### Science and Engineering Practices Used with the *Uncovering Student Ideas in Science* Probes

<table>
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<th>Scientific and Engineering Practice</th>
<th>When presented with a probe, students will:</th>
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| Asking questions and defining problems                       | • Ask further questions about the phenomenon or concept  
• Turn the probe into a question for investigation  
• Turn the probe into a question for obtaining information  
• Turn the probe into a problem to be solved |
| Developing and using models                                  | • Use drawings to support their explanation  
• Describe what type of model they could use to explain the concept or phenomenon  
• Critique models used to explain the concept or phenomenon |
| Planning and carrying out investigations (for P-E-O probes)   | • Make predictions and explain their reasoning  
• Develop a hypothesis if they have prior knowledge or made observations for a tentative explanation  
• Design and carry out an investigation to test predictions or hypotheses |
| Analyzing and interpreting data                              | • Compare predictions or hypotheses to what is actually observed  
• Look for patterns or relationships to help them answer the probe question |
| Using mathematics and computational thinking                 | • Use mathematics to describe a pattern or explain an answer  
• Use measurement to commit to an answer choice |
| Constructing explanations and designing solutions             | • Explain initial answer choice based on experiences or prior knowledge  
• Revise answer choice and initial explanation and construct new (scientific) explanation using data from investigation or information sources  
• Use knowledge of science to design a solution to a problem |
| Engaging in argument from evidence                            | • Construct an argument with evidence to explain and defend an answer choice  
• Evaluate the arguments of others |
| Obtaining, evaluating, and communicating information          | • Use text or other information sources to support or construct a new explanation or solution to a probe  
• Use tables, charts, and graphs in text to support or construct a new explanation or solution to a probe  
• Describe what type of information is needed to explain the phenomenon or solve the problem. |