APPENDIX 7: GENERAL LEARNING OUTCOMES

Nature of Science and Technology

A1. recognize both the power and limitations of science as a way of answering questions about the world and explaining natural phenomena
A2. recognize that scientific knowledge is based on evidence, models, and explanations, and evolves as new evidence appears and new conceptualizations develop
A3. distinguish critically between science and technology in terms of their respective contexts, goals, methods, products, and values
A4. identify and appreciate contributions made by women and men from many societies and cultural backgrounds toward increasing our understanding of the world and in bringing about technological innovations
A5. recognize that science and technology interact with and advance one another

Science, Technology, Society, and the Environment (STSE)

B1. describe scientific and technological developments, past and present, and appreciate their impact on individuals, societies, and the environment, both locally and globally
B2. recognize that scientific and technological endeavours have been and continue to be influenced by human needs and the societal context of the time
B3. identify the factors that affect health and explain the relationships among personal habits, lifestyle choices, and human health, both individual and social
B4. demonstrate a knowledge of, and personal consideration for, a range of possible science- and technology-related interests, hobbies, and careers
B5. identify and demonstrate actions that promote a sustainable environment, society, and economy, both locally and globally

Scientific and Technological Skills and Attitudes

C1. recognize safety symbols and practices related to scientific and technological activities and to their daily lives, and apply this knowledge in appropriate situations
C2. demonstrate appropriate scientific inquiry skills when seeking answers to questions
C3. demonstrate appropriate problem-solving skills while seeking solutions to technological challenges
C4. demonstrate appropriate critical thinking and decision-making skills when choosing a course of action based on scientific and technological information
C5. demonstrate curiosity, skepticism, creativity, open-mindedness, accuracy, precision, honesty, and persistence, and appreciate their importance as scientific and technological habits of mind
C6. employ effective communication skills and utilize information technology to gather and share scientific and technological ideas and data
C7. work co-operatively and value the ideas and contributions of others while carrying out scientific and technological activities
C8. evaluate, from a scientific perspective, information and ideas encountered during investigations and in daily life

**Essential Science Knowledge**

D1. understand essential life structures and processes pertaining to a wide variety of organisms, including humans
D2. understand various biotic and abiotic components of ecosystems, as well as their interaction and interdependence within ecosystems and within the biosphere as a whole
D3. understand the properties and structures of matter as well as various common manifestations and applications of the actions and interactions of matter
D4. understand how stability, motion, forces, and energy transfers and transformations play a role in a wide range of natural and constructed contexts
D5. understand the composition of the Earth’s atmosphere, hydrosphere, and lithosphere, as well as the processes involved within and among them
D6. understand the composition of the universe, the interactions within it, and the impacts of humankind’s continued attempts to understand and explore it

**Unifying Concepts**

E1. describe and appreciate the similarity and diversity of forms, functions, and patterns within the natural and constructed world
E2. describe and appreciate how the natural and constructed worlds are made up of systems and how interactions take place within and among these systems
E3. recognize that characteristics of materials and systems can remain constant or change over time, and describe the conditions and processes involved
E4. recognize that energy, whether transmitted or transformed, is the driving force of both movement and change, and is inherent within materials and in the interactions among them