

Grade Level	6-8	Unit of Study	Inquiry (Reporting Strand 7)	Time Frame	Intro in August 10-September 30(Ongoing)
Essential Standards/ Teaching Points	<ol style="list-style-type: none"> <li>1. <b>Determine the appropriate tools and techniques to collect data. 7.1.B.b</b> <ul style="list-style-type: none"> <li>● <i>Make qualitative and quantitative observations using the five senses.</i></li> <li>● <i>Use a variety of tools and equipment to gather data (e.g. microscopes, thermometers, analog and digital meters, computers, spring scales, balances, metric rulers, graduated cylinders, stopwatches).</i></li> <li>● <i>Measure length to the nearest milliliter, force (weight) to the nearest Newton, temperature to the nearest degree Celsius, time to the nearest second.</i></li> <li>● <i>Compare amounts/measurements.</i></li> <li>● <i>Judge whether measurements and computations of quantities are reasonable.</i></li> </ul> </li> <li>2. <b>Identify and describe the importance of the independent variable, dependent variable, control of constants, and multiple trials. 7.1.A.b</b></li> <li>3. <b>Formulate testable questions and hypotheses. 7.1.A.a</b></li> <li>4. <b>Calculate the range and average/mean of a set of data. 7.1.B.g</b></li> <li>5. <b>Communicate the procedures and results of investigations and explanations through: oral presentations, drawings and maps, data tables (allowing for the recording and analysis of data relevant to the experiment such as independent and dependent variables, multiple trials, beginning and ending times or temperatures, derived quantities) graphs (bar, single line and pictograph), writings and use data as support for observed patterns and relationships to make predictions to be tested. 7.1.D.a and 7.1.C.b</b></li> <li>6. <b>Use quantitative and qualitative data as support for reasonable explanations (conclusions). 7.1.C.a</b> <ul style="list-style-type: none"> <li>● <i>Design and conduct a valid experiment. 7.1.A.c</i></li> <li>● <i>Recognize the possible effects of errors in observations, measurements, and calculations on the formulation of explanations (conclusions).</i></li> <li>● <i>Evaluate the reasonableness of an explanation (conclusion).</i></li> <li>● <i>Evaluate the design of an experiment and make suggestions for reasonable improvements or extensions.</i></li> <li>● <i>Recognize that different kinds of questions suggest different kinds of scientific investigations (e.g. some involve observing and describing objects, organisms or events; some involve collecting specimens; some involve experiments; some involve making observations in nature; some involve discovery of new objects and phenomena; some involve making models).</i></li> <li>● <i>Acknowledge there is no fixed procedure called the scientific method, but some investigations involve systematic observations, carefully collected and relevant evidence, logical reasoning, and imagination in developing hypotheses and other explanations.</i></li> </ul> </li> </ol>				

**Student Proficiency Statements**

- I can determine appropriate tools to collect data.
- I can describe the importance of variables, constants and multiple trials.
- I can formulate a testable question and hypothesis.
- I can calculate the range and mean of a set of data.
- I can organize data, information and ideas into useful forms (including data tables, line/bar graphs) for analysis and make predictions.
- I can analyze data to determine if it supports the hypothesis (conclusion).

**Literacy Resources**

The Nature of Science and Technology textbook (Chapters 1-2)

[What's Wrong with the Scientific Method?](#)

[Collecting Data Dangerous Work \(#3, 6\)](#)

[Should US Use the Metric System? \(#9\)](#)

[Why We Don't Use the Metric System \(#9\)](#)

