

**SCIENCE AND TECHNOLOGY – *Understanding Matter and Energy***

**Grade 1**

1. assess uses of energy at home, at school, and in the community, and suggest ways to use less energy.

**Grade 2**

1. assess ways in which the uses of liquids and solids can have an impact on society and the environment.

**Grade 3**

1. assess the impact of various forces on society and the environment.

**Grade 4**

1. assess the impact on society and the environment of technological innovations related to light and sound.

**Grade 5**

1. evaluate the social and environmental impacts of processes used to make everyday products.

**Grade 6**

1. evaluate the impact of the use of electricity on both the way we live and the environment.

**Grade 7**

1. evaluate the social and environmental impacts of the use and disposal of pure substances and mixtures.

*[Name]* understands how we use energy at school and at home and can suggest ways to conserve energy (such as turning off lights or using electric devices).

Further discussion about energy and how to conserve it would benefit *[Name]*.

*[Name]* evaluated the social and environmental impacts of *[specific topic, such as the impacts on the environment of the evaporation process used in making maple syrup?]* *[He/she]* answered the investigation question using *[multiple media sources and even interviewed a local producer of maple syrup]* and created a *[specific product, such as notebook presentation, oral presentation, written summary]* to communicate *[his/her]* research.

<p><b>Grade 8</b> 1. analyse how the properties of fluids are used in various technologies, and assess the impact of these technologies on society and the environment.</p>	<p><i>[Name]</i> chose to complete a report on <i>[specific topic, such as the use of heavy hydraulic machinery in construction sites, or the use of Dialysis]</i>. <i>[He/she]</i> explained the impact of this technology on society and the environment.</p>	
<p><b>Grade 1</b> 2. investigate how different types of energy are used in daily life.</p> <p><b>Grade 2</b> 2. investigate the properties of and interactions among liquids and solids.</p> <p><b>Grade 3</b> 2. demonstrate an understanding of how forces cause movement and changes in movement.</p>		
<p><b>Grade 4</b> 2. investigate the characteristics and properties of light and sound.</p> <p><b>Grade 5</b> 2. conduct investigations that explore the properties of matter and changes in matter.</p> <p><b>Grade 6</b> 2. investigate the characteristics of static and current electricity, and construct simple circuits.</p>	<p><i>[Name]</i> conducted experiments that explored the properties of matter. <i>[He/She]</i> <i>[specific experiment, such as heated up ice or added water to corn starch to make a semi-solid]</i>.</p>	
<p><b>Grade 7</b> 2. investigate the properties and applications of pure substances and mixtures.</p>	<p><i>[Name]</i> investigated ways to separate <i>[specific task, such as given mixtures, including one of paper clips, sand and iron filings and another of sawdust, sand and salt]</i>. Using the properties of pure substances and mixtures, <i>[Name]</i> used such processes as filtration and magnetism to separate the given mixtures.</p>	<p><i>[Name]</i> worked in a group to conduct investigations to separate <i>[specific task, such as given mixtures, including one of paper clips, sand and iron filings and another of sawdust, sand and salt]</i>. Using the properties of pure substances and mixtures, <i>[Name]</i> used such processes as filtration and magnetism to separate the given mixtures, but was unable to explain why these processes worked. Asking more questions throughout</p>

<p><b>Grade 8</b> 2. investigate the properties of fluids.</p>	<p><i>[Name]</i> was able to identify <i>[specific method, such as through tasting]</i> the difference between a substance with more solute than solvent (concentrate) and one with more solvent than solute (dilute), and explain the reason for the difference.</p> <p><i>[Name]</i> used proper scientific terminology (e.g., viscosity, hydraulic, density) when <i>[he/she]</i> conducted investigations involving fluids. <i>[Name]</i> constructed and calibrated a hydrometer and used it to measure the densities of a variety of liquids.</p>	<p>investigations and participating more in class discussions will help <i>[Name]</i> understand the reasons behind certain processes.</p>
<p><b>Grade 1</b> 3. demonstrate an understanding that energy is something that is needed to make things happen, and that the sun is the principal source of energy for the earth.</p> <p><b>Grade 2</b> 3. demonstrate an understanding of the properties of liquids and solids.</p> <p><b>Grade 3</b> 3. demonstrate an understanding of how forces cause movement and changes in movement.</p>		
<p><b>Grade 4</b> 3. demonstrate an understanding of light and sound as forms of energy that have specific characteristics and properties.</p> <p><b>Grade 5</b> 3. demonstrate an understanding of the properties of matter and changes in matter.</p> <p><b>Grade 6</b> 3. demonstrate an understanding of the principles of electrical energy and its</p>		

<p>transformation into and from other forms of energy.</p>		
<p><b>Grade 7</b> 3. demonstrate an understanding of the properties of pure substances and mixtures, and describe these characteristics using the particle theory.</p> <p><b>Grade 8</b> 3. demonstrate an understanding of the properties and uses of fluids.</p>	<p><i>[Name] used the particle theory of matter to describe properties of pure substances and mixtures. [He/she] showed [his/her] understanding of this when [he/she] explained that [specific evidence, such as magnetism works to separate sand and iron filings because the particles of one substance are different from those of the other--iron filings are magnetic and sand is not].</i></p> <p><i>[Name's] understanding of the properties and uses of fluids was shown through in-class conversations and [his/her] [specific product, such as report, presentation, slide show] about [specific topic, such as hydraulic machinery].</i></p>	<p><i>[Name] worked in a group to conduct investigations about the properties of fluids, but was unable to communicate the conclusion of these investigations. Asking more questions throughout investigations and participating more in class discussions will help [Name] understand the reasons behind certain processes.</i></p> <p><i>It is important that [Name] become more involved in the investigations conducted in science class so that [he/she] may have the opportunity to fully understand the material being taught.</i></p>