

## Science and Engineering Practices Progression for Students and Families: Grades 6-8

Each of the practices is described through questions for teachers, families and students. “Can I” questions can be posed during a lesson as a tool to help students learn how to engage in the practices. “Did I” questions can be used to help students reflect on their use of the practices after a lesson or unit.

<b>6-8</b>	<b>PRACTICE 1: Asking Questions and Defining Problems</b>	<b>PRACTICE 2: Developing and Using Models</b>	<b>PRACTICE 3: Planning and Carrying Out Investigations</b>	<b>PRACTICE 4: Analyzing and Interpreting Data</b>
<b>Science and Engineering Practices</b> CAN I? DID I?	<p><b>Can I... ? Did I...?</b></p> <ol style="list-style-type: none"> <li>Ask a question when I observe something that is new or unexpected to clarify or gather more information?</li> <li>Ask questions that require evidence to answer?</li> <li>Ask a question that helps to identify relationships between variables?</li> <li>Ask questions that challenge the logic of an argument or the interpretation of a data set?</li> <li>Describe a design problem that can be solved by creating a method or a system and that meets criteria and constraints?</li> </ol>	<p><b>Can I... ? Did I...?</b></p> <ol style="list-style-type: none"> <li>Evaluate and explain the limitations of a model?</li> <li>Make or revise a model based on evidence?</li> <li>Develop or use a model to:               <ul style="list-style-type: none"> <li>• make predictions?</li> <li>• describe the natural world?</li> <li>• describe unobservable relationships?</li> <li>• gather data?</li> <li>• test ideas?</li> </ul> </li> </ol>	<p><b>Can I... ? Did I...?</b></p> <ol style="list-style-type: none"> <li>Work alone or in a group to plan an investigation?</li> <li>Identify which variable changes and which variable stays the same in an experiment?</li> <li>Organize data?</li> <li>Decide how much data to collect?</li> <li>Collect data as evidence to help answer scientific questions or test a design?</li> <li>Collect data about how something works under different conditions?</li> </ol>	<p><b>Can I... ? Did I...?</b></p> <ol style="list-style-type: none"> <li>Make graphs that show mathematical relationships?</li> <li>Use graphs to identify relationships in large data sets?</li> <li>Figure out if a variable is related to or causes a change in the relationship?</li> <li>Use data as evidence to explain why something happened?</li> <li>Describe the data by calculating the mean, median, or mode and range?</li> <li>Evaluate the limitations of our data, tools, or systems?</li> <li>Compare and contrast data to look for similarities and differences?</li> <li>Find the range in which my object, tool, process or system works best?</li> </ol>

<b>6-8</b>	<b>PRACTICE 5: Using Mathematical and Computational Thinking</b>	<b>PRACTICE 6: Constructing Explanations and Designing Solutions</b>	<b>PRACTICE 7: Engaging in Argument from Evidence</b>	<b>PRACTICE 8: Obtaining, Evaluating, and Communicating Information</b>
<b>Science and Engineering Practices</b> CAN I? DID I?	<p><b>Can I... ? Did I...?</b></p> <ol style="list-style-type: none"> <li>Use digital tools to analyze data for patterns and trends?</li> <li>Use mathematical models to describe or support a scientific conclusion or a design solution?</li> <li>Create a series of ordered steps (algorithm) to solve a problem?</li> <li>Apply calculations that are used in math class (ratio, rate, percent, etc.) to scientific questions and engineering problems?</li> <li>Use digital tools and/or math to test and compare engineering solutions?</li> </ol>	<p><b>Can I... ? Did I...?</b></p> <ol style="list-style-type: none"> <li>Construct an explanation using sufficient and appropriate evidence from valid and reliable sources (including my own experiments)?</li> <li>Construct an explanation using evidence and scientific ideas (reasoning) to show how the evidence supports the claim?</li> <li>Use scientific ideas to create or test an object, tool, process, or system?</li> <li>Use an engineering design process in a project to solve a problem that meets specific requirements?</li> <li>Refine how well a design works by prioritizing the design criteria, testing, and making changes to my design?</li> </ol>	<p><b>Can I... ? Did I...?</b></p> <ol style="list-style-type: none"> <li>Examine the evidence in two arguments on the same topic to see how it is used to support the different claims.</li> <li>Respectfully provide and receive feedback on an argument by citing evidence, and asking and answering questions?</li> <li>Create an argument with a claim, evidence, and reasoning that agrees or disagrees with an existing explanation or model?</li> <li>Think about how others might react to the argument being made?</li> <li>Work with others to create criteria and choose the design solution that best meets the criteria?</li> <li>Make an argument that supports or refutes different designs, processes, or systems based on specific criteria and constraints?</li> </ol>	<p><b>Can I... ? Did I...?</b></p> <ol style="list-style-type: none"> <li>Read and identify the main ideas, patterns, and/or evidence within informational texts and reliable media?</li> <li>Use observations and measurements from text and reliable media to clarify claims and results?</li> <li>Use evidence to critique the quality of the source and of the content?</li> <li>Reconsider a scientific claim, explanation or argument when presented with competing evidence?</li> <li>Communicate information in writing or oral presentations using various formats?</li> </ol>