

## Criteria A: One World

Students should understand the interdependence of science and society. Students are expected to discuss how science is applied and used to solve specific problems in life and society. Students should be given the opportunity to explore local and global scientific issues and evaluate the interaction between science and scientific developments with social, economic, political environmental, cultural, and ethical factors.

Achievement Level	Description
0	The student does not reach a standard described by any of the descriptors given below.
1-2	The student describes how science is applied to addressing a specific local or global issue. The student states some of the benefits or limitations of science in addressing the issue.
3-4	The student describes how science is applied to addressing a specific local or global issue. The student describes some of the benefits or limitations of science in addressing the issue. The student describes how science and its applications interact with at least one of the following factors: social, economic, environmental, cultural, and ethical.
5-6	The student explains how science is applied to addressing a specific local or global issue. The student explains some of the benefits and limitations of science in solving the issue. The student discusses how science and its applications interact with some of the following factors: social, economic, political, environmental, cultural, and ethical.

## Criteria B: Communication in Science

Students should be able to demonstrate understanding when communicating scientific information. Students should use scientific language, a range of communication modes, and the most appropriate communication format. Depending on the tasks, students will be expected to acknowledge the sources of information and document these appropriately.

Achievement Level	Description
0	The student does not reach a standard described by any of the descriptors given below.
1-2	The student describes how science is applied to addressing a specific local or global issue. The student states some of the benefits or limitations of science in addressing the issue.
3-4	The student describes how science is applied to addressing a specific local or global issue. The student describes some of the benefits or limitations of science in addressing the issue. The student describes how science and its applications interact with at least one of the following factors: social, economic, environmental, cultural, and ethical.
5-6	The student explains how science is applied to addressing a specific local or global issue. The student explains some of the benefits and limitations of science in solving the issue. The student discusses how science and its applications interact with some of the following factors: social, economic, political, environmental, cultural, and ethical.

## Criteria C: Knowledge and Understanding

Students should show their understanding of the main scientific ideas and concepts of science by applying these to solve problems in familiar and unfamiliar situations. Students should develop critical-thinking skills to analyze and evaluate scientific information.

Achievement Level	Description
0	The student does not reach a standard described by any of the descriptors given below.
1-2	The student recalls some scientific ideas and concepts and applies these to solve simple problems.
3-4	The student explains scientific ideas and concepts and applies scientific understanding to solve problems in familiar situations. The student analyzes scientific information by identifying parts, relationships, or causes. The student provides an explanation that shows understanding.
5-6	The student explains scientific ideas and concepts and applies scientific understanding to solve problems in familiar and unfamiliar situations. The student analyzes and evaluates scientific information by making scientifically supported judgments about the information, the validity of the ideas, or the quality of the work.

## Criteria D: Scientific Inquiry

Students are expected to design and carry out scientific investigations independently. Students should be able to (i) state a problem that can be tested by an investigation; (ii) formulate a suitable hypothesis; (iii) identify and manipulate variables; (iv) plan an appropriate investigation including the method and materials; (v) evaluate the method.

Achievement Level	Description
0	The student does not reach a standard described by any of the descriptors given below.
1-2	The student attempts to define the purpose of the investigation and makes references to variables, but these are incomplete or not fully developed. The method suggested is partially complete. The evaluation of the method is either absent or incomplete.
3-4	The student defines the purpose of the investigation and provides an explanation / prediction but this is not fully developed. The student acknowledges some of the variables involved and describes how to manipulate them. The method suggested is complete and includes appropriate materials / equipment. The evaluation of the method is partially developed.
5-6	The student defines the purpose of the investigation, formulates a testable hypothesis, and explains the hypothesis using scientific reasoning. The student identifies the relevant variables and explains how to manipulate them. The student evaluates the method, commenting on its reliability and/or validity. The student suggests improvements to the method and makes suggestions for further inquiry when relevant.

## Criteria E: Processing Data

Processing data refers to enabling students to organize and process data. Students should be able to organize and transform data by numerical calculations into diagrammatic form (tables, graphs, and charts) and draw and explain appropriate conclusions.

Achievement Level	Description
0	The student does not reach a standard described by any of the descriptors given below.
1-2	The student organizes and presents data using simple numerical or diagrammatic forms and draws an obvious conclusion.
3-4	The student organizes and transforms data into numerical and diagrammatic forms and presents it using appropriate communication modes. The student draws a conclusion consistent with the data.
5-6	The student organizes and transforms data into numerical and diagrammatic forms and presents it logically and clearly, using appropriate communication modes. The student explains trends, patterns, or relationships in the data, comments on the reliability of the data, draws a clear conclusion based on the correct interpretation of the data, and explains it using scientific reasoning.

## Criteria F: Attitudes in Science

The criterion refers to encouraging students' attitudes of safety, respect, and collaboration. Students are expected to: (i) carry out scientific investigations using materials and techniques skillfully and safely and showing respect for the living and non-living environment; (ii) work effectively as a member of a team, collaborating, acknowledging, and respecting the views of others as well as ensuring a safe working environment.

Achievement Level	Description
0	The student does not reach a standard described by any of the descriptors given below.
1-2	The student requires guidance and supervision when using laboratory equipment. The student can work safely and cooperate with others but may need reminders.
3-4	The student uses most equipment competently, but might require occasional guidance; on most occasions pays attention to safety and works responsibly with the living and non-living environment. The student generally cooperates well with other students.
5-6	The student works largely independently; uses equipment with precision and skill; pays close attention to safety and deals responsibly with the living and non-living environment. The student consistently works effectively as part of a team, collaborating with others and respecting their views.