

MIDDLE SCHOOL AND SEQUENCE
Scientific Reasoning and Logic Strand

SKILL	GRADE 6	GRADE 7	GRADE 8
<i>Observing</i>	6.1a—make observations involving fine discriminations between objects and organisms		
<i>Communicating</i>	6.1i—organize and communicate through graphical representations (graphs, charts, diagrams)	LS.1a—data are organized into tables showing repeated trials and means	<p>PS.1d—use triple beam and electronic balances, thermometers, metric rulers, graduated cylinders, and spring scales to gather data</p> <p>PS.1e—express numbers in scientific notation where appropriate</p> <p>PS.1h—construct and interpret data tables showing the independent and dependent variables, derived quantities, and the number of trials</p> <p>PS.1f—use research skills that involve a variety of resources</p> <p>PS.1j—construct and interpret frequency distributions, scattergrams, line plots, and histograms</p> <p>PS.1m—present experimental results in appropriate written form.</p>
<i>Classifying and Sequencing</i>	6.1b—develop a classification system based on multiple attributes		
<i>Measuring</i>	6.1c—record precise and approximate measures 6.1h—collect, record, analyze, and report data using appropriate metric measurement	LS.1c—use SI (metric) units	<p>PS.1b—measure and report length, mass, volume, density, temperature, weight, and force accurately using the International System of Units (SI—metric)</p> <p>PS.1d—use triple beam and electronic balances, thermometers, metric rulers, graduated cylinders, and spring scales to gather data</p>
<i>Predicting</i>	6.1f—devise a method to test the validity of predictions and inferences		PS.1k—make valid conclusions after analyzing data

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MIDDLE SCHOOL SCOPE AND SEQUENCE
Scientific Reasoning and Logic Strand

SKILL	GRADE 6	GRADE 7	GRADE 8
<i>Predicting</i>	6.1f—devise a method to test the validity of predictions and inferences 6.1d—use scaled models to estimate distance, volume, and quantity	LS.1h—construct, interpret, and use continuous line graphs to make predictions	
<i>Hypothesizing</i>	6.1e—state hypotheses in ways that identify the independent (manipulated) and depending (responding) variables	LS.1g—control variables to test hypotheses and repeat trials	
<i>Using Variables in Experimentation</i>	6.1g—manipulate one variable over time with many repeated trials	LS.1b—define variables LS1.e—identify sources of experimental error LS.1f—identify dependent, independent variables and constants LS.1g—control variables to test hypotheses and repeat trials	PS.1g—Identify independent and dependent variables, constants, controls, and repeated trials PS.1i—use research methods to investigate practical problems and questions
<i>Interpreting, Analyzing, and Evaluating Data</i>	6.1f—devise a method to test the validity of predictions and inferences	LS.1h—construct, interpret, and use continuous line graphs to make predictions LS.1i—evaluate and defend interpretations of the same set of data	PS.1h—construct and interpret data tables showing the independent and dependent variables, derived quantities, and the number of trials PS.1i—construct and interpret data tables for descriptive statistics showing specific measures of central tendency, derived quantities, and number of trials PS.1j—construct and interpret frequency distributions, scattergrams, line plots, and histograms PS.1k—make valid conclusions after analyzing data
<i>Designing, Constructing, & Using Models</i>	6.1j—design scale models to explain a sequence	LS.1d—construct models to illustrate and explain phenomena	