

Merrimack School District
Essential Learning Competencies

School	MMS
Discipline	Science
Course Title	8 th Grade Science

Quarter 1

Essential Learning Competencies	Links to the Rubrics/Standards/Competency	Formative Assessments	Summative Assessments
1. Demonstrate knowledge of scientific questions and methodology.	<p>COMMON RUBRIC PROFICIENCY CRITERIA</p> <ul style="list-style-type: none"> Classify the variables in an experiment as controlled, independent/manipulated, and dependent/responding. Choose appropriate methods for data collection. Choose the best types of graphs to display various data sets. Write a conclusion that cites data collected in an experiment to support or refute the hypothesis and identifies sources of experimental error. 	<p>Reviewing Experimental Design</p> <p>Graphing Practice Problems</p> <p>Science Skills: Graphing and Applying the Scientific Method</p> <p>3 Types of Graphs</p>	<p>Graphing Quiz</p> <p>Chemical Reaction Lab Report</p>
2. Demonstrate knowledge of the relationship between mass, volume, and density in Earth materials.	<p>COMMON RUBRIC PROFICIENCY CRITERIA</p> <ul style="list-style-type: none"> Define and discuss the terms <i>volume</i>, <i>mass</i>, and <i>density</i>. Choose the correct tool to accurately measure the mass, volume, and density of matter. Demonstrate the proper use of tools for measuring mass, volume and density. Apply appropriate units (g, cm³, cc, or g/cc) to measurements and calculations. Calculate density by using the formula $D=M/V$ Arrange a variety of objects from least to most dense. 	<p>Measurement Activity: Mass and Volume</p> <p>Density Cubes – Density of Quartz</p> <p>Density Color by Number</p> <p>PHET lab: Density</p> <p>Liquid Layers Challenge</p>	<p>Density Column Quiz</p> <p>Density of Chocolate Lab Report</p>
3. Demonstrates knowledge of how the transfer and transformation of energy are responsible for phenomena on Earth.	<p>COMMON RUBRIC PROFICIENCY CRITERIA</p> <ul style="list-style-type: none"> Distinguish the difference between Matter and Energy. Explain the effect of applying heat energy to a substance. Explain how natural resources are used for power by humans. Explain the advantages and disadvantages of renewable and non-renewable resources. 		<p>Energy Transfer Quiz</p> <p>Energy Resources Project</p>
4. Demonstrate knowledge of how matter can be classified based on its structure and properties.	<p>COMMON RUBRIC PROFICIENCY CRITERIA</p> <ul style="list-style-type: none"> Build or describe models of common compounds using the correct number and types of elements. Explain the classification of different items as “matter, energy, atom, molecule, element, and or compound”. Determine if a property is physical or chemical. Determine what properties are used to identify a specific substance. (rocks/minerals) 		<p>Atoms and Elements Quiz</p> <p>Physical/Chemical Properties Quiz</p> <p>Rocks and Minerals Project</p>

Quarter 2

Essential Learning Competencies	Links to the Rubrics/Standards/Competency	Formative Assessments	Summative Assessments
1. Demonstrate knowledge of scientific questions and methodology.	<p>COMMON RUBRIC PROFICIENCY CRITERIA</p> <ul style="list-style-type: none"> • Classify the variables in an experiment as controlled, independent/manipulated, and dependent/responding. • Choose appropriate methods for data collection. • Choose the best types of graphs to display various data sets. • Write a conclusion that cites data collected in an experiment to support or refute the hypothesis and identifies sources of experimental error. 		Test/Performance Assessed by common rubric proficiency criteria
2. Demonstrate knowledge of the relationship between mass, volume, and density in Earth materials.	<p>COMMON RUBRIC PROFICIENCY CRITERIA</p> <ul style="list-style-type: none"> • Distinguish the difference between the structural/compositional layers of the Earth. • Explain how density, heat and pressure effect the Earth and its atmosphere. 		Test/Performance Assessed by common rubric proficiency criteria
3. Demonstrates knowledge of how the transfer and transformation of energy are responsible for phenomena on Earth.	<p>COMMON RUBRIC PROFICIENCY CRITERIA</p> <ul style="list-style-type: none"> • Differentiate between conduction, convection, and radiation. • Explain how the uneven heating of the Earth affects weather and climate. 		Test/Performance Assessed by common rubric proficiency criteria
4. Demonstrates knowledge of how geologic events (plate tectonics, weather, impacts from space) can bring about changes on Earth, abruptly and over time.	<p>COMMON RUBRIC PROFICIENCY CRITERIA</p> <ul style="list-style-type: none"> • Explain how the Earth's crust is divided into plates which move in response to movement in the mantle. • Explain how Earth events can bring about changes on Earth's surface. • Explain how climate and energy effect geologic events. 		Test/Performance Assessed by common rubric proficiency criteria
5. Demonstrates knowledge of how the rotation and revolution of bodies in the universe affects the way that they appear from Earth.	<p>COMMON RUBRIC PROFICIENCY CRITERIA</p> <ul style="list-style-type: none"> • Explain how the regular and predictable motion of the Earth and Moon account for moon phases, tides, and eclipses. • Explain how the position and motion of the Earth and Sun account for seasons, years, day/night. 		Test/Performance Assessed by common rubric proficiency criteria

Quarter 3 NA ON MIDDLE SCHOOL LEVEL SEE QUARTER 1

Essential Learning Competencies	Links to the Rubrics/Standards/Competency	Formative Assessments	Summative Assessments
1.			
2.			
3.			
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Quarter 4 NA ON MIDDLE SCHOOL LEVEL SEE QUARTER 2

Essential Learning Competencies	Links to the Rubrics/Standards/Competency	Formative Assessments	Summative Assessments
1.			
2.			
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