Earth and Space Science

Table 1. Science and Engineering Practices (SEP) and Crosscutting Concepts (CCC) addressed by the **Earth and Space Science Standards**. Numbers in parentheses identify the number of times a particular SEP or CCC is addressed (if greater than once). The S&EP marked with an asterisk (*) incorporates engineering practices.

Grade	Science and Engineering Practices	Crosscutting Concepts
K	• Analyzing and Interpreting Data • Engaging in Argument from Evidence • Asking Questions and Defining Problems* • Developing and Using Models • Obtaining, Evaluating, and Communicating Information*	• Cause and Effect (2) • Patterns • Systems and System Models (2)
1	• Planning and Carrying out Investigations • Analyzing and Interpreting Data	• Patterns (2)
2	• Developing and Using Models • Constructing Explanations and Designing Solutions* (2) • Obtain, Evaluate, and Communicate Information	• Patterns • Stability and Change (3)
3	• Analyzing and Interpreting Data • Obtain, Evaluate, and Communicate Information • Engage in Argument from Evidence*	• Patterns (2) • Cause and Effect
4	• Constructing Explanations and Designing Solutions* (2) • Planning and Carrying out Investigations • Analyzing and Interpreting Data • Obtain, Evaluate, and Communicate Information	• Patterns (2) • Cause and Effect (3)
5	• Analyzing and Interpreting Data (2) • Engaging in Argument from Evidence • Developing and Using Models • Obtain, Evaluate, and Communicate Information	• Patterns • Scale, Proportion, and Quantity (2) • Systems and System Models (2)
6-8	• Asking Questions and Defining Problems • Developing and Using Models (5) • Planning and Carrying out Investigations • Analyzing and Interpreting Data (3) • Engaging in Argument from Evidence • Constructing Explanations and Design Solutions* (4)	• Patterns (3) • Scale, Proportion, and Quantity (3) • Systems and System Models (2) • Cause and Effect (4) • Energy and Matter • Stability and Change (2)
9-12	• Developing and Using Models (4) • Planning and Carrying out Investigations • Analyzing and Interpreting Data (2) • Engaging in Argument from Evidence* (2) • Constructing Explanations and Design Solutions* (4) • Using Mathematical and Computational Thinking (3) • Obtaining, Evaluating, and Communicating Information	• Patterns • Scale, Proportion, and Quantity (2) • Systems and System Models • Cause and Effect • Energy and Matter (5) • Stability and Change (6) • Structure and Function

Life Science

APPENDIX B – Science and Engineering Practices and Crosscutting Concepts Frequency Tables

Table 2. Science and Engineering Practices (SEP) and Crosscutting Concepts (CCC) addressed by the **Life Science Standards**. Numbers in parentheses identify the number of times a particular SEP or CCC is addressed (if greater than once). The S&EP marked with an asterisk (*) incorporates engineering practices.

Grade	Science and Engineering Practices	Crosscutting Concepts
K	● Analyzing and Interpreting Data	● Patterns
1	● Constructing Explanations and Designing Solutions* (2) ● Obtaining, Evaluating, and Communicating Information	● Cause and Effect ● Patterns (2)
2	● Planning and Carrying out Investigations (2) ● Developing and Using Models*	● Structure and Function ● Cause and Effect ● Systems and System Models
3	● Developing and Using Models ● Engaging in Argument from Evidence* (3) ● Analyzing and Interpreting Data (2) ● Constructing Explanations and Designing Solutions (2)	● Cause and Effect (4) ● Patterns (2) ● Scale, Proportion, and Quantity ● Systems and System Models
4	● Engaging in Argument from Evidence ● Developing and Using a Model	● Systems and System Models (2)
5	● Engaging in Argument from Evidence ● Developing and Using Models	● Energy and Matter ● Systems and System Models
6-8	● Developing and Using Models (5) ● Planning and Carrying out Investigations ● Constructing Explanations and Designing Solutions (5) ● Using Mathematics and Computational Thinking ● Engaging in Argument from Evidence* (4) ● Analyzing and Interpreting Data (3) ● Obtaining, Evaluating, and Communicating Information*	● Cause and Effect (7) ● Stability and Change (2) ● Energy and Matter (3) ● Systems and System Models ● Scale, Proportion, and Quantity ● Patterns (3) ● Structure and Function (2)
9-12	● Developing and Using Models (4) ● Planning and Carrying Out Investigations (2) ● Constructing Explanations and Designing Solutions* (6) ● Using Mathematics and Computational Thinking* (4) ● Engaging in Argument from Evidence (4) ● Asking Questions and Defining Problems ● Analyzing and Interpreting Data (2) ● Obtaining, Evaluating, and Communicating Information	● Systems and System Models (2) ● Energy and Matter (5) ● Structure and Function ● Stability and Change (4) ● Cause and Effect (7) ● Scale, Proportion, and Quantity (3) ● Patterns (2)

Physical Science

Table 3. Science and Engineering Practices (SEP) and Crosscutting Concepts (CCC) addressed by the **Physical Science Standards**. Numbers in parentheses identify the number of times a particular SEP or CCC is addressed (if greater than once). The S&EP marked with an asterisk (*) incorporate engineering practices.

Grade	Science and Engineering Practices	Crosscutting Concepts
K	• Analyzing and Interpreting Data* • Planning and Carrying Out Investigations (2) • Constructing Explanations and Designing Solutions*	• Cause and Effect (4)
1	• Planning and Carrying Out Investigations • Constructing Explanations and Designing Solutions* (3)	• Cause and Effect (4)
2	• Planning and Carrying Out Investigations • Analyzing and Interpreting Data* • Constructing Explanations and Designing Solutions • Engaging in Argument from Evidence	• Patterns • Cause and Effect (2) • Energy and Matter
3	• Asking Questions and Defining Problems* (2) • Planning and Carrying Out Investigations (2)	• Patterns • Cause and Effect (3)
4	• Asking Questions and Defining Problems • Planning and Carrying Out Investigations (2) • Constructing Explanations and Designing Solutions* (2) • Developing and Using Models (3)	• Energy and Matter (4) • Patterns (2) • Cause and Effect
5	• Developing and Using Models (2) • Planning and Carrying Out Investigations (2) • Using Mathematics and Computational Thinking • Engaging in Argument from Evidence	• Cause and Effect (2) • Scale, Proportion, and Quantity (3) • Energy and Matter
6-8	• Developing and Using Models (5) • Analyzing and Interpreting Data (2) • Constructing Explanations and Designing Solutions* (3) • Obtaining, Evaluating, and Communicating Information (2) • Asking Questions and Defining Problems • Planning and Carrying Out Investigations (3) • Engaging in Argument from Evidence (2) • Using Mathematics and Computational Thinking	• Patterns (2) • Cause and Effect (3) • Scale, Proportion, and Quantity (3) • Energy and Matter (4) • Structure and Function (3) • Systems and System Models (3) • Stability and Change
9-12	• Developing and Using Models (5) • Planning and Carrying Out Investigations (3) • Using Mathematical and Computational Thinking (5) • Constructing Explanations and Designing Solutions* (5) • Analyzing and Interpreting Data • Obtaining, Evaluating, and Communicating Information* (2) • Asking Questions and Defining Problems • Engaging in Argument from Evidence (2)	• Patterns (5) • Energy and Matter (5) • Stability and Change (2) • Cause and Effect (7) • Systems and System Models (4) • Structure and Function