Arizona Fourth Grade Science Standards Check List

This checklist will assist you in documenting specific science standards you have met or exceeded using the Insulation Station© Kit energy education lesson plans (LP) and materials in your classroom.

“The goal in the development of the standard was to assure that the six strands and five unifying concepts are interwoven into a fabric of science that represents the true nature of science. Students have the opportunity to develop both the skills and content knowledge necessary to be scientifically literate members of the community.”

**Strand 1: Inquiry Process** – Inquiry Process establishes the basis for students’ learning in science. Students use scientific processes: questioning, planning and conducting investigations, using appropriate tools and techniques to gather data, thinking critically and logically about relationships between evidence and explanations, and communicating results.

**Concept 1: Observations, Questions, and Hypotheses**

Observe, ask questions, and make predictions.

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<td>PO 1</td>
<td>Differentiate inferences from observations.</td>
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<td>PO 2</td>
<td>Formulate a relevant question through observations that can be tested by an investigation. (M04-S2C1-01)</td>
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<td>PO 4</td>
<td>Locate information (e.g., book, article, website) related to an investigation. (W04-S3C6-01 and R04-S3C1-05)</td>
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**Concept 2: Scientific Testing (Investigating and Modeling)**

Participate in planning and conducting investigations and recording data.

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<td>PO 1</td>
<td>Demonstrate safe behavior and appropriate procedures (e.g., use and care of technology, materials, organisms) in all science inquiry.</td>
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<td>PO 2</td>
<td>Plan a simple investigation that identifies the variables to be controlled.</td>
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<td>PO 3</td>
<td>Conduct controlled investigations (e.g., related to...weather, magnetism) in life, physical, and Earth and space sciences.</td>
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<td>PO 4</td>
<td>Measure using appropriate tools (e.g., ruler, scale, balance) and units of measure (i.e., metric, US customary). (M04-S4C4-03 and M04-S4C4-07)</td>
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<td>PO 5</td>
<td>Record data in an organized and appropriate format (e.g., t-chart, table, list, written log). (W04-S3C2-01 and W04-S3C3-01)</td>
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**Concept 3: Analysis ad Conclusions**
Communicate results of investigations.

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<td>PO 1</td>
<td>Analyze data obtained in a scientific investigation to identify trends. (M04-S2C1-03)</td>
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<td>PO 2</td>
<td>Formulate conclusions based upon identified trends in data. (M04-S2C1-03)</td>
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<td>Determine that data collected is consistent with the formulated question.</td>
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<td>Determine whether the data supports the prediction for an investigation.</td>
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<td>PO 5</td>
<td>Develop new questions and predictions based upon the data collected in the investigation.</td>
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**Concept 4: Communication**
Organize and analyze data, compare to predictions.

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<td>PO 1</td>
<td>Communicate verbally or in writing the results of an inquiry. (W04-S3C3-01)</td>
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<td>PO 2</td>
<td>Choose an appropriate graphic representation for the collected data: (M04-S2C1-02)</td>
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<td>PO 3</td>
<td>Communicate with other groups or individuals to compare the results of a common investigation.</td>
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**Strand 2: History and Nature of Science** — Scientific investigation grows from the contributions of many people. History and Nature of Science emphasizes the importance of the inclusion of historical perspectives and the advances that each new development brings to technology and human knowledge. This strand focuses on the human aspects of science and the role that scientists play in the development of various cultures.

**Concept 1: History of Science as a Human Endeavor.**
Identify individual and cultural contributions to scientific knowledge.

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<td>Describe science-related career opportunities.</td>
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Concept 2: Nature of Scientific Knowledge
Understand how science is a process for generating knowledge.

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<td>PO 1</td>
<td>Explain the role of experimentation in scientific inquiry.</td>
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<td>Describe the interaction of components in a system (e.g., flashlight, radio).</td>
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<td>PO 3</td>
<td>Explain various ways scientists generate ideas (e.g., observation, experiment, collaboration, theoretical and mathematical models).</td>
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Strand 3: Science in Personal and Social Perspectives – Science in Personal and Social Perspectives emphasizes developing the ability to design a solution to a problem, to understand the relationship between science and technology, and the ways people are involved in both. Students understand the impact of science and technology on human activity and the environment. This strand affords students the opportunity to understand their place in the world – as living creatures, consumers, decision makers, problem solvers, managers, and planners.

Concept 1: Changes in Environments.
Describe the interactions between human populations, natural hazards, and the environment.

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<td>PO 1</td>
<td>Describe how natural events and human activities have positive and negative impacts on environments (e.g., fire, flood, pollution, dams).</td>
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<td>Evaluate the consequences of environmental occurrences that happen either rapidly (fire, flood, tornado) or over a long period of time (e.g., drought, melting ice caps, the greenhouse effect, erosion).</td>
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Strand 4: Life Science – Life Science expands students’ biological understanding of life by focusing on the characteristics of living things, the diversity of life, and how organisms and populations change over time in terms of biological adaptation and genetics. This understanding includes the relationship of structures to their functions and life cycles, interrelationships of matter and energy in living organisms, and the interactions of living organisms with their environment.

Concept 3: Organisms and Environments.
Understand the relationships among various organisms and their environment

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<td>PO 4</td>
<td>Describe ways in which resources can be conserved (e.g., by reducing, reusing, recycling, finding substitutes).</td>
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