

**Northwestern Middle School  
Science Assessment Map**

**Grade: 6**

**Date Reviewed: December 2009**

<b>ESSENTIAL INDICATORS</b>	<b>SUPPORTING INDICATORS</b>
-----------------------------	------------------------------

<b>FIRST QUARTER</b>			
<b>Variables</b>			
SWK 2	Describe why it is important to keep clear, thorough and accurate records.		
SI 4	Explain that a single example can never prove that something is always correct, but sometimes a single example can disprove something.		

**Vocabulary:** variables, (independent, dependent)

**Essential Understandings: What every student must know**

<b>FIRST QUARTER</b>			
<b>Sound</b>			
SI 3	Use appropriate safety procedures when completing scientific investigations.	SI 2	Explore and pursue student-generated "what if" questions.
		SWK 1	Identify that hypotheses are valuable even when they are not supported.
		SI 1	Ask "what if" questions.

**Vocabulary:** pitch, frequency, vibration

**Essential Understandings: What every student must know**

1. Use the scientific method
2. Form a hypothesis
3. Electricity is generated

Northwestern Middle School  
Science Assessment Map

Grade: 6

Date Reviewed: December 2009

ESSENTIAL INDICATORS	SUPPORTING INDICATORS
----------------------	-----------------------

**Key Concepts and Indicators**

1. A coil turning within a magnetic field created electricity
2. **Identify safety equipment and the proper use**

SECOND QUARTER	
<b>Density</b>	
PS 1	Explain that equal volumes of different substances usually have different masses.

**Vocabulary:** mass

**Essential Understandings: What every student must know**

1. An object sinks in water if it is denser than water
2. An object floats in water if it is less dense than water
3. If two objects of different material are the same size, the with the greater mass (heavier) is denser

**Key Concepts and Indicators**

1. **Density is mass per unit volume**
2. **Density of water is 1**
3. **If a substance has a density > 1, it will sink. <1, it will float**
4. **Each substance has it's own density**
5. **If objects have equal masses, the smaller is denser**

Northwestern Middle School  
Science Assessment Map

Grade: 6

Date Reviewed: December 2009

ESSENTIAL INDICATORS	SUPPORTING INDICATORS
----------------------	-----------------------

THIRD QUARTER			
Rocks & Volcanoes			
ES 1	Describe the rock cycle and explain that there are sedimentary, igneous and metamorphic rocks that have distinct properties (e.g., color, texture) and are formed in different ways.	ES 2	Explain that rocks are made of one or more minerals.
		ES 3	Identify minerals by their characteristic properties.

**Vocabulary:** metamorphism, lithosphere, sedimentary, igneous, sediment, metamorphic, magma

**Essential Understandings: What every student must know**

1. Rocks are created by different methods.
2. Rocks are made up of different minerals.
3. Rocks have different characteristics.
4. Volcanoes may be resting, active or dead.
5. Rocks can change from one kind of rock to another

**Key Concepts and Indicators**

1. Sedimentary rocks are rocks made from sand and silt pressed together
2. Igneous rocks are made from volcanic lava
3. Metamorphic rock is made from other rocks
4. Perform a Identification test

**Northwestern Middle School  
Science Assessment Map**

**Grade: 6**

**Date Reviewed: December 2009**

ESSENTIAL INDICATORS	SUPPORTING INDICATORS
----------------------	-----------------------

THIRD QUARTER			
Body Systems			
LS 2	Explain that multicellular organisms have a variety of specialized cells, tissues, organs and organ systems that perform specialized functions.	LS 1	Explain that many of the basic functions of organisms are carried out by or within cells and are similar in all organisms.

**Vocabulary:** respiratory, circulatory, immune, etc

**Essential Understandings: What every student must know**

1. Cells are the building blocks of all living things
2. Body systems perform specific jobs in the body
3. There are different kinds of cell in the body that perform different jobs

**Key Concepts and Indicators**

1. Cells make up Tissues which make up Organs which make up Systems
2. The function of the circulatory and respiratory systems and how they are interrelated

THIRD QUARTER			
Heredity			
LS 4	Recognize that an individual organism does not live forever; therefore reproduction is necessary for the continuation of every species and traits are passed on to the next generation through reproduction.	LS 5	Describe that in asexual reproduction all the inherited traits come from a single parent.
		LS 6	Describe that in sexual reproduction an egg and sperm unite and some traits come from each parent, so the offspring is never identical to either of its parents.
		LS 7	Recognize that likenesses between parents and offspring (e.g., eye color, flower color) are inherited. Other likenesses, such as table manners are learned.
		LS 3	Identify how plant cells differ from animal cells (e.g., cell wall and chloroplasts).

**Northwestern Middle School  
Science Assessment Map**

**Grade: 6**

**Date Reviewed: December 2009**

ESSENTIAL INDICATORS	SUPPORTING INDICATORS
----------------------	-----------------------

**Vocabulary:** chromosomes. Characteristics, heredity, dominant, recessive, mutation, nucleus, DNA

**Essential Understandings: What every student must know**

- |  |   |
|--|---|
| <ol style="list-style-type: none"> <li>1. Living things get their characteristics from their parents.</li> <li>3. Living things get characteristics from both parents</li> <li>5. Living things must reproduce for the specie to survive.</li> </ol> | <ol style="list-style-type: none"> <li>2. Living things look similar to their parents</li> <li>4. Animal and plant cells are different</li> <li>6.</li> </ol> |
|--|---|

**Key Concepts and Indicators**

- |   |  |
|---|--|
| <ol style="list-style-type: none"> <li>1. In asexual reproduction the offspring are like the parents</li> <li>3. That plants cells have chloroplast and a different cell wall from animals</li> </ol> | <ol style="list-style-type: none"> <li>2. Dominant and recessive traits</li> <li>4. Mitochondria is transfer of gases in the cell, cell respiration</li> </ol> |
|---|--|

THIRD QUARTER			
Matter			
PS 2	Describe that in a chemical change new substances are formed with different properties than the original substance (e.g., rusting, burning).	PS 3	Describe that in a physical change (e.g., state, shape and size) the chemical properties of a substance remain unchanged.
		PS 4	Describe that chemical and physical changes occur all around us (e.g., in the human body, cooking and industry).

**Vocabulary:** compound, element, chemical change, physical change, mixture, election, proton, neutron, atom, molecule

**Essential Understandings: What every student must know**

1. Identify a physical change
2. Identify a chemical change
3. Things are held together by chemical bonds. In a chemical change the bonds are broken and recombined
4. Elements are made up of one kind of atom
5. Compounds are made up of two or more different kinds of atoms (more than one element)

**Key Concepts and Indicators**

1. Know the configuration of the atom

**Northwestern Middle School  
Science Assessment Map**

**Grade: 6**

**Date Reviewed: December 2009**

<b>ESSENTIAL INDICATORS</b>	<b>SUPPORTING INDICATORS</b>
-----------------------------	------------------------------

2. Know that atoms separate during a chemical change and can join with different atoms to form new substances
3. Each element has an unique number of protons

<b>FOURTH QUARTER</b>			
<b>Living Relationships</b>			
LS 8	Describe how organisms may interact with one another.		

**Vocabulary:** carnivore, herbivore, omnivore, community, classification, adaptation, food chain, environment, parasite, mutualism

**Essential Understandings: What every student must know**

1. Green plants make their own food
2. Animals must eat plants and/or animals for energy
3. Energy is passed to animal from what they eat them
4. Living things adapt to changes around them to survive
5. Living things may help or hurt each other

**Key Concepts and Indicators**

1. Know flow in a food chain, food pyramid
2. Know relationships in an ecosystem
3. Identity relationships between living things

<b>FOURTH QUARTER</b>			
<b>Energy</b>			
PS 5	Explain that the energy found in nonrenewable resources such as fossil fuels (e.g., oil, coal and natural gas) originally came from the sun and may renew slowly over millions of years.	PS 8	Describe how renewable and nonrenewable energy resources can be managed (e.g., fossil fuels, trees and water).
PS 6	Explain that energy derived from renewable resources such as wind and water is assumed to be available indefinitely.		

**Northwestern Middle School  
Science Assessment Map**

**Grade: 6**

**Date Reviewed: December 2009**

<b>ESSENTIAL INDICATORS</b>	<b>SUPPORTING INDICATORS</b>
-----------------------------	------------------------------

**Vocabulary:** conservation, renewable, nonrenewable

**Essential Understandings: What every student must know**

1. Fossil fuels are made from once living things
2. Fossil fuels are nonrenewable
3. Renewable resources will last indefinitely

**Key Concepts and Indicators**

1. Know some forms of renewable resources
2. Explain why we need to conserve nonrenewable resources

<b>FOURTH QUARTER</b>			
<b>Energy-Electricity</b>			
		PS 7	Describe how electric energy can be produced from a variety of sources (e.g., sun, wind and coal).

<b>FOURTH QUARTER</b>			
<b>Tech &amp; Design</b>			
ST 2	Explain how decisions about the use of products and systems can result in desirable or undesirable consequences (e.g., social and environmental).	ST 5	Design and build a product or create a solution to a problem given one constraint (e.g., limits of cost and time for design and production, supply of materials and environmental effects).
		ST 4	Explain how the usefulness of manufactured parts of an object depend on how well their properties allow them to fit and interact with other materials.
		ST 3	Describe how automation (e.g., robots) has changed manufacturing including manual labor being replaced by highly-skilled jobs.
		ST 1	Explain how technology influences the quality of life.

Northwestern Middle School  
Science Assessment Map

Grade: 6

Date Reviewed: December 2009

ESSENTIAL INDICATORS	SUPPORTING INDICATORS
----------------------	-----------------------

Year Long			
		SWK 3	Identify ways scientific thinking is helpful in a variety of everyday settings.
		SWK 5	Describe how the pursuit of scientific knowledge is beneficial for any career and for daily life.
		SWK 4	Research how men and women of all countries and cultures have contributed to the development of science.