
 SIP.03.16 Construct simple charts and graphs from data and observations.
 S.IA.03.12 Share ideas about science through purposeful conversation in collaborative groups.

Knowledge/Content

I Know ...

- How to use data to construct simple charts and graphs.
- How to generate questions based on observations.
- How to make accurate measurements using the metric system.
- How to use a balance to measure mass in grams.
- How to use a meter sticks to measure distance in cm and m.
- How to use a thermometer to measure temperature in degrees Celsius.

Skills/Processes

I Can ...

- Understand the concept of length and distance.
- Learn the standard units for measuring distance in the metric system: meter and centimeter.
- Learn to estimate metric length.
- Use a measuring tape to measure distance.
- Understand the concept of weight.
- Use a balance to determine and compare the weights of objects.
- Learn about the standard units for measuring weight in the metric system: gram and kilogram.
- Understand the concept of temperature.
- Learn about the standard units for measuring temperature in the metric system: degrees Celsius.

Phase 3 Purchased Materials

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Unit: Forces and Motion	
Essential Questions: <ol style="list-style-type: none"> 1. How is a push or pull a force? 2. How does a force cause a change in motion? 3. How does the strength of a force effect the change of motion? 4. When a force is applied, why might an object not move? 5. How would you describe the motion of objects? 6. How do objects speed up or slow down? 7. How does speed relate to distance an object travels? 	Essential Understanding: <ul style="list-style-type: none"> • A force is a push or a pull. • Gravity, wind and magnetism are major forces. • The amount of force will effect the speed of the object. • Objects will change direction if a force is applied.
Curriculum Standards	
<p>P.FM.03.35 Describe how a push or a pull is a force.</p> <p>P.FM.03.36 Relate a change in motion of an object to the force that caused the change of motion.</p> <p>P.FM.03.37 Demonstrate how the change in motion of an object is related to the strength of the force acting upon the object and to the mass of the object.</p> <p>P.FM.03.38 Demonstrate when an object does not move in response to a force, it is because another force is acting on it.</p> <p>P.FM.03.41 Describe the motion of objects in terms of the path and direction.</p> <p>P.FM.03.42 Identify changes in motion (change direction, speeding up, slowing down).</p> <p>P.FM.03.43 Relate the speed of an object to the distance it travels in a standard amount of time.</p>	
Knowledge/Content I Know ...	Skills/Processes I Can ...
<ul style="list-style-type: none"> • Gravity is a force that pulls objects towards the center of the earth. • A force is a push or pull. • If an object does not move, it is because another force is acting on it. • Motion is movement from one place to another. • Speed is the distance an object travels in a certain amount of time. (i.e. slower, faster.) • Changes in motion may include change in direction, speeding up or slowing down 	<ul style="list-style-type: none"> • Identify a force as a push or a pull. • Demonstrate the force of gravity using a ball. • Explore the motion of a ball related to the strength of a force. • Determine how the weight of a ball affects the ball's motion when a force is applied to it. • Illustrate an object that doesn't move because another force is acting on it. • Investigate the speed of objects.
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Unit: Light and Sound	
Essential Questions: <ol style="list-style-type: none"> 1. How is light a form of energy? 2. What are some sources of light? 3. How are some materials heated more than others by light? 	Essential Understanding: <ul style="list-style-type: none"> • Light and sound are forms of energy • Light and sound can be described by their properties • Light travels in a straight path • Vibrations produce sound
Curriculum Standards	
<p>P.EN.03.11 Identify light and sound as forms of energy.</p> <p>P.EN.03.21 Demonstrate that light travels in a straight path and that shadows are made by placing an object in a path of light.</p> <p>P.EN.03.31 Relate sounds to their sources of vibrations (for example: a musical note produced by a vibrating guitar string, the sounds of a drum made by the vibrating drum head).</p> <p>P.EN.03.32 Distinguish the effect of fast or slow vibrations as pitch.</p> <p>P.PM.03.51 Demonstrate how some materials are heated more than others by light that shines on them.</p> <p>P.PM.03.52 Explain how we need light to see objects: light from a source reflects off objects and enters our eyes.</p> <p>S.IP.03.14 Manipulate simple tools that aid observation and data collection (for example: hand lens, balance, ruler, meter stick, measuring cup, thermometer, spring scale, stop watch/timer).</p> <p>S.IP.03.15 Make accurate measurements with appropriate units (centimeters, meters, Celsius, grams, seconds, minutes) for the measurement tool.</p> <p>S.IP.03.16 Construct simple charts and graphs from data and observations.</p> <p>S.IA.03.12 Share ideas about science through purposeful conversation in collaborative groups.</p> <p>S.IA.03.13 Communicate and present findings of observations and investigations.</p> <p>S.RS.03.11 Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.</p>	
Knowledge/Content I Know ...	Skills/Processes I Can ...
<ul style="list-style-type: none"> • Light/sound as forms of energy • Different types of energy • Formation of Shadows • Vibrations are the source that creates sound • What makes pitch high or low • Energies transfer to heat materials • Different objects causing a reflection in the light ray • Light sources can be natural or man-made • Vibrations create sound • The Sun being a source of most energy 	<ul style="list-style-type: none"> • Identify specific sources of light/sound energy • Identify primary source of most energy • Relate a change in pitch to a change in speed of vibration • Distinguish between the concepts of volume and pitch • Construct charts from data and observations.
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Unit: Earths Materials, Change and Resources	
Essential Questions: <ol style="list-style-type: none"> How can humans extend the use of natural resources How are humans dependant on the environment? Is it helpful, or harmful? What earth materials occur in nature? How does the surface of the earth change? How are some earth materials useful? 	Essential Understanding: <ul style="list-style-type: none"> Humans use natural resources Natural resources are limited Humans can recycle, reduce and reuse natural resources Earth materials consists of rocks, minerals, gases, soils and water The surface of the earth changes.
Curriculum Standards	
<p>E.ES.03.41 Identify natural resources (metals, fuels, fresh water, fertile soil, and forests).</p> <p>E.ES.03.42 Classify renewable (fresh water, fertile soil, forests) and nonrenewable (fuels, metals) resources.</p> <p>E.ES.03.43 Describe ways humans are protecting, extending, and restoring resources (recycle, reuse, reduce, renewal).</p> <p>E.ES.03.44 Recognize that paper, metal, glass, and some plastics can be recycled.</p> <p>E.ES.03.51 Describe ways humans are dependent on the natural environment (forests, water, clean air, earth materials) and constructed environments (homes, neighborhoods, shopping malls, factories, and industry).</p> <p>E.ES.03.52 Describe helpful or harmful effects of humans on the environment (garbage, habitat destruction, land management, renewable and non-renewable resources).</p> <p>E.SE.03.13 Recognize and describe different types of earth materials (mineral, rock, clay, boulder, gravel, sand, soil, water, and air).</p> <p>E.SE.03.14 Recognize that rocks are made up of minerals.</p> <p>E.SE.03.22 Identify and describe natural causes of change in the Earth's surface (erosion, glaciers, volcanoes, landslides, and earthquakes).</p> <p>E.SE.03.31 Identify Earth materials used to construct some common objects (bricks, buildings, roads, glass).</p> <p>E.SE.03.32 Describe how materials taken from the Earth can be used as fuels for heating and transportation.</p>	
Knowledge/Content I Know ...	Skills/Processes I Can ...
<ul style="list-style-type: none"> The concept of Recycling: <ul style="list-style-type: none"> Recycle Reduce Reuse The earth materials include: <ul style="list-style-type: none"> Soil Minerals Gases The ways the earth can change: <ul style="list-style-type: none"> Erosion Glaciers Landslides Earthquakes Volcanoes The meaning of environment The types of natural resources The difference between renewable and nonrenewable Fuels 	<ul style="list-style-type: none"> Identify natural resources Explain human ways interaction with the environment to protect it. Classify renewable and non-renewable resources. Compare types of earth materials.
Phase 3 Purchased Materials	
Phase 4 Summative Assessment Evidence	

Common Summative Unit Assessments

Agreed Upon Interim Summative Assessments

Phase V Learning Plan

Unit: Structure and Function of Living Things	
Essential Questions: <ol style="list-style-type: none"> 1. What are the parts of the plant? 2. What is each function of each part of the plant? 3. What physical characteristics identify each class of animal? 4. What are the functions of animal's structures that help them live in their environment? 	Essential Understanding: <ul style="list-style-type: none"> • Parts of plants have different functions. • Animals have structures to control movement, support, food gathering and protection. • Plants have observable physical characteristics. • Animals have observable physical characteristics.
Curriculum Standards	
<p>L.OL.03.31 Describe the function of the following plant parts: flower, stem, root and leaf.</p> <p>L.OL.03.32 Identify and compare structures in animals used for controlling body temperature, support, movement, food-getting, and protection (fur, wings, teeth, scales).</p> <p>L.OL.03.41 Classify plants on the basis of observable physical characteristics (roots, leaves, stems, and flowers).</p> <p>L.OL.03.42 Classify animals on the basis of observable physical characteristics (backbone, body coverings, limbs).</p> <p>L.EV.03.11 Relate characteristics and functions of observable parts in a variety of plants that allow them to live in their environment (leaf shape, thorns, odor, color).</p> <p>L.EV.03.12 Relate characteristics and functions of observable body parts to the ability of animals to live in their environment (sharp teeth, claws, color, body coverings).</p> <p>S.IP.03.16 Construct simple charts and graphs from data and observations</p>	
Knowledge/Content I Know ...	Skills/Processes I Can ...
<ul style="list-style-type: none"> • Physical Characteristics: <ul style="list-style-type: none"> ○ Body Temperatures ○ Protection ○ Fur ○ Teeth ○ Claws ○ Wings • Plant parts such as flower, stem, root, and leaf • Plants and animals adapt to their environment. • Animals have different structures used for food-getting, protection, movement, etc. 	<ul style="list-style-type: none"> • Describe function of plant parts. • Classify plants by observable characteristics such as roots, leaves, stems and flowers • Identify and compare animal structures and uses. • Classify animals by physical characteristics.
Phase 3 Purchased Materials	
Phase 4 Summative Assessment Evidence	
Common Summative Unit Assessments	Agreed Upon Interim Summative Assessments
Phase V Learning Plan	

Davison Community Schools
ADVISORY CURRICULUM COUNCIL
Phase 2, May 1, 2014

CI 4th grade Science

Course Essential Questions (from Phase I report):

7. How do inquiry and reflection help us understand our Scientific Community?
8. What is life and how is it organized and connected?

Unit 1: Life Science: Relationships and Requirements of Living Things

Essential Questions:

1. What basic requirements do plants and animals need to maintain life?
2. What observable traits and physical characteristics help organisms survive and reproduce in their environment?
3. What part do plants play in the food web/chain?
4. How do plants provide food/energy?
5. What traits and physical characteristics can be used to classify plants and animals?

Essential Understanding:

- Plants and Animals have basic requirements for maintaining life, which include the need for air, water, and a source of energy
- Organisms have observable traits and physical characteristics that help them survive and reproduce in their environments
- Organisms are part of a food chain or food web where food/energy is supplied by plants
- Organisms need light to produce food/energy
- Plants and animals can be classified by observable traits and physical characteristics

Curriculum Standards

- L.OL.04.15 Determine that plants require air, water, light, and a source of energy and building material for growth and repair.
- L.OL.04.16 Determine that animals require air, water, and a source of energy and building material for growth and repair.
- L.EV.04.21 Identify individual differences (color, leg length, size, wing size, leaf shape) in organisms of the same kind.
- L.EV.04.22 Identify how variations in physical characteristics of individual organisms give them an advantage for survival and reproduction.
- L.EC.04.11 Identify organisms as part of a food chain or food web.
- L.EC.04.21 Explain how environmental changes can produce a change in the food web.
- E.ST.04.31 Explain how fossils provide evidence of the history of the Earth.
- S.IP.04.11 Make purposeful observations of the natural world using appropriate senses.
- S.IP.04.12 Generate questions based on observations.
- S.IP.04.16 Construct simple charts and graphs from data and observations.
- S.RS.04.11 Demonstrate scientific concepts through various illustrations, performances or activities.
- S.RS.04.18 Describe the effect humans and other organisms have on the balance of the natural world.

Knowledge/Content I Know ...	Skills/Processes I Can ...
<ul style="list-style-type: none"> • The basic requirements for plants and animals are air, water, and a source of energy • What traits are, what physical characteristics are, and how they help organisms survive and reproduce • A food chain/web is, and what part plants play in the chain or web 	<ul style="list-style-type: none"> • Determine basic needs of life • Identify a variety of traits and physical characteristics in organisms • Create a food web or chain • Compare/contrast life forms that once existed to those that exist today
Phase 3 Purchased Materials	
Phase 4 Summative Assessment Evidence	
Common Summative Unit Assessments	Agreed Upon Interim Summative Assessments

Unit 2: Earth Science: Sun, Moon, and Earth	
Essential Questions: <ol style="list-style-type: none"> 1. What paths do the moon, earth and sun move along? 2. Why do those paths affect daytime, length of year, and the moon phases? 	Essential Understanding: <ul style="list-style-type: none"> • The moon and Earth move in a predictable pattern around the sun • The predictable patterns of the Earth and moon define a day, year and moon phases • The sun appears to move in a predictable pattern across the sky
Curriculum Standards	
<p>E.ST.04.11 Identify the sun and the moon as common objects in the sky.</p> <p>E.ST.04.12 Compare and contrast the characteristics of the sun, moon and Earth, including relative distances and abilities to support life.</p> <p>E.ST.04.21 Describe the orbit of the Earth around the sun as it defines a year.</p> <p>E.ST.04.22 Explain that the spin of the Earth creates day and night.</p> <p>E.ST.04.23 Describe the motion of the moon around the Earth.</p> <p>E.ST.04.24 Explain how the visible shape of the moon follows a predictable cycle which takes approximately one month.</p> <p>E.ST.04.25 Describe the apparent movement of the sun and moon across the sky through day/night and the seasons.</p> <p>S.IP.04.11 Make purposeful observations of the natural world using appropriate senses.</p> <p>S.IP.04.12 Generate questions based on observations.</p> <p>S.RS.04.16 Identify technology used in everyday life.</p> <p>S.RS.04.17 Identify current problems that may be solved through the use of technology.</p>	
Knowledge/Content I Know ...	Skills/Processes I Can ...
<ul style="list-style-type: none"> • Characteristics of sun and moon and Earth, including size, abilities to support life and relative distance • Rotation, revolution and orbits • Phases of the moon • Cycles of time, day/night, year, seasons 	<ul style="list-style-type: none"> • Identify the sun and moon • Compare and contrast the sun, moon and Earth • Tell about Earth path around the sun and how that defines the length of a year. • Tells how Earth's rotation explains day and night • Tells about moon revolution around the Earth • Tell about the moon phases and cycle • Tell about sun's path in relation to the seasons
Phase 3 Purchased Materials	
Phase 4 Summative Assessment Evidence	
Common Summative Unit Assessments	Agreed Upon Interim Summative Assessments
Phase V Learning Plan	

Unit 3: Physical Science: Measuring Matter	
Essential Questions: <ol style="list-style-type: none"> 1. What physical properties do objects have that can be measured? 2. What different states does matter exist in? 3. How does matter change from one state to another? 	Essential Understanding: <ul style="list-style-type: none"> • All objects have physical properties that can be measured • Matter exists in different states • Matter can change from one state to another by heating and cooling
Curriculum Standards	
<p>P.PM.04.16 Measure the weight (spring scale) and mass (balances in grams or kilograms) of objects.</p> <p>P.PM.04.17 Measure volumes of liquids in milliliters and liters.</p> <p>P.PM.04.23 Compare and contrast the states (solids, liquids, gases) of matter.</p> <p>P.CM.04.11 Explain how matter can change from one state (liquid, solid, gas) to another by heating and cooling.</p> <p>S.IP.04.11 Make purposeful observations of physical properties of matter.</p> <p>S.IP.04.12 Generate questions based on observation of the physical properties of matter.</p> <p>S.IP.04.14 Manipulate simple tools that aid observation and data collection (for example: hand lens, balance, ruler, meter stick, measuring cup, thermometer, spring scale, stop watch/timer, graduated cylinder/beaker).</p> <p>S.IP.04.15 Make accurate measurements with appropriate units (millimeters, centimeters, meters, milliliters, liters, Celsius, grams, seconds, minutes) for the measurement tool.</p> <p>S.IA.04.12 Share ideas about science through purposeful conversation in collaborative groups.</p> <p>S.IA.04.13 Communicate and present findings of observations and investigations.</p>	
Knowledge/Content	Skills/Processes
I Know ... <ul style="list-style-type: none"> • What scientific tools are required to find the mass and volume of objects • What the states of matter are and how heating and cooling them can cause them to change 	I Can ... <ul style="list-style-type: none"> • Compare and contrast the states of matter. • Explain how adding energy (heating) and taking energy away (cooling) can cause matter to change from one state to another. • Observe different objects and their physical properties and generate questions based on those observations. • Use simple scientific tools such as a balance, spring scale, gram cubes, and a graduated cylinder.
Phase 3 Purchased Materials	
Phase 4 Summative Assessment Evidence	
Common Summative Unit Assessments (100%)	Agreed Upon Interim Summative Assessments (0%)
Phase V Learning Plan	

Unit 4: Physical Science: Heat, Electricity and Magnetism	
Essential Questions: <ol style="list-style-type: none"> 1. What evidence is there that change exists? 2. How are heat and electricity forms of energy? 3. How can electrical circuits demonstrate a transfer of energy? 4. How can heat be transferred from one substance to another? 5. In what way is magnetism a physical property of matter? 	Essential Understanding: <ul style="list-style-type: none"> • Heat and electricity are forms of energy • Evidence of energy is change • Magnetism is a physical property of matter • Heat can be transferred from one substance or object to another
Curriculum Standards	
<p>P.EN.04.12 Identify heat and electricity as forms of energy.</p> <p>P.EN.04.41 Demonstrate how temperature can be increased in a substance by adding energy.</p> <p>P.EN.04.42 Describe heat as the energy produced when substances burn, certain kinds of materials rub against each other, and when electricity flows through wire.</p> <p>P.EN.04.43 Describe how heat is produced through electricity, rubbing, and burning.</p> <p>P.EN.04.51 Demonstrate how electrical energy is transferred and changed through the use of a simple circuit.</p> <p>P.EN.04.52 Demonstrate magnetic effects in a simple circuit.</p> <p>P.PM.04.53 Identify objects that are good conductors or poor conductors of heat and electricity. (Needs to be taught after Electricity – PENE5)</p> <p>P.PM.04.33 Demonstrate magnetic field by observing the patterns formed with iron fillings using a variety of magnets.</p> <p>P.PM.04.34 Demonstrate that non-magnetic objects are affected by the strength of the magnet and the distance away from the magnet.</p> <p>S.IP.04.11 Make purposeful observations of heat, electricity and magnetism.</p> <p>S.IP.04.12 Generate questions based on observation of heat, electricity and magnetism..</p> <p>S.RS.04.14 Use data/samples as evidence to separate fact from opinion.</p> <p>S.RS.04.15 Use evidence when communicating scientific ideas.</p>	
Knowledge/Content I Know ...	Skills/Processes I Can ...
<ul style="list-style-type: none"> • What are heat, electricity, and change. • How heat can be transferred from one substance to another. • What magnetism, physical properties, and matter are. 	<ul style="list-style-type: none"> • Identify heat and electricity as forms of energy • Understand that change is evidence of energy. • Describe how magnetism is a physical property of matter. • Understand that heat can be transferred from one substance to another. •
Phase 3 Purchased Materials	
Phase 4 Summative Assessment Evidence	
Common Summative Unit Assessments	Agreed Upon Interim Summative Assessments
Phase V Learning Plan	

Davison Community Schools
ADVISORY CURRICULUM COUNCIL
Phase 2, May 1, 2014

<i>CI 5th grade Science</i>	
Course Essential Questions (from Phase I report): <ol style="list-style-type: none"> How do inquiry and reflection help us understand our Scientific Community? What is life and how is it organized and connected? 	
Unit 1: Life Science: Animal Body Systems	
Essential Questions: <ol style="list-style-type: none"> What is the purpose of the various body systems in animals? How do animal systems work together to perform specific activities? How do animal systems function together and contribute to the survival of the organism? 	Essential Understanding: <ul style="list-style-type: none"> Animal's bodies are made up of various body systems that perform specific functions These body systems function together and contribute to the animal's survival and well being
Curriculum Standards	
<p>L.OL.05.41 Identify the general purpose of selected animal systems (digestive, circulatory, respiratory, skeletal, muscular, nervous, excretory, and reproductive).</p> <p>L.OL.05.42 Explain how animal systems (digestive, circulatory, respiratory, skeletal, muscular, nervous, excretory, and reproductive) work together to perform selected activities.</p> <p>S.IP.05.13 Use tools and equipment appropriate to scientific investigations of systems working together (stop watches, meter sticks).</p> <p>S.IP.05.16 Identify patterns in data from investigations of changes in muscular activity (pulse rate and breathing rate).</p> <p>S.IA.05.11 Analyze information from data tables and graphs comparing changes in muscular activity with changes in pulse rate and breathing rate to answer scientific questions.</p> <p>S.RS.05.24 Demonstrate scientific concepts through various illustrations, performances, models, exhibits or activities of how animal systems work together.</p>	
Knowledge/Content	Skills/Processes
I Know ...	I Can ...
<ul style="list-style-type: none"> Names and functions of the body systems Location of body systems in an organism Body systems function together and contribute to animals survival 	<ul style="list-style-type: none"> Compare and contrast body systems/functions Make/use models to explain functions/location of body systems, and how they work together
Phase 3 Purchased Materials	
Phase 4 Summative Assessment Evidence	
Common Summative Unit Assessments	Agreed Upon Interim Summative Assessments
Phase V Learning Plan	

Unit 2: Earth Science: Astronomy	
Essential Questions: <ol style="list-style-type: none"> How does the position and motion of the Earth cause seasonal changes? What is the relationship of objects in the solar system to each other and the sun? What effect does the rotation and revolution of the Earth have on observation of objects in the sky? How does gravitational pull affect planetary orbits and tides? 	Essential Understanding: <ul style="list-style-type: none"> The sun is the central and largest body in the solar system The sun's warming of the Earth and tilt of the Earth on its axis has an important connection to the seasons Objects in sky move in regular and predictable patterns around the sun The sun and stars appear to move in predictable patterns across the sky Gravity is the force that keeps the planets in orbit around the sun & without it, planets would continue in a straight path
Curriculum Standards	
<p>E.ES.05.61 Demonstrate and explain seasons using a model. *</p> <p>E.ES.05.62 Explain how the revolution of the Earth around the sun defines a year.</p> <p>E.ST.05.11 Design a model that of the solar system that shows the relative order and scale of the planets to the sun.</p> <p>E.ST.05.21 Describe the motion of planets and moons in terms of rotation on axis and orbits due to gravity.</p> <p>E.ST.05.22 Explain the phases of the moon. *</p> <p>E.ST.05.23 Explain the apparent motion of the stars (constellations) and the sun across the sky. *</p> <p>E.ST.05.24 Explain lunar and solar eclipses. *</p> <p>E.ST.05.25 Explain the tides of the oceans as they relate to the gravitational pull and orbit of the moon.</p> <p>S.IP.05.16 Identify patterns in data dealing with the position and motion of objects in the sky.</p> <p>S.RS.05.15 Demonstrate scientific concepts concerning the position and motion of objects in the sky through various illustrations, performances, models, exhibits, and activities.</p>	
Knowledge/Content I Know ...	Skills/Processes I Can ...
<ul style="list-style-type: none"> Why we have seasons All planets rotate on their "axis" as they revolve around the sun and moon around planet Gravity is the force keeping the planets and moons in their orbits The phases of the moon Why the sky appears to move due to the rotation of the Earth That solar and lunar eclipses result from the position of the moon, Earth, and sun The daily cycle of tides is related to the sun and moons gravitational forces 	<ul style="list-style-type: none"> Demonstrate seasons using a model Design a model of the solar system that shows the relative order and scale of the planets to the sun Create a picture of the phases of the moon. Demonstrate solar and lunar eclipses using a globe, flashlight, and ball.

Phase 3 Purchased Materials	
Phase 4 Summative Assessment Evidence	
Common Summative Unit Assessments	Agreed Upon Interim Summative Assessments
Phase V Learning Plan	

CI 5th grade Science

Course Essential Questions (from Phase I report):

1. How do inquiry and reflection help us understand our Scientific Community?
2. How does physical science explain and affect the world around us?

Unit 3: Physical Science: Motion

Essential Questions:

1. How can contact and non contact forces change the motion of objects?
2. How do balanced and unbalanced forces affect the motion of objects
3. What is the result when two forces act on an object in the same or opposing directions?

Essential Understanding:

- Every force is part of an interaction between two objects
- Forces are pushes & pulls that can be contact or noncontact forces
- Motion described relative to something else (point of reference)
- A change in motion is due to unbalanced forces
- No change in motion and an object at rest are due to balanced forces.

Curriculum Standards

P.FM.05.21 Distinguish between contact forces and non-contact forces.

P.FM.05.22 Demonstrate contact and non-contact forces to change the motion of an object.

P.FM.05.31 Describe what happens when two forces act on an object in the same or opposing directions.

P.FM.05.32 Describe how constant motion is the result of balanced (zero net) forces.

P.FM.05.33 Describe how changes in the motion of objects are caused by a non-zero net (unbalanced) force.

P.FM.05.34 Relate the size of change in motion to the strength of unbalanced forces and the mass of the object.

P.FM.05.41 Explain the motion of an object relative to its point of reference.

P.FM.05.42 Describe the motion of an object in terms of distance, time and direction, as the object moves, and in relationship to other objects.

S.IP.05.11 Generate scientific questions about motion based on observations, investigations, and research.

S.IP.05.13 Use tools and equipment (stop watches, meter sticks and tapes, models, balances) appropriate to scientific investigation of motion.

S.IP.05.14 Use metric measurement devices in the investigation of motion.

S.IP.05.15 Construct charts or graphs from data and observations dealing with motion and changes in motion.

Knowledge/Content

I Know ...

- The difference between contact, and non-contact force, and how both change the motion of an object
- Forces must be balanced to achieve constant speed, and unbalanced to change speed and direction
- The relationship between the mass of the object and the magnitude of the unbalanced forces acting on the object that results in the change in speed and/or direction of the object

Skills/Processes

I Can ...

- Demonstrate contact and non-contact forces to change the motion of an object
- Illustrate and/or demonstrate how motion can be measured and represented on a graph

Phase 3 Purchased Materials

Phase 4 Summative Assessment Evidence	
Common Summative Unit Assessments	Agreed Upon Interim Summative Assessments
Phase V Learning Plan	

CI 5th grade Science

Course Essential Questions (from Phase I report):

1. How do inquiry and reflection help us understand our Scientific Community?
2. What is life and how is it organized and connected?

Unit 4: Life Science: Heredity, Adaptations, and Fossils

Essential Questions:

1. How are traits influenced and classified?
2. What characteristics allow organisms to survive?
3. What characteristics allow organisms to survive environmental changes over time?
4. How do fossils provide evidence that life forms have changed over time?

Essential Understanding:

- Traits are both genetic and influenced by environment.
- Traits are either inherited or acquired.
- Each organism (plants and animals) has specific behavioral and physical characteristics allowing it to better survive in a given environment.
- As environments change over time, these characteristics may change (adaptations) to allow them to survive in their environment.
- Fossils provide evidence that life forms have changed over time.

Curriculum Standards

S.IP.05.11 Generate scientific questions based on observations, investigations, and research.
 S.IP.05.16 Identify patterns in data.
 S.IA.05.11 Analyze information from data tables and graphs to answer scientific questions.
 S.RS.05.13 Identify the need for evidence in making scientific decisions.
 S.RS.05.15 Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities
 S.RS.05.17 Describe the effect humans and other organisms have on the balance in the natural world.
 L.HE.05.11 Explain that the traits of an individual are influenced by both the environment and the genetics of the individual.
 L.HE.05.12 Distinguish between inherited and acquired traits.
 L.EV.05.11 Explain how behavioral characteristics (adaptation, instinct, learning, habit) of animals help them to survive in their environment.
 L.EV.05.12 Describe the physical characteristics (traits) of organisms that help them survive in their environment.
 L.EV.05.13 Describe how fossils provide evidence about how living things and environmental conditions have changed.
 L.EV.05.14 Analyze the relationship of environmental change and catastrophic events (for example: volcanic eruption, floods, asteroid impacts, tsunamis) to species extinction.

Knowledge/Content

I Know ...

- The difference between acquired and inherited traits
- Traits can be inherited and the environment can influence inherited traits
- The characteristics that allow organisms to survive environmental changes over time

Skills/Processes

I Can ...

- Distinguish the difference between acquired and inherited traits
- Recognize that traits can be inherited and influenced by the environment
- Identify characteristics that allow organisms to survive environmental changes

Phase 3 Purchased Materials	
Phase 4 Summative Assessment Evidence	
Common Summative Unit Assessments (50%)	Agreed Upon Interim Summative Assessments (40%)
Phase V Learning Plan	

Davison Community Schools
ADVISORY CURRICULUM COUNCIL
Phase 2, May 1, 2014

<i>CI 6th grade Science</i>	
Course Essential Questions (from Phase I report): 9. How do inquiry and reflection help us understand our Scientific Community? 10. How do earth and space change over time?	
Unit 1: Earth Science: Introduction to the Earth, Rocks and Minerals	
Essential Questions: 1. What are Earth's magnetic properties? 2. How are the Earth's layers affected when certain geological events occur?	Essential Understanding: <ul style="list-style-type: none"> The Earth has magnetic properties The interior of the Earth undergoes changes
Curriculum Standards	
E.SE.06.61 Describe the Earth as a magnet and compare the magnetic properties of the Earth to that of a natural or manufactured magnet. * E.SE.06.62 Explain how a compass works using the magnetic field of the Earth, and how a compass is used for navigation on land and sea E.SE.06.53 Describe layers of the Earth as a lithosphere (crust and upper mantle), convecting mantle, and dense metallic core	
Knowledge/Content I Know ...	Skills/Processes I Can ...
<ul style="list-style-type: none"> Rock cycle How the Earth is a magnet Understand the Earth is made of several layers 	<ul style="list-style-type: none"> Describe the location and composition of the Earth's individual layers
Phase 3 Purchased Materials	
Phase 4 Summative Assessment Evidence	
Common Summative Unit Assessments (90%)	Agreed Upon Interim Summative Assessments (90%)
Phase V Learning Plan	

Unit 2: Earth Science: Changes of Earth's Surface and Fossils	
Essential Questions: <ol style="list-style-type: none"> 1. What properties of rocks and minerals make them useful? 2. What can fossils teach us about the Earth's history throughout geologic time? 3. How does the Earth's surface change? 4. How is soil created? 5. What happens to the Earth when the tectonic plates move? 	Essential Understanding: <ul style="list-style-type: none"> • Earth materials have properties that make them useful • The surface of the Earth changes gradually and rapidly • Soil is created through natural processes • Soil has layers based on composition • Plate tectonics explains major landforms and geological events
Curriculum Standards	
<p>E.SE.06.41 Compare and contrast the formation of rock types (igneous, metamorphic, and sedimentary) and demonstrate the similarities and differences using the rock cycle model.</p> <p>E.ST.06.31 Explain how rocks and fossils are used to understand the age and geological history of the Earth (timelines and relative dating, rock layers).</p> <p>E.ST.06.41 Explain how Earth processes (erosion, mountain building, and glacier movement) are used for the measurement of geologic time through observing rock layers.</p> <p>E.ST.06.42 Describe how fossils provide important evidence of how life and environmental conditions have changed.</p> <p>E.SE.06.11 Explain how physical and chemical weathering lead to erosion and the formation of soils and sediments.</p> <p>E.SE.06.12 Explain how waves, wind, water, and glacier movement, shape and reshape the land surface of the Earth by eroding rock in some areas and depositing sediments in other areas.</p> <p>E.SE.06.13 Describe how soil is a mixture made up of weather eroded rock and decomposed organic material.</p> <p>E.SE.06.14 Compare different soil samples based on particle size and texture.</p> <p>E.SE.06.51 Explain plate tectonic movement and how the lithospheric plates move centimeters each year.</p> <p>E.SE.06.52 Demonstrate how major geological events (earthquakes, volcanic eruptions, mountain building) result from these plate motions.</p>	
Knowledge/Content I Know ...	Skills/Processes I Can ...
<ul style="list-style-type: none"> • Three rock types <ul style="list-style-type: none"> ○ Igneous ○ Metamorphic ○ Sedimentary • Earth's crust contains rock fossils • Weathering both physical and chemical and how it leads to soils and sediments • That Earth's plates are constantly moving • Earth's movement result in volcano's, earthquakes, and mountain formation 	<ul style="list-style-type: none"> • Use chart or Venn Diagram to compare three types of rocks • Put together a rock cycle in order. • Define physical/mechanical and chemical weathering. • Demonstrate how the plates fit together • Compare different plate movements and how they result in earthquakes, mountains, and volcanic eruptions
Phase 3 Purchased Materials	
Phase 4 Summative Assessment Evidence	
Common Summative Unit Assessments (90%)	Agreed Upon Interim Summative Assessments (90%)
Phase V Learning Plan	

Unit 3: Physical Science: Matter and Energy	
Essential Questions: <ol style="list-style-type: none"> 1. What is kinetic energy and how does it affect objects and substances? 2. How does an object's relative position determine its potential energy? 3. How is heat energy transferred? 4. What is a physical change in a state of matter? 	Essential Understanding: <ul style="list-style-type: none"> • Objects and substances in motion have kinetic energy • Objects and substances have potential energy due to their relative position in a system • Heat energy is transferred by radiation, conduction, and convections • Physically changing states of matter does not create a new substance
Curriculum Standards	
<p>P.EN.06.11 Identify kinetic or potential energy in everyday situations (for example: stretched rubber band, objects in motion, ball on a hill, food energy).</p> <p>P.EN.06.12 Demonstrate the transformation between potential and kinetic energy in simple mechanical systems (for example: roller coasters, pendulums).</p> <p>P.EN.06.41 Explain how different forms of energy can be transferred from one place to another by radiation, conduction, or convection.</p> <p>P.CM.06.11 Describe and illustrate changes in state, in terms of the arrangement and relative motion of the atoms or molecules.</p>	
Knowledge/Content I Know ...	Skills/Processes I Can ...
<ul style="list-style-type: none"> • That everyday situations have kinetic or potential energy • Three ways energy can be transferred: radiation, conduction, convection • How atoms are arranged and move in each state of matter • How to use a compass 	<ul style="list-style-type: none"> • Identify examples of kinetic or potential energy • Identify examples of the three ways energy are transferred • Identify each state of matter by the arrangement and motion of the atoms • Use a compass to navigate
Phase 3 Purchased Materials	
Summative Assessment Evidence	
Common Summative Unit Assessments (90%)	Agreed Upon Interim Summative Assessments (90%)
Phase V Learning Plan	

Unit 4: Life Science: Ecosystems	
Essential Questions: <ol style="list-style-type: none"> 1. In what ways do living things rely on each other? 2. How do changing eco systems affect our environment? 3. What affects population changes? 	Essential Understanding: <ul style="list-style-type: none"> • All life forms, including humans, are part of a global food chain in which food is supplied by plants, which need light to produce food • Ecosystems continually change with time as environmental factors and populations of organisms change
Curriculum Standards	
<p>L.OL.06.51 Classify producers, consumers, and decomposers based on their source of food (the source of energy and building materials). *</p> <p>L.OL.06.52 Distinguish between the ways in which consumers and decomposers obtain energy.</p> <p>L.EC.06.11 Identify and describe examples of populations, communities, and ecosystems including the Great Lakes region.</p> <p>L.EC.06.21 Describe common patterns of relationships between and among populations (predator/prey).</p> <p>L.EC.06.23 Predict how changes in one population might affect other populations based upon their relationships in the food web.</p> <p>L.EC.06.31 Identify the living (biotic) and nonliving (abiotic) components of an ecosystem.</p> <p>L.EC.06.32 Identify the factors in an ecosystem that influence changes in population size.</p> <p>L.EC.06.41 Describe how human beings are part of the ecosystem of the Earth and that human activity can purposefully, or accidentally, alter the balance in ecosystems.</p> <p>L.EC.06.42 Predict possible consequences of overpopulation of organisms, including humans, (for example: species extinction, resource depletion, climate change, pollution).</p>	
Knowledge/Content I Know ...	Skills/Processes I Can ...
<ul style="list-style-type: none"> • How living things obtain and use energy • Types of ecosystems found in Michigan • How different species interact • The difference between biotic and abiotic factors • That populations in sizes fluctuate 	<ul style="list-style-type: none"> • Classify producers, consumers, and decomposers based on their energy sources including food chains and webs • Identify local ecosystems • Compare the relationship between predator and prey • Identify biotic and abiotic factors • Explain why population sizes of organisms change.
Phase 3 Purchased Materials	
Phase 4 Summative Assessment Evidence	
Common Summative Unit Assessments (90%)	Agreed Upon Interim Summative Assessments (90%)
Phase V Learning Plan	

Unit 5: Scientific Method	
Essential Questions: <ol style="list-style-type: none"> How is the scientific method organized? Why is the scientific method used in science? 	Essential Understanding: <ul style="list-style-type: none"> Scientific method is a process that is used to investigate scientific questions/problems Scientific method is a model used by the entire Scientific Community
Curriculum Standards	
<p>S.IP.06.11 Generate scientific questions based on observations, investigations, and research.</p> <p>S.IP.06.13 Use tools and equipment (scales, stop watches, meter sticks and tapes, models, thermometer, models, microscopes) appropriate to scientific investigations.</p> <p>S.IP.06.14 Use metric measurement devices in an investigation.</p> <p>S.IP.06.16 Identify patterns in data.</p> <p>S.IA.06.11 Analyze information from data tables and graphs to answer scientific questions.</p> <p>S.RS.06.12 Describe limitations in personal and scientific knowledge.</p> <p>S.RS.06.15 Demonstrate scientific concepts through various illustrations, performances, models, exhibits, or activities.</p> <p>S.RS.06.17 Describe the effect humans and other organisms have on the balance of the natural world.</p> <p>S.RS.06.18 Describe what science and technology can and cannot reasonably contribute to society.</p> <p>S.RS.06.19 Describe how science and technology have advanced because of the contributions of many people throughout history and across cultures.</p>	
Knowledge/Content I Know ...	Skills/Processes I Can ...
<ul style="list-style-type: none"> The steps in the science methods That science method is an integral part of the Scientific Community Assessments on these content expectations are built into all of the common assessments. 	<ul style="list-style-type: none"> Identify each step and apply their knowledge in an experiment Use tools to conduct and measure data Analyze data and represent it in some form
Phase 3 Purchased Materials	
Phase 4 Summative Assessment Evidence	
Common Summative Unit Assessments (50%)	Agreed Upon Interim Summative Assessments (40%)
Phase V Learning Plan	