ADVENTIST EDUCATION STANDARDS

Standards, what learners should know (content) and be able to do (skills), serve as the framework for curriculum development. Standards in NAD Seventh-day Adventist schools reflect the Adventist worldview across the K-12 curricula as well as the integration of national and provincial/state standards. The Adventist worldview accepts the Bible as the standard by which everything else is measured. Four key concepts emerge from a biblical worldview that can be used as a lens for curriculum development, as well as informing the essential questions and big ideas of any content area: Creation (What is God's intention?), Fall (How has God's purpose been distorted?), Redemption (How does God help us to respond?), and Re-creation (How can we be restored in the image of God?).

— THE CORE OF ADVENTIST EDUCATION CURRICULUM

SCIENCE AND ENGINEERING PRACTICES

1. Asking questions (for science) and defining problems (for engineering)
2. Developing and using models
3. Planning and carrying out investigations
4. Analyzing and interpreting data
5. Using mathematics and computational thinking
6. Constructing explanations (for science) and designing solutions (for engineering)
7. Engaging in argument from evidence
8. Obtaining, evaluating, and communicating information

— NEXT GENERATION SCIENCE STANDARDS

STANDARDS CODING

The standards have been coded so that educators can easily refer to them in their curriculum, instruction, and assessment practices. The coding system that precedes each standard begins with the content area abbreviation in letters; all are identified with S—Science (**S**.K-2.LS.1). The second part of the code refers to the grade level (S.**K**-2.LS.1). The third part of the code refers to the particular science domain (S.K-2.**LS**.1), with LS standing for Life Sciences. The fourth part of the code refers to a particular skill within the science domain (S.K-2.LS.**1**). The coding system that follows each standard is the Next Generation Science Standards (NGSS) that aligns with the NAD standard. Where no NGSS is noted, there is no corresponding NGSS.

PERFORMANCE-BASED STANDARDS

The science standards are performance-based outcomes (what students should be able to do) rather than content-based outcomes (what students should know). The content standards are implied within the context of the performance standards.

CREDITS

The following resources were referenced in developing Science Standards for Seventh-day Adventist Schools: a sampling of state standards, NAD Curriculum Guide for Science, Next Generation Science Standards (NGSS), National Health Education Standards (NHES), and the Core of Adventist Education Curriculum.

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ENGINEERING, TECHNOLOGY, AND APPLICATIONS OF SCIENCE

GRADE	TOPICS	STANDARDS (NGSS ALIGNMENT)	BY DESIGN CHAPTER CORRELATION
Essential Question: How has God equipped humans to apply knowledge of science to solve problems for the benefit of His Creation?		**Big Idea:** God designed humans to wonder, question, and develop an attitude of inquiry as scientific principles are applied to the materials and forces of nature for the benefit of His Creation.	**Bold =** included content *Italic =* related content
K-2	**Engineering Design**	**S.K-2.ET.1** Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool. (K-2-ETS1-1) **S.K-2.ET.2** Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object functions to solve a given problem. (K-2-ETS1-2) **S.K-2.ET.3** Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs. (K-2-ETS1-3)	These performance standards are found in multiple places throughout the By Design program.
3-5	**Engineering Design**	**S.3-5.ET.1** Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. (3-5-ETS1-1) **S.3-5.ET.2** Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem. (3-5-ETS1-2) **S.3-5.ET.3** Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved. (3-5-ETS1-3)	These performance standards are found in multiple places throughout the By Design program.
6-8	**Engineering Design**	**S.6-8.ET.1** Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions. (MS-ETS1-1) **S.6-8.ET.2** Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem. (MS-ETS1-2) **S.6-8.ET.3** Analyze data from tests to determine similarities and difference among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success. (MS-ETS1-3) **S.6-8.ET.4** Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved. (MS-ETS1-4)	These performance standards are found in multiple places throughout the By Design program.