

# **United States Academic Pentathlon®** **2017-18 Curriculum and Content Standards**

## **Overview**

The United States Academic Pentathlon’s curriculum is an interdisciplinary curriculum in which a selected theme is integrated across five different subject areas: fine arts, literature, mathematics, science, and social science. The theme for the 2017–2018 U.S. Academic Pentathlon® curriculum is *Africa*. While in most subjects the majority of the topics relate to the overall curricular theme, some topics that cover fundamentals may also be included to encourage a thorough understanding of the subject area as a whole. The U.S. Academic Pentathlon® mathematics curriculum is unrelated to the theme and focuses on standard middle school mathematics topics.

## **Fine Arts**

### *U.S. Academic Pentathlon® and the National Standards for Music*

USAP’s curriculum allows students and teachers to address four of the nine content standards for music. The five standards that are not met all involve the performance, composition, or notation of music. U.S. Academic Pentathlon’s music curriculum is centered on musicology (as opposed to composition or performance) and is designed to be accessible to all students, including those who cannot read musical notation and those who have no formal training in musical performance.

U.S. Academic Pentathlon’s 2017–2018 music curriculum addresses aspects of the following national content standards for music:

- STANDARD 6: Listening to, Analyzing, and Describing Music
- STANDARD 7: Evaluating Music and Music Performances
- STANDARD 8: Understanding Relationships between Music, the Other Arts, and Disciplines outside the Arts
- STANDARD 9: Understanding Music in Relation to History and Culture

### *U.S. Academic Pentathlon® and the National Standards for Visual Arts*

U.S. Academic Pentathlon’s curriculum allows students and teachers to address five of the six content standards for visual arts. The only standard not directly met by U.S. Academic Pentathlon’s curriculum (Standard 1: Understanding and Applying Media Techniques and Processes), can easily be incorporated as a part of U.S. Academic Pentathlon’s curriculum by having students create their own works of art in addition to studying the works of others.

U.S. Academic Pentathlon's 2017–2018 art curriculum addresses aspects of the following national content standards for visual arts:

- STANDARD 2: Using Knowledge of Structures and Functions
- STANDARD 3: Choosing and Evaluating a Range of Subject Matter, Symbols, and Ideas
- STANDARD 4: Understanding the Visual Arts in Relation to History and Cultures
- STANDARD 5: Reflecting Upon and Assessing the Characteristics and Merits of their Work and the Work of Others
- STANDARD 6: Making Connections between Visual Arts and Other Disciplines

## **Literature**

### *A Long Walk to Water by Linda Sue Park and Selected Literature*

United States Academic Pentathlon® 2017-2018 Literature Resource Guide correlation with Common Core State Standards (CCSS) and The National Council of Teachers of English (NCTE) standards

The literary choices for the 2017-2018 Academic Pentathlon® require students to work through a number of CCSS standards for both informational and fictional texts. In addition, in Section II, the background information falls under the literacy standards for social studies. Specific relevant standards are listed by sections which correlate to this year's literature resource guide. All of these standards additionally fall under the first **three NCTE standards**:

1. Students read a wide range of print and non-print texts to build an understanding of texts, of themselves, and of the cultures of the United States and the world; to acquire new information; to respond to the needs and demands of society and the workplace; and for personal fulfillment. Among these texts are fiction and nonfiction, classic and contemporary works.
2. Students read a wide range of literature from many periods in many genres to build an understanding of the many dimensions (e.g., philosophical, ethical, aesthetic) of human experience.
3. Students apply a wide range of strategies to comprehend, interpret, evaluate, and appreciate texts. They draw on their prior experience, their interactions with other readers and writers, their knowledge of word meaning and of other texts, their word identification strategies, and their understanding of textual features (e.g., sound-letter correspondence, sentence structure, context, graphics).

### Section I Critical Reading

This section addresses and assesses numerous skills under CCSS (Please note, even though these standards are the sixth grade standards, the same apply at grades 7 and 8):

#### Craft and Structure:

- CCSS.ELA-LITERACY.RL.6.4 Determine the meaning of words and phrases as they are used in a text, including figurative and connotative meanings; analyze the impact of a specific word choice on meaning and tone
- CCSS.ELA-LITERACY.RL.6.5 Analyze how a particular sentence, chapter, scene, or stanza fits into the overall structure of a text and contributes to the development of the theme, setting, or plot.
- CCSS.ELA-LITERACY.RL.6.6 Explain how an author develops the point of view of the narrator or speaker in a text.

### Section II A Long Walk to Water by Linda Sue Park

The background information in this sections addresses the literacy standards for social studies:

#### Craft and Structure:

- CCSS.ELA-LITERACY.RH.6-8.4 Determine the meaning of words and phrases as they are used in a text, including vocabulary specific to domains related to history/social studies.

#### Integration of Knowledge and Ideas:

- CCSS.ELA-LITERACY.RH.6-8.7 Integrate visual information (e.g., in charts, graphs, photographs, videos, or maps) with other information in print and digital texts.

#### The entire novel addresses this standard:

#### Range of Reading and Level of Text Complexity:

- CCSS.ELA-LITERACY.RL.8.10 By the end of the year, read and comprehend literature, including stories, dramas, and poems, at the high end of grades 6-8 text complexity band independently and proficiently.

Additionally, these standards are also addressed through the analysis tasks throughout the work:

#### Key Ideas and Details:

- CCSS.ELA-LITERACY.RL.6.1 Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.

- CCSS.ELA-LITERACY.RL.6.2 Determine a theme or central idea of a text and how it is conveyed through particular details; provide a summary of the text distinct from personal opinions or judgments.
- CCSS.ELA-LITERACY.RL.6.3 Describe how a particular story's or drama's plot unfolds in a series of episodes as well as how the characters respond or change as the plot moves toward a resolution.

### Section 3 Selected Shorter Works of Literature

#### Range of Reading and Level of Text Complexity:

- CCSS.ELA-LITERACY.RL.8.10 By the end of the year, read and comprehend literature, including stories, dramas, and poems, at the high end of grades 6-8 text complexity band independently and proficiently.

#### Key Ideas and Details:

- CCSS.ELA-LITERACY.RI.8.2 Determine a central idea of a text and analyze its development over the course of the text, including its relationship to supporting ideas; provide an objective summary of the text.

#### Craft and Structure:

- CCSS.ELA-LITERACY.RI.8.4 Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of specific word choices on meaning and tone, including analogies or allusions to other texts.
- CCSS.ELA-LITERACY.RI.8.5 Analyze in detail the structure of a specific paragraph in a text, including the role of particular sentences in developing and refining a key concept.

#### All of the poems in this section address the following CCSS standards:

#### Craft and Structure:

- CCSS.ELA-LITERACY.RL.8.4 Determine the meaning of words and phrases as they are used in a text, including figurative and connotative meanings; analyze the impact of specific word choices on meaning and tone, including analogies or allusions to other texts.
- CCSS.ELA-LITERACY.RL.8.5 Compare and contrast the structure of two or more texts and analyze how the differing structure of each text contributes to its meaning and style.

Range of Reading and Level of Text Complexity:

- CCSS.ELA-LITERACY.RL.8.10 By the end of the year, read and comprehend literature, including stories, dramas, and poems, at the high end of grades 6-8 text complexity band independently and proficiently.

**Mathematics**

U.S. Academic Pentathlon® and the Common Core Standards for Math

Common Core Standards for Grade 6:

CCSS.Math.Content.6.RP.A.1

Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.

CCSS.Math.Content.6.RP.A.2

Understand the concept of a unit rate  $a/b$  associated with a ratio  $a:b$  with  $b \neq 0$ , and use rate language in the context of a ratio relationship.

CCSS.Math.Content.6.RP.A.3.b

Solve unit rate problems including those involving unit pricing and constant speed.

CCSS.Math.Content.6.RP.A.3.c

Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means  $30/100$  times the quantity); solve problems involving finding the whole, given a part and the percent.

CCSS.Math.Content.6.NS.A.1

Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem.

CCSS.Math.Content.6.NS.C.6.a

Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, e.g.,  $-(-3) = 3$ , and that 0 is its own opposite.

CCSS.Math.Content.6.NS.C.7.b

Write, interpret, and explain statements of order for rational numbers in real-world contexts.

CCSS.Math.Content.6.NS.C.7.c

Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation.

CCSS.Math.Content.6.G.A.1

Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.

Common Core Standards for Grade 7:

CCSS.Math.Content.7.RP.A.1

Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.

CCSS.Math.Content.7.RP.A.2

Recognize and represent proportional relationships between quantities.

CCSS.Math.Content.7.RP.A.2.b

Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.

CCSS.Math.Content.7.RP.A.2.c

Represent proportional relationships by equations.

CCSS.Math.Content.7.NS.A.1

Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram

CCSS.Math.Content.7.NS.A.1.d

Apply properties of operations as strategies to add and subtract rational numbers.

CCSS.Math.Content.7.NS.A.2

Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.

CCSS.Math.Content.7.NS.A.2.b

Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If  $p$  and  $q$  are integers, then  $-(p/q) = (-p)/q = p/(-q)$ . Interpret quotients of rational numbers by describing real-world contexts.

CCSS.Math.Content.7.NS.A.2.c

Apply properties of operations as strategies to multiply and divide rational numbers.

CCSS.Math.Content.7.NS.A.2.d

Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.

CCSS.Math.Content.7.NS.A.3

Solve real-world and mathematical problems involving the four operations with rational numbers.

CCSS.Math.Content.7.G.A.1

Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.

CCSS.Math.Content.7.G.B.4

Know the formulas for the area and circumference of a circle and use them to solve

problems; give an informal derivation of the relationship between the circumference and area of a circle.

CCSS.Math.Content.7.G.B.5

Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.

CCSS.Math.Content.7.G.B.6

Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.

Common Core Standards for Grade 8:

CCSS.Math.Content.8.NS.A.1

Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion which repeats eventually into a rational number.

CCSS.Math.Content.8.NS.A.2

Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g.,  $\pi^2$ ).

CCSS.Math.Content.8.G.A.1.a

Lines are taken to lines, and line segments to line segments of the same length.

CCSS.Math.Content.8.G.A.1.b

Angles are taken to angles of the same measure.

CCSS.Math.Content.8.G.A.4

Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.

CCSS.Math.Content.8.G.B.7

Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.

CCSS.Math.Content.8.G.B.8

Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.

CCSS.Math.Content.8.G.C.9

Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.

## Science

### U.S. Academic Pentathlon® and the Next Generation Science Standards: Middle School Physical Science – Disciplinary Core Ideas

#### MS-LS1 From Molecules to Organisms: Structures and Processes

- LS1.A: Structure and Function
  - All living things are made up of cells, which is the smallest unit that can be said to be alive. An organism may consist of one single cell (unicellular) or many different numbers and types of cells (multicellular).
  - Within cells, special structures are responsible for particular functions, and the cell membrane forms the boundary that controls what enters and leaves the cell.
  - In multicellular organisms, the body is a system of multiple interacting subsystems. These subsystems are groups of cells that work together to form tissues and organs that are specialized for particular body functions.

#### MS-LS2 Ecosystems: Interactions, Energy, and Dynamics

- LS2.A: Interdependent Relationships in Ecosystems
  - Organisms, and populations of organisms, are dependent on their environmental interactions both with other living things and with nonliving factors.
- LS2.C: Ecosystem Dynamics, Functioning, and Resilience
  - Ecosystems are dynamic in nature; their characteristics can vary over time. Disruptions to any physical or biological component of an ecosystem can lead to shifts in all its populations.
- ETS1.B: Developing Possible Solutions
  - There are systematic processes for evaluating solutions with respect to how well they meet the criteria and constraints of a problem.

#### MS-LS3 Heredity: Inheritance and Variation of Traits

- LS1.B: Growth and Development of Organisms
  - Organisms reproduce, either sexually or asexually, and transfer their genetic information to their offspring.

### NGSS Science and Engineering Practices

#### Practice 2: Developing and Using Models

- Develop a model to predict and/or describe phenomena.
- Develop a model to describe unobservable mechanisms.

#### Practice 4: Analyzing and Interpreting Data

- Analyze and interpret data to determine similarities and differences in findings.
- Analyze and interpret data to provide evidence for phenomena.



- Construct and interpret graphical displays of data to identify linear and nonlinear relationships.

#### Practice 5: Using Mathematics and Computational Thinking

- Use mathematical representations to describe and/or support scientific conclusions and design solutions.

#### NGSS Understandings About the Nature of Science

##### Scientific Investigations Use a Variety of Methods

- Science investigations use a variety of methods and tools to make measurements and observations.
- Science depends on evaluating proposed explanations.

##### Scientific Knowledge is Based on Empirical Evidence

- Science knowledge is based upon logical and conceptual connections between evidence and explanations.

##### Scientific Knowledge is Open to Revision in Light of New Evidence

- Scientific explanations are subject to revision and improvement in light of new evidence.
- The certainty and durability of science findings varies.
- Science findings are frequently revised and/or reinterpreted based on new evidence

##### Science Models, Laws, Mechanisms, and Theories Explain Natural Phenomena

- Theories are explanations for observable phenomena.
- Science theories are based on a body of evidence developed over time.
- Laws are regularities or mathematical descriptions of natural phenomena.
- A hypothesis is used by scientists as an idea that may contribute important new knowledge for the evaluation of a scientific theory.

##### Science is a Way of Knowing

- Science knowledge is cumulative and many people, from many generations and nations, have contributed to science knowledge.

##### Scientific Knowledge Assumes an Order and Consistency in Natural Systems

- Science assumes that objects and events in natural systems occur in consistent patterns that are understandable through measurement and observation.
- Science carefully considers and evaluates anomalies in data and evidence.

### Science is a Human Endeavor

- Men and women from different social, cultural, and ethnic backgrounds work as scientists and engineers.
- Scientists and engineers are guided by habits of mind such as intellectual honesty, tolerance of ambiguity, skepticism and openness to new ideas.
- Advances in technology influence the progress of science and science has influenced advances in technology.

### Science Addresses Questions About the Natural and Material World

- Science knowledge can describe consequences of actions but is not responsible for society's decisions.

## Social Science

### *U.S. Academic Pentathlon® and the National Standards for Social Science*

#### Standards Background

The Curriculum Standards for Social Studies were developed by a Task Force of the National Council for the Social Studies (NCSS) and approved by the NCSS Board of Directors in April 1994 and revised in 2010. The NCSS standards focus on ten overarching themes, and the content standards include aspects of several different fields of study, including civics, geography, U.S. history, and world history.

### *U.S. Academic Pentathlon® and the Curriculum Standards for Social Studies*

Rather than cover a broad spectrum of topics, time periods, and cultures, U.S. Academic Pentathlon's social science curriculum explores a specific topic in greater depth than is typical for a middle school-level curriculum. As a result, the number of the NCSS standards that are addressed each year by U.S. Academic Pentathlon's social science curriculum may be limited; however, when viewed over the course of several years, U.S. Academic Pentathlon's social science curricula have met many of the NCSS standards.

U.S. Academic Pentathlon® 2017–2018 social science curriculum in concert with other subject areas addresses aspects of seven of the ten NCSS curricular themes:

- *Culture*
- *Time, Continuity, and Change*
- *People, Places, and Environments*
- *Individuals, Groups, and Institutions*
- *Power, Authority, and Governance*
- *Production, Distribution, and Consumption*
- *Global Connections*

## Source List

Common Core State Standards Initiative. 10 August 2017 <<http://www.corestandards.org/>>.

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“Standards for the English Language Arts.” The National Council of Teachers of English. 2 August 2017 <<http://www.ncte.org/standards/ncte-ira/>>.

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