

Davison Community Schools
ADVISORY CURRICULUM COUNCIL
Phase II, April 17, 2014

<i>Life Skills Physical Science</i>	
Course Essential Questions (from Phase I report): <ol style="list-style-type: none"> 1. What are <u>forces</u> and how can they be used to describe interactions between objects? 2. What is energy and how is it transformed from one form to another? 3. What is matter and why is it important? 	
Phase II Curriculum	
Unit: Matter	
Essential Questions: What is matter? What is matter made of? What do compounds and mixtures have to do with matter?	Essential Understanding: Everything is matter. Everything is made of atoms. Matter is made of atoms. There are different kinds of matter, such as elements, molecules and compounds.
Curriculum Standards	
IV.1.h.3 Explain how elements differ, in terms of the structural parts and electrical charges of atoms. P.ME.FI.EB Identify the structural parts and electrical charges of atoms.	
Knowledge/Content Students will know about....	Skills/Processes Students will be able to.....
<ul style="list-style-type: none"> • Mass • Volume • Atoms • Elements • Metals and Nonmetals • Compounds • Molecules • Pure Substances • Mixtures <ul style="list-style-type: none"> - Homogeneous - Heterogeneous 	<ul style="list-style-type: none"> • Identify and label the parts and charges of an atom. • Justify that mass and weight are different. • Find the volume of matter. • Identify common elements, metals, and nonmetals. • Explain the difference between elements, compounds, and molecules.

Phase III Textbook/Materials	
Phase IV Summative Assessment Evidence	
Common Summative Unit Assessments:	Agreed Upon Interim Summative Assessments: (*identifies Performance Task)
Phase V Learning Plan	

Phase II Curriculum

Unit: Describing Matter

Essential Questions:

How do you describe matter?
Are there different forms of matter?
Does matter ever change?
How can matter be changed?

Essential Understanding:

Properties help to describe matter.
Matter exists in four states: solids, liquids, gases, and plasma.
Matter can change states through condensation, evaporation, freezing, melting, sublimation, or vaporization.
Matter can go through either a physical or chemical change.

Curriculum Standards

P.ME.FI.EB.IV.1.m.4ADDh

Describe the arrangement and motion of molecules in solids, liquids, and gases.

P.CM.FI.EB.IV.2.m.1ADDh

Describe common physical changes in matter: evaporation, condensation, expansion, and contraction.

P.CM.FI.EB.IV.2.m.2ADDh

Describe common chemical changes in terms or properties of reactants and products.

Knowledge/Content

Students will know about....

- Physical Properties
 - Melting Point
 - Boiling Point
 - Density
 - Buoyancy
- Chemical Properties
 - Flammability
- States of Matter
 - Solid
 - Liquid
 - Gas
 - Plasma
- The Law of Conservation of Mass
- Melting
- Freezing
- Vaporization
 - Evaporation
 - Boiling
- Condensation

Skills/Processes

Students will be able to.....

- Describe matter.
- Identify the difference between physical and chemical properties.
- Identify and describe physical and chemical changes.
- Describe the behavior of particles in a solid, liquid, and gas.
- Identify solids, liquids, and gasses.
- Explain how matter changes states.

- Sublimation
- Physical Changes
- Chemical Changes

Phase III Textbook/Materials

Phase IV Summative Assessment Evidence

Common Summative Unit Assessments:

Agreed Upon Interim Summative Assessments: (*identifies Performance Task)

Phase V Learning Plan

Phase II Curriculum

Unit: Motion and Forces

Essential Questions:

What kind of forces are there?
How does motion work?
How do forces work?

Essential Understanding:

Speed, velocity, and acceleration can all be used to describe motion.
If a force is balanced there is no motion.
If a force is unbalanced there is motion.
Friction and Gravity are two kinds of forces.
There are 3 laws about motion.

Curriculum Standards

Knowledge/Content

Students will know about....

- Motion
- Speed
- Velocity
- Acceleration
- Balanced and Unbalanced Forces
 - Net Force
 - Gravity
 - Friction
- Newton's Laws of Motion
 - Inertia

Skills/Processes

Students will be able to.....

- Identify forces at work.
- Distinguish between balanced and unbalanced forces.
- Describe motion.

Phase III Textbook/Materials

Phase IV Summative Assessment Evidence

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Phase V Learning Plan

Phase II Curriculum

Unit: Work and Energy

Essential Questions:

How do work and simple machines relate?
 Why do we have or use machines?
 How can energy be described?

Essential Understanding:

Simple and compound machines help make work easier.
 Energy cannot be created or destroyed.
 Energy is the ability to do work.
 There are a lot of different kinds of energy.

Curriculum Standards

P.CM.FI.EB.IV.2.h.4a

Identify common energy transformations in everyday situations.

P.MO.FI.EB.IV.3.h.1a

Identify patterns of force and motion in the operation of complex machines.

P.MO.FI.EB.IV.3.e.SADDh

Manipulate simple mechanical devices and explain how their parts work together.

Knowledge/Content

Students will know about....

- Making work easier
- Simple Machines
- The Lever Family
- The Inclined Plane Family
- Compound Machines
- Kinetic and Potential Energy
- The Law of Conservation of Energy

Skills/Processes

Students will be able to.....

- Identify simple, compound, and complex machines.
- Explain how machines make work easier.
- Describe kinetic and potential energy.
- Defend the Law of Conservation of Energy.

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Phase V Learning Plan

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Phase II Curriculum

Unit: Heat

Essential Questions:

How does temperature measure heat?
How does heat do work?
How does heat move?

Essential Understanding:

Heat is energy and therefore has the ability to do work.
Temperature is how much heat something has.
Everything has heat.
Heat is transferred from hot to cold.

Curriculum Standards

P.CM.FI.EB.IV.2.h.4a

Identify common energy transformations in everyday situations.

IV.2.h.5

Explain changes in matter and energy involving heat transfer.

Knowledge/Content

Students will know about....

- Temperature
- Conductors
- Insulators
- Heat Transfer
 - Conduction
 - Convection
 - Radiation

Skills/Processes

Students will be able to.....

- Describe temperature and how it is measured.
- Identify conduction, convection, and radiation.
- Differentiate between conductors and insulators.
- Explain where heat is going.

Phase III Textbook/Materials

Phase IV Summative Assessment Evidence

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Phase V Learning Plan

Phase II Curriculum

Unit: Sound

Essential Questions:

How does sound work?
Where does sound come from?
How does sound move?
How do we hear sound?

Essential Understanding:

Sound is a form of energy that travels as a wave.
Sound is created by vibrations.
Sound waves can travel through solids, liquids, and gases.
The speed of sound changes based on its medium.

Curriculum Standards

P.WV.FI.IV.4.m.1ADDh
Recognize how sounds travel through different media.

P.WV.FI.EB.IV.4.h.3a
Identify properties of waves.

Knowledge/Content

Students will know about....

- Waves
 - Mediums
 - Crest
 - Trough
 - Resting Position
 - Amplitude
 - Wavelength
 - Period
 - Frequency
 - The Doppler Effect
- Wave Interactions
 - Reflection
 - Diffraction
 - Refraction
 - Interference
- Loudness
- Pitch
- The Ear

Skills/Processes

Students will be able to.....

- Explain how sound moves.
- Draw and label the parts of a wave.
- Describe how waves can interact.
- Explain why people are able to hear sound.
- Differentiate between loudness and pitches.

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Phase II Curriculum

Unit: Light

Essential Questions:

Why can we see things?
How can we see things?
How does light travel?

Essential Understanding:

We see things because of light.
Our eyes are lenses that refract light, allowing us to see.
Light travels in waves or as photons.
Light travels FAST, nothing is faster than light.

Curriculum Standards

P.WV.FI.EB.IV.4.m.4ADDh

Identify and/or describe ways in which light interacts with matter.

P.WV.FI.EB.IV.4.h.4a

Identify different types of waves.

Knowledge/Content

Students will know about....

- Properties of Light
 - Photons
 - Speed of Light
 - Electromagnetic Spectrum
- Reflection
- Absorption
- Scattering
- Medium
- Color
- Refraction
- Lenses
- The Human Eye

Skills/Processes

Students will be able to.....

- Identify sources of light.
- Describe light.
- Explain why something is the color it is.

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Phase II Curriculum

Unit: Electricity

Essential Questions:

- Where does electricity come from?
- How does electricity move?
- How can you be safe around electricity?

Essential Understanding:

Electricity is all around us. It lights our homes and powers our appliances. It is lightning in the sky. It is in atoms.

Electricity flows in a current, which flows in a circuit.

Electricity is dangerous and very powerful, rules need to be followed and precautions taken.

Curriculum Standards

P.ME.FI.EB.IV.1.h.4a

Identify and/or explore how current is controlled in simple and parallel circuits.

P.ME.FI.EB.IV.1.m.6ADDh

Identify/state safety rules/precautions related to common household appliances that use electrical motors.

Knowledge/Content

Students will know about....

- Electrical Charge and Force
 - Opposites Attract
 - Charging
- Current
 - Voltage
- Resistance
- Types of Circuits
 - Opening and Closing a Circuit
 - Series Circuit
 - Parallel Circuit
 - Dangerous Circuits

Skills/Processes

Students will be able to.....

Draw an open and closed circuit.

Describe how electricity works.

Identify ways to stay safe around electricity.

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Phase II Curriculum

Unit: Magnetism

Essential Questions:

How do magnets work?

Essential Understanding:

Magnets have two ends, known as poles.

Opposite poles attract.

Like poles repel.

Magnets exert a force on each other and the things around them.

Electricity can create magnetic fields.

Curriculum Standards

P.MO.FLEB.IV.3.m.3ADDh

Identify and/or describe the non-contact forces exerted by magnets, electrically charged objects, and/or gravity.

Knowledge/Content

Students will know about....

- Magnets
- Magnetic Fields
- Electricity and Magnetism

Skills/Processes

Students will be able to.....

- Identify a magnet.
- Describe how magnetism works.

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