## Science College Readiness Standards

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

**College of Lake County**

<table>
<thead>
<tr>
<th>Interpretation of Data</th>
<th>Scientific Investigation</th>
<th>Evaluation of Models, Inferences, and Experimental Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Locate data in simple tables and graphs</td>
<td>• Observe experiments being performed and discuss what was done</td>
<td>• Discuss what hypotheses and conclusions are and how they are different from each other</td>
</tr>
<tr>
<td>• Be familiar with different types of graphs (e.g., line graphs, pie charts, etc)</td>
<td>• Understand the methods and tools used in a simple experiment</td>
<td>• 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</td>
</tr>
<tr>
<td>• Be familiar with units of measurement commonly used in science</td>
<td>• Perform experiments that require multiple steps</td>
<td>• Formulate hypotheses, predictions, or conclusions based on the results of an experiment</td>
</tr>
<tr>
<td>• 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)</td>
<td>• Conduct a simple experiment that makes use of a control group</td>
<td>• Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model</td>
</tr>
<tr>
<td>• Identify basic features of a table graph, or diagram (e.g., headings, units of measurement, axis labels)</td>
<td>• Understand the methods used in a moderately complex experiment</td>
<td>• Identify key issues or assumptions in a model</td>
</tr>
<tr>
<td>• Locate several data points in a simple table or graph and make comparisons.</td>
<td>• Understand a simple experimental design</td>
<td>• Evaluate whether the data produced by an experiment adequately support a given conclusion</td>
</tr>
<tr>
<td>• Be familiar with common terms used in science (e.g., star, force, mineral)</td>
<td>• Identify a control in an experiment</td>
<td>• Compare and contrast two different models about a scientific phenomenon</td>
</tr>
<tr>
<td>• Create basic tables and graphs from sets of scientific data</td>
<td>• Identify similarities and differences between experiments</td>
<td>• Represent experimental results graphically</td>
</tr>
<tr>
<td>• Read newspaper and magazine articles pertaining to science and technology and discuss main points with peers</td>
<td>• Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model</td>
<td>• Use the information above to construct a lab report using formal written English.</td>
</tr>
<tr>
<td>• Describe trends and relationships in data displayed in simple tables and graphs</td>
<td>• Perform several repetitions of an experiment to determine the reliability of results</td>
<td></td>
</tr>
<tr>
<td>• Select two or more pieces of data from a simple data</td>
<td>• Display data gathered in laboratory exercises in a variety of formats (e.g., line graphs, pie charts, bar graphs)</td>
<td></td>
</tr>
<tr>
<td>• Understand basic scientific terminology</td>
<td>• Compare or combine data from a simple data presentation (e.g., order or sum from a table)</td>
<td></td>
</tr>
<tr>
<td>• Find Basic information in a brief body of text</td>
<td>• Translate information into a table, graph, or diagram</td>
<td></td>
</tr>
<tr>
<td>• Determine how the value of one variable changes as the value of another variable changes in a simple data presentation</td>
<td>• Examine line graphs to determine if they show a direct or inverse relationship between variables</td>
<td></td>
</tr>
<tr>
<td>• Display data gathered in laboratory exercises in a variety of formats (e.g., line graphs, pie charts, bar graphs)</td>
<td>• Be familiar with scatter plots</td>
<td></td>
</tr>
<tr>
<td>• Select data from a complex data presentation (e.g., a table or graph with more than three variables; a phase diagram)</td>
<td>• Determine a simple mathematical relationship between two variables</td>
<td></td>
</tr>
<tr>
<td>• Compare or combine data from a simple data presentation (e.g., order or sum from a table)</td>
<td>• Integrate scientific information from popular sources (e.g., newspapers, magazines, the Internet) with that found in textbooks</td>
<td></td>
</tr>
<tr>
<td>• Translate information into a table, graph, or diagram</td>
<td>• Be familiar with scatter plots</td>
<td></td>
</tr>
<tr>
<td>• Examine line graphs to determine if they show a direct or inverse relationship between variables</td>
<td>• Determine a simple mathematical relationship between two variables</td>
<td></td>
</tr>
<tr>
<td>• Be familiar with scatter plots</td>
<td>• Integrate scientific information from popular sources (e.g., newspapers, magazines, the Internet) with that found in textbooks</td>
<td></td>
</tr>
<tr>
<td>• Determine a simple mathematical relationship between two variables</td>
<td>• Be familiar with metric units</td>
<td></td>
</tr>
<tr>
<td>• Integrate scientific information from popular sources (e.g., newspapers, magazines, the Internet) with that found in textbooks</td>
<td>• Have a basic knowledge of mathematical operations</td>
<td></td>
</tr>
<tr>
<td>• Be familiar with metric units</td>
<td>• Be familiar with making estimations and rounding</td>
<td></td>
</tr>
<tr>
<td>• Have a basic knowledge of mathematical operations</td>
<td>• Be familiar with making estimations and rounding</td>
<td></td>
</tr>
</tbody>
</table>

Developed from ACT college readiness standards with an ACT score range of 20-23 and input from CLC science faculty
### Interpretation of Data
- 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., star, force, mineral)
- 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

### Scientific Investigation
- 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.

### Evaluation of Models, Inferences, and Experimental Results
- 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.