

2021-22 Academic Pentathlon Fine Arts Resource Guide Outline

Section I. Basic Elements in Music and Art.....16%

- A. Introduction to Music
- B. Pitch, Rhythm, and Harmony
- C. Form in Music
- D. Music Summary
- E. Introduction to Art History
- F. Methods and Inquiries of Art
- G. Elements of Art
- H. Processes and Techniques
- I. Art Summary

Section II. Relying on Water.....18%

- A. Listening Example
- B. Water Workers
- C. Listening Example
- D. The Sound of Water: Fountains
- E. Listening Example
- F. The Sound of Water: Aquariums
- G. Listening Example

Section III. East Asian Ink Wash Painting; Watercolor in Western Art.....24%

- A. Introduction to Ink Wash Technique
- B. The Rise of Chinese Ink Painting
- C. Selected Works
- D. Contemporary Korean Ink Painting
- E. The Water Color in Western Art
- F. The Development of Watercolor as a Medium in Western Art
- G. Selected Work
- H. Watercolor and Natural History Illustration
- I. Selected Work
- J. British Watercolor and Children's Book Illustration
- K. Selected Work
- L. The Rise of Nineteenth-Century American Watercolor
- M. Selected Works

Section IV. Water, Less Restrained.....17%

- A. The Sound of Water: Oceans

- B. Listening Example
- C. The Sound of Water: Lakes
- D. Listening Example
- E. Water in Other Guises
- F. Music and Rain
- G. Music and Frozen Water
- H. Listening Example
- I. Music and Water Vapor
- J. Listening Example

Section V. Water as Subject: Water in Architecture, Sculpture, and Environmental Art..25%

- A. Water as Subject Matter and Its Social and Political Implications
- B. Selected Works
- C. History of Niagara Falls Imagery
- D. Selected Works
- E. Water in Architecture, Sculpture, and Environmental Art
- F. Selected Works

2021-22 Academic Pentathlon Literature Resource Guide Outline

Section I. Critical Reading.....	8%
Section II. Water and the Oral Tradition.....	3%
A. Introduction: Water is Life	
Section III. <i>A Long Walk to Water</i> , Linda Sue Park.....	24%
A. <i>A Long Walk to Water</i> and the Theme of “Water: An Enduring Element in Literature”	
B. Historical Context of <i>A Long Walk to Water</i>	
C. Water	
D. Key Characters	
E. Setting	
F. Structure	
G. Chapter Summaries and Analyses	
H. Themes	
I. Literary Devices	
J. Sound Devices	
K. Punctuation and Sentence Structure	
Section IV. Shorter Selections.....	65%
A. Short Stories	
B. Poetry	

2021-22 Academic Pentathlon Mathematics Resource Guide Outline

Section I. Probability, Permutations and Combinations.....26%

- A. Probability
- B. Permutations
- C. Combinations

Section II. Statistics.....26%

- A. Measure of Central Tendency
- B. Organizing and Displaying Data
- C. Sequences

Section III. Algebra.....48%

- A. Base Terms in Set Theory
- B. Sets of Numbers
- C. Exponents and Roots
- D. Variables and Algebraic Expressions
- E. Equations
- F. Ratios and Proportions
- G. Monomials and Polynomials
- H. Factoring
- I. Solving Quadratic Equations
- J. Inequalities

2021-22 Academic Pentathlon Science Resource Guide Outline

Section I. The Ocean Planet.....37%

- A. Introduction
- B. An Introduction to Marine Biology
- C. How Do We Study Marine Life?
- D. The Geography and Geology of the Ocean
- E. Water and Seawater
- F. Interactions of the Ocean and the Atmosphere
- G. Water
- H. Tides

Section II. Marine Life.....31%

- A. Introduction
- B. The Origins of Life
- C. Defining Marine Life
- D. The Building Blocks of Life
- E. Photosynthesis and Chemosynthesis
- F. Biogeochemical Cycles
- G. Classifying Marine Life
- H. The Microbial World
- I. Plankton
- J. Seaweed and Plants
- K. Invertebrates: Animals without a Backbone
- L. Vertebrates

Section III. Marine Ecosystems.....17%

- A. Introduction
- B. What is Marine Ecology?
- C. Environmental Factors Limiting
- D. Organismal Distribution
- E. Ecological Principles
- F. Habitats
- G. Feeding and Food Webs

Section IV. Humans and the Ocean.....15%

- A. Introduction
- B. Resources and the Ocean
- C. Anthropogenic Impacts
- D. Conservation and Protection

2021-22 Academic Pentathlon Social Science Resource Guide Outline

Section I: Physical Properties of Water8%

- A. Introduction
- B. Chemical and Atmospheric Properties of Water
- C. Biochemical Properties of Water

Section II: The Environmental History of Water56%

- A. Water and Pastoralist Cultures
- B. The Great Transition: Water and the Neolithic Revolution
- C. The Wittfogel Thesis
- D. The “Great Goddess” Hypothesis
- E. The Role of Water in European Antiquity
- F. “The Second Great Transition”: Urbanization and the Industrial Revolution

Section III: Present-Day Water Issues19%

- A. Introduction
- B. A Miniature History of Waterborne Diseases
- C. The Sanitary Revolution
- D. Water in the Industrializing World: The United States
- E. Water in the Rural Global South
- F. Water in the Urban Global South – The Example of Bolivia
- G. Water and Agriculture
- H. Oceanic Water

Section IV: Water and the Future of Human Civilization17%

- A. Introduction
- B. Response to Scarcity, Example 1: Conservation and Reuse in Israel
- C. Response to Scarcity, Example 2: Desalinization in California
- D. Response to Scarcity, Example 3: Unusual Approaches
- E. Climate Change, International Relations, and Water