

APPLY SCIENTIFIC INQUIRY and SCIENTIFIC HABITS OF MIND

Performance Standard 11A/13A/13 B.C

Students will apply the concepts, principles and processes of scientific inquiry within classroom investigations accordingly:

- *Knowledge*: Understand the concepts, principles and processes of scientific inquiry.
- *Application*: Apply the appropriate scientific habits of mind when investigating science concepts.
- *Communication*: Incorporate scientific technologies and the processes of scientific inquiry into classroom investigations and reports.

Note to teacher: These concepts could be embedded into scientific inquiry investigations. Suggested activities for standards 12 A, B, C, and E at stage C, incorporate many of the performance descriptions for Standard 11A.

Procedures

1. ***In order to know and apply the concepts, principles and processes of scientific inquiry (11A) and the accepted practices of science (13A) and apply scientific technologies (13B)***, students should experience sufficient learning experiences to develop the following:
 - Describe science experience with appropriate attributes, units and tools.
 - Formulate inquiry questions associated with the science experiences and curricular concepts from observations through class brainstorming.
 - Prioritize questions and choose procedural steps for inquiry investigation.
 - Use applicable scientific technologies and incorporate appropriate safety precautions.
 - Follow classroom rules for preparation, procedures and clean-up for science activities.
 - Recognize the necessity of carefully recorded observations.
 - Collect data for analysis to resolve proposed hypothesis statements.
 - Analyze data patterns to construct reasonable and accurate explanations of data.
 - Identifying reasons why similar investigations may not always have the same results.
 - Communicate patterns and conclusions from class investigations.
 - Generate further questions for future investigations.
2. Separated assessment of 11A may not be practical. Significant research has demonstrated the value of inquiry-based, life-long learning for students. The emphasis of scientific inquiry is incorporated into the wording of all performance descriptions for Goal 12, in stages A-J. A spiraling, inquiry-based curriculum is encouraged for all classrooms. Specific performance descriptions may be emphasized in different inquiry investigations in order to build mastery of each concept or process of scientific inquiry.
3. See suggested procedures for 12A, 12B, 12C and 12E at stage C for specific assessment features.

Examples of Student Work not available

Time Requirements

- Initial introduction of processes may require additional time as needed by students.