

Note: The Nature of Science and the Design Process standards can be found at the front of the standards documents. The number designations of each are included below for clarification.

The Nature of Science

4.5.1: Make predictions and formulate testable questions.

4.5.2: Design a fair test.

4.5.3: Plan and carry out investigations—often over a period of several lessons—as a class, in small groups or independently.

4.5.4: Perform investigations using appropriate tools and technologies that will extend the senses.

4.5.5: Use measurement skills and apply appropriate units when collecting data.

4.5.6: Test predictions with multiple trials.

4.5.7: Keep accurate records in a notebook during investigations and communicate findings to others using graphs, charts, maps and models through oral and written reports.

4.5.8: Identify simple patterns in data and propose explanations to account for the patterns.

4.5.9: Compare the results of an investigation with the prediction.

The Design Process

4.6.1: Identify a need or problem to be solved.

4.6.2: Brainstorm potential solutions.

4.6.3: Document the design throughout the entire design process.

4.6.4: Select a solution to the need or problem.

4.6.5: Select the most appropriate materials to develop a solution that will meet the need.

4.6.6: Create the solution through a prototype.

4.6.7: Test and evaluate how well the solution meets the goal.

4.6.8: Evaluate and test the design using measurement.

4.6.9: Present evidence by using mathematical representations (e.g, graphs, data tables).

4.6.10: Communicate the solution (including evidence) using mathematical representations (graphs, data tables), drawings or prototypes.

4.6.11: Communicate how to improve the solution.

Instructional and Assessment Guidance 2015-16

ISTEP+: Science - Grade 6

| Symbol | Key |
|---------------|--------------------|
| ✓+ | Critical Content |
| ✓ | Important Content |
| ☐ | Additional Content |

| Standard 1 Physical Science | | Standard 2 Earth Science | | Standard 3 Life Science | | Standard 4 Science, Engineering and Technology | | Standard 5 The Nature of Science | | | | Standard 6 The Design Process | |
|--|----|-------------------------------------|----|------------------------------------|----|---|---|---|----|--------|----|--|----|
| 5.1.1 | ✓+ | 5.2.1 | ✓+ | 5.3.1 | ✓ | 5.4.1 | ✓ | 5.5.1 | ☐ | 6.5.1 | ✓ | 5.6.1 | ☐ |
| 5.1.2 | ✓ | 5.2.2 | ✓+ | 5.3.2 | ✓+ | 5.4.2 | ✓ | 5.5.2 | ✓ | 6.5.2 | ☐ | 5.6.2 | ✓+ |
| 5.1.3 | ✓ | 5.2.3 | ✓+ | 6.3.1 | ✓+ | 5.4.3 | ☐ | 5.5.3 | ✓+ | 6.5.3 | ✓+ | 6.6.1 | ✓+ |
| 5.1.4 | ☐ | 5.2.4 | ✓+ | 6.3.2 | ✓ | 6.4.1 | ☐ | 5.5.4 | ✓ | 6.5.4 | ✓ | 6.6.2 | ☐ |
| 6.1.1 | ☐ | 6.2.1 | ✓+ | 6.3.3 | ✓ | 6.4.2 | ✓ | 5.5.5 | ✓ | 6.5.5 | ✓ | 6.6.3 | ☐ |
| 6.1.2 | ✓ | 6.2.2 | ✓+ | 6.3.4 | ✓+ | 6.4.3 | ☐ | 5.5.6 | ☐ | 6.5.6 | ☐ | 6.6.4 | ✓ |
| 6.1.3 | ✓ | 6.2.3 | ✓ | 6.3.5 | ✓+ | | | | | 6.5.7 | ✓+ | 6.6.5 | ✓ |
| 6.1.4 | ✓+ | 6.2.4 | ✓+ | 6.3.6 | ✓ | | | | | 6.5.8 | ✓ | 6.6.6 | ✓ |
| 6.1.5 | ✓ | 6.2.5 | ✓+ | | | | | | | 6.5.9 | ✓ | 6.6.7 | ☐ |
| 6.1.6 | ✓+ | | | | | | | | | 6.5.10 | ☐ | 6.6.8 | ☐ |
| 6.1.7 | ✓ | | | | | | | | | | | 6.6.9 | ✓ |
| | | | | | | | | | | | | 6.6.10 | ✓+ |
| | | | | | | | | | | | | 6.6.11 | ✓ |
| | | | | | | | | | | | | 6.6.12 | ☐ |

Note: The Nature of Science and the Design Process standards can be found at the front of the standards documents. The number designations of each are included below for clarification.

The Nature of Science

5.5.1: Make predictions and formulate testable questions.

5.5.2: Design a fair test.

5.5.3: Perform investigations using appropriate tools and technologies that will extend the senses.

5.5.4: Use measurement skills and apply appropriate units when collecting data.

5.5.5: Keep accurate records in a notebook during investigations and communicate findings to others using graphs, charts, maps and models through oral and written reports.

5.5.6: Identify simple patterns in data and purpose explanations to account for the patterns.

6.5.1: Make predictions and develop testable questions based on research and prior knowledge.

6.5.2: Plan and carry out investigations—often over a period of several lessons—as a class, in small groups or independently.

6.5.3: Incorporate variables that can be changed, measured or controlled.

6.5.4: Use the principles of accuracy and precision when making measurements.

6.5.5: Test predictions with multiple trials.

6.5.6: Keep accurate records in a notebook during investigations.

6.5.7: Analyze data, using appropriate mathematical manipulation as required, and use it to identify patterns. Make inferences based on these patterns.

6.5.8: Evaluate possible causes for differing results (i.e., valid data).

6.5.9: Compare the results of an investigation with the prediction.

6.5.10: Communicate the findings through oral and written reports by using graphs, charts, maps and models.

The Design Process

5.6.1: Evaluate and test the design using measurement.

5.6.2: Communicate how to improve the solution.

6.6.1: Identify a need or problem to be solved.

6.6.2: Brainstorm potential solutions.

6.6.3: Document the design throughout the entire design process.

6.6.4: Throughout the entire design process, document the design with drawings (including labels) in a portfolio or notebook so that the process can be replicated.

6.6.5: Select a solution to the need or problem.

6.6.6: Select the most appropriate materials to develop a solution that will meet the need.

6.6.7: Create the solution through a prototype.

6.6.8: Test and evaluate how well the solution meets the goal.

6.6.9: Evaluate and test the design.

6.6.10: Present evidence by using mathematical representations (e.g., graphs, data tables).

6.6.11: Communicate the solution (including evidence) using mathematical representations (graphs, data tables), drawings or prototypes.

6.6.12: Redesign to improve the solution based on how well the solution meets the need.