Science and Engineering Practice
Asking Questions & Defining Problems

- How does _____ ask questions based on observations to find more information about the natural and/or designed world(s)?
- How does _____ ask and/or identify questions that can be answered by an investigation?
- What prior knowledge does _____ use to inform his/her questioning process?
- How does _____ predict reasonable outcomes based on patterns such as cause and effect relationships?
- What criteria for success and constraints on materials, time, or cost does _____ include as part of their defined problem?
- How does _____define a simple problem that can be solved through the development of a new or improved object or tool?

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Science and Engineering Practice
Developing and Using Models

- How does _____ develop drawings or diagrams to describe phenomena?
- How does _____ develop a physical model to describe phenomena?
- How does _____ develop and/or use a model to represent amounts, relationships, relative scales (bigger, smaller), and/or patterns?
- How does _____ use a model test cause and effect relationships or interactions in a system?
- How does _____ develop drawings or diagrams to show a proposed object, tool, or process?
- How does _____ develop a physical prototype to show a proposed object, tool, or process?

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Science and Engineering Practice
Plan & Conduct an Investigation

- How does _____ plan and conduct an investigation?
- How does _____ determine appropriate methods and/or tools for collecting data?
- How does _____ make observations and/or measurements to collect data to serve as the basis for evidence for an explanation of a phenomenon?
- How does _____ make predictions based on prior experiences?
- How does _____ make observations and/or measurements of a proposed object or tool or solution to determine if it solves a problem or meets a goal?

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Science and Engineering Practice
Analyze and Interpret Data

- How does _____ record information (observations, thoughts, and ideas).
- How does _____ use and share pictures, drawings, and/or writings of observations.
- How does _____ use observations to describe patterns and/or relationships in the natural and designed world(s) in order to answer scientific questions and solve problems?
- How does _____ compare their predictions to what occurred?
- How does _____ analyze data from tests of an object or tool to determine if it works as intended?
- How does _____ represent data in tables, bar graphs, pictographs, or pie charts to reveal patterns that indicate relationships?
- How does _____ analyze and interpret data to make sense of phenomena, using logical reasoning, mathematics, and/or computation?
- How does _____ use data to evaluate and refine design solutions?

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Science and Engineering Practice
Using Mathematics and Computational Thinking

- How does _____ use counting and numbers to identify and describe patterns in the natural or designed world?
- How does _____ describe, measure, estimate, and/or graph quantities (e.g., area, volume, weight, time) to address scientific and engineering questions and problems?

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Science and Engineering Practice
Constructing Explanations & Designing Solutions

- How does _____ make observations and/or use data to construct an evidence-based account for natural phenomena?
- How does _____ use tools and/or materials to design and/or build a device that solves a specific problem?
- How does _____ generate and/or compare multiple solutions to a problem?

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Science and Engineering Practice
Engaging in Argument from Evidence

- How does _____ make arguments based on evidence to support a claim?
- How does _____ make a claim about the effectiveness of an object, tool, or solution that is supported by relevant evidence?

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Science and Engineering Practice
Obtaining, Evaluating, & Communicating Information

- How does _____ use books to find evidence about the natural and designed world?
- How does _____ communicate information about scientific ideas in oral or written forms using using models, drawings, writing, or numbers?
- How does _____ communicate information about design ideas in oral or written forms using models, drawings, writing, or numbers?

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Contact me anytime with specific questions or resource requests. I am honored to help you give every child the opportunity for a bright future in STEM!

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