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| SEP1  Asking questions and defining problems: formulating, refining, and evaluating empirically testable questions and design problems using models and simulations. | SEP1  Asking questions and defining problems: formulating, refining, and evaluating empirically testable questions and design problems using models and simulations. | SEP1  Asking questions and defining problems: formulating, refining, and evaluating empirically testable questions and design problems using models and simulations. | SEP1  Asking questions and defining problems: formulating, refining, and evaluating empirically testable questions and design problems using models and simulations. |
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| SEP2  Developing and Using Models: using, synthesizing, and developing models to predict and show relationships among variables between systems and their components in the natural and designed world(s). | SEP2  Developing and Using Models: using, synthesizing, and developing models to predict and show relationships among variables between systems and their components in the natural and designed world(s). | SEP2  Developing and Using Models: using, synthesizing, and developing models to predict and show relationships among variables between systems and their components in the natural and designed world(s). | SEP2  Developing and Using Models: using, synthesizing, and developing models to predict and show relationships among variables between systems and their components in the natural and designed world(s). |
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| SEP3  Planning and carrying out investigations: investigations that provide evidence for and test conceptual, mathematical, physical, and empirical models. | SEP3  Planning and carrying out investigations: investigations that provide evidence for and test conceptual, mathematical, physical, and empirical models. | SEP3  Planning and carrying out investigations: investigations that provide evidence for and test conceptual, mathematical, physical, and empirical models. | SEP3  Planning and carrying out investigations: investigations that provide evidence for and test conceptual, mathematical, physical, and empirical models. |
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| SEP4  Analyzing and interpreting data: detailed statistical analysis, the comparison of data sets for consistency, and the use of models to generate and analyze data. | SEP4  Analyzing and interpreting data: detailed statistical analysis, the comparison of data sets for consistency, and the use of models to generate and analyze data. | SEP4  Analyzing and interpreting data: detailed statistical analysis, the comparison of data sets for consistency, and the use of models to generate and analyze data. | SEP4  Analyzing and interpreting data: detailed statistical analysis, the comparison of data sets for consistency, and the use of models to generate and analyze data. |
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| SEP5  Mathematical and computational thinking: using algebraic thinking and analysis, a range of linear and nonlinear functions including trigonometric functions, exponentials and logarithms, and computational tools for statistical analysis to analyze, represent, and model data. Simple computational simulations are created and used based on mathematical models of basic assumptions. | SEP5  Mathematical and computational thinking: using algebraic thinking and analysis, a range of linear and nonlinear functions including trigonometric functions, exponentials and logarithms, and computational tools for statistical analysis to analyze, represent, and model data. Simple computational simulations are created and used based on mathematical models of basic assumptions. | SEP5  Mathematical and computational thinking: using algebraic thinking and analysis, a range of linear and nonlinear functions including trigonometric functions, exponentials and logarithms, and computational tools for statistical analysis to analyze, represent, and model data. Simple computational simulations are created and used based on mathematical models of basic assumptions. | SEP5  Mathematical and computational thinking: using algebraic thinking and analysis, a range of linear and nonlinear functions including trigonometric functions, exponentials and logarithms, and computational tools for statistical analysis to analyze, represent, and model data. Simple computational simulations are created and used based on mathematical models of basic assumptions. |
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| SEP6  Constructing explanations and designing solutions: explanations and designs that are supported by multiple and independent student-generated sources of evidence consistent with scientific ideas, principles, and theories. | SEP6  Constructing explanations and designing solutions: explanations and designs that are supported by multiple and independent student-generated sources of evidence consistent with scientific ideas, principles, and theories. | SEP6  Constructing explanations and designing solutions: explanations and designs that are supported by multiple and independent student-generated sources of evidence consistent with scientific ideas, principles, and theories. | SEP6  Constructing explanations and designing solutions: explanations and designs that are supported by multiple and independent student-generated sources of evidence consistent with scientific ideas, principles, and theories. |
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| SEP7  Engaging in argument from evidence using appropriate and sufficient evidence and scientific reasoning to defend and critique claims and explanations about the natural and designed world(s). Arguments may also come from current scientific or historical episodes in science. | SEP7  Engaging in argument from evidence using appropriate and sufficient evidence and scientific reasoning to defend and critique claims and explanations about the natural and designed world(s). Arguments may also come from current scientific or historical episodes in science. | SEP7  Engaging in argument from evidence using appropriate and sufficient evidence and scientific reasoning to defend and critique claims and explanations about the natural and designed world(s). Arguments may also come from current scientific or historical episodes in science. | SEP7  Engaging in argument from evidence using appropriate and sufficient evidence and scientific reasoning to defend and critique claims and explanations about the natural and designed world(s). Arguments may also come from current scientific or historical episodes in science. |
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| SEP8  Obtaining, evaluating, and communicating information: evaluating the validity and reliability of the claims, methods, and designs. | SEP8  Obtaining, evaluating, and communicating information: evaluating the validity and reliability of the claims, methods, and designs. | SEP8  Obtaining, evaluating, and communicating information: evaluating the validity and reliability of the claims, methods, and designs. | SEP8  Obtaining, evaluating, and communicating information: evaluating the validity and reliability of the claims, methods, and designs. |
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