

ASSESSMENT CRITERIA

SCIENCE SKILL	BEFORE THIS CLASS <i>PURE SCIENCE Skills to Strengthen</i>	DURING THIS CLASS <i>APPLIED SCIENCE Skills to Develop</i>
<i>Science Skill 1</i> Ask Questions and Define Problems	<ul style="list-style-type: none"> • Ask cause-and-effect questions that can be tested. • Distinguish between scientific (testable) and non-scientific (non-testable) questions. • Pose specific questions to request clarification on and satisfy curiosity around relevant concepts. 	<ul style="list-style-type: none"> • Ask questions that draw connections between real-world observations and scientific and/or legal models or theories. • Ask questions that challenge the premise of an argument, the interpretation of a set of data, the practicality of a solution, or the reliability of results. • Refine questions to make them more clear, specific, relevant, and testable given the resources, laboratory techniques, and documentation available. • Define a real-world problem or mystery that involves the development of a process or system with clear criteria for an acceptable solution. • Self-assess areas of your own work for improvement and for celebration.
<i>Science Skill 2</i> Develop and Use Models	<ul style="list-style-type: none"> • Summarize a diagram, drawing, graph, physical replica, diorama, or flow chart. 	<ul style="list-style-type: none"> • Evaluate the benefits and limitations of a model. • Refine a model to better represent a scientific concept or proposed explanation. • Construct an original diagram, drawing, physical replica, diorama, or flow chart to represent a scientific concept or proposed explanation.
<i>Science Skill 3</i> Plan and Carry Out Investigations	<ul style="list-style-type: none"> • Plan and conduct an experiment or simulation that produces data. • Make predictions about the effects of changing one variable on another variable. 	<ul style="list-style-type: none"> • Maintain a professionally-formatted laboratory notebook. • Plan and conduct experiments or simulations that produce quantitative (numerical) data. • Select the appropriate laboratory equipment to collect and record data. • Design protocols to ensure that experiments are conducted in a safe, ethical manner. • Evaluate the design of an experiment for its ability to hold any variables that are not under investigation constant. • Refine the design of an experiment or simulation to make the results more reliable.

SCIENCE SKILL	BEFORE THIS CLASS <i>PURE SCIENCE Skills to Strengthen</i>	DURING THIS CLASS <i>APPLIED SCIENCE Skills to Develop</i>
<i>Science Skill 4</i> Analyze and Interpret Data	<ul style="list-style-type: none"> • Represent data in tables and graphs to visualize patterns that indicate relationships. • Compare data sets from different sources. • Analyze data to make valid and reliable scientific claims. • Summarize the methods and findings of a research investigation. 	<ul style="list-style-type: none"> • Identify limitations of data analysis, such as measurement error, sample selection, and human bias. • Evaluate the impact of new data on a working explanation. • Connect research findings to larger unsettled questions and claims.
<i>Science Skill 5</i> Use Mathematics and Computational Thinking	<ul style="list-style-type: none"> • Use counting and numbers to identify and describe patterns. • Use mathematic formulas to calculate ratios, rates, and percentages. 	<ul style="list-style-type: none"> • Explain how mathematic representations relate to scientific models or theories. • Estimate whether a calculated answer is reasonable.
<i>Science Skill 6</i> Construct Explanations and Design Solutions	<ul style="list-style-type: none"> • Construct an explanation based on observations. • Describe the evidence that supports an explanation. 	<ul style="list-style-type: none"> • Make claims about the relationship between two variables. • Revise explanations based on new data and additional information. • Evaluate how well a data set supports an explanation or conclusion. • Design and evaluate a solution to a real-world problem or mystery.
<i>Science Skill 7</i> Engage in Argument from Evidence	<ul style="list-style-type: none"> • Distinguish between observations and inferences. • Distinguish between claims that are supported by evidence and claims that are not supported by evidence. • Justify a claim using evidence. • Actively listen to arguments to indicate agreement or disagreement based on the evidence. 	<ul style="list-style-type: none"> • Compare and evaluate competing arguments. • Respectfully provide constructive critiques on arguments or working explanations. • Thoughtfully and respectfully respond to diverse perspectives, include constructive criticism. • Determine additional information needed to resolve contradictions.
<i>Science Skill 8</i> Obtain, Evaluate, and Communicate Information	<ul style="list-style-type: none"> • Obtain information from simple scientific texts, videos, and interactives. • Compare information in written texts to information presented in tables, graphs, and diagrams. • Cite sources of information that inform an investigation. • Share new ideas and possible solutions with peers. • Listen and respond to peer contributions. • Loudly and clearly respond to whole-class peer and instructor questions and to the contributions of other participants in the class discussion. 	<ul style="list-style-type: none"> • Critically read news articles, official reports, and legal documents to determine the central ideas and conclusions. • Evaluate the validity and reliability of an information source. • Communicate information and defend claims in writing and through oral presentations. • Share positive feedback on and suggestions for refining work with peers. • Ensure that all members of the work group felt listened to, supported, and appreciated.

The BEFORE THIS CLASS (pure science) column serves as the starting point for this course; these are skills that you have encountered in Regents science courses and will continue to work on in this course. Upon completion of this course, you should be able to perform all the skills in the DURING THIS CLASS (applied science) column.