

PA STEELS Reporting

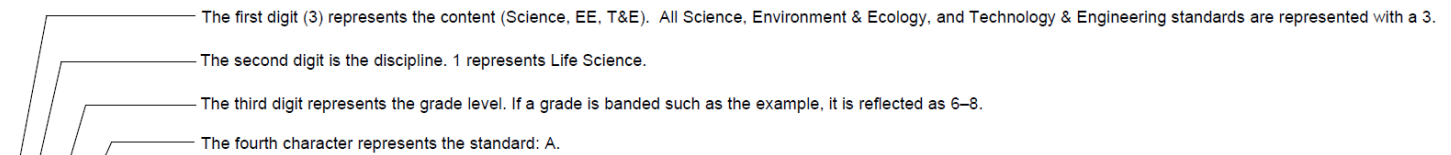
Pennsylvania uses the standards coding from the PA STEELS standards. This connects curriculum with assessment.

The foundation of the STEELS standards coding is described below.

Coding, Discipline, and Strand

Coding

Each standard has a four-digit code. In the example below, for standard 3.1.6-8.A:



3.1.6-8.A - Conduct an investigation to provide evidence that living things are made of cells, either one cell or many different numbers and types of cells.

STEELS Coding

- The first digit in the standards code for all science and biology items is 3.
- The second digit is one of five different values that represent a discipline.
 - 1 = Life Science
 - 2 = Physical Science
 - 3 = Earth and Space Science
 - 4 = Environmental Literacy and Sustainability
 - 5 = Technology and Engineering
- The third digit represents the grade or grade range.
- The fourth digit represents a specific standard.
- In the STEELS K-12 Foundations Boxes document, each standard code includes additional information.
 - The discipline is named after the code.
 - A strand is introduced. A strand is an organizational structure within each discipline. It can be thought of as an anchor in the legacy standards. A strand has several standards associated with it.

Discipline

Strand

3.1.6-8.A Life Science: Structure, Function, and Information Processing



Reporting

- How the PSSA and Keystones are reported is not built into the STEELS standards.
- PSSA Science
 - Reporting categories are not represented by an individual STEELS codes in all cases.
 - One PSSA reporting category will combine 2 disciplines. Life Science and Environmental Literacy & Sustainability (3.1 and 3.4) are being combined into one reporting category. The other reporting categories are Physical Science, Earth and Space Science, and Technology & Engineering.
- Keystone Biology
 - There are no built-in Reporting Categories in the standards. The STEELS high school life science standards were organized for assessment purposes.
 - The Keystone assessment is broken into two modules. Each module is its own reporting category.
 - There are five strands within the STEELS high school life science standards.
 - To accomplish a balance to the modules on the Keystone assessment, one of the biology strands has standards that are divided into each module.
 - The strands within the STEELS Foundations Boxes document guide the sub-reporting designations.
 - Using the strands works except for the one strand that has standards in both modules. Additional information is added to the strand name so that teachers/schools/districts know where to apply remediation. Recall that a student can pass (be proficient) in one module and fail the other. That student often needs to retake the module in which they were not proficient to graduate.
 - Below are the module names, strands for assessment purposes naming conventions, the STEELS standards codes, and standards that are in each module.

Test	Module	Module Name	Domain	Strand for Assessment Purposes	STEELS Code	The Standard (Performance Expectation)	
BIO	A	Molecules to Organisms - Structures, Functions, and Natural Cycles	1	Structure and Function [Standards A, B, C]	3.1.9-12.A	Construct an explanation based on evidence for how the structure of DNA determines the structure of proteins which carry out the essential functions of life through systems of specialized cells.	
BIO	A		1		3.1.9-12.B	Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.	
BIO	A		1		3.1.9-12.C	Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.	
BIO	A		2	Matter and Energy in Organisms and Ecosystems [Standards E, F, G, H, J, K]	3.1.9-12.E	Use a model to illustrate how photosynthesis transforms light energy into stored chemical energy.	
BIO	A		2		3.1.9-12.F	Construct and revise an explanation based on evidence for how carbon, hydrogen, and oxygen from sugar molecules may combine with other elements to form amino acids and/or other large carbon-based molecules.	
BIO	A		2		3.1.9-12.G	Use a model to illustrate that cellular respiration is a chemical process whereby the bonds of food molecules and oxygen molecules are broken and the bonds in new compounds are formed resulting in a net transfer of energy.	
BIO	A		2		3.1.9-12.J	Construct and revise an explanation based on evidence for the cycling of matter and flow of energy in aerobic and anaerobic conditions.	
BIO	A		2		3.1.9-12.H	Use mathematical representations to support claims for the cycling of matter and flow of energy among organisms in an ecosystem.	
BIO	A		2		3.1.9-12.K	Develop a model to illustrate the role of photosynthesis and cellular respiration in the cycling of carbon among the biosphere, atmosphere, hydrosphere, and geosphere.	
BIO	A		3		Interdependent Relationships in Ecosystems [Standards I, L, M]	3.1.9-12.I	Use mathematical and/or computational representations to support explanations of factors that affect carrying capacity of ecosystems at different scales.
BIO	A		3			3.1.9-12.L	Use mathematical representations to support and revise explanations based on evidence about factors affecting biodiversity and populations in ecosystems of different scales.
BIO	A		3	3.1.9-12.M		Evaluate the claims, evidence, and reasoning that the complex interactions in ecosystems maintain relatively consistent numbers and types of organisms in stable conditions, but changing conditions may result in a new ecosystem.	

BIO	B	Continuity and Unity of Life - Biodiversity, Genetics, and Changes over Time	1	Inheritance and Variation of Traits [Standards D, P, Q, R]	3.1.9-12.D	Use a model to illustrate the role of cellular division (mitosis) and differentiation in producing and maintaining complex organisms.
BIO	B		1		3.1.9-12.P	Ask questions to clarify relationships about the role of DNA and chromosomes in coding the instructions for characteristic traits passed from parents to offspring.
BIO	B		1		3.1.9-12.Q	Make and defend a claim based on evidence that inheritable genetic variations may result from (1) new genetic combinations through meiosis, (2) viable errors occurring during replication, and/or (3) mutations caused by environmental factors.
BIO	B		1		3.1.9-12.R	Apply concepts of statistics and probability to explain the variation and distribution of expressed traits in a population.
BIO	B		2	Interdependent Relationships in Ecosystems [Standards N, O, V]	3.1.9-12.N	Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity.
BIO	B		2		3.1.9-12.O	Evaluate the evidence for the role of group behavior on individual and species' chances to survive and reproduce.
BIO	B		2		3.1.9-12.V	Create or revise a simulation to test a solution to mitigate adverse impacts of human activity on biodiversity.
BIO	B		3	Natural Selection and Evolution [Standards S, T, U, W, X]	3.1.9-12.S	Communicate scientific information that common ancestry and biological evolution are supported by multiple lines of empirical evidence.
BIO	B		3		3.1.9-12.T	Construct an explanation based on evidence that the process of evolution primarily results from four factors: (1) the potential for a species to increase in number, (2) the heritable genetic variation of individuals in a species due to mutation and sexual reproduction, (3) competition for limited resources, and (4) the proliferation of those organisms that are better able to survive and reproduce in the environment.
BIO	B		3		3.1.9-12.U	Apply concepts of statistics and probability to support explanations that organisms with an advantageous heritable trait tend to increase in proportion to organisms lacking this trait.
BIO	B		3		3.1.9-12.W	Construct an explanation based on evidence for how natural selection leads to adaptation of populations.
BIO	B		3		3.1.9-12.X	Evaluate the evidence supporting claims that changes in environmental conditions may result in (1) increases in the number of individuals of some species, (2) the emergence of new species over time, and (3) the extinction of other species.