



## APPENDIX A PRACTICES (GRADES 3–5)

### **Ask Questions and Define Problems**

- Identify scientific (testable) and non-scientific (non-testable) questions.
- Ask questions based on careful observations of phenomena and information.
- Ask questions based on cause and effect relationships to clarify ideas or request evidence.
- Ask questions that relate one variable to another variable.
- Ask questions that can be investigated about weather, climate or an impact of climate change.

### **Develop and Use Models**

- Explain how a model related to weather, climate, or an impact of climate change represents relationships or processes.
- Use simple models to describe phenomena and test cause and effect relationships concerning the functioning of a natural or designed system.
- Use models to share findings or solutions in an oral or written presentation or in a group discussion.
- Identify limitations of models in terms of how useful and accurate they are.

### **Plan and Carry Out Investigations**

- Collaboratively plan and carry out simple investigations using fair tests in which variables are controlled and the number of trials considered.
- Demonstrate values and attitudes that are important in working together as a team.
- Demonstrate knowledge of safety and ethical considerations in planning and carrying out an investigation.
- Evaluate appropriate methods and tools for collecting data.
- Use standard units to measure area, volume, weight, and temperature.
- Make observations and/or measurements, collect appropriate data, and identify patterns that provide evidence to explain a phenomenon or test a design solution.

### **Analyze and Interpret Data**

- Display data in tables and graphs, using digital tools when feasible, to reveal patterns that indicate relationships.
- Use data to evaluate claims about cause and effect.
- Compare data collected by different groups in order to discuss similarities and differences in their findings.
- Use data to evaluate and refine design solutions.

**Construct Explanations and Design Solutions**

- Construct explanations of observed quantitative relationships (e.g., the numbers of different kinds of organisms in a location).
- Use evidence (e.g., measurements, observations, patterns) to construct a scientific explanation or design a solution to a problem.
- Identify the evidence that supports particular points in an explanation.
- Distinguish whether an explanation relies on facts, reasoned judgments based on research findings, or on unsupported speculation.
- Apply scientific knowledge to solve design problems.

**Analyze and Investigate Environmental Issues**

- Respectfully gather local indigenous knowledge related to an environmental issue.
- Collaboratively develop simple explanations in response to questions they have formed about the environment.
- Locate, collect and organize simple information on nature, communities and environmental topics.
- Communicate information obtained from reliable source about potential solutions to an environmental issue.

**Decide and Act**

- Decide and act with the understanding that Indigenous beliefs and values are based on the idea and experience that all living and non-living things remain in balance for continued existence.
- Understand that people can act as individuals but that the community influences and is affected by individual actions.
- Understand the importance of sharing ideas, hearing other points of view, and honoring community values.
- Explain that people and nature are connected at many levels, including the global level.
- Have age appropriate and realistic self confidence in their effectiveness and role as citizens.