

Science and Engineering Practices Progression for Students and Families: Grades 3-5

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.

3-5	PRACTICE 1: Asking Questions and Defining Problems	PRACTICE 2: Developing and Using Models	PRACTICE 3: Planning and Carrying Out Investigations	PRACTICE 4: Analyzing and Interpreting Data
Science and Engineering Practices CAN I? DID I?	<p>Can I... ? Did I...?</p> <ul style="list-style-type: none"> a) Ask questions about what would happen if one thing were changed? b) Identify whether or not an experiment is needed to answer a question? c) Ask challenging questions that cannot be answered with a yes or no? d) Make a prediction based on patterns I observed and data I collected? e) Use what I know to describe a problem that can be solved by creating or changing an object, tool or process with the resources that are available? 	<p>Can I... ? Did I...?</p> <ul style="list-style-type: none"> a) Describe what the model explains well? b) Explain how a model might also confuse us? c) Work with others to make or improve a model? d) Make or use my model to test predictions and changes? e) Test cause and effect relationships using a model? f) Make a diagram or prototype to show an idea for a new object, tool, or process? 	<p>Can I... ? Did I...?</p> <ul style="list-style-type: none"> a) Work with others to plan and do a science investigation where data is collected? b) Plan how to collect data and what tools to use? c) Use an experiment that changes only one thing (fair test) to collect data during an investigation? d) Gather data that can be used as evidence to explain why things happen? e) Make a prediction about what would happen if one thing were changed in an experiment? f) Compare two different models to determine which one works better? 	<p>Can I... ? Did I...?</p> <ul style="list-style-type: none"> a) Make a table and/or graph of the data? b) Look for patterns in data that show how things interact (relationships)? c) Look carefully at the data in order to explain something? d) Look for similarities and differences in data collected by different groups? e) Use data to improve a problem or design?

3-5	PRACTICE 5: Using Mathematical and Computational Thinking	PRACTICE 6: Constructing Explanations and Designing Solutions	PRACTICE 7: Engaging in Argument from Evidence	PRACTICE 8: Obtaining, Evaluating, and Communicating Information
Science and Engineering Practices CAN I? DID I?	<p>Can I... ? Did I...?</p> <ul style="list-style-type: none"> a) Decide when it is best to use data in the form of numbers or words? b) Organize data and look for relationships and patterns? c) Describe, measure, estimate and/or graph data to address questions and problems? d) Use math to make a graph or a chart to compare solutions? 	<p>Can I... ? Did I...?</p> <ul style="list-style-type: none"> a) Observe, measure and look for patterns to use as evidence? b) Use evidence and scientific ideas to create an explanation or solve a problem? c) Identify and organize evidence to support an explanation? d) Create more than one solution to a problem and compare them to see which one best meets the design requirements? e) Notice relationships and use evidence to explain why they happen? 	<p>Can I... ? Did I...?</p> <ul style="list-style-type: none"> a) Make a claim and support it with evidence and reasoning? b) Compare and improve arguments based on the evidence? c) Improve an argument by asking classmates questions or listening to their feedback? d) Decide how accurate a claim is about a cause and its effect using data? e) Argue to show which explanation, model, tool, or solution works best? 	<p>Can I... ? Did I...?</p> <ul style="list-style-type: none"> a) Use what I learn from grade level books and websites to explain scientific ideas or the solution to a problem? b) Decide if the source of information is likely to be fictional or real? c) Use different sources of information to support an explanation or argument? d) Gather information from graphs, tables, charts and diagrams to use as evidence? e) Share ideas through speaking and writing in different ways?