

The Praxis® Study Companion

Middle School: Multiple Subjects

5141



Welcome to *The Praxis® Study Companion*

Prepare to Show What You Know

You have been working to acquire the knowledge and skills you need for your teaching career. Now you are ready to demonstrate your abilities by taking a *Praxis®* test.

Using *The Praxis Series® Study Companion* is a smart way to prepare for the test so you can do your best on test day. This guide can help keep you on track and make the most efficient use of your study time.

The Study Companion contains practical information and helpful tools, including:

- An overview of the *Praxis* tests
- Specific information on the *Praxis* test you are taking
- A template study plan
- Study topics
- Practice questions and explanations of correct answers
- Test-taking tips and strategies
- Frequently asked questions
- Links to more detailed information

So where should you start? Begin by reviewing this guide in its entirety and note those sections that you need to revisit. Then you can create your own personalized study plan and schedule based on your individual needs and how much time you have before test day.

Keep in mind that study habits are individual. There are many different ways to successfully prepare for your test. Some people study better on their own, while others prefer a group dynamic. You may have more energy early in the day, but another test taker may concentrate better in the evening. So use this guide to develop the approach that works best for you.

Your teaching career begins with preparation. Good luck!

Know What to Expect

Which tests should I take?

Each state or agency that uses the *Praxis* tests sets its own requirements for which test or tests you must take for the teaching area you wish to pursue.

Before you register for a test, confirm your state or agency's testing requirements at www.ets.org/praxis/states.

How are the *Praxis* tests given?

Praxis tests are given on computer. Other formats are available for test takers approved for accommodations (see page 53)

What should I expect when taking the test on computer?

When taking the test on computer, you can expect to be asked to provide proper identification at the test center. Once admitted, you will be given the opportunity to learn how the computer interface works (how to answer questions, how to skip questions, how to go back to questions you skipped, etc.) before the testing time begins. Watch the [What to Expect on Test Day](#) video to see what the experience is like.

Where and when are the *Praxis* tests offered?

You can select the test center that is most convenient for you. The *Praxis* tests are administered through an international network of test centers, which includes Prometric® Testing Centers, some universities, and other locations throughout the world.

Testing schedules may differ, so see the *Praxis* Web site for more detailed test registration information at www.ets.org/praxis/register.

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1. Learn About Your Test

Learn about the specific test you will be taking

Middle School: Multiple Subjects (5141)

Test at a Glance					
Test Name		Middle School: Multiple Subjects			
Test Code		5141			
Total Time		4 hours (four separately timed subjects)			
Format		Selected-response questions; scientific or four-function calculator use permitted			
Test Delivery		Computer delivered			
<div><div>Middle School: Multiple Subjects</div><div><div>English Language Arts Subtest</div><div>Mathematics Subtest</div><div>Social Studies Subtest</div><div>Science Subtest</div></div></div>		Subject Test Length (Minutes)		Subject Test Length (Questions)	
		5142	English Language Arts	60	60
		5143	Mathematics	60	40
		5144	Social Studies	60	70
		5145	Science	60	60

About This Test

The Middle School: Multiple Subjects test is designed to assess subject-matter knowledge required for those persons beginning professional practice as middle school teachers. The test is designed to support licensing for teachers who may teach in multiple subject areas. Examinees will typically have completed a bachelor’s program appropriate to support a middle school license.

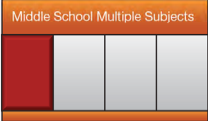
The assessment is divided into four subtests, each assessing one core academic subject:

- Subtest 1: English Language Arts
- Subtest 2: Mathematics
- Subtest 3: Social Studies
- Subtest 4: Science

Each subtest covers knowledge important for teaching the subject at the middle school level. Each subtest will provide a separate score.

Middle School:
English Language Arts Subtest

(5142) Time: 60 minutes; Format: Selected response



	English Language Arts Categories	Approximate Number of Questions	Approximate Percentage of Category
	I. Literature and Informational Text	26	43%
	II. Composition and Rhetoric	22	37%
	III. Language Study	12	20%
	Total	60	100%

About This Subtest

The 60 selected-response questions in the English Language Arts subtest are designed to assess whether the entry-level middle school teacher has the content knowledge that is important, necessary, and needed at time of entry to the profession to teach English language arts.

Topics Covered

I. Literature and Informational Text

A. Is familiar with works of literature and informational text commonly used in the middle school curriculum

- 1. Identify the author of a work based on a passage from the work
- 2. Identify the title of a work based on a passage from the work
- 3. Identify the author of a work from the title of the work

B. Understands how to interpret literature

- 1. Interpret the literal meaning of a passage from a work
- 2. Interpret the inferential meaning of a passage from a work
- 3. Summarize or paraphrase the theme/central idea and supporting details within a passage
- 4. Compare and contrast the structure of two or more works and analyze how the different structure of each affects its meaning
- 5. Analyze how an author makes connections among ideas (e.g., through the use of analogies)

- 6. Analyze how modern works draw on theme or character types from past works; i.e., myths, the Bible, etc.

C. Understands how to interpret informational text

- 1. Interpret the literal meaning of a passage from a work
- 2. Interpret the inferential meaning of a passage from a work
- 3. Summarize or paraphrase the central idea and supporting details within a passage
- 4. Compare and contrast the structure of two or more works and analyze how the different structure of each affects its meaning
- 5. Analyze how a text makes connections among ideas (e.g., use of evidence and reasoning)

D. Understands how to interpret figurative language and literary elements

- 1. Explain the major types of figurative language (e.g., simile, metaphor, imagery)
- 2. Interpret figurative language used within a passage
- 3. Describe the characteristics of major literary elements (e.g., character analysis, point of view)
- 4. Interpret literary elements used within a passage
- 5. Explain the characteristics of story structure (e.g., setting, plot)

E. Knows the characteristics of major literary forms or genres

1. Describe the characteristics of each major literary form (e.g., poetry, prose, drama)
2. Identify the elements of major genres of fiction (e.g., tragedy, satire, science fiction)
3. Identify the elements of major genres of nonfiction (e.g., biography, essay)

F. Is familiar with historical and cultural contexts of literature and informational text

1. Recognize that historical and cultural contexts impact meaning
2. Identify major historical and cultural contexts of works

G. Knows various instructional strategies for supporting student comprehension of literature and informational text

1. Determine strategies used to activate prior knowledge
2. Determine strategies used to construct meaning through context
3. Determine strategies used to increase metacognition (including self-monitoring)
4. Determine strategies used to summarize
5. Describe the purpose of major graphic and semantic organizers (e.g., Venn diagram, story map)
6. Recognize the use of text structure in informational text (e.g., boldface, captions, subheadings)

II. Composition and Rhetoric

A. Knows individual and collaborative approaches to composing

1. Describe the stages of the writing process (e.g., draft, edit, publish)
2. Explain the relevance of peer review

B. Knows common research and documentation techniques

1. Identify relevant information from multiple print and digital sources, using search terms effectively
2. Determine the credibility and accuracy of source material
3. Recognize proper citation techniques when quoting or paraphrasing source material

C. Understands how a central idea is stated and supported in texts

1. Identify a thesis statement within a text
2. Identify supporting evidence within a text
3. Evaluate a work's thesis and support to ensure logical connections
4. Recognize the importance of thesis statements and supporting evidence

D. Understands the purpose and the role of the audience within a given composition

1. Identify the author's or speaker's purpose
2. Identify the intended audience of a work
3. Evaluate whether a work is appropriate for the intended audience

E. Understands the use of different text types in composition

1. Describe and differentiate among the text types
 - a. narrative, expository, persuasive, reflective, informational, descriptive
2. Identify the purpose of each text type
3. Recognize when to use each text type

F. Understands the elements of coherence and organization in composition

1. Evaluate a work based on its coherence and elements of organization
 - a. introduction, thesis/topic, evidence that supports thesis/topic, conclusion
2. Describe and differentiate organization within a paragraph and across paragraphs
3. Describe the elements of cohesion
 - a. clarify relationship of ideas, use similar rhetorical features, use appropriate transitions, maintain style

G. Understands the use of critical reasoning in composition

1. Recognize biases and fallacies
2. Differentiate between facts and opinions
3. Identify stereotypes and assumptions
4. Explain how biases, fallacies, stereotypes, and assumptions can impact intended meaning
5. Explain how biases, fallacies, stereotypes, and assumptions are used to support a particular point of view (e.g., in propaganda)

III. Language Study

A. Understands the conventions of grammar, usage, and mechanics

1. Describe and differentiate among sentence types (e.g., imperative, declarative)
2. Describe and differentiate among sentence structures (e.g., simple, compound)
3. Describe and differentiate among various types of phrases and clauses (e.g., independent clause, noun phrase)
4. Describe when and how to apply correct use of capitalization and punctuation rules
5. Describe and differentiate among various parts of speech, including modifiers

B. Understands vocabulary acquisition and use

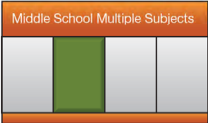
1. Distinguish between connotation and denotation
2. Differentiate among the use of context, the use of structural analysis, and the use of prereading to promote vocabulary development
3. Determine the meanings of words using context or structural analysis
4. Recognize the proper use of reference materials to determine the meanings of unfamiliar words (e.g., dictionary, glossary)


C. Knows the foundational principles of language acquisition and development, including first and second language

1. Recognize the influence of dialects on literacy and comprehension
2. Identify the progression of and relationship among foundational skills of reading
 - a. phonemic awareness, phonics, fluency, vocabulary, comprehension
3. Identify the progression of and relationship among foundational skills of writing
 - a. spelling, vocabulary, grammar, syntax, semantics, mechanics, usage

Middle School:
Mathematics Subtest

(5143) Time: 60 minutes; Format: Selected response



	Mathematical Categories	Approximate Number of Questions	Approximate Percentage of Subtest
	I. Numbers and Operations, Algebra, Functions and Their Graphs	20	50%
	II. Geometry and Measurement, Data, Probability, and Statistical Concepts	20	50%
	Total	40	100%

About This Subtest

The 40 selected-response questions in the Mathematics subtest are designed to assess whether the entry-level middle school teacher has the content knowledge that is important, necessary, and needed at time of entry to the profession to teach mathematics.

Topics Covered

I. Numbers and Operations, Algebra, Functions and Their Graphs

A. Numbers and Operations

1. Understands basic operations and properties of the real number system
 - a. solve problems using addition, subtraction, multiplication, and division of rational numbers
 - b. apply the order of operations
 - c. identify properties of basic number systems (e.g., commutative, associative, distributive, closure)
 - d. compare and order real numbers
 - e. classify numbers as rational, irrational, or not real
 - f. perform operations involving exponents, including negative and fractional exponents
 - g. add, subtract, multiply, and approximate radicals

2. Understands ratio concepts and knows how to use ratio reasoning to solve problems
 - a. apply the concept of a ratio and use ratio language to describe a ratio relationship between two quantities
 - b. use the concept of a unit rate a/b associated with the ratio $a:b$
 - c. use ratio reasoning to convert measurement units
3. Understands proportional relationships and knows how to use them to solve real-world problems
 - a. compute unit rates associated with ratios and fractions
 - b. recognize and represent proportional relationships between two quantities
 - c. use proportional relationships to solve multistep ratio and percent problems
4. Understands properties associated with natural numbers
 - a. identify and solve basic problems involving prime and composite numbers
 - b. identify and solve problems involving odd or even numbers
 - c. identify and solve problems involving factors, multiples, and divisibility

B. Algebra

1. Understands how to work with algebraic expressions, equations, and formulae
 - a. perform arithmetic operations on polynomials
 - b. rewrite and work with problems involving rational expressions
 - c. apply, compare, and interpret algebraic expressions
 - d. use variables to represent quantities and to construct and solve equations
 - e. translate verbal relationships into algebraic expressions or equations
2. Understands linear and nonlinear equations and inequalities
 - a. determine the equation of a line given sufficient information
 - b. solve linear inequalities
 - c. represent and solve nonlinear equations, including absolute values
 - d. represent and solve linear and nonlinear equations and inequalities graphically
 - e. represent and solve systems of linear equations with two variables
3. Understands simple sequences or number patterns
 - a. evaluate, extend, or find rules that involve specific number patterns
 - b. evaluate, extend, or find rules that involve a geometric pattern

C. Functions and Their Graphs

1. Knows how to identify, define, and evaluate functions
 - a. use function notation where appropriate
 - b. given a set of conditions, decide whether they represent a function
 - c. evaluate given functions to solve problems
2. Knows the concepts of the domain and the range of a function
 - a. determine the domain and range of a given function
 - b. determine the domain and range from a given graph of a function
3. Knows basic properties involving the graphs of functions
 - a. determine the slope of a given linear function
 - b. interpret slope as a constant rate of change
 - c. identify and interpret the x- and y-intercepts of a given function
 - d. locate the intervals of increase and decrease of a given function
4. Knows how to analyze and create functions that model given information
 - a. recognize a chart, graph, equation, or table given a description of a function

II. Geometry and Measurement, Data, Probability, and Statistical Concepts

A. Geometry and Measurement

1. Understands the concepts of angles, area, surface area, and volume
 - a. compute and interpret area and perimeter of common geometric shapes
 - b. compute and interpret surface area and volume of common geometric shapes
 - c. apply angle relationships to solve problems
2. Understands similarity and congruence
 - a. use similarity and congruence to solve problems with two-dimensional and three-dimensional figures
3. Understands properties of parallel and perpendicular lines
 - a. solve problems involving parallel and perpendicular lines
4. Understands properties of triangles
 - a. solve basic problems that involve sides and angles (e.g., Pythagorean theorem)
 - b. solve problems that involve medians, midpoints, and altitudes
5. Understands properties of special quadrilaterals
 - a. identify geometric properties of square, rectangle, parallelogram, rhombus, and trapezoid
 - b. identify relationships among quadrilaterals
 - c. solve problems involving angles and diagonals
 - d. solve problems involving polygons with more than four sides
6. Understands properties of circles
 - a. solve problems involving circumference and area of a circle
 - b. solve problems involving diameter and radius of a circle

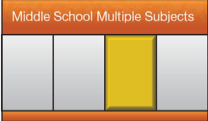
7. Understands and can interpret geometric relationships in the xy -plane
 - a. determine the distance between two points
 - b. determine the midpoint of a segment
 - c. interpret and solve problems involving reflections, rotations, and translations
8. Understands systems of measurement
 - a. solve measurement and estimation problems involving time, length, temperature, volume, and mass in both United States customary and metric systems, where appropriate
 - b. convert units within each system

B. Data, Probability, and Statistical Concepts

1. Knows how to interpret and analyze data presented in various forms
 - a. analyze bar graphs, line graphs, histograms, scatter plots, double line graphs, and double bar graphs
 - b. analyze stem-and-leaf plots, box plots, and line plots
 - c. draw conclusions based upon data
2. Understands chance processes and knows how to develop, use, and evaluate probability models
 - a. use counting techniques, including the counting principle, to answer questions involving finite sample spaces
 - b. apply concepts of independent and dependent events
3. Understands measures of central tendency and dispersion
 - a. solve for the mean and weighted average of a given set of data
 - b. determine and interpret mean, median, and mode in a variety of problems
 - c. determine the range and interpret common measures of dispersion, such as standard deviation, spread of data, and outliers

Middle School:
Social Studies Subtest

(5144) Time: 60 minutes; Format: Selected response



	Social Studies Categories	Approximate Number of Questions	Approximate Percentage of Subtest
	I. United States History	17	25%
	II. World History	15	22%
	III. Government, Civics, and Political Science	13	18%
	IV. Economics	12	17%
	V. Geography	13	18%
	Total	70	100%

About This Subtest

The 70 selected-response questions in the Social Studies subtest are designed to assess whether the entry-level middle school teacher has the content knowledge that is important, necessary and needed at time of entry to the profession in order to teach social studies.

Topics Covered

I. United States History

A. Knows basic North American geography and the peoples and cultures of North America prior to European colonization

- 1. Locate major geographical features (mountain ranges, lakes, rivers, valleys)
- 2. Know differences in climate across the regions
- 3. Describe major features of various Indian groups (e.g., Eastern Woodlands, Great Plains)

B. Knows the origins and development of the 13 colonies and the early Republic

- 1. Identify reasons for settlement
- 2. Describe the evolution of the English colonies
- 3. Know causes and results of the American Revolution
 - a. identify leaders and major turning points of the American Revolution
 - b. know basic tenets of the Declaration of Independence
- 4. Know principles of the Constitution and Bill of Rights

C. Knows major political developments throughout United States history

- 1. Demonstrate knowledge of the development of political parties
- 2. Demonstrate knowledge of the Jacksonian era
- 3. Demonstrate knowledge of the Gilded Age
- 4. Demonstrate knowledge of the Progressive era
- 5. Demonstrate knowledge of the New Deal
- 6. Demonstrate knowledge of political issues of the 1940-90s (e.g., McCarthyism, Civil Rights, student protest movements, Watergate)

D. Knows causes and effects of nineteenth-century sectionalism, the Civil War, and Reconstruction

- 1. Demonstrate knowledge of the growth of the plantation system
- 2. Demonstrate knowledge of the economic and cultural divide between the North and the South
- 3. Demonstrate knowledge of the major events leading to the Civil War
 - a. identify leaders and major turning points of the Civil War
 - b. know major causes and effects of Reconstruction

E. Knows the impact of racial, gender, and ethnic interactions throughout American history

1. demonstrate understanding of the effects of early contacts between Europeans, Africans, and American Indians
2. demonstrate understanding of the origins and development of African slavery in North America
3. demonstrate understanding of labor systems in colonial America (e.g. European and African indentured servitude)
4. demonstrate understanding of the Civil Rights movement
5. demonstrate knowledge of the roles of key individuals (e.g., Elizabeth Cady Stanton, Martin Luther King, Jr., Cesar Chavez) in struggles for civil rights throughout United States history
6. demonstrate understanding of the major movements for political and civil rights throughout United States history (e.g., woman suffrage, African American civil rights, American Indian Movement)
7. demonstrate knowledge of the struggles and achievements of particular groups for political and civil rights (e.g., Native Americans, Latinos)
8. demonstrate knowledge of woman suffrage

F. Knows major cultural and social developments in United States history

1. demonstrate knowledge of social and educational reform
2. demonstrate knowledge of religious movements (e.g., Second Great Awakening)
3. demonstrate knowledge of industrialization and urbanization
4. demonstrate knowledge of major social and cultural trends of the twentieth century
5. demonstrate knowledge of the impact of changing roles of women, men, and the family in United States history

G. Knows about territorial expansion, the emergence of the United States as a world power, and the evolving role of the United States in the world

1. demonstrate understanding of foreign policy issues, including the Louisiana Purchase, the War of 1812, and the Monroe Doctrine
2. demonstrate knowledge of territorial expansion of the United States in the nineteenth century
3. demonstrate understanding of the causes of the United States' participation in the First World War and of the effects at home and abroad
4. demonstrate understanding of the causes of the United States' participation in the Second World War and of the effects at home and abroad
5. demonstrate understanding of domestic and foreign developments during the Cold War (e.g., McCarthyism, the Cuban missile crisis)

H. Knows major economic transformations (e.g., in agriculture, in business, in labor) in the United States

1. demonstrate knowledge of economic cycles of boom and bust in American history
2. demonstrate knowledge of the long-term changes from an agricultural economy to an industrial economy to a post-industrial economy in American history
3. demonstrate knowledge of the transportation revolution and early industrialization

I. Understands causes and effects of changing patterns of immigration to the United States and internal migration within the United States

1. demonstrate knowledge of major shifts in the sources of immigration to the United States
2. demonstrates knowledge of causes, effects, and major patterns of migration within the United States
3. demonstrates knowledge of the causes, effects, and reactions to immigration to the United States

J. Knows the interpretations and ongoing impact of the United States Constitution

1. demonstrate knowledge of landmark Supreme Court cases (e.g., *Marbury v. Madison*, *McCullough v. Maryland*, *Brown v. Board of Education of Topeka*, *Roe v. Wade*)

II. World History**A. Knows the major contributions of early civilizations in Africa, Europe, and Asia in the period 8000 B.C.E. to 1000 B.C.E. and the Americas in the period 2000 B.C.E. to 1500 B.C.E.**

1. demonstrate knowledge of the contributions of early river valley civilizations (e.g., Nile, Indus, Tigris-Euphrates, Hwang Ho), such as long-term impact on science, philosophy, art, religion, and governance
2. demonstrate knowledge of contributions of major civilizations in the Americas (e.g., Aztecs, Incas, Mayans) and Africa south of the Sahara (e.g., Mali, Songhay), such as long-term impact on science, philosophy, art, religion, and governance

B. Knows the major contributions of the classical civilizations of Greece, Rome, Persia, India, and China in the period 1000 B.C.E. to 500 C.E.

1. demonstrate knowledge of the major contributions of the classical civilizations of Greece, Rome, Persia, India, and China in the period 1000 B.C.E. to 500 C.E.

C. Knows how civilizations changed as a result of invasions, trade, and the spread of religious ideas and culture in the period 300 C.E. to 1400 C.E.

1. demonstrate knowledge of the effects of trade on the wealth and power of different societies
2. demonstrate knowledge of how trade networks (e.g., Silk Road, salt trade) and invasions (e.g., Mongols) affected societies in Africa, Asia, and Europe
3. demonstrate knowledge of the origins and achievements of Muslim societies and of the expansion of Islam
4. demonstrate knowledge of how Christianity spread throughout the period 300 C.E. to 1400 C.E.

D. Knows major causes and effects of growing global interactions in the period 1200 C.E. to 1750 C.E. (e.g., Columbian Exchange, colonization, the Plague)

1. demonstrate knowledge of the global transition to a market economy
2. demonstrate knowledge of cultural contacts among Europe, Asia, Africa, and the Americas (e.g., the impact on African cultures of slavery and colonialism, the rejection of European culture by China and Japan, and the impact of Europe on cultures in Mesoamerica and South America)

E. Knows major ideological, economic, and political causes and effects of the First and Second World Wars and the Cold War (e.g., Russian Revolution, decolonization)

1. demonstrate knowledge of the major causes and effects of the First World War and the Russian Revolution
2. demonstrate knowledge of how global consequences of the First World War contributed to the Second World War
3. demonstrate knowledge of the causes and effects of the Holocaust
4. demonstrate knowledge of the consequences of the Second World War (e.g., decolonization)
5. demonstrate knowledge of the global effects of the Cold War

F. Knows major developments of the post-Cold War world (e.g., growth of the globalized economy, rise of fundamentalism and nationalism)

1. demonstrate knowledge of the changing geopolitical map of the post-Cold War world
2. demonstrate knowledge of the impact of various forms of religious fundamentalism on social and political life
3. demonstrate knowledge of globalization (e.g., social and economic trends, global popular culture, technology)

G. Understands how scientific inquiry, technological innovations, and adaptations shaped world societies

1. demonstrate knowledge of the domestication of plants and animals and diffusion of agriculture
2. demonstrate knowledge of the development and diffusion of long-range communication and transportation
3. demonstrate knowledge of the development, adaptation, and diffusion of tools
4. demonstrate knowledge of how scientific inquiry shaped world history

H. Understands the role of major world religions in shaping societies and effecting major historical turning points (e.g., the spread of Buddhism, the Crusades, Hinduism)

1. demonstrate knowledge of the historical impact of Hinduism and Buddhism
2. demonstrate knowledge of how the major world religions have interacted at different points in history
3. demonstrate knowledge of the development and impact of monotheistic faiths: Judaism, Christianity, and Islam

I. Understands major economic transformations that have affected world societies (e.g., feudalism, spread of the market economy, industrialization)

1. demonstrate knowledge of how industrialization has affected world societies since the Industrial Revolution
2. demonstrate knowledge of how the spread of the market economy has affected world societies

J. Knows major demographic trends (e.g., urbanization, migration, population growth) in world history and their effects

1. demonstrate knowledge of the increase in world population due to the development of agriculture
2. demonstrate knowledge of the demographic changes in both the Old and New Worlds as a result of the Columbian Exchange

3. demonstrate knowledge of the demographic effects of industrialization
4. demonstrate knowledge of the increase in world population caused by medicine, sanitation, and food production
5. demonstrate knowledge of the reasons why populations decrease (wars, epidemics)
6. demonstrate knowledge of the effects of major migrations in world history

K. Understands how struggles for human rights shaped various societies

1. demonstrate knowledge of the historical roots of the notion of human rights and individual expression
2. demonstrate knowledge of the goals and achievements of movements to extend political rights (e.g., the women's suffrage movement) and economic rights (e.g., the development of labor unions)
3. demonstrate knowledge of the goals and achievements of movements to gain national independence or national self-determination (e.g., the decolonization movements in Asia and Africa)

III. Government, Civics, and Political Science

A. Understands the key concepts and ideas on which the United States government is based (e.g., popular sovereignty, separation of powers, rule of law)

1. demonstrate knowledge of the effect of Enlightenment principles on the development of the United States system of government
2. demonstrate knowledge of how key concepts (e.g., popular sovereignty, separation of powers, checks and balances) shaped the framing of the Constitution and the United States government
3. demonstrate knowledge of the principle of the rule of law

B. Understands federalism and the basic relationship between the states and the national government

1. demonstrate understanding of the changing relationships among federal, state, and local governments
2. demonstrate knowledge of the development and impact of federalism on United States policy

C. Understands the origins, roles, and interactions of the three branches of the federal government

1. demonstrate understanding of the origins of the legislative, executive, and judicial branches of government
2. demonstrate understanding of the functions and powers of the legislative, executive, and judicial branches of government
3. demonstrate understanding of the relationships among the legislative, executive, and judicial branches of government
4. demonstrate an understanding of checks and balances

D. Understands how the election process operates in the United States

1. demonstrate knowledge of the Electoral College and its role in elections
2. demonstrate knowledge of characteristics of the electoral process (e.g., nominating, campaigning, fundraising)

E. Knows the role of political parties, interest groups, and the media in the political process

1. demonstrate knowledge of the goals and functions of political parties and interest groups
2. demonstrate knowledge of the role of the media in the American political process

F. Understands the rights, responsibilities, and duties of United States citizens

1. demonstrate an understanding of civic participation (e.g., financial contributions, candidacy)
2. demonstrate an understanding of the rights (e.g., petition), responsibilities (e.g., voting), and duties (e.g., paying taxes) of United States citizens

3. demonstrate an understanding of the application of constitutional rights in American society (e.g., free speech)

G. Knows the major characteristics of different political systems (e.g., democracy, republicanism, totalitarianism)

1. demonstrate knowledge of the structure of differing political systems (e.g., democracy, monarchy, theocracy)
2. demonstrate knowledge of the operation of different forms of government in the modern world (e.g., parliamentary, presidential)

IV. Economics

A. Knows basic principles of economics

1. demonstrate knowledge of scarcity, choice, efficiency, opportunity costs and trade-offs, and allocation of resources
2. demonstrate understanding of supply and demand
3. demonstrate knowledge of the determinants that shift supply and demand
4. demonstrate knowledge of different measures of economic performance (e.g., gross domestic product, unemployment, inflation)
5. demonstrate understanding of basic functions of money and how it circulates through the economy

B. Understands basic principles of personal finance

1. demonstrate understanding of the principles of budgeting, balancing a checkbook, credit, and savings
2. demonstrate knowledge of basic investment tools (e.g., stocks and bonds, real estate, commodities)

C. Knows the interdependent nature of the global economy

1. demonstrate knowledge of uneven patterns of economic growth and development in the world
2. demonstrate knowledge of current patterns of industrialization and deindustrialization
3. demonstrate knowledge of the impacts of globalization

D. Knows how government intervention and public policies affect the economy (e.g., taxation, regulation)

1. demonstrate knowledge of economic goals (e.g., growth, full employment, efficiency)
2. demonstrate knowledge of the impact of different types of taxes (e.g., progressive, regressive, proportional)
3. demonstrate knowledge of fiscal policy (e.g., government spending)
4. demonstrate knowledge of the impacts of government regulations
5. demonstrate knowledge of monetary policy and the Federal Reserve

E. Understands how the factors of production (i.e., land, labor, capital, and entrepreneurship) affect economic activity

1. demonstrate understanding of how the factors of production (i.e., land, labor, capital, and entrepreneurship) affect economic activity

V. Geography

A. Understands how to read and interpret different map types (e.g., physical, political, thematic)

1. demonstrate understanding of the use of maps and other graphic representations to acquire, process, and report information from a spatial perspective

B. Understands spatial patterns and their meanings (e.g., population density, resource distribution, transportation systems)

1. demonstrate ability to recognize and interpret spatial patterns (e.g., of people, places, and environments)
2. demonstrate ability to interpret patterns at any given scale

C. Is familiar with recent technological sources of geographic information (e.g., GPS, GIS, Google Earth)

1. demonstrate knowledge of current technological sources of geographic information

D. Understands how to utilize characteristics (e.g., climate, location, culture) to identify regions

1. demonstrate knowledge of the creation and uses of regions to interpret Earth's complexity (e.g., rain forest, Africa, Middle East)

E. Understands the interrelationship between the environment and human activity

1. demonstrate understanding of how human actions modify the physical environment
2. demonstrate knowledge of how physical systems affect human systems (e.g., transportation systems, communication systems, trade)
3. demonstrate understanding of how specific environments affect human activities

F. Knows basic concepts of political geography (e.g., changing boundaries)

1. demonstrate knowledge of why political borders change
2. demonstrate knowledge of the concepts of state, nation, and nation-state, and the distinctions among them
3. demonstrate knowledge of contemporary and significant areas of conflict

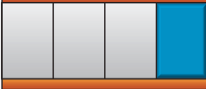
G. Understands the concepts of absolute and relative location

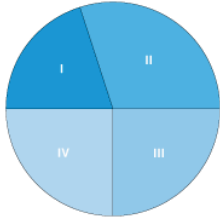
1. demonstrate an understanding of latitude and longitude and applies them to determine absolute location on a map
2. demonstrate understanding of and ability to use the concepts of absolute and relative location

Middle School:
Science Subtest

(5145) Time: 60 minutes; Format: Selected response

Middle School Multiple Subjects



	Science Categories	Approximate Number of Questions	Approximate Percentage of Subtest
	I. Scientific Inquiry and Methods, and Impact on Society	12	20%
	II. Physical Science	18	30%
	III. Life Science	15	25%
	IV. Earth and Space Science	15	25%
	Total	60	100%

About This Subtest

The 60 selected-response questions in the Science subtest are designed to assess whether the entry-level middle school teacher has the content knowledge that is important, necessary, and needed at time of entry to the profession to teach science.

Topics Covered

I. Scientific Inquiry and Methods, and Impact on Society

A. Scientific Inquiry and Methods

1. Understands the basic elements of scientific inquiry and how they are used
 - a. identify hypotheses, theories, models, and laws, and their role in scientific inquiry
 - b. explain the role of the elements of experimental design, including independent and dependent variables, controls, sources of error, and drawing conclusions
 - c. recognize the nature of scientific knowledge
 - subject to change
 - consistent with evidence
 - based on reproducible evidence
 - includes unifying concepts and processes (e.g., systems, models, constancy and change, equilibrium, form and function)

2. Understands the common methods and tools used to gather and present reliable data
 - a. identify common units of measurement (e.g., meter, gram, liter, Newton) and prefixes used with the units such as milli and kilo
 - b. explain the appropriate use of common measurement tools (e.g., thermometers, barometers, balances)
 - c. organize and present data (e.g., graphs, tables, charts, maps)
3. Knows how to interpret and draw conclusions from data presented in tables, graphs, charts, and maps
 - a. identify patterns and significant points in data
 - b. draw conclusions and make predictions based on presented data
 - c. recognize relationships between variables
 - d. recognize the effect of error on data and conclusions

4. Is familiar with the procedures for safe and correct use of laboratory materials and equipment
 - a. recognize appropriate procedures for safe storage and disposal of materials
 - b. recognize appropriate methods used to prepare materials for classroom use (experiments and demonstrations)
 - c. recognize when and how to use standard equipment in the laboratory (e.g., microscopes, Bunsen burners, graduated cylinders)
 5. Understands safety and emergency procedures in the laboratory
 - a. identify the location and explain the use of standard safety equipment (e.g., eyewash stations, safety showers, fume hoods)
 - b. describe appropriate student apparel and behavior (e.g., goggles, clothing, no eating in lab)
 - c. describe emergency procedures for mishaps (e.g., fires, chemical spills, injuries) and evacuation procedures
 6. Is familiar with the historical development of science and the contributions of major historical figures
 - a. recognize how key concepts developed over time (e.g., atomic models, cell theory, plate tectonics)
 - b. identify major historical figures and their contributions to science (e.g., Newton, Curie, Mendel)
- B. Impact of Science and Technology on Society**
1. Knows the impact of science and technology on the environment and society
 - a. recognize the impact of air and water pollution (e.g., acid rain, ozone depletion, loss of biodiversity)
 - b. identify major greenhouse gases
 - c. identify issues concerning global climate and sea level change
 - d. recognize the impact of production and disposal of consumer products (e.g., harmful byproducts, waste disposal)
 2. Knows the major issues associated with energy production and the management of natural resources
 - a. recognize the benefits of conservation and recycling
 - b. identify renewable and nonrenewable energy resources
 - c. identify the pros and cons of power generation based on various sources (e.g., fossil, nuclear, water, wind, solar, biomass, geothermal)
 - d. describe how Earth's resources are used and extracted (e.g., mining, reclamation, deforestation)
 3. Is familiar with applications of science and technology in daily life
 - a. identify some basic chemical properties of household products (e.g., acids and bases such as orange juice and ammonia-based cleaning solvents)
 - b. identify applications of physical principles in devices such as batteries, lenses, wireless devices, and communication satellites
 - c. recognize the contributions of space technology
 - d. identify common agricultural practices (e.g., genetically modified crops, use of herbicides and insecticides)
 - e. recognize the impact of science technologies on public policy (e.g., the use of DNA evidence in criminal investigations)
 4. Is familiar with the impact of science on public health issues
 - a. recognize the role of nutrition, disease, and medicine (e.g., food preservation, vitamins, vaccines, viruses)
 - b. recognize applications of biotechnology (e.g., genetic engineering, in vitro fertilization)
 - c. recognize applications of medical technologies (e.g., MRIs, X-rays, radiation therapy)

II. Physical Science

A. Basic Principles of Matter and Energy

1. Knows the basic structure and properties of matter
 - a. identify basic properties of solids, liquids, and gases
 - b. identify and distinguish between elements, atoms, compounds, molecules, and mixtures
2. Knows the basic relationships between energy and matter
 - a. apply the law of conservation of energy in various situations
 - b. recognize that matter is conserved in chemical reactions
 - c. recognize various forms of kinetic and potential energy and how they can be transformed from one form to another (e.g., thermal, chemical, radiant, mechanical)
 - d. identify the differences between chemical and physical properties/changes
 - e. describe the measurement of thermal energy and the effect of thermal energy on matter (e.g., specific heat capacity, temperature scales such as Celsius)
 - f. describe methods of heat transfer (e.g., convection, radiation, conduction)
 - g. apply energy and matter relationships in various contexts, such as convection currents in the atmosphere, ocean, and mantle, chemical and physical changes in rocks, impact of solar radiation on Earth and life, and photosynthesis
3. Knows the basic structure of the atom
 - a. describe the atomic model, including electrons, protons, and neutrons
 - b. define the atomic number and atomic mass of an atom
 - c. distinguish between an atom and an ion
 - d. recognize basic electron arrangements (e.g., valence electrons)

B. Chemistry

1. Is familiar with how to use the periodic table to predict the physical and chemical properties of elements
 - a. recognize the organization of the periodic table (e.g., arrangement in columns and rows, meaning of symbols, information provided, such as atomic number)
 - b. recognize that general trends in chemical reactivity can be predicted based on position of elements in the periodic table (e.g., metallic and nonmetallic elements, noble gases)
 - c. recognize that general trends in physical properties can be predicted based on position of elements in the periodic table (e.g., atomic radius, conductivity)
2. Is familiar with types of chemical bonding and the composition of simple chemical compounds
 - a. identify the difference between covalent and ionic bonding
 - b. connect the names of common simple compounds with their chemical formula (e.g., sodium chloride)
 - c. interpret simple chemical formulas
 - d. interpret simple structural formulas (e.g., electron dot formulas)
3. Knows the states of matter and phase changes between them
 - a. explain the basic assumptions of the kinetic molecular theory of matter (e.g., particles in constant motion, speed and energy of gas particles are related to temperature)
 - b. describe gas properties using the ideal gas laws (e.g., volume is proportional to temperature, pressure and volume are inversely proportional)
 - c. describe how the states of matter undergo phase changes and the energy changes involved (e.g., melting/freezing, vaporization/condensation, sublimation, heating/cooling curves)

4. Knows how to balance and use simple chemical equations
 - a. balance simple chemical reactions
 - b. predict proportions of substances needed to produce products using balanced equations
 - c. represent simple chemical reaction, using chemical formulas (e.g., combustion, neutralization)
 - d. recognize that reactions involve energy changes (e.g., endothermic and exothermic reactions)
 - e. identify factors that affect reaction rates (e.g., concentration, temperature, catalysts)
5. Knows basic concepts in acid-base chemistry
 - a. identify chemical and physical properties of acids and bases
 - b. recognize the acidity and basicity of solutions in terms of their pH
 - c. recognize neutralization reactions between acids and bases
6. Is familiar with solutions and solubility
 - a. identify different types of solutions, such as dilute, concentrated, saturated, unsaturated, and supersaturated solutions
 - b. identify factors that affect the dissolving process (e.g., temperature, solute particle size, stirring)
 - c. identify factors that affect the solubility of substances, such as temperature and nature of solvent and solute (like dissolves like)

C. Physics

1. Understands basic concepts in mechanics
 - a. describe linear and circular motion in one and two dimensions (speed, velocity, acceleration, momentum)
 - b. describe the effect of Newton's first law: the law of inertia
 - c. describe the effect of Newton's second law: $F = ma$
 - d. describe the effect of Newton's third law: action-reaction forces
 - e. calculate work ($w = f \times d$)
 - f. describe the characteristics of gravitation (e.g., gravitational attraction, acceleration due to gravity)
 - g. distinguish between mass and weight
 - h. analyze motion and forces in a physical situation (friction, inclined planes, collisions, projectile motion, pendulums, springs, planetary orbits)
 - i. recognize applications of conservation of momentum
 - j. identify simple machines and recognize their mechanical advantage
 - k. recognize forces and physical properties involving fluids (e.g., buoyancy, density, pressure)
2. Is familiar with basic concepts in electricity and magnetism
 - a. recognize electrostatic attraction and repulsion
 - b. identify conductors and insulators
 - c. describe electricity in terms of current, resistance, and voltage
 - d. identify voltage sources (batteries and generators)
 - e. recognize simple series and parallel electrical circuits
 - f. differentiate between DC and AC current
 - g. identify magnetic materials and forces

3. Is familiar with basic concepts involving waves and optics
 - a. describe the basic characteristics of light and the electromagnetic spectrum (nature of light, visible spectrum and color, ultraviolet, infrared, microwave, x-ray, and gamma)
 - b. identify the basic characteristics of waves (frequency, amplitude, wavelength, speed, intensity, energy)
 - c. recognize basic wave phenomena (reflection, refraction, absorption, transmission)
 - d. describe the Doppler effect
 - e. describe the basic characteristics of sound (relationship between pitch/frequency and loudness/intensity)
 - f. describe the basic operation of mirrors, lenses, and prisms

III. Life Science

A. Understands the basic structure and function of cells and their organelles

1. describe the structure and function of cell membranes (e.g., transport, osmosis)
2. identify the structure and function of cell organelles (e.g., nucleus, mitochondria)
3. identify the levels of organization (cells, tissues, organs, organ systems)
4. identify the major cell types (e.g., muscle, nerve, epithelial)

B. Understands basic cell reproduction

1. identify basic aspects of the cell cycle
2. identify basic aspects of mitosis, meiosis, and cytokinesis

C. Is familiar with the basic biochemistry of life

1. identify basic aspects of cellular respiration and photosynthesis
2. recognize the most well-known biological molecules (e.g., carbohydrates, proteins, lipids, enzymes)

D. Knows basic genetics

1. recognize the basic structure and function of DNA and RNA
2. recognize dominant and recessive alleles
3. recognize applications of Mendelian inheritance (e.g., genotype, phenotype, use of Punnett squares)
4. recognize mutations, chromosomal abnormalities, and common human genetic disorders

E. Knows the theory and key mechanisms of evolution

1. recognize the mechanisms of evolution (e.g., natural selection)
2. recognize isolation mechanisms and speciation
3. identify the supporting evidence (e.g., fossil record, comparative genetics, homologous structures)

F. Knows the hierarchical classification scheme and the characteristics of the major groups of organisms

1. identify elements of classification schemes (e.g., domain, kingdom, phylum/division, class, order, family, genus, species)
2. identify major characteristics of animals, plants, fungi, and protists

G. Knows the major structures and functions of plant organs and systems

1. identify the major differences between vascular and nonvascular plants
2. identify control mechanisms and responses to stimuli (e.g., tropisms)
3. identify the basic structure and function of leaves, roots, and stems
4. recognize key aspects of asexual and sexual reproduction
5. recognize key aspects of development and growth
6. recognize the uptake and transport of nutrients and water

H. Knows the basic anatomy and physiology of animals, including structure and function of human body systems and the major differences between humans and other animals

1. recognize the importance of homeostasis
2. identify examples of exchange with the environment in terms of the respiratory, excretory, and digestive systems
3. recognize key aspects of internal transport and exchange in terms of the circulatory system
4. recognize key aspects of support and movement in terms of the skeletal and muscular systems
5. identify key aspects of reproduction and development
6. recognize the function of immune systems
7. identify the functions of control systems (e.g., nervous system, endocrine system)
8. identify responses to stimuli and other organismal behavior

I. Knows key aspects of ecology

1. recognize key aspects of population dynamics (e.g., growth curves, carrying capacity, behavior such as territoriality, mating systems, social systems)
2. recognize key aspects of community ecology (e.g., niche, succession, species diversity, interspecific relationships such as predator-prey and parasitism)
3. recognize key aspects of ecosystems
 - a. biomes
 - b. stability and disturbances (e.g., effect of global warming or cooling)
 - c. energy flow (e.g., trophic levels, food webs)
 - d. biogeochemical cycles (e.g., water, nitrogen, and carbon cycles, biotic/abiotic interaction)

IV. Earth and Space Science

A. Understands basic physical geology

1. identify and describe types and characteristics of rocks and their formation processes (e.g., igneous, metamorphic, sedimentary, the rock cycle)
2. identify and describe types and characteristics of minerals and their formation processes (e.g., classes of minerals, crystals, hardness)
3. recognize processes involved in erosion, weathering, and deposition of Earth's surface materials (e.g., agents of erosion, chemical versus physical weathering, porosity and permeability, runoff and infiltration)
4. identify Earth's basic structure (e.g., mantle, core, geographical features such as mountains, magnetic field)
5. recognize Earth's internal processes, including impact of plate tectonic theory
 - a. folding and faulting, continental drift, and magnetic reversals
 - b. characteristics of volcanoes (e.g., types, lava, eruptions)
 - c. characteristics of earthquakes (e.g., epicenters, faults, tsunamis)
 - d. seismic waves and triangulation

B. Is familiar with historical geology

1. recognize the principle of uniformitarianism
2. recognize the principles of relative age dating (e.g., stratigraphic correlation, principle of superposition) and absolute (radiometric) age dating
3. recognize the major divisions of geological time scale
4. recognize the process of fossil formation and importance of the fossil record
5. recognize the important events in Earth's geologic history (e.g., mass extinctions, ice ages, meteor impacts)

C. Is familiar with the structure and processes of Earth's oceans and other bodies of water

1. identify the geographic location of Earth's oceans and seas
2. identify processes involved with tides, waves, and currents
3. recognize location and processes in estuaries
4. recognize key aspects of barrier island, reef, and atoll formation
5. identify characteristics of polar ice, icebergs, and glaciers
6. identify characteristics of lakes, ponds, streams, rivers, and river deltas
7. identify characteristics of groundwater, the water table, wells, and aquifers
8. recognize the importance of properties of water that affect Earth systems (e.g., density changes upon freezing, high heat capacity)

D. Knows basic meteorology and major factors that affect climate and seasons

1. describe the structure of Earth's atmosphere (e.g., troposphere, stratosphere)
2. identify the characteristics of Earth's atmosphere (e.g., percent composition of oxygen and nitrogen, atmospheric pressure and temperature)
3. define relative humidity and dew point
4. identify cloud types and describe how they form
5. identify weather features such as frontal systems, storms, and tornados
6. compare and contrast forms of precipitation (e.g., snow, hail, sleet, rain)
7. identify factors that affect climate and seasons (e.g., climate zones, proximity to mountains and oceans, global winds and ocean circulation, latitude, geographical location and elevation, volcanic eruptions, human activity, effect of tilt of Earth's axis on seasons)

E. Is familiar with astronomy

1. identify the major features of the solar system
 - a. structure of the solar system
 - b. characteristics of the planets and the Sun
 - c. dwarf planets, asteroids, and comets
 - d. theories of the origin of the solar system
2. recognize the interactions of the Earth-Moon-Sun system
 - a. Earth's rotation on its axis and its orbital revolution around the Sun
 - b. effect of the Earth-Moon-Sun system on seasons and tides
 - c. phases of the Moon and eclipses
3. recognize the major features of the universe and theories of its origins (e.g., galaxies, stars and their life cycle, black holes, dark matter, Big Bang theory)
4. recognize contributions of space missions, exploration, and technology to astronomy
 - a. remote-sensing devices (e.g., telescopes, satellites, space probes)
 - b. search for life and water on other planets

2. Familiarize Yourself with Test Questions

Become comfortable with the types of questions you'll find on the Praxis tests

The *Praxis Series* assessments include a variety of question types: constructed response (for which you write a response of your own); selected response, for which you select one or more answers from a list of choices or make another kind of selection (e.g., by clicking on a sentence in a text or by clicking on part of a graphic); and numeric entry, for which you enter a numeric value in an answer field. You may be familiar with these question formats from taking other standardized tests. If not, familiarize yourself with them so you don't spend time during the test figuring out how to answer them.

Understanding Computer-Delivered Questions

Questions on computer-delivered tests are interactive in the sense that you answer by selecting an option or entering text on the screen. If you see a format you are not familiar with, read the directions carefully. The directions always give clear instructions on how you are expected to respond.

For most questions, you respond by clicking an oval to select a single answer from a list of options.

However, interactive question types may also ask you to respond by:

- **Clicking more than one oval** to select answers from a list of options.
- **Typing in an entry box.** When the answer is a number, you may be asked to enter a numerical answer. Some questions may have more than one place to enter a response.
- **Clicking check boxes.** You may be asked to click check boxes instead of an oval when more than one choice within a set of answers can be selected.
- **Clicking parts of a graphic.** In some questions, you will select your answers by clicking on a location (or locations) on a graphic such as a map or chart, as opposed to choosing your answer from a list.
- **Clicking on sentences.** In questions with reading passages, you may be asked to choose your answers by clicking on a sentence (or sentences) within the reading passage.
- **Dragging and dropping answer choices into targets on the screen.** You may be asked to select answers from a list of options and drag your answers to the appropriate location in a table, paragraph of text or graphic.
- **Selecting options from a drop-down menu.** You may be asked to choose answers by selecting options from a drop-down menu (e.g., to complete a sentence).

Remember that with every question you will get clear instructions.

Perhaps the best way to understand computer-delivered questions is to view the [Computer-delivered Testing Demonstration](#) on the Praxis Web site to learn how a computer-delivered test works and see examples of some types of questions you may encounter.

Understanding Selected-Response Questions

Many selected-response questions begin with the phrase “which of the following.” Take a look at this example:

Which of the following is a flavor made from beans?

- (A) Strawberry
- (B) Cherry
- (C) Vanilla
- (D) Mint

How would you answer this question?

All of the answer choices are flavors. Your job is to decide which of the flavors is the one made from beans.

Try following these steps to select the correct answer.

- 1) **Limit your answer to the choices given.** You may know that chocolate and coffee are also flavors made from beans, but they are not listed. Rather than thinking of other possible answers, focus only on the choices given (“which of the following”).
- 2) **Eliminate incorrect answers.** You may know that strawberry and cherry flavors are made from fruit and that mint flavor is made from a plant. That leaves vanilla as the only possible answer.
- 3) **Verify your answer.** You can substitute “vanilla” for the phrase “which of the following” and turn the question into this statement: “Vanilla is a flavor made from beans.” This will help you be sure that your answer is correct. If you’re still uncertain, try substituting the other choices to see if they make sense. You may want to use this technique as you answer selected-response questions on the practice tests.

Try a more challenging example

The vanilla bean question is pretty straightforward, but you’ll find that more challenging questions have a similar structure. For example:

Entries in outlines are generally arranged according to which of the following relationships of ideas?

- (A) Literal and inferential
- (B) Concrete and abstract
- (C) Linear and recursive
- (D) Main and subordinate

You’ll notice that this example also contains the phrase “which of the following.” This phrase helps you determine that your answer will be a “relationship of ideas” from the choices provided. You are supposed to find the choice that describes how entries, or ideas, in outlines are related.

Sometimes it helps to put the question in your own words. Here, you could paraphrase the question in this way: “How are outlines usually organized?” Since the ideas in outlines usually appear as main ideas and subordinate ideas, the answer is (D).

QUICK TIP: Don't be intimidated by words you may not understand. It might be easy to be thrown by words like "recursive" or "inferential." Read carefully to understand the question and look for an answer that fits. An outline is something you are probably familiar with and expect to teach to your students. So slow down, and use what you know.

Watch out for selected-response questions containing "NOT," "LEAST," and "EXCEPT"

This type of question asks you to select the choice that does not fit. You must be very careful because it is easy to forget that you are selecting the negative. This question type is used in situations in which there are several good solutions or ways to approach something, but also a clearly wrong way.

How to approach questions about graphs, tables, or reading passages

When answering questions about graphs, tables, or reading passages, provide only the information that the questions ask for. In the case of a map or graph, you might want to read the questions first, and then look at the map or graph. In the case of a long reading passage, you might want to go ahead and read the passage first, noting places you think are important, and then answer the questions. Again, the important thing is to be sure you answer the questions as they refer to the material presented. So read the questions carefully.

How to approach unfamiliar formats

New question formats are developed from time to time to find new ways of assessing knowledge. Tests may include audio and video components, such as a movie clip or animation, instead of a map or reading passage. Other tests may allow you to zoom in on details in a graphic or picture.

Tests may also include interactive questions. These questions take advantage of technology to assess knowledge and skills in ways that standard selected-response questions cannot. If you see a format you are not familiar with, **read the directions carefully**. The directions always give clear instructions on how you are expected to respond.

QUICK TIP: Don't make the questions more difficult than they are. Don't read for hidden meanings or tricks. There are no trick questions on *Praxis* tests. They are intended to be serious, straightforward tests of your knowledge.

Understanding Constructed-Response Questions

Constructed-response questions require you to demonstrate your knowledge in a subject area by creating your own response to particular topics. Essays and short-answer questions are types of constructed-response questions.

For example, an essay question might present you with a topic and ask you to discuss the extent to which you agree or disagree with the opinion stated. You must support your position with specific reasons and examples from your own experience, observations, or reading.

Take a look at a few sample essay topics:

- "Celebrities have a tremendous influence on the young, and for that reason, they have a responsibility to act as role models."
- "We are constantly bombarded by advertisements—on television and radio, in newspapers and magazines, on highway signs, and the sides of buses. They have become too pervasive. It's time to put limits on advertising."
- "Advances in computer technology have made the classroom unnecessary, since students and teachers are able to communicate with one another from computer terminals at home or at work."

Keep these things in mind when you respond to a constructed-response question

- 1) **Answer the question accurately.** Analyze what each part of the question is asking you to do. If the question asks you to describe or discuss, you should provide more than just a list.
- 2) **Answer the question completely.** If a question asks you to do three distinct things in your response, you should cover all three things for the best score. Otherwise, no matter how well you write, you will not be awarded full credit.
- 3) **Answer the question that is asked.** Do not change the question or challenge the basis of the question. You will receive no credit or a low score if you answer another question or if you state, for example, that there is no possible answer.
- 4) **Give a thorough and detailed response.** You must demonstrate that you have a thorough understanding of the subject matter. However, your response should be straightforward and not filled with unnecessary information.
- 5) **Reread your response.** Check that you have written what you thought you wrote. Be sure not to leave sentences unfinished or omit clarifying information.

QUICK TIP: You may find that it helps to take notes on scratch paper so that you don't miss any details. Then you'll be sure to have all the information you need to answer the question.

For tests that have constructed-response questions, more detailed information can be found on page 5.

3. Practice with Sample Test Questions

Answer practice questions and find explanations for correct answers

English Language Arts Sample Test Questions

The sample questions that follow illustrate the kinds of questions on the test. They are not, however, representative of the entire scope of the test in either content or difficulty. Answers with explanations follow the questions.

Directions: Each of the questions or incomplete statements below is followed by four suggested answers or completions. Select the one that is best in each case.

1. Set in the American Civil War, the novel concerns a young soldier's first encounter with battle and the psychological changes that he undergoes. Published in 1895, the novel had a great influence on twentieth-century fiction.

The novel discussed above is

- (A) Andrea Davis Pinkney's *Silent Thunder*
- (B) Gary Paulsen's *Soldier's Heart*
- (C) Stephen Crane's *The Red Badge of Courage*
- (D) Carolyn Reeder's *Shades of Gray*

2. An angel, robed in spotless white,
Bent down and kissed the sleeping Night.
Night woke to blush; the sprite was gone.
Men saw the blush and called it Dawn.

—Paul Laurence Dunbar

The poem portrays "Night" using which of the following literary devices?

- (A) Oxymoron
- (B) Simile
- (C) Allusion
- (D) Personification

Questions 3-4 refer to the following passage.

- Unlike some writers who talk of language use with wailing and gnashing of teeth (see Edwin Newman's petulant discussions of language misuse or any of Jacques Barzun's tirades on contemporary English), George Orwell recognized the complexity of the interrelationship between thinking and language and avoided the simplistic thinking that argues that if we "correct" people's use of English, we will somehow have solved the "problem" of the "decline" of the English language.

3. The author puts the words "correct," "problem," and "decline" in quotation marks primarily in order to suggest that
 - (A) they are examples of words that are misused in the English language
 - (B) the complex interrelationship between thinking and language has affected the way in which people try to correct one another's speech
 - (C) the problem of the decline of the English language is too severe to be solved merely by correcting people's speech
 - (D) they reflect a limited perspective and should not be accepted uncritically
4. The author's tone in describing Newman and Barzun can best be described as
 - (A) dismissive
 - (B) bitter
 - (C) defensive
 - (D) spiteful

5. Each of the following is an important part of guided reading EXCEPT:
 - (A) The teacher should use texts that challenge students' current reading levels.
 - (B) It is used to help students become independent readers.
 - (C) It is used to help students learn various reading strategies.
 - (D) Students are grouped homogeneously based on reading ability.
6. If atoms are the letters of the chemical language, then molecules are the words. But in order to put the chemical letters together to form chemical words, we have to know something about the rules of chemical spelling.

In the passage above, a discussion of atoms is introduced by

 - (A) an analogy
 - (B) an aphorism
 - (C) an example
 - (D) a hypothesis
7. All of us find or invent our language. We may come up with new sentences never heard before. We may use words in a unique way. But we are always finding our voice, locating old patterns or long-heard expressions, reaching into our thesaurus for the right term. And in inventing English, we are always inventing ourselves—finding our place among the welter of the words or in the swell of sounds that is the ocean of our tongue.

Which of the following most accurately describes how the author's use of point of view works as a rhetorical strategy?

 - (A) He speaks in the first person to invite the readers to see how they participate in the activities he describes.
 - (B) He speaks in the first person to emphasize his unique experience with the subject under discussion.
 - (C) He speaks in the third person to highlight the universality of the topic being discussed.
 - (D) He speaks in the third person to construct a more authoritative position from which to argue his point.
8. Science fiction: readers claim to either love it or loathe it; either they avoid it like poison or they devour favorite works and authors like chocolate addicts gulping down fudge truffles.

The author of the passage compares certain readers with "chocolate addicts" primarily in order to

 - (A) suggest that science fiction is not a serious literary genre
 - (B) indicate the depth of certain readers' feelings about science fiction
 - (C) explain why some readers consider science fiction to be dangerous
 - (D) contrast the characteristics of science fiction with those of other literary genres
9. Which of the following would be the most appropriate audience for a fifth-grade student's persuasive letter on why the school cafeteria should no longer sell junk food?
 - (A) A group of cafeteria workers
 - (B) The student's classmates
 - (C) The student's family
 - (D) The school's principal and school board
10. Freewriting, brainstorming, clustering, and idea mapping are most important during which stage of the writing process?
 - (A) Prewriting
 - (B) Drafting
 - (C) Revising
 - (D) Proofreading

11. Two hamsters sat in the cage side by side; a furtive, timid one and a glossy, bold one watched each other warily.

The sentence above is an example of a

- (A) simple sentence
- (B) compound sentence
- (C) complex sentence
- (D) compound-complex sentence

12. My sister and I always loved sledding down the hill behind our house.

The underlined word in the sentence above is an example of

- (A) a conjunction
- (B) a participle
- (C) a gerund
- (D) an adverb

English Language Arts Answers

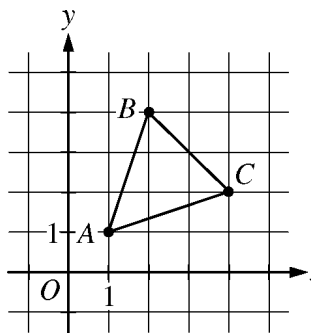
1. The correct answer is (C). The passage presents factual information and a brief description of the plot of *The Red Badge of Courage* by Stephen Crane.
2. The correct answer is (D). Personification involves endowing abstractions, ideas, and inanimate objects with human characteristics or sensibilities. In the poem, "Night" is described as having the human ability to sleep, wake, and blush.
3. The correct answer is (D). In the paragraph, the speaker explains that George Orwell recognized the complexity of language use and avoided simplistic arguments for improving how people speak. What follows are terms the speaker would consider related to such simplistic arguments. The quotation marks call attention to the terms and discourage readers from taking them at face value.
4. The correct answer is (A). In contrasting Orwell's discussions of language with those of writers exemplified by Newman and Barzun, the speaker implies that the arguments of Newman and Barzun are simplistic and, hence, easily dismissed. The hyperbole in "wailing and gnashing of teeth" (line 2) and the characterization of Newman's work as "petulant" (line 3) and Barzun's as "tirades" (line 4) have already signaled disapproval, implying that these authors are more emotional than thoughtful. While it is possible that the speaker is dismissing Newman and Barzun out of spite or bitterness, or even defensiveness, there is nothing in the structure of this excerpt to support (B), (C), or (D).
5. The correct answer is (A). During guided reading, students are placed into small groups according to their individual reading levels. The teacher observes as students read and provides them with the opportunity to use various reading strategies. The ultimate goal of guided reading is to enable students to read successfully on their own. Thus, (B), (C), and (D) are all important parts of guided reading. (A) is not an important part because the teacher selects texts that students can read with 90 percent accuracy; it is not the intent of guided reading to select books that are beyond students' current reading levels.
6. The correct answer is (A). By suggesting that atoms are like letters, the author of the passage has used an analogy; that is, the author has characterized one thing by reference to another thing that functions in a similar way.
7. The correct answer is (A). In first person point of view, the author or narrator writes from his or her own perspective. In this passage, the author uses the words "we" and "our" to suggest that his experience is similar to the readers' experience, and invites readers to understand how people invent themselves through the words they use. (B) is incorrect because the author does not suggest that inventing language is unique to him as an author. (C) and (D) are incorrect because the third person point of view is not used in the passage.
8. The correct answer is (B). The author makes a comparison between science fiction readers and people who love chocolate so much they could be called addicts in order to stress that those who like science fiction cannot get enough of it.
9. This question asks you to demonstrate your knowledge of types and traits of writing. The purpose of the student's persuasive letter is to effect change regarding the type of food sold in the school cafeteria. Because the school principal and school board would be best able, among the groups of people mentioned, to effect this type of change, (D) is the correct answer. The groups of people named in (A), (B), and (C) would have little to no power to make changes regarding cafeteria food; therefore, these answers are incorrect.
10. The correct answer is (A). The terms mentioned are processes and devices associated with generating new ideas and organizing them. These processes and devices would not be associated with proofreading (D). While they might be part of drafting (B) or revising (C), they are most important during the prewriting stage of the writing process.
11. The correct answer is (B). A simple sentence contains only one independent clause. This sentence has two independent clauses joined by a semicolon, including one independent clause with a compound subject. Without dependent clauses, the sentence cannot be characterized as either complex or compound-complex.
12. The correct answer is (C). In this sentence, the word "sledding" is a gerund, a verb form (the present participle) functioning as a noun.

Mathematics Sample Test Questions

The sample questions that follow illustrate the kinds of questions on the test. They are not, however, representative of the entire scope of the test in either content or difficulty. Answers with explanations follow the questions.

Directions: Each of the questions or incomplete statements below is followed by four suggested answers or completions. Select the one that is best in each case.

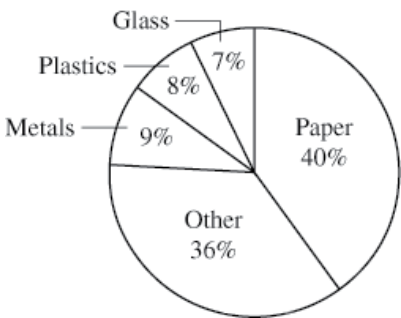
1. An art teacher brings 36 pieces of fruit to a drawing class so that each student will have exactly one piece of fruit to draw. The teacher brings apples, pears, and bananas in the ratio of 3 to 2 to 1, respectively. How many pears does the teacher bring?
- (A) 6
(B) 8
(C) 10
(D) 12



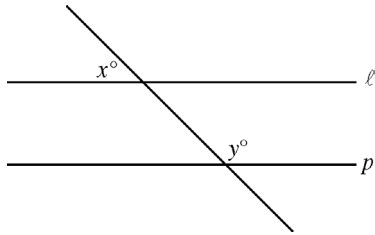
2. In the xy -plane, the triangle ABC is to be reflected in the y -axis to form triangle $A'B'C'$. What will be the coordinates of C' ?
- (A) $(-4, -2)$
(B) $(-4, 2)$
(C) $(-2, -4)$
(D) $(-2, 4)$

$-4x + 1 \geq 21$

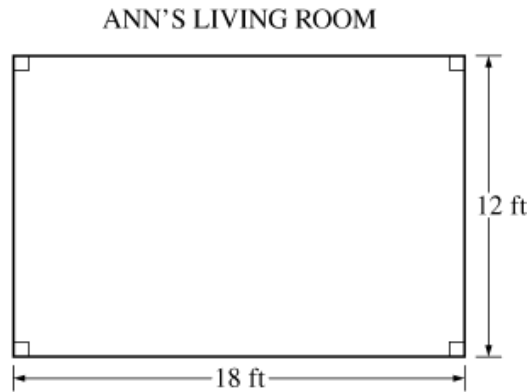
3. Which of the following represents the solution set for the inequality shown?
- (A)
- (B)
- (C)
- (D)



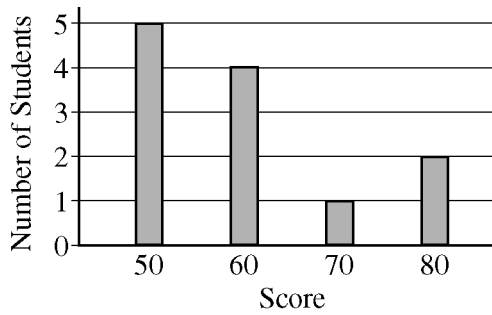
4. The graph above shows the distribution of the contents, by weight, of a county's trash. If approximately 60 tons of the trash consists of paper, approximately how many tons of the trash consist of plastics?
- (A) 24
(B) 20
(C) 15
(D) 12



5. In the figure above, line ℓ and line p are parallel, and $y = 3x$. What is the value of x ?
- (A) 30
(B) 45
(C) 60
(D) 75
6. If a student takes a test consisting of 20 true-false questions and randomly guesses at all of the answers, what is the probability that all 20 guesses will be correct?
- (A) $\left(\frac{1}{2}\right)^{20}$
(B) $\frac{1}{2(20)}$
(C) $\frac{1}{20}$
(D) $\frac{1}{2}$

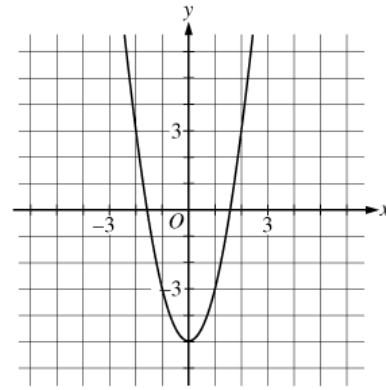


7. Ann plans to place a continuous wallpaper border on the walls of her living room, represented above. Each roll costs \$6.47, and no partial rolls are sold. If each roll of border is 8 feet long, what is the minimum amount Ann can spend on rolls of border to complete her project?
- (A) \$45.29
(B) \$51.76
(C) \$103.50
(D) \$174.69
8. The original price of a certain car was 25 percent greater than its cost to the dealer. The actual selling price was 25 percent less than the original price. If c is the cost of the car to the dealer and p is the selling price, which of the following represents p in terms of c ?
- (A) $p = 1.00c$
(B) $p = 1.25c$
(C) $p = 0.25(0.75c)$
(D) $p = 0.75(1.25c)$



9. Twelve students took a quiz in a certain science class. The graph above shows the quiz scores and the number of students that received each score. What is the average (arithmetic mean) of the 12 scores?

(A) 55
(B) 57
(C) 60
(D) 65



10. The figure shows the graph of a quadratic equation in the xy -plane. Which of the following is an equation of the graph?

(A) $y = x^2 - 5$
(B) $y = x^2 + 5$
(C) $y = 2x^2 - 5$
(D) $y = 2x^2 + 5$

Mathematics Answers

1. (D) is correct. Let x be the number of bananas that the teacher brings to the drawing class. Then $3x$ and $2x$ will be the number of apples and pears, respectively. Since $3x + 2x + x = 36$, $x = 6$, and so the number of pears the teacher brings is $2x = 2(6) = 12$.

2. (B) is correct. The coordinates of point C are $(4, 2)$. When a point is reflected in the y -axis, the x -coordinate of the point changes to its opposite, but the y -coordinate remains the same, so $(4, 2)$ is transformed to $(-4, 2)$, which means the coordinates of C' are $(-4, 2)$.

3. (A) is correct. To determine which option represents the solution set for the inequality, subtract 1 from each side of the inequality and then divide each side of the inequality by -4 . Remember that when multiplying or dividing both sides of an inequality by a negative number, the direction of the inequality symbol needs to be reversed. Thus, the equivalent inequality is $x \leq -5$. (A) represents the set of all real numbers less than or equal to -5 .

4. (D) is correct. One of the ways to solve the problem is to use the information about the trash that consists of paper to find the total weight of the county's trash, and then use this information to find how many tons of the trash consist of plastics. The problem states that 60 tons of the trash consists of paper, and the graph shows that this amount equals 40% of the total, so $60 = 0.4 \times (\text{total weight of trash})$, and the total weight of trash is $\frac{60}{0.4} = 150$ tons. Then, the weight of trash that consists of plastics equals 8% of 150 tons, or

$(0.08)(150)$, which equals 12 tons. Alternatively, the problem can be solved using the fact that the ratio of plastics to paper in the trash is the same, whether the two amounts are given as percents or in tons. This gives the proportion $\frac{\text{tons of plastics}}{\text{tons of paper}} = \frac{8\%}{40\%}$ or $\frac{\text{tons of plastics}}{60} = \frac{8}{40}$, and when the proportion is solved the same answer of 12 tons is obtained.

5. (B) is correct. The properties of angles associated with parallel and transversal lines can be used to show that the angle with measure x degrees and the angle with measure y degrees are supplementary angles. Recall that the sum of the measures of supplementary angles is 180° . That is, $x + y = 180$. It is given that $y = 3x$. Substituting for y , you get $4x = 180$. Hence, $x = 45$.

6. (A) is correct. The probability that the student guesses any one answer correctly is $\frac{1}{2}$, and since the student is randomly guessing, the guesses are independent events, so $\frac{1}{2}$ needs to be multiplied by itself 20 times. Thus, the probability of guessing all 20 answers correctly is $\left(\frac{1}{2}\right)^{20}$.

7. (B) is correct. The minimum length of wallpaper border needed to decorate the room is equal to the perimeter of Ann's living room. The perimeter is the sum of the lengths of the four walls of the room, or $18 + 18 + 12 + 12 = 60$ feet. The number of rolls of border needed is determined by dividing the perimeter by the length of each roll of border, and $\frac{60 \text{ feet}}{8 \text{ feet}} = 7.5$.

Therefore, Ann needs a minimum of 7.5 rolls, and since no partial rolls are sold, she must buy 8 rolls. The cost of 8 rolls of the border is found by multiplying the cost of each roll, \$6.47, by the number of rolls needed, so the final answer is $\$6.47 \times 8 = \51.76 .

8. (D) is correct. This question asks you to apply your knowledge of percent increase or decrease to determine a selling price based on cost of a car to the dealer, c . Since the original price of the car was 25 percent greater than the cost to the dealer, the original price was $c + 0.25c = 1.25c$. Since the selling price was 25 percent less than that amount, only 75 percent of that amount was paid, and, therefore, the selling price of the car, p , is equal to $0.75(1.25c)$.

9. (C) is correct. Based on the information in the graph, the average of the 12 scores is

$$\frac{(5)(50) + (4)(60) + (1)(70) + (2)(80)}{12} = \frac{720}{12} = 60.$$

10. (C) is correct. Since the graph of the equation intersects the y -axis at the point $(0, -5)$, the constant term in the equation must be -5 . One method to determine the coefficient of the x^2 term is to substitute the coordinates from another point on the graph into the equation $y = ax^2 - 5$ and solve for a . Then, using the point $(2, 3)$, it can be determined that $3 = a(2^2) - 5$, so $4a - 5 = 3$. To solve this equation for a , add 5 to both sides of the equation, and then divide both sides of the equation by 4, which leads to the answer $a = 2$, which means that the equation of the graph is $y = 2x^2 - 5$.

Social Studies Sample Test Questions

The sample questions that follow illustrate the kinds of questions on the test. They are not, however, representative of the entire scope of the test in either content or difficulty. Answers with explanations follow the questions.

Directions: Each of the questions or incomplete statements below is followed by four suggested answers or completions. Select the one that is best in each case.

“They made us many promises, more than I can remember, but they kept only one: they promised to take our land, and they took it.”

1. The statement above was most probably made by
 - (A) an African American
 - (B) a Greek American
 - (C) a Polish American
 - (D) a Native American
2. The majority of immigrants who arrived in the United States before the Civil War came from
 - (A) Northern and Western Europe
 - (B) Southern and Eastern Europe
 - (C) Latin America and the Caribbean
 - (D) Asia and the Pacific Islands

“Fellow citizens, pardon me, allow me to ask, why am I called upon to speak here today? What have I, or those I represent, to do with your national independence? Are the great principles of political freedom and of natural justice, embodied in that Declaration of Independence, extended to us? ... I am not included within the pale of this glorious anniversary! ... This Fourth of July is yours, not mine.”

3. In the speech excerpted above, the African American leader Frederick Douglass expresses his sentiments about the
 - (A) triumph of freedom over slavery in the Civil War
 - (B) gap between democratic ideals and the reality of slavery
 - (C) horrors and injustices he personally experienced under slavery
 - (D) relationship between republican ideals and Reconstruction actions
4. Which of the following was a charge made by Senator Joseph McCarthy about dangers facing the United States in the 1950s?
 - (A) There were a significant number of communists in positions of authority in the United States government
 - (B) Most United States voters were sympathetic to the communists
 - (C) The United States economy was threatened by cheap foreign imports
 - (D) An increase in the rate of illegal immigration was threatening the stability of United States society
5. Which of the following best summarizes the contributions of Muslim scholars to the development of science in the period circa 700–1400 C.E. ?
 - (A) They worked in isolation from the Chinese and Indian scholars of the same period
 - (B) They made advances mostly in medicine and the life sciences
 - (C) Most of their works became known to European scholars only in the nineteenth and twentieth centuries
 - (D) They preserved the scientific tradition of the ancient world and expanded it greatly by their own discoveries

6. The greatest expansion of direct European colonial rule in Africa occurred in which of the following periods?
 - (A) 1450–1500
 - (B) 1750–1800
 - (C) 1850–1900
 - (D) 1900–1950
7. Which of the following was an outcome of the Paris Peace Conference in 1919 at the conclusion of the First World War, giving rise to tensions that would help lead to the outbreak of the Second World War?
 - (A) The Treaty of Versailles forced Germany to give up land, population, and important resources
 - (B) The Treaty of Versailles divided Germany into eastern and western states
 - (C) The British gave control of Palestine to the Arabs living there
 - (D) It was agreed to leave the Austrian Empire intact
8. According to the United States Constitution, the president has the power to
 - (A) negotiate treaties
 - (B) amend the Constitution
 - (C) impeach members of Congress
 - (D) raise and support an army
9. Which of the following is most essential to the successful functioning of a democracy?
 - (A) Three branches of government
 - (B) Participating citizens
 - (C) Direct election of the head of government
 - (D) Federalism
10. Which of the following is an example of the constitutional system of checks and balances?
 - (A) A Supreme Court ruling that upholds a state law
 - (B) An interest group that lobbies Congress to reject proposed legislation
 - (C) A state that lobbies Congress for increased federal funding
 - (D) The impeachment and removal of a federal official
11. The gross domestic product of a country is defined as the total
 - (A) output of goods and services sold in the country during a year
 - (B) output of goods and services consumed in the country during a year
 - (C) market value of all goods and services sold in the country during a year
 - (D) market value of all final goods and services produced in the country during a year
12. Which of the following will increase the demand for teachers?
 - (A) Increasing the salaries of teachers
 - (B) Raising the retirement age for teachers
 - (C) Lowering the student-teacher ratio
 - (D) Consolidating school districts
13. The Jakota Triangle is a region consisting of large cities, numerous exports, increasing consumption of raw materials, and global financial connections. Which of the following lists the principle countries of this region?
 - (A) France, Portugal, Spain
 - (B) Japan, South Korea, Taiwan
 - (C) Cuba, Haiti, Jamaica
 - (D) Iceland, Ireland, the United Kingdom
14. All of the following river valleys are densely populated EXCEPT the
 - (A) Yangtze
 - (B) Amazon
 - (C) Nile
 - (D) Indus

Social Studies Answers

1. The correct answer is (D). Of the ethnic groups named, only the Native Americans were offered promises (in the form of treaties) that were broken with the result of being deprived of their land. African Americans were deprived of their freedom and their rights, but were not generally deprived of land. Greek and Polish Americans experienced discrimination, but were offered no official promises and were not deprived of their land.

2. The correct answer is (A). Before the Civil War, immigration to the United States came almost exclusively from Northern and Western Europe, with large numbers of people coming from Ireland, Great Britain, Germany, and Scandinavia. The immigration wave from Southern and Eastern Europe followed the Civil War, peaking in the late nineteenth and early twentieth centuries. Immigration from Latin America and the Caribbean did not become significant numerically until the second half of the twentieth century. Immigration from Asia and the Pacific Islands was significant in the last quarter of the nineteenth century and in the second half of the twentieth century.

3. The correct answer is (B). It indicates that Douglass was using a rhetorical device to emphasize the gap between the principles of freedom and justice championed in the Declaration of Independence and the continuing existence of a slave system in the United States. The quotation does not concern the Civil War, Douglass' personal experience, or Reconstruction.

4. The correct answer is (A). Senator Joseph McCarthy gained prominence based on charges that communists had attained positions of influence in the United States government. He did not, however, claim that most United States voters supported communists nor did he focus on the issues of imports or illegal immigration.

5. The correct answer is (D). Muslim scholars of that period were largely responsible for the preservation of classical Greek and Roman texts and their eventual transmission to western Europe in the late Middle Ages. Under the generous patronage of the Abbasid caliphs and other Muslim rulers, Muslim scientists built on the foundation of classical science with numerous original discoveries in fields such as mathematics, astronomy, physics, chemistry, and medicine.

6. The correct answer is (C). The largest expansion of African territory directly under European colonial control took place in the late nineteenth century, especially in the wake of the Berlin Conference of 1884. During this period, Britain substantially expanded its colonial territories in West Africa (Nigeria), East Africa (Kenya, Uganda, etc.), and southern Africa (Rhodesia, Botswana, etc.); France acquired large territories in West Africa (Mauritania, Senegal, Mali, Niger, etc.), Central Africa (Chad, Congo-Brazzaville, etc.), and North Africa (Tunisia); Germany created a substantial colonial presence (Namibia, Tanganyika, Togo, etc.); Portugal consolidated and expanded its African colonies (Angola, Mozambique, etc.); and the Belgian king Leopold II acquired a huge personal fiefdom in central Africa (The Congo Free State).

7. The correct answer is (A). Germans believed that they had been cheated by the peace settlement agreed to in the Treaty of Versailles, and this sense of resentment later fueled the rise of the Nazi Party. The Treaty of Versailles did not break Germany up into western and eastern parts; that division took place after the end of the Second World War. The British did not give control of Palestine to the Arabs living there. Rather, in the Balfour Declaration, Britain indicated that it "view[ed] with favour the establishment in Palestine of a national home for the Jewish people." The Austrian Empire was broken up into various parts as a result of the peace conference, with Czechoslovakia, Yugoslavia, and Hungary created in its place.

8. The correct answer is (A). The power to make treaties is specifically granted to the president in Article II of the Constitution. Under Article V, the power to amend the Constitution is reserved to the states and to Congress. Congress, under Article I, has the power to impeach the president, but the reverse is not true. Also under Article I, Congress has the power to raise and support an army.

9. The correct answer is (B). Without the participation of its citizens, a nation cannot have a successful democracy. While the United States has three branches of government, this number of branches is not necessary for a successful democracy. Many successful democracies, including Great Britain, do not have direct election of the head of government. Federalism is a component of many, but not all, successful democracies. France, for example, does not have a federal form of government.

10. The correct answer is (D). The impeachment process is a tool to check the power of federal officials. A Supreme Court ruling upholding a state law is merely an affirmation of the state's powers. A state lobbying for increased Congressional funding or an interest group lobbying for a particular stand on legislation is merely affirming the power of the legislative body and is not a check on its powers.

11. The correct answer is (D). This question is definitional; only (D) has the complete definition.

12. The correct answer is (C). Lowering the student-teacher ratio requires the creation of many sections of a class. Since additional teachers need to be hired to accomplish the task, the demand for teachers will increase. (A) is incorrect because increasing the salaries of teachers increases the number of people willing to teach, but it may decrease the number of teachers that will be demanded. (B) is incorrect; raising the retirement age for teachers limits the availability of vacancies. (D) is incorrect, since consolidating school districts may decrease the demand for teachers.

13. The correct answer is (B). The European countries, (A) and (D), are not primarily exporting countries and only Ireland and the United Kingdom offer extensive financial connections. (C) is not correct, because Cuba, Haiti, and Jamaica, as a region, do not have large cities, numerous exports, or an increasing consumption of raw materials.

14. The correct answer is (B). The valleys of the Yangtze in China, the Nile in Egypt, and the Indus in India and Pakistan all support huge populations of people, densely clustered along these watercourses. The Amazon, on the other hand, flows for much of its length through very sparsely populated rain forest.

Science Sample Test Questions

The sample questions that follow illustrate the kinds of questions on the test. They are not, however, representative of the entire scope of the test in either content or difficulty. Answers with explanations follow the questions.

Directions: Each of the questions or incomplete statements below is followed by four suggested answers or completions. Select the one that is best in each case.

- According to some scientists, Earth's average surface temperature is rising as a result of the greenhouse effect. An increase in the atmospheric concentration of which of the following gases is considered to be primarily responsible?
 - Nitrogen
 - Oxygen
 - Sulfur dioxide
 - Carbon dioxide
- Boron atom, atomic number 5, atomic mass 13
 - Carbon atom, atomic number 6, atomic mass 11
 - Carbon atom, atomic number 6, atomic mass 12
 - Nitrogen atom, atomic number 7, atomic mass 13

Consider the atoms described above. Which of the following are isotopes of each other?

 - I and IV only
 - II and III only
 - II and IV only
 - III and IV only
- Several vehicles, initially at a complete stop, begin a long race at the same starting point. The vehicle that has a constant value for which of the following is most likely to win?
 - Linear speed
 - Linear velocity
 - Linear acceleration
 - Momentum
- Which of the following statements is true of hurricanes but not of tornadoes?
 - They form only over warm oceans.
 - They have very high winds.
 - They may cause great property damage.
 - They may cause human fatalities.
- The agent most widely and most consistently at work changing the appearance of Earth's surface is
 - fire
 - volcanism
 - water
 - wind
- A gelatinous sample of material from a previously unexplored marine environment is thought to be living or to be composed of recently living material. Which of the following would most clearly confirm that the material has a biological origin?
 - The presence of cells in the sample
 - The presence of hydrogen in the sample
 - Diffusion of material out of the sample
 - Movement of the sample
- Which of the following is most directly involved with controlling levels of sugar in blood?
 - Hemoglobin
 - Calcitonin
 - Thyroid-stimulating hormone
 - Insulin

8. A piece of paper that appears blue in sunlight is illuminated solely by a red light that is passed through a green filter. What color does the paper appear under this illumination?
- (A) Blue
 - (B) Green
 - (C) Red
 - (D) Black
9. What quantity of oxygen, O_2 , contains very nearly the same number of molecules as 36.0 grams of water, H_2O ?
- (A) 64.0 grams
 - (B) 32.0 grams
 - (C) 16.0 grams
 - (D) 8.0 grams
10. Earth's seasons can be attributed primarily to which of the following in conjunction with its revolution about the Sun?
- (A) The tilt of Earth's axis of rotation relative to the ecliptic
 - (B) The varying amount of sunspot activity
 - (C) Earth's orbit about the Sun as an ellipse rather than a circle
 - (D) The rotation of Earth during a 24-hour day
11. Animals in which of the following groups may have a backbone and a spinal cord?
- (A) Mollusks
 - (B) Chordates
 - (C) Invertebrates
 - (D) Echinoderms
12. The true length of a block of wood is 1.010 cm. Three measurements of this block produced the following values: 1.4 cm, 1.2 cm, and 0.9 cm. Which of the following statements is true concerning these measurements?
- (A) They are precise and accurate.
 - (B) They are precise but not accurate.
 - (C) They are accurate but not precise.
 - (D) They are neither precise nor accurate.

Science Answers

1. The correct answer is (D). Although there are additional gases, such as methane and water vapor, that are considered to be greenhouse gases, carbon dioxide accounts for the largest percentage of the annual human-caused input of these gases.
2. The correct answer is (B). Isotopes are atoms of the same element that have different atomic masses. In order to be the same element, they must have the same number of protons. Therefore, they must possess different numbers of neutrons if they are isotopes.
3. The correct answer is (C). The car having a constant value for linear acceleration would constantly increase its speed over time. Therefore, a car that constantly accelerated would cover a given distance in the shortest time and most likely win a race against cars with constant values for the other parameters listed.
4. The correct answer is (A). The other options are true of both tornadoes and hurricanes. However, hurricanes require warm ocean surface waters in order to develop, and it is from these warm waters and the release of latent heat that they derive their energy. Tornadoes are associated with thunderstorms, form over land, and are most likely to occur when large differences in temperature and moisture exist between two air masses and the boundary between the air masses is sharp.
5. The correct answer is (C). While the agents given in the other options do influence and change the appearance of Earth's surface, water is constantly acting upon terrestrial features in the form of precipitation, glaciers, streams, rivers, and oceans. Therefore, it contributes to the chemical and mechanical weathering of the land surface in most parts of the globe.
6. The correct answer is (A). According to the cell theory, the basic biological unit of structure and function is the cell, and cells come from other cells. Although the other options could be found in living material or material of biological origin, they are not unique to it and would not clearly confirm that the sample was biological in nature.
7. The correct answer is (D). In response to rising levels of glucose in the blood, cells in the pancreas secrete the hormone insulin. Circulating insulin lowers blood sugar levels by enhancing the transport of glucose and other simple sugars into body cells, especially muscle cells.
8. The correct answer is (D). The green filter absorbs all colors except green, which it passes. Therefore, the red light will be absorbed by the filter, which will pass no light. The paper will not be illuminated, and so it will appear black, regardless of its initial color.
9. The correct answer is (A). 36.0 grams of water is 2 moles (2×18.0 grams). A 2-mole sample of O_2 contains the same number of molecules as does 2 moles of any other substance. A 2-mole sample of O_2 would have a mass of 2×32.0 grams = 64.0 grams.
10. The correct answer is (A). Seasons are best explained as resulting from Earth's axial tilt and not from distance variations, sunspot activity, atmospheric transparency, or rotation.
11. The correct answer is (B). Most chordates possess a vertebral column (backbone) that surrounds a dorsal nerve cord. Mollusks (e.g., clams and mussels) and echinoderms (e.g., sea stars and sea urchins) are invertebrates that lack a vertebral column and dorsal nerve cord.
12. The correct answer is (D). The measurements differ from the true length by 0.39 cm, 0.19 cm, and -0.11 cm. Thus, the measurements are quite different in value from the true value, which means that they are not accurate. The measurements are also quite different in value from one another (not repeatable), which means that they are not precise.

4. Determine Your Strategy for Success

Set clear goals and deadlines so your test preparation is focused and efficient

Effective *Praxis* test preparation doesn't just happen. You'll want to set clear goals and deadlines for yourself along the way. Otherwise, you may not feel ready and confident on test day. A helpful resource is the [Strategies for Success video](#), which includes tips for preparing and studying, along with tips for reducing test anxiety.

1) Learn what the test covers.

You may have heard that there are several different versions of the same test. It's true. You may take one version of the test and your friend may take a different version a few months later. Each test has different questions covering the same subject area, but both versions of the test measure the same skills and content knowledge.

You'll find specific information on the test you're taking on page 5, which outlines the content categories that the test measures and what percentage of the test covers each topic. Visit www.ets.org/praxis/testprep for information on other *Praxis* tests.

2) Assess how well you know the content.

Research shows that test takers tend to overestimate their preparedness—this is why some test takers assume they did well and then find out they did not pass.

The *Praxis* tests are demanding enough to require serious review of likely content, and the longer you've been away from the content, the more preparation you will most likely need. If it has been longer than a few months since you've studied your content area, make a concerted effort to prepare.

3) Collect study materials.

Gathering and organizing your materials for review are critical steps in preparing for the *Praxis* tests. Consider the following reference sources as you plan your study:

- Did you take a course in which the content area was covered? If yes, do you still have your books or your notes?
- Does your local library have a high school-level textbook in this area? Does your college library have a good introductory college-level textbook in this area?

Practice materials are available for purchase for many *Praxis* tests at www.ets.org/praxis/testprep. Test preparation materials include sample questions and answers with explanations.

4) Plan and organize your time.

You can begin to plan and organize your time while you are still collecting materials. Allow yourself plenty of review time to avoid cramming new material at the end. Here are a few tips:

- Choose a test date far enough in the future to leave you plenty of preparation time. Test dates can be found at www.ets.org/praxis/register/centers_dates.
- Work backward from that date to figure out how much time you will need for review.
- Set a realistic schedule—and stick to it.

5) Practice explaining the key concepts.

Praxis tests with constructed-response questions assess your ability to explain material effectively. As a teacher, you'll need to be able to explain concepts and processes to students in a clear, understandable way. What are the major concepts you will be required to teach? Can you explain them in your own words accurately, completely, and clearly? Practice explaining these concepts to test your ability to effectively explain what you know.

6) Understand how questions will be scored.

Scoring information can be found on page 56.

7) Develop a study plan.

A study plan provides a road map to prepare for the *Praxis* tests. It can help you understand what skills and knowledge are covered on the test and where to focus your attention. Use the study plan template on page 49 to organize your efforts.

And most important—get started!

Would a Study Group Work for You?

Using this guide as part of a study group

People who have a lot of studying to do sometimes find it helpful to form a study group with others who are working toward the same goal. Study groups give members opportunities to ask questions and get detailed answers. In a group, some members usually have a better understanding of certain topics, while others in the group may be better at other topics. As members take turns explaining concepts to one another, everyone builds self-confidence.

If the group encounters a question that none of the members can answer well, the group can go to a teacher or other expert and get answers efficiently. Because study groups schedule regular meetings, members study in a more disciplined fashion. They also gain emotional support. The group should be large enough so that multiple people can contribute different kinds of knowledge, but small enough so that it stays focused. Often, three to six members is a good size.

Here are some ways to use this guide as part of a study group:

- **Plan the group's study program.** Parts of the study plan template, beginning on page 49, can help to structure your group's study program. By filling out the first five columns and sharing the worksheets, everyone will learn more about your group's mix of abilities and about the resources, such as textbooks, that members can share with the group. In the sixth column ("Dates I will study the content"), you can create an overall schedule for your group's study program.
- **Plan individual group sessions.** At the end of each session, the group should decide what specific topics will be covered at the next meeting and who will present each topic. Use the topic headings and subheadings in the Test at a Glance table on page 5 to select topics, and then select practice questions, beginning on page 29.
- **Prepare your presentation for the group.** When it's your turn to present, prepare something that is more than a lecture. Write two or three original questions to pose to the group. Practicing writing actual questions can help you better understand the topics covered on the test as well as the types of questions you will encounter on the test. It will also give other members of the group extra practice at answering questions.

- **Take a practice test together.** The idea of a practice test is to simulate an actual administration of the test, so scheduling a test session with the group will add to the realism and may also help boost everyone's confidence. Remember, complete the practice test using only the time that will be allotted for that test on your administration day.
- **Learn from the results of the practice test.** Review the results of the practice test, including the number of questions answered correctly in each content category. For tests that contain constructed-response questions, look at the Sample Test Questions section, which also contain sample responses to those questions and shows how they were scored. Then try to follow the same guidelines that the test scorers use.
- **Be as critical as you can.** You're not doing your study partner(s) any favors by letting them get away with an answer that does not cover all parts of the question adequately.
- **Be specific.** Write comments that are as detailed as the comments about the sample responses. Indicate where and how your study partner(s) are doing an inadequate job of answering the question. Writing notes in the margins of the answer sheet may also help.
- **Be supportive.** Include comments that point out what your study partner(s) got right.

Then plan one or more study sessions based on aspects of the questions on which group members performed poorly. For example, each group member might be responsible for rewriting one paragraph of a response in which someone else did an inadequate job.

Whether you decide to study alone or with a group, remember that the best way to prepare is to have an organized plan. The plan should set goals based on specific topics and skills that you need to learn, and it should commit you to a realistic set of deadlines for meeting those goals. Then you need to discipline yourself to stick with your plan and accomplish your goals on schedule.

5. Develop Your Study Plan

Develop a personalized study plan and schedule

Planning your study time is important because it will help ensure that you review all content areas covered on the test. Use the sample study plan below as a guide. It shows a plan for the *Core Academic Skills for Educators: Reading* test. Following that is a study plan template that you can fill out to create your own plan. Use the “Learn about Your Test” and “Topics Covered” information beginning on page 5 to help complete it.

Use this worksheet to:

1. **Define Content Areas:** List the most important content areas for your test as defined in the Topics Covered section.
2. **Determine Strengths and Weaknesses:** Identify your strengths and weaknesses in each content area.
3. **Identify Resources:** Identify the books, courses, and other resources you plan to use for each content area.
4. **Study:** Create and commit to a schedule that provides for regular study periods.

Praxis Test Name: Core Academic Skills for Educators: Reading
Praxis Test Code(s): 5712
Test Date: 9/15/14

Content covered	Description of content	How well do I know the content? (scale 1–5)	What resources do I have/need for the content?	Where can I find the resources I need?	Dates I will study the content	Date completed
Core Academic Skills for Educators:						
Main Ideas	Identify summaries or paraphrases of main idea or primary purpose of reading selection	3	Middle school English text book	College library, middle school teacher	7/15/14	7/15/14
Supporting Ideas	Identify summaries or paraphrases of supporting ideas and specific details in reading selection	3	Middle school English text book	College library, middle school teacher	7/17/14	7/17/14
Organization	Identify how reading selection is organized in terms of cause/ effect and compare/ contrast	3	Middle and high school English text book	College library, middle and high school teachers	7/20/14	7/21/14
Organization	Identify key transition words/phrases in reading selection and how used	4	Middle and high school English text book	College library, middle and high school teachers	7/25/14	7/26/14
Vocabulary in Context	Identify meanings of words as used in context of reading selection	3	Middle and high school English text book, dictionary	College library, middle and high school teachers	7/25/14	7/27/14

(continued on next page)

Content covered	Description of content	How well do I know the content? (scale 1–5)	What resources do I have/need for the content?	Where can I find the resources I need?	Dates I will study the content	Date completed
Craft, Structure, and Language Skills						
Evaluation	Determine whether evidence strengthens, weakens, or is relevant to arguments in reading selection	5	High school text book, college course notes	College library, course notes, high school teacher, college professor	8/1/14	8/1/14
Evaluation	Determine role that an idea, reference, or piece of information plays in author's discussion/argument	5	High school text book, college course notes	College library, course notes, high school teacher, college professor	8/1/14	8/1/14
Evaluation	Determine if information presented is fact or opinion	4	High school text book, college course notes	College library, course notes, high school teacher, college professor	8/1/14	8/1/14
Evaluation	Identify relationship among ideas presented in reading selection	2	High school text book, college course notes	College library, course notes, high school teacher, college professor	8/1/14	8/1/14
Integration of Knowledge and Ideas						
Inferential Reasoning	Determine logical assumptions on which argument or conclusion is based	2	High school text book, college course notes	College library, course notes, high school teacher, college professor	8/8/14	8/8/14
Inferential Reasoning	Determine author's attitude toward materials discussed in reading selection	2	High school text book, college course notes	College library, course notes, high school teacher, college professor	8/15/14	8/17/14
Generalization	Recognize or predict ideas/situations that are extensions of, or similar to, what has been presented in reading selection	2	High school text book, college course notes	College library, course notes, high school teacher, college professor	8/22/14	8/24/14
Generalization	Draw conclusions from materials presented in reading selection	4	High school text book, college course notes	College library, course notes, high school teacher, college professor	8/24/14	8/24/14
Generalization	Apply ideas presented in a reading selection to other situations	3	High school text book, college course notes	College library, course notes, high school teacher, college professor	8/27/14	8/27/14

My Study Plan

Use this worksheet to:

- 1. **Define Content Areas:** List the most important content areas for your test as defined in the Learn about Your Test and Topics Covered sections.
- 2. **Determine Strengths and Weaknesses:** Identify your strengths and weaknesses in each content area.
- 3. **Identify Resources:** Identify the books, courses, and other resources you plan to use for each content area.
- 4. **Study:** Create and commit to a schedule that provides for regular study periods.

Praxis Test Name: _____

Praxis Test Code: _____

Test Date: _____

Content covered	Description of content	How well do I know the content? (scale 1–5)	What resources do I have/need for this content?	Where can I find the resources I need?	Dates I will study this content	Date completed

(continued on next page)

[illegible]

6. Review Smart Tips for Success

Follow test-taking tips developed by experts

Learn from the experts. Take advantage of the following answers to questions you may have and practical tips to help you navigate the *Praxis* test and make the best use of your time.

Should I Guess?

Yes. Your score is based on the number of questions you answer correctly, with no penalty or subtraction for an incorrect answer. When you don't know the answer to a question, try to eliminate any obviously wrong answers and then guess at the correct one. Try to pace yourself so that you have enough time to carefully consider every question.

Can I answer the questions in any order?

You can answer the questions in order or skip questions and come back to them later. If you skip a question, you can also mark it so that you can remember to return and answer it later. Remember that questions left unanswered are treated the same as questions answered incorrectly, so it is to your advantage to answer every question.

Are there trick questions on the test?

No. There are no hidden meanings or trick questions. All of the questions on the test ask about subject matter knowledge in a straightforward manner.

Are there answer patterns on the test?

No. You might have heard this myth: the answers on tests follow patterns. Another myth is that there will never be more than two questions in a row with the correct answer in the same position among the choices. Neither myth is true. Select the answer you think is correct based on your knowledge of the subject.

Can I write on the scratch paper I am given?

Yes. You can work out problems on the scratch paper, make notes to yourself, or write anything at all. Your scratch paper will be destroyed after you are finished with it, so use it in any way that is helpful to you. But make sure to select or enter your answers on the computer.

Smart Tips for Taking the Test

1. **Skip the questions you find extremely difficult.** Rather than trying to answer these on your first pass through the test, you may want to leave them blank and mark them so that you can return to them later. Pay attention to the time as you answer the rest of the questions on the test, and try to finish with 10 or 15 minutes remaining so that you can go back over the questions you left blank. Even if you don't know the answer the second time you read the questions, see if you can narrow down the possible answers, and then guess. Your score is based on the number of right answers, so it is to your advantage to answer every question.

2. **Keep track of the time.** The on-screen clock will tell you how much time you have left. You will probably have plenty of time to answer all of the questions, but if you find yourself becoming bogged down, you might decide to move on and come back to any unanswered questions later.
3. **Read all of the possible answers before selecting one.** For questions that require you to select more than one answer, or to make another kind of selection, consider the most likely answers given what the question is asking. Then reread the question to be sure the answer(s) you have given really answer the question. Remember, a question that contains a phrase such as “Which of the following does NOT ...” is asking for the one answer that is NOT a correct statement or conclusion.
4. **Check your answers.** If you have extra time left over at the end of the test, look over each question and make sure that you have answered it as you intended. Many test takers make careless mistakes that they could have corrected if they had checked their answers.
5. **Don’t worry about your score when you are taking the test.** No one is expected to answer all of the questions correctly. Your score on this test is not analogous to your score on the *GRE*® or other tests. It doesn’t matter on the *Praxis* tests whether you score very high or barely pass. If you meet the minimum passing scores for your state and you meet the state’s other requirements for obtaining a teaching license, you will receive a license. In other words, what matters is meeting the minimum passing score. You can find passing scores for all states that use *The Praxis Series* tests at http://www.ets.org/s/praxis/pdf/passing_scores.pdf or on the Web site of the state for which you are seeking certification/licensure.
6. **Use your energy to take the test, not to get frustrated by it.** Getting frustrated only increases stress and decreases the likelihood that you will do your best. Highly qualified educators and test development professionals, all with backgrounds in teaching, worked diligently to make the test a fair and valid measure of your knowledge and skills. Your state painstakingly reviewed the test before adopting it as a licensure requirement. The best thing to do is concentrate on answering the questions.

7. Check on Testing Accommodations

See if you qualify for accommodations that may make it easier to take the Praxis test

What if English is not my primary language?

Praxis tests are given only in English. If your primary language is not English (PLNE), you may be eligible for extended testing time. For more details, visit www.ets.org/praxis/register/accommodations/plne.

What if I have a disability or other health-related need?

The following accommodations are available for *Praxis* test takers who meet the Americans with Disabilities Act (ADA) Amendments Act disability requirements:

- Extended testing time
- Additional rest breaks
- Separate testing room
- Writer/recorder of answers
- Test reader
- Sign language interpreter for spoken directions only
- Perkins Braille
- Braille slate and stylus
- Printed copy of spoken directions
- Oral interpreter
- Audio test
- Braille test
- Large print test book
- Large print answer sheet
- Listening section omitted

For more information on these accommodations, visit www.ets.org/praxis/register/disabilities.

Note: Test takers who have health-related needs requiring them to bring equipment, beverages, or snacks into the testing room or to take extra or extended breaks must request these accommodations by following the procedures described in the *Bulletin Supplement for Test Takers with Disabilities or Health-Related Needs* (PDF), which can be found at http://www.ets.org/s/disabilities/pdf/bulletin_supplement_test_takers_with_disabilities_health_needs.pdf.

You can find additional information on available resources for test takers with disabilities or health-related needs at www.ets.org/disabilities.

8. Do Your Best on Test Day

Get ready for test day so you will be calm and confident

You followed your study plan. You prepared for the test. Now it's time to prepare for test day.

Plan to end your review a day or two before the actual test date so you avoid cramming. Take a dry run to the test center so you're sure of the route, traffic conditions, and parking. Most of all, you want to eliminate any unexpected factors that could distract you from your ultimate goal—passing the *Praxis* test!

On the day of the test, you should:

- be well rested
- wear comfortable clothes and dress in layers
- eat before you take the test
- bring an acceptable and valid photo identification with you
- bring a pen or pencil to use on the scratch paper you are given
- bring an approved calculator only if one is specifically permitted for the test you are taking (see Calculator Use, at http://www.ets.org/praxis/test_day/policies/calculators)
- be prepared to stand in line to check in or to wait while other test takers check in

You can't control the testing situation, but you can control yourself. Stay calm. The supervisors are well trained and make every effort to provide uniform testing conditions, but don't let it bother you if the test doesn't start exactly on time. You will have the allotted amount of time once it does start.

You can think of preparing for this test as training for an athletic event. Once you've trained, prepared, and rested, give it everything you've got.

What items am I restricted from bringing into the test center?

You cannot bring into the test center personal items such as:

- handbags, knapsacks, or briefcases
- water bottles or canned or bottled beverages
- study materials, books, or notes
- pens, pencils, scrap paper, or calculators, unless specifically permitted for the test you are taking (see Calculator Use, at http://www.ets.org/praxis/test_day/policies/calculators)
- any electronic, photographic, recording, or listening devices

Personal items are not allowed in the testing room and will not be available to you during the test or during breaks. You may also be asked to empty your pockets. At some centers, you will be assigned a space to store your belongings, such as handbags and study materials. Some centers do not have secure storage space available, so please plan accordingly.

Test centers assume no responsibility for your personal items.

If you have health-related needs requiring you to bring equipment, beverages or snacks into the testing room or to take extra or extended breaks, you need to request accommodations in advance. Procedures for requesting accommodations are described in the [Bulletin Supplement for Test Takers with Disabilities or Health-related Needs \(PDF\)](#).

Note: All cell phones, smart phones (e.g., Android® devices, iPhones®, etc.), and other electronic, photographic, recording, or listening devices are strictly prohibited from the test center. If you are seen with such a device, you will be dismissed from the test, your test scores will be canceled, and you will forfeit your test fees. If you are seen *using* such a device, the device will be confiscated and inspected. For more information on what you can bring to the test center, visit www.ets.org/praxis/test_day/bring.

Are You Ready?

Complete this checklist to determine whether you are ready to take your test.

- ☐ Do you know the testing requirements for the license or certification you are seeking in the state(s) where you plan to teach?
- ☐ Have you followed all of the test registration procedures?
- ☐ Do you know the topics that will be covered in each test you plan to take?
- ☐ Have you reviewed any textbooks, class notes, and course readings that relate to the topics covered?
- ☐ Do you know how long the test will take and the number of questions it contains?
- ☐ Have you considered how you will pace your work?
- ☐ Are you familiar with the types of questions for your test?
- ☐ Are you familiar with the recommended test-taking strategies?
- ☐ Have you practiced by working through the practice questions in this study companion or in a study guide or practice test?
- ☐ If constructed-response questions are part of your test, do you understand the scoring criteria for these questions?
- ☐ If you are repeating a *Praxis* test, have you analyzed your previous score report to determine areas where additional study and test preparation could be useful?

If you answered “yes” to the questions above, your preparation has paid off. Now take the *Praxis* test, do your best, pass it—and begin your teaching career!

9. Understand Your Scores

Understand how tests are scored and how to interpret your test scores

Of course, passing the *Praxis* test is important to you so you need to understand what your scores mean and what your state requirements are.

What are the score requirements for my state?

States, institutions, and associations that require the tests set their own passing scores. Visit www.ets.org/praxis/states for the most up-to-date information.

If I move to another state, will my new state accept my scores?

The *Praxis Series* tests are part of a national testing program, meaning that they are required in many states for licensure. The advantage of a national program is that if you move to another state that also requires *Praxis* tests, you can transfer your scores. Each state has specific test requirements and passing scores, which you can find at www.ets.org/praxis/states.

How do I know whether I passed the test?

Your score report will include information on passing scores for the states you identified as recipients of your test results. If you test in a state with automatic score reporting, you will also receive passing score information for that state.

A list of states and their passing scores for each test are available online at www.ets.org/praxis/states.

What your *Praxis* scores mean

You received your score report. Now what does it mean? It's important to interpret your score report correctly and to know what to do if you have questions about your scores.

Visit http://www.ets.org/s/praxis/pdf/sample_score_report.pdf to see a sample score report.

To access *Understanding Your Praxis Scores*, a document that provides additional information on how to read your score report, visit www.ets.org/praxis/scores/understand.

Put your scores in perspective

Your score report indicates:

- Your score and whether you passed
- The range of possible scores
- The raw points available in each content category
- The range of the middle 50 percent of scores on the test

If you have taken the same test or other tests in *The Praxis Series* over the last 10 years, your score report also lists the highest score you earned on each test taken.

Content category scores and score interpretation

Questions on the *Praxis* tests are categorized by content. To help you in future study or in preparing to retake the test, your score report shows how many raw points you earned in each content category. Compare your “raw points earned” with the maximum points you could have earned (“raw points available”). The greater the difference, the greater the opportunity to improve your score by further study.

Score scale changes

ETS updates *Praxis* tests on a regular basis to ensure they accurately measure the knowledge and skills that are required for licensure. When tests are updated, the meaning of the score scale may change, so requirements may vary between the new and previous versions. All scores for previous, discontinued tests are valid and reportable for 10 years, provided that your state or licensing agency still accepts them.

These resources may also help you interpret your scores:

- *Understanding Your Praxis Scores* (PDF), found at www.ets.org/praxis/scores/understand
- *The Praxis Series Passing Scores* (PDF), found at www.ets.org/praxis/scores/understand
- State requirements, found at www.ets.org/praxis/states

Appendix: Other Questions You May Have

Here is some supplemental information that can give you a better understanding of the *Praxis* tests.

What do the *Praxis* tests measure?

The *Praxis* tests measure the specific knowledge and skills that beginning teachers need. The tests do not measure an individual's disposition toward teaching or potential for success, nor do they measure your actual teaching ability. The assessments are designed to be comprehensive and inclusive but are limited to what can be covered in a finite number of questions and question types. Teaching requires many complex skills that are typically measured in other ways, including classroom observation, video recordings, and portfolios.

Ranging from Agriculture to World Languages, there are more than 80 *Praxis* tests, which contain selected-response questions or constructed-response questions, or a combination of both.

Who takes the tests and why?

Some colleges and universities use the *Praxis* Core Academic Skills for Educators tests (Reading, Writing, and Mathematics) to evaluate individuals for entry into teacher education programs. The assessments are generally taken early in your college career. Many states also require Core Academic Skills test scores as part of their teacher licensing process.

Individuals entering the teaching profession take the *Praxis* content and pedagogy tests as part of the teacher licensing and certification process required by many states. In addition, some professional associations and organizations require *Praxis II* tests for professional licensing.

Do all states require these tests?

The *Praxis Series* tests are currently required for teacher licensure in approximately 40 states and United States territories. These tests are also used by several professional licensing agencies and by several hundred colleges and universities. Teacher candidates can test in one state and submit their scores in any other state that requires *Praxis* testing for licensure. You can find details at www.ets.org/praxis/states.

What is licensure/certification?

Licensure in any area—medicine, law, architecture, accounting, cosmetology—is an assurance to the public that the person holding the license possesses sufficient knowledge and skills to perform important occupational activities safely and effectively. In the case of teacher licensing, a license tells the public that the individual has met predefined competency standards for beginning teaching practice.

Because a license makes such a serious claim about its holder, licensure tests are usually quite demanding. In some fields, licensure tests have more than one part and last for more than one day. Candidates for licensure in all fields plan intensive study as part of their professional preparation. Some join study groups, others study alone. But preparing to take a licensure test is, in all cases, a professional activity. Because a licensure exam surveys a broad body of knowledge, preparing for a licensure exam takes planning, discipline, and sustained effort.

Why does my state require *The Praxis Series* tests?

Your state chose *The Praxis Series* tests because they assess the breadth and depth of content—called the “domain”—that your state wants its teachers to possess before they begin to teach. The level of content knowledge, reflected in the passing score, is based on recommendations of panels of teachers and teacher

educators in each subject area. The state licensing agency and, in some states, the state legislature ratify the passing scores that have been recommended by panels of teachers.

How were the tests developed?

ETS consulted with practicing teachers and teacher educators around the country during every step of *The Praxis Series* test development process. First, ETS asked them which knowledge and skills a beginning teacher needs to be effective. Their responses were then ranked in order of importance and reviewed by hundreds of teachers.

After the results were analyzed and consensus was reached, guidelines, or specifications, for the selected-response and constructed-response tests were developed by teachers and teacher educators. Following these guidelines, teachers and professional test developers created test questions that met content requirements and ETS Standards for Quality and Fairness.*

When your state adopted the research-based *Praxis* tests, local panels of teachers and teacher educators evaluated each question for its relevance to beginning teachers in your state. During this “validity study,” the panel also provided a passing-score recommendation based on how many of the test questions a beginning teacher in your state would be able to answer correctly. Your state’s licensing agency determined the final passing-score requirement.

ETS follows well-established industry procedures and standards designed to ensure that the tests measure what they are intended to measure. When you pass the *Praxis* tests your state requires, you are proving that you have the knowledge and skills you need to begin your teaching career.

How are the tests updated to ensure the content remains current?

Praxis tests are reviewed regularly. During the first phase of review, ETS conducts an analysis of relevant state and association standards and of the current test content. State licensure titles and the results of relevant job analyses are also considered. Revised test questions are then produced following the standard test development methodology. National advisory committees may also be convened to review and revise existing test specifications and to evaluate test forms for alignment with the specifications.

How long will it take to receive my scores?

Scores for tests that do not include constructed response questions are available on screen immediately after the test. Scores for tests that contain constructed-response questions or essays aren’t available immediately after the test because of the scoring process involved. Official score reports are available to you and your designated score recipients approximately two to three weeks after the test date for tests delivered continuously, or two to three weeks after the testing window closes for other tests. See the test dates and deadlines calendar at www.ets.org/praxis/register/centers_dates for exact score reporting dates.

Can I access my scores on the Web?

All test takers can access their test scores via My *Praxis* Account free of charge for one year from the posting date. This online access replaces the mailing of a paper score report.

The process is easy—simply log into My *Praxis* Account at www.ets.org/praxis and click on your score report. If you do not already have a *Praxis* account, you must create one to view your scores.

Note: You must create a *Praxis* account to access your scores, even if you registered by mail or phone.

*ETS Standards for Quality and Fairness (2003, Princeton, NJ) are consistent with the “Standards for Educational and Psychological Testing,” industry standards issued jointly by the American Educational Research Association, the American Psychological Association, and the National Council on Measurement in Education (1999, Washington, DC).

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