

SCIENCE COLLEGE READINESS STANDARDS

For students typically not majoring in a science related field with a reduced emphasis in Mathematics

College of Lake County

Interpretation of Data	Scientific Investigation	Evaluation of Models, Inferences, and Experimental Results
<ul style="list-style-type: none"> • Locate data in simple tables and graphs • Be familiar with different types of graphs (e.g., line graphs, pie charts, etc) • Be familiar with units of measurement commonly used in science • Select a single piece of data from a simple data presentation (e.g., a table or graph with two or three variables; a food web diagram) • Identify basic features of a table graph, or diagram (e.g., headings, units of measurement, axis labels) • Locate several data points in a simple table or graph and make comparisons. • Be familiar with common terms used in science (e.g., <i>star</i>, <i>force</i>, <i>mineral</i>) • Create basic tables and graphs from sets of scientific data • Read newspaper and magazine articles pertaining to science and technology and discuss main points with peers • Describe trends and relationships in data displayed in simple tables and graphs • Select two or more pieces of data from a simple data • Understand basic scientific terminology • Find Basic information in a brief body of text • Determine how the value of one variable changes as the value of another variable changes in a simple data presentation • Display data gathered in laboratory exercises in a variety of formats (e.g., line graphs, pie charts, bar graphs) • Select data from a complex data presentation (e.g., a table or graph with more than three variables; a phase diagram) • Compare or combine data from a simple data presentation (e.g., order or sum from a table) • Translate information into a table, graph, or diagram • Examine line graphs to determine if they show a direct or inverse relationship between variables • Be familiar with scatter plots • Determine a simple mathematical relationship between two variables • Integrate scientific information from popular sources (e.g., newspapers, magazines, the Internet) with that found in textbooks • Be familiar with metric units • Have a basic knowledge of mathematical operations • Be familiar with making estimations and rounding 	<ul style="list-style-type: none"> • Observe experiments being performed and discuss what was done • Understand the methods and tools used in a simple experiment • Perform experiments that require multiple steps • Conduct a simple experiment that makes use of a control group • Understand the methods used in a moderately complex experiment • Understand a simple experimental design • Identify a control in an experiment • Identify similarities and differences between experiments • Perform several repetitions of an experiment to determine the reliability of results • Successfully differentiate between science, pseudoscience and frontier science. • Demonstrate the difference between appropriate and inappropriate scientific sources. • Construct an appropriate research paper using formal written English. 	<ul style="list-style-type: none"> • Discuss what hypotheses and conclusions are and how they are different from each other • Read descriptions of actual experiments (e.g., completed science fair research, simple experiments for science education journals) and discuss whether the conclusions that were made support or contradict the hypotheses • Formulate hypotheses, predictions, or conclusions based on the results of an experiment • Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model • Identify key issues or assumptions in a model • Evaluate whether the data produced by an experiment adequately support a given conclusion • Compare and contrast two different models about a scientific phenomenon • Represent experimental results graphically • Use the information above to construct a lab report using formal written English.

SCIENCE COLLEGE READINESS STANDARDS

For students majoring in a science related field with an emphasis in Mathematics

College of Lake County

Interpretation of Data	Scientific Investigation	Evaluation of Models, Inferences, and Experimental Results
<ul style="list-style-type: none"> Locate data in simple tables and graphs Be familiar with different types of graphs (e.g., line graphs, pie charts, etc) Be familiar with units of measurement commonly used in science Select a single piece of data from a simple data presentation (e.g., a table or graph with two or three variables; a food web diagram) Identify basic features of a table graph, or diagram (e.g., headings, units of measurement, axis labels) Locate several data points in a simple table or graph and make comparisons. Be familiar with common terms used in science (e.g., <i>star</i>, <i>force</i>, <i>mineral</i>) Create basic tables and graphs from sets of scientific data Read newspaper and magazine articles pertaining to science and technology and discuss main points with peers Describe trends and relationships in data displayed in simple tables and graphs Select two or more pieces of data from a simple data Understand basic scientific terminology Find Basic information in a brief body of text Determine how the value of one variable changes as the value of another variable changes in a simple data presentation Display data gathered in laboratory exercises in a variety of formats (e.g., line graphs, pie charts, bar graphs) Select data from a complex data presentation (e.g., a table or graph with more than three variables; a phase diagram) Compare or combine data from a simple data presentation (e.g., order or sum from a table) Translate information into a table, graph, or diagram Examine line graphs to determine if they show a direct or inverse relationship between variables Be familiar with scatterplots Determine a simple mathematical relationship between two variables Integrate scientific information from popular sources (e.g., newspapers, magazines, the Internet) with that found in textbooks Be familiar with metric units Have a basic knowledge of mathematical operations Be familiar with making estimations and rounding Have a basic understanding of scientific notation and significant figures Have a basic knowledge of geometry Have a fundamental knowledge of algebra Solve quadratic equations Solve systems of two equations with two unknowns Be familiar with exponents and logarithms 	<ul style="list-style-type: none"> Observe experiments being performed and discuss what was done and why Understand the methods and tools used in a simple experiment Perform experiments that require multiple steps Conduct a simple experiment that makes use of a control group Understand the methods and tools used in a moderately complex experiment Understand a simple experimental design Identify a control in an experiment Identify similarities and differences between experiments Perform several repetitions of an experiment to determine the reliability of results Successfully differentiate between science, pseudoscience and frontier science. Demonstrate the difference between appropriate and inappropriate scientific sources. Construct an appropriate research paper using formal written English. 	<ul style="list-style-type: none"> Discuss what hypotheses and conclusions are and how they are different from each other Read descriptions of actual experiments (e.g., completed science fair research, simple experiments for science education journals) and discuss whether the conclusions that were made support or contradict the hypotheses Formulate hypotheses, predictions, or conclusions based on the results of an experiment Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model Identify key issues or assumptions in a model Evaluate whether the data produced by an experiment adequately support a given conclusion Compare and contrast two different models about a scientific phenomenon Represent experimental results graphically Analyze experimental results Create mathematical models based upon experimental results Be familiar with error analysis Use the information above to construct a lab report using formal written English.